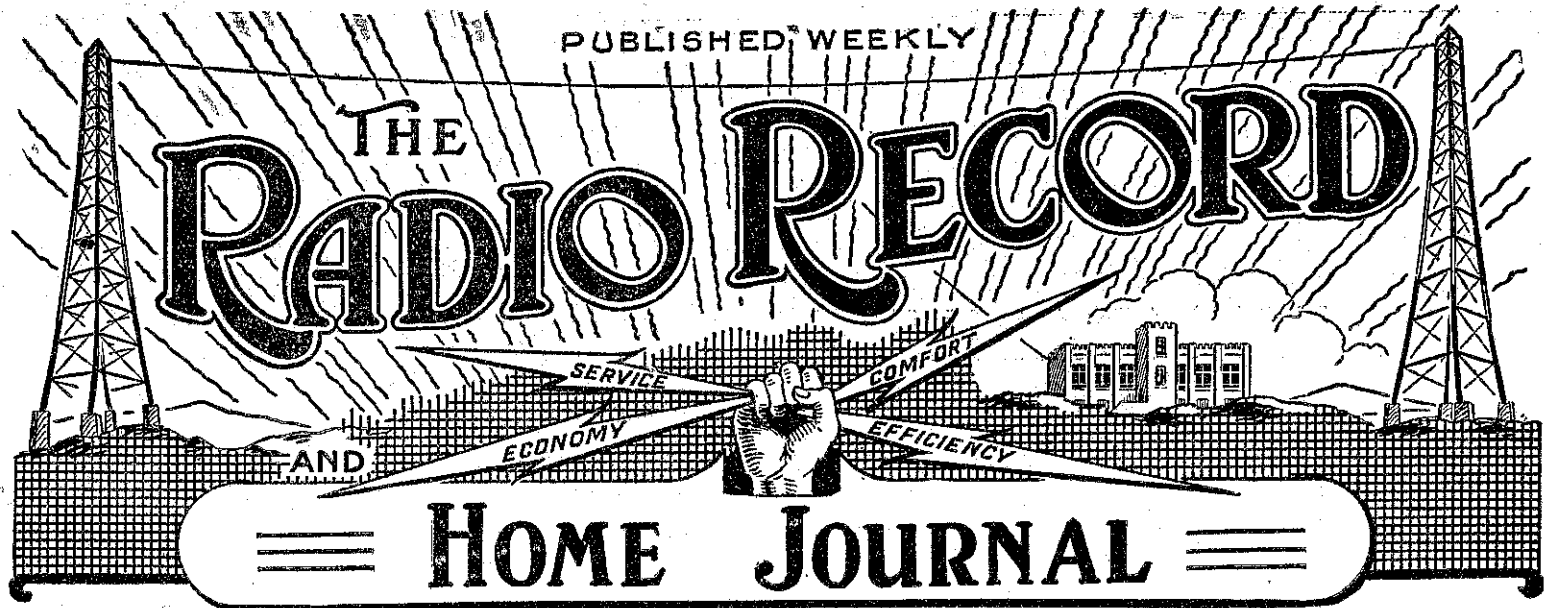


PUBLISHED WEEKLY

THE RADIO RECORD



Vol. IV., No. 39.

WELLINGTON, FRIDAY, APRIL 10, 1931.

Price, 3d.

NEW! — and the Greatest Value
in all Radiola History!

RADIOLA 45E

WONDERFUL SCREEN-GRID CABINET RECEIVER WITH TONE CONTROL.

Last year our slogan was:
"And now the Radiola costs
no more than an ordinary
wireless set." To-day the
slogan is: "Radiola is cheaper
than an ordinary set."

Full power Dynamic Speaker, New
Zealand and Australian reception,
exquisite tone quality, together
with a high degree of sensitivity
and a total absence of over-lapping
in reception, are features of this
new All-electric Radiola.

Radiola 45E has been deliberately
designed to give the public better
radio value than has ever before
been offered. You have never
seen such a quality set at such a
startlingly low price! Investigate
to-day!

A splendid console at little more
than "Midget" price.

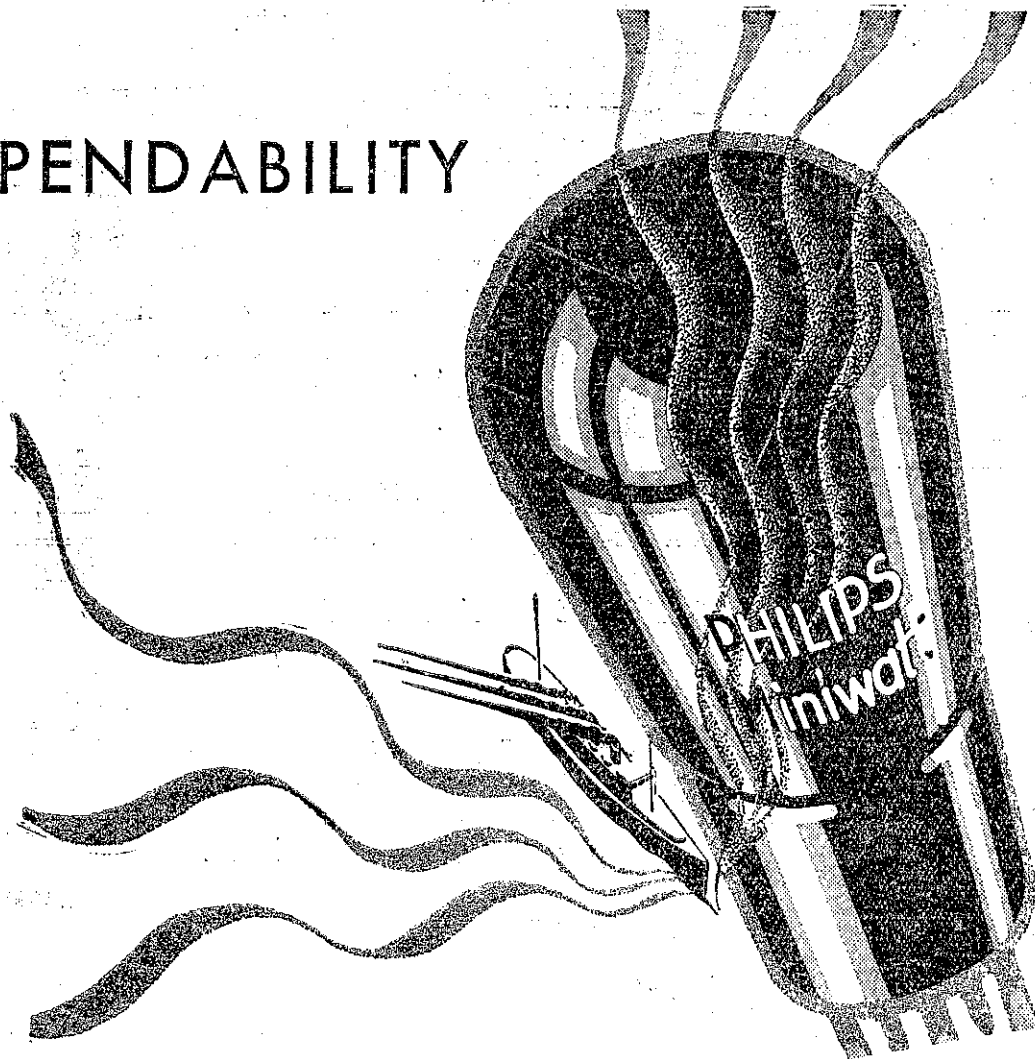
Your Radiola Dealer will gladly demonstrate the matchless
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TYPE	PURPOSE	PRICE
F203	Power Valve	17/6
F109	Amplifier (Directly Heated)	13/-
F209	Detector and Amplifier (Indirectly Heated)	18/-
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You can stake your life upon the dependability of Philips valves. In the mighty laboratories of Philips they have been designed and produced — first the master valve, and then the hundreds of thousands of replicas which do not vary from the original. A hair's breadth to Philips laboratories is a yard.

PHILIPS

A "CHEAP" TUBE IS "CHEAP" IN NAME ONLY

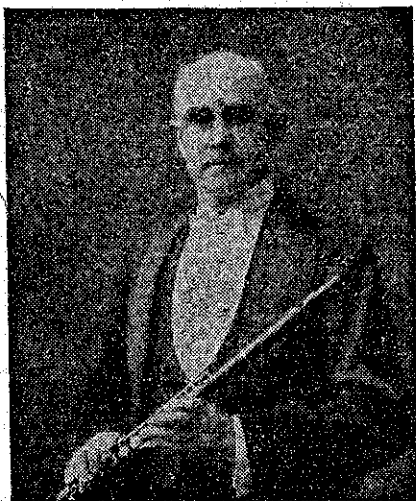
W63R

Head. of Philips Lamps (N.Z.) Limited, P.O. Box 1673, Wellington. Auckland Office: Paykel's Building, Anzac Ave. Christchurch Office: 226 Tuam Street.

A Concert of Outstanding Merit

Brilliant Combination from 4YA

A galaxy of artists will be heard on the air from 4YA on Wednesday, April 15. A concert party has been arranged by Signor Stella, and among the talent introduced to radio listeners will be Signorina Graziella Rossi.



Jack W. Stewart,
A very well-known flautist, who
will be heard in solo and concerted
numbers, Wednesday next.



Thomas Kennedy,
A light baritone of fine quality.



Signorina Graziella Rossi,
who will broadcast on April 15.
At a recent appearance in Dunedin
Signorina Rossi made a remarkable
impression upon a highly critical
audience, and was considered to be
one of the finest singers this country
has produced.

OF Signorina Rossi's recent appearance in Dunedin, the "Evening Star" said: "The audience that attended the recital last evening was a highly critical one, but it was swept into enthusiastic fervour with the brilliance of Signorina Rossi's singing. Here is a voice that must carry its fortunate possessor to the artistic peaks. Nature has endowed Signorina Rossi with the attributes of a great singer—a singularly lovely voice, remarkable power and range, and the temperament to give her qualities the most effective expression. An inherent understanding of music and highly-skilled tuition have done much to develop her, even at this very early stage in her career. She is young, but even now is undoubtedly one of the most brilliant singers this country has ever produced."

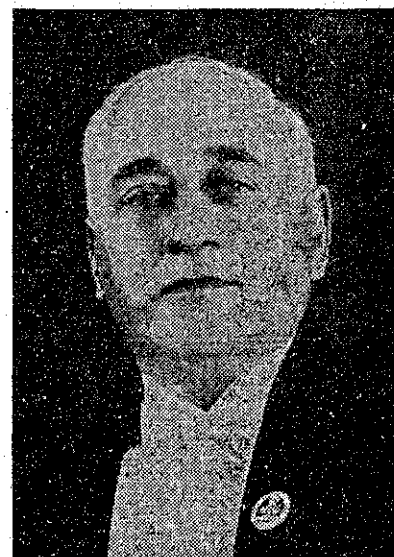
On Wednesday evening Signorina Rossi's items will be "Elsa's Dream" (from "Lohengrin") and "Rosebud" (the delightful waltz-song by Arditi). Associated with her in this concert will be Signor Giovanni Stella. He is an artist of note, well known in musical circles, and he now makes his bow to the radio audience. His items will be "Elegie" (Massenet) and "The Torere Serenade."

Born in Florence, Signor Stella began his studies in Milan. He enjoyed a brilliant musical career, followed in the principal theatres in Latin America, Spain, France and Italy, and in concert performances in South Africa and Australia. Signor Stella is from the school that produced such artists as Scotti, Battistini, Ruffo, Caruso, and many other great operatic figures. While he has retired from the operatic stage, he still retains the remarkable freshness and charm that has always been a delightful feature of his singing. An accomplished linguist, he is able to speak several languages fluently, his services (Continued on page 2.)

At a recent appearance before a Dunedin audience, Signorina Rossi created a furore, and her performance was acclaimed in Dunedin music circles as the event of the year.



Clare Dillon,
A lyric soprano of very pleasing quality,
also to be heard in this special concert.



Signor Giovanni Stella,
an operatic singer of great experience,
who will appear before the microphone
for the first time. A great deal of
Signor Stella's musical training was
obtained at the school which produced
such world-famous operatic personalities
as Caruso, Scotti, and Battistini.

COLONIAL RADIO



"RADIO'S CLEAREST VOICE"

Still Another "Colonial" Triumph THE NEW COLONIAL COMPACT

Fresh from the amazing success of the Model 33 A.C., "Colonial" once more steps up to a position of leadership with the "Colonial Compact," an entirely new idea in small set design.

Here is the difference—The "Colonial Compact" is a standard set built into a small space.

Full size 9-inch Dynamic Speaker.
245 Valves in Pushpull.
50 per cent. Oversize Transformer.

Performance that will equal any standard set on the market—excepting only the "Colonial" 33 A.C.

Beautiful Walnut Cabinet with Tarso inlay, every part exactly identical in quality with those in its larger brother, the Model 33 A.C.—Tone, power, distance, selectivity, such as you have previously heard only in the best of the standard sized sets.

Backed by the wonderful reputation of the "Colonial" name, is it any wonder that it is being hailed as

The Greatest Radio in All History---
and it's Priced at only
£29-10-0

See it to-day at your local agent's. Its superb beauty, its amazing perfection of tone, its sensational performance, will win your instant admiration.

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Auckland: Briscoe & Co., Ltd., Customs St. E.,
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Taranaki: Newton King, Ltd., New Plymouth and
branches.

Wellington: N. R. Cunningham, Ltd., P.O. Box
147, Masterton.

Canterbury: Briscoe & Co., Ltd., Christchurch.
Otago: Briscoe & Co., Ltd., Dunedin.

Southland: Briscoe & Co., Ltd., Invercargill.

FACTORY REPRESENTATIVES:

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P. O. BOX 147

MASTERTON.

Concert from 4YA

(Continued from page 1.)

in this respect being of great value to the Australian Forces, to which he was attached as interpreter during the war.

Other vocalists in the concert party for Wednesday evening will be Miss Clare Dillon (soprano), Miss Vanda Duncan (mezzo-soprano), and Mr. Thomas Kennedy (baritone).

Miss Anna Briasco, violinist, who will play the well-known "Meditation" from "Thais" and Saint Saen's "Le Cygne," is a most artistic performer. Another young musician who will no doubt delight listeners will be Miss Luella Hamer, pianist. Although very young, she plays with unusual ability.

The evening's programme will include two trios, Voight's "Serenade" and Thome's "Simple Aveu," played by Miss Briasco, Signora Reggiardo (pianist) and Mr. Jack Stewart (flautist). Two flute and piano duets will also be played. The accompanist for the evening will be Signora Reggiardo.

Prime Minister's Speech Marred

Interference from German Broadcaster

When England's Prime Minister, the Rt. Hon. Ramsay MacDonald, was broadcasting a talk on India recently, listeners in the south-east of England were annoyed to hear the powerful German station at Muehlacher interrupting in broad German.

On one occasion an emphatic remark by the Premier on the subject of Indian self-government was followed by the unintentional observation, "Ich glaube es nicht" ("I don't believe it").

Despite the efforts of the British Broadcasting Corporation, the interference continues, and doubts are now expressed whether the trouble will be overcome before the Madrid International Conference on Wireless and Broadcasting is held next year. Representations have frequently been made to the German authorities, and now the matter has been referred to the International Broadcasting Union, which sits permanently in Geneva.

Notes and News

AMONG the architectural refinements included in the new "Broadcasting House," Portland Place, London, are special sound-proof studio walls packed with seaweed.

IN recent programmes of the British Broadcasting Corporation, in the literary section, appear some eminent and interesting names, including Mrs. Oliver Strachey, Miss Victoria Sackville-West, Mr. Duff Cooper, Dean Inge and Dr. L. P. Jacka; while Mr. Harold Nicolson and the delightful Mr. Agate help to swell the brilliant coterie brought together by the acumen of the B.B.C.

An Englishman's Impressions of AMERICAN BROADCASTING



READERS will remember reading in our columns a short time ago of the visit paid to America by Dr. Robinson, inventor of the Stenode Radiostat, and Mr. Percy Harris, president of the Radiostat Corporation. In this article, which appeared originally in the "Wireless Constructor," Mr. Harris records his impressions of American broadcasting.

The article is of peculiar interest to us, as it touches upon the receiving sets similar to many used in New Zealand. English conditions, being somewhat different from American, and incidentally from our own, have evolved a type of set that is altogether different from the American type. Upon these differences Mr. Harris makes some interesting observations.

IT is five years since I last visited America in the flesh. I say "in the flesh" deliberately, for in these days of simply constructed and highly efficient short-wave receivers one can visit America "by ear" almost any night, and often during daylight.

But to visit the United States and listen "on the spot" is quite a different matter; and so, within an hour or two of landing in October last I sat down with pleasant anticipation to listen in.

An American Set.

THE set I used followed the present trend of fashion in the States. A handsome and not too ornate cabinet, about breast-high, with doors which opened and revealed a single tuning control, a kind of keystone-shaped illuminated window showing dial degrees, a volume control, a tone control and a radio-or-gramophone switch.

The set easily "plopped" from one station to another as the tuning knob was turned with the volume kept down (I should say about a dozen stations came in in this way), and the quality was good; distinctly good if the "tone control" were kept on "high."

To get any more stations it was necessary to turn the volume control well up, with the result that as you moved past any local or semi-local stations you nearly blew your head off, and, furthermore, the full volume necessary brought in a tremendous amount of mush and background noise.

Still, with all that, it was a very good set in range, sensitivity and quality. The speaker (built-in, or course) was a "dynamic," or, as we prefer to call it, a "moving coil."

A Common Characteristic.

I THEN gave closer attention to tone with the set tuned-in to a station giving good quality (unlike our stations, which are all of high technical quality, American stations vary a good deal), and this revealed what later I found to be a common characteristic of modern American sets—a rather pronounced boom in the bass and a peak at about three thousand cycles to give the impression of good "top." These two peaks—top and bottom—had to be looked for in the particular

set in question, but in many others I tried later these characteristics were most pronounced.

Of a.c. hum there is very little in modern American sets. Careful design of the mains units themselves has something to do with it, but more is due to the increasing use of what are called "power detectors," with only one stage of audio-frequency amplification.

There is a lot of loose talk about power detectors, as if they were something essentially different, but on analysis a power detector differs from the older kind only in being able to handle a loud signal without appreciable distortion.

By producing as much as possible of the amplification prior to the detector, trouble from a.c. hum can be practically eliminated, and, furthermore, the cost of the mains unit can be reduced (a highly important point in view of cut-throat competition), as less filtering is required.

In range the sets are quite phenomenal, judged by standards on this side of the Atlantic, but this is easily understandable when we remember that seven, eight, nine and even ten valves are often used.

The principle adopted is not to force the utmost out of each valve, but to arrange a moderate gain in each of several stages, a practice which personally I think by far the best in commercially-built receivers.

By having a comparatively small gain per stage two big advantages accrue. Firstly, stability is easily obtained, there being practically no unwanted reaction between circuits, and consequently the individual circuits are not unduly sharpened. This is very important from the manufacturer's point of view, as a fairly wide tolerance can be allowed in the manufacture of parts.

Important Commercial Considerations.

FOR example, the units in a gang condenser need not to be matched with laboratory accuracy; although, of course, they have to be matched with a good degree of fineness. The coils, too, can be machine wound to a standard which gives easy matching.

The second important commercial point about a relatively small gain per stage is that accuracy in matching valves is not required, and the customer can replace his valves by any other good ones of the same type without altering the performance of the receiver.

Few Types of Valves.

INSTEAD of the seemingly needless multiplication of valve types, and considerable difference in characteristics between different makes, which characterise valve manufacture in this country, the United States has only a comparatively few types, fairly uniform in standard.

I admit cheerfully that the efficiency of these valves is much below that of ours, but I do know that the American valve manufacturers could easily increase the efficiency if they wanted to, but it is not generally thought advisable.

In selectivity the sets are on the whole very good, but not good enough for the existing conditions. To judge by their advertisements, American radio manufacturers achieved a 10-kilocycle selectivity long ago, but this is an exaggeration.

Regarding Selectivity.

WITH comparatively weak stations most sets will separate stations on adjacent 10-kilocycle channels, but if one of the stations is at all strong it is quite a different story. I tried a number of different receivers, and found they varied very considerably.

Sometimes different examples of one maker's model vary between themselves and this certainly applies to some of the newer super-heterodynes. On most sets a strong "local" would blanket two or three channels on each side—sometimes more; and as most of the programmes one wants to listen to come from more or less local stations, a high degree of selectivity is certainly needed.

An Interesting Demonstration.

FOR this reason tremendous interest was shown in the demonstration models of the Stenode Radiostat brought over by Dr. Robinson and his party. One demonstration which created quite a sensation was given in a private house within sight of station WOR in Newark.

This station was first tuned in, and then as the knob was turned, tuned out, and the next station, WLW (at Mason, near Cincinnati, and only 10 kilocycles away), tuned in quite clear of the slightest interference. Not only was there no interference, but there was actually a blank space between (Concluded on page 9.)

JOAN OF ARC

A dramatic
Radio Play
Produced at
2YA by
Mr. J. F.
Montague
and his
Company
Monday
April 13



The New Zealand Radio Record

—AND—

Home Journal

(Incorporating the "Canterbury Radio Journal.")

P.O. BOX, 1032, WELLINGTON.

Published Weekly. Price 3d. Subscription Post Free in advance, 12s. 6d. per annum; booked, 15s.

Literary communications should be addressed: "The Editor"; business communications to "The Manager"; technical communications to "The Technical Editor."

Advertisers are asked to note that alterations of advertisements should be in hand Friday of each week for insertion in the succeeding issue, printed Tuesday, bearing Friday's date. No responsibility is accepted for blocks remaining unclaimed three months after each insertion.

RADIO PUBLISHING COMPANY OF NEW ZEALAND, LTD.,
P.O. Box 1032, WELLINGTON.

WELLINGTON, FRIDAY, APRIL 10, 1931.

THE WINTER SEASON.

WITH the passage of Easter and its indication of the fast approach of winter, entry may be said to be fairly made upon the winter season. Although much has been done of late years by the improvement in radio apparatus to minimise the differences between the summer and winter seasons as they affect radio, it is yet true that the longer hours of winter induce a greater degree of concentration upon the radio set than the daylight hours of summer. Emphasis is lent to this point by the announcement that radio exhibitions have been arranged already for Dunedin, Auckland and Wellington. The Dunedin fixture will be held this month—on April 22 to 24 inclusive, the Auckland venture will take place on May 13 to 16 inclusive, while Wellington has the dates of June 10 to 13 reserved. These exhibitions have come to play an important part in radio. Dealers find them an advantage for the display of their latest equipment, with all the subtleties and improvements effected by manufacturers in the preceding twelve months. Listeners welcome them because they are enabled to inform themselves readily of the improvements made, and would-be listeners are given a golden opportunity of inspecting the wares available for their delectation in the prices to which their pockets run. With the experience of the past to guide them, it may be assumed that the same standard of success will be attained at each of the exhibitions so far scheduled. No report is yet available concerning plans in Christchurch, but it may be fairly assumed that the City of the Plains will not lag behind the others in this field.

ON the programme side radio has a steadily improving standard to offer listeners. The International Night, which has replaced the Silent Night at 2YA for some months past, is now scheduled to make its appearance at other YA stations, and will, needless to say, be as popular in the home circles of those towns as it has proved to be in Wellington. With the attainment of the 60,000 mark, the revenue provided by listeners has enabled the standard to be steadily raised and maintained. Fears are entertained in some quarters that the current depression may lead to something in the nature of a

slump in the renewal figures of listeners, but we are inclined to think that these fears will prove unfounded. Experience both in England and America shows that radio flourishes in times of depression. The public must have entertainment, and if, at the dictates of economy, they stay home from outside amusements, they are the more impelled to concentrate upon radio. For that reason we do not anticipate that the expectations of substantial decline in listeners' figures will be realised. Because of human dilatoriness there will probably be a decline for a month or two, but recovery to the former level may be regarded as certain, thus ensuring a bright outlook for radio interests in general.

Licenses Continue to Increase

THE following return shows the number of radio licenses at February 28, 1931:—

DISTRICT	CLASS.				
	Receiv- ing.	Dealers.	Transmitting & receiving.	Experimental & Special.	Free
Auckland	18,577	312	90	2	99
Canterbury ...	10,242	262	60	2	56
Otago	6,949	186	42	2	35
Wellington	25,681	507	129	6	54
	61,449	1,267	321	12	244

Total: 63,293.

A N.Z. School Broad- cast on Short-wave

ON March 26, at 3 p.m., the children of the Otakiri Public School, Bay of Plenty, were given a special programme, consisting of talk and musical items, from Station 1ZR, Auckland. Uncle Tom (late 1YA) acted as announcer. Reception on 46 metres was a pronounced success, and Messrs. Eady, Ltd., are contemplating future broadcasts for the benefit of our public schools. These are to be educational and musical in motive. The report given by the headmaster goes to show that school radio service on short-wave is practicable and feasible, and, of course, will reach out further with greater volume than that of broad bands.

The 1ZR broadcasts on 275 metres are received in the Bay of Plenty district well, and it is interesting to know that on 46 metres, results are even better, and at any time during daylight. We are also informed that the

broadcasts given by 1ZR on 275m. are received on short-wave sets tuned as stated above, although no transmission on S.W. is in operation. This is possible because of the station's harmonic.

"Joan of Arc"

Radio Drama for 2YA

THE story of Joan of Arc, the "Maid of Orleans" who liberated France from the English yoke over 500 years ago, will be related to 2YA listeners on Monday evening, April 13. The radio version has been specially prepared and comes to the Broadcasting Company through the courtesy of the Columbia Battery Company.

It was recently produced at 1YA and proved an outstanding success. Presented by a strong cast under the direction of Mr. J. F. Montague, the drama with its supernatural background, makes a thrilling broadcast. Miss Mary Cooley will act the part of Joan.

Easter Bargains in A.C. Receivers

STEINITE 8-Valve Console, model 40, £52.....For £30
STEINITE S.G. Model 72, £47.....For £37
ROLA S.G. Model, £38.....For £32

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PHILIPS Q.P. Set and Speaker£14/14/-

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Licensed Radio Dealers

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BURGESS RADIO BATTERIES

Radio Exhibitions

Dunedin, Auckland, and
Wellington Fix Dates

RADIO Exhibitions are to be held in Dunedin, Auckland and Wellington on the following dates:—

Dunedin—April 22, 23 and 24.

Auckland—May 13, 14, 15 and 16.

Wellington—June 10, 11, 12 and 13.

The radio dealers in these centres are organising exhibitions which will be even more successful than those held last year.

Distance Lends Enchantment

JUST as distant fields always appear to be greenest, so distant broadcasting stations have an attractiveness all their own. A Southland radio writer recently made very disparaging remarks concerning the dinner music from 4YA. He said:—

"The reversion to standard time has brought about a notable improvement in reception conditions in the early evening during the last fortnight. One of the most pleasing features is that the 2YA dinner music hour is available, and it is only after having endured an almost unending repetition of very second-class records from 4YA during the summer that one really appreciates the high standard maintained for this hour from 2YA."

The writer also remarks that "it becomes very monotonous to hear the same records repeated in almost the same order week after week, and in some cases at more frequent intervals."

A critic can safely express an opinion as to the attractiveness of programmes, for that is essentially a matter of opinion, but he should walk warily on the question of dinner music. There, he has to contend with figures, in black and white, for the Broadcasting Company's filing system shows when and how often recordings are broadcast from any of the stations. Full advantage is taken of the record library in Christchurch, and the dinner music sessions for the four stations are carefully organised.

No far from hearing the same programmes "week after week and in some cases at more frequent intervals," the same records are not broadcast at more frequent intervals than eight to ten weeks, and the same programme would not be heard twice in three months, if then. It is possible, but unlikely, that the same musical number recorded by two different firms may be broadcast twice in two weeks.

As to 2YA having superior dinner music, this is clearly a case of distance lending enchantment, for no exception is made in the case of 2YA to the disadvantage of any of the other stations. Identically the same recordings are used. New records are continually being added to the Broadcasting Company's library and new programmes of dinner music are continually made up. The four stations take it in turns to be first to broadcast these recordings. It is quite likely that some of the records which pleased the southern critic so much when he heard them from 2YA were first broadcast by 4YA.

International Programmes from Auckland and Dunedin

Probable Relay to Invercargill

THE international programmes which have been a feature of the service from 2YA every Wednesday evening for some months past, are soon to be heard from 1YA and 4YA.

These programmes of electrical transcriptions, which are selected features from overseas broadcast programmes given by artists of international repute, have met with widespread appreciation, and many requests have been received by the Broadcasting Company for their broadcast from the distant stations, 1YA and 4YA. These broadcasts will begin early in May.

An indication of the interest manifested in these programmes is found in the relays which have taken place between 2YA, Wellington, and the B stations at Palmerston North and Masterton. The Manawatu Radio Society, controlling station 2ZF, and Mr. W. D. Ansell, controlling station 2ZD, Masterton, by co-operating with the Broadcasting Company, aided by the Post and Telegraph Department who made available the necessary relay lines, provided their listeners with the opportunity of hearing these programmes direct from their local station. In a similar way, if a line be available from Dunedin to Invercargill, the Southland Radio Society will broadcast simultaneously with 4YA.

Trained Young Broadcasters

Christchurch Musicians' Efforts

REALISING that radio broadcasting is the greatest outlet at the present time for musical talent, the music teachers of Christchurch take a great interest in the technique of radio performance. It enters into the training which they are now giving their pupils. Both tutors and pupils visit 3YA studio, where the pupils perform before the microphone while the teacher listens critically at a loudspeaker in another room.

The teacher is thus in a position to compare the quality of the reproduction with the actual performance and to advise the singer as to how the rendition of the song can be improved, from the listener's viewpoint.

A Lonely Outpost

Radio Greatly Appreciated

MORNINGTON Island, in the Gulf of Carpentaria, is 100 miles by water from the nearest post office, which is at Burketown, North Queensland. There, for the past eight years, Rev. R. H. Wilson and his wife have been working alone among the aborigines under the direction of the Presbyterian Church. A small ketch carries them supplies and brings mail eight times a year. They have, however, a small short-wave transmitting and receiving set, with which they are in daily touch with the mother station in Cloncurry, 300 miles away.

Mr. Wilson is able to send telegraphic messages by Morse to Cloncurry, and if these are intended for further dispatch they are handed in to the post office and transmitted over the land wire in the usual way. The replies are given by voice from Cloncurry.

Secret Radio

Amazing Invention

A CABLE message from London conveys the news that secret radio transmission has been promised by the French inventors of a new, ultra-shortwave system. This was demonstrated by Post Office officials who conversed from the Cliffs of Dover with French engineers at Calais with a wavelength of 18 centimetres.

(The lowest wave now is about 10 metres—60 times as long.)

The transmitting and receiving aerials are less than an inch long, and the amazingly low power of half a watt, which is barely sufficient to light a flashlight bulb, is used.

The discovery is known as "micro-ray," and its essential principle is a guarded secret. Briefly, speakers' voices are converted into a ray which is concentrated by two reflectors into a fine pencil ray, which behaves in a manner similar to that of light. It is thrown into space and picked up by an associated apparatus at the other end.

The success of the experiments envisages the complete disappearance of expensive, tall aerials and elaborate stations, and the end of the present serious congestion of the ether.

Also, it presages universal radio telephony at a relatively small cost, and the intense development of television, which is brought within commercial grounds.

The "Morning Post" says the presence of numerous foreign high officials reveals the interest aroused.

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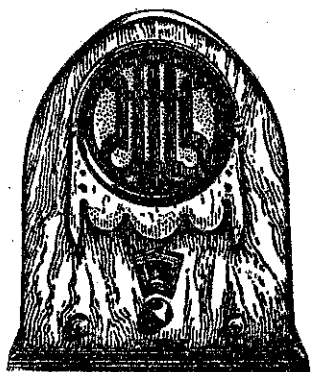
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NORTH BRITISH & MERCANTILE
INSURANCE CO. LTD.

America's Crowded Waveband — Serious Interference

THE Canadian Government has instituted negotiations in the hope of an international agreement in regard to broadcasting on the North American Continent and Cuba.

Complaints are frequently being heard to the effect that certain Canadian stations are subject to continual interference caused by other stations "sitting on" the channels used in Canada. One powerful station in Montreal transmits its programmes to the accompaniment of a steady whistle which has been traced to interference by a station in Havana. Toronto is affected still more severely by interference from a station in Mexico, and Winnipeg also suffers from the same Mexican source of trouble.

The conference in Washington last year came to an agreement regarding the use of short waves, but no reference was made to broadcasting. The Canadian authorities now hope that a conference will take place for the purpose of specifically allocating channels. Should such procedure not be possible, now that the root of the trouble has been discovered, it may be feasible to eliminate it by some mutual arrangement.

Useful Hints

GENERALLY speaking, an increase in the B voltage on the detector valve will mean increased strength of reaction.

WHEN reaction seems much too strong and it is inconvenient to take off turns from the reaction winding, the effective capacity of the reaction condenser can be reduced by joining a fixed condenser of about equal capacity in series with it. (The smaller the capacity in series the greater the reducing effect.)

THE DIFFERENTIAL FOUR

That extra stage will make all the difference to your results. It will not be expensive to add either. Look at these prices:

- 1 Transformer 10/6
- Ferranti A.F. 4.... £13/-
- 1 Valve, we recommend B405 for greatest "lift" and output 15/-
- Valve Socket 1/6
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WELLINGTON.

NOTES and NEWS from the NORTH

IT has been definitely decided to hold a Radio Exhibition in Auckland, the dates chosen being May 13 to 16 inclusive. It is not intended to make this exhibition as pretentious as the one held in 1929, owing to the current depression, but it will be an interesting and entertaining show nevertheless. It is to be held in the Town Hall as was the last one, but this year the Concert Chamber will probably be used in place of the main hall, and the exhibition will be open in the evenings only. The IYA programmes during the exhibition will all be actually performed before the public at the Town Hall and relayed by the station.

THE programme by the IYA Broadcasting Choir on March 31 was, without a doubt, one of the best ever presented from the Auckland station, and listeners have forwarded congratulations by the score. Congratulatory telegrams came from as far away as Dunedin, and the choir and conductor, Mr. Len Barnes, have every reason to be proud of their very excellent work.

AN interesting relay is to be given by IYA on Sunday afternoon, May 3. This will be the inter-denominational youth rally at the Town Hall, when the principal speaker will be his Excellency the Governor-General, Lord Bledisloe.

THE only live body of radio enthusiasts in Auckland at the moment appears to be the Amateur Transmitters' Association. On Sunday, March 29, they held a field day, dividing into three parties and proceeding to three widely-separated points. During the day communication between the three parties was established and the whole outing was an unqualified success.

MR. FRANCIS CHICHESTER, who left Hobsonville, Auckland, on Saturday on an attempted flight to Australia, via Norfolk and Lord Howe Islands, carried a small transmitting set with him, using the call-sign ZKAK and a 43-metre wavelength. This is the first long-distance solo flight ever attempted with radio equipment, and is typical of Mr. Chichester's well-considered plans. Casual in manner, he is remarkably attentive to practical details.

HAVE you renewed your subscription to the—

"Radio Record and Home Journal."
12/6 in Advance: 15/- Booked.

The 1931 "Radio Guide"
is now available.

180 pages brim full of useful and interesting information.

Price 2/6. All Booksellers and Dealers.

Professional and Amateur Musicians

A CONSIDERABLE amount of correspondence has recently appeared in the Auckland morning daily in regard to the musicians performing at IYA. The point raised is that by giving programmes from amateur musicians and organisations hardship is being imposed on unemployed professional musicians. The correspondents claim that a first-class band of professional players should be engaged for the station to replace the bands of amateur organisations and clubs which are now frequently heard. As it is a large number of professional musicians are engaged to play from the station and so also are professional bands. However, the unemployed musicians no doubt have a grievance which at any rate merits consideration, and it is stated that the Professional Musicians' Union is exerting itself to see what can be done.

In conversation with "Call Up" on the subject, Mr. Harold Baxter, well-known Auckland conductor, expressed the opinion that a professional orchestra must come. Mr. Baxter, who is a professional musician and also conducts for an amateur orchestra, is well qualified to speak on the subject. He stressed the point that now is the ideal time to form an orchestra of professional players in Auckland. Before the advent of the talking pictures the amateurs were keeping good music going, but music was, on the whole, in a poor plight. As soon as an amateur showed particular talent he was engaged by a theatre orchestra and became a sort of pseudo-professional content to play the cheap music of the cinemas. Consequently the theatres had the cream of players playing inferior music while the amateur orchestras had less talented players playing good music.

Now that so many former professional musicians are unemployed there is an unprecedented chance to form a first-class professional orchestra to play the best music. The excellent work done by Mr. L. de Mauny and his orchestra in Wellington was instanced by Mr. Baxter as a worthy example to be followed in Auckland. Unfortunately, although many unemployed musicians are longing to play for sheer pleasure, necessity prevents them from doing so without fee.

Let them begin to play, form an orchestra, and as soon as they become known they can be assured of public appreciation and support. So far as IYA goes no reflection is cast upon orchestras or musicians at present performing there. The octet is recognised as excellent, but after all it is only an octet. The amateur orchestras are undoubtedly good for amateurs, but it is generally agreed that the professional standard would be higher.

Mr. Len Barnes, station director at IYA, states that he has heard nothing official in regard to the matter. The station wants the best available whether it be amateur or professional.

Children's Sessions

From 2YA.

MONDAY, April 13: The St. Michael's Boy Scouts will give one of their enjoyable entertainments to-night. There will be hakas, Scout chorus work, and fireside scenes. Uncle Jeff will be present.

TUESDAY: Jumbo has arranged for the Radio Train to bring a party of performing cousins to the Studio to-night, from Khandallah. Uncle Toby will be here, too, and will play on his mouth-organ.

WEDNESDAY: Another "Meeting Pool" story to-night, and some some jolly community singing by some cousins from Wellington College. Mind you all join in the songs with them.

THURSDAY: Uncle George and Brother Jack are taking all in the Radio Ship for a trip to the East. Pupils from Miss Rastall's Studio will give a concert to the children in the East.

FRIDAY: Uncle Jim and Story Book Man will welcome all the little People who are in the Toy Symphony, which is conducted by Miss Gertrude Johnston. They will play trios, with violin, violincello and pianoforte.

SATURDAY: Uncle Jasper, Aunt Molly and Spot have just received an invitation from Mrs. Victor Lloyd to be present at a play called "How Margaret Helped the Fairy Queen."

SUNDAY: The Children's Evening Song Service will be conducted as usual by Uncle George, and he will be assisted by the Children's Choir from the Wellington South Church of Christ, conducted by Mr. Thomas.

From 3YA.

Monday, April 13.—To-night Cousin Margot and Mystery Man will tell the children stories of fairies and adventures. A number of children will sing and recite. Cousin Gwea will play on her zither and sing the "Good-night Song."

Wednesday, 15th.—It is Uncle John we hear on Wednesday. He has the support of Miss Moore's choir. So we are looking forward to a bright hour.

Thursday, 16th.—"Hello," say Ladybird and Uncle Frank to the little ones. In song and story always cheery with Uncle Dick's ditties to join in the fun.

Friday, 17th.—Chuckie and Cousin Frances have many tales to tell and songs to sing. An interesting hour is in store.

Saturday, 18th.—Here's Aunt Pat! What a jolly time we'll have. A band of little folk will help to entertain.

IT is a good rule never to discharge an accumulator at a rate of more than one-tenth of its actual ampere hour capacity. (A twenty actual hour accumulator should not be called upon for more than two amps., etc.)

FOR THESE LONG WINTER EVENINGS—

Latest News & Music
ON METRO or
EAGLE Radios
S.G. MODELS
AT LOW PRICES
ROYDS-HOWARD CO. 553 COLOMBO ST., C.N.C.H.

The Magic of Modern Science



ANCIENT alchemists and magicians covered their doings with such mystery that early science came to be known as the "black arts." Nothing could be more typical of the change from darkness to light than the invitation lettered on the office door of Dr. Willis R. Whitney, research director for the General Electric Company at Schenectady. "Come in, rain or shine," warmly greeted the sign in bold black letters. So I walked right in.

It was the beginning of a walk into wonders more fascinating than anything ever dreamed of the philosopher's stone. Doctor Whitney, himself a distinguished chemist, is the leader of a group of experimenters who spend their time trying electricity at new tasks—and the work that they have succeeded in getting out of the mysterious genii is truly magical.

Stepping into an adjoining laboratory, I ran into a near-wilderness of glass piping, test-tubes, insulated wiring, and other laboratory accessories. The magic of this room was in a curiously shaped vacuum tube. Wires from it connected two plates which stood upright and parallel on a nearby table, separated by a distance of about a foot. One of the laboratory men picked up a large porcelain insulator. "Looks dry, doesn't it?"

Yes, it seemed as dry as the well-known bone.

He placed it in the space between the plates, turned on a switch and instantly the "dry" porcelain began to steam like a hot wet towel.

"With the old baking methods many hours were required to cook the porcelain dry," he explained, casually. "Now, with this intense radiation—with a frequency of 60,000,000 cycles, five-metre wavelength—the whole job could be done in less than five minutes."

The Energy of Radio Waves.

THIS simple demonstration of the energy packed into radio waves was only a start. In another room I saw a more powerful tube of the same type. Near it rested an enormous incandescent lamp, rated at 1000 watts. There were no connecting wires or sockets, but the moment the current was turned into the radio valve, the lamp glowed with intense light—a kind of power transmission by wireless.

A fly was put in a glass tube and brought near the mysterious bulb of energy. The fly buzzed around importantly, but, almost as soon as the radiation was turned on, it fell to the bottom of the tube dead.

Then a number of flies were put in a glass jar, and through an inlet by means of tubing, a circulation of air, well below the freezing point, was passed through the container. The effect was that of a blizzard—gradually the flies dropped and lay inert. When it seemed that all the insects were frozen dead in their glass Antarctica, the vacuum tube was set up within a few feet of them, and the electric power turned into it. Presently a fly

In the following article a visitor to an American research laboratory describes some of the marvels that have been accomplished in the fields of electricity and radio by present-day scientists.

began to stir, then another, and another. Within a minute there was considerable squirming, and eventually several of the insects were flying around in the freezing temperature, for through it all a thermometer within the jar showed that the air remained at thirty-two degrees Fahrenheit.

Seemingly, the effect of this radiation on living things is internal. The laboratory men themselves found that, while working with the tube, they began to feel feverish. A physician was called. He noted that, after about an hour's continuous exposure, the temperature of the blood rose, and in some cases the fever reached 100 to 101 degrees.

A recent development in medical practice is the use of artificially stimulated fever to combat certain diseases. This suggested to Doctor Whitney that

the new radio valve might be utilised in this field. Accordingly experiments were conducted, and the results so far achieved have given scientists confidence in an ultimate complete success.

Another possible application is the wireless transmission of power, but in this possibility Doctor Whitney has little confidence. "The energy rapidly falls away with distance," he explained, "and about ninety-nine per cent. of the power is used in transmitting the remaining one per cent. This is too great a cost; wires are cheaper. There is, however, a real field for the use of wireless transmission in the remote control of electrical apparatus, and here may develop an important field for the industrial application of this radiation."

Leagued with Doctor Whitney in this many-sided exploration of electricity are Dr. W. D. Coolidge, the physicist, and Dr. Irving Langmuir, the chemist—though one can only wonder where the one's physics leaves off and the other's chemistry begins, so intertwined now are these basic sciences.

A Super-Power X-Ray Tube.

IN Dr. Coolidge's laboratory the electronic wizards were working with a vacuum tube of a different type—an X-ray tube designed to operate at the enormous pressure of 400,000 volts. Why so powerful?

"Because we want deeper penetration," answered the young scientist who was on the job here. "Our most powerful X-ray tube in use to-day operates at 250,000 volts, and is able to penetrate three and one-half inches of steel. But we make turbine castings many inches thick, and we want an X-ray which will photograph the inner structure of the steel and show up any deep-lying flaws. Our immediate goal is a 400,000-volt unit, and when that is attained we hope eventually to get a controllable X-ray tube at 900,000 volts."

Even now, the radiation from the 250,000-volt tube is so penetrating that men in adjoining rooms would be involuntarily X-rayed through the walls if the tube were operated unshielded. Some of them hung up a jawbone on the wall in front of a holder containing a photographic glass plate. When they developed the plate, hours later, they had a photograph of the bone, though the X-rays in reaching it had travelled more than thirty feet and passed through two walls.

The projected 400,000-volt tube was in process of being exhausted of its air. Three pumps were working in series—a force pump in the basement, an oil-pump in the room, and directly beside the tube a mercury-vapour pump invented by Dr. Langmuir. Before his invention, hours were required to pump a tube down to the lowest vacuum attainable. Now, with the Langmuir mercury pump, it is easy to attain within a few minutes a much more complete vacuum than was possible under the old conditions.

Dr. Langmuir's inventive genius has shown itself in many directions, but nowhere more strikingly than in his atomic-hydrogen flame.

"Just look through that window there," instructed one of the laboratory assistants, "and you'll see what it can do."

"Which window?" I wondered, glancing at the smooth wall of the adjoining partition he had indicated, and which I now saw was heavy glass, black as night. "Can anything be seen through such blackness?"

"You'll see all you want to see," he retorted with a chuckle, as he put on a heavy asbestos helmet and disappeared behind the partition. And in a moment I saw—about all my eyes could stand.

A flame leaped out in the darkness and illuminated the hidden interior. It spurted from a contrivance which the helmeted man held in his right hand.

(Concluded on page 9.)

DESTINY'S DOOR

A One Act Radio Play

Written by Doctor
de Clive Lowe

Produced by Mrs.
Zoe Bartley-Baxter

from

LYA Auckland, Tuesday, April 14.

An

All New Zealand Production

TO relieve the slump in the wine industry, the Italian broadcasting authorities are granting free advertising periods in the programmes to wine merchants.

THE Austrian postal authorities announce that wireless listeners who fail to take out or renew licenses are liable to a fine of £14 or one month's imprisonment.

GREAT BRITAIN was Germany's best "wireless" customer during 1930, taking radio, telegraphic, and telephonic equipment to the value of nearly £570,000.

OWING to the prevalence of alleged anti-Soviet wireless transmissions the Russian Government has issued orders prohibiting the use of receiving sets within eighty miles of the Soviet frontier unless a special permit is obtained.

DR. LEE DE FOREST recently received congratulations on the twenty-fifth anniversary of his invention of the three-electrode valve. The first valve containing a grid, or third electrode, saw the light of day early in 1906.

THE North Monaghan (Ontario) Council has decided that the possession of a wireless set will debar a resident of that municipality from participating in the unemployment relief scheme. A rather novel test of solvency.

"THE St. Louis police department recently changed its broadcasting apparatus because officials suspected that ambulance-chasing lawyers were listening-in and beating the radio patrol cars to accidents," states the "California Broadcaster."



LOUDSPEAKERS for traffic control purposes are now carried on the police patrol cars in use at Perth. The wireless system includes a two-kilowatt transmitter at headquarters, capable of communicating with any radio car in the police zone.

M. BARTHELEMY, a French television experimenter, claims to have perfected a system of colour television which excels anything achieved in other countries. Not only can facial features be reproduced distinctly, but entire scenes can be transmitted and received by radio.

ITALY is to provide American listeners with a weekly musical programme, according to an arrangement entered into by the American National Broadcasting Company and the Italian broadcasting organisation. The concerts will be transmitted every Sunday evening from the Rome station, now operating on 25.4 metres.

MAYORS, school teachers, and parish priests are among the enthusiasts in France who are petitioning for the establishment of a body to be called "The Pioneers of Radio." Its function would be to supply each village community with an experienced representative capable of doctoring wireless sets and giving much-needed advice.

EDUCATIONISTS, financiers, statesmen, churchmen, and women's leaders have stepped forward spon-

taneously to form the Canadian Radio League, which has been created with the object of urging the nationalisation of broadcasting in Canada at the earliest possible date. The proposed scheme would be financed by an increase in the existing license fee of one dollar per annum and by Provincial and Federal grants.

THE police of Colorado (U.S.) and surrounding States have enlisted the services of radio station KOA, most powerful broadcasting medium in

Another European Verified

I HAVE just received a verification from the European station EAJ-7, Madrid, Spain. On the card it states that this station is using a power of 15 kilowatts. For the address they cut out my letter (a rubber stamp) and pasted it on the card. I am waiting for two more verifications from Europe, and they should be heard in time for the closing of the next DX contest.—S. Ellis (Okato).

the inter-mountain region, in their fight against crime. In daily broadcasts direct from Denver police headquarters, sheriffs and police in all parts of the region are given last-minute information on important crimes.

MADAME LERICHE, a resident of Douai, France, was recently fined £4 and costs for using an electrically-operated gramophone which interfered with the radio reception of her neighbour. She contested the judgment before the local Appeal Court, but lost her appeal, and was accorded eight days in which to render her gramophone "electrically silent." French listeners greeted this judgment as a final ruling on the subject of electrical interference.

THERE are a mere 24,000,000 broadcast receivers in use in the world, according to Mr. Lawrence D. Batson, of the electrical equipment division of the U.S. Department of Commerce, who has just prepared a remarkable survey of the world's radio markets. One of Mr. Batson's calculations is that it would require 380 million sets to equip all the homes in the world that are within constant listening range of

broadcasting stations, a statement which should encourage the radio trade.

MR. BAIRD, the inventor of the Baird system of television, in a recent interview prophesied that in 1931 improved, cheaper, and portable television sets will be produced, moving pictures of speakers and actors will be transmitted, and stage plays may be televised complete.

THOUSANDS of American amateurs acted as observers for the U.S. Army Signal Corps recently when an Army Fokker plane equipped with a special short-wave transmitter carried out a round trip by way of Nashville and Louisville to Montgomery, Alabama. Throughout the flight transmission from the plane was maintained on a wavelength of 85.7 metres, and it was the duty of amateurs appointed by the American Radio Relay League to compile a log of all messages received en route, with particulars of signal strength and fading.

THE U.S. Department of Commerce issues some remarkable figures showing the debt of the metal market to radio. In the States more than three million sets are made annually, for which steel, the metal most widely used, is consumed to the extent of 110,000 tons; more than 1600 tons of this is in the form of nuts, screws and washers, the rest in bar and strip. Copper is taken to the amount of 12,000 tons; aluminium, 4000 tons; tin, 1800 tons; nickel, 1500 tons; and zinc, 1200 tons.

THE American Association of Scientists at one of their recent meetings was informed by a speaker that the planets Mercury and Venus are sometimes responsible for poor reception. It was maintained that at certain periods of the year these planets affect the sun electrically, producing sunspots. These in turn cause electrical storms on the earth, thus interfering with radio reception. According to the speaker, the moon also has an unfavourable effect on reception conditions, more especially when it is overhead.

A RESOLUTION in favour of the compulsory "corking" of all wireless aerials to protect pigeons was passed unanimously at a meeting of the General Council of the National Union of Short-distance Flyers, held in Manchester early this year. The resolution ran: "That the union reiterate its demand for it to be made compulsory for all wireless aerials to be corked, as the mortality of sporting pigeons is heavily increasing owing to the large number of aerials that have been erected and are likely to be erected on account of the opening of the regional stations, which would bring back into favour the crystal receiver."

Have you realised that the valves of your Electric Set require protection from the voltage fluctuations of the electric supply?

You can prolong the life of your valves at the cost of less than one valve by obtaining an

"AMPERITE"

Automatic Voltage Regulator.

A type for every set—Please give the make and model of your receiver.

Dealers and Service Men will be interested to know that the

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"Where the Quality Goods are Sold."

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THE MASTER VALVE

Embodies all improvements known to Valve Manufacturers.

The Magic of Modern Science

(Continued from page 7.)

and as he directed the flame against the side of a fireclay crucible, the clay melted and bubbled away like butter. The hardest metals ran like water under the fury of this heat.

Its temperature, 6400 degrees Fahrenheit, is the hottest that man has yet been able to produce. And it is attained, not by anything burning, but by allowing the atoms of hydrogen, which have been burst from their accustomed systems by an electric arc, to recombine into molecules. The atomic-hydrogen flame is being introduced in industry for welding metals and alloys, such as chromium, nickel, copper, aluminium and silver, as well as for ordinary iron and steel.

Research in Radio Communication.

RADIO communication, which owes so much to Langmuir's explorations within the vacuum tube, continues to be a main line of research here. At the experimental broadcasting station WGY, five miles south of Schenectady, I saw the engineers setting up the 200-kilowatt transmitter which was put to the test last March. Remembering that the most powerful broadcasting station now operating commercially uses but 50 kilowatts, you can realise what a tremendous jump in power has been attained by the Schenectady wizards.

These five-foot super-power valves, when set in their water jackets, are seven and one-half feet long. So rapid is the heating of the plate while operating that fifteen gallons of water per minute are needed to cool each valve. Once a valve was left outside its water jacket. Within three minutes there was a "plunk" as it collapsed inward. Each of these giant valves costs 1600 dollars (\$320), and has a life of about 1000 hours.

Short-wave transmission also is the object of almost continuous experimenting at WGY. Half a dozen steel towers of varying heights are spotted over the fifty-acre lot, and many types of antenna are in use. The beam antenna developed to communicate with the Byrd expedition in the Antarctic is there. It is said that the wire screen used as a reflector with this antenna increased the efficiency of transmission twenty times that of the unreflected wave. Another beam at WGY points to Australia.

Separate from this sending station is the receiving laboratory which stands on a high hill amid the farms north of the city. On a clear icy morning I arose at daybreak and made the eight-mile trip to this hilltop for the precious privilege of talking with Australia. Mr. A. B. Hitt, the Schenectady operator, introduced me over the wireless to Mr. P. M. Farmer, operator in Sydney. Then, over 10,000 miles of land and ocean, we exchanged reports on the weather, discussed the fact that the clock was approaching midnight in Sydney while the working day was just beginning in Schenectady—talked airy nothings, of course—but it was a tingling experience nevertheless.

Coming out of the station into the bright sunlight, I could barely see the misty peaks of the Adirondacks; only a few miles to the north, but I had just the two programmes. No other set

An Englishman's Impressions of America

(Continued from page 3.)

could approach this degree of selectivity.

When I last visited the States there appeared to be no heterodyning of stations, but this time I heard a good deal after dark. According to regulations this should not be, but there it was all the same.

Battery Sets Still Selling.

NATURALLY, with the widespread use of electricity practically all sets are a.c., but it will surprise most English listeners to hear that there is still a brisk demand for battery sets, and quite recently a new line of 2-volt valves, specially designed for battery operations, with a comparatively low filament current, has been brought out.

Farming communities buy most of the battery sets, for although they have electricity on the farms the voltage is often low, and D.C.—of no use for H.T. purposes.

Speaking of direct current reminds me that large areas are still supplied with D.C. at 110 volts. A very large part of New York and a considerable area of Chicago are thus supplied. I found that 110-volt D.C. sets were quite good considering the difficulty of designing a good output stage at this voltage. Push-pull, of course, is a great help here.

Tone Control.

EARLIER in this article I referred to a "tone-control" as a fitment on receivers. Many sets have such a control this year. At first it sounds a very useful attachment, suggesting that either high or low notes can be emphasised at will, giving the set user a means of adjusting the set to his own standard of quality.

However, use of the control soon disillusioned the discriminating listener. No set I heard had adequate top-note reproduction with the tone control turned up to the fullest "high," and as one turns the control what top there is is gradually extinguished, giving by the very absence of proper high-note reproduction an illusion of more bass. A very nasty business to the musically minded!

If, and I say it with emphasis, a set has too much top, then means can be adopted for reducing the top rendition.

A tone control consists of a condenser of about .004 or .006 mfd. in series with a continuously variable resistance of about 250,000 or 500,000 ohms, this combination being placed across the output of the set.

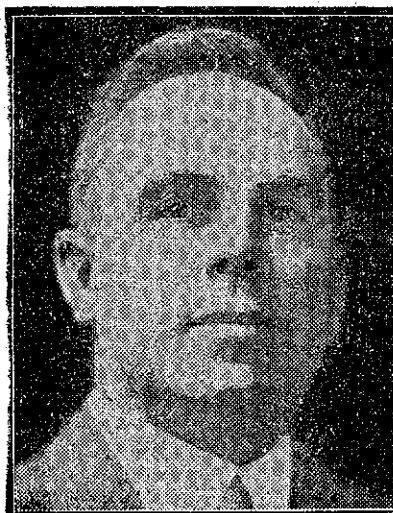
If you think for a moment you will see that a resistance of, say, 200,000

heard a man's voice halfway around the globe, and had got his every word and accent clearly and instantly. Magic! Is there anything in the Arabian Nights or any dream of the old alchemists to equal this actual experience in wonder and improbability? Such miracles the wizards of the laboratory are steadily and surely making commonplaces of everyday life.—George W. Gray, in "Popular Mechanics."

ohms in series with a .004 mfd. practically cuts it out of circuit, but if the resistance is lowered to a few hundred ohms then we have a state of affairs practically equivalent to shunting the speaker with .004 mfd., a value of capacity which will very effectively by-pass a large proportion of the higher frequencies.

Between these two limits a wide range of by-passing is possible. Just such a device is the much advertised tone-control of modern American receivers. And a whole lot of people like it! They call the result "mellow!"

On the other hand, cutting off the higher frequencies also cuts off a lot of high-pitched background noise, as well as needle scratch in radio-gramo-



MR. H. C. SOUTH, whose talks from 2YA on "Books, Grave and Gay" are universally appreciated.
—S. P. Andrew, photo.

phones. The first is useful in long-distance listening with the volume control turned full on.

Interesting Construction Details.

ABOUT the second, opinions differ, many people thinking that the advantage of reducing needle scratch is too highly paid for by the loss of brilliance in reproduction.

The constructional details of modern American receivers are very interesting to the home constructor. Stiff wiring has entirely disappeared, due in the main to the risk of broken joints due to vibration from factory to dealer and from dealer to user.

All those wires which can run together without harm—and a surprising number can!—are bunched and "cabled" in flexible leads, and even the separated wires are of the stranded or flexible type with insulating coverings.

To distinguish them in assembly and fault-tracing the wires are differently coloured according to their particular circuits, and connections are generally made with eyelets of the stamped

variety, screwed under nuts which are held secure with shake-proof washers.

Component Design.

CHASSIS construction is universal, either aluminium or steel being used. Soldered connections are cut down to the minimum by careful design, and when you realise how much of the cost of a set goes in labour, the saving of a few joints and the reduction of assembly processes are very important manufacturing considerations.

Components are designed with ease of assembly in mind, and astonishing simplifications have been brought about in dozens of ways. Valve holders, for example, consist generally of five holes stamped out of a thin strip of bakelised fibre, or stamping riveted on to the underside to form contact with the valve pins. You may think this shoddy manufacture, but such sets work well and give far less trouble in servicing than the older forms of construction.

Mains units are fairly well standardised in these days, and valve rectification is practically universal in factory-built sets.

America's "Midget" Sets.

OF late, due to the financial stringency, and consequent reduction in spending power of the public, the so-called midgets sets are becoming very popular. The American midget set about the size of our larger cabinet loudspeakers, and contains a five or six-valve mains receiver with two or three stages of radio frequency, and a moving-coil speaker.

Single-control tuning is, of course, standard here, as in all other receivers, and the sets are made to work on small exterior aerials. Their range is limited in comparison with the larger sets, but they put up an astonishingly good performance for their price, which averages about £14 in English money.

2YA's Aerial Damaged

BECAUSE of its exposed position on the heights of Mount Victoria, the recent gale played havoc with 2YA's aerial gear. The aerial is badly twisted and the transmitter has suffered damage through power surges. In addition, early on Friday morning the neon illuminating tubes were ripped from the familiar sign and deposited at the foot of one of the towers.

However, temporary repairs were immediately effected, and the station was back on the air on the afternoon following the mishap, though with only part of the aerial working.

If You want to get Ahead

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1822 WAKEFIELD ST., WELLINGTON

Answers to Correspondents

D.N.A. (Timaru): It appears from your letter that you are not clear as to the interpretation of several of the rules governing the DX competition. Any verification, provided that the station it refers to is still operating on the frequency indicated on the card, will be accepted for the competition. This is a greater handicap to DXers of long standing than you evidently suppose, for quite a number of stations, particularly American, have had their frequencies changed in the past few years. For example, in September, 1929, WTIC, Hartford, Connecticut, was operating on 600 k.c. (500 metres). It now operates on 1030 k.c. (283 metres). Thus, a card entered for the competition and bearing the former frequency would not be accepted. This is but one of many similar instances.

To show that this rule has proved successful in placing DXers on a more or less even basis, the case of Mr. A. Greening, of Inglewood, may be cited. In the last DX competition Mr. Greening achieved second place with a total of 89 stations, all logged, with the exception of five or six, after the announcement of the competition.

Much thought was given to the drafting of these rules, and, in order to render the competition as fair as possible to everyone concerned—a difficult problem, incidentally—it was necessary to compromise on several points. However, the result appears to find favour with the majority of DXers, and we are of the opinion that, all things considered, any further change in the rules would not be advisable.—Ed.

Identification Wanted

STATION operating on 2YA's frequency on March 30. Items: (1) "Song of the Dawn," (2) "Reaching for Someone," (3) "Forty-seven Ginger-headed Sailors"—all recordings. I waited for ten minutes but no call sign was given.—"Ray De O" (Christchurch).

STATION at 10deg. on my dial with call sounding like "G" (or "D") BO, Broadcasting Service. At 10.30 p.m. on the 29th I heard a recording "Always in

All Ways," followed by an instrumental item, "Annie Laurie." At 10.45 I heard a recording of Florrie Forde in "Old-time Melodies." The announcer speaks quickly in a rather slishod manner.—"Cersria" (Whangarei).

STATION heard March 26 and 27. On the latter date the children's hour was in progress, and a man was talking about "Boko," who at nine years of age was working in a salt mine. At this stage the local station commenced transmitting and drowned reception. Dial number 24 (2UE, Sydney, 21, 2ZF, 28).—"Squib" (Dunedin).

AT 12.45 a.m. on April 8 a foreign station was tuned in on 2BL's frequency. I thought at first that it was Japanese or Chinese, but the music was more melodious than that usually heard from these stations. Before and after one item a gong was struck six times. Later on they put on classical gramophone items, which came through at loudspeaker strength. He would announce in a foreign tongue, and the only time he did so in English was at 2.25 a.m., when he gave the call, "This is Radio Bangkok. The number you have heard is from the opera by 'Verdi.' Also, a new Melbourne station giving the call 3ZZ was heard.—W.B. (Linwood).

WOMAN heard lecturing in a foreign tongue at 12.20 p.m. on April 3. Wavelength 500 metres (600 k.c.).—"New Ghum" (Wellington).

Stations Identified

J.P.C. (P.N.): Yes, I have heard both KGW and KZRM on the same frequency, but have not yet received verification of the latter. Also agree with you re verifications from some New Zealand

News and Views of the D.X. CLUB

"B" stations, although I must say 2AY, 3KZ, and 3GL responded promptly. I have duly verified WCHI, Chicago. "Bull's Eye" (Featherston), I think you heard KFTB, Minneapolis. Their closing announcement always includes "Operated by permission of Federal Radio Commission at Washington on a frequency of 1460 kc. (205m.)."—"Cromdale" (Otago).

"JACKO" (Rerwinui): Station on 2NC's frequency is 3EF, Ellwood, Victoria. I wrote him several months ago, but so far have received no reply. C.G.C.

A D.X. Cup for Battery Set Owners

WE have pleasure in announcing that in the next D.X. club competition there will be a cup for battery set owners. This has been donated by Mr. S. Ellis, winner of the "Radio Record" D.X. Club cup for the last year, and it will be known as the Ellis Cup. It will, in all probability, be a miniature of the D.X. Club cup, and will be won outright during the period from June to December of this year. The cup will be awarded to the battery set owner who enters the greatest number of verified stations in the D.X. Club competition.

(Christchurch): Station on 850 kc. (353 metres) is 7BY, Bombay.—N.J. (Master-ton).

J.C.S. (Beckenham): I have since identified station on 2NC's frequency as experimental station VK3EF, Ellwood. "Kilocycle" (Auckland): To my knowledge there is no Brisbane station on that frequency except 4BC. The new Oxley station, however, operates on that frequency without a call sign, and mentions Brisbane in his announcement. "Radio Boy" (Timaru): Your stations appear to be 3ZK, Melbourne, on 1350 kc. (222 metres) and 3GL, Geelong on 1400 kc. (214 metres). "Novice" (Wellington): The only two New Zealand stations between 2BL and 3LO are 2ZP, Wairoa, and 3ZE, Greymouth. Your mention of hearing a back ground of 2YA must be an error as it is impossible to get 2YA between 2BL and 3LO. Station on 2ZO will most likely be 2KY, Sydney. N.J. (Master-ton): I have also logged VK3KU, but I was unable to get location. "Apex" (Auckland): Pony racing at Perth is a night programme.—B.W. (Stratford).

N.J. (Master-ton): The Manila station KZRM closes down at 11 p.m. (2.30 a.m. N.Z. time) every night except Monday, when it closes at 5.0 p.m. Wavelength 485 metres (620 k.c.). B.W. (Stratford): According to the latest letter-head from SBA, Ballarat, his frequency is 1300 k.c. (230.8 metres). Allowing for a slight difference in dialling you are correct. Your stranger on 2BL is the Bombay station. His call was once 7BY, but I am not sure if this is so now, for I have not heard his call lately.—J.P.C. (P.N.).

DX Topics

A Useful DX Chart.

I RECENTLY heard a new Australian station testing—"Oxley Radio Station"—on about 266m. (113 k.c.). Reports were to be sent to A.W.A. Ltd., 47 York Street, Sydney. Announcer also remarked that Oxley was 8 or 9 miles from the Brisbane Central P.O. Reception was excellent on 8 valves. On the previous evening, March 24, I logged 6ML for the first time on a wavelength just above that of 2UE. On the 27th I heard a Jap. on 58m. (590 k.c.). I can find no mention of him in any of the latest call-books. At 11.30 p.m. I am certain he gave the call JOAK, twice. Re plotting a graph from the frequency of various stations. I have tried this with the N.Z. and Australian stations, but my "curve" was more like an ocean wave than anything else. I then logged all the Americans I could find, taking particular care with the logging. As a result I now have a perfect curve from KNTR 570, k.c. (526 metres) to KGB on 1330 k.c. (225 metres), plotting 22 Americans in all. The regularity of this curve was probably due to the fact that American stations are forced to keep accurately on their allotted frequencies.—"Ray Dio" (Shannon).

Recent Loggings.

RECENT loggings are:—KFKU, KGNU, WADC, WCGU, and WKAQ. The latter is in Puerto Rico, a small island in the Gulf of Mexico. They were testing a new transmitter, and on dance music came through at R8 with fading at intervals. This station was difficult to separate from KHJ and KIX.—S. Ellis (Okato).

An Error.

A error crept into my last report in reference to 5CL, 3AR, and 7ZL, which read: "Since they have increased their wavelength," and which I intended to read, "It is a coincidence that these stations are operating on a long wavelength."—B.W. (Stratford).

DXing with Long Aerials.

WHILST not wishing to contradict the experts I am a believer in a long aerial. Mine is about 300ft. over all, 80ft. high, sloping to 30 feet at set. I use a fixed condenser between aerial and set. I am about 50 miles air line from 4YA, but have difficulty re non-selectivity. My log is 97 stations, which includes 38 Americans and 31 Australians, the balance being N.Z.'s and Japs. I will grant that local conditions enter into the question, and do not for a minute say that a long aerial suits everywhere, but at the same time I cannot support the statement frequently made that a long aerial is useless. I know which I prefer. Some will object to the noise level, but if a station makes the speaker dance I tone it down, and the noises with it. On a suitable night that extra length tells for DXing. I write this in no criticism of the very helpful gentlemen who assist us in the queries column, but more as a note to country dwellers, far from the YA's, and often the "B's."—"Cromdale" (Otago).

[The chief points against the use of 300-foot aerials are: (1) They are decidedly un-selective. This you appear to realise, for you have inserted a condenser between the aerial and your set—an excellent method for reducing the effective aerial length. Again, your receiver probably uses two or three stages of screen-grid radio frequency, and is thus in itself very selective. (2) When used in towns or near power lines, the noise level is too high, and can be reduced only by shortening the aerial. The signal strength is not reduced in proportion, however, and still remains sufficiently high, even for DXing purposes. Thus, in general, we advocate the use of aerials not exceeding 100 feet in length.—Tec. Ed.]

COMPRESSION CONDENSERS

As Required for the Wave Trap in the "1931 Guide."

They have hundreds of uses; various capacities available. Ideal for tuning crystal sets.

Type G Formo Denser, Max. .001, 3/.

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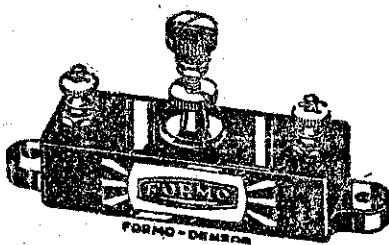
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WE WILL WILLINGLY QUOTE.**

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WELLINGTON.



DX Notes.

"CROMDALE" (Otago) has a verification from KGW on 620 k.c. (488 metres, and proceeds to say: "Some thought this station was KZRM." Well 'Cromdale,' I can assure you that I didn't 'think it was.' . . . I made absolutely certain of the fact, and I am waiting for a verification. But I don't for a moment think that KGW is KZRM, Radio, Manila. Couldn't they both be on approximate frequencies? Did any DXer hear 3EE, Elwood (or very like that) on Sunday, March 22, 1931, at 2 a.m., broadcasting jazz? He is an experimental station, and was operating on 2NC's frequency. On Tuesday, March 24, on approximately 1120 k.c. (268m.), Oxley Radio Station, Queensland, came in here at excellent volume and clarity. This should be a good Australian during winter.—D. McL. (Wellington).

Logging Europeans.

LATEST loggings are: KEGA, Los Angeles (1430 k.c.), KYA, San Francisco (1230 k.c.), and WJSV, Mount Vernon Hills, Virginia (1460 k.c.), heard testing on the 21st. Also 7LA, Laurenceston (1110 k.c.), and 6ML, Perth (1010 k.c.). The early morning stations come in here very good on some mornings. On March 23 I heard ten stations between 5 and 5.45 a.m. Three stations on 1490 k.c. (202m.), 1480 k.c. (203m.), and 1450 k.c. (207m.) were coming in clearly, but a very quick fade spoilt reception. The station on 1490 k.c. was broadcasting records, and I heard an organ number, "In a Monastery Garden." On the 24th the station on 1080 k.c. was coming in at 8.6, but he gave all talk, and no music. The station on 2FC, Sydney's wavelength, comes in here with good volume. His call sounds like JOLK, so I presume he is a Jap.—N.J. (Masterton).

Latest Loggings.

ALTHOUGH I have not had much luck in the DX field lately, I have, since my last report, added the following stations to my log:—

2MV, Mossvale, 245.8 m. (1220 k.c.). KGB, San Diego, 225.4 m. (1330 k.c.). 3ZR, Greyhound, 305.6 m. (820 k.c.). 2MO, Gunnedah, approx. 225 m. (1330 k.c.).

ZLAXY, Wellington, 267.7 m. (1120 k.c.).

KOB, State College, 254.1 m. (1180 k.c.). WJSV, Virginia, 205.4 m. (1460 k.c.). 2ME, Sydney, 197 m. (1522 k.c.).

Have not noticed any report in the DX columns of reception of WJSV or 2ME. Each of these stations announced that it was on a test transmission.—G.C.H. (Masterton).

Canada on Shortwave.

FOLLOWING is a copy of a card from CKGW, Bowmanville, Ontario, Canada: "We wish to thank you for your report on station CKGW. It is on the air from 6.45 a.m.-12.00 midnight. We have a shortwave station, VE9GW. If you know any one that has a shortwave receiver, ask them to listen for VE9GW on the air from 6.45 a.m.-8.00 a.m., 3.00 p.m.-12.00 midnight. Sundays, 12.30 p.m.-11.15 p.m. E.S.T." VE9GW is crystal controlled, with a power output of 27.5 watts. Operates on 6095 k.c., with 100 per cent. modulation. Owned and operated by Gooderham and Worts, Ltd.—W.L.P. (Pahiatua).

AT about 8.20 p.m. on March 29 we received VE9CL, Winnipeg, broadcasting on approx. 48.7 metres. He announced that it was a special broadcast and that he would appreciate reports. Gave time in Winnipeg as 2.30. Music followed, and was quite enjoyable. He was still broadcasting when we switched off at about 8.50 p.m.—A.J. McC. (Otorohanga).

Two New Stations.

ON March 26 I picked up 8GO, Melbourne, for the first time. How long has it been on the air? Also, when did 2MB, Mosgiel, commence transmissions?—"Dud" (Bay of Plenty).

D.X. Notepaper

For Reception Reports

EVERY D.X.-er knows how much effort is necessary to sit down and write several letters to stations whose reception is being reported upon. To simplify matters the "Radio Record" has prepared a D.X. form. This sets out the necessary formalities and has provision for the different aspects of a comprehensive report. By filling in the essentials as indicated, these reports will be of considerable value to the stations to which they are sent, and thus station officials will be only too willing to send back a verification card—which, by the way, is asked for on the letter.

By using a standard form, not only will much time be saved for both the

Tune in D.X.'ers.

HERE is the greatest broadcast of the year for D.X.'ers. Tune in 2YB New Plymouth on the evening of Wednesday, April 22, and listen to the presentation of the D.X. Club Cup to Mr. S. Ellis, the winner of the first long-distance reception competition held in New Zealand. The presentation will be made by Mr. J. J. L. Payne, vice-president of the Taranaki Radio Society, and the occasion should be of considerable interest to D.X.'ers. No doubt the sets of all keen listeners throughout New Zealand will be tuned to the New Plymouth station on this evening. Don't forget, April 22, at 9 p.m.

sender and the recipient, but the listener will, it is hoped, receive some sort of recognition at the other end. The letter uses a "Radio Record" D.X. Club badge, and states that the writer is a member of the club.

The Q. signs are used because they are adopted by all transmitting stations as the recognised means of conveying reception information. Their use indicates that the sender of the letter knows something of radio and thus his report in consequence carries some weight.

The Q. signs were published, together with the commonly used abbreviations, in last week's "Radio Record." They will be republished at frequent intervals.

These reports are well printed on good paper and are the size of ordinary writing paper. They are obtainable post free from the office of the "Radio Record" for 9d. a dozen with a minimum of two dozen. Orders of six dozen and over will be supplied at 8d. a dozen. Dealers and booksellers should apply for special terms.

D.X. Club Competition

D.X.-ERS are reminded that the next period in the D.X. Club competition closes on June 30, by which time all logs should be in our possession. The actual cards to be sent only when asked for by the judge. This time certificates will be presented to the winners in each of the following six districts: Auckland, Taranaki, Hawke's Bay, Wellington, Nelson-Westland, Marlborough-North Canterbury, South

Canterbury and Otago. For the convenience of new entrants to the D.X. fields, the following are the conditions governing the competition:—

1. The listener who can, within six months, collect the greatest log of stations and comply with the conditions set forthwith, will have his name inscribed on the "Radio Record" Cup. This will remain the property of the "Radio Record," but the winner will be presented with an inscribed miniature.

2. The stations counting for the competition must have frequencies not exceeding 1500 kilocycles nor less than 545 kilocycles per second (200-550 metres).

3. All stations must be verified. The enthusiast should listen to the items, and note sufficient of them so that the station officials can recognise the broadcast. A letter, card or Ekko stamp to this effect must be in possession of the listener before he can claim credit for a station. Such phrases as "You probably heard our station" must not be taken as a verification. All cards sent in will be carefully treated and returned when the decision is arrived at.

4. Stations received during one period of six months can count for the ensuing one, providing their frequencies remain the same (unless they are recognised experimental stations). In other words, the station verified must have operated on the frequency shown on the verification card on or after the first day of the period. In this case, January 1. All logs for the second period must be in our possession by July 1, 1931.

5. The following stations are not included in the competition: All New Zealand and the following Australian stations: 2FC, 2BL, 4QG, 3LO, 3AR, 2BE, 2UE, 2GB, 2NC, 3DE, 3UZ, 5CL, 6WF, 7ZL, 7LA. These Australian stations can be accepted if logged in New Zealand daylight, but the verification must clearly admit this fact. This is to prevent possible interference with the programmes that are enjoyed by non-D.X.-ers.

Operating Garage Doors by Radio

Ingenious Device

OPENING and closing the doors of the private garage by radio is the latest American idea in automotive accessories. The operation is performed by a specialised dashboard radio set, which transmits a signal that automatically opens the garage doors. The device is said to be very simple—a pull on a knob on the instrument-board of the car, and the garage doors open; another pull and they close.

A tiny transmitting set is installed in the car, and the receiving set, together with the door-opening mechanism, is mounted within the garage.

The transmitter consists of three main parts—the timer, the spark coil unit, and the transmitting aerial. The timer, which governs the sending of the impulses, is encased in a small box, and mounted under the instrument-board by means of a clamp. The coil unit clamped to the main frame furnishes the high frequency current necessary for broadcasting.

To the observer there is only one part of the mechanism visible—that is, the small knob which protrudes from beneath the instrument-board, mounted on the wall inside the garage. Connected to it is the receiving aerial, which consists of a wire buried in the driveway.

Radio impulses sent out from the car are thus transferred to the receiver. Upon receiving the correct series of impulses the receiver closes a contact, thus setting the door opening mechanism in operation.

6. The right is reserved to add further conditions or alter existing ones as unforeseen circumstances demand.

7. The decision of the judge in all matters will be final.

Make your Set MODERN with the Silver Marshall 738

Here is the very latest and most interesting radio development—a self-contained, all-electric-operated converter which makes a

Powerful Short-Wave Super-Heterodyne Out of any Broadcast Receiver

The aerial lead is merely removed from the broadcast receiver and connected to the aerial terminal of the SILVER-MARSHALL 738; two leads are then run from the converter to the aerial and earth terminals of the broadcast set.

Simplified single dial tuning covering 18 to 206 meters.

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Listeners' League

Laboratory Jottings

Book Review

Our Mailbag

Work Behind the Scenes

Gulbransen Minuet

Wireless Direction-Finding

Out of Place?

THE organising of Listeners' Leagues is always an onerous and generally a very thankless task. It requires work at all hours of the day and night. At a late hour the other evening a listener-in on a shortwave set heard a Wellington speaker carrying on a conversation with one in Dunedin.

The listener took notes of the conversation and to show the people interested in the formation of the league that the organisers are busy, we reprint the notes, for what they are worth. It was ascertained that the gentleman using the Wellington station (ZL2B1, Mr. C. G. Liddell) was Mr. R. Leslie Jones, and he was speaking to Mr. L. C. Bates (Station ZL4BE, Dunedin).

"Mr. R. Leslie Jones asked for Mr. Booth (secretary of the Listeners' League), but Mr. Bates replied that Mr. Booth was at home. He could give Mr. Jones's message by telephone to Mr. Booth.

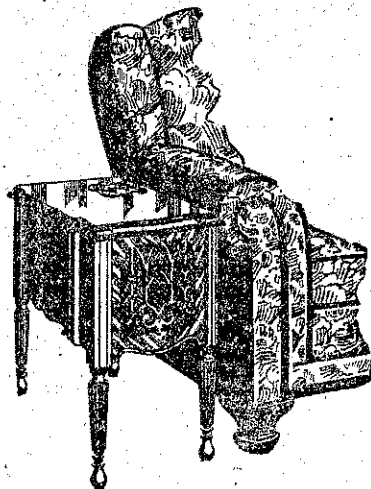
"Mr. Jones asked Mr. Bates to tell Mr. Booth that they had held their preliminary meeting in Wellington on the previous night and a resolution had been carried that the secretary be asked to come to Wellington to address a public meeting. A suitable hall, to seat 200, was available free, and the suggested dates of the meeting were either Monday, April 20, or Wednesday, April 22. It was no use holding the meeting sooner, as many people would be away for Easter.

"Mr. Jones requested Mr. Bates to phone Mr. Booth to tell him the foregoing, and to ask him whether he could be up at Wellington for the meeting on April 20 or 22. They must have Mr. Booth at the meeting. Also, they wanted a formal guarantee of £5 from Mr. Booth to cover the expenditure in advertising the public meeting. That money would be refunded to the committee out of the Wellington branch's subscriptions when it was formed. They would get a suitable public man as chairman for the public meeting. Without Mr. Booth there would be no 'kick' in the meeting. If he could not come to Wellington, Mr. Bates was to ask him to send up a lot of suitable stuff to be put across at the meeting. Mr. Booth could forward the formal guarantee of £5 for the advertising to Mr. Charlesworth, the Wellington secretary.

"Mr. L. C. Bates (4BE, Dunedin) replied that he had phoned to Mr. Booth, as requested, and the latter said that he could not give a decision about that £5 guarantee until he had seen his committee on the morrow. He would then communicate with Mr. Charlesworth. Mr. Booth was afraid that he could not come to Wellington on the dates suggested.

"Mr. Jones said that it was no use holding the meeting earlier. The meeting would be pretty snappy. There would be only one other speaker, besides Mr. Booth, who must speak for an hour. A musical programme would be provided from 7.30 p.m. till 8 p.m. He would advise Mr. Booth to telegraph to Mr. Charlesworth, and also to send, as soon as possible, receipt books for members' subscriptions. He

MESSRS. H. W. CLARKE AND CO. have supplied us with a Gulbransen Minuet, and during the last few weeks we have had ample opportunity to test out this little set. In the first place, the design is unorthodox and, it must be confessed, attractive. The set, designed so that it can be operated from the armchair, has great possibilities, for, with the long cable (which contains both aerial and earth leads), it can be moved about without difficulty. It takes much less space than the larger sets.



Though economising space, there has been no cramping or skimping of the internal mechanism, for the chassis is similar to the Gulbransen Lowboy set, i.e., two stage of screen grid, detector, audio and two 245's in push-pull. It is equipped with a standard Jensen speaker. One has only to feel the weight of the set to be assured that there has been no sacrifice to bring it down to the small space. Economy has been gained solely through the design of the cabinet.

The results came up to expectations fully, for, as was to be expected, the same fine performance put up by the Gulbransen standard models tested previously was attained. Sensitivity is all that is asked for in the modern set. When conditions were good, the Australian smaller stations could be listened to in comfort, while the Japs were consistently good. We had the opportunity of trying out this set in another locality, and we were successful in bringing in American stations. Under normal conditions there was a considerable reserve of volume on such stations as 2BL and 2FC, and we were able to listen to these more or less regularly. Considering the noise level in an ordinary city

hoped that Mr. Booth would be able to come up.

"There was nothing further said about the meeting or the league. Mr. Liddell (2B1) said that occasionally they put over some very fair records from 2YA. 'Anyhow,' he said, 'they are better than a lot of the second-rate artists they have. I wonder whether some of those artists are listening now. I don't care, but anyhow, it's too late for any of them to be listening.'"

OF recent years the syllabus for the commercial radio operator's examination has been appreciably extended. The theory and practice of wireless direction-finding is now of utmost importance.

One of the most comprehensive and lucid manuals we have seen on this subject is "Wireless Direction-Finding and Directional Reception," by R. Keen. B. Eng. (Hons.), Sheffield, A.M.I.E.E. A second and thoroughly up-to-date edition of this book has now appeared on the market, and for those who intend to make radio their career it is an excellent reference book.

The science of wireless direction-finding is traced through from its inception to the present day, and full descriptions of the commercial systems in use at present are included. In addition to dealing with the theory of all systems, including frame aerial direction-finders, the book describes in detail the preparation of directional maps and discusses causes and methods of correction of variations in bearings due to night errors.

The book may be obtained from the Te Aro Book Depot, Courtenay Place, Wellington, at a price of 26/6.

suburb, the set was as sensitive as desirable.

The tone was good, and as the Gulbransen Minuet is fitted with a volume control, the percentage of bass and treble can be varied at will. This accessory is nicely balanced, and tone can be brought over to bass without excessive woolliness. Although an expedient during bad interference, when it can be used to by-pass a great deal of the noise, we have little use for these modern "refinements," but they are demanded, and that is all there is to it as far as the manufacturers are concerned. There is a pronounced absence of a booming bass, even with the control in maximum position for this end of the scale.

The selectivity of the set leaves little to be desired, for we could listen to 2FC with only a little background from the local station. Farther from Wellington, however, there would be a considerable space between the two stations. This applies to 4QG on the other side.

The set is quite economical to run, as it consumes only 80 watts, approximately, and can be used in the Wellington district 12 hours for 1d.

SUCH uniformly excellent service is now being given listeners by the Radio Broadcasting Company, that one who has been critical in the past hesitates to cause fresh controversy. But I feel that I cannot allow to pass unnoticed what seemed to me to be a peculiar infelicity in the arrangement of the programme at Auckland on the night of Tuesday, March 31. The IYA Broadcasting Choir had given a splendid rendering of Gounod's beautiful "Messe Solenne," and at the conclusion, with but a moment's intermission, the announcer stated: "We will now broadcast a programme of dance records!" What a sacrilege! To play dance music of any kind after listening to one of the most sacred musical compositions ever written is surely not in accord with the tragic associations of Holy Week. Dance music, and plenty of it, is all right in its place, but surely it was out of place to broadcast it on the occasion in question. It would have been preferable either to have closed down, or else gone on with good gramophone music. I am sure all who have heard "Messe Solenne" sung at High Mass, and have been spiritually edified thereby, would not thank anyone who imposed dance music and jazz upon them afterward. I have a switch on my set, and after this gross offence against good taste, I promptly used it. —K.S. (Wellington).

Tips and Jottings

IF the many advantages of a short earth lead were generally realised there would be a decrease in the sale of wire!

OWING to evaporation the level of the liquid in an accumulator falls in time, but it should not be allowed to go lower than a quarter of an inch above the top of the plates, when loss should be made good by adding a little distilled water.

IF you are unable to get reaction when your condenser is all in, except toward the lower end of your tuning range, a small fixed condenser, usually .0001 or less, connected across the reaction condenser is an improvisation worth trying.

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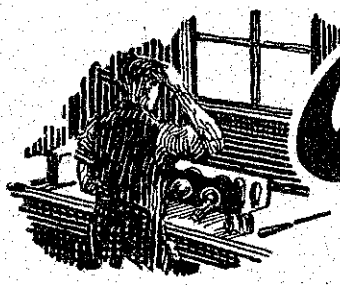
"DX" CLOCKS.

No radio enthusiast should be without the "Radio Record" "DX" CLOCK, as it correctly gauges the time as compared with ours in every part of the world.

By using the "DX" CLOCK, the right time to tune in for overseas stations may be obtained, and with use it will be found to be of permanent value to all radio receiver owners.

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"RADIO RECORD," P.O. Box 1032, WELLINGTON.



Questions and Answers



J.B.L. (N. Auckland): How can I arrive at the correct values of coupling condensers and grid leaks in an r.c.c. audio amplifier?

A.: The usual coupling condenser is anywhere between .001 and .5 mfd. The plate resistance .1 meg. and the grid .5 meg.

Is it practicable to have r.c.c. coupling in an r.f. amplifier receiving it by a band pass tuner?—Yes.

3. Have you the frequency response for a 66R Blue Spot unit?

A.: Unfortunately, no. The impedance at 2000 cycles is roughly 16,000 ohms.

4. Have you the frequency response of an Emmeo Puratone transformer?—No.

MARSITE (Te Aroha): Is the enclosed circuit of an r.f. oscillator suitable for testing and matching coils?

A.: This would do for aligning condensers or neutralising sets. Phones would not be required; you merely short-circuit the points where they are shown. When this apparatus is connected to the mains it will oscillate. Tune this squeal in on a broadcast set at about 1000 kilocycles, by placing the link formed by winding a few turns over the coil and continuing it to form another coil, over the r.f. stage. In turn starting with the coil nearest the detector, move each condenser until the loudest signal comes in. Continue this until all the stages have been done, then lock the condensers in that position. For new coils take out one stage r.f. coils and substitute the new coil. Tune in on the oscillator and add or subtract more turns until the reading on the condenser dial is the same as for the others.

Z.L.D.X. (Palmerston North): How many turns are required on a valve base to cover the short-wave band, tuning condenser .00005?

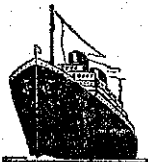
A.: This was given only a week or so ago in Q. and A. If you are using differential reaction allow two extra turns on the regeneration coil.

NO UNEMPLOYMENT IN THIS CAREER!

There's remunerative employment waiting for qualified wireless men on shore and ship. Johnson's Wireless School takes you up to 1st or 2nd Certificate Examination Standard by easy progressive stages.

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Wellington.



2. When the diameter of the former is given and the gauge of wire specified how is the number of turns on the former calculated?

A.: It can be arrived at by charts published in the "Radio Guide" or by Nagao's formula.

3. What is an R valve?

A.: A bright-emitter valve not now used.

4. Is there any advantage to be gained by placing a crystal in the grid leak?

A.: No. It would act as a high resistance and cause damping.

5. Can you publish a description of the condenser speaker?

16. Is a three-valve super. het. better than an ordinary three-valve set?

A.: The sup. het. needs more valves than three.

17. Can an r.f. transformer be constructed for an untuned stage by building the primary to have the same resistance as the impedance of the valve?—Yes.

18. What is an i.f. stage?

A.: That portion of a sup. het. receiver which comes between the first and the secondary detector. See "Radio Guide, 1931."

NORTHERN PATROL (Dunedin).—I have two variable condensers each with 28 plates. Are they suitable for the

A.: The sliding bar coil would be the better. The best type of crystal would be the semi-permanent type.

PEP PUNCH (Christchurch) I intend using 2PM4's for the "Night Hawk." Will they be satisfactory if used with wet batteries?—Yes, quite.

2. Using these valves on dry batteries, approximately how long should the batteries last?

A.: The "B" batteries about 7 months and the "A" batteries about 3.

3. Would the transformers I mention be suitable for this set, and was it the same as the one used in the laboratory model?—Yes.

RANGIOTU (Mangawhatu): How can I improve my earth system consisting of four pipes 3ft. apart three of which are driven down to water level?

A.: Place the radiator near the centre of the group and drive the fourth one down to the water level. The pipes would, according to theory, be better if they are 6ft. apart.

2. Are the leads to the terminals taken separately or joined together?

A.: They can be taken separately or joined by the terminal.

3. My poles are 42 and 45 feet high. Is it to the detriment of the system to have the nearby pole higher than the more distant one?

A.: No, the effective height of your aerial is the average.

E.D. (Hastings): Are the details of my set correct?—Yes.

2. Could I increase the selectivity?

A.: Four-valve sets of the type you specify are unselective. To improve the selectivity use a wavetrap, or add another stage of r.f. The grid bias on the

OWING to the increasingly large number of queries that our Technical Department is called upon to answer, we have found it necessary to make some slight alterations in our system. Commencing with our next issue, each correspondent will be restricted to three questions. Those who wish to have more questions answered, or who desire a reply through the post, must enclose stamps or postal note to the value of 1/-. We regret that this has been necessary, but to a large extent it has been brought upon by some correspondents "overstepping the mark." Letters containing from 12 to 20 queries are not uncommon, and many of these could have been answered had the correspondent looked up either back numbers of the "Radio Record" or the "Radio Guide."

Here are some interesting facts concerning the numbers of queries we have handled during the last six months: There have been approximately 1,500 letters, representing 5,000 to 10,000 questions. This entails a great deal of work, but where we are helping a correspondent genuinely in difficulty we are pleased to be able to do it.

A.: It was published in the "R.R." of July 18 and August 1, 1930.

6. What are the causes of overlapping oscillation?

A.: Excessive H.T., too loose a coupling, too great a number of turns on the tickler.

7. The power of Radio Saigon is secured by the current, three phases four threads, 120 volts, etc. What are the four threads?

A.: The term "thread" is certainly uncommon. It is probably a free translation of the French word "fil," meaning "wire." Hence a four-wire system—three phase, one neutral.

8. The circuit sketch with this question is worth trying by reversing the grids, using the control grid for the shield grid and vice versa. Voltage will be critical on the control grid. The circuit No. 9 is not allowed in New Zealand.

9. In winding an aperiodic transformer on a 1in. diameter former one turn of No. 36 Eureka wire represents 1 metre. How many turns would be equivalent to a metre on a valve base former?—A.: 1.3-8.

10. How many plates has a Pilot .000032 mfd. condenser?—Ask your dealer.

11. Will one stage of push-pull give more volume than two stages of straight-out audio?

A.: Not as much, but it will handle a greater amount of current without distortion.

12. Is it possible to test the emission of a valve without specially-built apparatus?

A.: Yes; by connecting a m. ammeter in series with the plate lead, and leaving the grid free.

13. Of what is the following circuit?

A.: Of a Reinartz transmitter.

14. The circuit referred to is a Schnei.

15. Will you supply the theoretical circuit of the Rotorua portable?

A.: It is the ordinary Browning Drake.

transmitter recently published in the "R.R."—Yes.

2. Will half-inch copper tubing be suitable for that circuit?

A.: It will be a bit unwieldy if you are using lower power, but will be ideal for high power.

B.R.H. (Auckland).—Will coils of 1in. gauge wire spaced be satisfactory for short-wave coils? I see now that most coils are wound with thin wire unspaced.

A.: Your coils will be quite satisfactory. The coils nowadays are designed for ease of construction, and are not always fully efficient. The valves are so remarkably efficient that a little can be wasted in the coils.

2. My "B" battery comprises 50 volts, with a tapping for the detector at 30. Should the voltage on the plate of the audio valve be 50 or 20?—50.

GLAD. (Palmerston North).—I wish to rebuild my set. Can you tell me a really good 5-valve all-wave circuit?

A.: An all-wave circuit of 5 valves would be very unwieldy. For a broadcast set try the Outspan five. For an all-wave set the Differential Four published last week.

J.H.S. (Wellington): How would two pentode valves go with push-pull?

A.: Pentodes valves could be used in push-pull, but there is really no need to do so. They may be difficult to handle, and they would need to be carefully matched to the output transformer.

SIGMA (Wellington): Can an ordinary sliding brass coil be used instead of a honeycomb coil for my crystal set, and would a carborundum crystal detector be better than the one specified?

CORRESPONDENTS must attach this coupon to all queries sent to the Technical Editor (Box 1032, Wellington). Questions arriving without it are likely to go astray or be delayed. Limit three questions.

Name of set

Number of valves

Name

Address

.....

Nom de plume

To be kept in subsequent inquiries.

Date

Please Note:—

(1) Be specific and brief, tabulating, if possible.

(2) Write legibly, and on one side of the paper.

(3) We do not design circuits, but accept suggestions for feature articles.

Solving trouble, as different from advice, is difficult by correspondence and while letters are given every consideration, answers are not necessarily correct—they are only our opinion based on the matter supplied, which may be quite inadequate. Intricate and involved specifications cannot be supplied without a specialist's fee.

last valve should be greater than that on the second last.

MOI WHARE (Feilding): What value condensers should be used for the knife-edge rejector shown in the "Guide"? I want it to work from 300 metres down.

A.: Use one .0005 fixed and one semi-variable.
2. How can I control volume?
A.: By using a 500,000 ohms variable resistance across the aerial and earth.

E.L. (Mount Eden): My factory-built set is not as sensitive as it should be. What is wrong with it?

A.: It appears to be either a defective s.g. valve, or that your condensers are out of alignment. This is quite a common trouble even with good sets. Have a dealer look at your set with a view to trimming up the condensers.

DUFFER (Auckland): Can I use the variable condensers from my Cossor Melody Maker for a "Night Hawk Two"?

A.: Yes, they would be quite satisfactory, but you must make the broadcast coils to suit. See the tables recently published in Q. and A.

2. Would the rheostat be suitable, and what is its value?

A.: It is quite suitable, being about 30 ohms, as far as we know. The choke, too, would be quite satisfactory. It would be better, however, to use a new panel. The transformer would be satisfactory, but you cannot use A425. However, try it.

3. Where can I obtain the coils?

A.: Several dealers make them up.

4. What is the best sized differential condenser?—A.: .0002.

5. Will the Night Hawk Two be better than the two-valve set I am using?

A.: As far as we know, yes.

B.G. (Blenheim): Would 400 yards be too long for the Beverage aerial?—No.

2. Is it necessary to insulate the aerial at each post?—Yes.

3. May it pass under trees, etc., without losing efficiency?

A.: Theoretically it will lose efficiency but when we tried out this aerial it was

a rather rough arrangement which passed through and under the trees. It, however, brought the Americans in much better than an ordinary aerial. It should, however, come directly to the set. Bend will spoil the directional effect. By this we do not mean that it must come in an absolutely straight line, but there should be no big deviations from the course.

4. Would it be a good idea to join copper wire to the steel wire over the last few yards of aerial, in order to make a better connection with the aerial terminal?—Yes.

5. A power valve in the last stage makes no apparent difference to reception. Can you account for this?

A.: It depends on the type of power valve you use and the amount of plate voltage and bias you have available. At the same time, no matter how good a power valve is, if you are using a cheap speaker, it is useless. This you have not told us, and so, of course, we cannot help you.

L.G. (Taupiri) asks a large number of questions for designing details of a set which appeared in an overseas magazine. We cannot undertake, without a specialist's fee, to supply information such as this. It is quite beyond the scope of Q. and A.

ACE (Kakahi): What is the best combination of Philips's valves for my set?

A.: Radio A209, detector A215, audio A209, power B205.

IGNORANT (Glenside): I have constructed the "A" battery charger described in the 1929 "Guide." Can I use a 280 rectifying valve?

A.: No, this type of rectifier is intended solely for low current high voltage rectification. It is not suitable for an "A" battery charger.

2. I would like to build a really powerful set. Which is the best you have already published and are you contemplating still better ones?

A.: The best set we have published is the "Outspan Five." We will probably

Next Week's Issue

will be a

SPECIAL SHORT-WAVE NUMBER

Interesting Articles, Call Signs, S.W. Set, S.W. Topics.

Watch for it.

not be publishing many more sensitive than this because expense and difficulty of constructing increases rapidly, and most people would rather buy a set when it comes to paying out big sums for parts.

KOHI (Auckland): What is a good shortwave set on the market?

A.: We are not in a position to state, having tested only Mack's "Addaphone" and the a.c. "Ultimate." The reports of these have already appeared.

2. Can you publish explanations to the Q signs used in Amateur Radio?

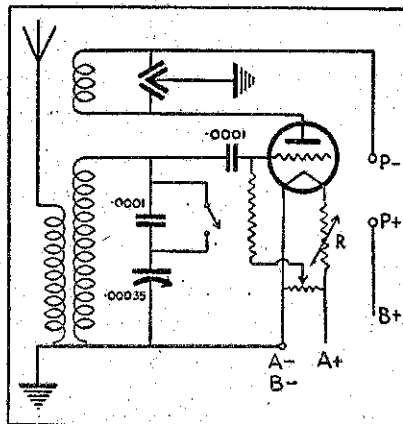
A.: The more common of these were published last week. We shall be repeating them from time to time.

POWERTONE (Dunedin): I intend making valve base coils for the broadcast bands. Would you advise the number of turns?

A.: The number of turns were recently published in a panel in the Q. and A. column.

2. Is a .00035 condenser satisfactory?

A.: Yes, there is no need to remove plates from a .0005 as this also could be used with a suitable number of turns.



When using these on shortwave you must switch a series condenser of small value in the circuit, as shown in the diagram.

ZACK (P.N.): How can I tell if the by-pass condensers in my set are burnt out?

A.: Your batteries will run down very quickly and the set will oscillate or howl.

2. Could you suggest a good four or five-valve all-wave set for use with batteries?

A.: There are several commercial makes available. A circuit of a good all-wave set appeared in last week's "R.R." when we described the Differential Four.

GRID (South Dunedin): We do not know your set, but it is unlikely than an s.g. valve can be added without considerable alteration.

2. Would the "Outspan" give better results, and what could one expect to get with it? What would be the approximate cost of building this set?

A.: The "Outspan" would give better results. You could get all the Australians at good speaker strength, the Japanese, and if you are in a good locality, the Americans. The approximate cost would be £10 without speakers or battery.

Useful Tips

A GOOD stain for darkening baseboards may be made from a solution of permanganate of potash.

IF a cabinet has been scratched badly so as to reveal white wood, careful treatment with a solution of permanganate of potash will often restore the colour, and enable the scratch to be hidden.

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- "Practical Radio Construction and Repairing," by Moyer and Wostrel, 15/6.
- "Radio Times" (English weekly), 4d. per copy.
- "Radio Retailing" (U.S.A.) monthly, 1/9 per copy.
- "Radio Manual," by Sterling and Kruse, 26/.
- "Practical Testing Systems," by Rider, 6/3.
- "Worked Examples of Electrical Technology," by Peasgood and Bowland, 18/.
- "Radio Physics Course," by Ghirardi, 14/.
- "Radio News Handbook, 1930," 2/9.
- "How to Electrify Your Set," by Osgood (U.S.A.), 1/9.
- "Radio: A Study in First Principles," by Burns, 11/.
- "Radio Operating Questions and Answers," by Nilson and Hornung, 14/.
- "Radio Amateur Handbook" (Handy's) latest edition, 5/3.
- "Radio Amateur Call Book," latest quarterly, 5/3.
- "Theory of Radio Communication," by Filgate, 12/.
- "Principles of Radio Communication," by Morecroft, 41/6.
- "Elements of Radio Communication," by Morecroft, 19/.
- "Direction Finding," by Keen, 27/.
- "Technical Telegraphy: Answers and Solutions," by Roberts and Burrow, 2/8.
- "Collins's Wireless Diary, 1931," 4/.
- "Thermionic Vacuum Tubes," by Van der Bijl, 26/.
- "Radio Receiving Tubes," by Moyer and Wostrel, 14/.
- "How Radio Receivers Work," by Roberts, 8/.
- "Radio Design," 1/- per copy.
- "Radio Engineering" (a monthly issue), 21/- per annum.
- "Projection Engineering" (monthly) 2/- per annum.
- "Radio Citizen's Call Book," latest quarterly, January, 1931. 2/9.
- "N.Z. Radio Guide and Call Book, 1931," 2/10.
- "1931 N.Z. Radio Handbook," 2/10 posted.
- 6-Valve Neutrodyne Blue Prints and instructions with one transformer and 2 resistance coupled audio stages, 1/8.
- 5-Valve Neutrodyne Receiver Blue Prints and full instructions, 1/8.
- 7-Valve Super-heterodyne Receiver Blue Print and instructions, 1/8.
- 5-Valve Brownie-Drake Blue Print and instructions, 1/8.
- 3-Valve Brownie-Drake Blue Print and instructions, 1/8.
- "Seeing by Wireless" (Television), by Ralph Stranger, 1/8.
- "Selective Crystal Set with 2-stage Audio" Blue Print and instructions, 1/8.
- 10ft. Outboard Speedster Blue Print and instructions, 1/8.
- "Baby Stepper" (14ft. Step-plane), 1/8.
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RADIO DIRECTORY

What to Buy and Where

CITIES

- ACE and HAMMARLUND SETS,** Johns, Ltd.
WESTINGHOUSE Rectifiers Chancery Street, Auckland.
- BURGESS RADIO BATTERIES,** All Radio Dealers.
- LOFTIN-WHITE AMPLIFIERS** Stewart Hardware Ltd.,
Courtenay Place, Wellington.
- MAJESTIC RADIO RECEIVERS** Kirkcaldie & Stains,
Wellington Agents, Lambton Quay.
- MULLARD VALVES** All Radio Dealers.
- N.Z. DISTRIBUTORS PILOT PARTS AND RECEIVERS,** Harrington's, N.Z., Ltd.,
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40-42 Willis St., Wellington.
142 Queen St., Auckland.
- RADIOLA RECEIVERS and** Farmers' Trading Co., Ltd.,
Expert Radiola Service. Hobson Street, Auckland.
- STEINITE RADIO** **G. G. Macquarrie, Ltd.,**
120 Willis St., Wellington.

COUNTRY TOWNS

- PHILIPS VALVES AND APPARATUS** All Good Radio Dealers.

Warning Ships of Cyclones

Value of Radio

THE value of the Willis Island radio station for the purpose of warning shipping on the Queensland coast of approaching cyclones, is evidenced by the following story of an officer of the Australian mercantile marine service.

At 3 p.m. on a Thursday afternoon, he states, ships at sea were advised of "suspicious conditions north of Willis Island." At this time his vessel was on the way from Sydney to Brisbane. Between the Thursday and the following Wednesday, 17 reports on the approaching disturbance were received, and on the Wednesday when the ship was between Cairns and Port Moresby advice was received over the air, "Cyclone centred at 8 p.m. approximately 20 miles east from Cape Capricorn; still very intense and now apparently moving south-east."

At one stage of the voyage the master deemed it advisable to anchor under Gloucester Head off Bowen to avoid running into the centre of the disturbance. The reports gave the position of the cyclone's centre, its intensity, and its progress at regular intervals. With such information in their possession, ship masters can take the necessary steps to avoid trouble and so minimise the risk to life and property.

Rain and Radio

Some Curious Effects

DURING the South African War—the first time that wireless was ever used in warfare, by the way—it was noticed that signals were very much better after a shower of rain had fallen on the veldt.

In the case of the veldt, the reason why the signals were better after the rain than before was because dry ground tends to absorb wireless waves and they are quickly damped out, whereas when the ground is covered with a layer of moisture this has the

at the receiving end, and this loss we may say will largely counterbalance any benefit gained by the passage of the waves over the wet earth.

There is also the fact that when the rain is falling, a certain amount of energy is conveyed from the aerial to the ground by the conducting rain. In other words, the insulating properties of the aerial are still further reduced, and more high-frequency energy passes directly to earth without going through the receiver.

Precisely what happens to wireless waves when they pass through a rainstorm is not definitely known. In the usual way they appear to be unaffected to any appreciable extent, yet theoretically they should be reflected by the rain slightly, somewhat in the same way as the reflecting wires of a beam station reflect wireless waves in one particular direction.

This reflection must occur to a slight extent, but as far as is known has not been remarked upon in practical working.

Absorption Effects.

ANYONE on the edge of a rainstorm might expect, however, to experience a slight increase in signal strength due to reflection, provided the oncoming waves are arriving from a suitable direction; whereas a receiving station within the area of the rainstorm may experience a slight falling-off in strength from this reflection. We may also expect the rain to absorb a certain amount of the wireless energy from the ether on the same principle that trees absorb wireless waves by acting as aerials.

Then, of course, the type of rain has a great deal to do with its effect on radio. In some parts of the world wireless reception is impossible when it rains, owing to a continuous hiss issuing from the phones or loudspeaker. This is due to the electrified rain energising the aerial.

Charged Clouds.

RAIN is not the simple drop of water we used to think it was. Not so long ago rain was explained as being due to the condensation of the air by cooling, when water was formed and it rained.

Within the last few years, however, we have learnt that the raindrop is a very complicated unit, indeed, intimately connected with atmospheric electricity and electrified dust. Every raindrop has a material centre which is in many cases electrically charged.

This centre is in fact an ion, and this ion, it may be added, is due to the gas called radium-emanation, which is given off by the radio-active substances in the earth. The gas spreads through the atmosphere and breaks up the molecules of air with which it collides, so forming electrically-charged particles which we call ions.

Thus falling rain may be, and often is, a widespread descent of atmospheric electricity, and it has been found that the electrical charge on some raindrops is greater than the force of gravity; so that a rainstorm is an electrical force to be reckoned with by anything

passing through the air such as wireless waves.

After a shower of this kind of rain, the atmosphere has been cleared of much of its electricity, the rain has brought the ions to earth, as it were, so that we might expect the insulating properties of the air to be more efficient, therefore clear and crisp reception is likely. Speaking tentatively this may account for the clear reception sometimes noticed after a storm, as if the air had been cleaned up.

On the other hand, during such a rainstorm, we may expect a slight background of "atmosphere," a slight hiss or noisiness which muffles reception slightly. This is due to the electrical charges in the raindrops energising the aerial.

So far we have only touched the fringe of the effect of weather on wireless and vice versa—Professor Houllé-vigue, of Paris, claims to have proved, for instance, that the mist surrounding a transmitting aerial is dispersed when the station is radiating. There is ample scope for research in these directions by amateurs, as it is largely a matter of observation with an ordinary receiver.—G. H. Daly, in "Popular Wireless."

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MRS. ZOE BARTLEY-BAXTER,
who, on Tuesday, April 14, will pro-
duce from 1YA "Destiny's Door," a
one-act radio play by de Olive Lowe.

effect of preventing the waves from
sinking into the ground and they will
last longer.

Insulator Leakage.

THIS after-rain effect is more notice-
able in the day time, when the
ground wave only is received. At night,
when reception is accomplished mainly
by reflected or refracted waves from the
Heaviside Layers, this effect is not so
obvious.

Other factors, of course, enter into
this phenomenon. For example, a bene-
ficial effect should not be so noticeable
immediately after rainfall, because the
aerial insulators at the transmitting
and receiving stations are usually wet,
and, therefore, are not up to their usual
efficiency. This is because water is a
conductor, so that the high-frequency
currents in both aerials will tend to
leak away to earth over the wet insula-
tors.

When, however, a wind has dried the
wet insulators, and the rain is still ly-
ing on the ground, then reception should
be and usually is above normal.

In the case of reception during fall-
ing rain, conditions are different. The
aerial insulators are usually wet, and
consequently there is a definite loss of
energy over the wet insulators. More
energy is, of course, lost in the high
potential aerial of the transmitter than

Locating Hum in A.C. Sets

Stage by Stage Analysis

By W. T. COCKING

(In "Wireless World").



EVERY reader who has experimented with mains receivers must at some time or other have experienced the annoyance of hum. The locating of the source of difficult part of the problem, trouble is by far the most but once it is found its cure is usually fairly easy. In order to illustrate the principles involved, the commonly used circuit of Fig. 1 will be taken as a basis for discussion, and the modifications necessary for other circuits will become apparent. It will be assumed that the complete apparatus is built into one unit, and that it performs satisfactorily with the exception that there is excessive hum.

It will be realised that a systematic investigation of the set is essential, for the hum may be introduced in many places at once, and the elimination of one source alone often makes little audible difference. The obvious starting point is the loudspeaker; it is very unlikely, although not impossible, for there to be hum in a reed-drive-type speaker, but it is a very probable source of trouble if it be of the mains-energised moving-coil type.

The procedure to be adopted, therefore, is to connect the moving-coil to the loudspeaker terminals on the set in the usual manner, and to switch off the set, leaving only the field energised. Any hum must now be due to the field supply, and must be eliminated in one of the many well-known ways. If the field be of the low-voltage type supplied by a metal rectifier, the trouble can usually be cured by connecting in parallel with the winding an electrolytic condenser of high capacity. With a high-voltage field winding supplied by a valve rectifier, or D.C. mains, it will usually be necessary to add a smoothing choke in series with the winding, in addition to a 2 mfd. or 4 mfd. condenser in parallel with it.

The Output Stage.

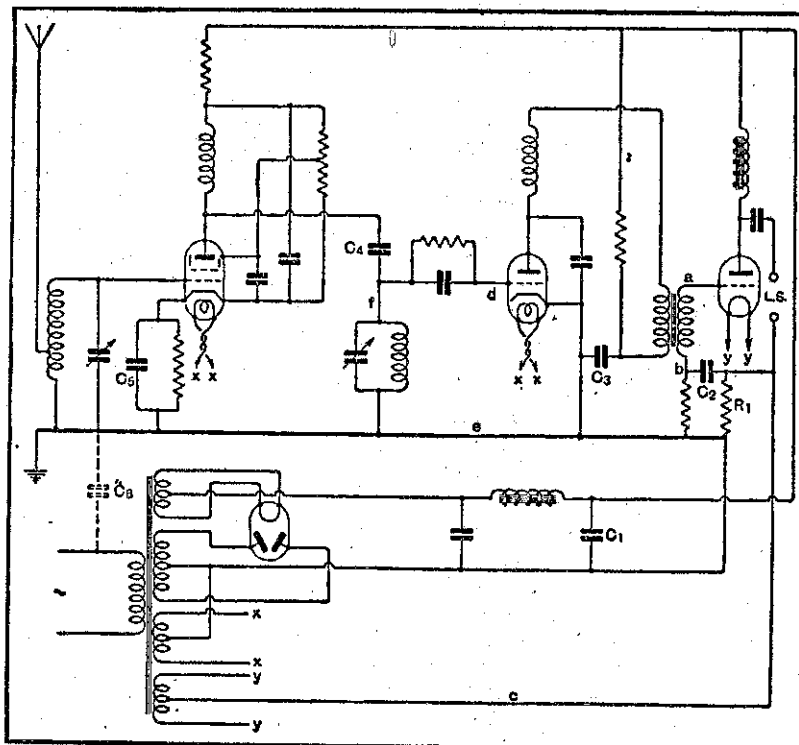
Having made certain that the loudspeaker introduces no hum one can tackle the set in earnest. The first step is to make sure that there is no electro-magnetic interaction between the output choke, or transformer, and the mains transformer. To do this disconnect the choke from the valve and H.T. supply, and connect across it a resistance equal in value to the anode A.C. resistance of the power valve, as shown in Fig. 2a for choke and Fig. 2b for transformer coupling. Under these conditions there should be no audible hum whatever, and if this be the case, the connections may be put back to normal. If hum be found, however, the choke or transformer must be rotated, or moved to a different position in the set, until a position is found which gives silent operation. Trouble in this portion of the receiver is rather unlikely, for no amplification follows the output circuit, and any pick-up is not likely to be at all serious.

The next step is to isolate the output stage, and to do this we short-circuit the secondary of the intervalve transformer by connecting a length of wire between the points, a, b, Fig. 1. We have proved the loudspeaker and output circuit to be free from hum, and

any hum with the inter-valve transformer secondary short-circuited must obviously be due to the H.T. supply, the grid bias supply, or the filament of the power valve.

The latter is the most easily tested by heating it temporarily from an ac-

itself introduces hum, or there is an excessive capacity between the different windings on the mains transformer. The H.T. supply is most easily tested by increasing the capacity, say, by 4 mfd., of the condenser C1; if this results in an improvement it is the



up, and the effect of enclosing the detector together with its grid leak and condenser in an earthed metal box should certainly be tried. In this connection it must not be forgotten that interaction between the valve electrodes themselves can occur, and the writer once traced a persistent hum to interaction between the electrodes of the H.T. rectifier and the detector valves, which were rather close together; the trouble was cured by screening.

The H.F. Stage.

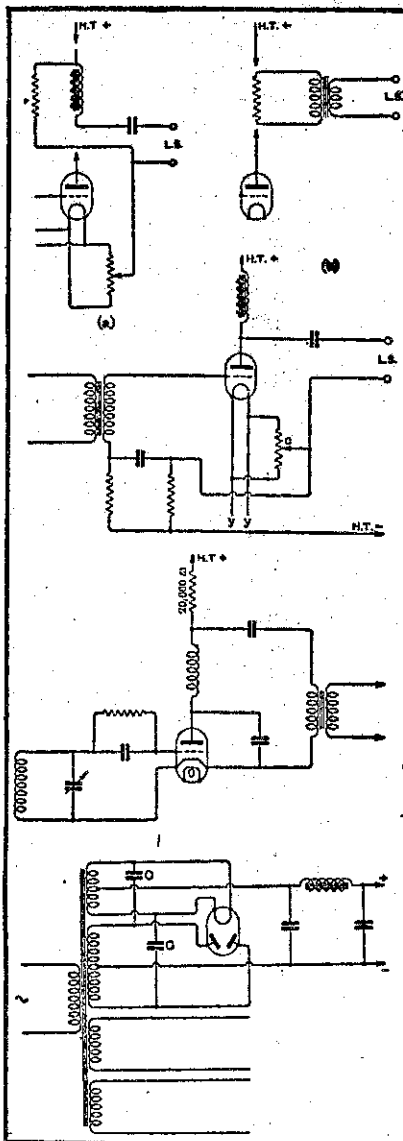
HAVING cured hum as far as the grid circuit of the detector, the short-circuit between the points e, f, should be removed. There should still be no hum, and in the very rare case when it is found that this alteration introduces it, it can be cured by rotating the tuning coil itself. Next reconnect the condenser C4 to the tuning circuit, and test for hum. During this test the set must be so tuned that no signal is audible, for this may give rise to modulation hum, which will mask other effects. Any hum which can now be heard must be due to the H.T. supply to the H.F. valve, and appropriate additions should be made to its smoothing circuit, and also to the grid-circuit bias resistance by-pass condenser C5. In the absence of a signal, the set should now be perfectly quiet, and with no trace of hum, beyond, perhaps, one foot from the loud-speaker cone.

Modulation Hum.

NOW it may quite possibly be found that when a station is tuned in, a fairly strong hum becomes evident. This is known as modulation hum, since the hum actually modulates the carrier of the incoming signal, and it is often difficult to cure. There are several causes of modulation hum, and each has its own remedy. In the first place, it may be caused by insufficient smoothing of the grid bias and H.T. supplies to the H.F. valve. The former is the more prevalent source of trouble, and it may be necessary to use a total capacity for C5 of Fig. 1 of about 4 mfd. before the hum can be cured. Extra capacity across the other H.F. by-pass condensers should also be tried.

Another source of trouble lies in the H.T. rectifier valve; this may generate H.F. oscillations which are modulated by the A.C. mains. This state of affairs can be cured by adopting the rectifier circuit shown in Fig. 5, where the valve is prevented from oscillating by the two condensers C, which should have a capacity of 0.1 mfd. and be tested to at least 1000 volts.

In the writer's experience, however, the most troublesome source of modulation hum is the supply mains; and this particular form can occur even when no H.F. stage is used. The cause of this type of hum is rather obscure, but it is apparently due to the presence of H.F. currents in the mains leads. The cure is simple and satisfactory; a condenser C6 (shown dotted in Fig. 1) should be connected between one of the mains leads and earth. The best capacity must be found by experiment, but a value of 0.0005 mfd. is often sufficient; in some cases, however, a capacity of 0.001 mfd. or 0.002 mfd. may be found necessary. The full mains voltage is connected across this condenser, and so it is very important that it should be rated for continuous work on not less than 1000 volts A.C.



Figs. 2, 3, 4 and 5.

Fig. 5.—The addition of the two condensers C to the H.T. rectifier prevents the valve from generating H.F. oscillations, which would be modulated by the mains and cause hum.

It will usually be found possible to eliminate all traces of hum by a systematic search conducted on the above lines, and the whole principle lies in working backward from the loud-speaker, and checking each point in turn. During this process a watch should be kept for high-resistance connections, since these are a prolific source of hum from electro-static pick-up; apart from badly soldered joints, they will be found most frequently in valve holders and plug-in coils. There is always the chance of a faulty valve, and this is the most likely source if the strength of the hum is variable. In obstinate cases the effect of using a potentiometer for the connection between the cathodes and heaters of the indirectly heated valves should be tried, as recommended for an output valve.

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An Interesting Phenomenon Correspondent's Experience

I WOULD like with your permission to give readers, more particularly those interested in construction, a very interesting result of one of my experiments, and as I frankly admit that it has me puzzled, I have no doubt some of your more experienced readers will try the thing out and give an explanation thereof.

My set is a battery model six-valve factory-made job, and is recognised as a very efficient set. However, since purchasing this set, the screen grid valve made its appearance, and in order to get the benefit of S.G. amplification without interfering with the set, I constructed a S.G. Booster. This gave the set an extra kick, and satisfied me that the screen grid valve was a decided improvement. I then constructed the crystal set and wave trap described in the 1929 "Radio Guide." This gave me wonderful reception on the local station on two valves by plugging into the detector socket of the big set.

One evening while "listening-in" to 2FC with the booster attached, the local 2YA was heard in the background with too much volume, so I decided to try hooking up the wave trap as well, with the result that 2YA disappeared. So far so good. The following evening our old friend static was on the war-path, and in disgust I decided to give it the full possession of the ether and go to bed. At this time the apparatus on the table was connected up as follows:—

Static can be accentuated by the action of the crystal in this circuit, where it is acting as absorption tuned circuit in series with the aerial there by sharply tuning the aerial circuit.

By disconnecting the earth selectivity is increased. As the mains were acting as an aerial, and the unwanted signal was absorbed by the previously tuned circuit the crystal, you were able to add to your signal strength.

This may seem a fearsome hook-up to tune in a station on, but I was getting some fun out of it, so why worry? I disconnected the aerial from the crystal set in preparation of closing up for the evening, but instead of the music ceasing as I expected, it came in louder, and what was more, old man static must also have been surprised, as he was decidedly less noisy. I then disconnected the earth from the main set, and the result was that 2FC, Sydney, came in as loudly as 2YA, and static was not heard—2YA was also cut right out.

Now, according to all the text books on radio, a good earth and aerial are the first essentials to good reception, and here was I getting a Sydney station without aerial or earth. Needless to say, I did not go to bed as I intended, but sat up till the early hours. I was able to tune-in all the A class Australians and quite a number of "Japs," and also about 15 B class stations in New Zealand and Australia. But what impressed me more than anything was the absence of static and background noises that were apparent with the aerial and earth connected up.

I should have explained earlier that I use a "B" eliminator. The only as-

sumption I can arrive at is that the coil of the crystal set was acting as an aerial, and that the mains were earthing the whole hook-up. Incidentally the tuning is extremely selective, about two degrees of the booster dial being sufficient to cut out any station.—A Comfort (Wellington).

We Suggest.

YOUR experience is quite a common one, except that the crystal set acted in a different manner from what it was constructed for, and by way of a change became an absorption wave trap. The mains acted as aerial and ground. This is a feature in some localities that is quite objectionable, resulting in unwanted signals impinging on those that the set is tuned to, with the result that special circuits have to be devised in the main heads to reject them. Otherwise the set would be blamed for being unselective.

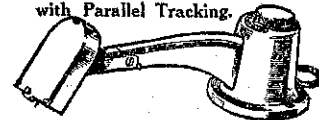
Here is another peculiar and interesting method: Connect aerial and earth to crystal set. Place the other set in a slightly oscillating condition. Now carefully tune crystal set a little distance away from the other set (but do not place phones in crystal set) and note effects. In some cases signals tuned in on the crystal set will be reproduced in the other set, although



MR. BILLY HART,
a popular 2YA vocalist.

not audible on the crystal set. Remember, that in playing with sets great discoveries may be made accidentally, so pass them along for the benefit of others. Armstrong discovered reaction by playing with a coil of wire while receiving signals.—Tec. Ed.

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FEATURE PEEPS

... at ...

FUTURE PROGRAMMES

SUNDAY

From 1YA

ON Sunday afternoon there will be a relay of portion of an organ recital to be given in the Auckland Town Hall by Mr. Maughan Barnett, city organist. The evening service to be held in St. Andrew's Church will be relayed by 1YA. The preacher will be the Rev. Ivo Bertram, and the organist and choirmaster, Dr. Neil McDougal. This broadcast will be followed by a relay of the Municipal Band concert, to be given under the direction of Captain George Buckley, in the Town Hall. Included in the programme will be a cornet solo by Mr. Fred Bowes, "Lo, Here the Gentle Lark" will be played as a flute and clarinet duet by Messrs. Hal. McLennan and M. J. McGregory.

Wellington Notes

THE evening service in the Taranaki Street Methodist Church will be relayed. The preacher will be the Rev. T. R. Richards, and the organist and choirmaster Mr. H. Temple White. At 8.15 p.m. a recital by the Port Nicholson Silver Band, under the conductorship of Mr. J. J. Drew, will be relayed from the Grand Opera House.

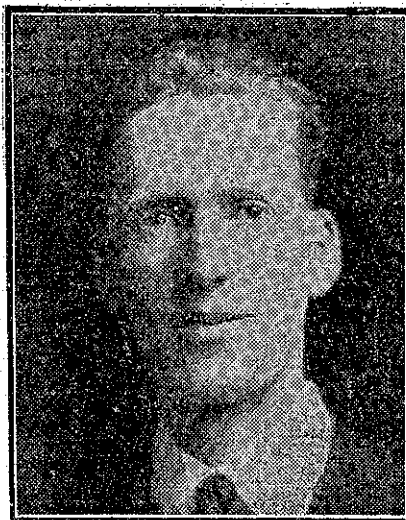
3YA Topics

THE service in Moorhouse Avenue Church of Christ will be broadcast by 3YA. Mr. E. P. Ademan, B.A., will be the preacher, Miss B. Readhead organist, and Mr. H. E. Ames choir conductor. In the after-church concert, items will be contributed by a fine trio

consisting of Misses Gladys Vincent (violin), Doreen Daly (piano), and Mr. Francis Bate (cello). The numbers will comprise "Fantaisies," "Londonderry Air," and "Fairy Frolic."

4YA Broadcast

THE evening service in St. John's Anglican Church, Roslyn, will be broadcast by 4YA. The Ven. Archdea-



VAL JONES,

A 2YA baritone, who will be heard next week in some very popular numbers, including that well-known solo, "The Lute Player."

—Andrew, photo.

con Fitchett will be the preacher, with Mr. W. H. Allen as choirmaster. Afterward, 3YA's concert will be relayed.

MONDAY

Wellington Broadcast

MR. H. C. South will deliver his fortnightly talk on "Books—Grave and Gay."

The dramatic radio play, "Joan of Arc" is to be produced for 2YA by Mr. J. F. Montague and his company. There will be a dance music session from 10 till 11 p.m.

3YA Features

A REVIEW of books of the month will be broadcast from 3YA by Mr. E. E. Wiltshire, president of Linwood Library.

Conductor R. J. Estall, of the Woolston Band, has arranged a fine programme. The items will include two marches, "Punchinello" and "North Star," a selection, "Memories of Schubert," Toselli's "Serenata," and the overture "Pique Dame." An outstanding item should be a trombone solo, "If With All Your Hearts," played by Bandsman E. Williams. Miss Myra Pollard, who has just graduated A.T.O.L., will sing numbers new to most listeners.

Dunedin Notes

THE Four Ace Concert part will be responsible for the entertainment, and will feature concerted numbers. Their numbers will include an "Opening Chorus," Plantation medley, "The Tide Rises—The Tide Falls," and the "Closing Ode." Solos and duets, all of a popular type, will also be sung by the Aces, and a "Joker" will also play his part. The pianist of the party will be Mr. Norman Bachop, who will play "Finlandia." The Studio Trio will also contribute to the programme.

TUESDAY

At 1YA

RECENTLY, 1YA broadcast a one-act play, entitled "The Price," written by Dr. George de Olive Lowe, of Auckland. This was a great success in every way, and listeners will look forward with pleasurable anticipation to another three-act play from the same author, entitled "Destiny's Door."

Once again the play will be produced by Mrs. Zoe Bartley Baxter, who will lead an excellent cast. Dance music will follow the presentation of this play and will continue until 11 p.m.

FEATURETTES

"Joan of Arc"

2YA, Monday.

"Destiny's Door"

1YA, Tuesday.

Operatic Recital

4YA, Wednesday.

Banjo Orchestra

2YA, Friday.

The Wellington Optimists' Club

2YA, Saturday.

Wellington Notes

AT 8.15 p.m. the first of a series of lecturettes on "Fabrics and Fashions" will be given by Mrs. T. W. Lewis.

The concert programme will be of a popular type. Two outstanding numbers on the programme by the Lyric Quartet will be a "Mysterious Mose," and "Song of Swanee and "Widdicombe Fair." The Salon Orchestra, under Mr. M. T. Dixon, will be heard in a programme of instrumental music suited to all tastes. Items include the selection "Little Dutch Girl," a novelty "Enchanted Valley," "Danny Boy," and "Gabrielle Suite."

A feature of the programme will be a one-act play entitled "The Silver Salt Cellars." This will be played by Miss Gracie Kerr and Mr. James Cooke, a pair of clever sketch artists, whose items are always acceptable.

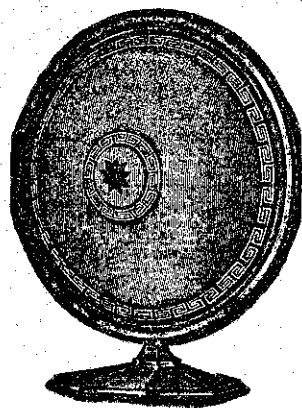
Notes from 4YA

FROM the Concert Chamber of the Dunedin Town Hall a concert to be given by the Dunedin Philharmonic Society and assisting artists under the conductorship of Signor Squarise will be relayed. The orchestral numbers will include the march "En Route"



RUSSELL SUMNER, A Christchurch tenor, who will sing from 3YA on Thursday, April 16.

—Stefano Webb, photo.



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(composed by Signor Squarise), the overture "Die Meistersinger," "Andantino," and Liszt's "Hungarian Rhapsodie No. 2." The vocal numbers will comprise Romberg's "Hindoo Song," Debussy's "At Evening," and Massenet's "Open Thy Blue Eyes."

WEDNESDAY

Auckland Topics

THE Orchestral Octet, under the direction of Mr. Harold Baxter, will provide the instrumental portion of 1YA's programme. Among the items will be a selection of Mendelssohn's Songs, "Indian Love Lyrics," and "Day in Naples." The New Zealand Four, consisting of Messrs. James Simpson, Roy Dormer, Eric Mannall and Albert Gibbons Taylor, will render solos, duets and quartets, many of which will be new to listeners. This male voice combination is deservedly popular.

Wellington Notes

THE weekly presentation of selected recordings from overseas programmes will be the feature of this evening. Dr. Guy H. Scholefield, O.B.E., will give a short address on a subject of international interest. The evening's entertainment will conclude with dance music of international recordings.

Items from 3YA

MR. J. NORTH, a Scottish singer making his debut at 3YA, will include in his recital several songs of his homeland. Mr. North, who has just passed the R.A.M. Advanced Grade, sings with excellent effect. Two Scottish songs and the popular Irish air, "Danny Boy," are to be contributed by Miss Addie Campbell.

Dunedin Notes

THE afternoon talk by the Home Science Extension Department of Otago University, at 4YA will be on "Do You Agree with Your Food?" At 7.15 Mr. L. W. McCaskill will speak on "Introduced Birds and the Farmer."

In the evening a special studio concert to be given by Signor Giovanni Stella, introducing the brilliant young dramatic soprano, Signorina Rossi, and eminent assisting artists, will be presented.

THURSDAY

Home Conveniences

THE afternoon home science talk from 1YA, 2YA and 3YA, prepared by the Home Science Extension Department of Otago University, will be on "Home Conveniences"

Notes from 1YA

THE next of the series of informative talks under the auspices of the N.Z. Manufacturers' Association will be on "Tar and its By-Products," by Mr. J. F. Holloway.

Two Australian artists, new to 1YA, will sing this evening. They are Mr. Denis Sheard, tenor, who comes to New Zealand with a splendid reputation, and has been engaged for a series of three appearances, and a very fine contralto, Miss A. E. Harrison. Both these artists have performed for Station 6WF, Perth, Western Australia.

The Monte Carlo Orchestra, under the direction of Mr. E. K. Cunningham, will provide the instrumental portion of the programme, and among their items will be "The Barber of Seville" overture and "Gypsy Love." The programme will conclude with a gramophone recital on French music, to be given by Miss Mollie Atkinson.

Wellington Topics

THE programme will be provided by the orchestra of the Wellington Commercial Travellers' and Warehousemen's Association. An exceptionally fine concert has been arranged and should be well worth tuning in.

3YA Notes

UNDER the auspices of the Canterbury Horticultural Society, Mr. W. J. Humm will speak from 3YA on "Berry Bearing Plants."

To orchestral accompaniment, Miss Millicent Jennings will sing three songs, two of them being Syrian songs, which will be new to 3YA listeners. The other soloists are of high standard and with string instrumental combina-



EDWARD BOND,

Who regularly appears before the 4YA microphone, will be heard in some delightful bass solos this week.
Photo, Artlite.

tion a concert of some merit should be on the air from 3YA to-night.

FRIDAY

Auckland Notes

THE Orchestral Octet's items will include the selection "Gipsy Princess," and the clarinet solo, "Serenade." They will be supported by popular 1YA vocalists, and Mr. Zante Wood, the well-known humorist.

Features from 2YA

THE programme to be presented will be of a varied and interesting nature. The Orchestra, under Signor A. P. Truda, will be heard in a number of selections, including the overture "Minstrelsy." Miss Ann Gilpin (mezzo-soprano), a newcomer to the studio, should prove a welcome acquisition to 2YA programmes. Mr. Dan Foley (light baritone) will be heard in various items, including "On the Road to Mandalay."

A feature of the programme will be a banjo orchestra, which has been organised by Mrs. H. G. Reeves, the

well-known performer on this instrument. This combination should prove very successful as a novelty. The programme chosen includes the march "Let Her Go," "Irish Melodies," and the medley, "One Step."

Christchurch Selections

THE fortnightly "Radio Service" talk from 3YA will be given by Messrs. D. Cossgrove and W. Melbourne. The concert includes a number of popular airs, several being plantation melodies, to be played as accordion solos by Mr. W. Sumner. There will be humorous recitations and many excellent vocal solos. Trios by the Christchurch Broadcasting Trio will include "Graesk Festdans," a festive Greek dance.

Notes from Dunedin

A VERY attractive and well-varied programme will be presented, the vocalists being "The Select Four," singing the concerted numbers "From Oberon in Fairyland," "Carry Me Back to Old Virginny," "Land of Hope and Glory." A trio consisting of Messrs. A. H. Pettitt and L. and K. Hunter will contribute numerous light numbers.

SATURDAY

Features from 1YA

FROM the Auckland Town Hall a concert to be given by the Auckland Municipal Band, under Captain George Buckley, will be relayed. The band will present an exceptional programme, with many instrumental solos. Miss Evelyn Robinson, contralto, will sing "Love's Old Sweet Song" and "I Love the Rose You Gave Me," composed by Mr. Maughan Barnett, of Auckland.

Wellington Notes

PROFESSOR W. R. GOULD, Professor of Education, Victoria University College, under the auspices of the W.E.A., will lecture on "Leaving Children Alone."

The Wellington Optimists' Club, in conjunction with the Salon Orchestra, will provide a programme for the evening. They will present a revue type of entertainment, the items comprising humorous numbers, light vocal solos, duets, and sketches.

The Salon Orchestra will provide the incidental music.

Items from Christchurch

CABARET songs, including two numbers from "The House That Jack Built," popular tenor and bass solos, humorous numbers, and instrumental



MILLICENT JENNINGS,

A member of the Melodious Quartet, regular performers at 3YA, will be heard in several numbers, with orchestral accompaniments next Thursday.

—Steffano Webb, photo.

solos will go to making the concert a bright one. Mr. J. Woodham, an exponent of the mouth organ, will entertain with a number of popular airs. The programme will be relayed to 4YA.

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Full Programmes for Next

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Sunday, April 12

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

- 3.0 : Selected recordings.
 3.15: Literary selection and relay of portion of organ recital from the Auckland Town Hall by the City Organist, Mr. Maughan Barnett.
 6.0 : Children's song service, conducted by "Uncle Bert."
 6.55: Relay of Divine Service from St. Andrew's Church (Presbyterian). Preacher, Rev. Ivo Bertram; Organist and Choirmaster, Dr. Neil McDougall.
 8.30 (approx.): Relay of Municipal Band concert from the Auckland Town Hall, under the conductorship of Mr. George Buckley.
 March—Band, "Under the Allied Banners" (Ollerenshaw); overture, "1812 Solenne" (Tchaikowsky).
 Cornet—Mr. Fred Bowes, "Seventh Air Vari!" (De Berliot).
 Selection—Band, "Gems from Famous Operas" (Sullivan).
 Duet, flute and clarinet—Messrs. Hal. C. McLennan and M. J. McGregor, "Lo, Here the Gentle Lark" (Bishop).
 Humorous variations—Band, "Three Blind Mice" (Lotter).
 Tone poem—Band, "In the Cloisters" (Torrence).
 Hymn—Band, "Abide With Me" (Hoby).
 March—Band, "The First Division."
 9.30: Programme of selected recordings from the studio.
 10.0 : God save the King.

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

- 3.0 to 4.30: Afternoon session of selected gramophone recordings.
 6.0 : Children's song service, conducted by "Uncle George," assisted by the Children's Choir from St. Jude's Anglican Church.
 7.0 : Relay of evening service from Taranaki Street Methodist Church. Preacher, Rev. T. R. Richards. Organist and Choirmaster, Mr. H. Temple White.
 8.15 (approx.): Relay of Band Recital by the Port Nicholson Silver Band from the Grand Opera House.

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

- 3.0 : Gramophone recital.
 5.30: Children's song service by children of the Church of Christ Sunday Schools.
 6.15: Chimes from studio.
 6.30: Relay of evening service from the Church of Christ, Moorhouse Avenue. Preacher, Mr. E. P. Aderman, B.A.; Organist, Miss B. Readhead; Choir Conductor, Mr. H. E. Ames.
 7.45: Musical recordings from studio.
 8.15: Vienna Philharmonic Orchestra, "Dorfschwalben" (Strauss).
 8.28: Contralto—Mrs. Tristram Willcox, "Abide With Me" (Liddle).
 8.27: Instrumental trio—Misses Gladys Vincent (violin) and Doreen Daly (piano), Mr. Francis Bate (cello), "Fantaisies" (Schytte).
 8.36: Flute—Mr. A. E. Hutton, "Songs Without Words" (Clinton).
 8.47: Tenor—Mr. Douglas Suckling, (a) "A Little Bit of Heaven" (Ball), (b) "Life is a Caravan" (Del Riego).
 8.46: Violin—Miss Gladys Vincent, (a) "Rondino" (Beethoven), (b) "Horn-pipe" (Mistowski).
 8.50: Soprano—Miss Hilda Hutt, "The Blue Alsatian Mountains" (Adams).
 8.54: Cornet—Mr. R. Ohlsen, "Zanette" (Percy Code).
 9.1 : Weather forecast and station notices.
 9.3 : Philadelphia Symphony Orchestra, "Danse Macabre" (Saint-Saens).
 9.11: Contralto—Mrs. Tristram Willcox, (a) "Love Not the World" (Sullivan), (b) "Hallelujah" (O'Connor Morris).
 9.15: 'Cello—Mr. Francis Bate, "Adagio Pathetique" (Godard).
 9.20: Choir—Manchester Children's Choir, "Nymphs and Shepherds."
 9.24: Tenor—Mr. Douglas Suckling, "Like to the Damask Rose" (Elgar).
 9.28: Flute—Mr. A. E. Hutton, "Andante" (Croner).
 9.33: Selection—Instrumental Trio, (a) "Londonderry Air" (arr. Kreisler), (b) "Fairy Frolic" (Quilter).
 9.41: Soprano—Miss Hilda Hutt, (a) "The Dawn has a Song" (Phillips), (b) "From the Land of Sky-Blue Water" (Cadman).
 9.47: Cornet—Mr. R. Ohlsen, "Song of the Roses" (Rollinson).
 9.53: Berlin Philharmonic Orchestra, "Carnaval Romain" (Berlioz).
 10.3 : God save the King.

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

- 3.0 : Selected recordings.
 5.30: Children's song service, conducted by "Big Brother Bill."
 6.15: Instrumental recordings

- 6.30: Relay of evening service from St. John's Anglican Church, Roslyn. Preacher, Ven. Archdeacon W. A. R. Fitchett, M.A.; Choirmaster, Mr. W. H. Allen.
 7.45 (approx.): Selected recordings.
 8.15: Relay of concert programme from 3YA, Christchurch.
 10.0 (approx.): God save the King.

2YB, NEW PLYMOUTH (1230 KILOCYCLES)—SUNDAY, APRIL 12.

- 6.0 : Children's service.
 8.15: Studio concert.

Monday, April 13

1YA, AUCKLAND (900 KILOCYCLES)—MONDAY, APRIL 13.

SILENT DAY.

2YA, WELLINGTON (720 KILOCYCLES)—MONDAY, APRIL 13.

- 3.0 : Chimes. Selected gramophone recordings.
 3.30 and 4.30: Sporting results to hand.
 5.0 : Children's session, conducted by "Uncle Jeff."
 6.0 : Dinner music session.
 New Light Symphony Orchestra, "Merry Wives of Windsor" (Nicolai).
 Marek Weber's Orchestra, "Moonlight on the Alster" (Fetras).
 Cedric Sharpe Sextet, "Chanson Napolitaine" (D'Ambrosio).
 New Light Symphony Orchestra, "Hearts and Flowers" (Tobani).
 Marek Weber's Orchestra, "Wine, Women and Song" (Weber).
 Organ—Reginald Foort, "By the Blue Hawaiian Waters" (Ketelbey).
 Cedric Sharpe Sextet, "O Lovely Night" (Ronald).
 New Light Symphony Orchestra, "The Glow-worm Idyll" (Lincke).
 Victor Salon Orchestra, "Indian Love Call" (from "Rose Marie") (Friml); "The World is Waiting for the Sunrise" (Lockhart).
 De Groot and His Orchestra, "When Summer is Gone" (Harrison-Wilhite); "The Merry Widow" (Lehar).
 Organ solos—Reginald Foort, (a) "Leave Me Alone," (b) "Songs My Mother Taught Me" (Dvorak).
 Vienna Schrammel Quartet, "Roguish Eyes" (Uschmann).
 7.0 : News session, market reports and sports results.
 7.40: Lecturette—Mr. H. C. South, "Books—Grave and Gay."
 8.0 : Chimes. Special presentation of play "Joan of Arc" by Mr. J. F. Montague and Company.
 10.0 : Dance programme.
 Foxtrots—Harry Hudson's Melody Men, "A Bench in the Park."
 Alfredo and His Band, "My Fate is in Your Hands."
 Carl Fenton and His Orchestra, "I'm Wild About Dancing."
 10.9 : Waltz—Radio Melody Boys, "What Have I Done?" (Rotter).
 Tangos—Marcu's Roumanian Orchestra, "Adieu, Venice"; "Do You Still Love Me?"
 Orlando and His Argentine Tango Orchestra, "Garufa."
 10.21: Vocal—Randolph Sutton, "We're Uncomfortable" (Wallace).
 10.24: Foxtrots—The Blue Jays, "By the Bend of the River."
 Radio Melody Boys, "A Little Old Cottage" (Hargreaves).
 The Blue Jays, "I'm Following You" (Dreyer).
 Harry Hudson's Melody Men, "Handsome Gigolo."
 10.36: Waltz—Alfredo and His Band, "Silv'ry Moon" (de Frank); "Molly."
 Tangos—Marcu's Roumanian Orchestra, "Argentina."
 Orlando and His Argentine Tango Orchestra, "Gente Bacana"
 10.48: Vocal—Randolph Sutton, "Back to Gay Paree" (Stanley).
 10.51: Foxtrots—Alfredo and His Band, "Cryin' for the Carolines" (Lewis); "The Sunshine of Marseilles" (Gilbert); "Blondy."
 11.0 : God save the King.

3YA, CHRISTCHURCH (980 KILOCYCLES)—MONDAY, APRIL 13.

- 3.0 : Gramophone recital.
 4.25: Sports results.
 5.0 : Children's hour, conducted by "Cousin Margot" and "The Mystery Man."
 6.0 : Dinner music session.
 Royal Italian Band, "Marcia Reale" (Gabetti).
 Court Symphony Orchestra, "In Venice" (Sellars).
 Organ—Stanley MacDonald, "Was It a Dream?" (Coslow).
 Royal Italian Band, "Garibaldi's Hymn" (Olivieri).
 Columbia Symphony Orchestra, "Idillo" (Lack).
 Ketelbey's Concert Orchestra, "Sanctuary of the Heart" (Ketelbey).
 'Cello—W. H. Squire, "Melody in F" (Popper).

Week-all Stations-to Apl. 19

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- New Queen's Hall Orchestra, (a) "Un Sonnet D'Amour"; (b) "La Tarantelle" (from "Petite Suite De Concert").
 W. H. Squire's Celeste Octet, "Mignon": (1) Introduction and Romance; (2) Polonaise (Thomas).
 Cello—W. H. Squire, "Silver Threads Among the Gold."
 Columbia Symphony Orchestra, "Spring Song" (Mendelssohn).
 Band of H.M. Grenadier Guards, "Turkish Patrol" (Michaelis).
 Organ—Stanley MacDonald, "Nicolette" (Batten).
 Jacque Jacobs Ensemble, "Weiner Blut" (Strauss).
 H.M. Grenadier Guards Band, "Smithy in the Woods" (Michaelis).
 7.0 : News session.
 7.30 : Talk—Mr. E. E. Wiltshire, "Books of the Month."
 8.0 : Chimes.
 Band Programme by the Woolston Band (Conductor R. J. Estall), and assisting 3YA Artists.
 March—Band, "Punchinello" (Rimmer); Selection, "Memories of Schubert" (Schubert).
 8.14 : Baritone—Mr. Frank Jackson, (a) "Drink To Me Only" (trdfl.); (b) "Invictus" (Huhn).
 8.20 : Xylophone—Franz Kruger, (a) "Tell Fantasia" (Kruger); (b) "La Kraquette" (Clerice).
 8.26 : Mezzo-contralto—Mrs. Rhys Morgan, (a) "An Indian Squaw's Song" (Morgan); (b) "When the Birds Go North Again" (Willeby).
 8.31 : Septette—Ivan Wasseljeff Septette, "Die Bruder."
 8.34 : Trombone—Bandsman E. Williams, "If With All Your Hearts."
 8.40 : Bass—Mr. Robert W. Rofe, (a) "The Lute Player" (Allitsen); (b) "Son of Mine" (Wallace).

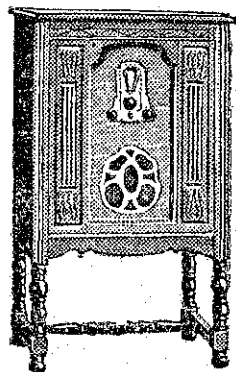
- 8.46 : Accordeon—Bastien and His Orchestra Bal Musette, (a) "Smash" (Peure); (b) "Sugared Almond" (Bastien).
 8.52 : Mezzo-soprano—Miss Myra Pollard, (a) "In Norley Wood"; (b) "Western Wind" (from "Road and River") (Brahe).
 8.56 : Intermezzo—Band, "Serenata" (Toselli).
 9.3 : Weather forecast and station notices.
 9.5 : Ilja Livschakoff Orchestra, (a) "Curly" (Powell); (b) "In the Bar of the Gnomes" (Rosen).
 9.11 : Mezzo-contralto—Mrs. Rhys Morgan, (a) "Echo" (Somerset); (b) "Five Little Piccaninnies" (Anthony).
 9.16 : Horn—Bandsman R. J. Turner, "Tona" (Allison).
 9.21 : Baritone—Mr. Frank Jackson, (a) "The Blind Ploughman" (Coningsby-Clarke); (b) "At Sunset" (Coates).
 9.27 : Violin—Ibolyka Zilzer, (a) "Antique Dance" (Dussek-Burmester); (b) "Waltz No. 2" (Weber-Burmester).
 9.32 : Mezzo-soprano—Miss Myra Pollard, (a) "Welcome June" (Rutter); (b) "Nightingale of June" (Sanderson).
 9.38 : Overture—Band, "Pique Dame" (Suppe).
 9.47 : Yodel—Ernst Ruckstuhl, "Lower Woods" (Schmalz).
 9.51 : Bass—Mr. R. W. Rofe, (a) "The Star" (Rogers); (b) "The Drum Major" (Newton).
 9.57 : March—Band, "North Star" (Rimmer).
 10.3 : God save the King.

4YA, DUNEDIN (650 KILOCYCLES)—MONDAY, APRIL 13.

- 3.0 : Selected recordings.
 5.0 : Children's hour, conducted by "Big Brother Bill."
 6.0 : Dinner music session.
 The London Orchestra, "Valse Memories" (arr. Somers).
 Organ—Jesse Crawford, "La Borrachita" (Fernandez Esperon).
 Chicago Symphony Orchestra, (a) "Serenade" (Volkman); (b) "Flight of the Bumble Bee" (Rimsky-Korsakoff).
 Piccadilly Orchestra, "The Waltz Dream" (Strauss).
 Marimba Band, "Morales Lopez" (Bolanos).
 Royal Opera Orchestra, "Prelude 'The Huntress'" (Delibes).
 Band of H.M. Coldstream Guards, "The Geisha" (Jones).
 Marek Weber and His Orchestra, "Menuett No. 1" (Paderewski).
 Organ—Jesse Crawford, "I Loved You Then As I Love You Now."
 Salon Orchestra, "Aloha Sunset Land" (Kawelo).
 Symphony Orchestra, "La Vida Breve" (de Falla).
 Marek Weber's Orchestra, "Coeur Brise" (Gillet).
 Salon Orchestra, "Chanson Boheme" (Boldi).
 Marimba Band, "Aguas Dormidas" (Bolanos).
 Band of H.M. Coldstream Guards, "The Belle of New York" (Kerker).
 7.0 : News session.
 8.0 : Chimes. Overture—National Symphony Orchestra, "Die Fledermaus."
 8.9 : Studio programme by the "Four Aces" Concert Party. Pianist, Mr. Norman Bachop.
 The Company, "Opening Chorus" (Pettitt).
 Baritone—Ace of Spades, (a) "The Moorings" (Sanderson); (b) "Mighty Lak' a Rose" (Nevin).
 8.19 : Selections—Instrumental Trio, (a) "Minuet in F" (Schubert); (b) "Londonderry Air" (arr. Kreisler); (c) "Norwegian Dance."
 8.31 : Quartets—Four Aces, "The Namin" of Baby O'Toole (Scarmolin); "Plantation Medley" (Traditional).
 8.39 : Accordeon duo—Gellin and Borgstrom, (a) "Darby and Joan Waltz" (Gilbert); (b) "Rio Negro" Tango (Jaurez).
 8.45 : Bass—Ace of Clubs, (a) "Dumbledownshire" (Clarke); (b) "The Sea Road" (Wood).
 Duet—Ace of Diamonds and Ace of Spades, "Song of the Sword."
 8.55 : Piano—Beryll Newell, (a) "Dancing the Devil Away" (Harbach); (b) "I Love You So Much" (Kalmar-Ruby).
 9.1 : Weather report and station notices.
 9.3 : Paul Godwin's Orchestra, "The Nightingale and the Frog" (Ellenberg).
 9.6 : Instrumental Trios, (a) "Allegro Finale from 3rd Trio" (Schumann); (b) "Serenade" (Widor).
 9.18 : Tenor—Ace of Hearts, (a) "Under the Hammer"; (b) "The Toby Jug" Quartet—Four Aces, "The Tide Rises—the Tide Falls" (Carse).
 9.28 : Saxophone—Rene Dumont, (a) "Saxophobia" (Wiedoeft); (b) "Souvenir" (Zakrgeevsky).
 9.34 : Humour at the piano—The Joker, (a) "Silly Ass" (Anon.); (b) "Phil the Flutter's Ball" (Anon.).
 Octet—Four Aces, (a) "All Kinds of Women"; (b) "Wonderful Men."
 9.46 : Cello—Mr. P. J. Palmer, "Mazurka" (Squire).
 Piano—Mr. Norman Bachop, "Finlandia" (Sibelius).
 9.57 : Chorus—Concert Party and Quartet, "Closing Ode" (Kirk-Burnnand).
 9.59 : Paul Godwin's Orchestra, "A Concert in the Forest" (Ellenberg).
 10.2 : God save the King.

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AUCKLAND

CHRISTCHURCH

WELLINGTON.

2YB, NEW PLYMOUTH (1230 KILOCYCLES)—MONDAY, APRIL 13.

- 6.30: Children's session.
 7.30: News, markets, and information.
 8.0: Studio concert.

Tuesday, April 14**1YA, AUCKLAND (900 KILOCYCLES)—TUESDAY, APRIL 14.**

- 3.0: Selected recordings.
 3.15: Talk—Mrs. Les Crane, "Health of Mind and Body in Relation to Diet." Further selected recordings.
 5.0: Children's session, conducted by "Uncle Dave."
 6.0: Dinner session.
 Berlin State Opera Orchestra, "Polonaise" (Liszt).
 The London Palladium Orchestra, "Dawn" (Matt).
 Band of H.M. Coldstream Guards, "La Fille De Madame Angot."
 John Barbirolli's Chamber Orchestra, "A Little Night Music, 1st to 4th Movements" (Mozart).
 Symphony Orchestra, "Coppelia Variations" (Delibes); "Coppelia Waltz of the Hours" (Delibes).
 Virtuoso String Quartet, "Londonderry Air" (arrgd. Bridge); "The Emperor" quartet (Haydn).
 The London Palladium Orchestra, "Sunset" (Matt).
 7.0: News session.
 7.40: Talk—Mr. Rod Talbot, "Motoring."
 8.0: Chimes. Special studio presentation of "Destiny's Door." A romantic play in three acts, written by Dr. George de Olive Lowe, and produced by Zoe Bartley Baxter. Cast: Douglas Montalban (a young playwright), Jack Gordon; June Montalban (wife of Douglas and a clever pianist), Dorothea Ryan; Peggy (Coster maid of all work), Muriel Fisher; Susan (the old family nurse-companion), Ailsa Hackett; Mrs. Cyrus K. Schnyler (of New York), Zoe Bartley Baxter; Mr. Joseph Whitehead (of Whitehead, Brown and Whitehead, lawyers), Kenneth Blair; Mr. Carl Goldmeyer (theatrical producer), Jack Parsons; Signor Guiseppe Lucelli (impresario), Walter Brown; Mrs. Jones (Peggy's mother), Roma Benson. The scene is laid throughout in Montalban's flat in River View Villas, Henley. Overture—Victoria Orchestra, "Esplanita" (Rosey). Act. 1: Entr'acte—Victoria Orchestra, "La Serenata" (Metra). Act. 2: Entr'acte—New Light Symphony Orchestra, "Scene De Ballet Marionettes" (Glazounov). Act 3.
 9.30: Programme of dance music.
 Foxtrots—Tom Cline and His Music, "Miss Wonderful" (Bryan).
 Roger Wolfe Kahn and His Orchestra, "Cooking Breakfast For The One I Love" (Rose).
 Tom Cline and His Music, "Somebody Might Like You."
 Herbert Gordon and His Hotel Ten Eyck Whispering Orchestra, "You Can't Believe My Eyes" (Bryan).
 Abe Lyman and His California Orchestra, "The Rogue Song" (Grey).
 9.45: Vocal—Dick Robertson, "Singin' in the Bathtub" (Magidson).
 Foxtrots—Herbert Gordon and His Hotel Ten Eyck Whispering Orchestra, "If I Can't Have You" (Bryan).
 Isham Jones' Orchestra, "Nina Rosa" (Caesar).
 Abe Lyman and His California Orchestra, "When I'm Looking at You" (Grey).
 Waltz—Isham Jones' Orchestra, "Your Smiles, Your Tears."
 10.0: Foxtrots—Jack Denny and His Mount Royal Hotel Orchestra, "A Night of Happiness" (Conrad); "Beside an Open Fireplace" (Denniker); "Hangin' on the Garden Gate" (Kahn); "Just Can't Be Bothered With Me" (Kahn).
 10.12: Vocal—Belle Baker, "I'm Walking With the Moonbeams" (Gordon).
 Foxtrots—Roger Wolfe Kahn and His Orchestra, "When a Woman Loves a Man" (Rose).
 Bob Haring and His Orchestra, "Do Ya' Love Me?"
 Waltz—Carter's Orchestra, "California Sunshine" (Ford).
 Carter's Orchestra, "Red River Valley" (trdtl.).
 10.27: Foxtrots—Bob Haring's Orchestra, "Where You Are" (Dixon).
 10.30: The A. and P. Gypsies, "Gypsy Dream Rose" (Kendis).
 Colonial Club Orchestra, "Why Do You Suppose" (Hart).
 Bob Haring's Orchestra, "Under a Texas Moon" (Perkins).
 10.39: Vocal—Dick Robertson, "Lady Luck" (Perkins).
 Foxtrots—Carter's Orchestra, "When the Bloom is on the Sage."
 Colonial Club Orchestra, "My Man is on the Make."
 Waltz—Carter's Orchestra, "Old Virginia Moon" (Crawford).
 Foxtrots—Abe Lyman and His California Orchestra, "Lucky Me Loveable You" (Yellen).
 Fred Hamm and His Orchestra, "We Love Us" (Sanders).
 Abe Lyman and His California Orchestra, "Love Ain't Nothin' But The Blues" (Goodwin).
 11.0: God save the King.

2YA, WELLINGTON (720 KILOCYCLES)—TUESDAY, APRIL 14.

- 3.0: Chimes. Selected gramophone recordings.
 3.15: Lecturette—Mrs. T. W. Lewis, "Fabrics and Fashions."

- 3.30 and 4.30: Sporting results to hand.
 5.0: Children's session, conducted by "Uncle Toby" and "Jumbo."
 6.0: Dinner music session:
 Dajos Bela Orchestra, (a) "Sulamith" (Hansen-Milde), (b) "Mignonette" (Nicholls); "Eldgaffeln" (Landen); "The Grenadiers."
 Frank Westfield's Orchestra, "Classica" (arr. Tilsley).
 Dajos Bela Orchestra, "Dancing Demoiselle" (Fall).
 Raie Da Costa Ensemble, "Funny Face" (Gershwin).
 Dajos Bela Orchestra, "Polish Life" (Nedbal).
 Edith Lorand's Orchestra, "The Dollar Princess" (Fall).
 Orchestra Mascotte, (a) "The Flowers' Dream" (Translatour), (b) "Whispering of the Flowers" (Von Blon).
 Dajos Bela Orchestra, "Electric Girl" (Helmburgh Holmes); "Casino Tanze" (Gungl).
 7.0: News session, market reports and sports results.
 7.40: Lecturette by a Representative of the Agricultural Department, "For the Man on the Land."
 8.0: Chimes. Overture—Salon Orchestra (Conductor, Mr. M. T. Dixon), (a) "Little Dutch Girl" (Kaiman), (b) "Enchanted Valley."
 8.16: Tenor—Mr. Charles Williams, "Nirvana" (Adams).
 Vocal—The Lyric Quartet, "Widdlecombe Fair" (traditional).
 8.22: Novelty—International Novelty Quartet, (a) "The Clock is Playing" (Blaaw), (b) "Dicky Bird Hop" (Gourley).
 8.28: Tenor—Mr. W. Roy Hill, (a) "Ho! Ho! My Nut Brown Maiden" (Scotch traditional), (b) "My Faithful Loved One" (arr. Barratt).
 8.34: Spanish song—Juan Llossas and South American Orchestra, "Flor de Granadilla" (Parades).
 8.37: Sketch—Miss Gracie Kerr and Mr. James Cooke, "The Silver Salt-Cellars" (Wishing).
 8.57: Cavalry Band, "Alexander March" (Leonhardt).
 9.0: Weather report and station notices.
 9.2: Ballet suite—Salon Orchestra, "Ballet Music" (from "Javotte"—Saint-Saens); morceaux, (a) "Danny Boy" (Baynes), (b) "Aubade Printaniere" (Lacombe).
 9.17: Baritone—Mr. Will Goudie, with orchestral accompaniment, "The Company Sergeant-Major" (Sanderson).
 Vocal—The Lyric Quartet with orchestral accompaniment, "Mysterious Mose" (Doyle).
 9.25: Guitar—Sergis Luvau, (a) "Moonbeam Dreams," (b) "Lysistrata."
 9.31: Bass—Mr. W. Binet Brown, with orchestral accompaniment, "The Gladiator" (Adams).
 Vocal—The Lyric Quartet with orchestral accompaniment, "Song of Swannee" (Tabbush).
 9.39: Cavalry Band, "Revue March" (Faust).
 9.42: Spanish song—Juan Llossas, with orchestra, "La Vualeta Al Hogar."
 9.45: Suite—Salon Orchestra, "Gabrielle Suite" (Rosse).
 10.0: God save the King.

3YA, CHRISTCHURCH (980 KILOCYCLES)—TUESDAY, APRIL 14.**"SILENT DAY."****4YA, DUNEDIN (650 KILOCYCLES)—TUESDAY, APRIL 14.**

- 3.0: Selected recordings.
 5.0: Children's hour, conducted by "Wendy" and "Big Brother Bill."
 6.0: Dinner music session:
 Bohemian Orchestra, "Love and Life in Vienna" (Komzak, arr. Renard).
 Organ—G. T. Pattman, "Alice, Where Art Thou?" (traditional).
 Bruno Walter and Berlin Philharmonic Orchestra, "Roses of the South".
 Band of H.M. Grenadier Guards, "Ivanhoe" Selection (Sullivan).
 Edith Lorand's Orchestra, "Venetian Barcarolle" (Leoncavallo).
 Bohemian Orchestra, "Destiny Waltz" (Baynes).
 Edith Lorand Orchestra, "La Serenade" (Metra).
 Plaza Theatre Orchestra, "A La Gavotte" (Finck).
 Dajos Bela Orchestra, "Schatz Waltz" ("The Gipsy Baron"—Strauss).
 J. H. Squire's Celeste Octet, "La Serenata" (Braga).
 Venetian Players String Quintet, "Romanza" (Mozart, arr. Sear).
 Dajos Bela Orchestra, "Moonlight on the Alster" (Fetras).
 Plaza Theatre Orchestra, "Minuet" (Finck).
 Organ—G. T. Pattman, "Cinderella Waltz" (Pattman).
 J. H. Squire's Celeste Octet, "Serenade" (Titl).
 7.0: News session.
 7.40: Talk—Mr. R. W. Coupland, "Tourist Resorts."
 8.0: Chimes. Relay from Dunedin Town Hall of concert by Dunedin Philharmonic Society, and assisting artists, under the conductorship of Signor Squarise. Orchestral works include:
 March—"En Route" (Squarise); overture, Die Meistersinger."
 Three French songs—(a) "Hindoo Song" (Bemberg), (b) "At Evening" (Debussy), (c) "Open Thy Blue Eyes" (Massenet).
 Danse—"Danza Esotica" (Mascagni).
 Symphony—"Symphony No. 3 in D Major" (First, Second, and Third Movements) (Schubert).
 Strings—"Andantino" (arr. Squarise); "Valse Lente" (Chopin).
 Rhapsody—"Hungarian Rhapsodie No. 2" (Liszt).
 10.0 (approx.): God save the King.

Wednesday, April 15**1YA, AUCKLAND (900 KILOCYCLES)—WEDNESDAY, APRIL 15.**

- 3.0: Selected recordings.
 3.15: Literary selection. Further selected recordings.

- 5.0 : Children's session, conducted by "Uncle Reg."
 6.0 : Dinner music session:
 The Polydor String Orchestra, "La Muette de Portici" Overture.
 Paul Godwin Orchestra, "Talkative" (Ellenberg); "Les Patineurs."
 Jean Gilbert's Scala Orchestra, "Strolling Through Jean Gilbert's Hits"
 Paul Godwin's Orchestra, "Sizilietta" (Von Blon); "Cajolery."
 Edm Schachmeister's Jazz Symphonians, "Dubinuschka" (Schirmann).
 Paul Godwin Orchestra, "Dolly's Dancing" (Rhode); "Siziliano."
 Paul Godwin's Jazz Symphonians, "Hullo 1930" (Borchert).
 7.0 : News and market reports.
 7.40 : Talk—Mr. H. H. Driver, "Book Review."
 8.0 : Chimes. Overture—Grand Symphony Orchestra, "Raymond" (Thomas).
 8.9 : Baritone—Mr. Eric Mannall, "Dawn Skies" (Drummond).
 Vocal quartet—The New Zealand Four, "Plantation Medley."
 Tenor—Mr. James Simpson, "Lorraine" (Sanderson).
 8.18 : March—Orchestral Octet, under the direction of Mr. Harold Baxter
 "Splendour" (Finck).
 Ballet—Russian Ballet, Nos. 1, 3, and 4" (Luigini).
 8.29 : Tenor—Mr. Roy Dormer, "Poor Peter" (Schumann).
 Vocal duet—Messrs. Roy Dormer and Eric Mannall, "Rose Lily," from
 "Vicar of Wakefield" (Lehmann).
 8.38 : Selection—Orchestral Octet, "Mendelssohn's Songs" (arr. Basquet).
 8.46 : Mr. A. B. Chappell, M.A., "Topical Talk."
 9.1 : Evening weather forecast and announcements.
 9.3 : Suite—Orchestral Octet, "Indian Love Lyrics" (Woodforde-Finden).
 9.11 : Vocal quartet—The New Zealand Four, "Return, Soft, Gentle Even-
 ing" (Emerson).
 Baritone—Mr. Eric Mannall, "I Know a Lovely Garden" (D'Hardelot).
 Vocal quartet—The New Zealand Four, "My Lady Sleeps" (Woodbury).
 9.21 : Accordeon duo—Gellin and Borgstrom, (a) "Blaze Away" (Holzmann),
 (b) "Gladiator's Farewell" (Blankenburg).
 9.27 : Bass—Mr. A. Gibbons Taylor, "Roger's Courtship" (Johnston).
 Vocal duet—Messrs. J. Simpson and A. Gibbons Taylor, "All's Well."
 9.35 : Waltz—Orchestral Octet, "La Cour d'Amour" (Pizzi); morceaux, (a)
 "To the Sea" (MacDowell), (b) "Flight of the Bumble Bee" (Kor-
 sakov), (c) "Minuet" (Mozart).
 9.46 : Vocal quartet, The New Zealand Four, "Sally King."
 9.49 : Piano duet—Sisters Rialto, (a) "Summer Is Here" (arr. Slifert), (b)
 "Cookery" (arr. Kollmann).
 9.55 : Divertissement—The Orchestral Octet, "Day in Naples" (Byng).
 10.1 : God save the King.

2YA, WELLINGTON (720 KILOCYCLES)—WEDNESDAY, APRIL 12.

- 8.0 : Chimes. Selected gramophone recordings.
 3.30 and 4.30 : Sporting results to hand.
 5.0 : Children's session, conducted by "Aunt Daisy."
 6.0 : Dinner music session:
 Berlin State Opera House Orchestra, "Cosi Fan Tutte" Overture.
 Edm Schachmeister's Dance Orchestra, "Second Waltz Medley."
 Symphony Orchestra, "Trasquita" Medley (Lehar).
 Paul Godwin's Orchestra, "First Love" (Michiels).
 Symphony Orchestra, "The Last Waltz" Medley (Oscar Strauss).
 Paul Godwin's Orchestra, "Cinderella's Bridal Procession" (Dickner).
 Symphony Orchestra, "Eva" Medley (Lehar); "The Forester's Daugh-
 ter" Medley (Jarno).
 Paul Godwin's Orchestra, "Lake of Como" (Galos); "Throbbing Heart."
 7.0 : News session, market reports and sports results.
 8.0 : Chimes. Specially-recorded overseas programmes:
 Dr. Eugene Ormandy and His Salon Orchestra.
 The International Singers.
 The Ambassadors of Melody Land.
 Abroad with the Lockharts.
 International talk—Dr. Guy H. Scholesfeld, O.B.E.
 Hywide and Handsome.
 International dance programme.
 God save the King.

3YA, CHRISTCHURCH (980 KILOCYCLES)—WEDNESDAY, APRIL 12.

- 3.0 : Gramophone recital.
 4.25 : Sports results.
 5.0 : Children's hour, "Uncle John."
 6.0 : Dinner music session:
 Metropolitan Symphony Orchestra, "Lilac Time" Selection.
 Russian Imperial Trio, "Because" (D'Hardelot).
 Bidgood's Dance Band, "Popular Musical Comedy Waltz Medley."
 Salon Orchestra, "Italian Nights" (Roberts).
 Symphony Orchestra, "Morris Dance" from "Henry VIII." (German).
 Orchestra with organ—"Demande et Reponse" (Colderidge-Taylor).
 Symphony Orchestra, "Shepherd's Dance" from "Henry VIII."
 Orchestra with organ—"Portia" Intermezzo from "Merchant of Venice."
 Harry Jacobs and His Palais Orchestra, "The Earl and the Girl" Sele-
 ction (Caryl).
 Salon Orchestra, "The Enchanted Lake" (Tschalkowsky).
 Russian Imperial Trio, "Liebeslied" (Kreisler).
 Stoll Theatre Orchestra, "The Grasshoppers' Dance" (Bucalossi).
 Stoll Picture Theatre Organ, "Sizilietta" (Von Blon).
 Band of H.M. Life Guards, "Ruy Blas Overture" (Mendelssohn).
 Stoll Theatre Orchestra, "The Phantom Brigade" (Myddleton).
 Bidgood's Dance Band, "Popular Classical Waltz Medley."
 7.0 : News session.
 7.30 : Addington stock market reports.
 8.0 : Chimes. Overture—Berlin State Opera Orchestra, "Rienzi" (Wagner).
 8.12 : Baritone—Mr. J. North, (a) "Bonnie Mary" (Moffat), (b) "Home
 Alone" (Sanderson).
 8.17 : Overture—Studio Octet (Harold Beck, conductor), "Le Seigneur de
 Kermor" (Marie).
 8.25 : Soprano—Miss Addie Campbell, (a) "When We Meet" (Hope Temple),
 (b) "Danny Boy" (Weatherly).
 8.32 : Piano novelty—Miss Maisie Ottey, "Honeysuckle" (Merkur).
 8.35 : Tenor—Mr. Charles R. Williamson with orchestral accompaniment, (a)
 "I Know a Lovely Garden," (b) "Bird of Love Divine," (c) "Be-
 cause" (D'Hardelot).
 8.45 : Instrumental—Studio Octet, (a) "Gipsy Song" (Bizet), (b) "A Street
 in Algiers" (Ansell), (c) "Waltz of the Flowers" (Tschalkowsky).
 8.54 : Humour—Mr. H. E. Goodland, "How to Enjoy the Theatre."
 9.4 : Weather forecast and station notices.
 9.6 : Selection—Studio Octet, "To-night's the Night" (Rubens).
 9.16 : Baritone—Mr. J. North, (a) "The Star o' Robbie Burns" (Jas. Booth),
 (b) "The Lass that Wears the Shanter" (Hewison).
 9.22 : Piano novelties—Miss Maisie Ottey, (a) "Noia" (Felix Arndt), (b)
 "Knee and Kniffy" (Roy Bargey).
 9.29 : Soprano—Miss Addie Campbell, "Two Wee Scottish Songs": "The
 Mother Song," "Your First Wee Lassie" (Daisy McGeeoch).
 9.33 : Novelty—Grinning Schrammel Trio, (a) "Voslan Babies" (Dietrich),
 (b) "High Up in the Forest" (Kaulick).
 9.39 : Selection—Studio Octet, "Faust" Ballet Music (Gounod).
 9.50 : Male chorus—Singing Teachers' Association, Neukolln, "Melody of
 Night in the Woods" (Schubert).
 9.56 : Foxtrot—Studio Octet, "If I Had a Girl Like You" (McDermott).
 10.0 : God save the King.

4YA, DUNEDIN (650 KILOCYCLES)—WEDNESDAY, APRIL 12.

- 3.0 : Selected recordings.
 3.15 : Talk—"Do You Agree With Your Food?" Arranged by the Home
 Science Extension Service of Otago University.
 5.0 : Children's hour, conducted by "Big Brother Bill."
 6.0 : Dinner music session.
 Band of H.M. Grenadier Guards, "Sir Harry Lauder Medley."
 J. H. Squire's Celesto Octet, "Second Movement from Symphonie
 Pathetique" (Tschalkowsky—arr. Robertson).
 Modern Dance Players, "Amoretten Tanze" (Gung'l).

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Thursday, April 16

1YA, AUCKLAND (900 KILOCYCLES)—THURSDAY, APRIL 16.

- Court Symphony Orchestra, "The Windmill Man,"
Organ—Stanley Macdonald, "The Rosary" (Nevin).
Symphony Orchestra, "When the Lemons Bloom" (Strauss).
Plaza Theatre Orchestra, "The Three Bears" (Coates).
Symphony Orchestra, "Doctrinen" (Strauss).
Continental Novelty Orchestra, "Las Lagarteranas."
New York Symphony Orchestra, "Entrance of the Little Fauns."
B.B.C. Wireless Military Band, "Le Reve Passe" (Krier and Helmer).
J. H. Squire's Celeste Octet, "Scene de Ballet" (de Berliot—arr. Sear).
Organ—Stanley Macdonald, "La Rosita" (Dupont).
Continental Novelty Orchestra, "Los Claveles de Sevilla."
- 7.0 : News session.
- 7.15 : Talk—Mr. L. W. McCaskill, "Introduced Birds and the Farmer."
- 8.0 : Chimes. Concert arranged by Signor Giovanni Stella, introducing Signorina Rossi, and other eminent artists.
Overture—Grand Symphony Orchestra, "Fra Diavolo" (Auber).
- 8.9 : Baritone—Mr. Thomas Kennedy, (a) "Never More" (Matti); (b) "Carissima" (Pen).
- 8.16 : Piano, violin and flute—Signora Martinelli Reggiardo, Miss Anna Briasco and Mr. Jack Stewart, "Serenade" (Voight).
- 8.23 : Mezzo-soprano—Miss Vanda Duncan, (a) "The Flower Song" (from "Faust") (Gounod); (b) "I Know a Lovely Garden" (d'Hardelot).
- 8.29 : Piano—Miss Luella Hamer, (a) "1st. Movement from 'Sonata Pathetique'" (Beethoven); (b) "Graciovienne Fantastique" (Sinding).
- 8.39 : Soprano—Miss Clare Dillon, (a) "Ah! Fors e Lui" (from "La Traviata") (Verdi); (b) "Has Sorrow Thy Young Days Shaded?"
- 8.49 : Violin—Miss Anna Briasco, (a) "Thais" Meditation (Massenet); (b) "Le Cygne" (Saint-Saens).
- 8.57 : Piano—Miss Luella Hamer, (a) "Impromptu in B Flat" (Schubert); (b) "Rustle of Spring" (Sinding).
- 9.5 : Weather report and station notices.
- 9.7 : Tenor—Signor Giovanni Stella, (a) "Elegie" (Massenet); (b) "The Torero Serenade" (Sini).
- 9.12 : Flute and piano—Mr. Jack Stewart and Signora Martinelli Reggiardo, (a) "Andante" (Hilse); (b) "Pastorale" (Demersseman).
- 9.19 : Soprano—Signorina Graziella Rossi, (a) "Elsa's Dream" (from "Lohengrin") (Wagner); (b) "Rosebud" (Arditi).
- 9.30 : Piano, violin and flute—Miss Anna Briasco, Signora Reggiardo and Mr. Jack Stewart, "Simple Aveu" (Thome).
- 9.35 : Dance session.
Foxtrots—Anglo-Persians, "Dancing Butterfly" (Pascal).
Abe Lyman and His California Orchestra, "Worryin' Over You" (Tobias).
Al Goodman and His "Flying High" Orchestra, "Thank Your Father" (de Sylva).
Waltz—Regent Club Orchestra, "I Love You So" (Kahn).
- 9.47 : Foxtrots—Tom Clines and His Music, "Until Love Comes Along."
Lloyd Huntley and His Isle o' Blues Orchestra, "Promises."
Ben Bernie and His Orchestra, "Telling it to the Daisies."
Lloyd Huntley and His Isle o' Blues Orchestra, "On a Blue and Moonless Night" (O'Flynn).
- 9.59 : Vocal trio—Earl Burnett's Biltmore Trio, "If I'm Dreaming" (Dubin).
Foxtrots—Ben Bernie and His Orchestra, "Keepin' Myself for You."
Colonial Club Orchestra, "Caribbean Love Song" (Berton).
Ben Bernie and His Orchestra, "You Brought a New Kind of Love to Me" (Fain).
Tom Clines and His Music, "Any Time's the Time to Fall in Love" (Janis).
- 10.14 : Waltz—Ben Bernie and His Hotel Roosevelt Orchestra, "Coquette."
Foxtrots—Dan Russo and His Oriole Orchestra, "Sweetheart" (Lewis).
Roger Wolfe Kahn and His Orchestra, "Exactly Like You."
Ben Bernie and His Orchestra, "Reminiscing" (Leslie).
- 10.26 : Vocal—Vaughn de Leath, "Sometimes I'm Happy" (Caesar).
Foxtrots—Abe Lyman and His California Orchestra, "You Will Come Back to Me" (Fields).
Ben Bernie and His Orchestra, "Livin' in the Sunlight, Lovin' in the Moonlight" (Sherman).
Colonial Club Orchestra, "Watching My Dreams Go By."
- 10.38 : Waltz—Regent Club Orchestra, "Lazy Lou'siana Moon" (Donaldson).
Foxtrots—Colonial Club Orchestra, "Wherever You Are" (Kalmar); "Sweepin' the Clouds Away" (Coslow).
- 10.47 : Vocal trio—Earl Burnett's Biltmore Trio, "A Year from To-day."
Foxtrots—Roger Wolfe Kahn and His Orchestra, "On the Sunny Side of the Street" (Fields).
The Jungle Band, "Sweet Mama" (Ellington).
Waltz—Regent Club Orchestra, "My Dear" (Kahn).
Foxtrots—Anglo-Persians, "The Toy-Town Admiral" (Godfrey).
Colonial Club Orchestra, "All Alone Monday" (Kalmar).
- 11.5 : God save the King.

2YB, NEW PLYMOUTH (1230 KILOCYCLES)—WEDNESDAY, APRIL 15.

- 7.30 : News, markets, and information.
6.30 : Children's session.
8.0 : Studio concert.

- 3.0 : Selected recordings.
- 3.15 : Talk—"Home Conveniences." Arranged by the Home Science Extension Department of Otago University.
Further selected recordings.
- 5.0 : Children's session, conducted by "Peter Pan."
- 6.0 : Dinner session.
San Francisco Symphony Orchestra, "Caprice Viennois" (Kreisler).
Cello—Pablo Casals, "Spanish Dance" (Granados, arrgd. Casals).
Novelty Orchestra, "Ginger Snaps" (Bourdon).
Victor Orchestra, "La Serenata" (Metra).
Kirilloff's Balalaika Orchestra, "Medley of Old Time Songs."
Organ—Jesse Crawford, "How Am I To Know?" (Parker-King).
Vienna Philharmonic Orchestra, "Die Fledermaus" (Strauss).
Organ—Jesse Crawford, "I'll Close My Eyes to the Rest of the World" (Friend).
Novelty Orchestra, "Midnight Bells" (Heuberger).
San Francisco Symphony Orchestra, "Coppelia Ballet" (Delibes).
Novelty Orchestra, "Passion Rose" (Lehar).
Victoria Orchestra, "Espanita" (Rosey).
Cello—Pablo Casals, "Vito" (Spanish Dance) (Popper).
Novelty Orchestra, "Danse Bagatelle" (Bourdon).
- 7.0 : News and market reports.
- 7.40 : Talk by Mr. J. E. Holloway, "Tar and its By-products."
- 8.0 : Chimes.
Overture—The Monte Carlo Orchestra, "The Barber of Seville."
- 8.14 : Contralto—Miss A. E. Harrison, (a) "Ships That Pass in the Night" (Stephenson); (b) "The Swallow" (Brahms).
- 8.20 : Piano—Mr. Cyril Towsey, (a) "Edward" ballad (Brahms); (b) "Waltz in E Minor" (Chopin).
- 8.26 : Tenor—Mr. Denis Sheard, (a) "The Garden of Your Heart" (Dorel); (b) "The Little Hills" (Gleeson).
- 8.32 : Humour—Mr. Dan Flood, (a) "She Powders Her Nose" (Miersch); (b) "I Lift Up My Finger and Say Tweet, Tweet" (Sarony).
- 8.39 : Reverie—The Monte Carlo Orchestra, "On Wings of Song" (Mendelssohn); Selection—"Les Contes D'Hoffmann" (Offenbach).
- 8.55 : Contralto—Miss A. E. Harrison, (a) "In the Silence of the Night" (Cundell); (b) "Spirit Song" (Haydn).
- 9.0 : Evening weather forecast and announcements.
- 9.2 : Selection—The Monte Carlo Orchestra, "Gypsy Love" (Lehar).
- 9.14 : Humour—Mr. Dan Flood, "I Need Love" (Sterndale-Bennett).
- 9.18 : Tenor—Mr. Denis Sheard, (a) "When I Go Home" (Towner); (b) "Nita Gitana" (Newton).
- 9.23 : Foxtrot—The Monte Carlo Orchestra, "Sing You Sinners" (Coslow and Harling); Waltz, "My Desert Rose" (Terese); Foxtrot, "I Love You So Much" (Ruby).
- 9.32 : Gramophone Lecture-Recital—Miss Molly Atkinson, "French Music."
- 10.0 : God save the King.

2YA, WELLINGTON (720 KILOCYCLES)—THURSDAY, APRIL 16.

- 3.0 : Chimes. Selected gramophone recordings.
- 3.15 : Lecture—Miss I. F. Meadows, "Home Conveniences"; prepared by the Home Science Extension Department of the Otago University.
- 3.30 and 4.30 : Sporting results to hand.
- 5.0 : Children's session, conducted by "Uncle George" and "Big Brother Jack."
- 6.0 : Dinner music session.
Reginald King and His Orchestra, "Song o' My Heart" Selection.
Organ—Edward O'Henry, "Dream Lover" (Schertzing).
Marek Weber's Orchestra, "Rustle of Spring" (Sinding).
Piccadilly Orchestra, "None but the Weary Heart" (Tschalkowsky).
Band of H.M. Coldstream Guards, "Faust" Selection (Gounod).
Piccadilly Orchestra, "Friend o' Mine" (Sanderson).
Marek Weber's Orchestra, "The Beggar Student" (Millocker).
Organ—Edward O'Henry, "Just as We Used to Do" (Ruik).
International Novelty Quartet, "Merry Widow" Waltz (Lehar).
Polydor String Orchestra, "In Indra's Land" (Lincke).
Marek Weber's Orchestra, "My Darling Waltz" (Waldteufel).
International Novelty Quartet, "The Veleta" (Morris).
- 7.0 : News session, market reports and sports results.
- 8.0 : Chimes. Studio concert by the Wellington Commercial Travellers and Warehousemen's Orchestra (Conductor, Mr. J. F. Woodward) and assisting artists.
Overture—The Orchestra, (a) "Tannhauser" (Wagner); (b) "The Cat and the Mouse" (Engleman).
- 8.18 : Baritone—Mr. Philip Hinge, (a) "The Ragged Vagabond" (Randolph); (b) "Corisande" (Sanderson).
- 8.25 : Selection—Orchestra, "Sunny" (Kerz); dance, "The Squirrel Dance."
- 8.42 : Male quartet—Abels Quartet, (a) "Kannst Du Verzeihn" (Katscher); (b) "Das Lied Von De Wunder Bar" (Katscher).
- 8.48 : Rhapsody—The Orchestra, "Hungarian Rhapsody No. 2" (Liszt).
- 9.0 : Weather report and station notices.
- 9.2 : Humour—Vernon Watson, (a) "The Future Mrs. 'Awkins" (Chevalier); (b) "Knocked 'Em in the Old Kent Road" (Ingle); (c) "Our Little Nipper" (Ingle).
- 9.8 : Selection—Orchestra, "San Toy" (Jones).

- 9.22: Mezzo-soprano—Miss Doris Benson, (a) "Whatever Is, Is Best" (Lohr); (b) "Down the River of Golden Dreams" (Shilkret).
 9.28: Morceau—The Orchestra, "Almond Blossoms" (Williams); rhapsody, "Slavonic Rhapsody" (Friedman).
 9.38: Dialogue—Amos and Andy, "Is Everybody in Your Family as Dumb as You Is?" (Cotrell-Gosden).
 9.44: Novelty—The Orchestra, "Dance of the Tea Dolls" (Hagen); entr'acte, Introduction Third Act "Lohengrin" (Wagner); march, "Lion."
 10.0 : God save the King.

3YA, CHRISTCHURCH (980 KILOCYCLES)—THURSDAY, APRIL 16.

- 3.0 : Gramophone recital.
 3.15: Lecturette—"Home Conveniences," arranged by the Home Science Extension Service of Otago University.
 4.25: Sports results.
 5.0 : Children's hour, "Uncle Frank" and "Ladybird."
 6.0 : Dinner music session:
 Albert W. Ketelbey's Concert Orchestra, "Cockney Suite" (Ketelbey): (1) A State Procession (Buckingham Palace); (2) The Cockney Lover (Lambeth Walk); (3) At the Palais de Dance (anywhere); (4) Elegy (Thoughts on Passing the Cenotaph); (5) Band Holiday ('Appy Amstead).
 Band of H.M. Grenadier Guards, "Radio—Quick March" (Pecking).
 Jack Payne and the B.B.C. Dance Orchestra, "Say It With Songs" Selection (De Sylva).
 J. H. Squire's Celeste Octet, "Collette" Waltz (Fraser-Simson).
 Albert W. Ketelbey's Concert Orchestra, "Jungle Drums—Patrol." Organ—Emil Velazco, "Estrellita."
 Debroy Somers Band, "Hungarian Medley" (arr. Somers).
 J. H. Squire's Celeste Octet, "Memories of Devon" (Evans).
 Albert W. Ketelbey's Concert Orchestra, "By the Blue Hawaiian Waters" (Ketelbey).
 Organ—Emil Velazco, "La Golondrina."
 Band of H.M. Grenadier Guards, "Fighting Strength" (Jordan).
 7.0 : News session.
 7.30: Talk—Mr. W. J. Humm, under the auspices of the Canterbury Horticultural Society, "Berry-bearing Plants."
 8.0 : Chimes. Overture—London Symphony Orchestra, "Coriolan Overture."
 8.9 : Vocal—Melodious Quartet, "Folk Song" (Schumann).
 Soprano—Miss Frances Hamerton, (a) "Damon" (Stange), (b) "Little Brown Brother" (Lehmann).
 8.15: Studio Octet (Conductor, Harold Beck), "Fidelio" Overture.
 8.20: Bass—Mr. T. D. Williams, "O Ruddier than the Cherry" (Handel).
 8.24: Mezzo-contralto—Miss Millicent Jennings with orchestral accompaniment, "Two Songs of Syria" (Martin): (a) "O Mountain Rose of Lebanon," (b) "O Sarua Mine."
 8.28: Selections—Studio Octet, (a) "Northern Song" (Schumann), (b) "Spanish Serenade" (Bizet).
 8.31: Soprano and bass—Melodious Duo, "Duet of the Swallows," from "Mignon" (Thomas).
 Tenor—Mr. Russell Sumner, (a) "Bonnie Wee Thing" (arr. Lehmann), (b) "My Lovely Celia" (Carey).
 8.39: Violin—Miss Thelma Cusack with Studio Octet, "Concerto in A Minor."
 8.48: Vocal—Melodious Quartet, "Ladybird" (Schumann).
 Soprano—Miss Frances Hamerton, (a) "Butterfly Wings" (Phillips), (b) "Flight" (Carew).
 8.56: Bass—Mr. T. D. Williams, "Rage, Thou Angry Storm" (Benedict).
 9.0 : Weather forecast and station notices.
 9.2 : Selection—Studio Octet, "Cavalleria Rusticana" (Mascagni).
 9.15: Mezzo-contralto—Miss Millicent Jennings with orchestral accompaniment, "I Go My Way Singing" (Cary).
 Contralto and tenor—Melodia Duo, "Dream Song" (Rathbone).
 9.22: Suite—Studio Octet, "Nutcracker Suite" (Tchaikowsky): (a) "Overture—Miniature," (b) "Dance of the Sugar-Plum Fairy," (c) "Trepak."
 9.27: Tenor—Mr. Russell Sumner, "Go, Lovely Rose" (Quilter).
 Vocal—Melodious Quartet, "A Flower to Me Thou Seemest."
 9.32: Dance music by Lyndon P. Christie and His Rhythmic Symphonists, which will include the following numbers:—
 Foxtrots—"Ballin' the Jack" (Chris. Smith); "It's a Great Life"; "Over the Garden Wall" (Sellers); "Monte Carlo Medley" (Harrington); "Do Something" (Green); "Livin' in the Sunlight, Lovin' in the Moonlight" (Sherman); "Original Dixieland One-step" (Nichols); "A Pair of Blue Eyes" (Kernell); "Cryin' for the Carolines" (Lewis); "Have a Little Faith in Me" (Lewis); "Dixiana" (Tierney); "If I Had a Girl Like You" (McDermott); "Roll Up the Carpets" (Nixon). Waltz—"If I'm Dreaming" (Burke). Foxtrots—"Alabama Stomp" (Johnson); "Mr. and Mrs. Sippi" (Tierney); "Ricketty Rackety Shack" (Tobias); "Skinner's Sock" (Skinner); "It Must Be You" (Eliscu); "Hangover" (Nichols); "Without You, Emmaline" (De Rose); "Telling It to the Daisies" (Young); "Song of the Dawn" (Yellen).
 11.0 : God save the King.

4YA, DUNEDIN (650 KILOCYCLES)—THURSDAY, APRIL 16.

SILENT DAX.

Friday, April 17

1YA, AUCKLAND (900 KILOCYCLES)—FRIDAY, APRIL 17.

- 3.0 : Selected recordings.
 3.15: Literary selection.
 5.0 : Children's session, conducted by "Nod" and "Aunt Jean."
 6.0 : Dinner music session.
 Milan Symphony Orchestra, "Semiramide Overture" (Rossini).
 Symphony Orchestra, "Tales from the Vienna Woods" (Strauss).
 Herman Finck's Orchestra, "Old and New" (Potpourri of Popular Melodies) (arr. Herman Finck).
 Cordoba Philharmonic Orchestra, "Carnival" (Lucena).
 Bournemouth Municipal Orchestra, "The Merry Brothers" (Gennin).
 Symphony Orchestra, "Artist's Life" (Strauss).
 Milan Symphony Orchestra, "Intermezzo" from "Cavalleria Rusticana."
 Cordoba Philharmonic Orchestra, "La Habanera" (Lucena).
 Bournemouth Municipal Orchestra, "Echoes of the Valley" (Gennin).
 Royal Philharmonic Orchestra, "Blue Danube" (Strauss).
 7.0 : News and market reports.
 8.0 : Chimes. March—Orchestral Octet, under direction of Mr. Harold Baxter, "B.B." (Horne); suite, "Tchaka" (Ring): (a) "Before the Battle," (b) "Monahan," (c) "War Dance."
 8.12: Contralto—Miss Nellie Lingard, (a) "The Glory of the Young Green" (Herman Lohr); (b) "A Love Song" (Herman Lohr).
 8.18: Violin—Paul Godwin, "Concerto in D Minor" (Wieniawski).
 8.22: Humour—Mr. Zante Wood, "By Special Request" (Gillespie).
 8.29: Selection—Orchestral Octet, "Gipsy Princess" (Kaiman).
 8.36: Popular songs—Miss Eileen Smithson, (a) "If You're in Love You'll Waltz" (Tierney-McCarthy); (b) "Always in All Ways."
 8.42: Balalaika Orchestra, Gorskaia, (a) "Stand Ein Borbenbaum"; (b), "Volga Folk Song" (Traditional).
 8.48: Bass-baritone—Mr. Arthur Wright, (a) "The Roving Life" (Hewitt); (b) "The Admiral's Broom" (Bevan).
 8.55: Male quartet—Felix Schmidt Quartet, "Guten Abend, Gute Nacht."
 8.58: Suite—Orchestral Octet, "Izeyl" (Pierne).
 9.3 : Evening weather forecast and announcements.
 9.5 : Xylophone—Franz Kruger, "American Patrol" (Meachom).
 9.8 : Contralto—Miss Nellie Lingard, (a) "Sunshine and Cloud" (Herman Lohr); (b) "Surprise" (Herman Lohr).
 9.13: Paul Godwin's Quartet, "Legende d'Amour" (Beccie).
 9.17: Character recital—Mr. Zante Wood, "The Scene Shifter" (Lester).
 9.22: Clarinet—Mr. Gordon Eady and Orchestral Octet, "Serenade." Waltz—Orchestral Octet, "Magic Scenes" (Vanis).
 9.31: Popular song—Miss Eileen Smithson, "Beyond the Blue Horizon."
 9.36: Lute and mandolin—Raffalle and Maria Calace, (a) "Danza Spagnola"; (b) "Marcia Degli Eroi" (Calace).
 9.42: Bass-baritone—Mr. Arthur Wright, "Out of the Deep" (Lohr).
 9.46: Male quartet—Felix Schmidt Quartet, "Spinn, Spinn" (Jungst).
 9.49: Suite—Orchestral Octet, "Russian Scenes" (Bantock).
 Characteristic piece—Orchestral Octet, "Japanese Carnival" (Basque) selection, "Eastern Romance" (Haines).
 10.1 : God save the King.

2YA, WELLINGTON (720 KILOCYCLES)—FRIDAY, APRIL 17.

- 3.0 : Chimes. Selected gramophone recordings.
 3.30 and 4.30: Sporting results to hand.
 5.0 : Children's session, conducted by "Uncle Jim" and the "Story Book Lady."
 6.0 : Dinner music session.
 Berlin Philharmonic Orchestra, "Torch Dance B Flat Major."
 Ilja Ljvshakoff and His Orchestra, "Aubade" (Ljvshakoff).
 Paul Godwin Orchestra, "Evening Chimes" (Marzian).
 Vienna Schrammel Quartet, "Some Day" (from "Marietta").
 Efm Schachmeister's Dance Orchestra, "Casanova, I Love You" Tango (Stransky).
 Ilja Ljvshakoff and His Orchestra, "Little Serenata" (Alfred Grunfeld); "Who Has Filled Our Heart With Love" (Lehar).
 Paul Godwin's Orchestra, "The Mask Seller" (Albert Wolff).
 Vienna Schrammel Quartet, "Spin, Spin" (Lochmann).
 Symphony Orchestra, "Il Guarany-Introduction" (Gomes).
 Paul Godwin Orchestra, "Song of the Desert" (Delhaes); "Tonerna."
 Efm Schachmeister's Dance Orchestra, "At the Fireside."
 Paul Godwin's Jazz Symphonians, "Butterfly, Sweet Little Lady."
 Ilja Ljvshakoff and His Orchestra, "All My Heart Belongs To You."
 7.0 : News session, market reports and sports results.
 8.0 : Chimes.
 Note: This programme is subject to interruption to permit of a relay of a Sound Film Feature from the Majestic Theatre.
 Overture—2YA Orchestra (Conductor Signor A. P. Truda), "Min-strelesque" (Voelker); Mazurka, "Memories of Vienna."
 8.16: Baritone—Mr. Val Jones, (a) "The Lute Player" (Allitsen); (b), "Maire, My Girl" (Aitken).
 8.22: Mezzo-soprano—Miss Ann Gilpin with violin obligato, (a) "Dedication" (Franz); (b) "Song of the Open" (La Forge); (c) "Sing Break Into Song" (Mallinson).
 8.28: March—Mrs. H. G. Reeves and Her Banjo Orchestra, "Let Her Go" (arrgd. Bloy); Medley, "Irish Melodies" (arrgd. Reeves).

- 8.30: Light baritone—Mr. Dan Foley with orchestral accompaniment, (a) "On the Road to Mandalay" (Speaks); (b) "What the Red Hair'd Boen Said" (Edith Harry); (c) "Kitty of Colerain."
- 8.45: Selection—Orchestra, "Night in Madrid" (Glinka); Characteristic, "Little Lead Soldier" (Pierne).
- 9.0: Weather report and station notices.
- 9.2: Medley—Mrs. H. G. Reeves and Her Banjo Orchestra, "One Step."
- 9.7: Baritone—Mr. Val Jones, "Tommy Lad" (Margerson).
- 9.11: Mezzo-soprano—Miss Ann Glavin with orchestral accompaniment, "The Clock" (Lowe).
- 9.15: Oriental Valse—Orchestra, "Vision of Salome" (Lampe); Foxtrot, "It's a Great Life" (Whiting).
- 9.30: Dance programme.
- Foxtrots—Isam Jones' Orchestra, "Trees" (Kilmer).
Earl Burnett and His Los Angeles Biltmore Hotel Orchestra, "The Wedding of the Birds" (Tobias).
Tom Gerun and His Orchestra, "You're Lucky To Me" (Razaf); "My Love For You" (Kahn).
- 9.45: Waltz—Joe Green and His Orchestra, "Song of the Big Trail."
Foxtrots—Tom Gerun and His Orchestra, "Rollin' Down the River."
Jacques Renard and His Orchestra, "Three Little Words" (Kalmar).
- 9.51: Vocal—Charles King, "Here Comes The Sun" (Freed).
- 9.54: Foxtrots—Isam Jones' Orchestra, "Stardust" (Carmichael).
Ozzie Nelson and His Orchestra, "Who's Calling You Sweet-heart To-night?" (O'Flynn).
Nick Lucas and His Crooning Troubadours, "I Miss a Little Miss" (Seymour).
Ozzie Nelson and His Orchestra, "And Then Your Lips Met Mine" (Nelson).
- 10.0: Waltzes—Regent Club Orchestra, "You Will Remember Vienna."
Castlewood Marimba Band, "Drifting on to Avalon."
- 10.12: Foxtrots—Colonial Club Orchestra, "On a Little Balcony in Spain."
Jacques Renard and His Orchestra, "I Bring a Love Song."
Nick Lucas and His Crooning Troubadours, "You're Driving Me Crazy" (Donaldson).
- 10.21: Vocal—Chester Gaylord, "Confessin'" (Neilburg).
- 10.24: Foxtrots—Tom Gerun and His Orchestra, "Cheerful Little Barful"
Abe Lyman and His California Orchestra, "Never Swat a Fly" (De Sylva).
Earl Burnett and His Los Angeles Biltmore Hotel Orchestra, "Say 'Oul, Cherle" (Robinson).
Colonial Club Orchestra, "Sing Song Girl" (McCarthy).
- 10.36: Vocal—Charles King, "Leave a Little Smile" (Dubin).
- 10.39: Foxtrots—Tom Gerun and His Orchestra, "Memories of You" (Razaf).
Abe Lyman and His California Orchestra, "Old Fashioned Girl" (De Sylva).
Loring "Red" Nichols and His Orchestra, "Embraceable You" (Gershwin).
- 10.48: Waltzes—Castlewood Marimba Band, "Ukelele Moon" (Davis).
Joe Green and His Orchestra, "I'm Alone Because I Love You" (Young).
- 10.54: Foxtrots—Tom Gerun and His Orchestra, "My Sweetheart Serenade."
Jacques Renard and His Orchestra, "A Girl Friend of a Boy Friend of Mine" (Kahn).
- 11.0: God save the King.

3YA, CHRISTCHURCH (980 KILOCYCLES)—FRIDAY, APRIL 17.

- 8.0: Gramophone recital.
- 8.25: Sports results.
- 9.0: Children's Hour, conducted by "Chuckie."
- 9.5: Dinner music session.
- Royal Opera Orchestra, "Sylvia Ballet," "Pizzicato and Procession of Bacchus" (Delibes).
New Light Symphony Orchestra, "Scene De Ballet Marionettes."
Royal Opera Orchestra, "The Sleeping Beauty" Panorama.
National Symphony Orchestra, "Irish Rhapsody" (Herbert).
Trio—Fritz and Hugo Kreisler, Michael Rauchsens, "Sanctissima."
National Symphony Orchestra, "Orpheus in Hades" Overture.
Royal Opera Orchestra, "Shepherd Fennel's Dance."
Zonophone Salon Orchestra, "Narcissus" (Nevin).
National Military Band, "Lohengrin" Prelude (Wagner).
New Light Symphony Orchestra, "Persiflage" (Francis).
Trio—Fritz and Hugo Kreisler, Michael Rauchsens, "Arlésienne Intermezzo" (Bizet, arrgd. Kreisler).
La Scala Orchestra, "The Secret of Susanna" Overture.
- 10.0: News session.
- 10.30: Dialogue—Messrs. D. Cossgrove and W. Melbourne, "Radio Service."
- 8.0: Chimes.
- Overture—Reg. King and His Orchestra, "Song of My Heart."
- 8.9: Tenor—Mr. J. Gallagher, (a) "I'd Just Paint the Leaf of the Sham-rock" (Nicholls); (b) "I Did Not Know" (Trotter).
- 8.15: Piano—Miss Aileen Warren, (a) "Autumn" (Chaminade); (b) "Old Vienna" (Godowski).
- 8.23: Chorus—Light Opera Company, "King of Jazz" (Wayne).
- 8.27: Accordion—Mr. W. Sumner, (a) "March—Are You From Dixie?" (b) "My Old Kentucky Home"; (c) "Swanee River" (Anon.).
- 8.32: Contralto—Miss Nancy Bowden, (a) "Sometimes in Summer" (Stern-dale Bennett); (b) "The Song of the Little Folk" (Coates).
- 8.36: Saxophone—Mr. Lyndon Christie, "Quartette" (from "Rigoletto").
- 8.42: Selection—Christchurch Broadcasting Trio, "Rondo" (Reissiger).

- 8.52: Humour—Mr. Jack Darragh, "Cohen Rings His Tailor" (Anon.).
- 8.57: Polydor Cavalry Band, "Foot Deffe March" (Konemann).
- 9.0: Weather forecast and station notices.
- 9.2: De Groot and Piccadilly Orchestra, "The Waltz Dream" (O. Strauss).
- 9.8: Cornet—Mr. N. G. Goffin, "The Farewell" (Hartmann).
- 9.18: Tenor—Mr. J. Gallagher, "You Forgot to Remember" (Berlin).
- 9.22: Accordeon—Mr. W. Sumner, (a) "Ramona"; (b) "The Great Big World Keeps Turning"; (c) "Three O'Clock in the Morning."
- 9.27: Contralto—Miss Nancy Bowden, (a) "Two Roses" (Gilbert); (b) "Pass Every Man" (Sanderson).
- 9.33: Chorus—Light Opera Company, "High Society Blues" (Hanley).
- 9.37: Saxophone—Mr. Lyndon Christie, "Nocturne" (Chopin).
- 9.42: Humour—Mr. Jack Darragh, "The Huntsman" (Anon.).
- 9.47: Selections—Christchurch Broadcasting Trio, (a) "Norwegian Dance No. 1" (Grieg); (b) "Minuet Antique" (Elkin); (c) "Graesk Fesdans" (Hartmann).
- 9.58: Polydor Cavalry Band, "March Past Mounted" (Dahne).
God save the King.

4YA, DUNEDIN (650 KILOCYCLES)—FRIDAY, APRIL 17.

- 3.0: Selected recordings.
- 5.0: Children's hour, conducted by "Aunt Sheila."
- 6.0: Dinner music session.
- The Classic Symphony Orchestra, "Raymond Overture" (Thomas).
Band of the Garde Republicaine, "The Two Pigeons" (Messenger):
(1) Entrance of Tziganes, (2) Scene and March of the Two Pigeons.
- Herman Finck's Orchestra, "Schubertiana" (arr. Finck).
Musical Art Quartet, "To a Wild Rose" (McDowell).
The Rhythmic Troubadours, "Song of the West" Selection.
London Theatre Orchestra, "Maid of the Mountains" Selection.
Rhythmic Troubadours, "Puttin' on the Ritz" Selection.
Rio Novelty Orchestra, "Spaventa" Tango (Pares and Van Parys).
Herman Finck's Orchestra, "Schubertiana" (arr. Finck).
Musical Art Quartet, "Mighty Lak a Rose" (Nevin).
Rio Novelty Orchestra, "Mientras Lloro El Tango."
- 7.0: News session.
- 8.0: Chimes. March—Band of H.M. Coldstream Guards, "The Wee MacGregor Patrol" (Amers).
- 8.4: Vocal quartets—The Select Four, (a) "From Oberon in Fairyland" (Stevens); (b) "Carry Me Back to Old Virginia" (Bland).
- 8.11: Xylophone—Mr. E. J. Andrews, (a) "The Islander" (arr. Pettitt); (b) "The Glow-worm" (Lincke—arr. Pettitt).
- 8.18: Humour—Mr. Lester F. Moller, (a) "You Know What I Mean" (Hayes); (b) "The Mule Puncher" (Thomas).
- 8.24: Accordeon—Medard Ferrero, "Monte Christo" (Gabutti).
- 8.32: Soprano—Miss Lettie de Clifford, "Moonstruck" (Monckton).
- 8.36: Instrumental trio—Messrs. A. H. Pettitt, K. and L. Hunter, (a) "Telling it to the Daisies" (Young); (b) "I Feel You Near Me" (Hanley).
- 8.42: Quartet—The Select Four, "Land of Hope and Glory" (Elgar).
- 8.46: Piano novelty—Mr. R. G. Napier, "If I Had a Girl Like You" (Green).
- 8.49: Bass—Mr. Edward Bond, (a) "An Ancient Mariner" (Sanderson); (b) "At Grendon Fair" (Marie).
- 8.55: Instrumental trio—Messrs. A. H. Pettitt and L. and K. Hunter, (a) "Miss You" (Tobias); (b) "Pas Des Amphores" (Chaminade); (c) "Old Man Blues" (Mills).
- 9.4: Weather report and station notices.
- 9.8: Balalaika Orchestra, Gorskaja, (a) "Immer Lustig"; (b) "The Red Sarafan" (Folk Song).
- 9.12: Contralto—Miss Betty Hamilton, "The Little Old Garden" (Hewitt).
- 9.15: Xylophone—Mr. E. J. Andrews, (a) "The Mocking Bird" (arr. Pettitt); (b) "Aloha" (arr. Pettitt).
- 9.21: Quartet—The Select Four, (a) "The Hunt" (Coward); (b) "Golden Slumbers Kiss Your Eyes" (Senior).
- 9.27: Instrumental trio—Messrs. A. H. Pettitt and L. and K. Hunter, (a) "Say 'Oul, Cherle" (Youmans); (b) "Whispering Flowers" (Blon); (c) "Song o' My Heart" (Young).
- 9.39: Recital—Mr. Lester F. Moller, "Dickens Transcription" (Philips).
- 9.43: Tenor—Mr. J. E. Davies, (a) "The Road to the Isles" (Kennedy-Fraser); (b) "Serenata" (Jarman).
- 9.49: Piano—Mr. R. G. Napier, (a) "Crying for the Carolines" (Warren); (b) "If I Could Be With You" (Johnson).
- 9.55: Vocal quartet—The Select Four, "Good Night" (Steele).
- 9.58: March—Royal Belgian Guards Band, "Marche du Regiment des Carabiniers" (arr. Prevost).
- 10.1: God save the King.

Saturday, April 18

1YA, AUCKLAND (900 KILOCYCLES)—SATURDAY, APRIL 18.

- 3.0: Selected recordings.
- 3.15: Literary selection.
- 3.30: Further selected recordings.
- 5.0: Children's session, conducted by "Cinderella."
- 6.0: Dinner music session.
- Berlin Philharmonic Orchestra, "Titus" Overture (Mozart).
Paul Godwin Orchestra, "The Roses' Bridal Procession" (Leon Jessel).
"Oh, This Beautiful Springtime" (Lincke).

Great Symphony Orchestra, "Fortissimo" (Kalman).
 Paul Godwin Orchestra, "The Marionettes Mounting Guard" (Kuhn).
 State Opera Orchestra, Berlin, "Orpheus and Eurydice Ballet Music."
 Paul Godwin Orchestra, "Murmure de Bal" (Meyer-Helmund).
 Berlin Philharmonic Orchestra, "Le Nozze di Figaro" Overture.
 Paul Godwin Orchestra, "Poppies" (Moret); "Dreaming Flowers."

7.0 : News and market reports.

8.0 : Chimes. Relay from the Auckland Town Hall of a concert by the Auckland Municipal Band, under the conductorship of Mr. George Buckley.

God save the King.

March—Band, "Indienne" (Sellenick); overture, "Die Fledermaus."
 Cornet duet—Messrs. F. Bowes and J. Davies, "Birds of the Forest."
 Baritone—Mr. Stan. Pritchard, "Drake Goes West" (Sanderson).
 Clarinet—Mr. E. Pheloung, "Concertino" (Weber).

The Band, "Scherzo and Finale from 5th Symphony in C Minor, Op. 67."
 Contralto—Miss E. Robinson, "I Wore the Rose You Gave Me."

Highland patrol—Band, "Wee MacGregor" (Amers); rhapsody, "Hungarian Rhapsody, No. 2" (Liszt).

Flute—Mr. Hal McLennan, "9th Grand Solo" (Krantz).

Baritone—Mr. Stan. Pritchard, "The Moon Drops Low" (Cadman).

Descriptive—Band, "A Motor Ride" (Bidgood).

Contralto—Miss Evelyn Robinson, "Love's Old Sweet Song" (Molloy).
 March—Band, "Father Rhine."

10.0 : Programme of dance music from the studio.

Foxtrots—Arcadians Dance Orchestra, "Always" (Ruby).

George Olsen and His Music, "Sweet Nothings of Love."
 Arcadians Dance Orchestra, "At the End of the Lonesome Trail" (Ruby).

Ted Weems and His Orchestra, "Slappin' the Bass."

10.12: Waltz—Regent Club Orchestra, "Underneath the Russian Moon."

Foxtrots—Johnny Hamp's Kentucky Serenaders, "Lady Luck."

Victor Arden, Phil Ohman and Their Orchestra, "Why?"

10.21: Vocal—Frank Luther, "The Moon is Low" (Freed).

10.24: Foxtrots—New Mayfair Dance Orchestra, "She's My Slip of a Girl."
 Leo Reisman and His Orchestra, "Mia Cara" (Kahal).

Victor Arden, Phil Ohman and Their Orchestra, "It's You I Love" (Davis).

10.33: Waltzes—Regent Club Orchestra, "Dear, When I Met You" (Brown).
 Rudy Vallee and His Connecticut Yankees, "Sweet Susanne."

Foxtrots—New Mayfair Dance Orchestra, "Spread a Little Happiness."
 Nat Shilkret and His Orchestra, "May I Say 'I Love You'?"

10.45: Vocal—Johnny Marvin, "Lucky Me, Lovable You" (Yellen).

10.48: Foxtrots—The High Hatters, "Singin' in the Bath tub" (Magidson).
 New Mayfair Dance Orchestra, "In an Old World Garden."

Nat Shilkret and His Orchestra, "Cross Your Fingers."

The High Hatters, "Duke of Ka-ki-ak" (Leslie).

11.0 : God save the King.

2YA, WELLINGTON (720 KILOCYCLES)—SATURDAY, APRIL 18.

3.0 : Chimes. Selected gramophone recordings.

3.30 and 4.30: Sporting results to hand.

5.0 : Children's session, conducted by "Aunt Molly."

6.0 : Dinner music session:

Paul Godwin's Orchestra, "Anbade" Serenade (Schweitzer); "The Divorced Lady" Medley (Fall); "Lotus Waltz" (Ohlsen); "Asatian Country Dance No. 1" (Merkelt).

Great Symphony Orchestra, "The Master Miner" (Zeller).

Mandolin and Lute Band, "Per Aspera Od Astra" (Urbach).

Paul Godwin's Orchestra, "Smitten" (Ziehrer-Hruby); "Alsatian Country Dance No. 2" (Merkelt).

Berlin State Opera Orchestra, "Knight Passman Ballet" (Strauss).

Paul Godwin Orchestra, "Bells of Vineta" Waltz (Lindsay-Thiemer).

Mandolin and Lute Band, "Turkish March" (Mozart).

Paul Godwin's Orchestra, "Flower Song" (Lange); "Rejoicings" March.

7.0 : News session, market reports and sports results.

7.40: Lecture—Professor W. H. Gould, Professor of Education, Victoria University College, a W.E.A. lecturette, "Leaving Children Alone."

8.0 : Chimes. Studio programme by the Wellington Y.M.C.A. Optimists' Club, "Programme of Optimism."

10.0 : Dance programme:

Foxtrots—Ilja Livschakoff Dance Orchestra, "And Swiftly the Days Pass By" (arr. Benedict); "The Gipsy Princess" (Kalman); "Munich Kiddy" (Stolz-Reisch).

10.9 : Waltz—Ilja Livschakoff Dance Orchestra, "My Love Song Must Be a Waltz" (Stolz).

Foxtrots—Paul Godwin Dance Orchestra, "Say That You Love Me."

Ilja Livschakoff Dance Orchestra, "The Whole World is Sky Blue" (Stolz).

10.18: Vocal (Spanish)—Juan Llossas with His South American Orchestra, "La Gitarra" (Paredes).

10.21: Tangos—Ilja Livschakoff Dance Orchestra, "Don't Leave Me!" (arr. Benedict); "To-night I've Dreamt of You" (Kalman); "You Are My Morning and Night Prayer" (Krauss).

10.30: Waltz—Paul Godwin Dance Orchestra, "Under the Roofs of Paris."

Foxtrots—Paul Godwin Dance Orchestra, "Fair Little Daisy."

Ilja Livschakoff Dance Orchestra, "Love and Wine Never Alone" (Krauss); "The Barrel Organ" (arr. Michaeloff).

10.42: Vocal (Spanish)—Juan Llossas with His South American Orchestra, "Sonarse Abandonado" (Paredes).

10.45: Tangos—Ilja Livschakoff Dance Orchestra, "A Love Letter" (arr. Michaeloff); "Just a Bit of Love" (Rosen); "And Once You Too Will Deceive Me" (Stolz).

10.54: Foxtrots—Ilja Livschakoff Dance Orchestra, "You Are My Greta Garbo" (Stolz).

Paul Godwin Dance Orchestra, "Mariner's Song" (Uher).

11.0 : Sporting summary.

11.10: God save the King.

3YA, CHRISTCHURCH (930 KILOCYCLES)—SATURDAY, APRIL 18.

3.0 : Afternoon session.

4.25: Sports results.

5.0 : Children's session, conducted by "Aunt Pat."

6.0 : Dinner music session.

New Symphony Orchestra, "Toy Symphony" (Romberg).

Concert Orchestra, "Minuet" (Boccherini).

International Novelty Orchestra, "Lazy Pete" (Kersten).

Zonophone Salon Orchestra, "Old Rustic Bridge" (Skelly).

International Novelty Orchestra, "Eva" Waltzes (Lehar).

Organ—Sidney Gustard, "Cuckoo" (Jonasson).

International Novelty Quartet, "Over the Waves" (Rosas).

Paul Godwin Quintet, "Minuet" (Boltoni).

International Novelty Orchestra, "Carmen Sylva" (Ivanovici).

Zonophone Salon Orchestra, "Killarney" (Balfie).

International Novelty Quartet, "See Me Dance the Polka."

Paul Godwin Quintet, "Love After The Ball" (Ozibulka).

Concert Orchestra, "Sous Bois" (Staubb).

Organ—Sandy Macpherson, "I Promise" (Hirsch, Wilhite).

National Symphony Orchestra, "Zampa" Overture (Herold).

7.0 : News session.

7.30: Sports results.

8.0 : Chimes.

Overture—Band of H.M. Coldstream Guards, "Pique Dame" (Suppe, arrgd. Winterbottom).

8.5 : Tenor—Mr. Oliver N. Foote, "Heva Hiva Ho" (Slaters).

8.9 : Banjolin—Mr. Stan Birch, "Maritana" (Wallace).

8.17: Cabaret songs—Miss Kathleen Johns, (a) "I Miss a Little Miss" (Coots); (b) "You're the Sweetest Girl This Side of Heaven."

8.23: Violin—Miss Irene Morris, (a) "Madrigale" (Simonetti); (b) "Salta-relle" (German).

8.30: Humour—Mr. J. J. Flewelling, "The Sleeping Beauty" (a modern version from "The Passing Show") (Ben Travers).

8.35: Mouth organ—Mr. J. Woodham, (a) "In a Little Spanish Town"; (b) "My Blue Heaven"; (c) "Medley."

8.39: Christchurch Broadcasting Trio, "Bright Selections" (Bohm).

8.50: Bass—Mr. Sydney Hood, (a) "Before You Came" (King); (b) "If Ever I Meet the Sergeant" (Wright).

8.56: Accordeon—Bastien and His Orchestra Bal Musette, (a) "Coquette" (Halet); (b) "Die Muhle" (Halet).

9.2 : Weather forecast and station notices.

9.4 : One Step—Debroy Somers Band, "Scottish Medley" (arrgd. Somers).

9.8 : Banjolin—Mr. Stan Birch, "Paradise Alley" (Barle Carlton).

9.12: Tenor—Mr. Oliver N. Foote, (a) "Believe Me If All Those Endearing Young Charms" (Irish); (b) "An Embrace" (Russell).

9.18: Piano—Raie Da Costa, "King of Jazz."

9.24: Humour—Mr. J. J. Flewelling, "The Laundry Problem" (Leacock).

9.28: Mouth organ—Mr. J. Woodham, (a) "Pack Up Your Troubles"; (b) "Goodbye"; (c) March—"Good Old New Zealand."

9.33: Cabaret songs—Miss Kathleen Johns, (a) "Strolling Thro' the Tulips"; (b) "Swing Song" (from "The House that Jack Built").

9.39: Selections—Christchurch Broadcasting Trio, (a) "Irish Jig" (Holbrooke); (b) "Berceuse" (Godard); (c) "The Mill" (Raff).

9.49: Bass—Mr. Sydney Hood, (a) "Lighterman Tom" (Squire); (b) "A Chip of the Old Block" (Squire).

9.56: International Concert Orchestra, "Sweetheart" (Strauss).

10.0 : Dance music.

Foxtrots—Paul Godwin Dance Orchestra, "Dance of the Raindrops."

Ilja Livschakoff Dance Orchestra, "The Song of My Wife."

Paul Godwin's Jazz Symphonians, "You Are The Sweetest Girl in the World" (Heymann).

10.9 : Waltz—Ilja Livschakoff and His Dance Orchestra, "Beautiful Lady in the Moon" (Wiga).

Foxtrots—Ben Bernie's Dance Orchestra, "Kiss Me and Then Forget."

Paul Godwin's Dance Orchestra, "Hokus Pokus" (German).

10.18: Vocal—Sidney Burchall, "Bye and Bye" (Richard Rodgers).

10.21: Tangos—Ilja Livschakoff Dance Orchestra, "A Little Love Longing."
 Jose M. Lucchesi and His South American Orchestra, "Pesares" (Lucchesi).

Juan Llossas's Original Argentin Tango Band, "Warum Charmante Frau" (Bauer).

10.30: Waltz—Paul Godwin's Jazz Symphonians, "Love Waltz" (Heymann).
 Foxtrots—Ilja Livschakoff's Dance Orchestra, "Perfidious Luck" (Mackeben); "I Am Fondly Attached To You" (May); "Would You Give Me the Happiness of One Sweet Hour" (Gilbert).

10.42: Vocal—Sidney Burchall, "Here in My Arms" (Richard Rodgers).

10.45: Tangos—Ben Berlin's Dance Orchestra, "I Love You" (Schmidt).

Ilja Livschakoff's Dance Orchestra, "Come Down Rosie."

Juan Llossas's Original Argentin Tango Band, "Astoria."

10.54: Foxtrots—Ilja Livschakoff and His Dance Orchestra, "There's Nothing Like Love" (Guttmann); "Troika Drive in the Moonshine" (arrgd. Benedict).

11.0 : God save the King.

4YA, DUNEDIN (650 KILOCYCLES)—SATURDAY, APRIL 18.

- 8.0 : Afternoon session.
 4.25 : Sporting results to hand.
 5.0 : Children's hour, conducted by "Aunt Anita."
 6.0 : Dinner music session:
 March—National Military Band, "National Emblem" (Bagley).
 'Cello—W. H. Squire, "The Broken Melody" (Van Blene).
 Albert Sandler's Orchestra, "I Kiss Your Hand, Madame" (Erwin).
 Organ—G. T. Pattman, "Cherie Waltz" (Valentine).
 New Mayfair Orchestra, "Follow Through" (De Sylva).
 Court Symphony Orchestra, "The Gondollers" (Sullivan).
 Paul Whiteman's Orchestra, "Gipsy" (Gilbert).
 Albert Sandler's Orchestra, "Chalita" (Schertzinger).
 Padilla's Marimba Serenaders, "Paree" (Padilla).
 Piano—Gil Dech, "Sometimes I'm Happy" (Youmans).
 Royal Serbian Tambouritzza Orchestra, "Serbian Melody."
 Ketelbey's Orchestra, "Bells Across the Meadow" (Ketelbey).
 Rio Marimba Serenaders, "Dolores" Waltz (Waldteufel).
 Organ—G. T. Pattman, "Worryin'" Waltz (Fairman).
 March—National Military Band, "Stars and Stripes" (Souza).
 7.0 : News session and general sporting results.
 8.0 : Relay of vaudeville programme from Station 3YA, Christchurch.
 10.0 : Dance music session:
 Foxtrots—Waring's Pennsylvanians, "With You" (Berlin).
 Leo Reisman and His Orchestra, "Charming" (Grey).
 Waring's Pennsylvanians, "There's Danger in Your Eyes, Cherie" (Richmond).
 Nat Shilkret and His Orchestra, "Caribbean Love Song."
 10.12 : Waltz—Leo Reisman and His Orchestra, "Shepherd's Serenade" (Grey).
 Foxtrots—Rudy Vallee and His Connecticut Yankees, "Celebrated Stein Song" (Fenstad).
 Jack Hylton and His Orchestra, "Bunkey-Doodle-I-Doh."
 10.21 : Vocal—Chick Endor, "Singin' in the Bath tub" (Magidson).
 10.24 : Foxtrots—The High-Hatters, "In My Little Hope Chest" (Coslow).
 Jack Hylton and His Orchestra, "We're Uncomfortable."
 The High-Hatters, "Sing, You Sinners" (Coslow).
 Waltz—George Olsen and His Music, "Romance" (Leslie).
 10.36 : Foxtrots—Nat Shilkret and His Orchestra, "When I'm Looking at You."
 George Olsen and His Music, "After a Million Dreams."
 Nat Shilkret and His Orchestra, "The Rogue Song" (Grey).
 10.45 : Vocal—Chick Endor, "Lady Luck" (Perkins).
 10.48 : Foxtrots—George Olsen and His Music, "I'm on a Diet of Love."
 Jack Hylton and His Orchestra, "House on the Hill-top."
 George Olsen and His Music, "Mona" (Conrad).
 Jack Hylton's Orchestra, "Dreamy Honolulu" (Gumble).
 11.0 : God save the King.

Sunday, April 19**1YA, AUCKLAND (900 KILOCYCLES)—SUNDAY, APRIL 19.**

- 3.0 : Selected recordings, and relay from the Auckland Town Hall of selections from an Organ Recital by the City Organist, Mr. Maughan Barnett.
 Literary selection.
 6.0 : Children's song service, conducted by "Uncle Bert."
 7.0 : Relay of divine service from the Pitt Street Methodist Church. Preacher, The Rev. W. Walker. Organist and Choirmaster, Professor W. A. Moor.
 8.30 (approx.): Orchestra of Opera Comique, Paris, "Ballet Egyptien."
 8.42 : Vocal and instrumental—The Aubade Trio, pianoforte solo, "Humoresque" (Swinstead); contralto solos, "Four Ducks in a Pond" (Needham), "Sing Merrily To-day" (Phillips), "Serenata" (Braga); violin solo, "Liebeslied" (Kreisler).
 8.54 : Tenor—Mr. Denis Sheard, (a) "I Hear a Thrush at Eve" (Cadman); (b) "A Sprit Flower" (Campbell-Tipton).
 9.0 : Evening weather forecast and announcements.
 9.2 : Vocal and instrumental—The Aubade Trio, violin solo, "Schon Rosmarin" (Kreisler); contralto solos, (a) "The Market" (Carew), (b) "Five Eyes" (Armstrong Gibbs); pianoforte solo, "Clair de Lune" (Debussy).
 9.15 : Flute—Mr. Edward V. Johnson, "Bohemian Girl" (Balfe).
 9.21 : New Queen's Hall Orchestra, "Summer Days Suite" (Coates): (1) In a Country Lane, (2) On the Edge of the Lake, (3) At the Dance.
 9.33 : Tenor—Mr. Denis Sheard, (a) "I Heard You Singing" (Coates); (b) "Serenata" (Toselli).
 9.39 : Male choir—Associated Glee Clubs of America, (a) "Calm as the Night" (Bohm—arr. Andrews); (b) "On Wings of Song" (Mendelssohn).
 9.47 : Flute—Mr. Edward V. Johnson, (a) "Spirale Scherzo" (Donjon); (b) "Aria in C" (Lemmone).
 9.53 : Band—H.M. Coldstream Guards, "Les Cloches de Corneville."
 10.1 : God save the King.

2YA, WELLINGTON (720 KILOCYCLES)—SUNDAY, APRIL 19.

- 3.0 to 4.30 : Selected gramophone recordings.
 6.0 : Children's song service, conducted by "Uncle George," assisted by the Children's Choir from the Wellington South Church of Christ.

- 7.0 : Relay of evening service from the Vivian Street Church of Christ. Preacher, Pastor W. G. Carpenter. Organist, Miss Hazel Hunter.
 8.15 (approx.): Relay from St. James Theatre of Band Recital by the Wellington Municipal Tramways Band; Conductor, Mr. E. Franklin.

3YA, CHRISTCHURCH (980 KILOCYCLES)—SUNDAY, APRIL 19.

- 3.0 : Gramophone recital.
 5.30 : Children's song service by children of the Baptist Sunday Schools.
 6.15 : Chimes from the studio.
 6.30 : Musical recordings.
 7.0 : Relay of evening service from Oxford Terrace Baptist Church. Preacher, Rev. L. A. North. Organist, Mr. W. Melville Lawry. Choir Conductor, Mr. K. G. Archer.
 8.15 (approx.): Relay of programme from 4YA, Dunedin.
 10.0 (approx.): God save the King.

4YA, DUNEDIN (650 KILOCYCLES)—SUNDAY, APRIL 19.

- 3.0 : Selected recordings.
 5.30 : Children's song service, conducted by "Big Brother Bill."
 6.15 : Instrumental recordings.
 6.30 : Relay of evening church service from Moray Place Congregational Church, Dunedin. Preacher, Rev. A. Mead, M.A. Choirmaster, Mr. Alfred Walmsley.
 7.45 (approx.): Selected recordings.
 8.15 : Studio programme by Kalkorai Band, under the direction of Mr. Thos. J. Kirk-Burnnand, assisted by 4YA artists.
 Quick-step—The Band, "Waldmere" (Losey); Romance, "Cavatina."
 8.24 : Soprano—Miss Dorothy M. Sligo, (a) "The Willow" (Goring-Thomas); (b) "The False Prophet" (Scott); (c) "Damon" (Stange).
 8.38 : Overture—Band, "Tancredi" (Rossini).
 8.41 : Bass—Mr. Wilfred Kershaw, (a) "Teach Me to Pray" (Jewitt); (b) "I Come to Thee" (Roma); (c) "God Touched the Rose" (Brown).
 8.50 : Male choir—Don Cossacks, (a) "In Der Kirche" (Tschalkowsky); (b) "Korsaken Wiegenlied" (Gretchaninoff).
 9.0 : Weather report and station notices.
 9.2 : Humorous fantasia—Band, "Pop Goes the Weasel" (Hawkins).
 9.10 : Tenor—Mr. J. Kennedy, (a) "Prayer Perfect" (Stensen); (b) "Face to Face" (Johnson); (c) "Faith" (Easton).
 9.20 : Concert waltz—Band, "Crown of Beauty" (Greenwood); Hymn "Eternal Father" (Dykes).
 9.30 : Selected recordings.
 10.0 : God save the King.

5YB, NEW PLYMOUTH (1230 KILOCYCLES)—SUNDAY, APRIL 19.

- 6.0 : Children's service.
 8.15 : Studio concert.

Australian Programmes**Times Corrected for N.Z.****Thursday, April 9.**

STATION 2FC, 9.30 p.m.: "The Smith Family Meeting." 10.44 p.m. and 11.34 p.m.: Molly Dougherty, entertainer. 10.51 p.m.: Clive Amadio, saxophonist.

2BL, 9.30 p.m.: "So This is London," a three-act comedy.

3LO, 9.30 p.m.: "Russian Folk Songs." 10 p.m.: Dance items, interspersed with vaudeville numbers.

Friday, April 10.

STATION 2FC, 9.30 p.m.: Concert programme arranged by the Musical Association of N.S.W.

2BL, 9.40 p.m.: The Harmony Four. 9.47 p.m. and 10.18 p.m.: Fred Bluet, comedian. 10.35 p.m.: "The Interrupted Honeymoon," a song playlet.

3LO, 9.30 p.m.: "The Minstrelsy of Scotland." 10 p.m.: Beethoven sonata recital. 10.30 p.m.: Comedy interlude. 10.45 p.m.: Brass band recital (relaying to 2FC).

Saturday, April 11.

STATION 2FC, 9.30 p.m.: Relay from 3LO, Melbourne, of a special orchestral concert.

2BL, 9.30 p.m. and 11.21 p.m.: Marjorie Skill, soprano. 9.37 p.m., 11.14

p.m., and 11.28 p.m.: The A.B.C. Dance Band. 9.44 p.m. and 11.7 p.m.: Frank Ryan, comedian. 9.51 p.m. and 11.33 p.m.: Harry Craig, baritone.

3LO, 9.30 p.m.: A special orchestral concert has been arranged.

3AR, 9.30 p.m.: Brass band recital by the Hawthorne City Band.

Sunday, April 12.

STATION 3LO, 9.30 p.m.: An orchestral concert by Hamilton Webber and his State Ensemble.

3AR, 10 p.m.: A classical programme arranged by Professor Bernard Heinze.

Monday, April 13.

STATION 3LO, 9.30 p.m.: "Niobe," a three-act comedy.

3AR, 10 p.m.: Brass band and ballad concert by the Coburg City Band and assisting artists.

Tuesday, April 14.

STATION 3LO, 9.30 p.m.: An orchestral concert by the A.B.C. Wireless Symphony Orchestra.

3AR, 9.30 p.m.: Dance music and variety.

Wednesday, April 15.

STATION 3LO, 9.30 p.m.: Relay from 2FC, Sydney, of a musical comedy evening.

3AR, 9.50 p.m.: Light classical music. 10.30 p.m.: "The Warming Pan," a one-act comedy.

Highlights of Modern Radio



ALTHOUGH 1930 has not brought to the surface many developments that can be ranked as revolutionary, it has certainly produced a far higher standard of radio efficiency than that in force twelve months ago.

There is an all-round improvement, whether one judges by the cost of the simplest type of loudspeaker set, or by the performance of the best receiver money can buy. Present prices are such that no listener need count loud-speaker reception too dear, while the man who can afford it can purchase greater selectivity and higher quality than ever before.

Mass Production.

IN the main these things have been made possible by the use of mass production methods in manufacture, by a fall in the cost of raw materials, including valves, and, as a side issue, a reduction in the scale of patent royalties. At the same time makers have paid more careful attention to the technical details of circuit design.

Finally, the efficiency of the modern valve, particularly of the S.G. and pentode types, has been improved beyond all recognition.

The mains-driven receiver leads the way in all-round performance, principally because of the constant voltage and unrestricted current which can be drawn from the mains, as compared with batteries. Nevertheless, it has a comparatively restricted market, owing to the fact that so many listeners are still outside the areas served by electric supply companies.

The Inductor Dynamic.

IN loudspeakers there are also one or two interesting innovations to record. The magneto-dynamic type of moving-coil speaker, though not exactly a novelty, has been greatly improved in operation and compactness, owing to the enormously powerful cobalt-steel magnets now available. The Farrand Inductor Dynamic instrument, on the other hand, is a distinctly new one, which may be regarded as a compromise between a moving-coil and a moving-iron speaker.

Instead of moving toward and away from the magnet pole-pieces, like an ordinary diaphragm or reed, the armature of the Farrand speaker is arranged to vibrate in a plane parallel with the pole-faces. It is propelled in both directions by magnetic force, and does not depend upon a spring reaction. The quality of reproduction is very similar to that given by a moving-coil, the bass register being well in evidence.

The Stenode Radiostat.

THE electrostatic type of speaker has not yet made its presence felt on the market here to the same extent as in Germany. The necessary biasing voltage is now conveniently drawn from the electric mains, while from the point of view of economy in manufacture it compares very favourably with its older rivals.

Then there is the Stenode Radiostat circuit, of which so much has been heard of late. This new receiver

An Illuminating Article on the Trend of Present-day Radio Design

claims to have achieved a standard of selectivity hitherto considered impossible.

Briefly, it claims to receive programmes separated only by a few hundred cycles in frequency. This, if true, drives a coach and four through the generally accepted theory of side-band modulation, and should make room in the ether for ten times the number of transmitting stations now in operation.

Without being unduly conservative in outlook—for this is a dangerous policy in radio science—such a statement is bound to arouse a certain amount of criticism. The Stenode circuit utilises a superheterodyne receiver to feed the incoming signals through a very narrow "gateway" which is controlled either by means of a piezo-crystal or by a phase-reversing oscillator.

The emerging signals are then passed through a "shaping circuit" to restore their musical balance.

The principle is certainly ingenious in its conception, and deserves to succeed. The proof of the pudding lies, however, in the eating, and one can only wait and see to what extent the Stenode circuit will supersede its other competitors in the field of selectivity.

Curing Fading.

IN connection with the selective reception of distant programmes, one difficulty still to be overcome is that of "fading." Efforts are now being made to eliminate this bugbear by the use of an automatic volume-control device, designed to regulate the degree

of amplification of the first R.F. valve in an inverse sense to the strength of the incoming wave.

A part of the received signal is separately rectified and the rectified current is then used to control the bias on the grid of the first R.F. valve. When the incoming carrier-wave weakens, the negative bias is lessened, so that the valve amplifies more powerfully, to compensate for the falling-off in signal strength.

It may be thought that there is now little scope for further improvement in the thermionic valve. In spite, however, of the high amplification factor and all-round "figure of merit" of the latest types, there are signs that we are only on the threshold of future valve development.

Future of Television.

THE multiple valve in which several stages of amplification are housed in the same bulb is at present being extensively exploited abroad, particularly in Germany. So far, this type of valve has been left severely alone in this country. Sooner or later it must come to the fore, and prove a powerful factor in reducing still further the cost of multi-valve sets.

Another interesting possibility lies in the development of the photo-electric cathode, in which the filament battery will be replaced by a source of light. The photo-electric type of valve, fitted with a light-sensitive cathode or grid has, for instance, an obvious application in television.

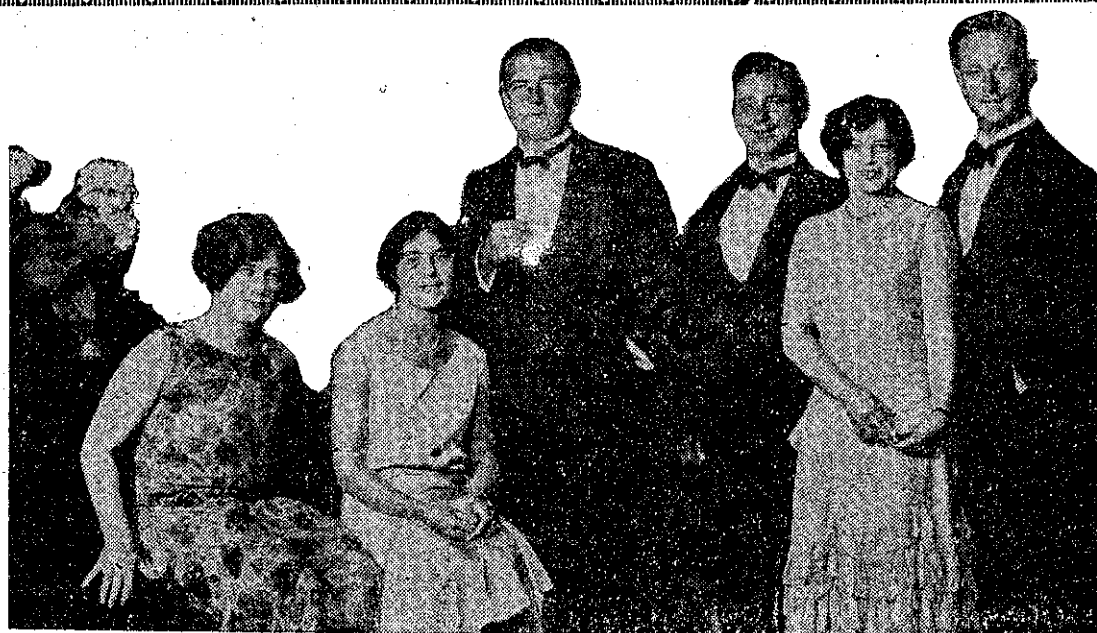
There is also reason to believe that the cathode-ray tube may soon open the way to a new system of television, unhampered by the use of mechanically-moving discs, and capable of producing programmes of real entertainment value.

At the present time experiments are being made, both in this country and abroad, with cathode-ray tubes for transmitting and receiving moving-picture effects by wireless. There is no reason why a cathode-ray tube need cost any more than a mains-driven valve, while the necessary operating voltage can easily be drawn from the domestic mains. In short, the cathode-ray tube opens out new prospects for television.

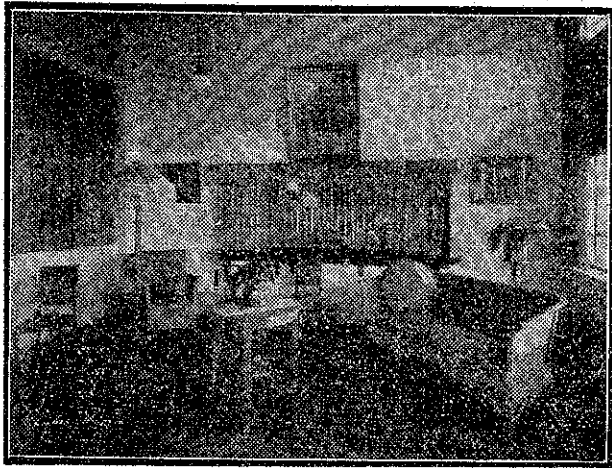
Beam Radio Progress.

A PART from broadcasting, remarkable progress has been made in the use of ultra-short radio waves, particularly in connection with so-called "beam" systems. It is now possible not only to transmit telegraphic code messages at the rate of 200 words a minute, but simultaneously to use the same beam waves to carry a telephonic message, without any trace of interference between the two systems of communication.

Experiments are also being carried out in connection with the transmission of speech between England and America over a submarine cable. This has always been considered impossible owing to the distortion caused by the relatively enormous capacity of the submerged wire; but developments in the use of new "shaping circuits" (designed to restore the distorted speech to its original form) promise to remove these difficulties and add another direct speech-channel between the old world and the new.—Carden Shields, in "Popular Wireless."



The 2YA Eight O'Clock Revue Party, who broadcast from 2YA on alternate Saturdays. From left to right: Elsie Croft, Rita Kemp, Will Bishop, Will Hancock, Gretta Stark, Ray Kemp. —S. P. Andrew, Photo.

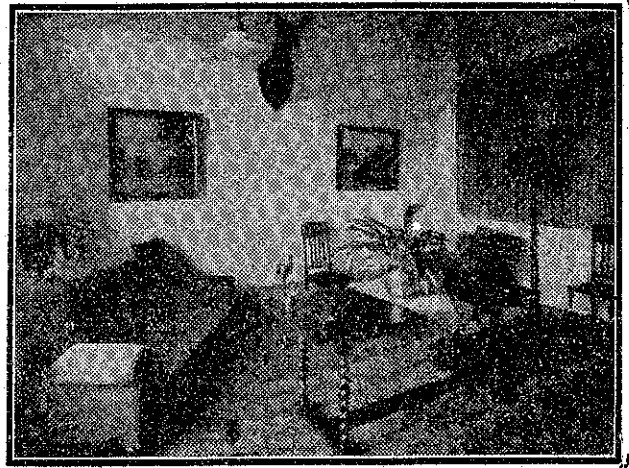


The corner pictured above is a portion of 3YA's lounge, which accommodates many waiting artists during every session. A speaker is provided so that they can hear the concert as it is going over the air.

On the right is shown a corner in the smoking lounge at 3YA.

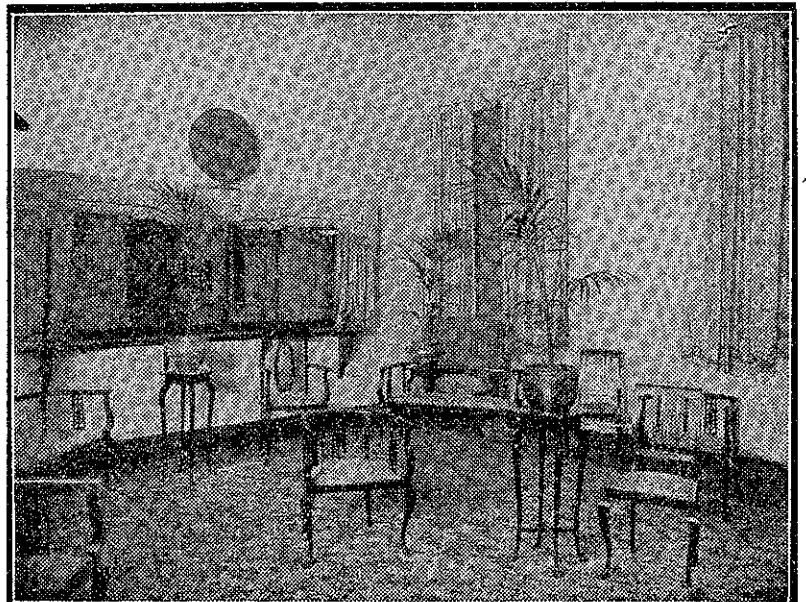
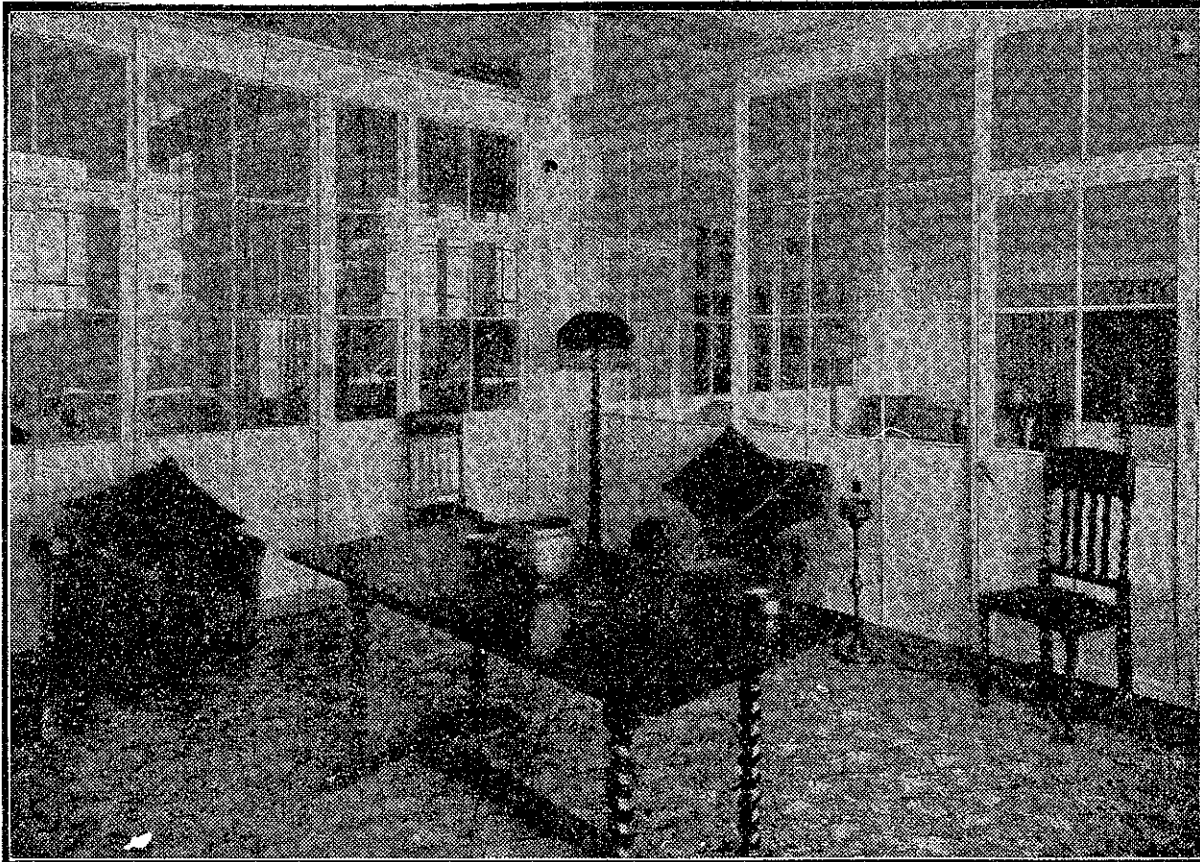
The lower illustration depicts one of the studios at 2YA. Altogether there are four, each serving a different purpose. Generally all four are used in the course of a day's programme.

Views of 2YA, 3YA and 4YA Studios



Above.—This is another corner of the lounge at the Christchurch studio.

Below is pictured one of the well-appointed lounges of the new 4YA, situated in the buildings of the "Evening Star" in Stuart Street, Dunedin.



Short-wave News

TLO, Nairobi

MR. R. T. STANTON (Christchurch) has just received the following particulars from the chief engineer of TLO: Wavelength, 49.5 metres; power, 24 kilowatts. Schedule reduced to N.Z. Standard time: Tuesday, Thursday and Saturday, 3 a.m. to 6.30 a.m.; Wednesday and Friday, 3.30 a.m. to 6.30 a.m.; Sunday, 3.30 a.m. to 7.30 a.m.; Monday, 3 a.m. to 6 a.m.; Tuesday, 7 p.m. to 8 p.m.; Thursday, 12 p.m. to 1 a.m. Friday.

"Short Waves for Gentlemen."

THE following is from "Wireless World" (England):—"Short waves have doimed evening clothes. They have gone 'class,'" runs a circular which we have received from an Altoona, Pa., U.S.A., radio manufacturer who is marketing a new super-heterodyne shortwave adaptor for the ordinary radio receiver. "Shortwave reception has definitely left the category of merely a pastime for nuts, cranks, and wild-eyed experimenters," continues the refined writer, who explains that "one can now listen to shortwave signals without mussing one's hair or being on speaking terms with kilocycles, audio frequencies, capacities, impedance, or other obstructions to normal enjoyment." The news that short waves are now "classy" will come as a great relief to our readers, many of whom must have been leading a Jekyll and Hyde existence.

The Pope's Speech.

THE following is an extract from "World Radio" of February 27 in reference to the Pope's talk which was recently re-broadcast from 2YA. The interference mentioned was noticed by myself, but I do not know if it was noticed by listeners to 2YA's re-broadcast.

This is an extract from the "Montreal Star" supplied by the "World Radio" Montreal correspondent:—

"Shortly after the voice of the Pope was heard over the air during the broadcast from the Vatican City, a whistle was heard which varied in volume during all the Pope's talk in Latin. The sound resembled a continuous regenerative squeal, and by many listeners was thought to be a fault of the transmission or their own receivers. Canadian Marconi engineers found that the noise was not originating in the Vatican station, neither was it caused by reception or transmission on this side of the Atlantic.

"They classified the noise as a 1000 cycle note which was being broadcast simultaneously with station HVJ and caused interference which, in their opinion, may have been deliberate. At the close of the Pope's talk the interference ceased and was not heard again; the remainder of the broadcast coming through as clearly as a local transmission."

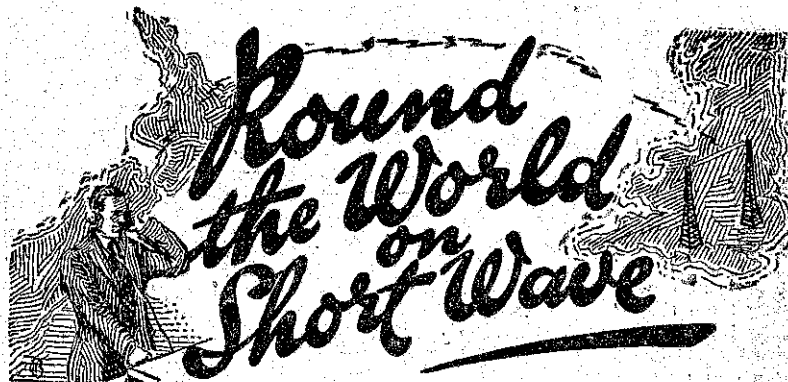
FOR SALE OR EXCHANGE

The rate for small advertisements under this heading is 1/6 cash for 20 words, and twopence for every other word thereafter.

WHY be overweight? Take Youth-O-Form. 20lb. reduction 6 weeks. Absolutely harmless. 6/6 posted. A. C. Timms, Chemist, Pahiatua.

FAT People troubled with indigestion will secure welcome relief by taking Youth-O-Form Capsules. 6/6 posted. A. C. Timms, Chemist, Pahiatua.

STOUTNESS! Dieting and exercising not necessary when you take Youth-O-Form Capsules. 20lb. reduction 6 weeks. 6/6 posted. A. C. Timms, Chemist, Pahiatua.



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

Replies to Correspondents.

T.R.S. (Dunedin).—The Canadian you inquire about is VE9CL, Winnipeg. For further particulars see this week's log.

The New York station is WIXAZ, operating on 31.35 metres. It relays the programmes of WBZ, Springfield, Mass., and WBZA, Boston, Mass. The three stations are owned by the Westinghouse Electrical and Manufacturing Co. The call signs of each station are always given—WBZ, WBZA, and WIXAZ, the "Z" being pronounced "Zee."

Notes on Reception.

RECEPTION on the whole has been above the average during the past week. 12RO, Rome, on 25.4 metres, has been the best in Europe after 7 a.m. HRB, Honduras, has been heard the loudest yet. VE9CL, Canada, with a special programme was good.

Log for Week Ending April 4

RV15, Siberia, 70.1 metres.—Good as usual every evening.

IZR, Auckland, 68.8 metres.—I don't know if this station is on short-wave, or if it is the fourth harmonic of their broadcast, but on Thursday evening, IZR was received at R9, with severe fading at irregular intervals on about 68.8 metres. Quality was good, static bad.

ZL2XX, Wellington, 62 metres.—Also on Thursday evening, at R9.

HVJ, Vatican City, 50.26 metres.—Tuesday, Wednesday, Thursday, and Saturday mornings from 6.30 a.m. at R9. All talk.

Russia, 50 metres (about).—On Tuesday, at 6 a.m., a noisy meeting was on. Volume was R8, with slight rapid fade and static. The meeting was still going strong one hour later. Wednesday, at the same time, volume was R8-9, but static was too bad.

TLO, Nairobi, 49.5 metres.—Up to R7 each morning, but static has been bad.

W8XAL, Cincinnati, 49.5 metres.—Were R9 on Saturday from 4 p.m.

W3XAL, Boundbrook, 49.18 metres.—Friday till 5.10 p.m. Boxing contests at the Chicago Stadium by teams from New York v. Chicago. Dance music till 5.30 p.m. from the New Yorkers' Hotel. R8-9. Saturday (Good Friday in New York), Music suitable for the day till 5 p.m. R9, static very bad.

W2XE, New York, 49.02 metres.—Saturday, R9 at 5 p.m.; static very bad.

VE9CL, Winnipeg, Manitoba, 48.8 metres.—Were transmitting a special programme on Sunday, which reached R9 by 8.30 p.m., and then commenced to go off in volume. Static was bad all through. At 9.30 p.m. they were R8, but

gave them up at this time as static was more severe.

HRB, Tegucigalpa, Honduras, 48.62 metres.—Friday, at 4 p.m., R7, with a strong ripple and badly distorted. Talk was about 50 per cent. readable. On Saturday they were better volume, being R8-9, but readability was worse. They signed off at 4.30 p.m. in English and then in another language; this was followed by a cuckoo call, repeated two or three times, and an orchestral selection, going off the air at 4.34 p.m.

46.3 metres (about).—Monday, 6.15 a.m., some "Hullo" and foreign talk at R7. Static was bad. Again on Saturday at 7 a.m. at R4.

Moscow, 45.4 metres (about).—Each morning at excellent volume, but often spoilt by morse almost on top.

OXY, Lyngby, Denmark, 31.51 metres.—Monday and Tuesday at 6.30 a.m. R5; very gushy.

W2XAF, Schenectady, 31.48 metres.—Good volume at 10 a.m., going off and becoming audible again about noon, increasing to R9 by 3 p.m. This was the result on Sunday, Friday and Saturday.

Zeessen, Germany, 31.38 metres.—This station has been troubled with morse the past few mornings.

W1XAZ, Springfield, Mass., 31.35 metres.—About R5 at 10 a.m., going off soon after, to come back again about 1 p.m. On Saturday they reached R9 by 3.30 p.m. with excellent quality.

PGJ, Eindhoven, Holland, 31.28 metres.—Thursday morning R8 with rapid fade between 6 a.m. and 7 a.m. Saturday morning about the same.

26.4 metres (about).—Monday, 10.15 p.m., music and talk at R8, very much distorted.

G5SW, Chelmsford, 25.53 metres.—Good volume spoilt by rapid fade. Held them on Friday till Big Ben struck the hour of midnight at 11.30 a.m. our time, when they closed till next Tuesday. Volume at the conclusion was R5; in fact, it was about this volume from about 9 a.m. Readability while on relay was poor, but when signing off from Chelmsford every word was quite clear.

12RO, Rome, 25.4 metres.—Every morning at 7.30 a.m. volume and quality is very good.

W8XX, Pittsburgh, 25.25 metres.—Sunday, just audible at noon, increasing to R8 by 1.30 p.m. Friday, R5 at 9 a.m., gradually getting weaker; back again at midday.

PLG, Java, 18.8 metres.—Tuesday, 9.15 p.m., records at R7, with severe fading.

The 1931 "Radio Guide" is now available. 180 pages brim full of useful and interesting information. Price 2/6. All Booksellers and Dealers.

N.Z. Short-wave Club

From the Secretary's Pen

ALTHOUGH times are hard and licenses, lodge fees and other payments have fallen due at this time, it is surprising how the club has taken on.

Very great interest was taken with last lecture, and it is expected that the next one will prove equally beneficial, not only to beginners but to more experienced hands. The subject will be on how to tune a short-wave set, and will be delivered by a radiotician familiar to all readers.

Here's a letter which tells me that our slow Morse transmissions have awakened the writer's interest, for he has now bought a key, and is hard at it. Also, here are some letters which offer to help us by donations for any special object; and a note which states that the writer is up against it, but as soon as fortune takes a turn, he will join. (In any case, a deposit will reserve a low number.)

A further supply of badges is now to hand. Members in the city could have theirs left at a handy place by sending to their names. It is understood that only bona-fide members can secure badges or cards. Others could call between 7 and 7.15 p.m.

I had a 14-day DX clock sent into me for examination. This keeps the dial on correct N.Z. time, and automatically shows the time in other places. For a shortwaver such a clock is very handy. I understand the maker has been converted to s.w.

From Taranaki I have received a photo of a member's outfit which is very neatly arranged. The pen-pal idea seems to have taken on very well, judging by comments. Members with similar sets are comparing their logs and exchanging data. As a local dealer said: "The roof of our club-room is the sky, and we meet when he put the phones on."

I have to thank members who have patiently waited replies and parcels. In a day or so I hope to have everything posted away. Please address inquiries: A. B. McDonald, 274 Cuba Street, Wellington.

ZL2BI, who volunteered with slow Morse, has been heard in a good many places with his Sunday morning transmissions. Members tell me that his sending is easily readable.

IF your soldering iron is not properly heated when soldering to terminals on a transformer or similar component, you may melt the connections inside the instrument and find it extremely hard to renew them.

ADD-A-PHONE

To your set or use it INDEPENDENTLY.

It will perform excellently. Mr. McDonagh, secretary of the N.Z. Short-wave Club, and other up-to-date short-wave amateurs, all use

MACK'S FAMOUS LITTLE SHORT-WAVE SET.

Testifying to its performance. Now why hesitate or doubt any more?

BUY AN ADD-A-PHONE.

Ask your Dealer or Write

Mack's Radio Service

76 Kent Terrace, Wellington. Phone 23-448

ACCORDING to that notable novelist, avowed feminist, and frank critic of the times, Mrs. Virginia Woolf, women are fast approaching the time when they may use their gifts, unimpeded by prejudice, lack of money, family duties and frail feminine reputation. All that is needed is talent, a settled income and a room of their own, and any day they may blossom upon the world as famous novelists, critics, even poets. "Give us a chawnee, gov'ner!" is apparently all we need to ask. Mrs. Woolf holds the opinion that "good writers, even if they show every variety of human depravity, are still good human beings. They live in the presence of reality." So whatever your failings, my gifted sisters, apparently there's regeneration in the pen of a ready writer, plus the aforementioned amenities of existence. —Undine.



a handle at one side and the cord emerging from the other. Two hooks are screwed in to the walls and the cord is then stretched from the box to the hooks and back again. The hooks, of course, should be screwed into opposite walls to form a triangular area on which to hang the clothes.

MISS CAROLINE HASLETT, secretary of the Women's Engineering Society and director of the Electrical Association for Women, and one of the new C.B.E.'s in the Honours List, found herself in engineering. She says she was a failure at all the ordinary women's jobs, and it was by accident that she discovered where her talent lay. She was given a job during the war as secretary in a boiler company, and she soon asked if she might go into the works. In December, 1919, she became secretary of the first Women's Engineering Society, and devoted herself thereafter to helping girls who were born engineers to follow their bent.

WHEN is a hall not a hall? According to modern estate agents, it is a hall if it is a narrow passage. If it is large enough to contain a chair and an aspidistra, it is a lounge. It is a pity that a word which suggests comfort and restfulness should be misused. A real lounge is certainly not a small and draughty hall. It should be a cosy, quiet place with some soft chairs, and perhaps a chesterfield and a few books. It need not be large; in fact, a little lounge may be the perfect snugger. It does not need expensive furniture, and certainly not a large table, because no meals will ever be served in it, except possibly tea, and all that is necessary for that is a low occasional table which will support a tray. It should, I think, have an electric stove or gas fire, because it will often be used at odd times. Even if the house is centrally heated, a glowing stove adds to the cosy effect of the lounge. Gas stoves, properly fitted so that all fumes pass up a chimney, are perfectly healthful.

PEEPING at some of the advance fashions, I have discovered tunic frocks for the afternoon. These tunics are to the knees, and of coloured or patterned materials. Most of them maintain a straight line, but a few show flares at the hems, and they all go over black slips. That would seem to be the general style, and it is not difficult for the discerning needlewoman to appreciate how easily she may renovate a last year's frock to conform to the new mode. She needs merely an underslip, and the neck-line of her frock simplified if necessary. Then, a triangle of the black material introduced on the bodice or as mock-cuffs completes the renovation.

and symmetry. Bare walls give peace and serenity, which is another reason for their vogue and cultivation in the present era of noise.

THERE is much speculation as to the identity of "A Daughter of Eve," author of a piquant little volume, "A Woman's Utopia," which is something new in the flight of the imagination, says a correspondent in a woman's paper. The anonymous author presents some diverting ideas, food control and compulsory slimming coming in for quite a lot of attention. It is also remarked that in a woman's Utopia women will be serious workers, and always look dignified and right; uniforms will be general, but away from office or shop will be at once discarded and butterfly emerge from chrysalis. Which, after all, is not so far removed from the ideas prevailing in our own land of the free, which in moments of gloom appears to us to be anything but a Utopia.

Death of a Child

All the love in the world
Was hid in the touch of his hand,
And the rose on his cheek
And the sleek
White limbs, and the questioning, bland,
Wide eyes, with their petulant wonder.
Now all the roses lie under
And all the snows, and unbidden,
Quiet, quilt-like, the clover
Creeps over,
Where, in the cold earth, is hidden
Dark-curtained, close-curtained,
All the love in the world.

—MARY MORISON WEBSTER.

thusiasm, and Melisande and Magdalene still subtly stir emotions in the little theatre which the dramatist has added to his new home, the Palais d'Orlamonde, at Nice. The roof of this theatre, like that of the green drawing-room, in this lovely abode, is a blossoming garden. The house backs on to a steep cliff, each arched window overlooking the sea. A long marble gallery runs to the house, its pillars wreathed in roses and illuminated by hidden electric lights; while in the dwelling itself the marble hall is sheathed in verre antique and coloured marbles. The second floor of this house of dreams is panelled with golden onyx, bedrooms and salon decorated and furnished to represent rooms in old Italian paintings.

A GOOD idea for photographs is to keep them in a portfolio, and I would suggest a little treasure room at the top of the house for all the pictures and oddments we feel we cannot possibly part with. One jar of flowers placed in a good light can compensate for all the pictures and knick-knacks in the treasure room. Or one flower picture over the mantelpiece. This is the only decoration permitted in the really modern room. This one picture is enhanced tenfold by the bare walls, for it is not in competition with other things which distract the eye. The bare walls train the eye to form

POLITICS for the nonce are the thrill in Mayfair. They are one of the newest ways of raising funds which appeal committees have devised for 1931. A series of three lectures, on "Parliament and How it Works," is proving a popular way at the moment of killing time, or helping on the good work, just as you like to phrase it. Women members of Parliament are in demand for these occasions, Miss Ellen Wilkinson being regarded as a "draw" among political lionesses.

LORD BEACONSFIELD was certainly a master of the fine phrase, and it is doubtful, addressed in the following fashion, whether any woman would fail to be flattered, even though it were the austere Queen-Empress to whom the graceful effusion was addressed. On a former fourteenth of February, an amatory anniversary now being revived in England, he thus addressed Victoria the Good: "O to repose on a sunny bank, like young Valentine in the picture that fell from a rosy cloud this morning; but the reverse of that happy youth must be rather different from mine. Valentine dreams of the future and youthful love, under inspiration of a beautiful climate. Lord Beaconsfield, no longer in the sunset but the twilight of existence, must encounter a life of anxiety and toil; but this, too, has its romance when he remembers that he labours for the most gracious of beings."

LAST year we were all very much perturbed about our waistline, "highly" being the appropriate adjective. This year the ultra-high waistline is being definitely lowered to just above the top of the hip-bone. Parisiennes say that they find this place most generally becoming. As a consequence we find a general falling off in the tuck-in blouse that has proved so unbecoming to many figures. A short over-blouse, belted at the natural waist place, if it suits the wearer's figure, or slightly below it, takes the place of the tuck-in except, perhaps, with regard to the severe tailor-made. Sometimes the problem is solved by tucking in the back and putting a bit of the blouse material below the belt and over the top of the skirt in front only. Tunic blouses are being made to drape back and tie at the back of the waistline—an 1880 inspiration.

SORE THROAT?
Pulmonas
INVALUABLE PASTILLES
for
QUICK RELIEF

... With ... BOOK and VERSE

By "John O'Dreams"

REPRINTED from contributions to "Punch" is a collection of witty articles, entitled "Things That Annoy Me," by "Evoo," which is certainly a volume to be added to the book-shelves of the elect. Concerning this publication, a misanthropic correspondent, an admirer of the brilliant Mr. Knox, writes to me suggesting compilation of a composite volume, by a syndicate of temperamentalists, reviling particular antipathies. He cites the applicability, for instance, of chapters on The Hauteur of the Highbrow, Nigolistic Anecdote, People Who Interrupt, Meaningless Merriment, The Dolours of Dentistry, Baby Talk (by grown-ups), and Pomeranian Dogs. Heartily I concur, for I also have my little list.

THE news that the famous English essayist and dramatic critic, Mr. James Agate, has made two records for His Master's Voice, causes one to register intention to disinter family gramophone, purchase the records in question, in order to hear spoken work of one who long has been a friend of the fireside, in those households where literature and the drama are matters of moment. Of a mordant wit, combined with delightful bonhomie that never fails to appeal, Mr. Agate's friends and followers are legion. So that one longs to listen to his exposition on "My Job" and "Great Nights at the Theatre," particularly as I am assured by one who has heard him over the wireless in London, that, in addition to his other attractive attributes, Mr. Agate is possessed of a voice of admirable inflections and timbre.

SPEAKING recently at the Festival of the Scottish Association for the Speaking of Verse, the Poet Laureate made valuable comment on the opportunities presented by wireless. Mr. Masfield said that broadcasting could be a very great asset in the dissemination of poetry, and expressed the belief that, if the broadcasting people would work with the poets, England might possess one of the most remarkable schools of poetry that we have had for centuries. These remarks by our brilliant Laureate will doubtless meet with warm response from the not inconsiderable number of lovers of poetry in this Dominion. There are many who would rejoice to hear over the air some majestic strophe of Greek drama or lilting cadences of the late Robert Bridges, interpreted, say, by Miss Mary Cooley; or on a hallowed anniversary listen to the melodious voice of a certain gifted speaker in our midst rendering vocal Rupert Brooke's lovely sonnets or the fairy song of some Irish poet.

Our Fortnightly Book Review

SOLO TO SYDNEY

By F. C. CHICHESTER

THE dull weeks come and go, day's work and day's play pursue their even course without haste and without pause, until of a sudden comes a bolt from the blue, tidings of a great deed or startling achievement, threading with colour of romance the warp of everyday weaving. Such, for example, was the news that flashed to us when Mr. Francis Chichester flung challenge to fate, took his life in his hands, and in his now famous Gypsy Moth, "Eli-jah," attempted solo flight from England to Australia, after extremely short and circumscribed study of the principles of aviation.

As the world knows, Mr. Chichester was successful in reaching the goal of his desire, and in a recently published book entitled "Solo to Sydney" he tells the story of that thrilling and hazardous journey, after a perusal of which the mundane world retreats into the shadows, and air and sea and space appear the fitting environment. As the great saga unfolds, one feels that, had the Great War not ended when Mr. Chichester was just eighteen years of age, another name would have been recorded on the roll of honour of that cataclysm; for in this youthful Englishman, who proclaims himself son by adoption of our own Dominion, are combined those qualities of grit, inviolable determination and scouting of danger, coupled with a zest for adventure and blithe disregard of overwhelming odds, which we have learned from experience are characteristic of the finest of our race.

The story of Mr. Chichester's arrival in New Zealand, without money or friends, and subsequent steady forging ahead in backblocks, bushland and mining camp, are too well known to require recapitulation here. I recall, however, that twelve years ago, on a small matter of business, there strolled into my office a stranger lad of eighteen with an attractive manner and, as it transpired, a taste for literature. Poles

apart as we were in years and outlook, we "clicked" on a predilection for certain writers and an interest in the ramifications of journalism. For the space of a few months we held much converse together; but after a time this unusual youth, as yet "with no deeds done, but great deeds undone," passed from my knowledge, and I heard no more of him until news came of Mr. Chichester's trial flight over Europe, and I recognised in the daring aviator the ambitious youth of a decade ago, whom I had then picked as a winner, though in a different milieu.

"Solo to Sydney," with its interesting introduction by Baron von Zedlitz, is an enthralling chronicle to those possessed of imaginative vision and capacity to thrill in response to heroic endeavour and disdain of danger, and breathlessly we follow the noble story of this Ulysses-like wandering, told as it is in simple, terse language, with no trace of smug self-satisfaction, and interspersed occasionally with expressive schoolboy slang. Something of terror and splendour of the mighty trek is conveyed, and vicariously we participate in its thrills, triumphs and despair. Jugo-Slavia, Persia, Arabia, the months of the Ganges are passed by, savage races encountered, and hundreds of unforgettable incidents recorded, until the almost insuperable obstacles of the last stages of the historic journey are overcome. At this juncture the author of the book reflects: "I shall soon be a slave again to petty circumstance and petty officials. In the air—well, perhaps, one was a slave there as much. Yet how much greater the deities served: Father Time, as usual; Aurora, goddess of dawn; Vesper, goddess of night; Jupiter, god of thunder; and, lastly, Minerva."

Of one dreaded peril he writes: "I began to feel sleepy, and when the dirty grey storm clouds warned me of approaching daybreak, the sleepiness be-

MR. BERNARD SHAW, his morals, mind and manners, are of a perennial interest, so it is somewhat arresting to read of what captured the sage when he was a romantic, and, one guesses, an extremely difficult and obstinate boy. The books which from time immemorial have captured the vagrant fancy of youth inspired in him no enthusiasm whatever. Thus bluntly does he express himself in an English paper: "I loathed and despised children's books from the accursed 'Robinson Crusoe' onward. I hated them for their dishonesty, their hypocrisy, their sickly immorality and their damnable dullness. Even as a child, my penetrating literary judgment, as well as my moral sense, was sound." The literary giant names "The Arabian Nights" and "The Pilgrim's Progress" as the two great sensations of his childhood, finding in them as he did the authentic note of genius, and characteristically concludes: "This shows that I was as good a critic in my infancy as I am now, though I could not then bring such brilliant reasoning to support my opinion."

IN "Two Years" Mr. Liam O'Flaherty has presented his readers with a vigorous and revolting human document. In his pages, partly, it is judged, of an autobiographical character, we are brought into contact with men and manners of many climes and elastic code, the majority being of the down-and-out stratum of humanity. We are introduced to the seamy side of life as it exists in London, New York, stoke-hole of a dirty ocean tramp, Boston, Toronto, and the beach at Rio. Decadent types abound in a series of vivid thumbnail sketches, exploiting types that range from lovely Russian intellectual affinity to remarkable examples of senility, depravity and lust; wretched poverty and strange callings being depicted without fear or favour. Through it all we are aware of a brilliant, unstable, restless personality, with a mind at war with convention, law and order, and habitually "agin the government" in all its ramifications.

came an agony. If I jumped up, I was asleep before I leaned back in my seat. If I jerked my head forward, I was asleep before I could reverse the movement. Something inside me felt stark, elemental. As I looked out at black masses of towering mountains, at rugged precipices dropping sheer into the sea, and, on the other side, dull glazed surface of Mediterranean under threatening clouds, I felt myself a spectator at the very beginning of creation."

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For the last six months our readers have been anxiously awaiting the publication of the 1931 edition, and we now have pleasure in announcing its appearance for sale. Copies may be obtained from any bookseller or radio-dealer right throughout New Zealand.

As in former years, every phase of radio has been exhaustively and simply discussed and tables and charts brought up-to-date, whilst the stations calls section now covers twenty-three pages, so those who purchase the latest work are sure to find that they once more have obtained a wonderful book of reference and instruction.

CHAPTERS OF INTEREST

- Chapter 1.—Radio in New Zealand.
 Chapter 2.—A brief account of the technique of broadcasting. Linking up with recording for gramophones and talkies. Selectivity and the Robinson Radiostat. Sets: How they work. All types, from crystals to super-heterodyne.
 Chapter 3.—Gramophones section. Notes on popular gramophone topics, pick-ups, etc.
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 Chapter 5.—Transformer construction.
 Chapter 6.—Short-wave reception and transmission. Complete circuits for different types of short-wave sets and adaptors.
 Chapter 7.—Trouble tracking method fully described.
 Chapter 8.—Call Book. Every station that can be heard in New Zealand is listed, giving full details as to call sign, frequency, etc.
 Chapter 9.—Reference section.
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Many new ideas are shown in this year's circuits, all of which have been tried and proven in the laboratory before inclusion in the Guide.

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The most comprehensive CALL BOOK ever published in the Southern Hemisphere will be included in the 1931 Guide. All the New Zealand and Australian stations listed will have complete particulars of call-sign, address, power, wave-length frequency, and hours of operation.

For the purposes of overseas compilation we have had numerous official correspondents in many parts of the world forwarding full details of the stations in their particular countries.

Sufficient is it to say that over 400 American stations are listed, giving all details, with the exception of hours of operation. Stations in such countries as Canada, Mexico, Cuba, Japan, and China have also been similarly dealt with.

The most important shortwave transmitters in all countries are given, with their hours of operation in New Zealand time.

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