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Extension of the Broadcast Service

FOLLOWING an epoch-making meeting representing the principal agricultural bodies of New Zealand it was resolved to set up a Primary Producers' Advisory Board Committee to arrange the details for the further application of Radio in the assistance of the primary producer.



MEETING of epoch-marking importance to broadcasting in New Zealand was held in 3YA studio on Tuesday, July 2, when there was a representative and influential gathering of men connected with many organisations interested in farming. The Broadcasting Company has lately been considering further development of its service to the primary producers and the meeting on Tuesday was a definite step forward in that direction, for it was then decided that an advisory committee should be set up to work in co-operation with the Broadcasting Company in regard to the preparation of suitable talks for the benefit of people on the land. Unanimous approval of the company's policy in this direction was expressed and all the organisations represented offered their hearty support.

Mr. Arnaud McKellar, one of the directors of the Broadcasting Company, presided, and welcomed the delegates. Apologies were received from Sir Heaton Rhodes, the Hon. Mr. Smith, M.L.C., and Messrs. Jas. Deans and J. E. Strachan.

There were present: Mr. John Deans (Lincoln Agricultural College), Mr. R. E. Alexander (Lincoln Agricultural College), Mr. J. G. Herdman (President, A. & P. Association), Mr. M. E. Lyons (Secretary, A. & P. Association), Mr. O. W. B. Anderson (Horticultural Society), Mr. A. W. Cockayne (Department of Agriculture), Mr. McGillivray (Christchurch Branch, Department of Agriculture), Mr. C. McIntosh (Farmers' Union), Mr. C. H. Hewlett, Mr. H. E. S. Turner (Chamber of Commerce), Mr. H. G. Denham (Department of Scientific and Industrial Research), Mr. P. R. Climie (Canterbury Progress League), Mr. C. T. Aschman (Board of Governors, Canterbury College), Mr. A. R. Harris

(General Manager, Broadcasting Company), Dr. Chilton and Mr. J. Ball.

Mr. John Ball, Editor-Announcer, then outlined the Broadcasting Company's proposals to extend the broadcasting service to the primary producers of the Dominion, and in doing so, by way of emphasising the value of the scheme, he referred to the actual results which had followed upon the formation of the other advisory committees.

"In the handling of this new and wonderful service," said Mr. Ball, "the directors of the company realised that this was a fair case in which it might be claimed reasonable to solicit the wider council of the multitude. It was obviously impossible to act with the listeners en masse. Mr. Harris has devised a scheme whereby the listeners can be represented. It so happens that the Broadcasting Company in New Zealand came rather late into the field. The company was thus able to profit by the mistakes of others, and to learn by the experience of older established systems.

"A scheme has been devised which I believe is in advance of anything in the world to-day. I may say that Mr. Harris founded this scheme on an honorary community service, non-political basis. Each committee is composed of experts in their particular field, and the members act in an honorary capacity. They are under no obligation to the company, and their sole purpose is to act for the listeners.

"I have already indicated that the scheme which we have put into operation is in advance of anything in the world to-day. It is very interesting to note that as a result of the operation of our scheme during the last two years, inquiries are coming from Australia and Canada, presumably with the intention of following New Zealand's example. I

might mention that we had in Wellington recently, Rev. Ernest Weeks, "Uncle Ernest," of 2YA. His work took him to Canada, and he spoke from one of the Canadian stations, with the result that the Government asked him to confer with the Minister of Education with the idea of devising a scheme whereby Canadian stations could follow our Children's Session policy.

"I do not hesitate to say that our Musical and Dramatic Committees are exercising a decided influence towards improving the public desire for good music. Similarly with regard to the Children's Session and Church Service Committees.

"Now we are asking you to help us in what may be considered one of the more important sides of broadcasting. You each represent a certain farming interest, and would be able to advise and assist us with regard to broadcasts to primary producers. I could give you many instances of the value of radio to farmers in isolated districts. A certain amount has already been done, and I wish to take this opportunity of acknowledging the work of the Canterbury Progress League, the Agricultural College, and the Department of Agriculture.

"We want you to co-operate with us to help us to extend the service to make it of as great value as possible to the whole Dominion as a whole."

DR. Chilton, late Rector of Canterbury College, said: "First of all I would like to thank you all for your attendance here to-day. We have endeavoured to invite representatives of all the various bodies and institutes connected with the farming and pastoral industries, and I think we can congratulate ourselves that we have succeeded in getting a very representative gathering.

—Continued on page 2.

Extension of Service

(Continued from front page.)

"The directors of the Radio Broadcasting Company, having been desirous of extending the advantages of their service to the primary producers of the Dominion, have asked me for advice and assistance in drawing up the scheme. Feeling confident that I could rely upon the co-operation of the New Zealand Department of Agriculture, the agricultural colleges, the Agricultural and Pastoral Association of Canterbury, and other similar bodies, I have accepted the duty, for I feel that we have a splendid opportunity of assisting the primary producers and of benefiting the Dominion in general.

"In the past a great deal of useful work has been done by the scientific investigator, but there has been some difficulty in bringing the results of his work prominently before those who have to put them into actual opera-

tion on the farm or station. It seems to me that the broadcasting service offers unique opportunity of bridging this gulf, and it is of particular importance at the present time to take advantage of this opportunity. We have reached a time in New Zealand when the old haphazard methods of farming have ceased to be profitable.

"The natural facility of the soil has been largely exhausted, and if farming is to be successful it is essential that the results obtained by scientific investigation must be put into effect. Other points of special importance naturally arise. At the present time there seems some danger of the wool industry being seriously affected by artificial fabrics such as artificial silk and wool, and it will be a question for our wool growers to consider how best to meet this position; either by improving the quality of the wool and endeavouring to produce it more economically, or if that is found impossible, to direct their efforts in some other direction.

"I should like to express my appreciation of the work that has already

been done in the way of educating the farmer. A great deal has already been done by the Department of Agriculture, by the Lincoln Agricultural College, the Canterbury Progress League and other bodies, and there is no desire in any way to enter into competition with this or to overlap it, but, if possible to help in making it more effective.

"It is desirable to have a committee to guide and assist us in finding out the information that will be most worthwhile to the farming community and how best it can be supplied. There is plenty of scientific information available of the utmost value, and we want to know how best to pass it on for the benefit of the primary producers.

"The lectures or talks will, in all probability, be short, not more than fifteen or twenty minutes each, and we hope to draw up a programme for the whole year with the object of broadcasting the information at the most suitable seasons. An endeavour will be made to build up a large body of intelligent listeners who will co-operate and take an interest in the work that is being done. Possibly some method can be devised where such listeners can send in questions about any point on which they require special information, and then these can be answered either by direct correspondence, or, wherever they are of general importance, by broadcast.

"Again there is the possibility of publishing the lectures after they have been broadcast. This might be done in the "Radio Record," or, perhaps, in some of the daily papers and would be effective as supplementing the actual lecture itself.

"Another very important point is the broadcasting of the weather forecasts. Dr. Kidson, Director of the Meteorological Department, has promised to give every assistance in this way. During the last harvest special weather forecasts for farmers were sent out and proved of great service and there would seem to be a possibility of further extending this method and of thereby saving the farmer from much loss that might otherwise occur.

"In the meantime the broadcast lectures will be devoted mainly to the ordinary farming and agricultural pursuits, and it is hoped afterwards to extend it to other departments, such as horticulture, growing tobacco, the beetroot industry, and so on."

MR. A. H. Cockayne, Assistant Director-General of Agriculture, who had been asked by the Minister of Agriculture to attend the meeting, said he was anxious to know how best the officers of the department could assist the committee in carrying out the proposals made. For some considerable time they had been broadcasting a talk from the Wellington station on one evening a week, and there had frequently been difficulty in securing lecturers owing to the fact that officers were often away from Wellington on duties connected with the department. He wished to know if the committee would supervise and arrange for the radio talks at all the four stations or not, and if it was necessary that the lecturer himself should give the talk, or whether this could be done by the announcer if a typewritten MS were sent in. On behalf of the depart-

ment he said they were willing to fall in with any satisfactory arrangement, and to assist the movement in every possible way.

In reply to Mr. Cockayne, Mr. A. R. Harris, general manager of the Broadcasting Company, said that there were three factors to consider in the broadcasting of information of this character: desirability, acceptability and practicability of the matter to be broadcast.

As to the desirability there was probably no doubt in respect to the broadcast of information concerning development of primary production. With regard to the practicability of the broadcast, whether from the studio or by relay from the colleges or institutions concerned, the company could decide, also the time of day. From information gathered, 7.30 p.m. was the best time for the farming community. It was in respect to the acceptability of the matter to be broadcast that the company particularly sought the assistance of those present.

The company desired the advice of a committee as to what the farmer wanted, when he wanted it, and how he wanted it. It was not the company's intention to overlap the work already being done by educational institutions, Government departments and farming organisations, but to broadcast to the farming community acceptable matter that was already available. Mr. Harris assured those present of the company's support in anything they proposed.

Dr. Chilton said that the intention in his mind was that the scheme should be a Dominion one. Replying to Mr. Cockayne, he said that it would not be necessary for those who prepared the talks to broadcast them. Mr. John Deans said that Lincoln College would be glad to assist. He asked how many farmers had receiving sets and Mr. Harris replied that they had no list of farmer listeners-in. Mr. Cockayne said that the number was very large, as everyone knew who moved about.

Mr. Turner said that the Canterbury Chamber of Commerce would give all possible assistance. As they would have noted, the Chamber recently published the first bulletin of its Agricultural Economics Committee, and he suggested that the Advisory Committee to be set up might be able to use the information contained in some of those bulletins.

It was resolved, on the motion of Dr. Chilton, seconded by Mr. Hewlet: "That this conference approves the extension of the public relations scheme of the general manager of the Radio Broadcasting Company to include a Primary Productions Committee in extending its services to primary producers.

The following sub-committee was set up: Dr. Chilton (convener), Messrs. Alexander, Lyons, Olimie, McGillivray, and Herdman.

The next meeting of the Advisory Committee was set down for the 31st instant.

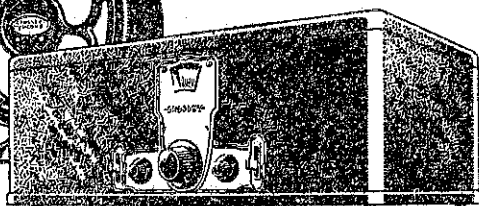
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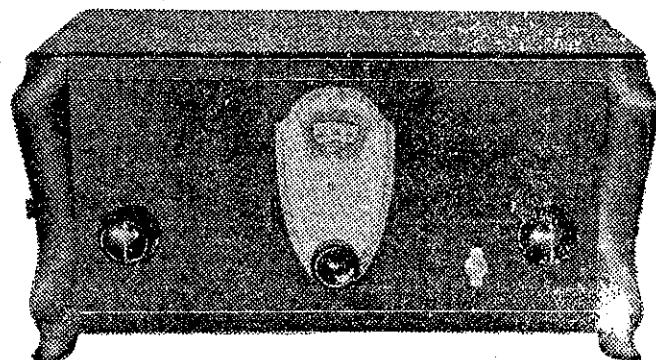
Messrs. Radio, Ltd.,
Auckland.

Le Bon's Bay,
June 15, 1929.

Dear Sirs,

Thank you for your letter of the 30th. Please find enclosed a complete list of Stations heard on the "Ultimate" G.4, with a good aerial. I think this is the only set in New Zealand to-day worth having. The following stations can be heard plainly about half-a-mile away from the loudspeaker: W2XAF, W2XAD, 3ZC, DHC, KDKA, PCJ, 3FM, and New Zealand Amateurs. The log included totals about 306 stations.—Very truly yours, C. R. ELLIOTT.

1YA	2YA	3YA	NEW ZEALAND.			2ZE	2ZM	1ZB
1ZQ	2ZK	1XX	4YA	4ZL	4ZB	2XS	2YB	3ZC
			4ZM	4ZO	2ZQ			
			AUSTRALIA					
2FC	2BL	2GB	4QG	2KY	5CL	3LO	2UW	
2UE	3AR	7ZL	5KA	3UZ	3MJ	4GR	3BY	
2HD	3DB	3RI	5DN	3EF	3KP	3ML	3CD	
			JAPAN					
JODK	JOGK		JOHK		JOIK		JOJK	
JOCK	JOBK		JOAK		JOMK		JQAK	
			CANADA					
CKCD	CKGW	CNRW	CFCT	CFRB	CJRW	CNRV		
	SOUTH SEAS		INDIA					
ARUI	LSXQ		7CA	7BY				
DUTCH EAST INDIES			PHILIPPINE ISLANDS					
JFC			KZIB	KZRM				
			AMERICA					
KFVD	WJAD	KFEC	KGEW	KRLD	KFKB			
KFOX	KMTR	KOYL	KEX	WCRA	WCCO			
KSL	KMA	KPRC	KFNF	KFOR	KFAD			
KNX	KOA	KGJF	WFAP	WLAC	KTM			
KGEF	KMBC	KHJ	WHO	KJFJ	KMIC			
KPFC	KGRS	KGB	KFBL	KFSG	WBRC			
KFEL	WJAZ	KMJ	KXA	KGEK	KBJK			
KMOX	WENR	KGCX	WGMS	KRE	WILW			
KFRU	WFJC	KGER	KMO	KGFH	KLX			
KPO	WLS	KGGF	KTSA	KFUM	WMBI			
KPI	KFUL	WEAF	WBAP	KSD	KGA			
KFWM	KFWB	WABF	WJBT	WNBR	WJAG			
KGO	KELW	KOIN	KGW	WHAS	KVGO			
WGN	WORD	WGES	KMMJ	WDGY	KWKD			
WBBM	KHQ	KPAB	KTNT	WRBN	KPLA			
KFSO	KGAR	KFCB	WEDC	KGU	WDAE			
WGY	KFWF	KGIQ	KYW	KOIL	WMAQ			
KFEQ	KFWI	WDRC	KYA	KTBR	KFPY			
KJR	KTAB	KGFJ	KOMO	WMBL	WOW			
KTBI	KFPY	KSTP	KGKO	WIL	KPO			
WABI	WBAP	KWWG	WCLO	WABC	WOC			
WIOD	WSM	KDKA	KGIQ	WAPI	KOB			
WFBM	WMBD	WWAE	WIBW	WOR	WTAD			
WOAI	KGFH	WEW						
		SHORT-WAVE						
VK3ME	6AG	ZL2AB	VK5KW	ZL2BY				
W2XAF	7LO	ZL2BH	ZL2GO	3ZC				
PCJ	RSR	ZL2BO	ZL2AX	ZL3BA				
JHBB	AGA	ZL3AR	XL1AX	W2XAG				
G5SW	PCL	ZL2BR	ZL1MP	ZL3AZ				
W2XAL	3BB	VK2HC	ZL1AQ	RPN				
KDKA	3AU	ZL3AC	ZL1AB	PHI				
AFK	1AX	ZL3AN	ZL1BC	ZL1MA				
VK2ME	2NM	VK5WA	ZL1AU	CJRX				
WLV	PLR	VK2RJ	ZL2BE	ZL1P				
DHE	JIPP	ZL2AJ	ZL2AX	WOW				
RA19	4NW	ZL2RB	ZL3AP	ZL1FJ				
2XG	W6KA	VK4MW	ZL2GH	ZL1BM				
DOR	WGY	VK5BY	ZL2DB	ZL1BC				
PBS	W6XN	VK4GO	ZL2BD	ZL2GQ				
4XD	2XE	ZL1AB	ZL1AM	ZL1ZW				
4NW	W2XAD	VK4MM	VK2RB	ZL1BF				
VPD	ANE	VK2BR	ZL3GB	ZL3BC				
RFM	PLF	VK5DA	ZL2AD	W2XAL				
2AX	PLG	ZL2BL	ZL2AG					



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Notes and Comments Empire Rebroadcast

(By "Switch.")

Beam System Employed

NOT since broadcasting has been put on a systematic basis in New Zealand has such a successful and interesting short-wave rebroadcast been accomplished as that of the first All Black v. New South Wales football match on the Sydney Cricket Ground. Public interest was aroused to the highest pitch, and in dozens of homes in and around Wellington visitors were present to listen in. The success which attended the rebroadcast of 2ME, Sydney, by 2YA, Wellington, yet again illustrated very forcibly to the general public the advantage of having a receiving set, be it ever so humble, for even the owners of crystal sets could hear the announcer in Sydney.

AT one home in Wellington a lady football enthusiast who was listening in for the first time when 2YA, Wellington, was rebroadcasting the description of the All Blacks v. New South Wales football match, exclaimed "Just fancy playing in the pitch dark. I suppose they have got the electric lights turned on!" And it was night dark in Wellington during the latter stages of the game, but the lady was not aware of the hour and a half difference in time between Sydney and Wellington.

"G. S." (Matamata) sends particulars and a diagram of a new type of indoor antenna taken from the "Radio News." It requires 254 feet of bell-wire (usually 20's). Doubt will perhaps exist among some radio technicians as to whether the claim that the new indoor antenna is more efficient than an aerial can be substantiated by actual tests. As the material required for the device is inexpensive it is well worth trying. There are two collars of cardboard, and the bell-wire is sold in 300 feet coils, which are obtainable in Wellington at 5s. 9d., including postage.

THOSE who were making their first acquaintance with short-wave reception when 2YA Wellington was rebroadcasting the football match description by 2ME Sydney, were in many instances puzzled over the frequent though slight fluctuations in volume. These "gusts" are a characteristic of short-wave reception, and were in no way due to the transmission of 2YA Wellington, as suggested to "Switch" by quite a number of unsophisticated people. The peculiarity is merely accelerated fading which comes in much longer cycles on the ordinary broadcasting wavelengths. Science has not yet prescribed any practical cure for it.

A WELLINGTON radio writer received a letter from a correspondent who wanted to know whether there is any means of listening in without having to obtain a license! It is difficult to understand the mentality of a person who candidly admits that he wants to evade the law. At huge expense the Radio Broadcasting Company is furnishing a liberal and up-to-date broadcast service which is well worth the annual 30s. license fee. Yet there is an individual who confesses he wants to listen in without paying his license fee.

THERE are indications that broadcast listening will be indulged in more than ever by yachtsmen who leave Wellington for the Marlborough Sounds during their summer holidays. This is an instance where the battery set has an advantage over the new all-electric type. Those yachtsmen who propose taking their sets to the Sounds must obtain permission, first, from the district radio inspector, unless they are desirous of running the risk of a prosecution for using their sets at a place other than stated on their application for a license. No extra fee for the requisite permission is charged by the Department.

A MOST successful step in Empire broadcasting was taken Sunday last when the service from Westminster Abbey was broadcast and heard in New Zealand. An interesting part of the broadcast was the fact that it passed through four broadcasting stations before New Zealand broadcast listeners were enabled to hear.

From 5SW it was transmitted on the Beam system to Port Halifax. From there it was broadcast by short-wave and picked up and rebroadcast by the A.W.A.'s short-wave station, 2ME, Sydney, who were rebroadcast by the N.Z. stations.

As a check in the transmission, Canada was listening to the rebroadcast by 2ME. Listeners will remember that early during the broadcast the results indicated some technical fault. This was remarked on by 2ME and Canada, who were evidently in direct communication with London, and advised 5SW of the fact. Five minutes later it was stated that a defect had been detected and corrected in the audio amplification of 5SW, London. The location and correction took place within five minutes and shows very clearly the possibilities and the rapidity of Empire broadcasting.

In conclusion, 2ME stated that this had been the most successful yet of the Empire broadcasts, and was paving the

Broadcasting the National Exhibition in Posen

AN important event in the modern history of Poland took place on May 16 in the city of Posen—the capital of the Grand Duchy of that name—when the All-Poland Exhibition was opened.

For the first time in this country a comprehensive display of Poland's economic wealth, labour, and talents is taking place in anticipation of the nation's economic future. The opening ceremony was performed by the President of the Republic, whose speech was responded to by the Posen President, M. Cyril Ratayski, and the Exhibition's chairman, M. Wachowiak, and was broadcast by all Polish stations.

A systematic network of 200 megaphones was installed in the grounds for the benefit of the huge audience. About 75,000 visitors from all over the country and abroad arrived at Posen for the opening festivities. Some 20,000 motor-cars streamed through the streets of Posen; hotels, schools, barracks, and other public institutions being taken to accommodate the army of visitors.

The shortwave transmitter installed in Posen on the occasion broadcast, on a wavelength of 30m., talks and bulletins on the Exhibition. In addition to the daily communique, still pictures are transmitted by means of the Fultograph machine. A remarkable feature of the inaugural ceremony was the dispatch from the main square of the Exhibition grounds of 3000 carrier pigeons with letters informing the country at large that the opening in Posen had taken place.

Radio Round the World

SINCE the installation of the beam service between Great Britain and South Africa over 300,000 messages were sent from South Africa last year, which represents an increase of about 100,000 upon the previous year.

IN order to ensure that no S.O.S. shall be missed, the United States Naval stations which broadcast weather and other information for the use of the fleet have now arranged to cease transmission for a period of three minutes twice in every hour and to switch over to listen for the S.O.S. on the "distress" wavelength used by shipping.

TEN Canadian daily newspapers operate radio broadcasting stations, according to a recent compilation. They are: "Halifax Herald," "Quebec Le Soleil," "Montreal La Presse," "Toronto Star," "Hamilton Spectator," "London Advertiser," "Winnipeg Free Press," "Regina Leader," "Calgary Herald," "Vancouver Province."

A NEW instrument for determining the height of an aeroplane above the ground was demonstrated recently at the New York Aviation Show. This instrument depends upon the principal of sending out waves and making observations upon the reflected waves. Using acoustic waves it is possible to determine the height by observing the time between the sending out of the sound and the returning of the echo, and this method has been largely used by ships for "acoustic depth-sounding." Of course, the velocity of sound in water is different from the velocity in air, and allowances have to be made accordingly. The altimeter (as the new American device is called) may also be employed using radio waves by a special and ingenious system of triangulation.

AT present there is only one broadcasting station working in Portugal, and this is a private station operating under the call-sign of "Postus Amador POEEA, Lisbon, Portugal." The wavelength is about 310 metres.

A NEW high-power station at Hartford Connecticut, U.S.A., has adopted the beam transmission owing to the increasing ether congestion in the States. Another interesting feature of the plant at this station is that the full 100 per cent. modulation is to be employed in order to make the greatest use of the 50 kilowatts of power available.

WITH commercial service by telephone between America and Europe and between Holland and Java, all records for 'phone communication have been recently broken. On October 16, Bandung, Java, spoke with Buenos Aires (Argentina), via Kootwijk (Holland), and Berlin (Germany). The rather circuitous route of the message covered about 16,000 miles.

THE Plan de Bruxelles, of which such high hopes were entertained, is not working out according to programme, and Mr. A. R. Burrows, the Secretary-General, has apparently re-

ceived a great many criticisms of the plan and suggestions for its amendment. There is a great deal of interference on the Continent, and although the interference problem is not nearly so serious in Great Britain it is by no means non-existent there. Since the change-over it is pretty definite that heterodyning has actually increased.

OVER a quarter of a million licensed listeners were registered in Canada at the end of November, 1928, an increase of 17,000 as compared with the corresponding period in 1927. The Canadian license fee is one dollar, and the official returns give the number of broadcast licenses issued as 226,240, although it is believed that there are nearly 100,000 "pirates." The revenue from the licenses is devoted by the department of Marine and Fisheries to the improvement of radio services, while twenty cars are in use for the purpose of locating sources of interference.

IN view of the rapid growth of international telephony, it has been arranged to publish an International Telephone Directory shortly in Great Britain and on the Continent. The directory is intended primarily for users of the international service, and will be on the lines of the English "Buff Book." It will be printed in English, French and German, and subscribers' entries will be classified under countries, towns and trades, in alphabetical order. The directory will include the principal cities in nearly thirty European States, and negotiations are proceeding for the inclusion also of Canada and the United States.

NEW SOUTH WALES maintains a healthy monthly increase, and during the last twelve months has made a net gain of 21,546 licenses. Victoria during the same period shows a gain of 6632 licenses. As the increase of licenses for the whole of the Commonwealth during the past twelve months is 28,041, New South Wales is responsible for 77 per cent. of the total. Licenses in New South Wales were expected to exceed 100,000 by the end of June, bringing the Commonwealth total over the 300,000 mark.

WIRELESS licenses in force in the Commonwealth at the end of May were as follow:—

	In Force.	Month's Totals
N.S.W.	98,550	1,673 Increase
Victoria	143,344	49 Decrease
Queensland ...	24,681	54 Increase
S. Australia ..	23,573	387 Increase
W. Australia ..	3,799	32 Increase
Tasmania	4,604	137 Increase
	298,551	2,234

New South Wales maintains a healthy monthly increase, and during the last twelve months has made a net gain of 21,546 licenses. Victoria during the same period shows a gain of 6632 licenses. As the increase of licenses for the whole of the Commonwealth during the past twelve months is 28,041, New South Wales is responsible for 77 per cent. of the total.

THE Federal Radio Commission in its annual report just made to Congress, states that surveys indicate that approximately 40,000,000 persons in the United States of America are served by 12,000,000 receiving sets. A study of wireless distribution reported in the American publication, "The Co-operator," indicates that 29 out of every 100 homes in the United States have installed wireless sets. The ratio of sets to homes is said to vary considerably, running from 69 out of 100 in Minnesota to 6 out of 100 in New Mexico. California is second, with 53 sets to every 100 homes. Florida third with 43, and New York and Washington tie for fourth with 38. In general, the lowest distribution is found to be in the Far South.

IT has just been brought to our notice that the difference between an outside and an inside aerial is estimated to be ten shillings.—("Glasgow Weekly Herald.") (A license fee costs 10s.)

THE well-known American concern, the Stutz Motor Car Co., have announced that all their new-season models will be fitted with a 6-valve wireless set as part of the standard equipment, its inclusion being, however, at the option of the purchaser. The installation has been neatly carried out, the set being entirely hidden from view behind the instrument board; the dials and controls are situated on the fascia, and a small loud-speaker is mounted near the top of the windscreen. The aerial is secured in the hood on the touring cars.

Introduce Creda Electric Comfort, and you immediately effect an Economy too

Creda
BRITAIN'S BEST

Over 30 models of Creda Electric Fires to choose from. Over 30 different prices of this beauty and economical comfort.

No ashes, no dangerous sparks, you just switch on the heat as and when you need it. There is no waste with a Creda Fire—switch off when the room is heated to your liking, and your cost ceases immediately. Each is fitted with an Asbestos Covered Flex.

TOLLEY & SON LTD.

Head Office: WELLINGTON.

And at AUCKLAND, CHRISTCHURCH and DUNEDIN.

The New Zealand Radio Record

P.O. BOX, 1032, WELLINGTON.

Published Weekly. Price 3d. Subscription Post Free in advance, 10s. per annum; booked 12s. 6d.

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

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.

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

WELLINGTON, FRIDAY, JULY 12, 1929.

RADIO FOR PRIMARY PRODUCERS.

THE organisation of a Primary Producers' Advisory Committee by the Radio Broadcasting Company is a move in the right direction. The meeting to establish this Committee was held in Christchurch last week, and was of a fully representative character. Full report of that meeting appears elsewhere. The purpose underlying the establishment of the Committee is to ensure that the service which radio can render to the man on the land shall be organised on the best basis possible; that the matter to be given over the air shall be of such a character and at such times as to most fully serve his needs. To that end, the advice and co-operation of those bodies most closely concerned with advancing the welfare of the primary producer have been sought. This policy is in line with the action taken by the Broadcasting Company in other fields, such as music, drama, religion, and the children. In those fields, the Committee system has achieved an outstanding success. Its success should be no less in the new field to which it is now applied.

THAT radio has a special capacity for serving the man on the land is undoubted. It is becoming more and more recognised that science can contribute abundantly to improving farming operations. In every sphere of activity to-day, the farmer is looking to science to render aid. The fruit-grower, the dairyman, the wheat-grower, the wool-grower, and the agricultural farmer, all have their special problems to the solution of which they invite the aid of science. While the central organisations of farmers in each field are keen that science should render its service, the next problem is to convey the knowledge provided by science to the great body of the farmers most intimately concerned. Knowledge is of little use if it is merely corked or bottled up in a central compartment. To be effective, it must be made liquid, must be made readily available to those who can benefit from its diffusion. The printing press in the past has been the main means of distributing scientific information. It has multiplied the capacity of the individual teacher and his personal contact considerably. Even so, however, it does not reach many sections. The farmer in most cases is not as big a reader as he should be. On the other hand, he is a very good listener. He is a very good debater. He likes to talk. He is, therefore, pre-eminently fitted for instruction by radio. He will listen where he will not concentrate by reading.

C. R. RUSSELL M.Sc.,
M.I.R.E., A.M.I.E.E. (Lon.)
CHARTERED ELECTRICAL
ENGINEER.

Designs and specifications for hospital and large radio installations.
Design and testing of radio receivers, transmitters and apparatus.
194 Oxford Terrace, Christchurch.
BOX 606.

SYDAL AFTER 40 YEARS

It is 43 years since Sydal was first made, and the proprietors have received more unsolicited testimonials during the past year than ever before. Could there be any better evidence of merit than the fact that scores of people write to the makers quite spontaneously saying how they like Sydal? Do you Sydal your hands?

ON this line of thought radio is specially adapted for serving the rural community by promptly conveying the latest scientific discoveries and instruction in the problems affecting their every-day work in production. At present, old-time methods of farming and lack of knowledge in relation to certain diseases which are taking a regular toll of live stock and plant life, are materially reducing the economic efficiency of the country. Probably no class of the community derives so much economic benefit already as the farming community from radio. The weather report alone possesses a cash value to most farmers that is far above the cost of operation. The further radio service now contemplated will add immeasurably to their debt. Radio is essential to the farmer, and the organisation of that service along the lines now indicated is a community service of the highest value.

Wellington Radio Exhibition

Arrangements Well in Hand

ARRANGEMENTS for the Radio Exhibition to be held in the Wellington Town Hall on July 25, 26, and 27 are well in hand. All the stalls that can be provided have been booked up, and the traders concerned are working enthusiastically towards providing a memorable and informative display of modern radio apparatus for the public.

A COMPREHENSIVE and full programme has been arranged by Station 2YA for transmission from the Town Hall on the evenings of Thursday, Friday, and Saturday. The station will go on the air from noon of each day and continue till approximately 10.30 each evening. Full details of the programme will be given next week, but it may be said here that approximately 180 performers will appear in the course of the three evenings.

The co-operation has been secured of the Wellington Tramways Band, the Wellington Harmonic Society, and the Welsh Choir, while a number of outstanding individual performers will also appear. The procedure will be for the concert items to be given from the central stage of the Town Hall, which will be specially enlarged for the occasion, and fitted up as far as possible as a studio. The concert will take the form of a promenade concert so that visitors to the Exhibition may feel free to move round inspecting the stalls while the concert is in progress. For those who wish to sit and enjoy the musical items without interruption, the gallery of the Town Hall will be available. Two intervals of approximately 20 minutes each will take place during the evening to permit of full inspection of the stalls.

THE official opening of the Exhibition will be made by Hon. J. B. Donald, Postmaster-General, at 8 o'clock on the evening of Thursday, July 25, although, of course, the Exhibition will be open as from noon on that day.

The Post and Telegraph Department is co-operating with the Exhibition to the extent of providing technical apparatus of interest to radio enthusiasts. This will involve, in all probability, a demonstration of the transmission of pictures by wire, and also high-frequency testing apparatus.

A suitable programme, describing the stalls of the various exhibitors and giving the musical items each evening, is being prepared and will be available to the public.

THE Wellington Amateur Transmitters' Association will make a display of apparatus, and as already announced, an exhibition will be made of the winning sets in the constructional competition. These competitions are being conducted by the Wellington Amateur Radio Society. Entry, of course, in those competitions is not limited to members of that Association, but are open to any constructor. These entries, as announced earlier, must be delivered to Station 2YA on the evening of July 17, between the hours of 7 and 9 p.m.

Boxing

Relay from Greymouth Proposed

THE first relay from the West Coast of the South Island is planned for the end of August, when the New Zealand Amateur Boxing Championships are to take place. The length of this relay will be 148 miles and is contingent on a line being available.

1YA Studio Choir

First Performance, August 6th

THE recently formed 1YA Choir is destined to prove a very efficient combination. Under Mr. Len Barries, it is developing splendidly and will make its radio debut on Tuesday, August 6, when Sterndale Bennett's "May Queen" will be presented.

"Carmen" to Feature on Programme

Full Broadcast of Very Popular Opera

STATION 3YA will be the first of the New Zealand stations to present the complete opera "Carmen." This is one of the best known and most popular of all such works, and the radio production, accompanied as it will be by a full description of the story, will prove a very interesting entertainment.

"Carmen" is an opera by Bizet. The central figure is a daring, dark-eyed gypsy girl working in a cigarette factory in Seville. The other principal characters are Don Jose, a sergeant; Zuniga, a lieutenant; Escamillo, a bull fighter; and Micaela, a peasant girl. The first performance of "Carmen" was a tragedy.

The Parisians, still smarting over the war of 1870 and the siege of Paris, saw only a symbol of brutality in the vigorous music which Bizet gave them in this opera in 1875. They received the work coldly; in fact, with impatience. It reminded them of Wagner. It must be remembered that Wagner had had the bad taste to publish "The Capitulaton," which pressed home the agony of the war of 1870. Bizet left the opera house a broken-hearted man. He took to his bed and died within three months at the early age of thirty-seven.

For the radio presentation, Columbia recordings by some of the world's greatest artists will be used. Mr. W. H. Dixon, Professor of Singing, will describe the plot. "Carmen" will be presented in four instalments. The dates allocated to the stations are:—

3YA—July 17, 24, 31, August 7.
4YA—July 22, 29, August 5, 12.
1YA—July 23, 30, August 6, 13.
2YA—July 26, August 2, 9, 16.

2YA to Broadcast Debate

University Entertainment

ON Friday, August 2, a debate which is to be held at Victoria University, will be broadcast by 2YA. There is always very great interest taken in these events, for after the members of the opposing teams have spoken, the debate is thrown open for discussion by all members of the society.

The subject will be, "That the emergence of woman from the home is a regrettable feature of modern life." The debaters will be:—For: W. J. Hall, G. R. Powles, and W. J. Mountjoy. Against: W. P. Rollings, C. H. Arndt, and A. E. Hurley.

Special interest will attach to the debate, as the team taking the affirmative will be leaving New Zealand in September to visit Canada and U.S.A. on a debating tour.

Have you procured your copy of
"N.Z. Radio Listener's Guide?"

Dealers and Booksellers 2/6; Post Free 2/9—P.O. Box 1032, Wellington.
Now Available.

Otago Radio Exhibition

Arrangements Well in Hand

ARRANGEMENTS have advanced so far that, even at the present moment, it can confidently be said that the Otago Radio Exhibition is going to be a big and successful achievement. The exhibition will be officially opened at 2.30 p.m. on July 31, and will continue on the first and second days of August. The doors will be opened at 11 a.m. each day, and will remain open until 10.30 p.m.

Thirty-one exhibit spaces have been provided, and of these twenty-seven have been definitely booked up, the remaining four having been tentatively pencilled, with every prospect of being taken within the next few days.

A wonderful display of everything modern in radio receiving equipment will be gathered together, making ideal conditions for prospective purchasers to examine the merits of all the leading receivers, amplifiers, batteries, eliminators, valves, and other components. The Dunedin dealers are most enthusiastic over the project, and are going to great trouble to make attractive displays, worthy of the exhibition.

The exhibits will be arranged around the walls of the Pioneers' Hall and its extension, with a central line of exhibits running the entire length of the hall. Special lighting and decorations will make for brightness and attractiveness. A competition will be held for the best-constructed home-made receiver. This competition will be divided into four classes, prizes being awarded to each class.

THE Otago Radio Association, which is organising the exhibition, is receiving every possible co-operation from the Radio Broadcasting Company, who will be largely responsible for the entertainment side of the programme, which is being arranged by Mr. Hayden, station manager of 4YA, on most excellent lines. Short concert services will be presented each night from the stage in the Early Settlers' Hall, being rebroadcast from 4YA. Leading artists from 4YA will take part in these concerts. It will therefore be possible for listeners to enjoy the personal appearance of Dunedin entertainers who, in the past in many cases they have heard but not seen.

One very special feature to be presented on the night of Thursday,

August 1, will be a "Children's Party," arranged by Big Brother Bill of 4YA, in which he will co-operate, with all the Uncles and Aunts of the local station to entertain the kiddies and their parents. This will be specially attractive to the children, as it will be the first public appearance of the new Uncles and Aunts recently appointed, and whose voices are now very familiar through the air. The children can look forward to a great treat on this night.

The Radio Broadcasting Company will have 4YA on the air continuously during the exhibition, from 11 a.m. until 10.30 p.m. The Exhibition Committee has made final arrangements in connection with the catalogue and programme, which is in the hands of Mr. Bishop, and will be worthy of the cause.

The advertising of the exhibition is well under way, and several of the local B stations are giving due prominence to it, while the two Dunedin newspapers are bringing the matter before the public. Later announcements will be made from Station 4YA, and display advertisements will be seen in the local newspapers.

An interesting exhibit will be a collection of radio apparatus of historical interest. Many of the old-time radio men have come forward, offering the loan of some of the earliest radio apparatus used in New Zealand, dating back many years. One exhibit will be the first broadcasting plant erected in this country, which, incidentally, offered its services to the air from Wellington. The New Zealand Amateur Transmitters, Dunedin branch, will also have an exhibit. It will be a model short-wave transmitting station in actual operation. Further interesting features will be announced later.

There is no doubt that the exhibition will have a very beneficial effect upon radio in Otago. Already, it is becoming a topic among radio listeners and others, and, coming as it does before the Broadcasting Company's new station is opened, it will serve to stimulate a great interest in that important event.

It is gratifying to know that support is forthcoming from so far North as Auckland, and long before the exhibition opens it is expected that each of the Northern centres will be well represented.

Empire Trade

AN interesting address will be given from 1YA on the evening of Tuesday, July 23, at 7.40 p.m., by Miss Crichton Imrie. Her subject will be "A Trip Around the Leading Factories of the Empire." Miss Imrie is a visitor to New Zealand from Great Britain, her work being in connection with Empire products. She has already given broadcast addresses from Stations 2YA and 3YA, and has also spoken over the air in London and South Africa. Her subject is interesting and her manner attractive. Listeners will enjoy her talk on the 23rd.

Another Relay from Timaru

Municipal Band Concert

A SUNDAY evening band concert is to be relayed from Timaru to 3YA on July 28. The concert is to be given by the Timaru Municipal Band.

For Sale or Exchange.

See page 40 for column of casual advertisements.

Workers' Education Association

Lectures Arranged

A VERY interesting series of talks on a number of attractive subjects has been arranged by the Workers' Educational Association for transmission from Station 1YA. The subjects cover various noteworthy topics by recognised experts in their spheres. Details are set out below.

Listeners who may require more information on any of the subjects dealt with are invited to write to Mr. Richmond, at W.E.A. Headquarters, Old Grammar School, Auckland. This organisation is of a purely educative character, and desires to make its services as valuable as possible to all who are interested. If those who are not served by a W.E.A. class in their district wish such a class to be established next year, they should write to Mr. Richmond at the address given. Suggestions for future talks are also invited.

Tuesday, July 16—Mr. J. W. Shaw, M.A. (tutor W.E.A. Drama Class), "The Amateur Dramatic Movement."

Thursday, July 25—Mr. N. M. Richmond, B.A. (Director W.E.A. Classes), "The Modern Age." No. 1, as H. G. Wells sees it.

Wednesday, July 31—Mr. H. Belshaw (Professor of Economics, Auckland University College, also tutor W.E.A. Advanced Economics), "Waste in Industry."

Thursday, August 8—Mr. N. M. Richmond, "The Modern Age." No. 2, as the Socialist sees it.

Tuesday, August 13—Mr. H. Hollinrake, Mus. Bac. (tutor W.E.A. Music Class), "Melody."

Thursday, August 22—Mr. Richmond, "The Modern Age." No. 3, as John Galsworthy sees it.

Tuesday, August 27—Rev. W. G. Monckton, M.A. (tutor W.E.A. International Relations Class), "New Zealand and the League of Nations."

Thursday, September 5—Mr. Richmond, "The Modern Age." No. 4, as the Liberal sees it.

Tuesday, September 10—Mr. Gilbert Archey, M.A. (curator of Auckland Museum and tutor W.E.A. Anthropology Class), "The Beginning of Speech."

Thursday, September 19—Mr. Richmond, "The Modern Age." No. 5, as the Modern Woman sees it.

Tuesday, September 24—Dr. A. B. Fitt (Professor of Education, Auckland University, "Why and How We Dream."

Thursday, October 3—Mr. Richmond, "The Modern Age." No. 6, as the Man of Science sees it.

Tuesday, October 8—Mr. F. N. Bamford (tutor of W.E.A. Art Class, late Director of School of Architecture, "Designing a Small House, Auckland."

Programme Alteration

THE programmes from 1YA, Auckland, for the 11th and 13th instant will be transposed. That means that the 13th programme will be given on the 11th, and the 11th on the 13th.

Whangarei Band Concert

Broadcast from Four Stations Proposed

WHANGAREI is earning for itself a fine reputation for its Sunday evening band concerts. Two have now been broadcast by 1YA, and much appreciation has been expressed by listeners. Both concerts have been highly praised, and the second is declared to have been better than the first. Letters have been received from Australia. One correspondent wrote from as far north as 100 miles from Brisbane. He said he listened in regularly to 1YA, though he had not written before. He took the opportunity of the Whangarei concert and praised the programmes. For every person who writes many thousands listen in.

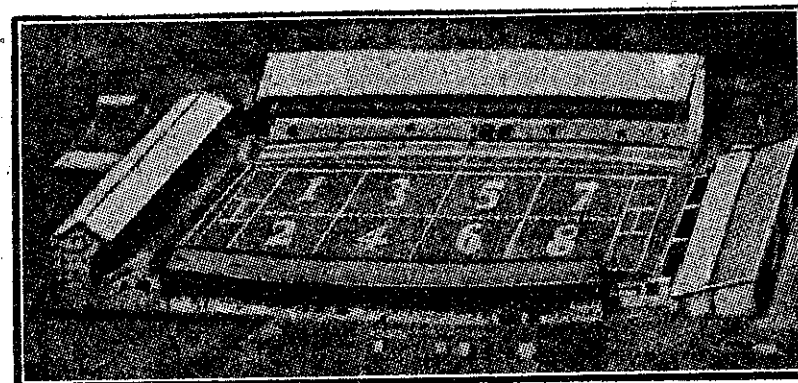
The Whangarei Band gives regular concerts and has offered the Broadcasting Company the right to relay every one to 1YA. The company is very appreciative of this offer, and will make arrangements to carry out broadcasts of as many as possible. A definite arrangement has been made for the concerts to be given on Sunday, July 14, and Sunday, July 28.

As well as relaying to 1YA, the Broadcasting Company has in view a Dominion-wide broadcast of one of the Whangarei concerts. The intention is to relay to 1YA and 2YA, then for 2YA to rebroadcast 2YA and relay on to 4YA. The Broadcasting Company has already made overtures to the Post and Telegraph Department with the view to obtaining the necessary relay lines. The date suggested is Sunday, August 11.

Rugby Test in Australia

Successful Rebroadcasts by the YA Stations

AS on the previous Saturday, intense interest was displayed in the first Rugby Test of the season between Australia and New Zealand. By arrangement between the N.Z. Radio Broadcasting Company and stations 2BL and 2ME a full running description of the match was given in Sydney by Mr. Basil Kirke. The conditions for the game in Sydney were in marked contrast to those of the preceding week, the ground being dry and a brilliant sun showing overhead. The attendance was a record for probably 20 years past, numbering approximately 50,000.



The rebroadcast was even better than before, the whole of the announcer's remarks coming through with remarkable clarity and distinctness. On occasions, the referee's whistle was distinctly heard, the cheering of the crowd was audible in moments of excitement, and, at times,

individual remarks of spectators could even be heard.

On the suggestion of the announcer, many listeners drew a rough map of the ground, and he in his turn made a special point in his description of indicating the position of play at frequent intervals. This enabled listeners to enjoy a very close contact with the

game and follow the varying fortunes of war.

There is no question that the rebroadcasts of the matches in Australia are proving very effective and very popular. Not only Rugby enthusiasts are appreciating the extra service, but all who have any contact at all with the sport. Through the rebroadcasts, radio is certainly receiving a very fine advertisement.

THE illustration accompanying this article shows the method of mapping out football grounds employed in Britain where broadcast descriptions are to be employed. This illustration shows the preparations made by the British Broadcasting Company. As will be seen, the ground is divided into eight plots by a extra line running midway from goal post to goal post. Each plot is numbered, and the announcer in explaining the run of the play simply refers to the plots by number. This method will obviously save words as compared with the fuller phrases necessary to explain the position in relation to the halfway line or the 25 on the eastern or western side of the ground as the case may be. So far, this method has not been adopted on this side of the world, but it would seem desirable that the experiment should be made. For it to be effective, of course, listeners would need to equip themselves with a map or sketch of the ground of play.

ACCORDING to a message received by "To-day's Cinema," five of the leading American film-producing concerns are considering a proposal for a national broadcast hour, every week or month, to popularise the film industry as a whole. The fact that the Radio Corporation of America combine will undoubtedly furnish their theatres and film subsidiaries with radio propaganda is stated to have roused other producers to take this new step. The "hour," it is suggested, may be used as a counter to unfavourable newspaper publicity.

New Conditions

Big Australian Contract

THE successful tenderers for the providing of Australian programmes will be required to supply a national service from eight "A" class stations in Australia. Local programmes will have to be supplied, but provision has to be made for inter-State programmes in the case of highly-paid artists and celebrities.

Programmes are to be subject to the most rigid supervision, the Postmaster-General having the power to impose fines and penalties for breach of contract. From time to time, he is able to assess the value of the programme ascertaining whether all parties are getting value for their money.

Two new stations are to be provided. One will probably be located at Rockhampton, near Brisbane. From each license the successful tenderers will receive 12s., and the programme provided from this must be of general interest and of sufficient diversity to cater for the reasonable tastes of the community as a whole.

A clause of the agreement states that monotony, tedious repetition of items, and the unduly prolonged use of a particular artist in a State shall be avoided.

Already the stations in West Australia have been taken over by the Government, and negotiations are practically completed for taking over 4QG, 2FC, and 3LO.

Local committees appointed by the Postmaster-General will endeavour to secure co-operation towards development and maintenance of the service. They will also have to do all they can in the education of the listeners. Local talent will have to be encouraged by the utilisation of the services of artists recommended by these committees. Announcers employed have to satisfy the Postmaster-General that they were of good education, style, and personality, and possessors of clear enunciation, and, as far as possible, free from characteristic dialect.

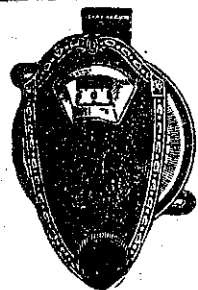
Mr. Stuart F. Boyle, managing director of Union Theatres, Ltd., and chairman of the new company, said: "The Australian Broadcasting Company, Ltd., which will operate the various stations throughout Australia, is a combination of the whole organisation of Union Theatres, Ltd. We control jointly 54 orchestras in every State and every principal city in the Commonwealth, and with this as a nucleus, plus our huge personnel, we feel we will be in a position to give listeners-in a service that will tend to popularise broadcasting to a much greater extent than at present."

Radio Set Owners— 10/- VALVES for 4/4

Here are the greatest Valve Values you've ever seen:—
Elektron Audio Valves, 201 A.E. At 4/4
Cleartron Radio Frequency Valves 201 R.F. At 6/4

Both by famous makers and usually priced at 10/- and 12/6. Only a limited number available at these prices.

Send Now, and save a clear 5/8 and 6/2 a valve.
We Pay Postage.
WESTONHOUSE AIR GAS CO.,
Lorne Street :: Auckland.



Mello Metal
Vernier
Dial

EMMCO'S VERNIER DIALS

Quality Vernier Dials add both to the efficiency and appearance of your set

EMMCO DIALS ARE GUARANTEED.

Mello Metal. Oxy. Copper or Silver	9/6
Same illuminated	12/6
De Luxe Bakelite	9/6
Same illuminated	13/6
Standard Bakelite, Black or Mahogany	7/6
Velmo Dial	6/-
Baby Velmo	5/-
Back Panel Dial	5/6
Knobs, Black or Mahogany	1/-

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Australian Stations

Old Regime's Farewell

THE license under which 2FC and 2BL have been operating expires on Sunday, July 21, and special programmes have been arranged for the occasion. The artists who were the first to broadcast through 2BL have been engaged for the final night and promise an enjoyable evening. Miss Nellie Stewart will also contribute to the programme.

The Australian papers indicate that a great deal of energy is being put into the reorganisation of programmes by the new contractors to the Commonwealth Government. Full page advertisements in various Australian publications invite listeners to undertake postal communication of their preference of items, and also invite those with the necessary talent to communicate with the organisers.

Notice to Readers

Renewals of Subscriptions

WITH the near approach of the completion of our second year of publication, notices as to renewal of subscriptions are going out to a large number of readers. We would like to explain our practice in this connection. Three weeks before the expiry of a subscription, notice is sent to the subscriber concerned inviting renewal. This is sent so early in order to permit of replies reaching us from distant points of the Dominion before the expiry date. A week before the expiry, a second notice is sent to the subscriber concerned, if renewal has not by that time been made, pointing out that the subscription is due to expire.

IT is our practice, as a result of experience, to terminate subscriptions on expiry of the period ordered. For a time we did pursue the policy of continuing dispatch of the paper without authority, knowing that a proportion of readers still desired the paper continued, but were possibly prevented from prompt renewal of subscription by forgetfulness or pressure of work. While in some cases this policy was appreciated, in others it was not, and in the upshot we were forced back on the strict business policy of terminating subscriptions immediately on expiry, otherwise the loss suffered was too great.

WE would like readers to understand clearly our policy in this connection. It is dictated, not by any reluctance to continue the paper on a credit basis to past subscribers, but merely to avoid loss caused through sending the paper on when same is not desired. If it is not convenient for readers to promptly remit the actual cash, we will continue sending the paper on a booked basis on receipt of a request to that effect.

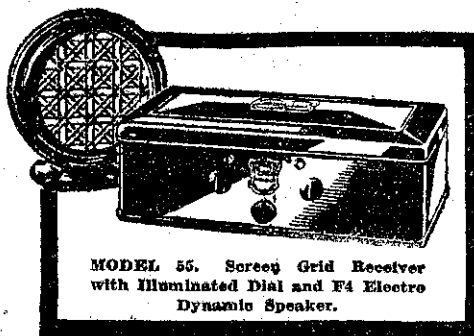
We would particularly like readers at distant points to understand our policy. In order to meet their convenience we send the early notice three weeks before the expiry to permit of ample time for renewal being effected.

ATWATER KENT'S *new* **thriller!** SCREEN-GRID RADIO

ELECTRO-DYNAMIC. of course!

A TWATER KENT—makers of fine radio for nearly 7 years—has beaten every record with this great new Screen-Grid set. It draws more out of the air, sends more to the listener. It's just as if a curtain has been drawn aside.

Let us show you the feel of the new power and sensitivity—raking in the stations from near and far and separating them with needle-point selectivity. Hear the new velvety tone—Electro-Dynamic, of course. Unwanted mechanical noises are filtered out; you hear only the music! Look inside the set and see why only Atwater Kent's fine workmanship can produce such results.



MODEL 55. Screen Grid Receiver
with Illuminated Dial and F4 Electro
Dynamic Speaker.

Dealers everywhere

If you are not near to an Atwater Kent Dealer, write for particulars to
**C. & A. ODLIN & Co., Ltd., Wellington,
N.Z. Distributors.**

Thanksgiving Service

Successful Rebroadcast of SSW

2YA and other New Zealand stations on Sunday evening gave listeners the unexpected treat of listening to the special thanksgiving service held in Westminster Abbey, London, to commemorate the recovery of His Majesty the King from his recent illness.

After the concert in the Opera House on behalf of the Earthquake Fund was concluded, 2YA gave listeners a surprise by announcing that they were about to switch over to SSW in order to pick up and rebroadcast that station's transmissions of the Westminster service.

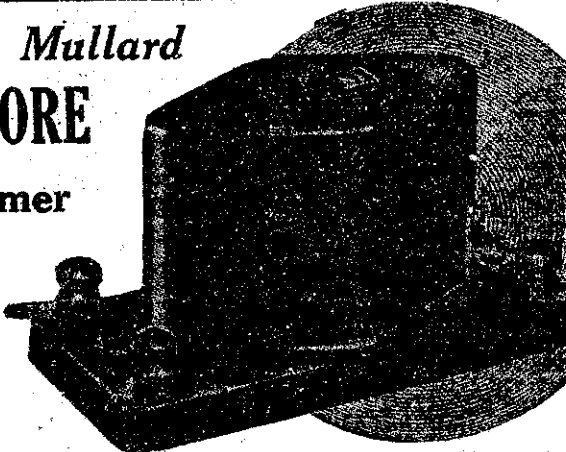
Reception proved to be particularly good, both voice and music coming through with exceptional volume. Surging was a little marked and extraneous noises were also somewhat unpleasant, but the actual volume of sound transmitted seemed to be superior to that of many broadcasts in the past. The incident was a novel demonstration of the increasing efficiency of radio, and was a treat that was greatly appreciated by all listeners.

Watch for the—

"RADIO RECORD"

Stall at the Exhibition.

The New Mullard PERMACORE Transformer —27/6



Small size. Great amplification. High flux density without saturation. No resonant peaks to give unnatural reproduction. All shrillness eliminated. Perfect reproduction of bass notes.

Silver primary winding, giving good conductivity and freedom from deterioration. Nickel secondary winding having the advantages of high resistance and magnetic properties.

This new wonder Mullard Transformer opens new possibilities for the constructor. It is the finest L.F. Transformer ever produced. Obtainable from all radio dealers.

Obtainable in 2, 4, and 6-Volt, U.X. and English Base, from all good Radio Dealers. New Zealand Selling Agents: SPEDDING LIMITED; Box 462, Auckland; Box 1581, Wellington; Box 922, Christchurch; Box 516, Dunedin.

Advt.: The Mullard Wireless Service Company, Ltd., Mullard House, Denmark Street, London, England.

The New Mullard A.C. Valves will fit any American Electric Set and improve results.

Mullard

MASTER · RADIO

Education by Wireless The Mechanism of Evolution

THE following is a summary of the W.E.A. lecture to be given from 4YA on July 16, at 7.30 p.m.:

(4) Evolution Independent of Environment.

The principle of Natural Selection and the mechanism of evolution suggested by Lamarck explain how new species may evolve by the reaction of an organism to its environment. Yet some changes of a similar nature appear to have taken place both among plants and animals, as a result of obscure processes the cause of which we do not yet know, but which we do know to be unconnected with the influence of environment.

The Dutch botanist Hugo de Vries was the first to observe that at certain times there may suddenly spring up new characters apparently arising from sudden changes in the germinal material, and that such characters once they are developed continue to be inherited according to the normal laws of heredity established by Mendel. Such new characters he termed mutations, and the theory of evolution which he put forward is called the mutation theory.

The work of De Vries was founded upon observations of a certain primrose. He noticed that in each generation, among thousands of individuals, there were a very small percentage of mutants, including, for example, types

with a smooth leaf, crinkly leaf, large flower or small flower, and that such types if segregated, bred true to type, thus perpetuating the new form.

In such mutants De Vries believed he had found the raw material for evolution. But even granting that mutants commonly occur in nature, there must still be some such process as natural selection in operation if some of the new forms are to be perpetuated and others eliminated, i.e., if evolution is to take place.

Evolution implies something more than the mere production of a new type in one generation: it involves also the perpetuation of the type through successive generations, and if this is to be effected other forms with which the new type might hybridise must be cut out.

It appears probable, however, that mutations are not nearly as frequent as De Vries supposed, and probably mutants constitute only a very small proportion of the innumerable variations upon which natural selection is working in the process of evolution.

It will be noticed that the changes which occur in the mutations of De Vries occur at random, in any direction. On the other hand, students of the fossil record cannot but be impressed with other changes which seem to have taken place independent of environment, and yet which have followed some particular direction.

It would appear that sometimes a group of organisms may have latent within them the tendency to evolve along some special line; and that once evolution of this sort starts it gathers, as it were, a momentum which may carry the process of structural change far beyond the limits of usefulness, until ultimately the extinction of the organism may be brought about by its own power to evolve along lines which have become harmful to its existence.

Evolution of this sort has been termed orthogenesis and its operation is one of the most discussed problems of modern palaeontology.

One of the commonest types of orthogenetic tendency is the potentiality possessed by many animals to secrete a heavier and heavier living skeleton. That such a tendency may be carried far beyond the limits of usefulness is clearly seen in the case of many of the reptiles of the later part of the Mesozoic Era, in which there was a most extraordinary development of external bony armour in the shape of horns, plates and spines, of enormous size and weight.

It is again exemplified in the great thickness and weight of the shells of many of our fossil oysters, which no sooner attained this great size than they became extinct.

In conclusion, it seems to the modern scientist and to the geologist especially, that evolution is an extremely complex process in which a number of factors of varying importance are all operating. While Natural Selection is undoubtedly the most important of these factors, it is nevertheless probably assisted to a considerable extent by La-

Disseminating News

Rapid Movement from Antarctica

STANDING on the ice of the great

Ross Sea Barrier, members of the Byrd Expedition recently watched the sun sink below the horizon for the long Antarctic night. A few hours later a description of that scene was available to newspaper readers all over America. The adventures of this hardy band of explorers are front page news in half a hundred papers. How that news leaps a 10,000-mile gap with the speed of light is a triumph of short-wave radio transmission.

Since the expedition left New York last September it has not missed a night's communication. More than 150,000 words in Press dispatches have travelled over the invisible bridge from the lonely Antarctic to New York. One night 8500 words were sent and received.

At ten o'clock each night a radio operator in the editorial rooms in the "New York Times" Annexe receives the day's dispatch from the reporter with the Byrd party. Simultaneously this message is picked up by a short-wave radio station at Woodside, Long Island, a few miles away. If, as occasionally happens, electrical interference in the city prevents clear reception in the "Times" Annexe building, the signals are relayed over telephone wires from the Long Island station to the newspaper radio room.

In an hour or so the whole story is on the presses in New York and is going by cable, telegraph, and wireless to newspapers in every part of the world.

From the New York station personal messages are sent to Commander Byrd and his men, and at one o'clock each morning there is radioed to them a summary of news to be published in the papers then on the presses.

The success of radio to the South Polar regions has exceeded all expectations. If members of the Byrd Expedition fly over the South Pole, the story of their success may reach America long before the plane returns from the flight! Already radio messages have been exchanged between the "Times" station and plane 3000 feet above Little America—a long distance record for radio from plane to ground.

Lamarck's principle of the direct action of environment. Mutation and hybridisation also have probably contributed to some extent in supplying some of the material upon which natural selection has worked, while impressed upon all these is the mysterious process of orthogenesis working changes independent of environment, the cause of which we have still to discover.

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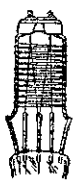
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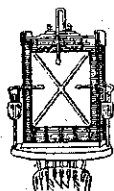
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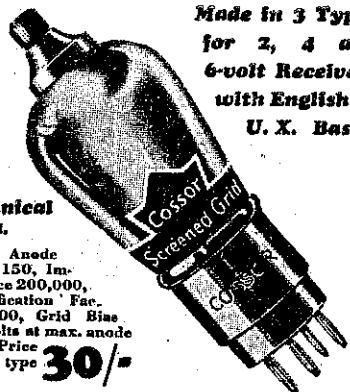
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Notes and Comments BY "SWITCH"

THE newly-formed Australian Broadcasting Company (Fullers Theatre, Ltd., J. Albert and Son, and Union Theatre, Ltd.) will broadcast their first programme from Sydney on Wednesday, July 17, under contract to the Commonwealth Government. Not only in Australia, but throughout New Zealand, a lively interest is being taken in the change of control of the Australian programmes. Many thousands of New Zealand listeners tune-in the Australian stations nightly, and a large proportion of them are keen critics.

THE new Australian programme service will, for a while, be heard from 2FC and 2BL, Sydney, 3LO and 3AR, Melbourne. Two other stations of considerably greater power are to be erected shortly, but the sites where they are to be installed are not yet announced. Mr. Oswald Anderson, studio director of 2FC Sydney, has been appointed general manager for New South Wales of the new Australian Broadcasting Company. Several other well-known figures in the Australian broadcasting world will also be engaged by the new company.

THE new Australian Broadcasting Company cannot hope to escape the usual fate of broadcasting companies—

abundant criticism. A Sydney listener writing in the Sydney "Wireless Weekly" has commenced the ball rolling. This is what she says:—"We do not doubt for one moment that the programmes are going to be 'something out of the box,' but nevertheless we would like to whisper a word of advice. A little classical music will be greatly appreciated, but—not too much of it. Jazz, on the other hand, can never be overdone, because there are always new numbers every week, whereas classical music is just one worn-out melody after another. Anyhow, we leave it to Mr. Doyle."

AN advertisement in a Sydney paper announces that the new Australian Broadcasting Company will spend £5000 on their first week's programme, and that world-famous artists are now on their way from England and America. The new company's income is insufficient to maintain weekly programmes costing £5000, but it is good policy to open up with a brave showing.

IN a recent issue of "Wireless Weekly" a statement was published mentioning that Mr. George Saunders (Uncle George, 2GB Sydney, formerly of 2BL Sydney), would be associated with the management of the Australian Broadcasting Company.

A letter from the Theosophical Broadcasting Station, Ltd., however, points out that Mr. Saunders' engagement with 2GB does not end for some time. The Sydney journal hastens to correct any wrong impression which may have been made. Mr. George Saunders is one of the best announcers in Australia, and his voice is familiar to thousands of New Zealand listeners.

SINCE reference to loudspeaker reception with a simple crystal set without any amplification was mentioned in these columns a number of listeners have added loudspeakers to their crystal sets, so that 2YA Wellington now entertains whole families where previously listening in was effected only with headphones by one or two at a time. "Switch" has received the thanks of several listeners for his advice on this subject. One listener who was not doing as well with a try-out of a loudspeaker as he expected, took the writer's advice and raised his aerial by seven feet. The said listener reported that "it made a whale of a difference."

THE craze for "new" circuits which for years characterised amateur interest in radio is dying a natural death. Even in Wellington home-constructors are very few who are continually scrapping their sets and building them up with "new" circuits. Mr. Ross A. Hull, an Australian expert, who has returned to Sydney after some years spent in the United States, utterly condemns the foisting of more or less imaginary "marvellous" circuits on to the radio public. He remarks:—"The established radio journals in America have succeeded in recent years in quelling the 'amazing circuit' school of radio writers, but it is pitifully evident that English and Australian readers are still feeding contentedly on the same grade of tripe."

"FIELD" (Wellington) sends particulars of his electro-dynamic loudspeaker and A battery charger, the former requiring 6 volts to energise its field. He wants to know whether he could employ his battery charger for operating his electro-dynamic loudspeaker without procuring a transformer to step his household 230 volts electric supply down to the necessary 6 volts. The battery-charger he mentions will do the work efficiently and with perfect safety. "Switch" happens to have employed the combination himself.

ALL New Zealanders who can pick up the Australian stations will be interested in the announcement that on Saturday night, July 20, 2BL Sydney, by arrangement with Messrs. J. C. Williamson, Ltd., will broadcast the full performance of the musical comedy, "The Desert Song," from the theatre in Sydney. This will be 2BL's final night under the old management, and those artists who have been associated with 2BL since its beginning will also contribute to the programme on that night.

MR. BASIL KIRKE, who describes the All Black football matches for the short-wave station 2ME Sydney, relayed by 2YA Wellington, recently was awarded first prize for the best broadcast story of mistaken identity. Next in order were Mr. C. N. Baeyeritz (formerly of Wellington), Mr. C. R. Hall, Mr. P. Conigrave, and two competitors going under the pseudonyms of "The Storyteller" and "Bringa." The last-mentioned, who is a well-known authority on the Australian aborigines, often broadcasts. Mr. Basil Kirke sometimes broadcasts accounts of the boxing contests in Sydney.

THE New Zealand Government radio regulations very rightly prescribe a substantial penalty for any listener who

causes interference with other listeners by permitting his valves to howl. Unfortunately the howling valve nuisance is still rampant in some areas of Wellington and other centres, but is frequently due to mere ignorance on the part of those responsible for the trouble. The Commonwealth Government have the following note printed on each listener's license, a plan which could be copied in New Zealand with considerable advantage to broadcasting:—"Apparatus operated under this license must not cause interference, by means of regeneration, with neighbouring receivers. Interference is taking place if a continuous 'note' or 'whistle' is heard. If this 'note' or 'whistle' changes when the wavelength of the receiver is altered the cause of interference is in the receiver, and reaction must be reduced until no 'note' or 'whistle' is audible. If the 'note' or 'whistle' does not change, the interference is due to some external source."

MIDDAY community singing, which was so immensely popular in Wellington, suddenly collapsed. Not a few regretted its demise, and it only requires some competent person to give the lead and it could be revived with all its old-time popularity. For a considerable time broadcast station 3LO Melbourne has kept community singing going in a city theatre. An Australian writer says:—"The value of the broadcasts of community singing is not confined to the two thousand and more who regularly fill the theatre. The number of listeners who are unable to attend, but who can, and do, participate at a distance, is surprisingly great. One does not need to think long to visualise the effect in hospitals, homes for the aged and infirm, as well as in private homes. They may not join in the singing round the loudspeaker, but they can, and do, enjoy the singing, and wistfully dwell on the many memories the singing of old-time melodies brings up."

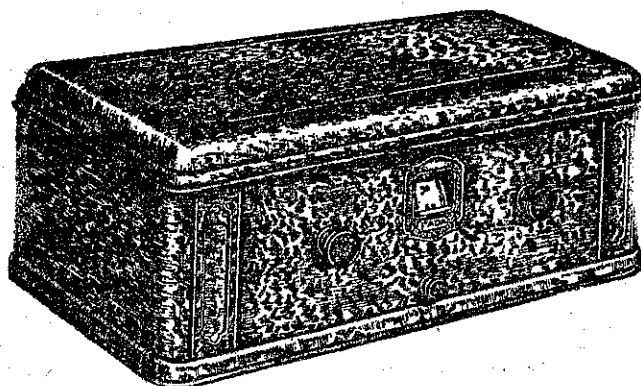
ONE of the worst causes of electrical leakages discovered in Wellington some time ago, was loose tramrail bonds. Each rail is connected to the next rail by a copper band to maintain an electric circuit. Through certain causes these bonds sometimes become loose, and make only a poor contact, and an electrical spluttering results. When the weight of the next tram presses on the weak spot it is apt to tighten up the connection, and so the spluttering ceases until another tram comes along and loosens it.

THERE is a vaudeville artist, Mr. Rupert Hazel, recently appearing in Wellington, whom scores of us have heard from 3LO, Melbourne on many occasions. There was a very human touch about an episode which Wellington listeners heard from 3LO, Melbourne, in connection with Mr. Hazel, some time back. His parents were evidently listening in Dunedin. He called out greetings to them from 3LO, Melbourne, and said he was just about to go on tour. One can well imagine the pleasure of the parents at hearing their son addressing them from so far off. Wonderful wireless!

LISTENERS in Wellington are getting 4YA, Dunedin, on a powerful harmonic down about 232 metres. The harmonic is about half the volume of the original transmission. If the harmonic could be "cut off at the meter" the transmission on 463 metres would greatly increase in volume, as there is a good deal of leakage in such a powerful harmonic. "Switch" can discover no harmonic from either 1YA or 3YA.

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Receiver consists of three stages of tuned radio frequency amplification, detector, and two stages of audio amplification, one of which is a stage of push-pull power amplification.

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All Black Broadcast.

OPERATING a five-valve battery set which has never failed me, and tuning in to 2YA on Saturday, I again had a perfect reception. Having a party of keen "Rugbyites" in for the afternoon, and tuning-in at 4.30 p.m., we were surprised at the volume and distinct announcements, and settled down for a good afternoon. It wasn't for want of listening that we did not hear the ball hit the post from Nepia's kick, and had it not been for the difficulty the announcer was working under (the microphone being covered from the wet) we surely would have. I would like, with the rest of the party, to offer our thanks and appreciation for the splendid rebroadcast, and shall be looking forward to the next, being the first Test. Wishing 2YA the same success.—C.P.M. AND PARTY (Alexandra).

Unappreciated.

SOME wise "guy," I think it was Abe Lincoln or Henry Ford (or was it Walter P. Chrysler), was once alleged to have said "You can please some of the people some of the time, but you can't please all the people all the time." Perhaps I may have got this wrong—anyhow, it's true, and was brought home to me at my home the other day. May I elucidate? Well, it fell to my unhappy lot to compose and deliver a lecturette on, say, "The Manufacture of Mixed Putties"—that wasn't it, but it's near enough. I say "unhappy" lot because I am fully conscious that my everyday speech is somewhat rapid and my enunciation far from flawless. However, I did my best to speak s-l-o-w-l-y and distinct-ly, by marking my "copy" with vertical pencil strokes to break up the groups of words, and by underlining the important words in each sentence. (Good idea this—try it if ever you have to speak over the air.) About a week later I was quite "bucked up" to get a letter from a distant correspondent in which I read the flattering remarks that "my lecturette was interesting and concise" (it had to be the latter in 15 minutes), "voice pleasant," "enunciation good and every word could be heard—even the g-o-o-o-d-night at the end." (No, this wasn't from 2YA.) When I got this, "I says to myself, says I," "I'll just read this out to the family; it will show them that father is not altogether the back number they think he is." I did so, but with a totally different result to what I anticipated. When I'd finished reading, my second boy said, "Hold on! Did you hear what was said to Ted (my younger boy) at the office next morning?" He went on, "I say, Brownjohn, there was some old geezer with the same name as yours blithering away at YA last night for about half an hour on 'Pickles.' Any relation of yours?" It's a hard world, and I wouldn't take on the job of programme organiser for "quids."—GHERKIN BROWNJOHN.

Freaks of Static.

LAST Sunday evening, June 30, Dunedin and Wellington were quite free of static (but Wellington was fading occasionally—quite an unusual occurrence for the winter). Christchurch, Palmerston North, Gisborne, Auckland and all the Australian stations were very bad. I thought this might be of interest. I wonder if any other listeners-in had the same experience? —W. JARVIE (Otago).

Our Mail Bag

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

[Probably the signal strength from these was greater, the set less sensitive and the static less violent.—Tech. Ed.]

Salvation Army Broadcast.

MAY I submit a note in support of the sentiments expressed by "Fed Up and Then Some." While not absolutely agreeing with the manner in which he presented them, I think that taking up the whole of the broadcasting hours on the Sunday afternoon in question with the broadcasting of the Salvation Army's service was not justified. It could not have been of as much interest to the greater majority of listeners as the anticipated recital.

We all agree that the Army is a wonderful institution, and nobody will suggest that their work is anything but inspired. But we can read about their doings in the newspapers. Personally I was extremely disappointed that their service was put on the air instead of the promised recital. No doubt I wouldn't have felt so badly if I had not been "had," as "Fed Up and Then Some" was. I'd have made other arrangements for the afternoon.—P.H. (Palmerston North).

I CAN sympathise with your correspondent, "Fed Up, and Then Some." To my mind and also to everybody else I have spoken to, without exception, the Sunday afternoon gramophone concerts are absolutely the best entertainment we get over the air, and it is not a trifle that some function, which appeals only to a limited number of listeners-in, should be broadcast to the exclusion of the regular concert.

Some writers I know say that there are too many gramophone items on already, and that, as many people have their own gramophones, consequently they do not want to hear records over the air. Writing as one who has somewhat fastidious musical tastes, I consider that the records received over the air, on a good set, with power valves—this is most important—and a good speaker, come out with much better tone than the best electric gramophone can reproduce.

This applies, of course, to reception from the local station using the "electric pick-up" method of broadcasting.

I would much rather listen to a good recording than to a brass band with flat cornets, or a nasal trio, polluting the ether with sloppy American jazz songs, or some elocutionist spouting hackneyed recitations, with false emphasis, and unnatural modulations.

Unfortunately, if the Company was to give more records there would be a howl from the mental "hicks" and other morons that this was being done to save fees. Now I have absolutely no brief for the Radio Broadcasting Company, there are a lot of things that they have done—mostly in the early days—that I "have had my knife into them" for. Consequently, I am able, with an unbiased mind, to suggest that an improvement could be made by using more records, and use the money saved in fees thereby to get orchestral arrangements to accompany the

singers, who would also be the best obtainable. Some of the alleged "artists" who are appearing now should never be heard outside the bathroom. The ones I mean are those who "scoop," sing through the nose—for the sake of euphony, they call it "nasal resonance"—and the vibrato and habitually mispronounce their vowel sounds. I would also recommend discontinuing relays of local shows, and similar functions, unless it is desirable to show by contrast how good the regular programmes are.—BEETHOVEN JONES.

Rebroadcast of 2YA.

IN reply to "Variety" I would like to point out that a large number of listeners in Dunedin have only crystal sets and cannot tune-in a station other than 4YA; so we are very grateful that we have one night a week on 2YA or 3YA. This leaves "Variety" six nights to tune-in where he (or she) likes. I hope 4YA will go on with the good work. We have a good station, and in my opinion the best announcer in New Zealand and a good service. The only thing that puzzles me is why the weather report is given twice over between 7 and 8 and 8 and 10. Crystal users have to listen both times, or perhaps lose the item following.—CRYSTAL (Dunedin).

Dinner Music.

I SHOULD like to congratulate the managers of station 2YA for giving us such a splendid programme of dinner music each evening from 6 to 7. Almost every record put on is a gem, and the reception here in Christchurch is, generally speaking, really first class. Indeed, on my own set, which is a home-constructed three-valve one, I think the reception of 2YA is better than that of our own station, 3YA. I also especially like the way that the programme is arranged. At 6 o'clock precisely the music starts, and there are two records put on, taking about ten or twelve minutes. Then there is a few minutes' interval, and the music starts again at exactly a quarter past, and so on each quarter throughout the hour. To my mind, this is exactly the right thing. It is orderly and precise, and it gives a little time for conversation, etc., without spoiling the music. About a year and

a half ago I myself suggested to the company that it would be a good thing if the sessions were more broken up with short intervals of silence between, instead of running on continuously for two hours or more, as they usually do. Apparently the idea did not meet with approval at the time, but I am very glad to see that 2YA has adopted practically the same idea with regard to the dinner music.—G.I. (Christchurch).

Town Selfishness.

I BEG to differ with R.F.A.'s letter re broadcasting football matches. As he is very sympathetic towards women and children, he says football is excellent to watch. Why does he not take his family to see the game, and yet he condemns the broadcast? Why not try a little exercise during the broadcasting of matches, if he does not like listening-in, and do some weeding in the garden, instead of weeding out the programmes? We get music seven days a week, and sport two hours. What about we country people? We cannot get out to see a match. Our country women and children do not want music all the time. They want a change from music sometimes. Do the boys out-back on sheep and cattle stations want music on a wet Saturday afternoon? No. They get it seven nights a week.

The broadcasting of matches promotes enthusiasm for the game into our country children, and what is better or cleaner for the morals of the children than sport? We have too many grumbler in our radio circle, and I quite agree with R.F.A. that a vote be taken and I feel sure football will come out top. Carry on, Broadcasting Company, You are doing O.K., and remember it takes all kinds of people to make a world.—BUSH WORKER (Huntersville).

A Difference of Opinion.

I HAVE read with interest your article on the subject of criticism by one "Eos" and the reply of the Radio Broadcasting Company. There are two points I would like to mention. First, that the dinner session is very much appreciated here, and is one of the features of 2YA most enjoyed by listeners—a fact which is forcibly brought home by the gap which makes itself so felt on Wednesday—2YA's silent day.

Secondly, that gramophone records are often the pick of the programmes. Let me add in conclusion how much we appreciate the 2YA announcer. Our nearest station, 4YA, cannot be relied on after dark, but we are looking forward to an improvement when the plant is reconstructed.—JUVENIS (Invercargill).

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"'Tis the deep music of the rolling world,
Kindling within the strings of the waved air—
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—Shelley.

By
Bolton
Woods

An Old "Hymn of Hate."

THE so-called "War Song of the Hungarians" which Berlioz incorporated in his stirring march is, strictly speaking, an old "Hymn of Hate" directed against the Austrians. The tune was given to Berlioz during a concert tour in that part of the world so that he might compose a piece to be played in Pesth which would be likely to capture the public favour. It did so to a degree which exceeded even Berlioz's hopes. It had thus far nothing to do with "Faust," but in order to enrich that score with a piece which was so obviously popular Berlioz invented a new episode which he tacked on to the story so that Faust might visit Hungary and hear this very march.

The 3YA Studio Orchestra will play Berlioz's "Hungarian March" on Wednesday, July 17.

A Great Transcriber.

LISZT showed early in his career the ability to take melodious and musical episodes from operas and weld them into brilliant concert pieces. In none of his many transcriptions has he been more signally successful than in the "Rigoletto Paraphrase." The various

voices are each heard in turn, the work concluding, as does the quartet in the opera, with a passage of great brilliancy. Mr. Eric Waters will play "Paraphrase de Concert—Rigoletto" (Verdi-Liszt) at 1YA on Tuesday, July 16.

From Choirboy to Composer.

THE actual date and place of the birth of our great English composer have never been quite definitely fixed; all that one can say certainly is that Purcell was born in 1658 or 1659 in London, and that he died there in 1695. Nor can one say with any certainty exactly when many of his great works were produced. Thanks to the activities of the English Purcell Society many of his compositions have been published and arranged, and we now possess a great store of music, grave and gay, for almost every known combination of voices and instruments, ranging from opera to quite small pieces. Most of the songs by him which we have to-day are taken from operas and other pieces originally written for the stage. At the age of six he lost his father, who was a Westminster Abbey choirman, also at Chapel Royal, to which latter choir young Henry was admitted. Miss Zita Casey will sing

"Nymphs and Shepherds," by Purcell, at 2YA on Thursday, July 18.

A Tuneful Trio.

THE two trios which Mendelssohn wrote for piano, violin and 'cello do not rank among his most famous works. Nevertheless they are admirable examples of his sincerity and tunefulness, and every movement in them is put together with great accomplishment and artistry. The first movement of the C Minor Trio (the composer's Op. 66, and dedicated to Spohr) has capital vigour and good tunes. The 1YA Studio Trio will play the first movement of the "Trio in C Minor" on Friday, July 19.

To Hades and Back.

GLUCK has been styled "the Father of Modern Opera," but when one considers that "Orpheus and Eurydice" was produced in 1762, the idea must occur that "modern" opera is of pretty ancient origin. Certainly Gluck introduced an entirely new form of opera, and quarrelled with Handel over his innovations. The musical world was split in two, but critics have long since decided that Gluck was right. The plot follows the old Greek legend. Eurydice, the wife of Orpheus, is dead. The sorrowing husband is allowed to descend into Hades and bring her back, but he must not look into her face. She, thinking that his averted look means he no longer loves her, weeps bitterly, and he, unable to bear her grief, turns to reassure her. Meeting his glance, she falls lifeless. "Che Faro" expresses the husband's grief. In the end the god of love, touched by his distress, again restores Eurydice to him. Mrs. Ian Stuart will sing "Che Faro?" at 1YA on Tuesday, July 16.

A Great Frenchman.

IN the course of his long and active career, he appeared first in public as a pianist at the age of five, and took part in a concert in honour of his own eightieth birthday—Saint Saens, founder and unchallenged leader of the modern French school of music, produced fine work in almost every known form. His wonderful vitality, his genial temperament, his great wholesome sanity, are reflected in his work; in all of it, too, can be discerned the steadfast way in which he looked towards his own ideal of clear, unsullied beauty. Miss Eileen Goodson will play Saint-Saens' "Alceste Caprice" at 2YA on Friday, July 19.

Beneath the Motley.

FOUR of the five people in Leoncavallo's one really successful opera, "I Pagliacci," are strolling players, and the fifth, who completes the cast, is a peasant. It is his love affair with Nedda, the Columbine of the troupe, which brings about the final tragedy. Canio, the leader of the players, her husband, discovering their intrigue,

kills first his wife and then the lover, Silvio. In the first act, the troupe arrives in the village, and in the second they act their play on a small stage. The little piece which they perform is in effect the same tale of jealousy and passion which is the plot of the whole work. Tonio opens the opera, by appearing before the curtain and singing the prologue; in it he tells that the players are men and women of flesh and blood, despite the artificial life of the stage. Mr. W. W. Marshall will sing the "Prologue" at 2YA on Tuesday, July 16.

A Strange Plot.

"THE MAGIC FLUTE," Mozart's last opera, has one of the strangest plots imaginable. Prince Tamino falls in love with the picture of the Queen of the Night's abducted daughter, Pamina. He sets out to find her, taking his Magic Flute, and companion, Papageno, who carries a glockenspiel. They find the girl in the house of the High Priest who carried her off because he considered her mother was not fit to look after her. He tells them that if they can prove themselves worthy of the divine gifts of love, he can promise them a happy future. By the use of the Magic Flute they pass through fire and water, unharmed, and at last are married in the great temple of the Sun. A record of the overture to the "Magic Flute" played by the orchestra of the Berlin State Opera House will be used at 3YA on Thursday, July 18.

A Church Composer.

SIR JOSEPH BARNEYB'S name was at one time a name to conjure with in the English world of music. The son of an organist, he was a chorister in York Minster, and was only twelve when he became an organist and choirmaster himself. Two years later he was a close second to Sir Arthur Sullivan in the examination for the Mendelssohn Scholarship, which was then being awarded for the first time. He held several appointments as organist and choral conductor, and for a time conducted daily concerts in the Albert Hall. Among the most interesting of his achievements was his conducting of the first performance in England of Wagner's "Parsifal"—a concert performance in the Albert Hall. His own work includes oratorios, a large number of church services, secular part songs, and about 250 hymn tunes, many of which are still in regular use.

The Beckenham Male Quartet will sing Barneyb's "Sweet and Low" at 3YA on Saturday, July 20.

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composer and his sister Fanny were very fond of reading Shakespeare's plays, and when only seventeen, the boy was so thrilled with the story and the fairies in it, that he composed an overture, which he first played as a piano duet with his sister. Seventeen years later he wrote the remaining numbers for the play, recapturing the same fresh, youthful spirit which had inspired the overture. Did we not know the facts, it would be easy to believe that all the music was written at the same time, with the same whole-hearted boyish enthusiasm.

A record of the "Wedding March" from "A Midsummer Night's Dream" will be used as an entr'acte during the production of "The Taming of the Shrew" at 4YA on Monday, July 15.

Wins Both Prize and Girl.

WAGNER'S one comic opera had been taking shape in his mind for something like twenty years before he settled down to compose it. The central figure is the poet, Hans Sachs. His friend, Walther, is in love with Eva, and hopes to win her hand at the song contest. He has written a song, and Sachs makes a copy of the words as he sings it over. The copy is left in the house and is stolen by Beckmesser. Sachs is aware who has taken the song, but knowing that the thief will make a sorry job of setting it to music, he lets him keep it. The day of the song contest arrives and Beckmesser makes a hash of his song. Enraged at the laughter he tells the people that it is written by their beloved Sachs. The real author, Walther, is then led to the competitors' mound, and by his singing of it he wins his admission to the Guild of Mastersingers, and the hand of Eva.

A record of selections from "The Meistersingers," played by the H.M. Grenadier Guards, will be used at 4YA on Friday, July 19.

3YA Musical and Dramatic Committee

A MEETING was held at 3YA Studio on Tuesday afternoon for the purpose of forming a Musical and Dramatic Committee.

The proposal was taken up enthusiastically and a committee was set up consisting of Messrs. A. Brewins (Competitions Society), T. Dent (Orchestral Society), H. Blakeley (Male Voice Choir), A. C. Bretherton (Reperitory Theatre), W. H. Dixon (Royal Musical Society), Geo. Manning (W.E.A.), A. Donaldson (Operatic Society), Richards (Harmonic Society), J. Ball, C. S. Booth and L. Slade (Broadcasting Company).

Several members of the committee expressed keen interest in lectures and discussions on various subjects. The committee meets again on Wednesday, July 17.

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IN the House of Representatives on Friday, Mr. R. Semple made a plea that the regulations requiring the payment of an annual fee for the operation of receiving sets should be modified in the direction of permitting quarterly payments. He represented that juniors in receipt of small salaries frequently found it difficult to raise the full license fee of 30s. in one sum, but would be prepared to make quarterly payments.

In reply, the Minister, Hon. J. B. Donald, Postmaster-General, stated that if licenses to listeners were issued quarterly it would be necessary to increase the present charge in order to cover the additional clerical work and inspecting duties which would result.

This reply evoked from Mr. P. Fraser, Wellington Central, the comment, "A miserable departmental subterfuge!" for which he was called to order by the Speaker.

The Earthquake Radio Service Appreciated

THE Broadcasting Company has received many appreciative and grateful letters as the result of the service which it gave during the earthquake crisis. These letters have come, not only from residents in the affected areas, which were completely isolated from the rest of the world except by radio, but also from people in various parts of New Zealand who were able to get in touch with relatives only through the broadcasting service.

One correspondent at Inangahua Junction, after sincerely thanking the company for the promptness with which a message was sent, said:

"Isolated as we have been during this terrible time, the wireless has been a great boon, it being our only means of hearing news as all communication was cut off. Inangahua Junction being between Westport and Murchison, we were completely isolated for a time. We want to mention our appreciation of the Sunday night concerts, especially last Sunday, the 23rd, when the cheery message came over for all the people of the West Coast. Only those who have passed through what we people down here have can realise what that cheery call meant."

A SETTLER at Tutaki, Murchison, wrote:

"I wish to express the appreciation of the settlers of this valley of the wonderful service you did for us during the past fortnight. It was simply wonderful. We were getting news regarding events a few miles from us, which we could not have got any other way. All people here were very enthusiastic over the wireless, and I feel quite sure that as soon as they can afford a set everyone will have one. The time is fast approaching when every settlement likely to be cut off from telephone communication will have a small transmitter attached to the Post Office."



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The Romance of Radio



OR those who have watched the progress of radio communication from its beginnings, he said, it was possible to pick out with some exactitude the inventions and discoveries which have helped towards the success already attained.

The Beginning of Wireless.

IN attempting to do this for long-distance radio-telegraphy as it is applied in the Empire scheme and, possibly, a few other similar systems, it is desirable to limit oneself strictly to the inventions and discoveries that are essential to the work of the most modern stations, and to ignore inventions that are not now being employed at all, however important they seemed in their day.

All wireless telegraphy is based upon the discovery made by Hertz, in 1888, of how to generate electric waves and detect their arrival at a distance. Crookes, in a famous article in "The Fortnightly Review," of 1892, dreamt eloquently of their possibilities. Oliver Lodge, in 1894, demonstrated at the British Association meeting at Oxford the first wireless telegraphic apparatus—a Hertzian oscillator for making electric waves, a coherer for receiving them at a distance of 100 yards, together with a Morse key and a relay for handling the dots and dashes. None of this apparatus was patented.

But in 1896 Marconi filed patents for wireless transmission, and for reception in 1897. Before Marconi's patents were published, Lodge filed another patent embodying certain fundamental elements that survive in all the wireless stations of to-day.

Early Patents.

Marconi's patents, among other things, showed that only one half of the Hertz aerial, if arranged vertically, need be employed, the other half being supplied by an electrical reflection in the surface of the earth.

Lodge's patent included, among other things, the introduction of tuning coils into transmitting and receiving antennae, and the use of high-frequency

transformers—thus bringing the idea of "tuned" wireless telegraphy into the world.

Before the publication of Lodge's patent, no one talked of adjusting the wave-length of his transmitter by means of inductance coils, or of tuning his receiver to a distant transmitter—though nowadays every listener turns his knobs almost automatically.

This great work of Lodge's, written down in excellent scientific form, at a

could be called commercially successful.

First came Poulsen's invention of the high-frequency arc, which made continuous-wave telegraphy, the ideal method, possible—at any rate, in moderate power. It was followed by the invention of a number of types of high-frequency alternators, some of which, even to-day, work side by side in great wireless stations with the Poulsen arc they were born to rival.

History holds few more interesting stories than that of the growth of wireless communication. Within fifty years the singular discovery of Hertz has been developed into a mighty force which is moulding a new era in communication. Where it will lead we can only surmise.

In the course of a lecture recently given to the H.M. Patent Office, Dr. W. H. Eccles, F.R.S., dealt with the development of wireless from the point of view of its dependence upon discovery and invention. The accompanying is his almost romantic story.

time when every other mind was dark upon the matter, led up to the next important patent, three years later, namely, Marconi's famous "four sevens" patent, dated 1900, in which the secondary circuits of both transmitter and receiver were all tuned to the working wave-length.

The Famous Atlantic Test.

ALL these patents, though probably limited in the strict sense to spark telegraphy, passed some of their usefulness on to the continuous-wave era in which we live, and may, therefore, be included in our list of those contributing to the success of present-day long-distance radio-telegraphy.

The next step was unpatentable. Marconi proved in 1901 that wireless signals from Cornwall could travel one-sixth of the earth's circle in strength sufficient to be received in Newfoundland. This discovery made the possibility of spanning the Empire seem practicable. But many major and minor inventions were to be made before long-distance radio-telegraphy

The Three-Electrode Valve.

THE next step to be considered relates to the wonderful method of reception known as the heterodyne, which was due originally to Fessenden in 1907 but was subsequently improved by Lee and Hogan in 1913. Heterodyne reception is employed in one form or another in every modern long-distance station in the world, being literally indispensable in telegraphy.

Fessenden's conception of the heterodyne method of reception came to fruition very slowly, as time is reckoned in wireless circles, and, curiously enough, another great invention, one of vast importance, was at the same time lying similarly unheeded in the Patent Office. This was de Forest's invention of the triode—the three-electrode valve—filed in 1908.

It is hardly necessary to point out that the bulk of ordinary commercial radio-telegraphy, all broadcasting transmissions, and most broadcasting reception, is accomplished by means of the triode. The sales in this country alone must have run into millions since 1913, the date when its merits came to be recognised. And after 22 years, though improved and elaborated forms of electron control have been devised, and tried, the three-electrode valve remains paramount.

A Valuable "Gift."

IN 1912, the inventor endeavoured to find business men in London willing to help him in exploiting the invention. A number of large and small firms were approached, but none of them seemed to realise the value of the new valve. In fact, de Forest himself in 1912 failed to pay the first renewal fee, and the patent lapsed. It thus became the property of the British public—surely one of the most valuable gifts in the annals of the Patent Office.

Further Developments.

DE FOREST'S triode valve as used for transmission operates as a generator and amplifier of high-frequency

currents of great power. In the receiving sets it appears as an amplifier and detector of the exceedingly feeble electrical oscillations picked up by the receiving antenna. But it is employed in these various manners by aid of circuits not foreshadowed in de Forest's original patent specification—circuits that were devised, at any rate in Europe, by other experimenters. Let us consider, first, certain transmitting circuits, and, later, some receiving circuits, based upon the use of the triode valve.

The earliest European patent for a valve transmitter is that of Arco and Meissner, two Telefunken engineers, who filed their application in Germany in April, 1913, and in this country in January, 1914. The British patent describes, among other things, the adaptation of the principle of "back-coupling."

The principle of back coupling consists merely in taking from the high-power side of the amplifier a small fraction of its power and passing it back to the low-power side to be magnified again, with the result that once the apparatus starts oscillating it goes on doing so automatically and can deliver power to a radiating aerial.

In modern receiving stations the triode valve may appear in several capacities. First, it may be used, as originally described by de Forest, as a simultaneous detector and amplifier of faint signals; or it may be used as a mere amplifier for either low-frequency or high-frequency, as was shown by various experimenters in 1912 and 1913. Or, again, it may be used for heterodyne reception, in which case it is arranged to produce local oscillations of feeble power for mixing with the received signals in the manner already described.

Crystal Control.

ANOTHER invention of wide application is that which utilises the triode for the mutual sustaining and linking together of electrical and mechanical oscillations. It is usually carried out at lower frequencies by aid of a tuning-fork, and at higher frequencies with the help of a slice of quartz crystal. In either case, the natural

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mechanical vibration, once started, produces an electrical current which is applied to the grid of the valve and is magnified, and this magnified current is turned back to the vibrator to keep it going.



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In return for being sustained in motion, the mechanical vibrator imposes its own steady jog-trot on the electrical currents, and thus we get very well-timed electrical oscillations.

Meanwhile, something just as important as any of the previously-men-

tioned inventions was emerging into the realm of knowledge during the years 1922 and 1923—something that will always stand out in the history of radio-telegraphy as an instance of how an unpatentable discovery may be just as valuable industrially as a patentable invention.

This discovery, put briefly, was that short waves—of 200 metres and less—could be transmitted over a large circle of the globe in greater strength than the long waves—several kilometres in length—which had always hitherto been used.

The Short-Wave Discovery.

IN December, 1921, a group of American amateurs succeeded in transmitting signals of 200 metres wavelength to England, and in December, 1922, hundreds of American, British, and French amateurs succeeded in similar transmissions. They would have achieved even more striking results if the international regulations and local laws had permitted them to use still shorter wave-lengths.

It may be that some of the successes of 1922 were obtained by utilising the harmonics of 200-metre transmitters, either intentionally or otherwise. Early in 1923, however, the amateur world was buzzing with waves 100 metres long which were now permitted to amateurs in the United States, and it became clear that even shorter waves might be commercially used for long-distance communication, though, so far as our knowledge went, they were subject to almost complete fading at certain times of day and season.

Early in 1923 the great wireless companies began to investigate the matter. The Radio Corporation of America erected short-wave plant in Maine, and the Marconi Company arranged

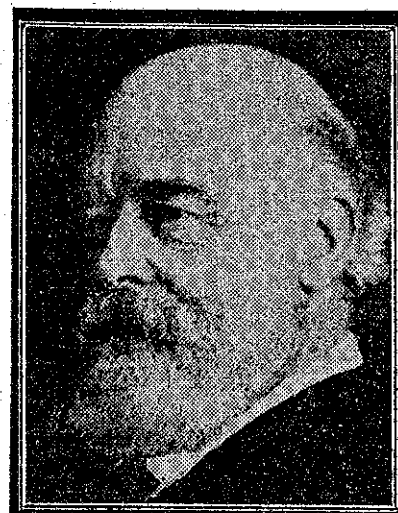
but such messages were still subject to pronounced fading. The first British commercial message organised by the Post Office, followed their experiments of 1924, suffered from similar irregularities.

However, about this time the British Government ordered from the Marconi Company, on the recommendation of the Wireless Telegraphy Commission, a number of short-wave reflector stations—now called “beam” stations—for direct communication with the Dominions during certain hours of each day.

DX Club

Station Identified.

PERHAPS I can in part supply the answer to the inquiry by T. M. (“Geni,” in your DX column). I often hear this station—he comes in at great strength with me—and I make his call VKJ. The other two are VKL and VKM, and they evidently indulge in two (or three) way telephony every night from 6 o’clock till about 7.40. They never give their address—at least I have never heard them give an address. They talk family matters mostly, and occasionally put over records until the other fellow gets into touch. I presumed they would be Victorian amateurs.—Jas. C. Parcell (Cromwell).



SIR OLIVER LODGE,
Britain’s world-famous scientist-inventor.

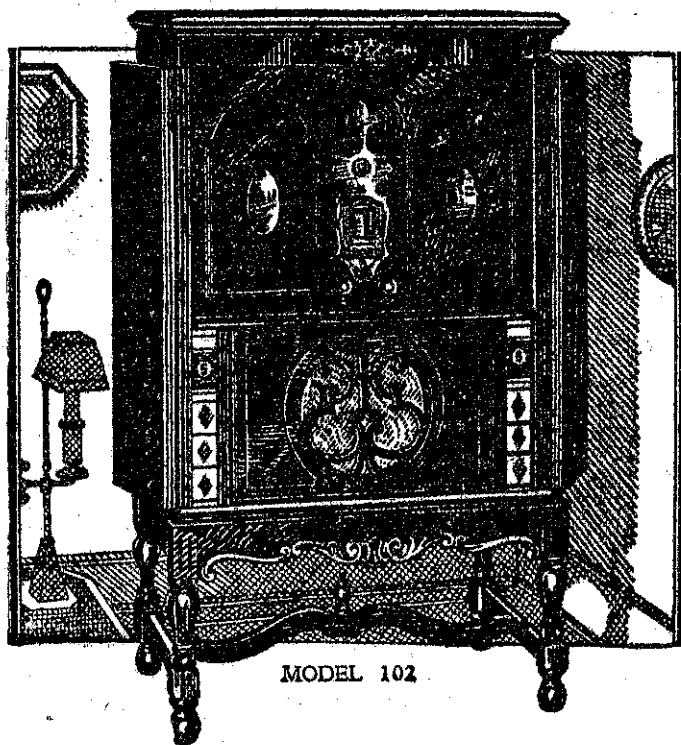
experiments based on the Cornish station of the company.

Birth of the Beam.

THE first commercial message on short waves was sent from Maine to Buenos Aires in September, 1923,

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Next Week's Features

1YA Features

THE main contributors to the vocal portion of Tuesday evening's programme will be Madame Mary Towsey's Quartet in a variety of quartets, duets and solos, including "The Power of Love" (Wallace), "Che Faro" (Gluck), "Di Provenza il Mar" (Verdi), "Mon Coeur s'ouvre a ta voix" (Saint Saens), and "Waltz Song" ("Romeo and Juliet"). On the instrumental side of the programme will appear Mr. Eric Waters in a piano-forte solo, "Concert Paraphrase" from "Rigoletto" (Verdi), and the Studio Trio, who will play a suite, "Spanish Pictures," and a musical comedy selection, "Mayfair and Montmartre" (Friml).

Orchestral relays will also be broadcast from the Majestic Theatre, where the orchestra is under the baton of Mr. J. Whiteford Waugh. An outstanding item on Tuesday evening will be the presentation of a debate between members of the Workers' Educational Association and the Auckland University College, the subject being "That the Party System Government is Obsolete."

AT 12.30 p.m. on Wednesday evening there will be a further relay of the community singing at the Town Hall.

On Wednesday evening a special programme arranged by the Auckland Amateur Radio Society will be broadcast and should be appreciated by all.

OUTSTANDING on Thursday evening's programme will be the presentation of a "Thirty Minute Drawing Room Entertainment" by those popular artists, "The Asquiths." Making her initial appearance at 1YA this evening will be Madge Taylor, soprano, whose items include "My Hero" ("Chocolate Soldier"), and "You'll Get Heaps o' Lickin's" (Clarke). Humour will be provided by Mr. T. T.

Garland, while Mr. T. Moffitt will provide tenor solos. Orchestral selections will be given by the Studio Orchestra. The evening's entertainment will conclude with dance music at 11 p.m.

CONTRIBUTING to Friday evening's programmes will be the Clarion Quartet in a vocal programme of "Old Time" songs and concerted items, including "Genevieve," "Huntingtower," "Cherry Ripe," "A Boy's Best Friend," "Barbara Allen," "The Brave Old Oak," and a musical switch of old favourites. "Ethelbert Niven" is the subject of Mrs. Daisy Basham's lecture-recital for the evening. Mr. William Gemmell assisting.

The Studio Trio will perform instrumental selections, while Miss Ina Bosworth will be heard in a bracket of violin solos, "Gavotte" (Goose) and "Admiral's Galliard" (Moffatt). An interesting "Topical Talk" will be given by Mr. A. B. Chappell, M.A.

SATURDAY evening's programme will include the popular Bohemian Duo in latest novelty hits, Mr. Hartley Warburton, baritone, and the Auckland Comedy Players in two short comedy sketches, "Who's Your Husband?" and "Statics," the latter being a screaming funny radio burlesque. Mr. J. F. Montague will contribute a further "Meandering of Monty." The Studio Orchestra will be heard in popular numbers, and the programme will conclude with dance music at 11 p.m.

Notes from 2YA

MONDAY evening there will be a programme of Eastern music, built up round a special presentation of Amy Woodforde-Finden's song cycle, "Jhelum River." The soloists for the cycle will be Miss Ailsa Nicol and Mr. G. Flanagan, soprano and baritone respectively. Also assisting with the programme will be Mr. Chas. Edwards (tenor) and Mrs. Phyllis Ramsey (con-

tralto). The orchestral items will be "Slave Dance and Feast of Ashura" (from Pratt's "Eastern Pictures"), the "T'Chaka Suite," Rubenstein's "Persian Suite," and the "Cossacks' Wedding Fete" (by Krein). Elocutionary items will be given by Mrs. Geo. Castle, a newcomer to 2YA microphone, and Mr. H. Temple White will be heard in a brief organ recital, his items being "Hymne Eclecte" (by Gray), Faulke's "Scherzo in A Minor," and Bach's "Introduction and Allegro."

TUESDAY will be the second anniversary of the opening of 2YA. A special programme is being given. The orchestra items will include Engle-

The Salvation Army Band will furnish the majority of items on Thursday evening. Their items will comprise marches, selections from the great masters, and a national selection, entitled "American Melodies." The Lyric Quartet will support the band with vocal items, their concerted numbers being "Night" (by Schubert), Trotter's well-known ballad, "The Deathless Army," and "A Perfect Day." Mr. Chas. Williams will sing two of Grieg's songs, "The First Primrose" and "Love's Evening." The operatic aria, "Vision Fugitive" from Massenet's "Herodiade" will be sung by Mr. Will Goudie. Mr. Goudie will also be associated with Mr. Williams in the duet "The Army and Navy." Two bass baritone solos will be rendered by Mr. Binet Brown, whose items will be "Time to Go," by Sanderson, and "Your Mother and I," by Grant. Miss Zita Casey (soprano) will also be heard in several numbers. Miss Gracie Kerr, a well-known elocutionist who has appeared with success at the Port Nicholson Silver Band's recitals, will be heard in two numbers.

FRIDAY evening's programme will feature the Etude Quartet in a studio presentation of the well-known musical comedy "The Cabaret Girl," by the popular composer Jerome Kern. The orchestral items will include a selection from the musical comedy referred to and from "The Dollar Princess," Robert's arrangement of "Master Melodies from Famous Light Operas," a cornet and trombone duet from "The Tales of Hoffman"—the "Barcarolle" (the soloists being Messrs. W. Sneddon and Harold Oakes)—and Cochran's "Mayfair and Montmartre" selection.

THE 2YA Revue Company will present another of their bright and entertaining programmes on Saturday. By special request the sketch "Love or Lucre" will be repeated on this programme. The programme will comprise choruses, vocal solos, sketches of a light nature and comic songs. Messrs. Berthold and Bent will assist the company with Hawaiian novelty numbers. Orchestral items in keeping with the programme will also be rendered. At 10 p.m. the usual dance programme will be presented, a review of the day's sporting events being given at 10.45.



MRS. BERYL WINDSOR.

Tho' living at Ross, on the West Coast, Mrs. Windsor frequently appears at 3YA. The last occasion was when she recited one of the prize poems (her own composition) in the recent 2YA Poetry Competition.

—Steffano Webb, photo.

mann's "Potted Overtures," which comprises a selection of overtures played by the 2YA Orchestra during the last year, Moszkowski's "Dance of the Rose Elves," Drigo's "Valse des Alouettes," Saint-Saens "Wedding Cake Waltz" (the piano soloist being Mr. M. Dixon), a "Scottish Patrol," and Liszt's "Hungarian Rhapsody No. 2."

An item of outstanding merit and interest will be the piano solo to be played by Mr. Gordon Short, "The Bat Waltz," by Strauss. This particular item will be looked forward to with pleasure by listeners all over the country.

The vocalists for the evening will be Miss Nora Gray (soprano), Miss Nora Greene (contralto), Mr. Samuel Duncan (tenor), and Mr. W. W. Marshall (bass). Concerted items will also be given by the Melodie Four. Mr. Norman Aitken, the popular elocutionist, will recite dramatic and humorous numbers.

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3YA Notes

THE Christchurch Municipal Band under Conductor J. Noble, assisted by 3YA artists, will provide Monday evening's entertainment. The programme will be of a varied nature and of excellent quality. The vocalists will be Miss Viol Clare (soprano), Mrs. Bingham Puddey (mezzo-contralto), Mr. Cyril Rishworth (baritone), singing "The Muleteer of Malaga," "A Chain of Roses" and "My Old Shako," Mr. Leslie Stewart (singing old favourites), while Mr. J. Laurensen will give two recitations.

TUESDAY evening there will be a ringside description of the amateur boxing championships to be held in the Caledonian Hall.

The first instalment of "Carmen" will be presented on Wednesday evening. The supporting programme will be contributed by Miss Thelma Ayres (soprano), Miss Nellie Lowe (contralto), Mr. T. G. Rogers (tenor), Miss Eileen Hughson (pianiste), and the Studio Orchestra under Mr. Harold Beck.

ON Thursday evening at 7.30 p.m., Captain Barlow will give a lecture on "Air Ports."

Miss Eileen Grennell's songs on Thursday evening will be "The Cry of Rachel," "The Old Refrain" and "Nightingales of June." Miss Merle Miller will sing "The Little Bells of Sevilla," "Lake Isle of Innisfree" and "O Love from Thy Power" (from "Samson and Delilah"). The male vocalists will be Mr. Harold Prescott (tenor) and Mr. F. C. Penfold. There will be selections by the Studio Trio.

FRIDAY evening's programme will be provided by the Male Choir Concert Party of the Commercial Travellers' Association. The commercial travellers have much individual and collective talent. Part-songs will be a feature of the programme. These will comprise "Sailors' Song," "Minnensingers," "In a Gondola," "To Arms," and "The Camel and the Butterfly." Among the soloists will be some artists new to 3YA—Miss Merle Parry (soprano), Miss Maggie Richardson (contralto), Mr. G. W. Parry (tenor), Mr. W. Toomey (baritone), Mr. K. W. Connor (baritone), Mr. H. Taylor (bass), Mr. W. Drake, Mr. Robert Clarke (violinist), and Mr. A. E. Romerill (reciter). Among the solos for the male voices will be "The Diver," "The Tune of the Open Country," "The Stoker," "Fairings," "Duna," "For You Alone," and "Indian Serenade."

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THE radio vaudeville programme for Saturday evening will be provided by very popular artists—the Joyous Duo, the Italian Jazz Trio (well known as street musicians in Christchurch and in many other cities of the world), the Beckenham Male Voice Quartet, Miss Sylva Angus (soprano) and Messrs. Charles Lawrence and George Titchener, who on this occasion will act in concert, telling stories with patter.

4YA Programmes

At 4YA on Monday, July 15, the Dunedin Shakespeare Club will present "The Taming of the Shrew." The play will occupy the whole evening. This is the first occasion on which the club has broadcast, and a full play such as this is an ambitious effort, but an excellent cast of characters has been arranged, and interest in the play will not flag during the performance.



MISS CONSTANCE FLAMANK.

Very successful at competitions, Miss Flamank (contralto) is frequently heard from 3YA.

—Steffano Webb, photo.

ASSOCIATED with the St. Kilda Band in presenting Tuesday evening's programme will be Miss Dorothy Sligo (soprano), and Mr. W. Ruffell (baritone). Miss Sheila Neilson and Mr. J. B. McConnell will present two sketches "As You Were" and "Think Again."

ON Wednesday evening the microphone will be handed over to the Four Aces Concert Party, who will give an hour and a half's entertainment. A dance programme will follow.

THE opening number by the 4YA Harmonists on Friday evening will be the presentation of Liza Lehmann's song cycle, "More Daisies." Other artists contributing to the programme will be Mr. Lester Moller (elocutionist), and the Studio Trio (Miss Eva Judd, Mr. P. J. Palmer and Mrs. Ernest Drake).

ON Saturday evening 4YA will relay from 3YA.

Auckland Notes

(By "LISTENER.")

WHANGAREI provided its second relay programme last Sunday evening, and earned very general appreciation for it. They can put on a most enjoyable Sunday evening concert in the capital of the Far North, and on the second occasion of its broadcast there was a noticeable improvement over the initial venture. The items were of the same enjoyable standard, and the land-line transmission showed marked improvement.

SO successful was the football re-broadcast from 2ME, Sydney, on Saturday last that interested bodies and some enthusiastic individuals are considering the question of giving the general public the benefit of the descriptions per medium of the "public address amplifiers" of which there are several in Auckland.

The Rugby Union would undoubtedly have installed such a broadcast system at Eden Park, for the benefit of its patrons, were it not for the fact that the latter would have to remain in winter darkness to hear the account. As it was, numerous football enthusiasts hastened home to enjoy by ear what they had previously appreciated by eye—and they were duly grateful to the enterprise of the local station in providing what, to footballers, was an historic broadcast.

It was the first occasion on which a running commentary had been made of a New Zealand team's achievements overseas. Let us hope that there will be a repetition, just as successful, for the ensuing games.

TO quite a large section of listeners there has been little appeal in the excellent grand opera lecture-recitals which have been given at 1YA. Such, however, cannot be urged against the splendid half-hour which was provided by Mr. Karl Atkinson and the gramophone on Tuesday evening. His remarks about the waltz, and his illustrations of notable waltz compositions were within the appreciation of all. One gentleman, a lover of music, though not a musician, informed the writer that the final portion of Tuesday's programme was to him a musical treat such as he had not enjoyed for many years.

AUCKLAND rather prides itself upon the fact that it has been the real nursery of New Zealand broadcasting. It was here that listening-in first gripped New Zealanders; it was here that the first modern broadcasting plant operated under the control of the R.B.C. In consequence both traders and licensees feel that the southern centres are rather leaving the north behind in the organisation of big radio exhibition. There is a strong feeling locally that Auckland, too, should have its radio show, and it is not improbable that within the next few days steps will be taken to organise a rival to the Wellington and Dunedin displays.

THE writer wonders if other listeners have experienced a difficulty similar to his own. For over a week he was troubled by interference which defied location. In an electric set this was irritating, either with or without aerial connection. Trans-

formers as a source of trouble were eliminated, valves were replaced, and official tests of the power lines outside the house were made. No cause was visible, but the distracting noises continued. Then, one evening, the house telephone failed suddenly—and the interference vanished. The trouble had existed all the time in a faulty telephone.

KEEPING well in touch with public functions, 1YA broadcast the speeches of the official opening of the winter show this week.

THERE is very general expectancy here regarding the new Australian programmes which will shortly be audible—when static is in a quiescent mood. So much of promise and anticipation has appeared in the local press that listeners are waiting to pronounce the verdict upon performance, which is the one thing that really counts.

Radio for Railways

THE Southern Railway announce that after a period of experimenting with loud-speakers at London Bridge, it has been decided to make them a permanent part of the organisation for handling the homeward rush-hour traffic. The loud-speakers, which came into operation recently, are installed on two platforms. They are used to impart information regarding incoming trains. At present they are used from 4 p.m. to 8 p.m. from Mondays to Fridays, and from noon to 3 p.m. on Saturdays.



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Full Programmes for Next

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Sunday, July 14

1YA, AUCKLAND (333 METRES), SUNDAY, JULY 14.

- 3 p.m.: Afternoon session—Selected studio items.
 4.0: Literary selection by the Announcer.
 4.8: Further studio items.
 4.30: Close down.
 6.0: Children's session, conducted by Uncle Leo.
 6.55: Relay of Divine service from St. David's Church. Preacher, Rev. D. C. Herron; organist, Mr. E. C. Craston.
 8.30 (approx.): Relay of concert from Majestic Theatre by Auckland Artillery Band, conducted by Mr. Wynne Smith.
 10.0: God Save the King.

2YA, WELLINGTON (720 KILOCYCLES)—SUNDAY, JULY 14.

- 3 p.m.: Afternoon session—selected gramophone items.
 5 p.m.: Children's Sunday service, conducted by Uncle George.
 7.0: Relay of service from Church of Christ, Vivian Street: Preacher, Pastor W. G. Carpenter. Organist, Mrs. L. Sincok. Choirmaster, Mr. W. J. Mason.
 8.15 (approx.): Relay from His Majesty's Theatre of concert by the Wellington Municipal Tramways Band.
 Close down.

3YA, CHRISTCHURCH (306 METRES)—SUNDAY, JULY 14.

- 3 p.m.: Afternoon session—selected gramophone items.
 4.30: Close down.
 5.30: Children's song service.
 6.15: Hymn chimes from the studio.
 6.30: Relay of service from Church of Christ, Moorhouse Avenue: Preacher, Pastor J. Crawford. Organist, Miss E. Hepburn. Musical director, Mr. H. Ames.
 7.45 (approx.): Studio concert Orchestral—Mengelberg's Concertgebouw Orchestra, "Symphony No. 8—Allegretto Scherzando" (Beethoven) (Columbia Record 04055).
 7.49: Soprano solo—Miss Marjorie Nelson, "For All Eternity" (Mascheroni).
 7.53: Tenor solos—Mr. W. J. Trewern, (a) "Elegie" (Massenet); (b) "O Vision Entrancing" (Goring Thomas).
 8.0: String quartet—Elman Quartet, "Emperor" (Haydn) (H.M.V. Record DB1055).
 8.4: Soprano solos—Miss Marjorie Nelson, (a) "A Little Coon's Prayer" (Hope); (b) "Thanks Be To God" (Dickson).
 8.11: Tenor solos—Mr. W. J. Trewern, "The Star of Bethlehem" (Adams).
 8.15 (approx.): Rebroadcast of 2YA, Wellington (relay from the Grand Opera House of recital by the Port Nicholson Silver Band under the conductorship of Mr. J. J. Drew).
 Close down.

4YA DUNEDIN (463 METRES)—SUNDAY, JULY 14.

- 3 p.m.: Town Hall chimes.
 3.1: Selected gramophone items.
 4.30: Close down.
 5.30: Children's song service, conducted by Big Brother Bill.

- 6.30: Relay of service from St. John's Church, Highgate. Roslyn. Preacher, Archdeacon Fitchett.
 8.5: Relay from His Majesty's Theatre of concert by the Kalkoral Band, under the conductorship of Mr. T. J. Kirk-Burnand.
 9.15: Close down.

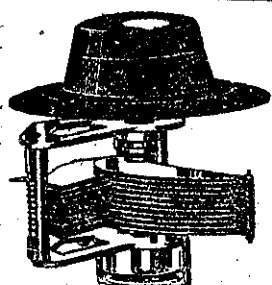
Monday, July 15

1YA, AUCKLAND (333 METRES)—MONDAY, JULY 15.

SILENT DAY.

2YA, WELLINGTON (720 KILOCYCLES)—MONDAY, JULY 15.

- 3.0 p.m.: Chimes of the G.P.O. clock.
 3.1: Selected gramophone items.
 3.40: Relay from Messrs. Kirkcaldie and Stains' Tea-rooms of music by the Trio.
 4.0: Selected gramophone items.
 4.30 and 4.50: Sports results to hand.
 4.55: Close down.
 5.0: Children's session, conducted by Uncle Jeff.
 6.0: Dinner session:
 Orchestral—Orchestre Symphonique de Paris, "L'Arlesienne-Prelude" (Bizet) (Columbia Record 01324).
 Orchestral with chorus—Orchestre Symphonique de Paris, (a) "L'Arlesienne-Pastorale"; (b) "L'Arlesienne-Suivant la Pastorale, Choeurs" (Bizet) (Columbia Record 01325).
 6.12: Tacet.
 6.15: Orchestral—Orchestre Symphonique de Paris, "L'Arlesienne"; (a) "La Cuisine de Castelet"; (b) "Intermezzo" (Bizet), (Columbia Record 01326).
 Tenor solos—Louis Graveure, (a) "Rigoletto-La Donna e Mobile" (Verdi); (b) "Tosca-E Lecevan le Stelle" (Columbia Record 01198).
 6.27: Tacet.
 6.30: Orchestral—Orchestre Symphonique de Paris, "L'Arlesienne"; (a) "Le Carillon"; (b) "Adagietto" (Bizet), (Columbia Record 01327).
 Orchestral—Orchestra Symphonique de Paris, "L'Arlesienne-Farandole" (Bizet).
 Chorus and Orchestra—"L'Arlesienne-Marche des Rois" (Bizet) (Columbia Records 01328).
 6.42: Tacet.
 6.45: Orchestral—Ketelbey's Concert Orchestra, "In a Fairy Realm"—1. The Moonlit Glade; 2. The Queen Fairy Dances; 3. The Gnomes March (Ketelbey) (Columbia Records 02694-5).
 6.57: Tacet.
 7.0: News session; market reports and sports results.
 7.40: Lecturette—Mr. H. C. South, "Books—Grave and Gay."
 8.0: Chimes of the G.P.O. clock.
 8.1: Overture—Orchestra, "Slave Dance and Feast of Ashura" ("Eastern Pictures") (Pratt).
 8.9: Special presentation of the song cycle, "Jhelum River" (Woodforde-Pinden) by Miss Ailsa Nichol and Mr. G. Flanagan:
 (Synopsis: Ashoo is a boat-girl of Kashmir. Soubhana is her boatman lover. From the bright orchards of Bijbehara they carry their golden fruit down Jhelum River to the bazaars of Srinagar. Ashoo, in her lover's absence, is given in marriage by her eager parents to a rich silversmith, dwelling in the city. The silks and the gay trinkets which the bridegroom sends to deck his bride blind Ashoo to her fate, a loveless marriage. Soubhana, returning unexpectedly to Srinagar a few hours later, learns what has taken place. Mad with jealousy he waits the fall of night that he may seek revenge. Ashoo looks out upon the river from her lattice, but her heart is full of sorrow and despair. But down the waterway a boat is drifting—a well loved voice is floating o'er the river. Back to the lotus fields Soubhana bears her—for love and freedom of all things are best. Back where the bulbuls sing amongst the rose—where the blue kingfisher flits over Jhelum).
 Duet—"Jhelum Boat Song."
 Soprano solo—"Song of the Bride."
 Baritone solo—"Will the Red Sun Never Set?"
 Soprano solo—"Ashoo at Her Lattice."
 Baritone solo—"Only a Rose."
 Duet—"Kingfisher Blue."
 8.34: Recital—Mrs. Geo. Castle, "From India" (Anon).
 8.40: Cello solos—W. H. Squire, (a) "Sicilienne" (Faure) (b) "Slumber Song" (Squire) (Columbia Record L1759).
 8.48: Tenor solo—Mr. Chas. Edwards, "Oh, Could I in Song Tell My Sorrow" (Malashkin).



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Week-all Stations-to July 21

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- 8.52: Suite—Orchestra, "Tchaka Suite" (Ring).
 9.0: Weather report.
 9.2: Organ recital—Mr. H. Temple White:
 (a) "Hymne Celeste" (Gray).
 (b) "Scherzo in A Minor" (Faukes).
 (c) "Introduction and Allegro" (Bache).
 9.17: Contralto solo—Mrs. Phyllis Ramsay, "To the Fordst" (Tschalkowsky).
 9.21: Suite—Orchestra, "Persian Suite" (Rubinstein-Morena).
 9.29: Recitals—Mrs. Geo. Castle, (a) "The Lark's Song to the Miners" (Read); (b) "Earthenware."
 9.38: Choir—Don Cossacks Choir, "Three Folk Songs" (Arrgd. Dobrowen) (Columbia Record 02712).
 9.44: Tenor solo—Mr. Chas. Edwards, "Lord Randal" (Scott).
 9.49: Contralto solos—Mrs. Phyllis Ramsey, (a) "Now Sleeps the Crimson Petal" (Quilter); (b) "The Crescent Moon" (Sanderson).
 9.56: Instrumental—Orchestra, "Cossacks Wedding Fete" (Krein).
 10.3: Close down.

3YA, CHRISTCHURCH (306 METRES).—MONDAY, JULY 15.

- 3 p.m.: Afternoon session—selected gramophone items.
 4.25: Sports results to hand.
 4.30: Close down.
 6.0: Children's session, conducted by "Scatterjoy."
 7.0: News session.
 8.0: Chimes.
 Studio concert by the Christchurch Municipal Band, under the conductorship of Mr. J. Noble, and assisting artists.
 8.1: March—Band, "Carnival King" (Rimmer).
 8.7: Baritone solo—Mr. Cyril Rishworth, "Muleteer of Malaga" (Trotiere).
 8.11: Wurlitzer organ solo—"The Rosary" (Nevin) (Regal Record G20391).
 8.14: Mezzo-contralto solo—Mrs. Nora Bingham-Puddey, "Ritournelle" (Chaminade).
 8.18: Entr'acte—Band, "Chant Sans Parole" (Tschalkowsky).
 8.24: Recital—Mr. J. Laurensen, "How We Saved the Barge" (Williams).
 8.31: Popular songs—Mr. Leslie A. Stewart, (a) "Alice, Where Art Thou?" (Ascher); (b) "Till the Sands of the Desert Grow Cold" (Ball).
 8.39: Concerted—Allan Prior and chorus, "Memories" ("The Student Prince") (Romberg) (Columbia Record 3904).
 Vocal duet—Lucienne Herval and John Coast, "Just We Two" ("The Student Prince") (Romberg) (Columbia Record 3904).
 8.45: Soprano solos—Miss Viola Clare, (a) "The Valley of Laughter" (Sanderson); (b) "Country Folk" (Brahe).
 8.51: Quartette and chorus—Band, (a) "Silver Moonlight Winds are Blowing" (Ord Hume); (b) "Oh, Who Will O'er the Downs" (Ord Hume).
 8.57: Weather report.
 9.2: Baritone solos—Mr. Cyril Rishworth, (a) "A Chain of Roses" (Loehr); (b) "My Old Shako" (Trotiere).
 9.9: Wurlitzer organ solo—"La Rosita" (Dupont) (Regal Record G20391).
 9.12: Mezzo-contralto solos—Mrs. Nora Bingham-Puddey, (a) "My Ships" (Barrett); (b) "The Dancing Lesson" (Oliver).
 9.18: Selection—Band, "The Talisman" (Balfe).
 9.30: Recital—Mr. J. Laurensen, "Lecture on the Face" (Robey).
 9.36: Popular song—Mr. Leslie A. Stewart, "A Devonshire Wedding" (Lyall Phillips).
 9.40: Saxophone solos—Rudy Wiedoeft, (a) "Sax-o-Phun" (Wiedoeft); (b) "La Cinqtaine" (Wiedoeft) (Columbia Record 4037).
 9.46: Soprano solo—Miss Viola Clare, "Vilanelle" (Dell'Acqua).
 9.50: Waltz—Band, "Dreamy Devon" (Evans).
 March—Band, "Changing Guard" (Ord Hume).
 10.0: Close down.

4YA, DUNEDIN (463 METRES).—MONDAY, JULY 15.

- 3 p.m.: Town Hall chimes.
 3.1: Selected gramophone items.
 4.25: Sports results to hand.
 4.30: Close down.
 6 p.m.: Children's session, conducted by Uncle Allan.
 7.0: News session.
 8.0: Town Hall chimes.
 8.1: Presentation of "The Taming of the Shrew" (Shakespeare), by the Dunedin Shakespeare Club:

CAST:

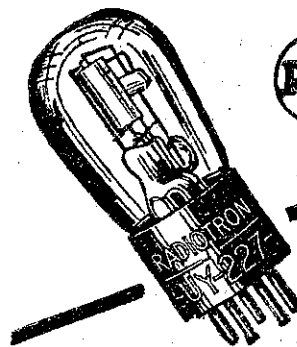
Baptista (a rich gentleman of Padua) Mr. R. H. Wilson
 Lucentio (a gentleman of Pisa) Mr. D. E. Dall
 Gremio) Suitors to Mr. J. B. Flynn
 Hortensio) Bianca Mr. H. W. Hunter

Trainio) Servants to Mr. J. Fleming
 Blondella) Lucentio Mr. R. H. Simpson
 Petruchio (Suitor to Katharina) Mr. S. H. Osborn
 Grumio) Servants to Mr. W. B. Quennell
 Curtis) Petruchio Miss C. Howden
 Tailor Mr. M. Gaston
 Katharina the Shrew) daughters Miss A. Winkel
 Bianca) to Baptista Miss E. McElrea
 Widow Miss G. Johnson.
 Chorus Mrs. Murray

(Synopsis: Baptista, a rich merchant of Padua, has two daughters. Katharina, the elder, is a strong-willed lady, whose fiery temper has earned her the title of "The Shrew." Bianca, the younger, is of a gentle disposition, and has many suitors for her hand. The father, however, has decided that until the elder sister is suited with a husband, the younger must remain single. Bianca's suitors are in despair, when they discover in Padua a visitor from Verona in the person of Petruchio, who has come to the city with the avowed intention of seeking a wife who shall be both handsome and rich. His friends speedily make known to him the circumstances of their case, and Petruchio, a man of high spirit, and a humorist of the first water, when satisfied that Katharina possessed the qualifications he was looking for in a bride, expresses himself quite willing to marry her, and to trust to his methods to change her from termagant shrew into a meek and manageable wife.

Petruchio presents his credentials to Baptista, and secures his best wishes for his success with Katharina, to whom he is speedily introduced. A stormy interview follows, in which Katharina is fairly overborne by the bolsterousness and sarcasms of Petruchio. He gives her no time to protest, and, assuring her father that Katharina has received him in the kindest way possible, and has promised to marry him on the following Sunday, he departs to Venice to procure finery for the wedding.

On Sunday the wedding guests are assembled, but there is no sign of the bridegroom, and Katharina weeps from vexation at the slight put upon her. At last, however, Petruchio appears, but in strangely disordered attire, and, paying no heed to the expostulations of the company, he insists upon the wedding ceremony being performed at once. Baptista has provided a sumptuous feast, but Petru-



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chio, on his return from church, declares his intention of carrying his wife home immediately, and no remonstrance will make him change his purpose. Katharina's entreaties are rejected, and the bride and bridegroom leave for home.

After a weary journey, during which Katharina hears nothing but the wild ravings of Petruchio at his servants and horses, they arrive at his house. She is welcomed to her home, but Petruchio resolves that she shall have neither food nor rest that night, and by pretending to find fault with every dish, and ordering their instant removal, he effects his purpose of sending her, weary and supperless, to bed. The same line is pursued by Petruchio the next day, and not until he has brought her proud spirit to such subjection that she dare not remember that there is such a word as contradiction, will he permit her to visit her father's house to join the company assembled there to celebrate the wedding of Bianca.

The conviction is brought home to Katharina that resistance will serve no purpose. She is convinced of her past folly, and to the wonder of all present at Bianca's wedding feast, speaks as eloquently in praise of the wifely duty of obedience as she had practised it implicitly in a ready submission to Petruchio's will.)

Act 1, Scenes 1 and 2. Act 2, Scene 1.

Entr'acte—soprano and orchestra, Evelyn Scotney, "Waltz Song" ("Romeo and Juliet") (Gounod) (H.M.V. Record D1485).

Act 3, Scenes 1 and 2. Act 4, Scenes 1, 3, and 5.

Entr'acte—Columbia Symphony Orchestra, "Wedding March" ("Midsummer Night's Dream") (Mendelssohn) (Columbia Record 02663).

Act 5, Scene 2.

Close down.

Tuesday, July 16

1YA, AUCKLAND (333 METRES)—TUESDAY, JULY 16.

3.0 p.m.: Afternoon session—Selected studio items.

4.0: Literary selection by the Announcer.

4.8: Studio items.

4.25: Sports results to hand.

4.30: Close down.

6.0: Children's session, conducted by Uncle George.

7.0: News session—Book review.

7.30: Market reports.

7.40: Talk—Mr. J. W. Shaw, M.A., "The Amateur Dramatic Movement."

8.0: Chimes.

8.1: Relay of orchestral overture from the Majestic Theatre.

8.11: Vocal quartet—Madame Mary Towsey's Quartet, "The Power of Love" (Wallace).

8.14: Contralto solo—Mrs. Ian Stuart, "Che Faro" (Gluck).

8.18: Presentation of debate—Workers' Educational Association v. Auckland University College—"That the Party System of Government is Obsolete."

9.3: Weather report.

9.5: Tenor solo—Mr. John McDougall, "Fairy Song" (Boughton).

9.8: Instrumental—Studio Trio, Suite, "Spanish Pictures" (Luzzati).

9.17: Mezzo-soprano solo—Madame Mary Towsey, "Mon Coeur S'ouvre a Ta Voix" ("Samson and Delilah") (Saint-Saens).

9.21: Baritone solo—Mr. John Bree, "Di Provenza Il Mar" ("La Traviata") (Verdi).

9.25: Pianoforte solo—Mr. Eric Waters, "Paraphrase De Concert-Rigoletto" (Verdi-Liszt).

9.29: Vocal duet—Madame Mary Towsey and Mrs. Stuart, "Oh, That We Two Were Maying" (Nevin).

9.32: Orchestral—Royal Opera Orchestra, "Carmen Ballet No. 1" (Bizet) (H.M.V. Record C1424).

9.36: Soprano solo—Mrs. J. J. Sullivan, "Waltz Song" ("Romeo and Juliet") (Gounod).

9.40: Vocal duet—Madame Mary Towsey and Mr. John Bree, "The Golden Song" (Schubert).

9.44: Instrumental—Studio Trio, "Mayfair and Montmartre" (Friml).

9.52: Contralto solo—Mrs. I. Stuart, "Fare Thee Well" (Spackman).

9.55: Orchestral—Royal Opera Orchestra, "Carmen Ballet No. 2" (Bizet) (H.M.V. Record C1424).

9.59: Vocal quartet—Madame Mary Towsey's Quartet, "Fair Shines the Moon" (Arrgd. Birch).

10.2: Close down.

2YA, WELLINGTON (720 KILOCYCLES)—TUESDAY, JULY 16.

3.0 p.m.: Chimes of the G.P.O. clock.

3.1: Selected gramophone items.

4.30 and 4.50: Sports results to hand.

4.55: Close down.

5.0: Children's session, conducted by Uncle Jim.

6.0: Dinner session:

Overture—Columbia Symphony Orchestra, "March of the Toys" (Herbert) (Columbia Record 02651).

Male quartet—Shannon Male Quartet, "The Sidewalks of New York" (Lawlor) (Regal Record G20298).

Waltz—Eddie Thomas's Collegians, "Beautiful Ohio" (Earl) (Columbia Record 02651).

6.12: Tacet.

6.15: Waltzes—Eddie Thomas's Collegians, (a) "Moments With You" (Yellen); (b) "Moonlight on the Danube" (Gay), (Columbia Record 01135).

Tenor solo—Alfred O'Shea, "Ben Bolt" (Kneass), (Columbia Record 03613).

6.25: Tacet.

6.30: Waltz—New Concert Orchestra, "Jolly Fellows" (Bruder) (Columbia Record 02672).

Mezzo-soprano solo—Barbara Maurel, "Indian Dawn" (Zamecnik) (Columbia Record 01250).

Saxophone solo—Rudy Wiedoeft, "Serenade" (Drigo) (Columbia Record 01180).

Vocal solo—Vaughan de Leath, "I Just Roll Along" (Trent) (Columbia Record 01136).

6.42: Tacet.

6.45: Kinema organ solo—G. T. Pattman, "Cheerie Waltz" (Valentine) (Columbia Record 01844).

Duet and chorus—Jas. Liddy and Elsie Gergel, "Deep In My Heart, Dear" (Romberg) (Columbia Record 02511).

Orchestral—Symphony Orchestra, "Tales from the Vienna Woods" (Strauss) (Columbia Record 02577).

6.55: Tacet.

7.0: News session, market reports and sports results.

7.40: Lecturette—Representative of the Agricultural Department, "For the Man on the Land."

8.0: Chimes of the G.P.O. clock.

8.1: Overture—Orchestra, "Potted Overtures" (Englemann).

8.11: Soprano solos—Miss Nora Gray, (a) "A Fairy Town" (Parry); (b) "The Maiden" (Parry).

8.18: Bass solo—Mr. W. W. Marshall, "I Pagliacci-Prologue" (Leoncavallo).

8.22: Pianoforte solo—Mr. Gordon Short, "The Bat" waltz (Strauss-Gruenfeld).

8.29: Contralto solo—Miss Nora Greene, "The Promise of Life" (Cowen).

8.33: Musical monologue—Mr. Norman Aitken, "A Fallen Star" (West).

8.40: Instrumental—Orchestra, (a) "Dance of the Rose Elves" (Moszkowski); (b) "Valse Des Alouettes" (Drigo).

8.48: Tenor solo—Mr. Sam Duncan, "I'll Sing Thee Songs of Araby" (Clay).

8.52: Vocal quartet—Melodie Four, "Stars of the Summer Night" (Anon).

8.56: Pianoforte solo with orchestral accompaniment, (Soloist, Mr. M. Dixon), "Wedding Cake Waltz" (Saint-Saens).

9.4: Weather report.

9.6: Soprano solos—Miss Nora Gray, (a) "Pirate Dreams" (Huerter); (b) "Just in the Hush" (Lohr).

9.13: Bass solo with orchestral accompaniment, "Mr. W. W. Marshall, "The Trumpeter" (Dix).

9.17: Novelty—Orchestra, "The Voice of the Bells" (Thurban).

9.25: Contralto solos—Miss Nora Greene, (a) "O Mistress Mine" (Quilter); (b) "Blow, Blow, Thou Winter Wind" (Quilter).

9.30: Humour—Mr. Norman Aitken, "He's an Awfully Nice Fellow to Speak To" (Anon).

9.37: Instrumental—Orchestra, "Scottish Patrol" (Williams).

9.42: Tenor solo—Mr. Sam Duncan, "Un Peu D'Amour" (Silesu).

9.46: Vocal quartet—Melodie Four, "Laughing" (Abt.).

9.50: Instrumental—Orchestra, "Hungarian Rhapsody No. 2" (Liszt).

10.0: Dance programme.

11.0: Close down.

3YA, CHRISTCHURCH (306 METRES)—TUESDAY, JULY 16.

SPECIAL BOXING RELAY.

8.0 p.m.: Relay from the Caledonian Hall of Canterbury Amateur Boxing Championships.

Close down.

4YA, DUNEDIN (463 METRES)—TUESDAY, JULY 16.

3.0 p.m.: Town Hall chimes.

3.1: Relay of instrumental music from the Ritz.

4.25: Sports results to hand.

4.30: Close down.

6.0: Children's session, conducted by Big Brother Bill.

7.0: News session.

7.30: Lecturette—Mr. F. S. Turner, M.Sc. (under the auspices of the Workers' Educational Association)—"Geology and Evolution."

8.0: Town Hall chimes.

Studio concert by the St. Kilda Band, under the conductorship of Mr. James Dixon, and assisting artists.

8.1: March—Band, "The Exile" (Weaver).

8.7: Baritone solos—Mr. W. Ruffell, (a) "Lighterman Tom" (Squire); (b) "For You Alone" (Geehl).

8.14: Waltz—Court Symphony Orchestra, "Destiny" (Baynes), (Columbia Record 564).

8.18: Intermezzo—Band, "Crown of Love" (Tipping).

8.26: Sketch—Miss Sheila Neilson and Mr. J. B. McConnell, "As You Were" (Anon).

8.36: Cello solo—W. H. Squire, "Melody in F" (Rubinstein, arrgd. Popper), (Columbia Record 04178).

8.40: Overture—Band, "Latona" (Ham).

- 8.50: Soprano solos—Miss Dorothy Sligo, (a) "The Little Damsel" (Novello); (b) "Dawn" (Schirmer).
 8.57: Wurlitzer organ solo—Jesse Crawford, "Rosette" (Neman) (H.M.V. Record EA405).
 9.0: Weather report.
 9.2: Trombone fantasia—Band, "The Joker" (Moss).
 9.9: Cello solo—W. H. Squire, "Silver Threads Among the Gold" (Danks, arrgd. Squire) (Columbia Record 04178).
 9.13: Baritone solo—Mr. W. Ruffell, "The Yeoman's Wedding Song" (Poniatowski).
 9.17: Selection—Band, "Gems of Harmony" (Smith).
 9.27: Sketch—Miss Sheila Neilson and Mr. J. B. McConnell, "Think Again" (Anon).
 9.37: Concerted—Zonophone Light Opera Company, Gems from "Patience" (Sullivan) (Zonophone Record A336).
 9.45: Air and variations—Band, "Embers" (L'Estrange).
 9.55: Soprano solo—Miss Dorothy Sligo, "Orpheus With His Lute" (Sullivan).
 9.59: March—Band, "Dunedin" (Alford).
 10.4: Close down.

Wednesday, July 17

IYA, AUCKLAND (333 METRES).—WEDNESDAY, JULY 17.

- 12.30 p.m.: Relay of community singing from the Town Hall.
 3.0: Afternoon session—selected studio items.
 4.0: Literary selection by the Announcer.
 4.8: Studio items.
 4.25: Sports results to hand.
 4.30: Close down.
 6.0: Children's session, conducted by Uncle Tom.
 7.0: News and market reports.
 7.40: Talk—Mr. Norman Kerr, "Physical Culture."
 8.0: Chimes.
 8.1: Presentation of programme, arranged by the Auckland Amateur Radio Society.
 10.0 (approx.): Close down.

2YA, WELLINGTON (720 KILOCYCLES).—WEDNESDAY, JULY 17.

SILENT DAY.

3YA, CHRISTCHURCH (306 METRES).—WEDNESDAY, JULY 17.

- 3 p.m.: Afternoon session—selected gramophone items.
 4.25: Sports results to hand.
 4.30: Close down.
 6.0: Children's session, conducted by "Mother Hubbard" and Uncle Frank.
 7.0: News session.
 7.30: Addington stock market reports.
 8.0: Chimes.
 8.1: Special presentation of the opera, "Carmen" (Bizet) (Act 1—First instalment—with introductory remarks by Mr. W. H. Dixon, Professor of Singing) (H.M.V. Records 9527/31).
 8.50: Orchestral—Studio Orchestra, under the conductorship of Mr. Harold Beck, (a) "Magic of Love" Waltz (Vanis); (b) "Grasshopper's Dance" (Bucalossi).
 9.0: Weather report.
 9.5: Soprano solo—Miss Thelma Ayres, "Ernani Involami" ("Ernani") (Verdi).
 9.10: Pianoforte solo—Miss Eileen Hughson, "Concert Study, No. 3 in B Flat" (Liszt).
 9.15: Tenor solo—Mr. T. G. Rogers, "In Her Simplicity" (Thomas).
 9.19: Instrumental—Studio Orchestra, "Raymond Overture" (Thomas).
 9.28: Contralto solo followed by contralto and tenor duet, Miss Nellie Lowe and Dulcet Duo, (a) "The Little Cotton Gown" (Hill); (b) "Awake!" (Peillissier).
 9.32: Pianoforte solo—Miss Eileen Hughson, "Fifth Waltz" (Godard).
 9.47: Soprano solos—Miss Thelma Ayres, (a) "Know'st Thou That Land?" (Thomas); (b) "Early One Morning" (old English).
 9.48: Male choir—Don Cossacks Choir, "Serenade" (Abt) (Columbia Record 02792).
 9.47: Contralto solo—Miss Nellie Lowe, "Your Heart Will Call Me Home" (Teschemaker).
 9.51: Instrumental—Studio Orchestra, (a) "Suite of Irish Folk Songs and Dances" (arrgd. Fitzgerald); (b) "Hungarian March" (Berlioz).
 10.1: Close down.

4YA, DUNEDIN (463 METRES).—WEDNESDAY, JULY 17.

- 3 p.m.: Town Hall chimes.
 3.1: Selected gramophone items.
 4.25: Sports results to hand.
 4.30: Close down.
 6.0: Town Hall chimes.
 6.1: Children's session, conducted by Aunt Anita.
 7.0: News session.
 8.0: Town Hall chimes.
 8.1: Special programme presented by the "Four Aces" Concert Party.
 9.30: Relay of orchestral music from the Ritz.
 9.40: Dance music from Studio.

- 10.0: Relay of orchestral music from the Ritz.
 10.10: Dance music from Studio.
 11.0: Close down.

Thursday, July 18

IYA, AUCKLAND (333 METRES).—THURSDAY, JULY 18.

- 3.0 p.m.: Programme presented by Messrs. Lewis Eady Ltd. (Piano accompaniments and solos played on the Williams Play-ola).
 3.30: Talk—Miss Edith Sutherland, "Home Handicrafts."
 3.45: Further items supplied by Messrs. Lewis Eady Ltd.
 4.25: Sports results to hand.
 4.30: Close down.
 6.0: Children's session, conducted by Peter Pan.
 7.0: News and market reports.
 7.40: Talk—Mr. A. E. Lawry, "New Zealand Manufactures—Leather."
 8.0: Chimes.
 8.1: Overture—Studio Orchestra, "Southern Stars" (Ascher).
 8.11: Tenor solos—Mr. Thomas Moffitt, (a) "O Flower of all the World" (Woodforde-Finden), (b) "Charming Chloe" (German).
 8.18: Soprano solo—Miss Madge Taylor, "My Hero" ("The Chocolate Soldier" (Strauss).
 8.22: Humour—Mr. T. T. Garland, "Merry Moments."
 8.28: Musical comedy selection—Studio Orchestra, "Sally" (Kern).
 8.37: Tenor solo—Mr. T. Moffitt, "Serenade" (Schubert).
 8.41: Soprano solos—Miss M. Taylor, (a) "You'll Get Heaps of Kickings" (Clarke); (b) "Fat Little Feller Wid' His Mammy's Eyes" (Gordon).
 8.48: Humour—Mr. T. T. Garland, "More Merriment."
 8.54: Orchestral—Studio Orchestra, (a) "Salut D'Amour" (Elgar); (b) "Humoreske" (Dvorak).
 9.2: Weather report.
 9.4: Novelty and Humour—The Asquiths, "Thirty Minutes Drawingroom Entertainment."
 9.33: Orchestral—Studio Orchestra, "Hungarian Rhapsody No. 1" (Liszt).
 9.41: "His Master's Voice" dance programme:
 Foxtrot with vocal refrain—Aaronson's Commanders, "My Scandinavian Gal" (Tobias) (H.M.V. EA460).
 Foxtrot with vocal refrain—Shilkret's Orchestra, "My Tonia" (de Sylva) (H.M.V. Record EA478).
 Foxtrot with vocal refrain—Hamp's Kentucky Serenaders, "What D'ya Say?" (Brown) (H.M.V. Record EA460).
 9.51: Tenor solo—Franklyn Baur, "Marie" (Berlin) (Zonophone Record EE135).
 Waltz with vocal refrain—The Troubadours, "Live and Love" (Klages) (H.M.V. Record EA478).
 Wurlitzer organ solo—Jesse Crawford, "Me and the Man in the Moon" (Leslie) (H.M.V. Record EA491).
 Foxtrot with vocal refrain—Shilkret's Orchestra, "I Still Keep Dreaming of You" (Davis) (H.M.V. Record EA461).
 10.4: Bass and chorus—Paul Robeson, "Plantation Songs" (H.M.V. Record C1585).
 Hawaiian—Kolomoku's Honoluluans, "Aloha-Oe" (Laniokalani), (Zonophone Record EF23).

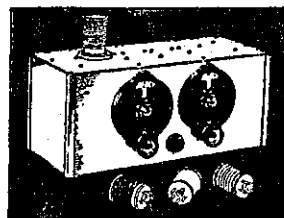
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- Foxtrot with vocal refrain—Shilkret's Orchestra, "Cross Roads" (Klages) (H.M.V. Record EA461).
 Hawaiian—Kolomuku's Honoluluans, "Three O'Clock in the Morning" (Robledo) (Zonophone Record EF28).
 10.17: Tenor solo—Franklyn Baur, "Cross Roads" (Klages) (Zonophone Record EE135).
 Orchestral—London Orchestra, "On With the Show" (Nicholls) (Zonophone Record 5187).
 Wurlitzer organ solo—Reginald Foort, "Worrying" (Fairman) (H.M.V. Record EA491).
 10.30: Tenor solos—Walter Glynn, (a) "Jeunesse" (Barry); (b) "I Love the Moon" (Rubens) (H.M.V. Record B2761).
 Foxtrot—Rhythm Band, "There Are Eyes" (Keyes) (H.M.V. EA469).
 Foxtrot with vocal refrain—Rhythm Eight, "Saskatchewan" (Gilbert), (Zonophone Record EE126).
 Foxtrot with vocal refrain—New Mayfair Dance Orchestra, "Why is the Bacon so Tough?" (Prentice) (H.M.V. Record EA469).
 10.46: Male quartet—Masters Lough and Mallett and Messrs. Dixon and Hastwell, "Drink To Me Only With Thine Eyes" (Arrgd. Ball) (H.M.V. Record B2770).
 Saxophone duet—Rudy Wiedoeft and Arnold Brilhart, "The Swallow" (Zonophone Record EE129).
 Foxtrot with vocal refrain—Aaronson's Commanders, "Ill Get by as Long as I Have You" (Turk) (H.M.V. Record EA466).
 Waltz with vocal refrain—The Troubadours, "Dolores" (Grossman) (H.M.V. Record EA447).
 Foxtrot with vocal refrain—McEnelly's Orchestra, "Sleep, Baby, Sleep" (Tucker) (H.M.V. Record EA466).
 11.0: Close down.

2YA, WELLINGTON (720 KILOCYCLES).—THURSDAY, JULY 18.

- 8 p.m.: Chimes of the G.P.O. clock.
 8.1: Selected gramophone items.
 4.30 and 4.50: Sports results to hand.
 4.55: Close down.
 5.0: Children's session, conducted by Uncle Len.
 6.0: Dinner session:
 Overture—Band, H.M. Grenadier Guards, "Poet and Peasant" (Suppe) (Columbia 9087).
 Soprano solo—Marie Kurenko, "Gounod's Serenade" (Gounod) (Columbia Record 04137).
 6.13: Tacet.
 6.15: Saxophone solo—Rudy Wiedoeft, "Sax-o-Phun" (Wiedoeft) (Columbia 4037).
 Mezzo-soprano solo—Barbara Maurel, "Hindoo Slumber Song" (Ware) (Columbia 01252).
 Waltz—Jacque Jacob's Ensemble, "Over the Waves" (Roses) (Columbia Record 02556).
 6.25: Tacet.
 6.30: Band—H.M. Grenadier Guards, "Neil Gwynne Dances" (German): 1. Country Dance. 2. Pastoral Dance. 3. Merry-makers' Dance (Columbia Records 01329/30).
 Tenor solo—Alfred O'Shea, "Love, Here is My Heart" (Ross) (Columbia Record 03589).
 6.42: Tacet.
 6.45: Cello solos—Gasper Cassado, (a) "Melodie Arabe" (Glazounov); (b) "Le Cygne" (Saint-Saens) (Columbia Record 03579).
 Bass solo—Malcolm MacEachern, "Sittin' Thinkin'" (Tempest) (Columbia Record 01174).
 Band—Royal Italian Band, "Garibaldi's Hymn" (Olivieri) (Columbia Record 01182).
 6.53: Tacet.
 7.0: News session, market reports, and sports results.
 7.40: Lecturette—Miss Inez Connop, "Dancing."
 8.0: Chimes of the G.P.O. clock.
 Studio concert by the Wellington City Salvation Army Band, under the conductorship of Mr. H. Scotney, and assisting artists:
 8.1: March—Band, "Redcliffe" (Hollis).
 Selection—Band, "Gems from St. Paul" (Mendelssohn).
 8.14: Tenor solos—Mr. Chas Williams, (a) "First Primrose" (Grieg); (b) "Lovely Evening" (Grieg).
 8.21: Vocal quartette—Lyric Quartet, "Night" (Schubert).
 8.25: Wurlitzer organ solos—Reginald Foort, (a) "Leave Me Alone" (Dvorak); (b) "Songs My Mother Taught Me" (Dvorak) (H.M.V. Record C1459).
 8.29: Recital—Miss Gracie Kerr, "Blind" (Hubbard).
 8.36: Horn solo with band accompaniment—"O Rest in the Lord" (Mendelssohn).
 8.42: Baritone solo—Mr. Will Goudie, "Vision Fugitive" (Massenet).
 8.46: Soprano solos—Miss Zita Casey, (a) "Nymphs and Shepherds" (Purcell); (b) "The Star" (Rogers).
 8.52: Vocal quartette—Lyric Quartet, "The Deathless Army" (Trotiere).
 8.56: Selection—Band, "American Melodies" (arrgd. Broughton).
 9.2: Weather report.
 9.4: Concerted—Light Opera Company, Gems from "Lilac Time" (Schubert-Clutsum) (H.M.V. Record C1450).
 9.12: Selection—Band, Gems from "The Messiah" (Handel).
 9.20: Vocal duet—Messrs. Will Goudie and W. Binet Brown, "The Army and Navy" (Cooke).
 9.24: Soprano solo—Miss Zita Casey, "I Pitch My Lonely Caravan at Night" (Coates).

- 9.28: Waltz—Dajos Bela Orchestra, "The Swallow" (Strauss) (Parlophone Record A4010).
 9.32: Humour—Miss Gracie Kerr, "The Telegram" (anon.).
 9.38: Selection—Band, "Eventide" (arrgd. Goldsmith).
 9.45: Bass-baritone solos, Mr. W. Binet Brown, (a) "Time to Go" (Sanderson); (b) "Your Mother and I" (Grant).
 9.52: Vocal quartette—Lyric Quartet, "Perfect Day" (Jacobs-Bond).
 9.56: March—Band, "Felding" (Scotney).
 10.0: Close down.

3YA, CHRISTCHURCH (306 METRES).—THURSDAY, JULY 18.

- 3 p.m.: Afternoon session—selected studio items.
 4.25: Sports results to hand.
 4.30: Close down.
 6.0: Children's session, conducted by Uncle John.
 7.0: News session.
 7.30: Lecture—Captain Barlow, "Air Ports."
 8.0: Chimes.
 8.1: Overture—Rebroadcast of 2YA, Wellington.
 8.14: Baritone solo—Mr. F. C. Penfold, "She Alone Charmeth My Sadness" ("Irene") (Gounod).
 8.19: Violin solo—Miss Irene Morris, "Air" ("Concerto") (Goldmark).
 8.23: Soprano solos—Miss Eileen Grennell, (a) "The Cry of Rachel" (Mary Mary Salter); (b) "The Old Refrain" (Kreisler).
 8.29: Orchestral—Victor Symphony Orchestra, "Ramennoi-Ostrow" (Rubinstein) (H.M.V. Record EB10).
 8.33: Tenor solo—Mr. Harold Prescott, "E Lucevan Le Stella" (Puccini).
 8.38: Entertainer—Will Gardner, "That's Another One Gone" (Darewski) (H.M.V. Record B2485).
 8.41: Instrumental—Christchurch Broadcasting Trio, "Andante and Scherzo" ("Trio in D Minor") (Mendelssohn).
 8.51: Mezzo-soprano solos—Miss Merle Miller, (a) "The Little Bells of Seville" (Cyril Scott); (b) "Lake Isle of Innisfree" (Pennicuick).
 8.58: Carillon—W. E. Jordan, (a) "Spring Song" (Mendelssohn); (b) "Country Dance in G Minor" (Newton) (H.M.V. Record B2687).
 9.4: Weather report.
 9.9: Orchestral—Berlin State Opera Orchestra, "Magic Flute" Overture (Mozart) (H.M.V. Record E464).
 9.15: Baritone solos—Mr. F. C. Penfold, (a) "The Arrow and the Song" (Balfe); (b) "I Am Fate" (Hamblen).
 9.22: Violin solo—Miss Irene Morris, "Song Without Words" (Mendelssohn-Kreisler).
 9.26: Soprano solo—Miss Eileen Grennell, "Nightingale of June" (Sanderson).
 9.30: Orchestral—Victor Symphony Orchestra, "Liebestraume" (Liszt) (H.M.V. Record EB10).
 9.34: Tenor solos—Mr. Harold Prescott, (a) "A Night Idyll" (Loughborough); (b) "A Castilian Lament" (Del Riego).
 9.40: Instrumental—Christchurch Broadcasting Trio, (a) "Cantabile" (Widor); (b) "Ballet Music" (Schubert); (c) "Chant Sans Paroles" (Tschalkowsky).
 9.50: Mezzo-soprano solo, Miss Merle Miller, "O Love From Thy Power" ("Samson and Delilah") (Saint-Saens).
 9.55: Solo and chorus—Zonophone Light Opera Company, Vocal Gems from "The Pirates of Penzance" (Sullivan) (Zonophone Record A332).
 10.3: Close down.

4YA, DUNEDIN (463 METRES).—THURSDAY, JULY 18.

SILENT DAY.

Friday, July 19

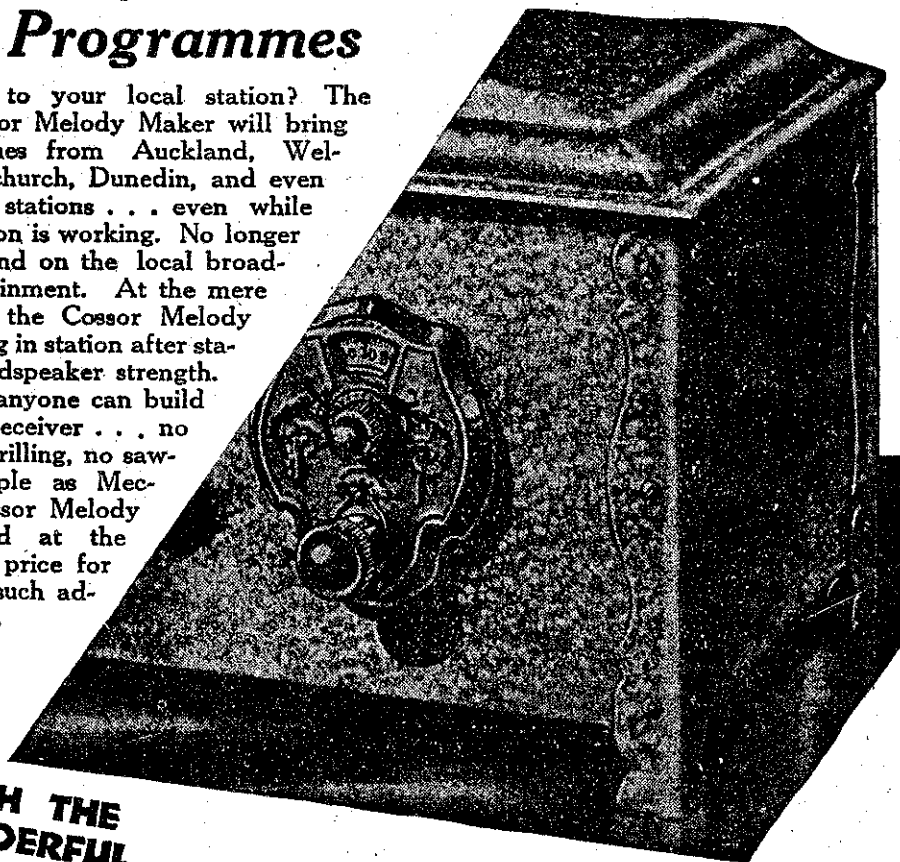
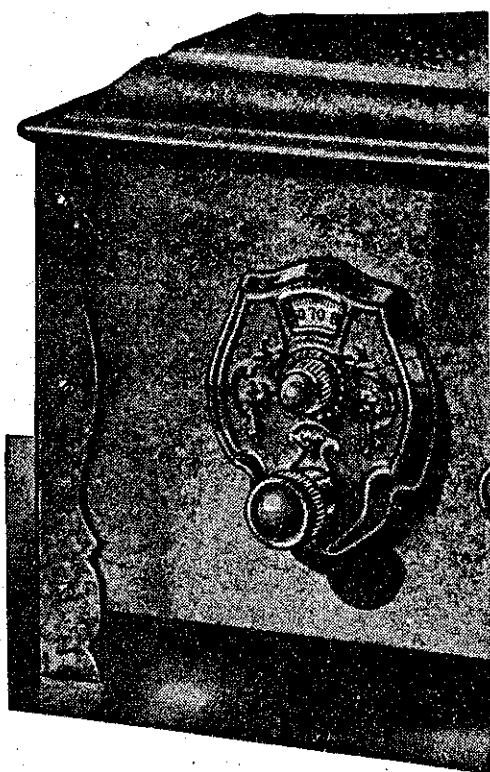
1YA, AUCKLAND (333 METRES).—FRIDAY, JULY 19.

- 3 p.m.: Afternoon session—Selected studio items.
 4.0: Literary selection by the Announcer.
 4.8: Studio items.
 4.25: Sports results to hand.
 4.30: Close down.
 6.0: Children's session conducted by Nod and Aunt Jean.
 7.0: Talk—Mr. Frank Sutherland, "Rugby Football."
 7.15: News and market reports.
 7.40: Talk—Rev. H. A. G. Clarke, "China."
 8.0: Chimes.
 8.1: Overture—Berlin State Opera Orchestra, "The Beautiful Galathea" (Suppe, arr. Ortok) (H.M.V. Record C1527).
 8.9: Vocal quartet—Clarion Quartet, "Genevieve" (traditional).
 8.13: Instrumental—Studio Trio, "Five Modern Songs" (arr. Savino).
 8.22: Bass solo—Mr. Duncan Black, "The Brave Old Oak" (Old English).
 8.26: Grand organ and cornet—Arnold Grier, "The Lost Chord" (Sullivan).
 8.30: Vocal duet—Miss A. McGuire and Mr. J. Simpson, "Hunting Tower" (traditional).
 8.34: Violin solos—Miss Ina Bosworth, (a) "Gavotte" (Gossec), (b) "Admiral's Galliard" (Moffatt).
 8.38: Lecture-recital—Mrs. Daisy Basham and Mr. William Gemmell, "Ethelbert Nevin" (Part 1).

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- 8.53: Selection—H.M. Grenadier Guards Band, "New Sullivan Selection" (arr. Godfrey) (Columbia 02731).
 8.57: Tenor selection—Mr. J. Simpson, "A Boys Best Friend" (Skelly).
 9.1: Weather report.
 9.3: Talk—Mr. A. B. Chappell, M.A., Topical Talk.
 9.18: Soprano solo—Miss Alma McGruer, "Cherry Ripe" (Horn).
 9.22: Russian folk song—Kirilloff's Balalaika Orchestra, "Shining Moon" (traditional) (H.M.V. Record EA48).
 9.26: Vocal duet—Miss Beryl Smith and Mr. D. Black, "Gipsy Countess" (traditional).
 9.30: Instrumental—Studio Trio, "Trio in C Minor—First Movement" (Mendelssohn).
 9.39: Lecture-recital—Mrs. D. Basham and Mr. W. Gemmell, "Ethelbert Nevin" (Part 2).
 9.51: Contralto solo—Miss Beryl Smith, "Barbara Allan" (traditional).
 9.54: Orchestral—Chicago Symphony Orchestra, "Largo—Xerxes" (Handel) (H.M.V. Record D1432).
 9.58: Vocal quartet—Clarion Quartet, "Musical Switch" (Old Songs, arr. "Clarions").
 10.2: Close down.

2YA, WELLINGTON (720 KILOCYCLES)—FRIDAY, JULY 19.

- 8 p.m.: Chimes of the G.P.O. clock.
 3.1: Selected gramophone items.
 3.40: Relay from Messrs. Kirkcaldie and Stains' Tearooms of music by the Trio.
 4.0: Selected gramophone items.
 4.30 and 4.50: Sports results to hand.
 4.55: Close down.
 5.0: Children's session conducted by Big Brother Jack.
 6.0: Dinner session:
 Orchestral—New Queen's Hall Orchestra, "Peer Gynt Suite": (1) Morning, (2) Death of Ase (Grieg) (Columbia Record L1516).
 Soprano solo—Marie Kurenko, "Villanelle" (I've Seen the Swallows Pass) (Dell'Acqua) (Columbia Record 04137).
 6.13: Tacet.
 6.15: Violin solos—Sascha Jacobsen, (a) "Pale Moon" (Logan), (b) "To a Wild Rose" (MacDowell) (Columbia Record 01146).
 Trio and chorus—Stracciari, Appoloni, and Ticozzi, "Toreador's Song" ("Carmen"—Bizet) (Columbia Record 04173).
 6.25: Tacet.
 6.30: Orchestral—Court Symphony Orchestra, "The Gondoliers" Selection (Sullivan) (Columbia Record 979).
 Solo and chorus—Virginia Perry, "The Merry Widow—Vilia" (Lehar) (Columbia Record 01175).
 6.41: Tacet.
 6.45: Orchestral—Columbia Symphony Orchestra, (a) "Al Fresco" (Herbert), (b) "Bandinage" (Herbert) (Columbia Record 01092).
 Soprano and male quartet—Norah Blaney and Ramblers, "Just Like Darby and Joan" (Leslie) (Columbia Record 01170).
 Waltz—Jacque Jacobs's Ensemble, "Espana Waltz" (Strauss) (Columbia Record 02560).
 7.58: Tacet.
 7.0: News session—Market reports and sports results.
 7.40: Lecturette—Mr. Dan McKenzie, "The Laws of Rugby."
 8.0: Chimes of the G.P.O. clock.
 Special presentation by the Etude Quartet of the musical comedy "The Cabaret Girl" (Jerome Kern):
 8.1: Overture—Orchestra, "The Cabaret Girl" (Kern).
 8.9: Baritone solo—Mr. Ray Kemp, "First Rose of Summer" (Kern).
 8.13: Pianoforte solo—Miss Eileen Goodson, "Alceste Caprice" (Saint-Saens).
 8.20: Contralto solo—Mrs. Ray Kemp, "Kalua" (Kern).
 8.24: Humour—Mr. and Mrs. Albert Russell, (a) "My Word! You Do Look Queer" (Weston Lee), (b) "Keep Your Face to the Sunshine" (Elliott).
 8.31: Selection—Orchestra, "Dollar Princess" (Fall).
 8.39: Vocal duet—Mr. Will Hancock and Mrs. Ray Kemp, "Journey's End" (Kern).
 8.43: Tenor solo—Mr. Will Hancock, "At the Ball" (Kern).
 8.47: Instrumental—Victor Olof Sextet, (a) "Cherry Ripe" (Scott), (b) "Minuet" (Boccherini).
 8.51: Soprano solo—Miss Gretta Stark, "Dancing Time" (Kern).
 8.55: Instrumental—Orchestra, "Master Melodies from Famous Light Operas" (arr. Roberts).
 9.3: Weather report.
 9.5: Soprano solo, followed by soprano and tenor duet—Miss Gretta Stark and Mr. Will Hancock, "Shimmy With Me" (Kern).
 9.9: Vocal duet—Mr. and Mrs. Ray Kemp, "Looking All Over for You" (Kern).
 9.13: Violin solos—Fritz Kreisler, (a) "Indian Love Call" (Friml), (b) "Deep in My Heart, Dear" (Romberg) (H.M.V. Record B985).
 9.21: Humour—Mr. and Mrs. Albert Russell, "Thank Heaven We Have Men Like —" (Weston Lee).
 Duet—Mr. and Mrs. Albert Russell, "You Can Feel It's Doing You Good" (by request).
 9.23: Cornet and trombone duet with orchestral accompaniment, "Barcarolle" ("Tales of Hoffman"—Offenbach).
 9.32: Vocal duet—Messrs. Will Hancock and Ray Kemp, "Forgive Me If I Speak" (Kern).
 9.36: Baritone solo with chorus—Mr. Ray Kemp and Etude Quartet "London, Dear Old London" (Kern).

- 9.40: Chorus—Etude Quartet, "Dancing Time" (Kern).
 9.44: Grand organ solos—Edwin H. Lemare, (a) "Andantino in D Flat" (Lemare), (b) "Traumerel" (Schumann) (H.M.V. Record C1455).
 9.52: Instrumental—Orchestra, "Mayfair and Montmartre" Selection (Cochran).
 10.0: Close down.

3YA, CHRISTCHURCH (306 METRES)—FRIDAY, JULY 19.

- 3 p.m.: Afternoon session—Selected gramophone items.
 4.25: Sports results to hand.
 4.30: Close down.
 6.0: Children's session conducted by "Storyman."
 7.0: News session.
 8.0: Chimes.
 Studio Concert by the Commercial Travellers' Male Choir and Concert Party:
 8.1: Overture (rebroadcast of 2YA, Wellington) — "The Cabaret Girl" (Kern).
 8.9: Part-song—Male Choir (under the conductorship of Mr. Alfred Worsley), "Sailor's Song" (Parry).
 8.14: Soprano solos—Miss Merle Parry, (a) "Happy Song" (Del Riego), (b) "The Cuckoo" (Lehmann).
 8.21: Instrumental—Savoy Orpheans, "Hit the Deck" Selection (Youmans) (H.M.V. Record C1408).
 8.25: Recital—Mr. A. E. Romerill, "The Gardener's Story" (MS.).
 8.31: Bass solo—Mr. W. H. Taylor, "The Tune of the Open Country" (Easthope-Martin).
 8.35: Xylophone solo—Victor Sterling, "Colonel Bogey" (Alford) (Regal Record G20103).
 8.39: Part-song—Male Choir, "Minnesingers" (Leslie).
 8.44: Baritone solo—Mr. W. Toomey, "The Diver" (Long).
 8.48: Violin solo—Mr. Robert L. Clarke, "Romance" (Simonette).
 8.53: Contralto solo—Miss Maggie Richardson, "The Boatmen of the Forth" (Gray).
 8.57: Sea song—Mr. W. Drake, "The Stoker" (Arundale).
 9.1: Medley—Savoy Orpheans, "Round the World" (Somers) (H.M.V. Record C1223).
 9.5: Weather report.
 9.10: Part-song—Male Choir, "In a Gondola" (Linders).
 9.14: Medley—Savoy Orpheans, "Round the World" (arr. Somers) (H.M.V. Record C1223).
 9.17: Baritone solos—Mr. K. W. Connor, (a) "Fairings" (Easthope-Martin), (b) "Duna" (McGill).
 9.24: Mezzo-soprano solo—Miss Merle Parry, "Pale Moon" (Logan).
 9.28: Xylophone solo—Victor Sterling, "Great Little Army" (Alford) (Regal Record G20103).
 9.32: Recital—Mr. A. E. Romerill, "The Twelve Stone Limit" (MS.).
 9.37: Tenor solo—Mr. G. W. Parry, "For You Alone" (Gheel).
 9.41: Selection—Savoy Orpheans, "Hit the Deck" (Youmans) (H.M.V. Record C1408).
 9.45: Part-song—Male Choir, "To Arms" (Mauder).
 9.49: Contralto solo—Miss Maggie Richardson, "My Laddie" (Thayer, arr. Lawson).
 9.52: Violin solo—Mr. Robert L. Clarke, "Canzonetta" (Kreisler).
 9.57: Baritone solo—Mr. W. Toomey, "Indian Serenade" (Glen).
 Part-song—Male Choir, "The Camel and the Butterfly" (Hilton).
 10.0: "Brunswick" Dance Programme:
 Foxtrot with vocal chorus—Brunswick Orchestra, "I'd Rather Be Blue" (Rose) (Brunswick 4213).
 Foxtrot—Red Nicholls and His Five Pennies, "I Never Knew" (Kahn) (Brunswick 4243).
 Foxtrot with vocal chorus—Brunswick Orchestra, "My Man" (Pollack) (Brunswick 4213).
 10.10: Vocal solo—Nick Lucas, "Heart o' Mine" (Rose) (Brunswick 4215).
 Foxtrot with vocal chorus—Los Angeles Biltmore Hotel Orchestra, "Wedding of the Painted Doll" (Brown) (Brunswick 4232).
 Foxtrot with vocal chorus—Los Angeles Biltmore Hotel Orchestra, "Broadway Melody" (Brown) (Brunswick 4231).
 Waltz with vocal trio—Los Angeles Biltmore Hotel Orchestra, "Love Boat" (Brown) (Brunswick 4232).
 10.22: Vocal solo—Nick Lucas, "Old Timer" (Rose) (Brunswick 4215).
 Foxtrot with vocal trio—Los Angeles Biltmore Hotel Orchestra, "You Were Meant for Me" (Brown) (Brunswick 4231).
 Foxtrot—The Jungle Band, "Tiger Rag" (La Rocca) (Brunswick 4238).
 10.34: Tenor solo—William O'Neal, "Softly, as in a Morning Sunrise" (Romberg) (Brunswick 4208).
 Foxtrot—Barnes's Royal Creolians, "It's Tight Like That" (Dorsey) (Brunswick 4244).
 Foxtrot with vocal chorus—Paramount Hotel Orchestra, "I'll Never Ask for More" (Turk) (Brunswick 4203).
 Foxtrot with vocal chorus—Hotel Roosevelt Orchestra, "I Want to be Bad" (de Sylva) (Brunswick 4204).
 One-step—Rhythm Aces, "Jazz Battle" (Smith) (Brunswick 4244).
 10.49: Tenor solo—William O'Neal, "Stout-hearted Men" (Romberg) (Brunswick 4208).
 Foxtrot with vocal chorus—Paramount Hotel Orchestra, "When the World is at Rest" (Davis) (Brunswick 4203).
 Foxtrot with vocal chorus—Hotel Roosevelt Orchestra, "Button Up Your Overcoat" (de Sylva) (Brunswick 4204).

Foxtrot—Red Nicholls and His Five Pennies, "Who's Sorry Now?" (Kalmar) (Brunswick 4243).

11.9: Close down.

4YA, DUNEDIN (463 METRES)—FRIDAY, JULY 19.

8 p.m.: Town Hall chimes.

8.1: Selected gramophone items.

8.15: Talk on "Fashions" by Miss Buccleuch, of the D.S.A., Ltd.

8.25: Sports results to hand.

8.30: Close down.

8.0: Children's session conducted by Aunt Sheila and Big Brother Bill.

7.0: News session.

6.0: Town Hall chimes.

8.1: Overture—Royal Philharmonic Orchestra, "Lohengrin—Introduction to Act 3" (Wagner) (Columbia Record LI962).

8.5: Presentation by the 4YA Harmonists of the song cycle "More Daisies" (Liza Lehmann):

Cast:

Soprano Miss Mae Matheson

Mezzo-soprano Miss Mollie Andrews

Tenor Mr. H. A. Johnston

Baritone Mr. F. M. Tuohy

8.40: Instrumental—4YA Broadcasting Trio, "Berceuse" (Ilinsky).

8.46: Recitals—Mr. Lester Moller, (a) "He Fell Among Thieves" (Newbolt), (b) "The Seekers" (Masefield).

8.56: Orchestral—Mandolin Band, "Semiramide" Overture (Rossini) (Columbia Record 03667).

9.4: Weather report.

9.6: Violin solo—Miss Eva Judd, "Old Folks at Home" (arr. Kreisler).

9.11: Tenor solo—Mr. H. A. Johnston, "Black-Petalled Roses" (Sibelius).

9.15: Relay from Ritz of special orchestral feature.

9.25: Chorus—Grand Irmier Choir, "Spinning Chorus—The Flying Dutchman" (Wagner) (H.M.V. Record DI517).

9.29: Instrumental—4YA, Broadcasting Trio, "Hungarian Dances Nos. 6 and 7" (Brahms).

9.35: Soprano solo—Miss Mae Matheson, "A Legende" (Tschalkowsky).

9.39: Pianoforte solo—Mrs. Ernest Drake, "Liebestraume No. 3" (Liszt).

9.44: Recital—Mr. Lester Moller, Selection from "Henry VIII." (Shakespeare).

9.50: 'Cello solo—Mr. P. J. Palmer, "Arlequin" (Popper).

9.54: Band selection—H.M. Grenadier Guards, "The Meistersingers" (Wagner) (Columbia Record 02697).

10.4: Close down.

Saturday, July 20

1YA, AUCKLAND (333 METRES)—SATURDAY, JULY 20.

2.45 p.m.: Relay description of Rugby football match from Eden Park.

4.30 (approx.): Close down.

6.0: Children's session, conducted by Cinderella.

7.0: News session—Market reports and sports results.

7.40: Talk—Mr. G. D. Rutter, "The Flower Garden."

8.0: Chimes.

8.1: Overture—Studio Orchestra, "Light Cavalry" (Suppe).

8.11: Novelty—Bohemian Duo, (a) "Promise Me" (Van Cooth); (b) "Me and the Man in the Moon" (Monaco).

8.19: Wurlitzer organ solo—Jesse Crawford, "I Can't Do Without You" (Berlin) (H.M.V. Record EA404).

8.22: Comedy sketch—Auckland Comedy Players, "Who's Your Husband?"

8.42: Orchestral—Studio Orchestra, "Molloy's Songs" (Arrgd. Baynes).

8.52: Baritone solos—Mr. Hartley Warburton, (a) "Retrospect" (Schubert); (b) "Floral Dance" (Moss).

8.59: Weather report.

9.1: Orchestral—New Light Symphony Orchestra, "Malaguena" (Spanish Dance) (Moszkowski).

9.5: Novelty—Bohemian Duo, (a) "Flower of Love" (MS); (b) "Music in the Moonlight" (MS).

9.13: Comedy sketch—Auckland Comedy Players, "Statics."

9.23: Violin solo with orchestral accompaniment—Studio Orchestra, "Weeping Willow Lane" (McKinley).

Cornet solo with orchestral accompaniment—Studio Orchestra, "The Lost Chord" (Sullivan).

9.33: Baritone solo—Mr. H. Warburton, "The Admiral's Yarn" (Sanderson).

9.37: Orchestral—Columbia Symphony Orchestra, (a) "Al Fresco" (Herbert); (b) "Badinage" (Herbert) (Columbia Record 01092).

9.42: Humour—Mr. J. F. Montague—"A Meandering of Monty."

9.49: Dance suite—Studio Orchestra, "Jevington Suite" (Loughborough).

10.0: "His Master's Voice" dance programme:

Orchestral—Piccadilly Orchestra, "My Beloved Gondolier" (Tibor) (H.M.V. Record B2575).

Orchestral—De Groot and Piccadilly Orchestra, "If Only I Had You" (Davies) (H.M.V. Record B2713).

Vocal duet—Maurice and Sydney, "I'm Going Back to Old Nebraska" (Sissle) (Zonophone Record EE117).

10.10: Chorus—Ever-ready Hour Group, "Down South" (Myddleton) (Zonophone EF8).

Tenor solo—Franklyn Baur, "I'm Away From the World" (Olare) (Zonophone Record EE107).

Wurlitzer organ solo—Chas. W. Saxby, "Can't You Hear Me Say I Love You?" (Derickson) (Zonophone Record 5094).

10.20: Mixed voices—The Revellers, Gems from "Tip Toes" (Gershwin) (H.M.V. Record C1293).

Foxtrot—Arcadians' Dance Orchestra, "Chilly-Pom-Pom-Pee" (Bryan) (Zonophone 5169).

Foxtrot with vocal refrain—Edwin J. McEnelly's Orchestra, "What Are We Waiting For Now?" (Kortlander) (H.M.V. Record EA322).

10.29: Concerted—Light Opera Company, Gems from "Sunny" (Kern) (H.M.V. Record C1293).

Vocal duet—Johnny Marvin and Ed. Smalle, "Mary Ann" (Davis-Silver) (H.M.V. Record EA339).

Baritone solo—Jack Smith, "The Best Things in Life Are Free" (de Sylva) (H.M.V. Record EA332).

10.39: Bass solo—Paul Robeson, "Down De Lovers' Lane" (Cook) (H.M.V. Record B2777).

Violin solo—Fritz Kreisler, "Indian Love Call" (Friml) (H.M.V. Record DA785).

Wurlitzer organ solo—Jesse Crawford, "My Blue Heaven" (Donaldson) (H.M.V. Record EA284).

Hawaiian—Hilo Hawaiian Orchestra, "Aloma" (Bowers), (H.M.V. Record EA310).

10.52: Chorus—Victor Arden, Phil Ohman, chorus and orchestra, Selections from "Good News" (de Sylva) (H.M.V. Record EB28).

Foxtrot with vocal refrain—Victor Salon Orchestra, "Where's My Meyer?" (Wolfe) (H.M.V. Record EA267).

Orchestral—Victor Salon Orchestra, "The World is Waiting for the Sunrise" (Lockhart) (H.M.V. Record EA186).

11.0: Close down.

2YA, WELLINGTON (720 KILOCYCLES)—SATURDAY, JULY 20.

3.0 p.m.: Chimes of the G.P.O. clock.

3.1: Relay description of football match from Athletic Park.

5.0: Children's session, conducted by Uncle Toby and Aunt Gwen.

6.0: Dinner session:

Waltz—Royal Philharmonic Orchestra, "Blue Danube" (Strauss) (Columbia Record 04169).

Soprano and male quartet—Norah Blaney and The Ramblers, "Sweet Suzanne" (Leslie) (Columbia Record 01170).

6.12: Tacet.

6.15: Foxtrot—Ben Selvin's Orchestra, "In My Bouquet of Memories" (Akst) (Columbia Record 01137).

Whispering solo—Jack Lumsdaine, "Like a Bird That's on the Wing" (Russell) (Columbia Record 01185).

Saxophone solo—Andy Sanella, "Jack and Jill" (Sanella) (Columbia Record 01186).

6.24: Tacet.

6.30: Hawaiian—Guitar, banjo and ukulele trio, "My Hawaii" (Lewis), (Columbia Record 3606).

Hawaiian—South Sea Islanders, "The Call of Aloha" (Hyatt) (Columbia Record 01014).

Tenor solo—Jack Melton, "When Love Comes Stealing" (Pollack) (Columbia Record 01215).

Novelty foxtrot—Debroy Somers' Band, "Laughing Marionette" (Collins) (Columbia Record 01341).

6.42: Tacet.

6.45: Orchestral—Ketilbey's Concert Orchestra, "Sanctuary of the Heart" (Ketelbey) (Columbia Record 02690).

Tenor solo—Alfred O'Shea, "Macushla" (Rowe) (Columbia Record 03586).

6.56: Tacet.

7.0: News session, market reports and sports results.

8.0: Chimes of the G.P.O. clock, Wellington.

Special presentation of the revue "Mirthquakes" by the 2YA Revue Company.

8.1: Overture—Orchestra, "Musical Switch" (Alford).

8.10: Opening chorus by the company.

8.15: Comedy song and chorus—"On the Banks of the Brahmaputra" (Jordan).

8.20: Sketch—"The Hat Trick" (Peach).

8.25: Baritone solo—"Grendon Fair" (Marie).

8.28: Instrumental—Orchestra, "Blue Bells of Scotland Paraphrase" (Langley).

8.37: Comedian—"I Mean to Say" (Robey).

8.41: Sketch—"All Jam" (Peach).

8.46: Hawaiian—Messrs. Berthold and Bent, (a) "The Blue Room" (Weston and Lee); (b) "Blue Skies" (Berlin).

8.53: Sketch, "Love or Lucra" (Peach) (By request).

9.0: Weather report.

9.2: Instrumental—Orchestra, Repeat number.

9.10: Comedy song and chorus, "The Bolsheviks" (Cedra).

9.15: Sketch—"A Dog's Life" (Titheradge).

9.20: Baritone solo—"Old Clothes and Fine Clothes" (Shaw).

9.23: Sketch—"The House Agent" (Grace).

9.33: Hawaiian—Messrs. Berthold and Bent, (a) "Chiquita" (Gilbert); (b) "Jeannine, I Dream of Lilac Time" (Shilkret).

9.40: Sketch—"While You Wait" (Peach).

9.45: Selection—Orchestra, "The Blue Kitten" (Friml).

9.53: Humour—"Mrs. 'Arris" (Poultney).

10.0: Instrumental—Orchestra, Dance Novelties.

10.10: "His Master's Voice" dance programme:

Foxtrot with vocal refrain—Arcadians' Dance Orchestra, "Bluebird, Sing Me a Song" (Davis) (Zonophone 5201).

- Foxtrot with vocal chorus—Bert Firman's Dance Orchestra, "Cause I'm in Love" (Donaldson) (Zonophone EE123).
 Foxtrot with vocal chorus—Jack Hylton's Orchestra, "Forty-seven Ginger-headed Sailors" (Sarony), (H.M.V. Record EA448).
 10.20: Tenor solo—Franklyn Baur, "At Dawning" (Cadman), (Zonophone Record 5204).
 Foxtrot with vocal chorus—Bert Firman's Orchestra, "I'm a Broken-Hearted Black Bird" (Fields) (Zonophone Record EE123).
 Foxtrot—All Star Orchestra, "There's a Rainbow 'Round My Shoulder" (Olson) (H.M.V. Record EA436).
 Waltz with vocal refrain—Arcadians' Dance Orchestra, "Nicolette" (Batten) (Zonophone Record 5201).
 10.23: Male chorus—"Over There" medley (H.M.V. Record EE33).
 Hawaiian—Hilo Hawaiian Orchestra, (a) "Kawaihau Waltz" (Kealakai); (b) "My Hula Love" (H.M.V. Record B2799).
 Male voices—Salon Group, "Sonny Boy" (Jolson) (H.M.V. Record EA35).
 10.35: Wurlitzer organ solo—Jesse Crawford, "A Dream" (Bartlett) (H.M.V. Record EA488).
 Foxtrot—All Star Orchestra, "She Didn't Say Yes, She Didn't Say No" (Strong) (H.M.V. Record EA436).
 Waltz with vocal chorus—Waring's Pennsylvanians, "Just Another Night" (Donaldson) (H.M.V. Record EA462).
 Male voices—Salon Group, "Jeannine, I Dream of Lilac Time" (Gilbert) (H.M.V. Record EE35).
 Wurlitzer organ solo—Jesse Crawford, "Amapola" (Poppy), (Lacalle) (H.M.V. Record EA488).
 Foxtrot—Waring's Pennsylvanians, "I'm Sorry, Sally" (Kahn) (H.M.V. Record EA462).
 Waltz—Arcadians' Dance Orchestra, "Couldn't You Have Waited?" (Mitchell) (Zonophone Record 5215).
 10.57: Male trio—Melody Three, "Pals, Just Pals" (Dreyer) (Zonophone Record EE133).
 Foxtrot with vocal refrain—Arcadians' Dance Orchestra, "Juanita" (Flynn) (Zonophone 5215).
 11.0: Close down.

3YA, CHRISTCHURCH (306 METRES).—SATURDAY, JULY 20.

3 p.m.: Afternoon session—selected studio items.

- 4.25: Sports results to hand.
 4.30: Close down.
 6.0: Children's session, conducted by Aunt Pat, Jack Frost, and Sunny Jim.
 7.0: News session.
 7.30: Sports results to hand.
 8.0: Chimes.
 8.1: Overture—Rebroadcast of 2YA, Wellington, "Musical Switch" (Alford).
 8.10: Male quartet—Beckenham Male Quartet, "Thuringian Volkslied" (Abt).
 8.14: Popular song and duet to piano and ukulele accompaniment, The Joyous Duo, (a) "The Blue Room" (Rogers); (b) "Sometimes I'm Happy" (Youmans).
 8.21: Piano-accordion solo—R. Lo Guidice, "Over the Waves" Waltz (MS).
 8.25: Baritone solo—Mr. K. G. Archer, "Live for To-day" ("The Maid of the Mountains") (Simson).
 8.29: Vocal quartette—Beckenham Male Quartet, "Sweet and Low" (Barnby).
 8.33: Dance music—Italian Jazz Trio, (a) one step, "Song of the Vagabonds" ("The Vagabond King") (Friml); (b) "High Up On The Hill-top" (MS).
 8.40: Soprano solos—Miss Sylvia Angus, (a) "Sing, Joyous Bird" (Phillips); (b) "Daffodil Time" (Gritton).
 8.46: Waltz with vocal chorus—The Troubadours, "When Love Comes Stealing" (Rapee) (H.M.V. EA410).
 8.49: Entertainer—Mr. Charles Lawrence will entertain you.
 8.57: Weather report.
 9.2: Dance music—Italian Jazz Trio, (a) one-step, "Sally of My Dreams" (MS); (b) foxtrot, "Get Out and Get Under the Moon" (MS).
 9.9: Male quartet—Beckenham Male Quartet, "When Father Laid the Carpet on the Stairs" (Jackson).
 9.13: Popular songs and duet to piano and ukulele accompaniment—Joyous Duo, (a) "Huguette Waltz" ("The Vagabond King") (Friml); (b) "Old Man Sunshine" (Warren).
 9.20: Orchestral—Jack Hylton's Orchestra, "The Selfish Giant" (Coates) (H.M.V. C1253).
 9.28: Humorous song—Mr. E. R. Pitman, "Riding on Top of the Car" (MS).
 9.32: Dance music—Italian Jazz Trio, (a) "Girl of My Dreams" (MS); (b) "Me and the Man in the Moon" (MS).
 9.39: Entertainer—Mr. Charles Lawrence will again entertain.
 9.45: Dance orchestra—De Groot's Orchestra, "If Only I Had You" (Davies) (H.M.V. B2713).
 9.48: Soprano solos—Miss Sylvia Angus, (a) "Piper of Love" (Carew); (b) "String of Pearls" (Phillips).
 9.53: Male quartet—Beckenham Male Quartet, (a) "Never Mind" (Bream and Saunders); (b) "Little Tommy" (Macey).
 10.0: Dance music by the Italian Jazz Trio.
 11.0: Close down.

4YA, DUNEDIN (463 METRES).—SATURDAY, JULY 20.

- 2.45 p.m.: Relay of senior Rugby football match from Carisbrook Ground.
 4.45: Close down.
 6.0: Children's session, conducted by Uncle George.
 7.0: News session.

- 8.0: Relay of 3YA, Christchurch (vaudeville programme).
 10.0: "His Master's Voice" dance programme:
 Foxtrot—Jack Hylton's Orchestra, "Swords and Sabres" (Bennett) (H.M.V. B5160).
 Foxtrot with vocal chorus—Rhythmic Eight, "Possibly" (Gibbons) (Zonophone EE97).
 Wurlitzer Organ solo—Jesse Crawford, "Jeannine, I Dream of Lilac Time" (Gilbert) (H.M.V. EA425).
 10.9: Baritone solo—Peter Dawson, "Believe Me If All Those Endearing Young Charms" (Moore) (H.M.V. DA886).
 Wurlitzer organ solo—Jesse Crawford, "Ten Little Miles from Town" (Kahn) (H.M.V. EA426).
 Foxtrot—Jack Hylton's Orchestra, "Babying You" (Ruby) (H.M.V. B5160).
 Waltz with male quartet—The Troubadours, "Beggars of Life" (Brenan) (H.M.V. EA441).
 10.24: Tenor solo—Jno. McCormack, "Mother Machree" (Ball) (H.M.V. DA958).
 Tango Argentino—International Novelty Orchestra, "El Choclo" (Viloido) (H.M.V. EA364).
 Waltz—The Troubadours, "Cielito Lindo" (Beautiful Heaven) (H.M.V. EA349).
 Foxtrot with vocal refrain—Kahn's Orchestra, "In a Bamboo Garden" (Donaldson) (H.M.V. EA435).
 10.36: Scottish comedian—Sir Harry Lauder, "The Pirate" (Lauder) (H.M.V. D1434).
 Chorus with orchestra—Light Opera Company, "Hit the Deck" Vocal Gems (Youmans) (H.M.V. C1433).
 Foxtrot—Jack Hylton's Orchestra, "Don't Forget" (Hanley) (H.M.V. B5159).
 Foxtrot with vocal chorus—Rhythmic Eight, "There's a Ricketty Ricketty Shack" (Tobias) (Zonophone EE97).
 Hawaiian—Ferrer and Paaluh, "Kilima Waltz" (trdtl.) (H.M.V. B2369).
 Marimba orchestra—"When It's Love Time in Hawaii" (Heagney) (Zonophone 3852).
 Foxtrot—Paul Whiteman's Orchestra, "O, Ya, Ya" (Klages) (H.M.V. EA340).
 Foxtrot—Shilkret's Orchestra, "Sometime's I'm Happy" (Youmans) (H.M.V. EA253).
 11.0: Close down.

Sunday, July 21

1YA, AUCKLAND (333 METRES), SUNDAY, JULY 21.

3 p.m.: Afternoon session—Selected studio items.

- 4.0: Literary selection by the Announcer.
 4.8: Further studio items.
 4.30: Close down.
 6.0: Children's session, conducted by Uncle Leo.
 6.55: Relay of Divine Service from Pitt Street Methodist Church. Preacher, Rev. L. B. Dalby; organist, Mr. Bickerton; choirmaster, Mr. Leather.
 8.30 (approx.): Selected studio items.
 9.45: Close down.

2YA, WELLINGTON (720 KILOCYCLES).—SUNDAY, JULY 21.

3.0 p.m.: Afternoon session—Selected studio items.

- 4.30: Close down.
 6.0: Children's Sunday service, conducted by Uncle George.
 7.0: Relay of service from Terrace Congregational Church:
 Preacher: Rev. C. Wickham.
 Organist and Choirmaster: Mr. Harry Brusey.
 8.15 (approx.): Relay from the Grand Opera House, Wellington of concert by the Port Nicholson Silver Band, under the conductorship of Mr. J. J. Drew.
 Close down.

3YA, CHRISTCHURCH (306 METRES), SUNDAY, JULY 21.

3 p.m.: Afternoon session—Selected gramophone items.

- 4.30: Close down.
 5.30: Children's song service.
 6.15: Hymn chimes from the studio.
 6.30: Relay of service from St. Mary's Anglican Church, Merivale. Preacher, Rev. H. Williams. Organist and musical director, Mr. Alfred Worsley.
 7.45 (approx.): Studio concert.
 Mezzo-soprano solo—Miss Anita Graham, "How Lovely Are Thy Dwellings" (Liddle).
 Instrumental—Christchurch Broadcasting Trio, (a) "Minuet," (b) "Gavotte," (c) "Valse Russe," (d) "Hornpipe" (Bridge).
 Mezzo-soprano solos—Miss Anita Graham, (a) "A Birthday" (Woodman); (b) "The Wild Rose" (Schubert).
 8.15 (approx.): Rebroadcast of 2YA, Wellington (relay from Grand Opera House, Wellington, of recital by the Port Nicholson Silver Band under the conductorship of Mr. J. J. Drew).
 Close down.

Rhyme Making Children's Competition

Children's Sessions

When you hear them coming in,
well, you ought to listen in,
Or you won't deserve a programme any more.

WEDNESDAY, JULY 17:

Sydie Wren, a girl if you please,
Can talk through the "mike" like
Demosthenes;

Edna Perrett, she's not very old,
Can sing like a bird with a voice
of gold;

Nell Barth, at the piano sitting,
Has fingers like fairies across
May flowers flitting;

And these three girls, it's enough
to say,

Will now entertain you from 4YA.

FRIDAY, JULY 19:

Here comes some of Aunt Shiela's
little ones,

Saying bits of poetry and sing-
ing little songs,

You'll be made happy by Auntie
Shiela's little ones,

If you listen on the night to
which this programme belongs.

SATURDAY, JULY 20:

The Girl Guides with shoulders
swinging,

Hearty laughter, splendid singing,
With jokes and fun their voices
ringing,

Down from Kaikorai.

FOR short-wave work it often pays
to experiment with the value of
the grid condenser, as generally a very
much smaller condenser can be used
than when an ordinary set is employ-
ed.

WHERE binocular coils, astatic coils,
or the so-called fieldless coils are
used, the amount of screening required
for B.F. stages is correspondingly re-
duced.

Think of the Future

Every man should make a will
so that his wife and family's
future will be safeguarded and
his wishes and bequests car-
ried out to the smallest detail.
There is an interesting little
book, issued by the Public
Trustee, entitled

"A Vital Business Matter"

It tells all the "whys and
wherefores" of making a will
and contains a lot of valuable
information for the business
man.

Free copies may be obtained
from any Office or Agent of
the Public Trustee, or post
free from the Public Trustee,
Wellington.

F-6.

FROM 1YA.

TUESDAY, JULY 16: Uncle George in
full swing to-night and Cousin Ross
present with his banjo. The boys
will be interested in the talk "How
to Become a Carpenter."

WEDNESDAY: To-night you'll hear it.
Hear what? "As I was coming
round the corner I heard somebody
say, 'Look out, here comes old
Uncle Tom; He's off to 1YA.'"

THURSDAY: Tune in for the fun to-
night. More catches and puzzles,
so keep wide awake or you'll get
caught by Peter Pan and Cinder-
ella. Jolly songs from some of our
jolly cousins.

FRIDAY: Nod and Aunt Jean will
entertain the Radio Family this
evening with songs and stories.

SATURDAY: Cinderella invites Radio-
land to spend the Happy Hour with
her, Uncle Mack and Cousin Lois
this evening. Sad to say, it is
probably the last time we shall
hear Uncle Mack before he leaves
New Zealand, but we wish him
the best of luck in his new home.

SUNDAY: Children's Song Service con-
ducted by Uncle Leo, assisted by
cousins from Kingsland Methodist
Sunday School.

2YA SESSIONS.

MONDAY, JULY 15:

The birthday messages to-night
will be from Uncle Jeff, and the
music will be from some new
cousins—the pupils of Miss Mar-
jorie King.

TUESDAY:

To-day is the Second Birthday of
2YA, so we are having a little
party with a cake. Yes, a real
birthday cake and two candles.
There will be a birthday song,
too. The words and music are
by Joye Taylor, and it will be
sung by some little cousins. All
the uncles will be here, and
marching along with their jolly
music will be the Mouth-organ
Symphony Orchestra.

THURSDAY:

Uncle Len to-night, and old
friends, the Technical College
Choir, under Mr. V. Evans, will
sing some of their enjoyable two-
part songs.

FRIDAY:

Big Brother Jack with his Happy
Song, and one of Miss Halliday's
jolly little programmes of music
and story.

SATURDAY:

Uncle Toby and Aunt Gwen to
greet you. Jumbo will read a
story, and the pupils of Miss Ivy
Hoare will give one of their de-
lightful programmes.

SUNDAY:

The Children's Song Service will
be conducted by Uncle George, as-
sisted by the Island Bay Presby-
terian Sunday School Choir, under
Mr. D. Connor.

FROM 3YA.

MONDAY, JULY 15:

A Radio Aunt called "Dear
Scatterjoy"

At bed-time a bright hour will
employ—

In giving delight on this Monday
night

To each wee radio girlie and boy.

WEDNESDAY:

Each Wednesday night the little
ones will all thank

Young Mother Hubbard and Old
Uncle Frank,

Who both come along with story
and song

And tales of childhood's fine
pranks.

THURSDAY:

To-night is the night the Optimists
come,

So you all will be happy and gay,
With no thought of care, or
troubles to bear—

'Cause that's an Optimist's way!

FRIDAY:

Oh, Storyman true, pray tell us
now, do!

Have you stories for young and
the old?

Yes! surely I have, and some sweet
music too,

By pupils from Miss Cowan's
Studio!

SATURDAY:

We are frozen quite stiff, by Jack
Frost's icy nip,

When our noses and feet are like
ice!

But here comes "Sunny Jim" and
we cry "Welcome" to him,

And Jack Frost melts away in a
trice.

SUNDAY:

This Song Service, dear to young
folk far and near,

With stories of Love and Good
Cheer—

At 5.30 tune in to the children's
sweet hymns,

And the lessons that each Sunday
brings.

4YA SESSIONS.

MONDAY, JULY 15:

Madame's pupils are carefully
taught

To act the songs they sing,
But listen to them you certainly
ought

Till television is the thing.

TUESDAY, JULY 16:

Tramp, tramp, tramp, the Scouts
are marching,

Brighten up, they're nearly at
the door;

UNCLE JEFF, of 2YA, has a weekly
competition for the little ones.
These are very popular as indicated by
the very large number of replies re-
ceived during the ensuing week.

One of the recent competitions was
to construct a rhyme, the first line be-
ing "To-day has been a happy day."
Some of the replies sent by the little
ones have been very good, and a few
of them are printed below:—

TO-DAY we've had a happy day,
And yearn for fun galore,
The children's hour at 2YA
Will sure provide some more.

TO-DAY we've had a happy day,
And now we listen to
The Children's Hour from 2YA,
The best we ever knew.

TO-DAY we've had a happy day,
But boys, there's still more fun,
The children's hour at 2YA
Is on the air—so run!

A BIRTHDAY SONG.

IT was Cinderella's birthday on July
3. This is an appreciation.

I wondered why the sun should shine
so brightly,
Why winds should kiss the smiling
flowers so lightly,
Why cats and dogs and cows should
seem so sprightly—
'Tis all for Cinderella.

'Tis Cinderella's birthday; now I know
it.

A happy day—the sun and flowers all
show it.

The birds all sing. I wish I were a
poet.

To sing to Cinderella.

The radio world with birthday love is
ringing;

The cows and dogs and pigs she's
named are singing;

The joy she gives, its homeward way is
winging

To our own Cinderella.

So let's all join to wish a happy birth-
day,

A glad some day, a jolly day, a mirth-
day,

A bountiful, a giving-all-she's-worth
day

For our own Cinderella.

4YA, DUNEDIN (463 METRES)—SUNDAY, JULY 21.

3.0 p.m.: Town Hall chimes.

3.1: Selected gramophone items.

4.30: Close down.

5.30: Children's song service, conducted by Big Brother Bill.

6.30: Relay of service from Hanover Street Baptist Church:

Preacher: Rev. E. S. Tuckwell.

Organist: Mr. Upton Harvey.

Choirmaster: Mr. H. P. Desmoulin.

8.0: Relay from His Majesty's Theatre of concert by the Tramways Band,
under the conductorship of Mr. C. Morgan.

9.15: Close down.

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The Wonder of Radio in Rararotonga

Impressive Story of Special Transmission



VERY interesting account of a modern "Island Night's Entertainment" has been received by the Broadcasting Company from Captain Campbell, of Rararotonga. He gives a graphic description of a large gathering of native chiefs, sitting in a palm grove in the brilliant moonlight of a tropic night, listening to a programme broadcast by 1YA, Auckland. The feature of the programme was a talk given by Mr. F. W. Platts, C.M.G., late Commissioner for the Cook Islands, and now S.M. at Hamilton. The natives knew that Mr. Platts was far overseas, yet his voice, which they knew well, was heard clearly and distinctly. This caused greater wonderment than did the actual musical items. The realism of the occasion was further heightened by Captain Campbell hanging a large photograph of Mr. Platts above the loudspeaker.

The concert was broadcast on Saturday, June 8 (Friday in Rararotonga), the suggestion for a special concert having

come from Captain Campbell, who also suggested that Mr. Platts, beloved in the Islands, should be asked to send greetings to the native chiefs. This Mr. Platts kindly consented to do, and journeyed from Hamilton to Auckland for the purpose.

Captain Campbell's letter reads as follows:—

"On behalf of the native chiefs of Rararotonga who were present at the reception of the broadcast from 1YA on the evening of June 8, I wish to thank your company for the excellent programme arranged for our entertainment, and particularly to thank you for giving us all an opportunity to again hear the late Commissioner of these islands, Mr. F. W. Platts, C.M.G."

"On receipt of your radio advising me that Mr. Platts had consented to speak from 1YA, I erected my set in one of the large village houses and tested it out on the evening of June 7, hoping that it would be possible to allow a number of the natives, in addition to the chiefs, to be present, but unfortunately static, combined with rain

on the iron roof, completely marred reception, and it seemed probable that it would be very unlikely that even a portion of Mr. Platts's talk would be audible.

"The following day I erected the set in a large native are of my own. This are (native hut made of thin sticks tied with bark fibre and roofed with rau thatch) is right out at the southern end of the island, as far away as possible from the Government radio station.

"I tested the set very carefully, and found some slight set noise, tracing it to a bad earth. There was considerable static then. At 7 p.m., our time, Friday evening, (5.10 p.m., Saturday, N.Z.), the first of the chiefs began to arrive by car, in most cases motoring ten miles from the principal village. The invitation said 9.45, but they did not intend to be late.

"You can imagine the scene; a beautiful clear tropic night, with the moon shining like silver on the coconut palms. The are is situated right in the bush, surrounded by coconut trees, on the top of two of which the aerial is mounted. As each car or motor truck arrived with their parties of men, most of whom were well past middle age, for a few moments the lights of the car lamps brought into prominence the stems of the coconuts like the pillars of some gigantic temple. Then, as they were switched off, black darkness for a few moments until the eyes grew accustomed to the change. There were handshakes and "kia orana kotu" greetings. Then they went off into the "are," more greetings, and all sat down to listen to the "apinga ou" (the new thing).

"When the set was switched on the static had completely gone, and there was not the slightest fading. We got Chicago, three stations in Sydney, two in Melbourne, Hobart, and some of the market reports from Christchurch, the price of oranges and bananas from the Cook Islands, as quoted on the market being shillings above the returns that they received here, as per usual.

"Then we brought in Auckland, and they heard for the first time from the announcer, that a special programme had been arranged for the benefit of the South Sea Islands, and that Mr. Platts was to speak at nine o'clock (N.Z. time). I had a clock set at New Zealand time, and it surprised them to see the difference in the two clocks, and to know that it was Saturday night in New Zealand. Of course, some of them had been to New Zealand to meet the Duke of York, but it required radio to bring the different right home.

"As the first Maori song and the various Hawaiian items came through with full speaker volume they were delighted, but slightly inclined to regard it as very much like a gramophone. At last came 9 o'clock. Then the announcer gave out the weather report. One could almost feel the disappointment; they were sure Mr. Platts was not going to speak, but no one made a sound; then came his greetings, beginning 'Kia Orana ki Tinomana Ariki,'

etc., just at nine. I had hung a photograph of Mr. Platts above the machine, and every eye was lit up and fixed on the photograph. As he went on they leaned nearer and nearer to the machine. When he finished there was not a word until well into the next item, and then I am afraid they did not hear much of it. Those who could understand English explained to those who could not, and I was asked to send you a radio first thing to give you our thanks. This I did. It should decode, 'Delighted, reception perfect, express our thanks,' and we hope you have done this to the staff of 1YA also.

"The chiefs listened to every item with a new interest, and when the special 'Good night' came, followed by the National Anthem, they all stood up, and the Native pastor, on behalf of all, expressed thanks for the opportunity of seeing and hearing another of the marvellous works of the white man.

"It was nearly 1 a.m. as the last car moved off into the darkness, not to seek their beds, but to spread the news from end to end of the island that they had heard Mr. Platts speak the same as if he stood before them.

"In the Resident Agent's house at Mangaia Island a group of Europeans listened to Mr. Platts's greeting.

"At Rararotonga I was the only European present, and it was an experience I will remember for ever with delight."

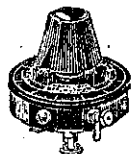
NOW that the Postmaster-General has decided to counterbalance the use of B.B.C. stations for television tests, the Baird company is confident that experiments can be started before the opening of the Brookman's Park station in July.



Lissen R.C.C. Unit.
Price 6/0



Lissen Mansbridge Condenser. Prices:
2/6; .25 mfd, 2/8;
.01 mfd, 2/6; .1 mfd,
.5 mfd, 3/-; 1 mfd,
3/6; 2 mfd, 4/6.



Lissen Rheostat, 7
and 35 ohms.
Price 3/6 each



Lissen Grid Leak,
Fixed, 1, 2, 3 and 4
meg.
Price 1/6 each
Variable 3/6

LISSEN

RADIO PARTS

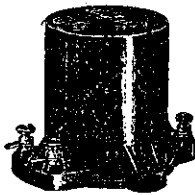
Lead the World in Value and Performance!

Remember when you are building or adding to your Set, that although often a certain make of part is mentioned, you can, in practically every instance use a Lissen Part, and not only get louder, clearer signals, but save yourself a considerable amount of money too!

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Price 6/- each

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Does your Set fall short of expectations?
If so, do you know where to look for the trouble?

The 1929-30 Listener's Guide has a Special Service Section to help you.

A selection of the topics invaluable to the amateur are:—
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Dead Spots.
Weak Reception.
Distortion, Noises.
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The "COURIER" Q.R.3

and

PERFORMANCE

The first question that can be asked concerning any Radio Receiver, is:—"What can it do?" And upon the answer to that question depend the sales of the **COURIER Q.R.3.**

Although only a three-valve Receiver, the Courier Q.R.3 has all the power that can be required, and has a wonderful range of distant stations. In fact it is quite as powerful as the Courier 4-Valve, which made such a name last season. What the Courier Q.R.3 will not pick up, is not worth receiving. New Zealand and Australian Stations can be tuned with loudspeaker volume to spare, and the tuning is very simple.

The Courier Q.R.3 can be transformed from a high to a low-wave receiver by a mere flick of a switch, and yet it is as efficient for low-wave reception as it is for high-wave.

In designing the Q.R.3 for low-wave reception many difficulties have been overcome. The "squawk," which so frequently occurs in the majority of s/w receivers, has been completely overcome, and the receiver oscillates smoothly with a gentle hiss, ensuring comparatively easy tuning. Stations such as 2XAF, 2XAD (New York), PCJ (Holland), 5SW (Chelmsford, England), may be heard quite clearly, and, at times, on the loudspeaker,

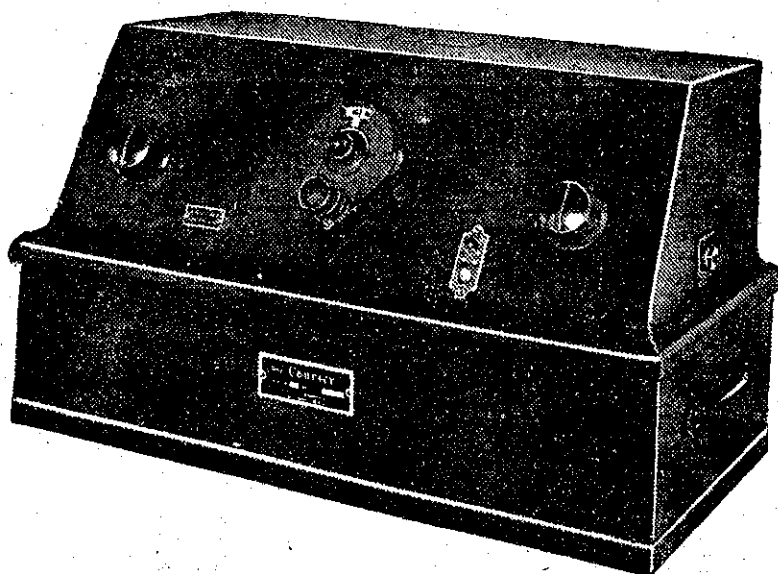
though, of course, for tuning in on such stations headphones are necessary.

Another special feature of the "Courier" Q.R.3, is that the receiver is absolutely non-radiating. That is to say, no matter how much the operator causes the set to "howl" (which is quite unnecessary), such "howling" will not be picked up by any other listener. This quenching is effected by a means not hitherto employed, and is protected by our own patent rights.

For those using the "Courier" Q.R.3 in the proximity of a powerful broadcast station, it will be found to be unusually selective.

Special attention has been paid to the tone of this model which is particularly faithful in its reproduction, and as nearly perfect in balance as possible.

Space prevents our listing more of the many unique features of the "Courier" Q.R.3, but we will be pleased to forward a leaflet giving full details of this and other "Courier" Models, upon request.



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Name

Address

R.R.3

Osram Valves.

A NEW full-revised series of Osram valves have been brought out by the British General Electric Company. From their Wellington agents we have received samples of the 6-volt type. The following is a table of the Osram valves now on the market.

We have tested the following valves:
DEH610—This is a valve for use with a resistance-coupled amplifier, but used as a detector, it is very satisfactory. It oscillates freely on low voltage and is capable of feeding to the amplifier a wide undistorted range.

DEL610—This is a general-purpose valve which can be used satisfactorily as R.F., detector or audio. It is capable of handling the output of a 3-valve set without distortion. Correctly biased, with 3-volts it will deliver a current of about 8 milliamperes.

DEP610—This is a very fine valve, suitable for use in the last stage of a multi-valve receiver. It does not appreciably decrease volume, and gives an overall reproduction and clearness that is the hall-mark of the good valve. The slope, 2.3 milliamps. per volt, with an impedance of 3,500, ensures perfect functioning.

These valves were found to give very fine tone and very powerful signals. There was a clearness and trueness

Laboratory Jottings

Osram Valves and Ferranti Products

about the reproduction that indicated quite clearly the merit of their combination. For a 3-valve set a combination of DEH610, DEL610 and DEP610 was found to give excellent results.

An account of the series of the new Osrams would not be complete without reference to the 2-volt vertical mounting screen-grid valves. This type em-

chart accompanies the power pack giving instructions as to which resistances to use in numbered sockets for the valves to be supplied.

From these five tappings are taken through a battery cable to the set, thus providing for separate voltage for the plates of the screen-grid, detector, I.F. and power valves, and the screening grid of the screen-grid valve. The unit is capable of delivering an output of 100 milliamps. at a voltage of 200. This is rather unusual, and fits it for use with sets using super-power valves and also for power amplifiers. Very low voltages can be taken off for the detector.

The cable connecting with the mains is provided with three wires, one

Valves	Position	vf.	if.	Ri.	g.	va.	vg.	Slope mA/V
HL210	R.F.	2.0	0.1	23,000	20.0	150	3.0	0.87
HL610	R.F.	6.0	0.1	30,000	30.0	150	1.5	1.0
S215	S.G.	2.0	0.15	200,000	170.0	100-150 max.		0.85
S625	R.F.S.G.	6.0	0.25	Variable		100-180	50-120	
Max. Rect. Cur.								
DEL210	General	2.0	0.1	12,000	11.0	150	6.0	0.92
DEL410	General	4.0	0.1	8,500	15.0	150	3.5	1.77
DEL610	General	6.0	0.1	7,500	15.0	150	3.0	2.0
DEH210	H.F.	2.0	0.1	50,000	35.0	150	1.5	0.7
DEH410	H.F.	4.0	0.1	60,000	40.0	150	1.0	0.67
DEH610	H.F.	6.0	0.1	60,000	40.0	150	1.0	0.67
DEP410	Power	4.0	0.1	5,000	7.5	150	9.0	1.5
DEP610	L.F. Audio	6.0	0.1	3,000	7.5	150	8.0	1.5
P425	Power	4.0	0.25	2,300	4.5	150	12.0	1.95
P625	Power	6.0	0.25	2,400	6.0	250	18.0	2.5
P625A	Power	6.0	0.25	1,600	3.7	180	22.5	2.3
DEP240	Power	2.0	0.4	2,500	8.0	150	8.0	2.3
DEP215	Power	2.0	0.15	5,500	4.0	150	20.0	1.6
DEP410	Power	4.0	0.1	5,000	7.0	150	12.0	1.4
PT235	Pen.	2.0	0.35	55,000	90.0	150	12.0	1.65
H8	A.C.	0.8	0.8	55,000	40.0	150	1.5	0.73
H18	A.C.	0.8	0.8	17,000	17.0	150	3.5	1.0
P8	A.C.	0.8	0.8	6,000	6.0	150	10.0	1.0
U5	Rec.	5.0	1.6	300	60 mil.	400+400		
U8	Rec.	7.5	2.4	250	120 mil.	500+500		

Where vf., filament volts; if., filament current; Ri., impedance; g., amplification factor; va., anode voltage; vg., grid voltage.

bodies the latest results of research on the screen-grid, and gives excellent results. It was found to function best with about 60 volts on the screen and 150 on the plate. The filament requires .15 amperes at 2 volts, and, in common with other screen-grid valves of English make, it has the plate connected to the terminal at the top of the valve.

Advice has been received that a super-power valve, which will take 250 volts on the plate, is to arrive shortly. This valve should meet a long felt need for a power valve intermediate between the 171A type (DEP610) and the 210 type. This will be reviewed in the columns in due course.

Ferranti "B" Power Pack.

A. D. RILEY, LTD., has submitted to us for test a Ferranti H.T. Supply Unit which has recently made its appearance in New Zealand. The unit is encased in metal, the dimensions being approximately a cubic foot. It is artistically finished in brown crystal-line.

The Ferranti unit is quite a departure from the usual conception of power units. Upon opening the lid, in which is a patent switch which immediately cuts off the power, there are seen nine wire-wound resistances which have taken the place of variable knobs. These resistances are movable, and a

of which connects with the earthing system and ensures safety.

Ferranti Meters.

A very wide range of very accurate meters are now obtainable in this popular make. The portable models should appeal to the constructor or operator who is interested in examining his set. These are made with as many as three different readings, milliamps. and two voltage scales. Resistances of 200 ohms. per volt in one type of meter, and 1,000 ohms. per volt in another ensure a very high grade instrument. Meters reading up to 250 volts or as low as 7.5 are obtainable.

Through judiciously combining external resistance a milliammeter can be made to fulfil many purposes, and concerning this we shall devote an article at a future date. The meters are made in three distinct styles, panel mounting (flush and projecting) and portable.

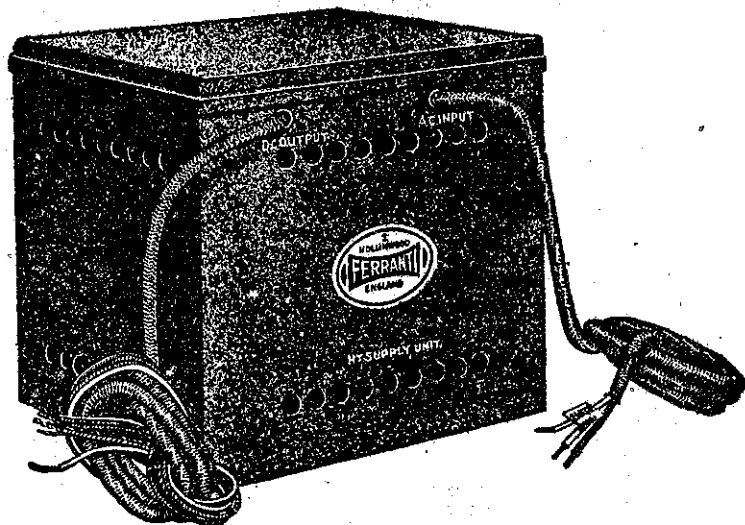
THE use of the correct type of valve is one of the secrets of successful distortionless reception.

ADVERTISING signs of the flashing electric type are capable of causing almost unbearable interference in neighbouring wireless sets if carelessly wired or maintained.

THE

FERRANTI

H.T. SUPPLY UNIT

A WONDERFUL
ACHIEVEMENTUnvarying Supply
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Madras Street,
Christchurch.S. VEITCH & CO.,
Rattray Street,
Dunedin.

In Brief.

QUIZ (Newtown).—The wire is No. 36 s.w.g.

WHAT circuit should be used with A435?

A.: Tuned anode.

A Kind Offer.

NOTICE on your "Questions and Answers" page a query re neutrodyne coils. I have had considerable experience since March, 1923, constructing and repairing various radio receivers, and within the last two years have constructed a number of neutrodynes in which the commercial coils have been used. Should your correspondent or anyone else care to drop me a line I would be only too pleased to help them in constructing such a properly neutralised neutrodyne.—"Airzone Five Expert."

(Address: "Airzone," c/o Technical Editor, "Radio Record.")

Coils for the Browning-Drake.

"C.L." (Mangatina) asks the number of turns on the primary and tickler of the Browning-Drake.

A.: The primary for the radio frequency transformer on a 3-inch former comprises about 25 turns, depending on the value used in R.F. Tables of numbers of turns have frequently been published. The tickler may require anything between 18 and 25 turns. The correspondent states that he is using DEH610 or PM5B. Both these are resistance capacity coupling valves, and the amplification produced may be too high. It is better to use valves with a slightly less amplification factor: DEL610 or PM5 for the impedance of which (about 10,000) which the BD was designed.

A Loop Antenna.

COULD you tell me if a loop aerial will do for a 5-valve set, and what kind of wire to use? writes "W.M." (Denniston).

A.: Loop aerials, or more correctly, loop antenna, were fully described by "Megohm" in the issue of the "Radio Record" dated April 7, 1928. It has been said that a loop is only one-quarter as effective as a good aerial, but with a 5-valve set if regenerative, that one using reaction, the main New Zealand stations should be brought in under good conditions. Later in the evening a good set of this description should bring in at least one Australian.

Transformer Terminals.

"J.E.H." (Nelson) finds that he is unable to use a transformer he has recently purchased, because the identification marks have worn off the terminals. It is an English transformer, so that original ratings would be IP, IS, OS, OP. In more recent terminology these would be rated P, GB, G, B+.

2. Is there any risk of burning out the transformer through a faulty connection? A.: No, unless very high voltages are applied to the secondary, meaning by very high something in the hundreds.

"Listeners' Guide" Short-wave Set.

THERE is some confusion in the directions given for making up the S.G. S.W. receiver in the "Guide," writes "T.E.C." (Dunedin).

1. Only two variable condensers are given where there are three shown in the diagram.

A.: Three are required; two for tuning each .00015, and one for reaction .00025.

2. Two R.F. chokes are specified. One only is shown in the diagram.

A.: There is only one choke required, as shown in the diagrams.

3. Should the grid condenser be .001 or .0001?—0.001.

The All-Wave Crystal Set.

I HAVE found that only one condenser of the Full-wave Crystal Set will work, writes "Full-wave" (Dunedin). In one case the tuning was too sharp, while in the other, though I have taken turns off and added them on, little appreciable difference is noticed.

A.: It appears as though the case is similar to that discussed last week, when a correspondent was advised to reverse the connections to his primary. The crystals may not be matched.

"Round the World Two."

"W.L." (Lower Hutt), whose letter on page 39 asks the following questions:

1. Although the stations come in very well, I have to use a larger coil in the reaction than in the secondary. Is this all right?

A.: Yes, so long as the set will oscillate.

2. Now that I have added another stage, do I put the same "B plus" voltage on the lead to the jack and to "B plus" of the last transformer?

A.: If 135 volts, or more, are obtainable, apply this to the last stage and 90 to the intermediate stage. If not, try 90 on both or 90 on the last and 67½ on the intermediate.

3. What ratio transformer would be best in the last stage?—3½/1.

4. I have shielded my panel, and find that by connecting the shield to "A plus" I get the best results. Would this have any effect on the discharge of the "A" battery?

A.: No, the better effect is brought about probably because the "A" potential is being applied to the "B" potential, making it slightly higher.

5. Would a reaction condenser of .0003 be as effective as one of .00035?

A.: The difference would be inappreciable.

Oscillation Troubles.

I CAN get the "Round the World Two" to oscillate only with the largest coil as reaction coil, writes "M.D." (Hinds).

A.: See the reply to the above correspondent. So long as the set will oscillate it is working as far as the detector is concerned. Different valves operating on different voltages require different sizes of ticklers.

Transformer Troubles.

"E.H.V." (Inglewood) has noticed that in replacing a defective transformer with a new first-grade one that reception is much better than ever it was. He asks whether the replacement of the other by one of the same make as the new one will still increase results.

A.: The improvement is noticeable because the transformer in the first case was of a second grade and the first-grade article appears to effect a great change. Good transformers are an asset to a receiver and the replacement of second-grade instruments by the better ones usually well worth while. An im-

provement in tone is the usual outcome of this change.

Adding a Stage of Radio Frequency.

WHETHER to add a stage of screen grid or ordinary R.F. is the problem "R.T." asks us to solve. His questions are:—

1. Which is the more satisfactory—a screen grid booster or an ordinary R.F. booster?

A.: It depends on whether the correspondent wants signal strength or selectivity. If selectivity is desired, an R.F. booster using a three-electrode valve would be the most satisfactory. If the R.F. booster is to be applied, the connection between the earth and the secondary coil must be broken, making the primary distinct. The aerial connects with the coil which connects directly with the ground. There is no connection between the secondary and the ground. If selectivity is not particularly desired, the screen grid booster is the best proposition. This was described by "Megohm" some time ago.

2. Condensers in the set are .0005. Could a .00025 be used in a booster or a screen grid booster?

A.: Not for the best results. It would make tuning very sharp on a narrow band, but the capacity would not be sufficient to adequately cover the whole band.

3. In the event of rebuilding would it be an advantage to shield the stages?

A.: Unless the coils were very small and widely spaced, shielding is essential to obtain the best results from a set using two stages of radio frequency or a stage of screen grid.

A Noisy Eliminator.

D.C.D.C. (Auckland) has had difficulty in cutting out a 50-cycle hum from his eliminator. He has overhauled the filter system and can find no fault, though there is no sign of the hum on other eliminators tested under the same conditions.

A.: The correspondent should ascertain whether the hum is in the set or in the eliminator. Can the hum be heard from the eliminator while the set is turned off? If this is the case the trouble may be sought in defective components. If possible connect the transformer of another eliminator to the filter and voltage dividing system. A defective voltage divider could cause this hum. At the same time the eliminator may be essentially at fault.

A Charger Problem.

IF I reduce the number of turns on the transformer of my battery charger will the rectifying valve last longer? writes A.H. (Palmerston North).

A.: It will, but the efficiency of the charger will be lost. Beyond a certain temperature the emission of the rectifying valve is too low to allow of efficient charging. The charging rate will be too low.

Can I place a choke in the positive lead to act as a resistance?

A.: It is unnecessary, but if used in conjunction with a by-pass condenser will be effective. The condenser will need to be nearest the valve and the choke between this and the output. The inductance would need to be approximately ½ henry. The correspondent asks

whether the core of a burnt-out transformer could be used for this purpose, but it would be rather small. A core such as procurable from Ballinger's in stampings filled with 88 d.c.c. wire would be sufficient.

An Aerial Problem.

I HAVE an aerial 150 feet in length and I can receive the lower frequency stations 2FC and 4QG, and the higher, but not the intermediate unless I reduce the length of the aerial. Why? asks J.F.W. (Waingaro).

A.: The aerial is too long and will only receive the higher wavelength stations. The lower are being received on a harmonic.

Adapter Harness.

A.P. (Otago) asks:—

1. Will the harness be successful with my factory-made receiver?

A.: As far as we can ascertain, yes. We have had an adapter harness working satisfactorily on both a neutrodyne and a regenerative for some time.

2. Will any changes in wiring be necessary?

A.: None other than can be performed by the average listener.

3. Is it necessary to make any provision for surges in the A.C. mains?

A.: None are made in the harness, but there is very little chance of trouble in this direction.

4. Is there likely to be power noises or hum as the set is unshielded and uses 201A's throughout?

A.: Use the valves specified, including 171A in the last stage. The correspondent should even now make this change. A 201A in the last stage of a six-valve receiver is not conducive to good reception. A power valve should be used.

A Resistance Coupling Problem.

WHAT is the best combination for a 6-valve resistance coupled American set? writes "G.I.L." (Waipukurau).

A.: Five 201A's, and one 171A, PM5 can replace 201A's as audios.

2. Would new resistance units be of any advantage, and what are their places?

A.: The resistances in the plate circuits, the first of each group, of two are usually 100,000 ohms. The grid leaks are arranged in this order. First audio, 1 megohm, second audio ½ megohm, power ½ megohm, or even less, according to the amount of bias that has to be applied. The condensers usually range between .001 and .5 mfd.

A Scratch Filter.

"D.E.C." (Auckland) asks for the particulars for the construction of a choke for use with a .006 condenser as a scratch filter.

A.: Construct a honeycomb inductance coil, 3 inches in diameter, with 150 turns of 30 gauge D.C.C. or D.S.C. wire.

Parallel Feed Browning-Drake.

CAN UX199 valves be used in the R.F. socket, or will a valve of higher amplification give better results?

A.: UX199 is quite O.K., but try 201A type.

2. Has an R.F. Booster suitable for the Browning-Drake ever been described in "Radio Record"?

A.: The R.F. Booster described by one of our correspondents, vol. 2, number 43, is quite suitable, with the adaptation described in last week's Questions and Answers. The screen grid booster, described in "Radio Record" June 1 and 15, 1928, will be suitable.

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A Useful Grid-Bias Unit

Gives Any Required Voltage

By "MEGOHM"



BECAUSE the grids of the valves are the most sensitive parts of a receiving circuit, the application of a bias potential giving the slightest trace of hum from alternating mains, is not permissible. The earlier the stage in the receiver, the more this applies since subsequent amplification shows up the slightest defect. It is only with grid bias for audio amplifiers that we are particularly concerned, and this article will describe an efficient unit that may be constructed and used to provide two or three bias voltages, each variable from zero to one hundred volts.

The writer feels that this unit will suit many constructors who have an eliminator in use, and wish to obtain a high-bias voltage without in any way altering the "B" eliminator or reducing its voltage, and without introducing any of the difficulties liable to be encountered in obtaining bias from the voltage drop in the eliminator resistance.

Some may question the desirability of having a separate unit with its attendant consumption of current, but as the total current taken from the mains is only from 6 to 10 watts, little consideration is required for this item.

Actually the unit is a half-wave "B" eliminator with certain alterations to adapt it for "C" supply. The difference necessary to make a "B" unit will be described so that any constructors who wish to construct an eliminator for a crystal amplifier may do so. The points common to both units will be first described, the difference, chiefly in the resistance and condenser connections, being dealt with afterwards.

It should be stated here that this unit may be incorporated in a "B" eliminator by anybody about to build one, in which case instead of the separate transformer, there would be an extra filament winding and a bias winding to give 150 volts, provided on the main transformer.

The Transformer.

THE transformer is constructed of either 1in. stalloy strips, or the equivalent stampings that have already been mentioned in these columns. For the stampings, the core is built to 1½in., and for strips to full one inch. The primary winding is of 32's s.w.g. enamelled wire, 1800 turns on the stampings, and 1850 on inch stalloy. A wooden former of the required section is to be made, not less than three inches long, and arranged to turn on a spindle with winding handle. The stampings are built to 1½in. thickness and no spool will be required.

Strips of increased thin brown paper must be cut, bare 2½in. wide. These are used between layers of wire. As a preliminary, a layer of thin card, 2½in. wide, is secured round the former and covered with adhesive tape, the edges overlapping. Now a layer of the brown paper, and the primary winding, occupying 11 layers, may be put on. Leave a space of ½in. at each end of the layer of wire, and be careful to wind the turns evenly without crossing the wires one over another. Cover the primary with a layer of paper, then a layer of tape, and another of paper.

The filament winding, of 24's, d.c.c., comes next, occupying less than one layer. If 22's is used and wound without loss of space, the 46 turns will just go in one layer. Tap at 24th turn for the centre tap—though not the centre, it will be correct for rectifying purposes. Tap at 33 turns for a 4-volt and 40 turns for a 5-volt valve. These taps will give sufficient filament heating for the emission required, and give very long life to the rectifying valve. For a "B" eliminator, add 4 turns, making the total 50, and make each filament tap 2 turns higher. Cover this winding with a layer of tape and then one of paper.

The secondary winding, of 36's, s.w.g., enamelled wire follows, and for the bias unit 1390 turns are required, giving 150 volts, of which 50 volts will be dropped in the rectifying valve and choke. For a "B" eliminator 1850 turns will be required on the secondary, giving about 150 volts when rectified and smoothed.

The clamps of this small transformer may be of wood, 1 by 3-8 on stalloy strips, but may be slightly thicker and narrower on the stampings, and placed on the two ends parallel to the centre core.

The "Listeners' Guide" gives complete details of transformer construction, and will be found handy for reference.

A fuse panel must not be omitted, and may be of fibre or ebonite, measuring about 1½ by 4 inches, supported above the transformer by a shaped piece of sheet brass screwed to the side of the clamps. The fuses for all positions may be strips of tinfoil 1-16 inch wide, or narrower on the secondary negative.

Only one fuse is required for the half-wave secondary. Its function is to save re-winding the secondary coil in case of an accidental short-circuit in that portion of the circuit before the rectifier.

Threaded screws for the clamps will be 2½in. long, or a trifle less. Twenty 3ft. lengths of 1½in. stalloy will be used. Shellac the strips well before cutting up. The long piece of stalloy will be 3-3-8in. and the short 1½in. Cut 128 of each.

When the winding is removed from the former, the ends are to be filled in with the black composition from the tops of old batteries or elsewhere. Melt the composition in a small seamless tin box or lid and pour on gradually, smoothing with a knife.

Bring out leads in the most convenient positions, when possible—primaries both at one end, with all filament leads except that from the last turn. At the other end, secondary leads and "out filament." Leads must not be brought out where the core comes against the end of the coil.

The Smoothing Choke.

THE dimensions of the stalloy for the choke core are given in a diagram. With the small current traversing its windings, this choke could be made without a gap for grid-bias purposes, but not for amplifier use. For a choke with gap, there are four sizes of stalloy, one pile of each equal to the thickness of the core, in this case one inch, or 128 pieces of each size. A spool is required, with ends 2in. square, outside length, 1½in. Upon this are wound 2700 turns of 36's s.w.g. enamelled wire. Clamps are provided as for the transformer.

The radio-frequency choke consists of 1000 turns of 36's wound upon a flat spool of two circles of stout cardboard 1½in. in diameter, separated 3-16in. by a short piece sawn off an ebonite lead-in tube, or similar centre sawn from a wooden spool. This choke is shown bolted to a strip of ebonite which in turn is screwed to the ends of the clamps of the choke.

Smoothing Condensers.

FOUR condensers of 2 mfd. each, or two of 4 mfd. each, will be required. For bias purposes these may be of low test, say 250 volts, but for amplifier, 400 test, which will be good in either case.

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If the amplifier is to provide a second output voltage, an extra condenser of 2 mfd. may be required across this. The cases should be connected to earth. separate filament and secondary windings to be put on one transformer, employing separate rectifying valve and chokes for the bias and amplifier B supply. This would be a serviceable combination to run a fair-sized valve in the last stage.

Rectifying Valves.

ANY small power valve that has ceased to function as such owing to lost filament emission, may be used as the rectifier for bias purposes.

For amplifier work a "dud" power valve of not more than 5000 ohms impedance should be used, as with plate and grid connected together, such a valve will pass from 20 to 30 milliamps, and with a robust filament such as that in the quarter-ampere class, will function well for a year or two if the filament voltage is not overdone. A small portion of resistance wire may be included in one filament lead for regulation purposes.

General.

THE drawing shows a transformer as made from stallo stampings, as mentioned in this column in connection with audio chokes. If stallo strips are used, the transformer will stand with the coil upright in the same way as the choke.

Note that the bottom of the case projects at least $\frac{1}{4}$ inch on all sides, so that on three sides the tin cover may rest upon it.

The flexible cord connecting with the mains enters at the back of case, over condensers, up through baseboard, connecting to back end of fuses. A notch is cut in the corner to clear these leads, the edges being turned in to prevent cutting.

The unit will be found highly satisfactory in operation, and the precise regulation of voltage afforded will be readily appreciated by users.

The writer knows that some constructors have placed upon their "B" eliminator transformers a bias winding to give 100 volts. Where this is not being used, and it is desired to instal the above system, this can be done. In order not to drop more voltage than necessary in the rectifier, a valve of not more than 5000 ohms impedance should be used. It is understood that this unit should be capable of providing a full 40 volts for a 171 valve if required at any time, and a 100-volt winding should do this. The resistances should be 50,000 ms each.

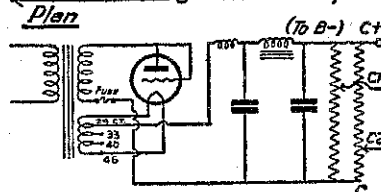
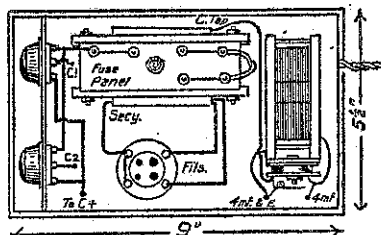
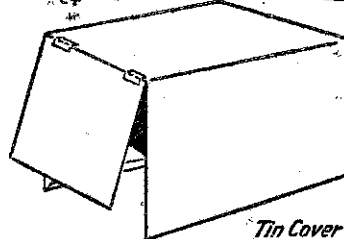
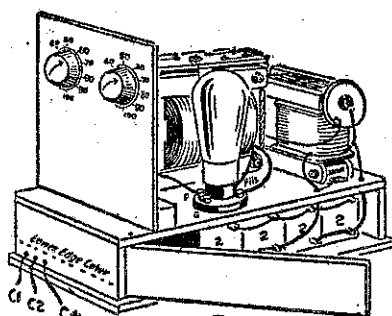
Should any constructor wish to make up a transformer from Ballinger's stampings for other purposes, 8.15 turns per volt should be taken in reckoning

secondary windings. This gives 2030 turns for 250 volts, 2440 for 300, and 2850 for 350 volts.

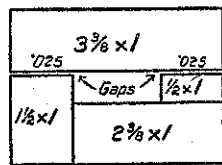
If hum is heard on putting the unit into use, reverse the mains connection by turning the adapter round in the socket.

The Case.

THE case is made of 3-8 in. rimu, the dimensions being given in a diagram. The size of the case should be



Theoretical Diagram



Dimensions of Choke Core

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sufficient to contain the required condensers in the lower portion, which has a door hinged at one end by a brad driven in at top and bottom. The three leads C1, C2, C positive, are threaded before the condensers are put in place. Not less than $\frac{1}{4}$ -inch space must be allowed above condensers, for running leads. The height of condenser space in the original is 2 1-8 inches.

The panel, which may be of any material, metal, ebonite, or 3-ply, is $\frac{5}{8}$ to 6 inches high. Black sapolin all over gives suitable finish.

If desired, a tin cover may be provided, as shown, with hinged front shorter than sides, to clear output

leads. A cover is good protection against dust, and should be connected to earth, and will also limit the magnetic field of the transformer.

Bias Resistances.

THESE are variable resistances of 100,000 ohms each. If they are not purchased in potentiometer form, they should be altered so that the two ends of the resistance have each a terminal, and the arm a third terminal, for which many resistances have a hole provided, in which a bolt may be placed. One resistance is provided for each voltage required, one end of each being connected to "C" positive and the other end to "C" negative. The arm connects to the corresponding output cable. Each resistance gives the same range of bias voltages. The only current flowing through the resistances is the "waste" current of not more than 1 mill. through each, and this they will carry, though the rating of these resistances is very low. Smoothing condensers are not required across the outputs.

Connections for Grid-Bias.

THE usual half-wave eliminator connections are first made as shown on the diagram—one side of secondary to grid and plate of rectifying valve, suitable filament voltages on filament; centre-tap of filament to radio choke, then to main choke and 4 mfd., main choke to other 4 mfd. Then to one side of each resistance, cases of condensers, and "C" positive cable.

The output cables may conveniently be of the plain rubber-covered flexible wire, which is about equal to 20's, though much thinner wire may be used if convenient.

It should here be mentioned that the choke and transformer may stand on a few thicknesses of tinfoil, which should be connected by a screw and washer holding a wire connecting to the positive lead.

The negative lead from the fuse panel connects only to the remaining side of each resistance and to the remaining side of all condensers.

Connections for Amplifier Use.

THE connections as given in the preceding section apply to this up to the connection of the positive to the second 4 mfd. Then the positive lead is taken to a cable or terminal for B supply for all valves.

If a lower voltage is required for the first stage, a 200,000 ohm variable resistance may be connected to the "B" positive, and the arm will form the lower voltage output, and must also be connected to an extra 2 mfd. condenser, of which the other side is connected to "B" negative.

For detector voltage, a 100,000 variable resistance may be used as for grid-bias, as only a small current is drawn. One side of all condensers and the cases are connected together and to "B" negative cable output, which is connected to earth.

Grid-bias for the amplifier is then provided by a dry battery, but it would be quite feasible for the two

Topical Talk

WELLINGTON listeners have reason to congratulate themselves in the comparative absence of electrical leakages in such a big city as the capital. The radio inspectors deserve credit and thanks, for they have done their full share in cleaning up Wellington, which for weeks, some time ago, was a veritable tempest of electrical noises. On many nights it was quite impossible to listen to any stations outside Wellington. "Switch" remembers having met the radio inspectors pursuing and locating these sources of interference night after night.

"SWITCH" understands that the 2YA, Wellington, director, with his customary alertness, has been investigating the possibility of connecting a certain Wellington cabaret by land-line with 2YA, so that listeners may have some first-class dance music from an excellent orchestra. This should make a big appeal to many listeners who prefer the "real thing" to "canned music."

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 HIS speaker has proved very popular among amateur constructors — so much so that our stocks of the number carrying the description have long since been exhausted. As still more inquiries have come in, we have complied with request and repeated the description with a few minor alterations.

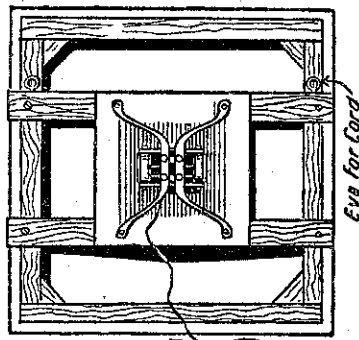
This is a type of loudspeaker called the balanced-tension type of reproducer. There are several patterns. One pattern has both frames of the same size with linen diaphragms, another has the back diaphragm much smaller, and employs skin in place of linen, and so on. The employment of skin or parchment obviates the stiffening of the linen by impregnating it with varnish, celluloid solution, or else with four or five coats of thin collodion or Duco. All patterns alike give very fine reproduction, including the lower notes that are mostly suppressed by the average small horn speaker. Construction is simple, and if the instructions are carefully followed, a loudspeaker of which the constructor may be proud will result.

Construction of Frame.

THE first operation is the assembly of the wooden frame upon which the linen diaphragms are stretched. The back view of the frame, Fig. 7, shows how the various pieces of rimu or other suitable wood are cut and mortised together. This construction should be followed, for if the parts of the frame are not securely fastened by glueing, a rattle will be introduced in the speaker that cannot be eliminated without a great amount of trouble. After the pieces A and B have been glued, the corner pieces E are attached. The pieces marked C and D are next joined and screwed to the sides of B, making sure that the pieces D are centred.

While the points of the wooden frame are drying, the two diaphragms of high-grade linen are prepared. It is necessary that a hem one half inch wide be sewed along each side of both the large and the small squares; the one being 26 inches square and the other 8 inches.

When the joints are thoroughly dried, the large square of cloth is placed over the front of the frame,



tacking down one edge; be careful to place the tacks fairly close to one another, so that there will be little danger of the cloth's pulling out. When one edge has been fastened stretch the linen as tightly as possible and tack down the opposite side. This process is repeated for the other two sides. The 8-inch-square of linen is fastened to the rear frame in the same manner.

Preparing the Diaphragm.

NOW locate the exact centres of both diaphragms and carefully, with the point of a compass or a sharp nail,

force a hole in the linen. Be careful not to break any threads, but spread them apart until the hole is $\frac{1}{2}$ -inch in diameter. Then prevail upon one of the ladies of the family to work a buttonhole stitch around these two holes. The next operation should be performed either outdoors or in a room with the windows open, as otherwise the fumes from the collodion are liable to cause an unpleasant sensation. Paint the face of each diaphragm with the thin collodion and allow it to dry. Four or five coats are required; let each coat dry before applying the next one. When the last coat is dried the diaphragms will be stiff and slightly flexible, and when tapped with the finger will sound like a drum.

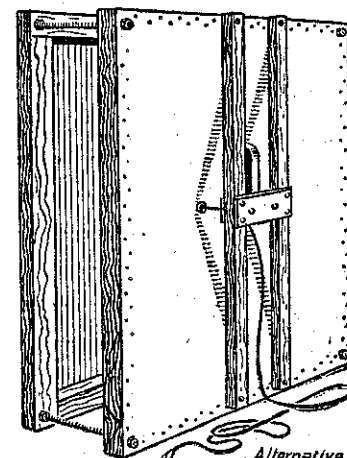
An alternative method of treatment to the above is to impregnate the diaphragms with celluloid dissolved in amyl-acetate, or with a suitable varnish.

The small coupling bolt is next prepared. This is a 3/32 bolt, $\frac{1}{16}$ in. in length, through which is drilled lengthwise a small hole, just large enough to take the driving-rod of the loud-speaker unit which is to be used. One of the washers is put over the bolt, and the head with the washer is put through the hole in the large diaphragm, from the front. The two diaphragms are forced together until the bolt can be slipped through the hole in the smaller square, after which the other washer and the nut are put on and tightened down. The edges of all metal washers coming in contact with

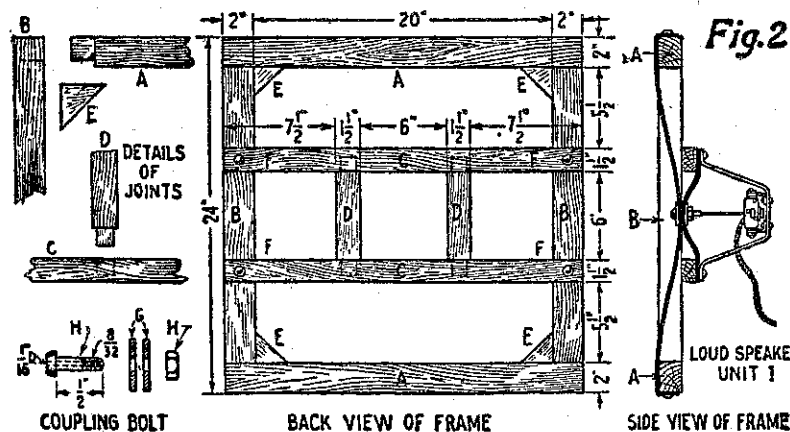
treating them with the collodion. The
tacks should be covered over with an
attractive passe-partout binder for ap-
pearances sake.

The material needed for constructing this speaker is as follows:—

- 4 pieces of rimu, $24 \times 2 \times 1\frac{1}{2}$ inches
("A, B").
2 pieces of rimu, $24 \times 1\frac{1}{2} \times 1$ inch
("C").



- 2 pieces of rimu, $7\frac{1}{2} \times 1\frac{1}{2} \times 1$ inch
("D").
4 triangular pieces rimu, $1\frac{1}{2} \times 1\frac{1}{2}$ inches
("E").
2 squares of medium-weight linen, one
26 x 26 inches and the other 8 x
8 inches.
4 $1\frac{1}{2}$ -inch woodscrews ("F").
2 $\frac{1}{2}$ -inch washers ("G").



The details of the construction of the wooden frames for both the large and the small diaphragm, also the mounting of the loudspeaker unit.

the diaphragm should be rounded off so that they will not cut the fabric. They can also use silk for the diaphragm.

The mounting of the unit itself is left to the ingenuity of the constructor. The method employed with good results by the writer can be seen in the accompanying illustrations. It is important to remember that the unit must be so lined-up that the driving-pin will come exactly in line with the hole in the bolt.

6 The finished speaker may be placed in a cabinet or hung from the ceiling. If it is desired to colour the linen diaphragms this must be done before

A 1/2-inch 8/32 brass screw and nut ("H").

A package of No. 4 cut tacks.

A roll of passe-partout binder.

10oz. collodion (obtainable at chem-
ists) or varnish.

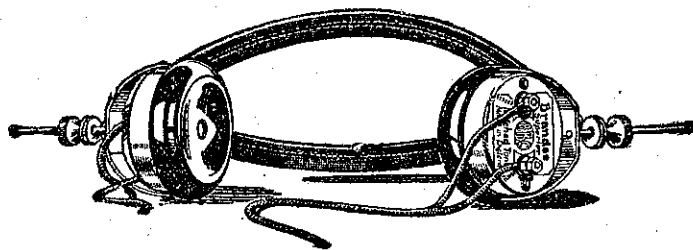
A balanced-armature loudspeaker unit with driving rod ("I").

Proof against Overloading.

FROM the foregoing description it becomes obvious that the weight or tension of the vibrating diaphragms does not act as a constant load on the driving unit. Therefore, although it might be imagined that the highly-taut diaphragms require a great deal of

Brandes

The Name to know in Radio



OBTAINABLE FROM ALL RADIO DEALERS or

INTERNATIONAL RADIO Co. Ltd., Ford Bldgs., Wellington

power to actuate them, even the slightest movement of the drive pin is transmitted without loss to them; as a result the speaker is unusually sensitive, and operates with great volume even on moderately strong signals.

The new speaker is capable of handling far more power than is required for all ordinary radio purposes. In

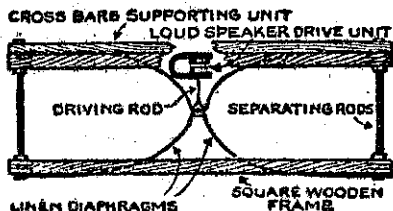


Fig. 4

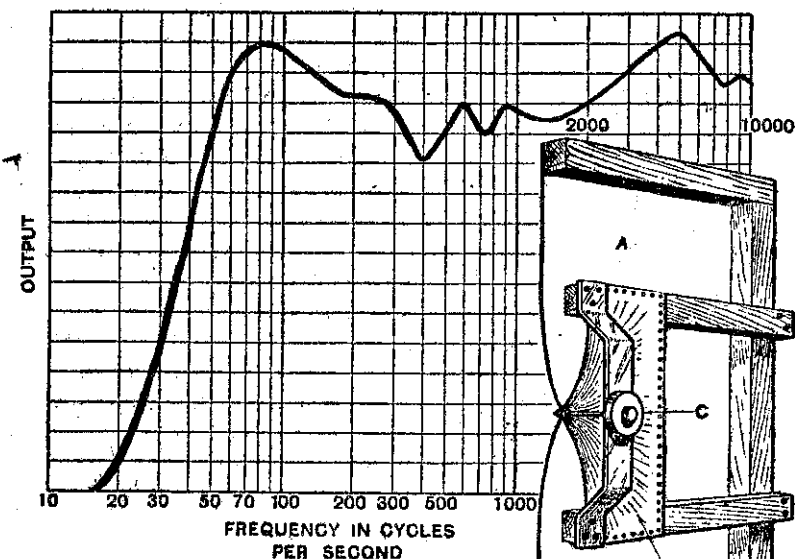
one test, for example, it was used in conjunction with a two-stage transformer-coupled audio amplifier employing two 210-type power tubes in the last stage. A strong local station was tuned in, and a direct comparison was made between this speaker and another of the cone type, of probably the best design on the market to-day. The latter instrument started to rattle when a certain volume level was reached; whereas this linen diaphragm

class broadcast station. Violin music comes through high and clear, without appreciable flattening of the high notes; while the sounds of drums and the low tones of a piano boom forth with clarity and realism. The unexpected responsiveness of the speaker to the low notes is somewhat disconcerting at first to a hearer unaccustomed to such reproduction; but in a room of favourable acoustic properties (i.e., one furnished generously with rugs, thick curtains, and similar echo-killing materials) the "booming" effects quickly lose their unpleasantness.

The loudspeaker may be mounted in a cabinet with its front covered in tapestry. Its performance depends largely on the use of suitable material for the stretched diaphragms, and on the mounting of these in such a way that their tension is correct and will remain so.

Some constructors are mounting the small frame with a screwed rod in each corner, so that in order to tighten both diaphragms it is only necessary to tighten a nut at each corner, then adjusting the nuts on the driving spindle.

A diagram appears showing the response curve for the linen diaphragm, and in comparison with the average loudspeaker it is exceptionally good, as



A response curve and (inset) a sectional sketch showing the mounting of the two vibrating membranes. A, working diaphragm; B, balancing diaphragm; C, driving unit.

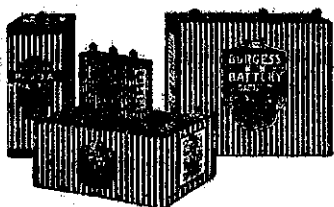
speaker continued to operate without distortion up to the limit of the amplifier.

Volume with Quality.

THE performance of this new loudspeaker, as judged by the ear alone, is remarkable for its brilliancy and faithfulness over the whole range of musical notes transmitted by a high-

variations in proportional output between about 50 and 10,000 cycles are hardly sufficient to be perceptible to the ear. Resonances which seem to be due to the fact that the natural time periods of individual membranes are incompletely suppressed are not so marked as to be in any way objectionable.

BURGESS RADIO BATTERIES



Technical Tips

WHEN the detector valve is coupled to the audio stage by means of a resistance in its plate current, it is necessary to apply a much higher voltage than would be the case if a transformer were used here.

GENERALLY speaking, a wave-trap is not much good for cutting out local interference of the type caused by trams, flashing signs, power lines, etc.

WHEN weak signals are being received it is very often an advantage to increase the value of the grid leak, and 4, 5, or 6 megohms is not an uncommon value to use in such circumstances.

ARC lamps are used for "sunlight" ray treatment are capable of causing tremendous interference with nearby receiving sets.

IT is impossible to exercise too much care in the wiring, etc., when power is being taken from the mains.

RADIO DIRECTORY

What to Buy and Where

CITIES

AERIAL MASTS	Domestic Radio Co., Ltd., Strand Arcade, Auckland.
ALTONA & HAMMARLUND-ROBERTS SETS.	Johns, Ltd. Chancery Street, Auckland.
ATWATER-KENT RADIO ..	Frank Wiseman, Ltd. 170-172 Queen Street, Auckland.
BREMER-TULLY RADIO	Superadio, Ltd., 147 Queen Street, Auckland.
BURGESS RADIO BATTERIES.	All Radio Dealers.
CROSLEY RADIO	Abel, Smeeton, Ltd., 27-29 Customs St. E., Auckland.
FERRANTI RADIO COMPONENTS	A. D. Riley & Co., Ltd., Anzac Avenue, Auckland, and all leading Dealers
CROSLEY SETS	Lewis Eady, Ltd., Queen Street, Auckland.
LOUDSPEAKER AND TRANSFORMER REPAIRS	A. E. Strange, 404 Worcester Street, Christchurch.
MULLARD VALVES	All Radio Dealers.
RADIOLA RECEIVERS	Chas. Bennett, Ltd., 619 Colombo Street, Christchurch.
RADIOLA RECEIVERS and Expert Radiola Service.	Farmers' Trading Co., Ltd., Hobson Street, Auckland.
RADIO REPAIRS AND SERVICE	E. G. Shipley, 185 Manchester Street, Christchurch.
METRODYNE RADIO—7v. and 9v. Elec.	Royds-Howard Co., 553 Colombo Street, Christchurch.
T.C.C. CONDENSERS	A. D. Riley and Co., Ltd. Anzac Ave., Auckland, and all leading Dealers.

COUNTRY TOWNS

CROSLEY RADIO	J. C. Davidson, Main Street, Pahiataua.
CROSLEY SETS	F. H. Jellyman, Ltd., Devon Street, New Plymouth.
CROSLEY RADIO	D. A. Morrison & Co., Victoria Avenue, Wanganui.
MAJESTIC, ATWATER-KENT AND APEX ELECTRICAL SETS. Also Bremer-Tully, Radiola and Browning-Drake	Radio House, Hamilton. G. S. Anchor, Manager.
PHILIPS VALVES AND APPARATUS	All Good Radio Dealers.

Index of Technical Features

The index covers all the important technical and constructional features in Volume II—that is from July 20, 1928, to July 12, 1929. Dates refer to 1929 unless followed by "'28" in parentheses.

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Frame, Tuning Capacities, August 10 ('28).
Novel Indoor Antenna, October 26 ('28).
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Crystal and Valve with 3-valve performance, November 30 ('28).
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A Home-made Testing Apparatus, February 1.
List of New Zealand Amateur Transmitters, June 28.
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Combating Static, October 26 ('28).
Polish and Stain, November 25; Oak Finish, August 31 ('28).

Practical Hints on Neutralising, January 11.
Radio Reception Explained, January 4.
Radio Terms, October 26 ('28).
R.F. Amplification and Selectivity, September 14 ('28).
R.F. Booster, May 10.
Regeneration—In Theory and Practice, February 8.
Shielding of Receivers, March 15.
Soldering Hints, July 29, November 25.
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Wavelengths of American Stations, January 4.

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Comments on Valve Curves, June 7.
Operation of the 5-electrode Valve, February 8.
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Screen Grid and Pentode, Comparison and Contrast, January 4.
Screen Grid and Pentode Valves, June 28.
3-electrode Valve as Amplifier, May 10.
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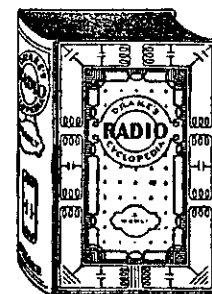
RECEIVING CIRCUITS.

"Combination" Receiver, April 12.
"Free Grid" One, December 28 ('28).
"The Pentode Three," January 18.
"Rotorua" Portable Receiver, December 14, 21 ('28).
"Round the World" Two, April 26.
"Shielded Five" Neutrodyne, March 15.

For Sale or Exchange.

See page 40 for column of casual advertisements.

New 1929 Edition.



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1700 subjects arranged alphabetically, gives the scientific theory and practical application in clear language for Service and Repair Men, Dealers, Salesmen, Experimenters, Owners, Designers. A fine book, bound in Art Buckram. Price 35/-.

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R8

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1929-30 Edition now on sale, has been well received and repeat orders are coming in rapidly.

The "Guide" is of more than passing interest—it is AN AUTHENTIC REFERENCE WORK that can be called upon to answer all those questions that trouble the amateur wireless enthusiast.

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"N.Z. Radio Listeners' Guide, 1929-30."

"RADIO RECORD,"

P.O. Box 1032, WELLINGTON.

Please post me immediately.....copy [ies] of your 160-page illustrated reference work "The N.Z. Radio Listeners' Guide, 1929-30" at 2/9 per copy post free. I enclose herewith postal notes for..... (Add exchange to cheques).

Signed.....

(Write address clearly).....

Reports Wanted

(Continued from page 40.)

quently transmissions will likewise be run continuously for 30 hours and will occur semi-weekly. The frequency of each transmission will be 2000 K.C. higher than that of the preceding frequency.

The complete transmission schedule follows:—

Date and Time. (G.M.T.).	Frequency.
16.00 22.00	
July 9 to July 10	24,000
July 12 to July 13	26,000
July 16 to July 17	28,000
July 19 to July 20	30,000
July 23 to July 24	32,000
July 26 to July 27	34,000
July 30 to July 31	36,000
August 2 to August 3	38,000
August 6 to August 7	40,000

We wish to point out that at certain periods of the day the signal will very likely be inaudible; therefore, reports stating that the signal was listened to but not heard may be just as valuable as those which give the characteristics of a received signal.

All correspondence in connection with this test should be sent to the following address:—

General Electric Co.,
Radio Engineering Dept.,
1 River Road,
Schenectady, New York.

The General Electric Company would appreciate reports under the following headings:—

New Zealand time received.

Signal Strength.

- 9 Very strong.
- 8 Strong.
- 7 Good.
- 6 Fair.
- 5 Rather faint.
- 4 Faint.
- 3 Intelligible.
- 2 Unintelligible.
- 1 Audible.

Quality.

- 5 C.W.
- 4 Excellent
- 3 Good.
- 2 Poor.
- 1 Bad.

Fading.

- 3 None.
 - 2 Slight.
 - 1 Bad.
- (If signals fade oftener than every 2 seconds record as "fast," otherwise slow.)

Static.

- None.
- Medium.
- Bad.
- Local lightning.

Weather.

- Clear.
- Partly cloudy.
- Very cloudy.
- Raining.
- Snowing.

Interference.

Give call letters of interfering station if possible, or other local interference.

Progress of Television

Emerging from Laboratory

THERE has been but little news of late concerning the foreign interests of the Baird Company (states the "Television Journal"), so with a view to ascertaining what really is going on our representative interviewed one of the Baird Company's officials. It would appear that our inquiries were somewhat too premature, for the official concerned explained that he was unable at the moment to give us more than a bare outline of the position. We learned, however, sufficient to convince us that the Baird Company at the present time is extremely active abroad.

France.—Our readers are already familiar with the progress that has been made in France. We hear all goes well and that some extremely interesting information will shortly be released to the public.

Germany.—As our readers know, the Baird Company's engineers have been over in Germany for some weeks. Some very satisfactory tests have been made through a German broadcasting station before officials of the Government, and the Germans seem determined that their country shall be the first to broadcast regular television programmes.

Australia.—The Baird Australian group is making considerable progress with the Australian Government. The Baird contingent is headed by Major Maculish, who formerly represented the Dunlop Company's interests in Australia.

Canada.—On February 4 last Sir John Aird, chairman of the Canadian Royal Commission on Radio Investigation (which was over here to study European broadcasting conditions), witnessed a demonstration of the Baird system of television, as a result of which he reported on his return to Canada that "England has advanced further than even the Americans in television."

South Africa.—We understand that South Africa is to be given an opportunity of witnessing demonstrations of the Baird system of television in July next.

Czecho-Slovakia.—Interest in the wireless world is at present centred on Prague, where a conference of the Union Internationale de Radiophonie is being held to settle the question of the international allocation of broadcast wave-lengths.

M. Brailard, chairman of the Technical Committee of the conference, came especially to London for a demonstration of the Baird system of television, and he expressed himself as being immensely impressed. Judging from his remarks, we expect he will advocate the allocation of certain wave-lengths for television broadcasting purposes.

TELEVISION, the present major interest as an expansion of the entertainment phase of radio, would seem to be not very far around the corner, states "Radio News." Presented and exploited in a "half-baked" state, before it had outgrown its laboratory swaddling-clothes, this legitimate offspring of radio arose like a rocket and came down like a stick. It is beginning to overcome that handicap, however—just as so many incubator babies later overcome the handicap of premature birth.

The conservative Radio Corporation of America, through one of its experimental stations, is actually transmitting television on a regular schedule, and there are rumours of an impending R.C.A. television receiver. The Jenkins laboratories have been transmitting for some time, from Washington and from Jersey City, and even go so far as to promise a reasonably-priced home television receiver, to be on the market before cold weather sets in. As yet, the size of the reproduced image is disappointingly small, and detail far from satisfactory; but laboratory results show promise of some rather startling improvements in practical transmission in the very near future.

Meanwhile, if we are to take at face value a photograph recently received from Germany, that country is by no means behind us in the development of television.

The illustration of this most recent German combination of television and voice receiver shows a screen, which would imply that the received image is of a size far beyond anything so far considered practical in this country up to the present time. For the present, we shall consider this as being in the nature of a "news flash," subject to later confirmation and possible elaboration.

An application of television principles that would seem to have fascinating possibilities, is the so-called radio television eye, with which C. Francis Jenkins is now undertaking experiments. It involves the use of a television set installed in an aeroplane, picking up and transmitting what the camera records of action on the ground below the plane. While these experiments are being conducted with emphasis on the military value of such a device, it requires little imagination to predict what it would mean in peacetime, in connection with major spectacles and sports events.

Have you secured your copy of

"N.Z. Radio Listener's Guide?"

Dealers and Booksellers 2/6; Post Free 2/9—P.O. Box 1032, Wellington. Now Available.

A Successful Set

RESULTS from my "Round the World Two" surprised me, writes W.I. (Lower Hutt). Before completing this set I had never even heard a short wave set, so you can see I did not know very much about tuning, although I have been working a five-valve broadcast set for about two years. With three weeks' interrupted searching the following was my log on short wave: 5SW, 2BE, RFL, DHC, 2XAL, 2XAF, TXAG, WLW, SXK, CTRX, 2MB, 2BL, 3ZG, 2BE, 2BU, 1BC, the last three being stations. I have also heard several other foreign stations, but could not identify them owing to no call being given in English.

Stations Verified

C. WILKINSON (Blenheim) writes: I have just lately received the following particulars from the undermentioned short-wave stations, which might be of interest to short-wave enthusiasts: 5SW.—Chelmsford, the location of this station, is situated in the County of Essex, and is approximately 80 miles from London. The normal power of 5SW is 7 kw. to the aerial.

DHC.—Nauen, Germany, the card states: "25 kms. N.W. of Berlin." This would be approximately 18½ miles from Berlin. The power is stated as 15 kw. The wavelength is 26,224 metres, or a frequency of 11,440 kilocycles. The Hertz beam aerial is used. Owned by the Telefunken Company.

Technical Tips

CARELESS or faulty handling of wires connected to the electric light mains may result not only in dangerous shocks, but in a risk of fire due to electrically heated wiring.

SPECIAL accumulator plates—generally known as "mass" type plates—can be left for very long periods in a semi or nearly full-discharged condition without any fear of sulphation.

Increase in Inter-Island Goods Traffic . . . Follows operation of Railway Through Booking System

The railway Inter-Island through booking system for goods and parcels adds another link to the chain of communication between the North and South Islands—the combined rail and steamer service is expeditious, economical and convenient.

Full particulars from any Stationmaster, Business Agent or District Manager.

METRODYNE

7 TUBE RADIO from £19 10s with valves

On Easy Terms if desired
ROYDS-HOWARD CO., Ch.Ch.

Short-wave Jottings

Have You heard 5SW?

THE British short-wave experimental station, 5SW, Chelmsford, England, has been transmitting short-wave programmes for the past two years, and the British authorities are anxious to learn how the programmes have been received in Australia and New Zealand. They are particularly interested in the strength and quality of reception, the times of the day the transmissions are received in summer and winter, and whether they are received regularly or spasmodically.

The British authorities have issued an appeal asking listeners to report to the head office of Amalgamated Wireless, Sydney, or to the New Zealand office at Wellington on reception of 5SW, giving details required. Amalgamated Wireless will collate the reports and forward them to the British authorities.

AFK Changes to DOA.

THE German official short-wave experimental transmitter, known to many amateurs under the call letters AFK (Doerberitz), now uses the call sign DOA. On most evenings (mornings here) the full announcement made is: "Achtung! Achtung! Heir ist der Kurzwellensender des Reichsportzentral-amtes Telegraphen-technisches Reichsamts, Funkversuchsanlage, Doerberitz." This is followed by the call letter. Various wave-lengths are used, and the exact measurement is given at the end of the transmission. Broadcasts are mostly carried out on 40 and 87.45 metres, but on some days transmissions are made on 67.63, 71.45, 75.3, 77.2, and 82.9 metres. Times vary, but experiments are frequently effected from 2.30 a.m. till 4.30 a.m. and from 4.30 a.m. till 6.30 a.m. New Zealand mean time. On odd dates, tests are also made from 6.30 p.m. till 10.30 p.m. (New Zealand time)—mostly on Mondays and Fridays. This appears to prove that the German station we often hear in the early morning on 40 metres, and reported as DOR, is really DOA, as the German pronunciation of DOA is

"Dey, oo, ah," which is very much like the English "Dee, oh, ar" (dor).

The Week's Log.

EARLY morning reception has gone off during the last week or two. 5SW is about the same as it was this time last year; that is, very weak at 5.30 a.m. and not reaching fair readable strength till near 7.30 a.m.

PCJ is coming in stronger now at the same time than they did twelve months ago. This is probably accounted for by increased power. The Americans are, on the average, received at better strength now. Since W2XAD reduced their wavelength from 21.96 metres to 19.5, they are readable much earlier; in fact, their programme can often be followed from the time they commence at 9.30 a.m. (New Zealand time) till closing at 3.30 p.m.

Saturday, June 29.

PCJ was below their usual strength. R3-4 at 5.30 a.m., increasing to R8 by 7.30 a.m. 5SW was not audible till after 6 a.m. A strong ripple spoilt reception then. On 34 metres about, at 6.20 a.m., a foreigner was heard at R8. A lecture was being given, clapping being clearly audible after pauses in the speech. They were going strong at 7.30 a.m. PCJ was excellent from 1 p.m. till signing off at 5.35 p.m. Volume ranged from R8 to R9 till near the finish, when they were a little unsteady. KDKA was quite good from 1 p.m., but spoilt at times by Morse interference, as was 2XAD at times, who were R9 till closing at 3.30 p.m.

On about 30.5 metres a station was first heard at 2 p.m. at R2. A little later snatches of conversation were heard such as "Are you going to use long or short-wave?" Two voices could be heard as in duplex telephony. Still later, about 2.45 p.m., a number of figures and times were given—seemed like wavelengths and the hours they were to be used. "Good-night" was said several times, but talk continued without any indication of the location of the station.

3ZC, Christchurch, was about R7 and not so steady as usual.

VK2ME was good at maximum strength, relaying the All Blacks v. New South Wales match.

ZL2BE, ZL2AX and RFM were all received at R9. An orchestra from the Russian station was very good.

Sunday, June 30.

AT 12.30 p.m. 2XAD ver. R5, increasing to R9 by 2 p.m. The General Electric, Lucky Strike and Special Byrd programmes were heard. 2XAF were on the same transmission but weaker than 2XAD till near the conclusion.

KDKA appears to be the favourite station or the easiest to tune in, as I find more howlers on it than any other. Strength was good, but spoilt by the howlers.

WSXAL (WLW) at its best was R4, about 50 per cent. readable, signing off at 5.1 p.m.

Monday, July 1.

Nothing heard—not even 3LO, Melbourne.

Tuesday, July 2.

5SW opened at R5 with a strong ripple. The announcement from Chelmsford was readable with difficulty, but talk from London was impossible. Strength increased to R7 by 7.30 a.m., but the ripple was just as troublesome. "Soldiers of the Queen" sung by a chorus, was heard just before the time signal at 7.30 a.m.

Wednesday, July 3.

AGAIN 5SW was spoilt by strong ripple. W6XN (KGO) was R2-3 at 5.40 a.m. and only just audible at 7.30 a.m.

Just after 6 a.m. some music and talk were heard on about 34.5 metres at R4. Morse spoilt possibility of understanding what was said.

KGO at 6.15 p.m. was R8, with a programme by the Spotlight Revue till 6.30 p.m., this was followed by dance music by the Trocadarons. Volume went off very rapidly, being too weak to bother with before closing time.

Thursday, July 4.

UNTIL 7.30 a.m. 5SW was too weak to listen to, when they were R5. KGO at 6.30 a.m. was barely readable at R2.

New Zealand amateurs, 2GN, Levin; 2GQ, Gisborne; and 2AX, Palmerston North, were well received at R9, during the evening.

WSXAL opened at 10.45 p.m. with an orchestral selection at R8. Both static and morse interference were very bad.

A lady was heard singing at 11 p.m. on about 24.5 metres; R2 at best, fading right out at times. 5SW was tried for at 11 p.m., but no sign could be heard. PH1 started a test at 10.30 p.m., but was not audible by 11 p.m., when I closed down.

Friday, July 5.

PCJ was excellent except for a slight surge. Volume was R8. They signed off at 6.35 a.m. on account of some trouble with the transmitter. Apologies were given for closing one hour earlier than usual.

5SW was a little better this morning. R5 at 5.30 a.m. increasing to R7-8 by 7.30 a.m. Intelligibility very poor on account of ripple. At 9.30 p.m. on about 18 metres a woman was heard talking at R2-3. Later "Hullo, Bandoeng" was heard several times. This station was probably PCK, Kootwijk, Holland, on 16.3 metres, carrying out duplex telephony with Bandoeng, Java.

Reports Wanted

Extensive Tests

MR. N. A. WATERS, president of the Palmerston North Radio Club, writes:—

The enclosed information is a condensed summary of a letter received from the General Electric Company, Schenectady, relative to radio propagation tests 20,000 to 40,000 K.C. (15 to 7½ metres).

The General Electric Company are anxious to accumulate as much data as possible on these tests, and would appreciate very much reports from amateurs in New Zealand.

Each test will run continuously for 30 hours, and they state that it may prove difficult to pick up some of these transmissions on account of propagation phenomena and uncalibrated receiving sets. To facilitate this matter they have given a forecast of the time at which they believe reception will most likely be effected (in New Zealand):—

6.30 a.m.—12.30 p.m. (N.Z.T.).

7.30 p.m.—10.30 p.m. (N.Z.T.).

Propagation Test—20,000 to 40,000 K.C.

FOR the purpose of gathering additional radio propagation data at high frequencies, the General Electric Company at Schenectady, New York, will conduct a 20,000 to 40,000 K.C. propagation test during the months of July and August, 1929.

Listeners in various parts of the world are being advised of this test, and it is hoped that from the quantity of reception data that will be forthcoming considerable new information may be obtained relative to 20,000-40,000 K.C. performance.

The transmitter utilised at Schenectady will have its frequency crystal controlled and a normal power output of approximately 2 K.W. The antenna will be a simple non-directive structure. The call letters utilised will be W2XAW. The material transmitted will consist entirely of C.W. (continuous wave) transmission. At few minute intervals the station call, the frequency on which the station is operating, and the frequency which will be used during the subsequent transmission will be given.

The initial transmission will be on a frequency of 20,000 K.C. and will begin at 16.00 G.M.T., July 2. Subsequent (Concluded on page 39.)

FOR SALE OR EXCHANGE

The rate for small advertisements under this heading is 2/- cash for 20 words, and twopence for every other word thereafter.

HAVE you obtained your "Listener's Guide"? 2/6 from booksellers and radio dealers, or 2/9 post free from the publishers, Box 1032, Wellington.

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Printed and published for the New Zealand Radio Publishing Company at the registered office, Wakefield Street, Wellington, of the Wellington Publishing Company, by Archibald Sando, of 47 Freyberg Street, Lyall Bay, FRIDAY, JULY 12, 1929.

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