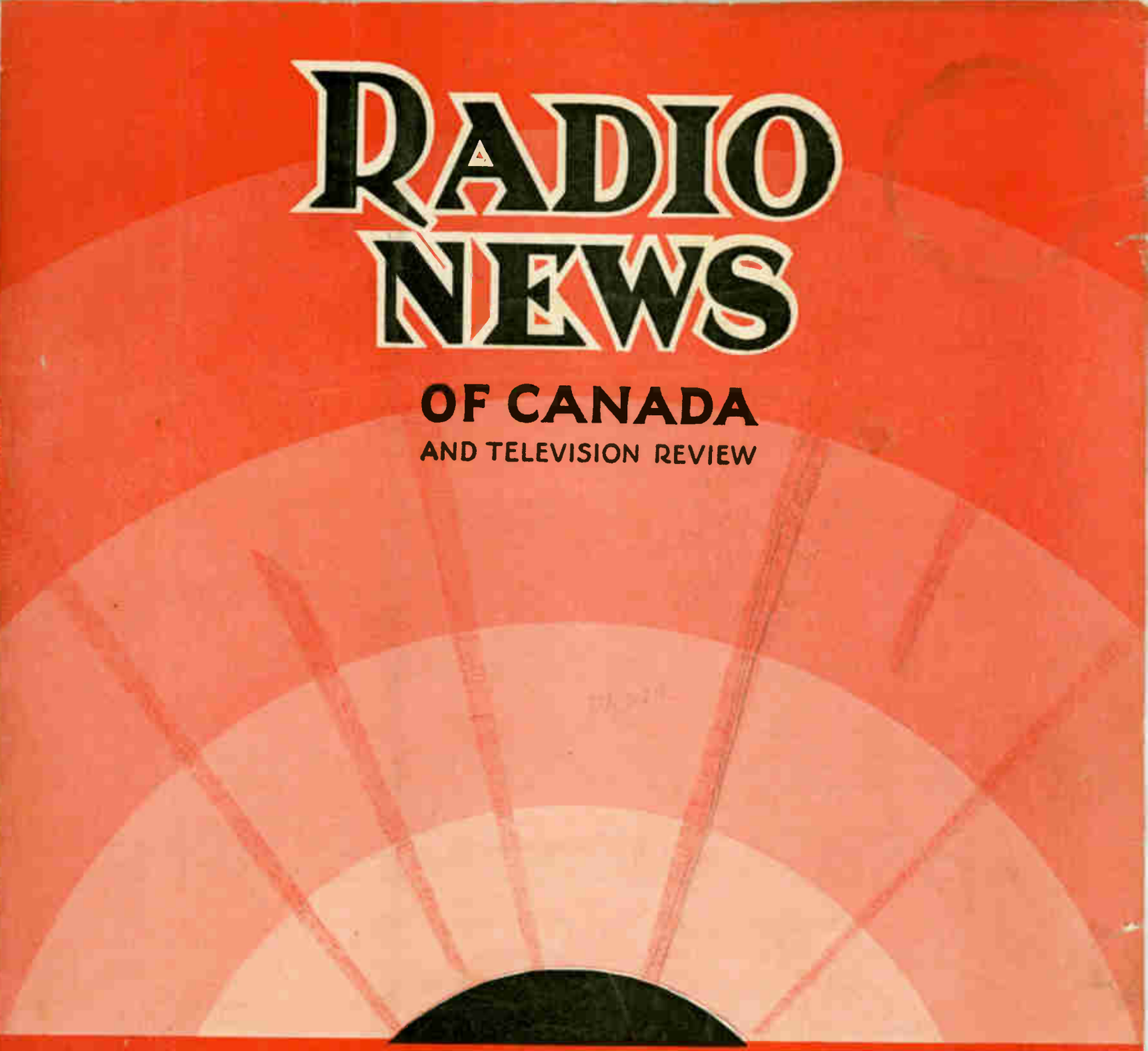
RADIO NEWS

OF CANADA

AND TELEVISION REVIEW



A Review of Canada's Broadcasting Stations and Activities

See the Radio Show

Canadian National Exhibition

Aug. 23rd to Sept. 7th, 1929

20 CENTS

Vol. 8—No. 1 TORONTO September, 1929

FOLLOW
THE
LEADER

UTAH

ALL ROADS LEAD TO THE C.N.E.
APPRECIATION OF PERFECTION
LEADS TO

SEE
FOR
YOURSELF

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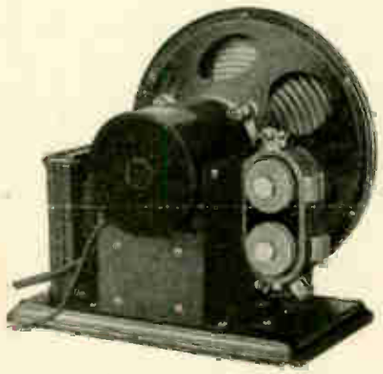

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UTAH RADIO PRODUCTS CO.

309-311 King Street West - - Toronto

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TEMPLE

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Till you do, you have not heard how good a loud speaker can be.

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TEMPLE Dynamic knows no superior for clear, natural tone, and clarity is perfectly maintained with increase of volume.

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TEMPLE DYNAMIC SPEAKER

Model 2, 110 volts, A.C., 60 cycle.
Model 4, 110 volts, Direct Current.
Model 6. 6 volt, D.C., Battery Type.
East, $55.00; West, $57.50
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Hear, too, the two old favourites on which TEMPLE'S name was built,—TEMPLE Air Column No. 15, and Air Chrome No. 20.

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Housed in Beauty,—the TEMPLE Speaker comes in real walnut cabinet, giving the effect of grained leather.

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Radio News of Canada
and TELEVISION REVIEW

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The New Columbia Radio---Phonograph Combination

This gives a fair idea of the beautiful new Radio-Phonograph machine now being sold by the Columbia people for $425. It contains an 8-tube batteryless Kolster set. There is space on either side of the motor board for 30 records. As our readers can see, the machine is an attractive piece of furniture and a decoration to any home.

Behind The Scenes of a Broadcast Station

By Major Wm. C. Borrett, Director of Northern Electric Radio Station, CHNS, Carleton Hotel, Halifax, N.S.

(Now Station Director, Halifax Herald, Radio Station CHNS; Lord Nelson Hotel, Halifax, N.S.)

Nearly every day of my life, I am asked questions by some radio listener regarding broadcasting, and having answered these questions to so many, I feel that many more of the ever growing army of radio listeners would like to know something about the work of broadcasting from the transmitting end.

What Broadcasting Is

Radio Broadcasting is the dissemination of matters of interest to the public at large. The matter of interest may be purely local, or universal. It may take any form—information — instruction — entertainment—warning of danger, or appeal for help. To get a proper appreciation of the Broadcasting Station and to visualize its possibilities, Radio Broadcasting must be considered from this fundamental viewpoint—as a medium of dissemination.

Like many other mighty influences in life, the potentialities of this foundling of the scientific laboratory were realized by the alert business man before anyone else, and was energetically developed from his point of view as a means of opening a market for Radio equipment. Close upon his heels came the publicity man and for a time it seemed that this foster-child in the hands of its energetic parents might be put to unpopular use. Many of them beclouded the true mission of Radio Broadcasting. It is safe to say, however, that direct advertising over Radio had a very short life, and it is a very fussy listener of today who can complain of the advertising he hears associated with the present broadcasting programme.

In thousands of letters I have read, it was this spontaneous appreciation which these letters conveyed. On no single occasion have I read one criticism regarding advertising done by the Station it has been my privilege to manage.

The Present Status

There are at present, over 700 Stations in the States and Canada and not more than 20 per cent have any relation to the Radio industry. Many of those Stations sell time on the air to other corporations. It is not possible for all companies to is just as well. There is no objection on the part of listeners to the operators of a Station selling "space," as it were, to those who would like to present a "good-will" programme to the listening public.

In all cases these programmes are of the best, because the name and reputation of the company presenting the entertainment is linked up with the class of programme they provide.

Amounts vary for the cost of buying time on the air, but in New York the price runs around $10.00 per minute. In smaller cities of course, the cost is very much lower, as Radio Stations base their charges on the number of listeners in their district, or circulation, so to speak.

By this means listeners are afforded regular feasts by way of entertainment. Surely, if a company pays for the renting of a Station and provides such programmes, as the broadcasting of a championship hockey game or other popular features, they are entitled to have it announced during the broadcast of their programme that the entertainment is provided by that company. The advertising obtained is what is known as good-will advertising and is not considered Direct advertising.

If the announcement were made that a Radio Battery sale would be conducted during the coming week and that bargains would be obtainable at such and such prices, then such announcements would be called Direct advertising, and the operators of the Station would refuse to make such announcements or allow them to be made.

The Station allowing any too obvious reference to any particular line of merchandise would quickly find itself unpopular.

The Station Staff and Necessary Rooms

The operation of a station requires a deal of organization and a competent personnel to operate successfully.

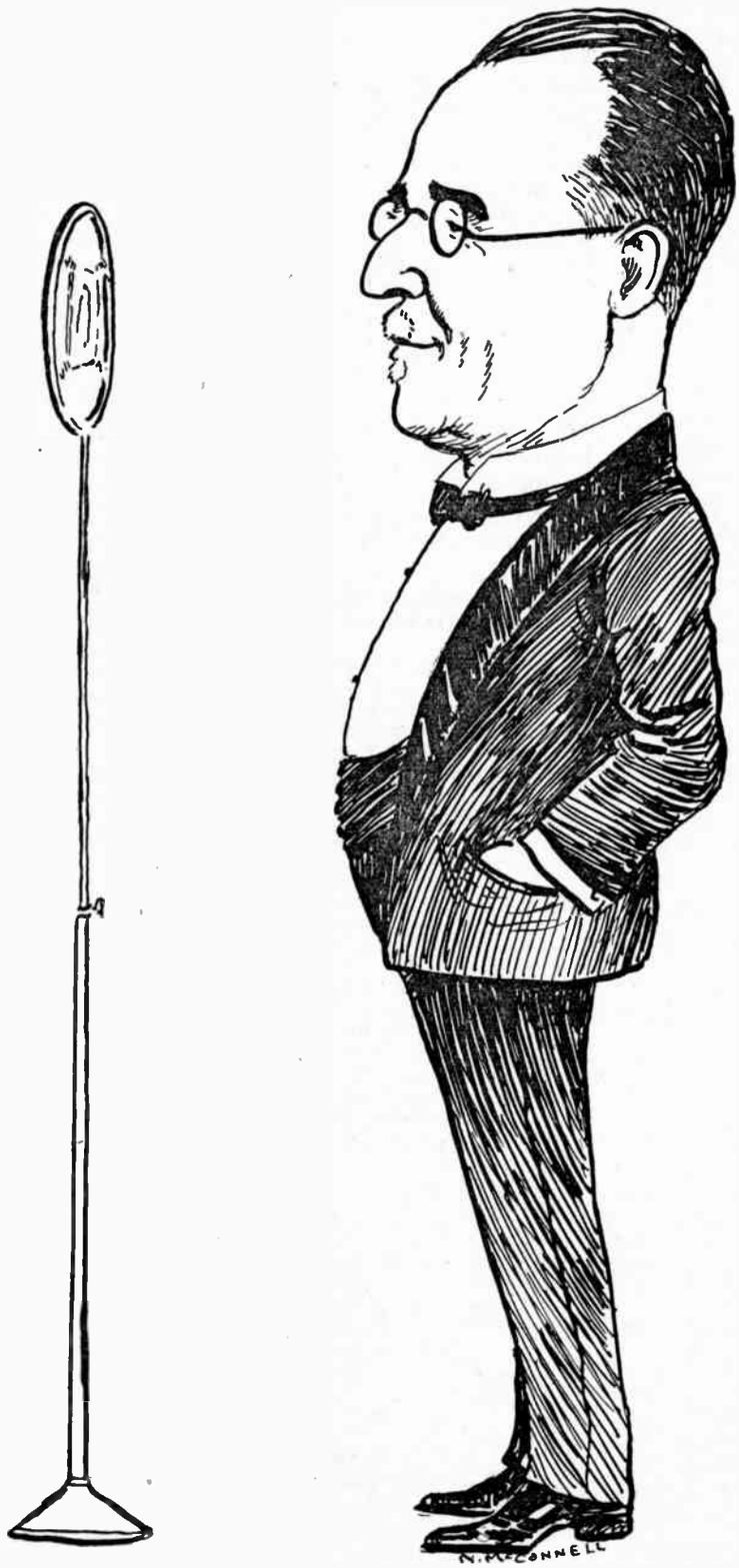
There is not much to tell regarding the necessary rooms.

The Equipment Room is occupied by the operator, who is responsible for sending out the programme, through his Speech Input Amplifier equipment, that which is transmitted through the microphone, located in the Studio, or some place outside when Remote Control Equipment is being used.

The Studio needs little reference.

Visitors can be a source of trouble in the Studio

Famous Managers
No. 1---Mr. Howells of C.K.C.L.



You have all seen pictures of the various Studios. Where possible, it is much better to have plenty of room for working your programmes.

The decoration is generally on drawing room lines when possible. The heavy draping of walls and ceiling is not always necessary, in a well built room where no reverberation is not present. I believe that the necessity for draping by heavy curtains was something considered necessary in the early days of broadcasting, and possibly the effect was more sought for than anything else in the desire for appearance rather than actual necessity. Many Studios today have special plaster and wall boards with very little draping.

A Reception Room adjoining the Studio is absolutely necessary.

Here artists and friends assemble. There will always be friends who do not know the available space for their reception, and Studio Directors would prefer that they stay at home and listen in to their artist friends through a Receiving Set. It is surprising how many people who never having shown any interest in Radio, desire to attend a broadcast. If allowed in the Studio, a deal of care is necessary to keep them quiet, and visitors in the Studio while an artist is performing, should be absolutely barred until they know how essential it is not to talk or whisper when the Station is on the air. Visitors can be a source of trouble even in the Reception Room. They constantly engage an artist in conversation, and when an artist is due at the microphone a hurried search has to be made for a particular score and a chat has to be indulged in with the pianist as to some peculiar manner of dealing with some one number. All this takes time, and delays between numbers are not allowed by an efficiently operated Station. This brings to mind the special duties of the Station Staff.

The Duties of the Staff

The Announcers have their place before the microphones in the studios, and never leave their posts during the programme. The announcers are best known to the listening public and they can make or break a programme as their special job is to put over the announcements incidental to the programme in a dignified and acceptable manner.

The Station Director is the official under whom all departments of the stations' activities are supervised. He has to familiarize himself with the work of all the Station Staff, and look after the business end of the Station. His particular duties when the Station is on the air, are to arrange that the artists are on hand to sing at the appointed time and to generally supervise the general running of the Station. His chief worry at this time, is to keep faith with the public and to see that everything runs smoothly as per the advertised programme. He receives many telephone calls during the broadcasting of the different features and often has to be very diplomatic in his answers to the many questions put to him by the listeners. When the Station is not on the air, he has his hands full looking after the business end and arranging for programmes, artists and so forth.

Another official, who has much work and who is not known to the listeners is the Programme Director. All programmes have to be arranged beforehand so that they run the proper length of time as advertised and in many cases rehearsed under the direction of this official. He has to place himself in the position of the listener and with the Station Director will criticize the programme to be broadcast and arrange for the continuity so that when the Announcer presents the programme to the listeners, it will run in a smooth and pleasing manner. He could tell many tales of tempermental artists and a lot depends on his work in pleasing and entertaining the listeners. When artists arrive at the Station they are greeted by a lady who is the Station Hostess. This lady receives the artists and shows them the cloak rooms and informs them at what time they are expected to be ready to enter the studio. She also gives information to any one visiting the artists' waiting room or calling by phone on any matters of programme schedule. Her title tells you just what her duties are and on her depends the responsibility of making everyone feel at home as it were, and she helps a great deal in driving away that feeling of fright which overcomes many artists when they come to a Broadcast Station for the first time.

The Station Operators are never seen by the artists and the operators are sometimes glad of that, as they have their hands full while the Station is on the air and cannot spare time to explain the working of the Station when their whole attention is needed to look after the many dials and meters around them.

Remote Control Difficulties

Much of the Station's time on the air is occupied by outside point broadcasting, known as Remote Control Broadcasts, and in addition to the regular equipment at the Station, an extra amplifier and Microphone is necessary at the place of entertainment and here the services of an extra operator, known as the Remote Control Operator, are used. He attends to the Remote Amplifier which relays the programme over the special telephone circuits, hired for the occasion, to the Station Operator, who sends it on the air through the regular Station Transmitter.

Much preparation is necessary to put over Remote Control Broadcasting, and many tests are made

RADIO PATENTS ISSUED DURING THE MONTH OF JULY, 1929

291,034—Television. The Skala Research Laboratories, Inc., Ljubomir W. Skala, July 2, 1929.

291,190—Thermionic Valve. The Dubilier Condenser Corp., The Radio Patents Corporation, assignee of H. W. Houck, July 9, 1929.

291,227—Dicharge Tube. N. V. Phillips' GloeilampenfabriekenElko- Oosterhuis and J. Gijsbertus Wilhelm Mulder, July 9, 1929.

291,250—Acoustic Device. The United Reproducers Patents Corps, Newcombe-Hawley, Inc., Colin Kyle, July 9, 1929.

291,269—Frequency Translating Circuit. The Western Electric Co., Inc., H. S. Black, July 9, 1929.

291,342—Electrical Amplifier. Benjamin F. Miessner, July 16, 1929.

291,389—Electric Transformer. The Canadian Marconi Company, George M. Wright, July 16, 1929.

291,514—Vacuum Tube. W. S. Kimmig, July 23, 1929.

291,541—Dynamic Sound Reproducer. Vesper A. Schlenker, July 23, 1929.

291,610—Electron Discharge Device. The Western Electric Co. Inc., The International Western Electric Co. Inc., Merwin J. Kelly, July 23, 1929.

291,611—Mounting for Phonic Diaphragms. The Western Electric Co. Inc., Charles R. Moore, July 23, 1929.

291,613—Electrical Signalling System. H. R. Hayden and A. E. Van Doran, July 23, 1929.

291,763—Sound Reproducer. The Canadian General Electric Co. Ltd., Chester W. Rice, July 30, 1929.

291,831—Radio Frequency Communication System. Lucien Begin, July 30, 1929.

Geneviene Lyon-Fonya, Mezzo Contralto, who is to be heard in weekly radio presentations given by Evangeline Beverages from CFRB (Toronto)

beforehand, and on some occasions we have let our Radio audience hear the engineers lining up the hook-up, preparatory to the regular broadcast.

Perhaps the one Remote Broadcast best remembered by the audience of CHNS was on the occasion of our broadcasting the championship hockey game between Saint John, New Brunswick and Truro, Nova Scotia, for the Maritime Championship, from the rink in Saint John, when CHNS at Halifax and CFBO of Saint John were tied in together.

The operator at CHNS, Mr. Landry, had been instructed to allow the voices of the wire chiefs, operators and so on, to go on the air to let the public hear what preparation is necessary. Somehow or other I forgot that I had given these instructions, and as the crowd in the rink were making a lot of noise, I said a few things to the operators about the noise, which were not for outside ears, and it does not take much imagination to realize my surprise and feelings when the operator told me my "cuss words" had gone on the air.

As Remote Control Broadcasting is perhaps one of the most interesting parts of our work, permit me to take you behind the scenes and tell you something about it.

The Trans-Canada Confederation Chain

The greatest Remote Control job which we have been connected with, was the Trans-Canada Confederation Broadcast, when we were the Eastern end of the Chain of Canadian Stations that stretched across Canada from Halifax to Vancouver, and in which some fifteen thousand miles of land lines were used, connecting up the different Stations with Ottawa.

In addition to the broadcast lines which carry the programme, it is necessary that each Station keep in touch with Ottawa and for this a communication circuit is maintained.

In addition to the Radio Station announcers, operators and telephone company officials, Radio fans no doubt noticed the name of a C.N.R. telegraph operator on the list of those taking part at each Radio Station on the Confederation Trans-Canada Chain. Radio fans perhaps wonder what the C.N.R. telegraph operator had to do with Radio broacasting.

As the Air Force and Signals serve the Canadian Army as "eyes and ears," so did the Communication Circuit of the National Broadcasting Committee serve the Network from Halifax to Pacific for the Trans-Canada Jubilee Broadcast.

Through this system every Station on the Network was in constant communication with the Key Station of the Chain. The transmission of every feature of a Network programme is checked through this means, both at the Key Station and the others broadcasting it.

Operators in this important branch of the Operations and Engineering Department are trained to receive the Morse Code. But many abreviations and call letters have been evolved in order to reduce traffic on these lines, therefore to an outsider, the messages received and sent out while a Network programme is on the air, would be almost unintelligible.

If you will permit, let us "sit in" with the Communication Operators.

The men are at the keys by 9 o'clock, Halifax time, in the forenoon, although the first Network "hook-up" is not scheduled to go until noon.

The Engineers in charge of the Network at Ottawa, issue preliminary instructions, to the Stations regarding the broadcast.

The keys begin to click:

"Hello Montreal, Quebec, Moncton, etc., stand by for tone frequency tests," in pre-arranged code, of course.

ONE OF RADIOS CURIOSITIES

The layman, unfamiliar with the characteristics of radio transmitting, might reasonably assume that the closer one happens to be to a broadcast station the stronger would be the signals received. More than likely, that is true in the case of the ordinary long-wave station. However, in the case of a short-wave transmitter, "skip distance" enters into the situation and reverses things considerably. For instance, it is possible that a short-wave transmitter in New York, operating on much less power than is ordinarily used by the long-wave stations, may be picked up in Australia with such volume as to be heard all over the room. At the same time, these same signals may be picked up with great difficulty or, perhaps not picked up at all, by receivers located less than 500 miles from the transmitter. The signals seem to skip over certain areas entirely only to reappear at much greater distances. This, is the effect known as "skip distance." It presents many problems in short-wave transmission, especially between land stations and planes in flight.

Frequency cycles of 100, 1,000 cycles and so forth are sent out.

And back they come. If the reading is off, another tone test is sent out from CNRO and adjustments made. This process goes on for several hours. Some trouble may be detected in the circuit and accurate checks are made. Weather conditions must be taken into account. Storms may cause distortion. This must be cleared during the tone frequency tests. And if a storm should come up during the actual broadcast the operators become as busy as a train dispatcher. In fact, their work is not unlike his. While he must direct trains over the proper routing, a Communication Circuit operator must guide the programme to the proper Station and see that it arrives there as it is broadcast from CNRO. In this way the Network "warms up" for the broadcast.

But this is not all. There may be a slight delay and the programme does not go out according to schedule. This would leave the Network Stations silent, if it were not for Communication Circuit Corps. CNRO's announcer will report to the supervisor: "The carillon will be at least four minutes late, about 12.04." This is flashed to the Stations and they ararnge things accordingly.

Now the Network programme is ready to go on the air.

CNRO's announcer will make his announcement through the Ottawa Station then "stand by" for 30 seconds. This interval gives the announcers at the Network Stations time to make local announcements.

Then the programme begins. This co-ordination has been perfected. The local announcers know they have just 30 seconds and no more, therefore their announcement "just fits."

Now, let us assume the Communication Circuit Corps' position, when trouble comes.

"Distortion," will flash from CNRA, Moncton! "noisy," clocks in from CHNS, Halifax; "not clear," from CNRV, Vancouver. And so it goes.

As these reports flash into the National Broadcasting Committees' headquarters, they are passed along. If the line cannot be cleared up, an emergency line picks up the programme.

"Better," says CNRA; "still off,"

flashes from CHNS; "O.K." from CNRV.

When things are going out clearly, the Network operators flash comments into the Communication Circuit Corps, which are carefully jotted down for future references.

"Baritone is dandy," will click in from CHNS at Halifax; "who's the soprano?" from CHYC, Montreal; "Orchestra is snappy," says CFCA, Toronto; "selection not so good," will flash in from CKY, Winnipeg.

After the air is clear, the Communication Circuit operators check back and get readings on the entire programme from the various members of the Network.

To further demonstrate the necessity for this Corps, suppose a storm puts part of the Network out of commission. Months in advance the various Stations have contracted for the programme.

The Communication Corps gets busy. The night before the great day of the first Trans-Canada Broadcast, as a matter of fact, part of the Eastern line was causing trouble during tests. In a very few minutes the emergency line running through different Eastern points was brought into play and before morning repairs were made to the other line and the programme went on as per schedule.

Some Funny Incidents

If the writer had known all the trials and tribulations that go with the title of "Station Director" it is doubtful whether he would have rushed in and taken on such a title with such pep and enthusiasm as he displayed when asked to lead the destiny of the first real broadcast Station that was to make its home in Halifax, Nova Scotia, under the call letters of CHNS.

Halifax is so located that many, many nights, that not a sound, even static, is heard for some unknown reason, and so a number of Radio enthusiasts got the idea that Halifax should have its own broadcast Station and so fill up the blank nights with all kinds of entertainment. This was considered a simple matter by the enthusiasts who met in earnest conference, and the writer was prevailed upon, to be the gent who should manage the Station for their entertainment.

To make a long story short, the Northern Electric Company, established the Station, and under the watchful eye of the local manager, Mr. F. W. Johnson, former Station Director of CHYC, Montreal, the writer stepped off into what has proven to be one of the most interesting fields of endeavor.

All the writers' previous experience in Radio, having been in the ranks of the amateur experiments, or "Hams" as they are called, who spend all their days and most of their nights chasing dots and dashes, all over the world, it was a new and thrilling experience, and one that I am afraid, caused many of his old associates to look upon him with scorn, for having become a member of the class that would cater to the entertainment of the "BCL," as the broadcast listener is called by the "Ham."

However, it is a proud boast of the writer, that all my associates at the Station are members of the American Radio Relay League, the greatest "Ham" organization in the world, so at least one Station is safe from going completely over to that august body the "BCL's."

Having decided to take on the work, the only thing to do, was to go ahead hammer and tongs, and it is my purpose now to tell you of some of the funny things that have happened during the past three years that I have enjoyed the title of Station Director of the Northern Electric Company's Station CHNS, operated by The Broadcast Committee of the Halifax County Radio Association, at the Carleton Hotel, Halifax, N.S. Just try to say all that in one mouthful, and you will see why the local BCL's would ring up after the first few broadcasts and tell me, that they knew who was running the Station without being told every night we came on the air. This is not all they told me, but you probably know how you act yourself when the local Station is on the air, and you cannot tune them out, so there is no need for me to repeat some of the

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RADIO AND GRAMAPHONES NOW INSTALLED ON AMERICAN RAILWAY

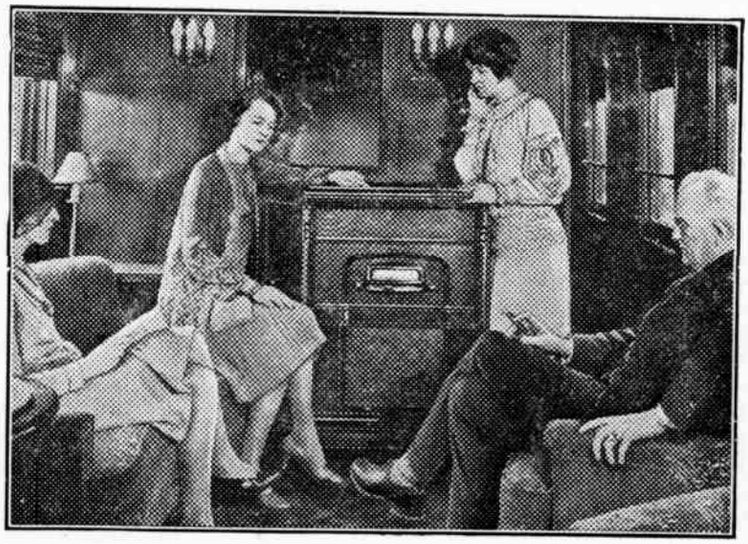
When the installation and successful operation of a Victor Radio receiving set on its de luxe new train, the Empire Builder, the Great Northern Railway has added the latest form of diversion for passengers en route.

The inauguration of the new train was heralded to the country by Graham McNamee over a coast-to-coast hook-up, and while the train was on exhibition in the Union Depot at Chicago this last word in railway travel comfort was visited by more than 20,000 persons.

During the inspection both radio concerts and phonograph records played by a new RE-45 Victor-Radio with Electrola were enjoyed by those who visited the luxurious lounge car of the train where Great Northern officials and their guests listened to the Empire Builder broadcast. In co-operation with railroad engineers, the technician of the Radio-Victor Corporation devised a special installation which permitted passengers to enjoy radio and record music on the Empire Builder's initial trip and this form of entertainment will be a regular feature of its daily runs.

It is stated by Great Northern engineers that results obtained with the new Victor have been highly satisfactory with both the radio and Electrola. Even with the noise of the speeding train the micro-synchronous feature of the instrument resulted in amazing faithfulness and clearness of reception. In addition to several Chicago stations, WLW, Cincinnati and KSTP, St. Paul, are picked up with excellent volume.

Following the success of this novel experiment the Great Northern has ordered nine additional Victor instruments, it was announced yesterday by the Radio-Victor Corporation. These will be part of the equipment of the private car of the president of the road. That this newest departure in entertaining travelers on de luxe trains will shortly result in making Victor instruments standard equipment on the country's finest trains is the opinion expressed by both radio and railroad engineers.



advice that we received from our loving listeners.

For our opening night we decided to get the most prominent men within reach to speak and tell the world how proud they were that Halifax and Nova Scotia were to have a broadcast Station of their own. This is where we struck our first snag. Most public men will break their necks to get a chance to spout over the air or anywhere, but we found a new species. The gentlemen I refer to, held a very prominent place in the life of Halifax, but apparently he had never been struck by the Radio bug, as he absolutely refused to speak before our microphone, until we would tell him "WHOM HE WAS TALKING TO." Needless to say, he never spoke and we had to be satisfied with less prominent personages for our opening night.

He wouldn't speak till he knew whom he was talking to.

Having gotten away to a good start on our opening night, we next turned our attention to establishing some regular features and decided that first of all, we would have a "Children's Period." A local newspaper was running every night a short installment of a well known story for children and it was decided to let them send over to us a proof of the installment which would appear in the next day's morning paper, and the writer would read the story to our juvenile listeners. This went along fine for a few weeks as each installment was a complete short story in itself. One evening however, the author decided to write half of a story in his regular feature and complete it next day, and after the writer had read about half of it, he noticed that there was not a complete short story as heretofore, and as a result had to make up an ending for the kiddies. A very plausible ending was made up, but the author of the stories went and spoiled it all by ending the story up in his next installment in a very different way to the Radio broadcast, so that ended my broadcasting of children's stories.

We next obtained the services of a young lady, who went by the name of "Aunt Helen," and who wrote her own stories, which the children took to like a duck to water. Aunt Helen decided that I should be known to the kiddies as "Uncle Billie," and she would often stop in the middle of a story and ask me to confirm some wonderful statement that she had made to the children. Of course I would always agree, as would "Uncle Jack," another member of the staff.

The children evidently remembered "My bedtime stories" for we received a report from a gentleman, to the effect that his young daughter had been listening one evening when Aunt Helen had called on one of the male members of the staff to confirm something she had said and the child remarked to her Daddy, "Isn't he an awful liar, Daddy." From that time on, both Uncle Jack and Uncle Billy were very careful as to what they agreed with for Aunt Helen.

The children often have made remarks which their proud parents would tell us about. Perhaps one of the best was in connection with the Station's slogan.

When we would open up our Station, we would always state that CHNS is located at "Halifax, Nova Scotia,—The Front Door of Canada,—Always Open." This caused one young listener to remark to her mother, "It must be an awful cold place at that Radio Station in Winter, if they always keep the front door open."

One of the next features which we obtained was the broadcasting of the weekly Auction Bridge Games. This was a very popular feature, but unfortunately every one of us at the Station were very poor exponents of that game, which caused us many anxious moments and was the delight of our friends, when they would ask us out to have a game of Bridge, especially after hearing us give out the proper way to play the game, to see us walk off with the "Booby" prize. However, it must be another case of do as I tell you, not do as I do, which has so often been quoted before.

One of the most popular features that we put on during the year, was conceived just before Christmas, when the newspapers were collecting sums of money to provide Christmas dinners for the poor children of the city. We decided to try our hand at it, and went around and called on different merchants in Halifax and got them to donate a number of articles to the Station, which we decided we would sell by "Auction" over the air. Among the articles that were given to us for this worthy cause were the following: Four tons of Coal, a Turkey, a big Roast of Beef, Two Barrels of Flour, a Barrel of Apples, a Large Hamper of Groceries, a Doll's Carriage, a Leather Suit Case, a Leather Club Bag, a Kodak, a small Gramophone, a Card Table, a Hot Water Bottle, one pair of Skates, a Radio Loud Speaker, two sets of Headphones, two pairs of Shoes, a Radio Battery Charger, an Electric Seal Choker, and a Ham. (Not Radio Ham), and many more articles, too numerous to mention here.

On the night of the auction we had the articles that we could carry, all placed in the studio—of course we could not bring up the tons of coal and barrels of flour—and we then obtained the services of a well known auctioneer. Allow me to tell you at this point, that if your local Station has never tried a stunt like this—get after them to

CANDIDATES SUCCESSFUL IN EXAMINATIONS FOR RADIO CERTIFICATE

The Radio Branch of the Department of Marine and Fisheries announce that eleven (11) candidates were examined during the month of June, 1929, of which the following were successful and obtained Certificate of Proficiency in Radiotelegraphy:—

COMMERCIAL

Nova Scotia—
Graesser, F. R., Halifax, N.S.
Ontario—
Marlborough, F. L., Toronto, Ont.

The following were issued with Temporary Provisional Certificates pending further examination:

Nova Scotia—
McCarthy, J. C., Halifax, N.S.
Ontario—
McKenzie, L. K., Toronto, Ont.

AMATEUR

British Columbia—
Roze des Ordons, B.C., Vernon, B.C.
Ontario—
Field, D. L., Strathroy, Ont.

do so, as it was a perfect knockout. The writer would select some article, such as a ham, and the auctioneer would describe it through the microphone, and give the listeners so many minutes to get their bids in. We had about a dozen special phones installed for that night, and as one well known cartoonist would say, believe it or not, we raised over Eight Hundred Dollars, for the poor children of Halifax. The listeners went at it like mad. If Mr. Jones bid Fifteen Dollars for a ton of coal, his neighbor would keep up with him and bid Twenty, and so we had them bidding as high as Twenty-Five Dollars for a barrel of apples. Other articles of course did not bring such wonderful prices, but that was simply because Mr. Jones and his neighbor were taking a little breathing spell. I am glad to say that next day those people making the highest bids, all called around with their money and took delivery.

The listeners of a Radio Station are made up of all sorts of people, from the young boy with the crystal set to the owner of the large super-hetrodynes and so forth and it is surprising how little the big fellow cares about the little fellow. The little fellow would like to hear the local Station as often as possible whereas his neighbor with the big set, which very often is not as good as he thinks, will call up giving all sorts of advice. The listeners are very amusing at times with their questions and requests. It is quite a common occurence for a listener to ring up after we have been on the air for an hour and ask us if we are going to broadcast that night. Why they do not listen in first, is hard to understand. Much of our broadcasting at CHNS is done by Remote Control from theatres, rinks, concert halls and so forth, and another surprising thing about listeners is the fact that they will ring up and ask if the orchestra will play some number for them, which of course is impossible, when they are playing a programme before an audience in a theatre or concert hall.

Radio Stations sometimes are hard put, to get their programmes to stretch over the allotted time, before the next feature, especially when some singer has failed to show up as per schedule. I remember one occasion at CHNS when we needed to fill in some time, and the only available singer was a tenor who had already sung three songs on the programme. However, as the singer who was supposed to be on hand was missing, the only thing to do was to use the tenor again. He did not want his name announced again, and on that condition agreed to sing two numbers to fill up the space. The tenor was announced as a gentleman who had just dropped in the studio (and so he had, but we did not say he had been in before that evening), who had kindly consented to sing for our audience. We did not think any more about it until next day we received several letters telling us how much he was enjoyed, and not a word about him when he sang under his own name, which is well known at our Station, and which reminds one of the saying about a prophet not being without honor, save in his own country. I suppose it is the same everywhere.

Perhaps one of the funniest remarks made by a listener, is told by F. W. Johnson, who occasionally announces at CHNS and who was Station Director of CHYC at Montreal. It appears that one Sunday night the Station failed to come on the air to broadcast a church service, for the reason that its aerial had blown down just about the time they were scheduled to go on the air. A lady rang up, with some heat, and wanted to know why the Station was not on the air with the church service, as she had a number of friends at her house, and wanted them to hear what a wonderful set she had. Mr. Johnson explained to the lady that the Station's aerial had blown down, and to his surprise and amusement she came back with: "Well, you might have come on the air and told us so."

Often our listeners take quite a fancy to the voice of one of our announcers, especially when a dance programme is on the air that is pleasing, and the announcer has to get off his manly chest, a lot of titles of the modern songs, and one particular occasion is well remembered at CHNS when the writer was "on the job."

A sweet young thing rang up and said that she would like to know the announcer's name. It happened that my wife was acting as hostess that night and answered back, "Well, why do you want to know his name?" The sweet young thing said, "Oh, I like his voice and I would like to know his name." My wife then said, "Well, this is his wife speaking, and if you will tell me your name—" but she got no farther. The sweet young thing said, "Never mind, thank you," and rang off. So you see my wife is a first-class hostess and right on her job.

One of the best jokes on a member of our staff, took place a few weeks ago. We were short handed on Sunday evening, and so our good friend, F. W. Johnson, formerly of CHYC, who has much experience before the microphone, kindly consented to come down and announce a studio programme. As soon as he started, his friends at the City Club, thought they would have a joke with him and called the Station and asked if we had a new announcer that evening, and asked how they could get in touch with him. We gave them the address of the building that the programme was coming from and they immediately called up, but they got the janitor's phone. They asked if the programme was being broadcast from that building, and on being told it was, they asked the person who answered the phone, they not knowing it was the janitor, if he would kindly tell the new announcer that they did not care for his announcing, and asked that he be instructed to say certain words in the way that they believed was corect. The janitor knew we were short handed that night, but did not

HOW MUCH HOUSE CURRENT DOES YOUR RADIO CONSUME?

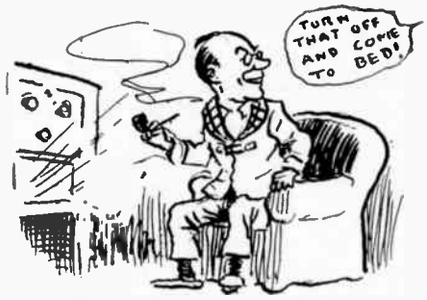
The layman often questions the economy of radio receivers operated from the house current, according to George Lewis, Vice-President of the Arcturus Radio Tube Company. "As a matter of fact," says Mr. Lewis, "these receivers are necessarily the most economical type of sets, due to the fact that they have eliminated the charge-discharge inefficiencies of the battery sets.

"It is easy to check the current consumed by an all electric set, and compare it with the current consumption of the average electric light lamps, by noting how fast the metal disk revolves on the watt-hour meter. For instance, with all current in the house turned off, the disk should not move at all. If, with a 75 watt lamp turned on, the disk revolves five times in one minute, and with only the radio set turned on, it revolves fifteen times in one minute, it is obvious that the radio consumes three times as much power as the 75 watt lamp, or 225 watts. Multiply this by the number of hours a month the set is in operation, divide by one thousand and multiply by the cost of electricity to you per kilowatt hour (refer to your bill) and you will know what it costs for current to operate your radio for one month. This will invariably be less than the cost of charging batteries and buying new "B" batteries."

know the man announcing, or that he was more experienced than most announcers in Canada, and he very nicely apologized for the Station and informed the members of the City Club that we were short handed that night, and that we would try to do better the next night, much to the amusement of the gentlemen at the City Club who are still trying to get the goat of F. W. Johnson, but without much success.

We have had many famous men appear before our mikes, but I wonder if any Station ever had three Prime Ministers broadcast on the one occasion. In our reception room we keep a book which is signed by all who appear before our microphone and we are very proud of one page which has the signatures of The Rt. Hon. Stanley Baldwin, The Rt. Hon. W. L. MacKenzie King and The Hon. E. N. Rhodes, who all were upon the platform when we had the honor of broadcasting the farewell speech of Mr. Baldwin when he was leaving Canada after his last visit to this country. In connection with this broadcast, the remarks of Mr. Baldwin and Mr. Rhodes are well remembered by the writer. Before reading the Address to Mr. Baldwin, Mr. Rhodes leaned over and asked in a loud whisper if the Radio was ready before he would start, which was greatly appreciated by the Station staff, and Mr. Baldwin remarked under his breath, so to speak, that he had been staring at microphones more than any other one thing, during his whole trip, and gently pushed our mike a little further away from him, and then he went on with his address.

There are many other incidents that I could tell you about, but this story is being written while sitting listening to my radio receiving set and it is getting late, and friend wife is calling that it is time to retire. If the reader is married, he knows this call, without further explanation, and I will therefore conclude my story with a poem that



He prefers the call of love

was sent to me by a friend, which I am sure all married men will save:

"Radio or Love"

By S. E. Kaiser.

I'm perfectly willing, if you must know,
To get my culture by Radio;
I'll listen calmly while W.B.
Explains the Darwinian theoree,
And I'll do no whining and make no kicks
If they broadcast poems or politics.

I'll not object if they send through air
Enlightening talks on preserving hair
I will bend to listen while singers sing,
I will try to laugh at the jokes they spring,
And I'll have the patience that fails
If they wish to soothe me with bedtime tales.

They may count on me to be docile while
They Radio hints with regard to style;
They may give me lessons in historee,
Or explain the symptoms of housemaid's knee,
And instead of going to church I'll get
My sermon out of a five-tube set.

I'll loll at ease in a cushioned chair
While they give me the news from everywhere;
I'll listen to lectures by Radio,
And try to be happy while doing so;
But there's one exception I never shall waive
While I still have both feet out of the grave

They may give me prayers, they may preach or sing,
They may teach me checkers 'n everything;
I'll be glad to get from my five tube set
The cheer I need if the night is wet.
But when Love calls I will rise and go—
In that case nix on the Radio.

Three premiers at one broadcast—Baldwin, Mackenzie King and Rhodes.

GOOD MUSIC IN THE SUMMER

"There has been brought to my attention a published statement to the effect that at the present time there is less classical music on he air by thirty-three and one-third per cent. than there was during the winter months. This statement intimates that the radio stations are paying less attention to fine music, and have practically 'gone over' to the jazz or popular camp. If the organization making this statement had considered, or thought the matter over, the statement would never have been made. It would have remembered that if it weren't for broadcasting there would be only 10 per cent. of the fine music available to the music lovers of the country during the summer, that there is during the winter months.

"There is as much justification of expecting radio stations to give nothing but opera and chamber music during the humid weather as there is to expect the Metropolitan Opera House to keep open all year round. As a matter of fact there is several hundred times more fine music being broadcast consistently during the summer months than there is being played upon any stage or in any theatre. We can tune in practically any evening and we will find that stations are still presenting miniature operas, chamber music and fine concert artists. In fact, you will find almost as much fine music on the air now as during the more frigid months when fine music is supposedly a part of our daily fare.

"Broadcasting has seldom retrogressed. Let us praise each forward step and not be too ready to pounce upon what seems to be backward.

"Most sincerely yours,
"Phil Spitalny."

The Story of the Thanksgiving Service

Great Triumph by Marconi Companies

Sunday, July 7th, will long be remembered, for on that day at 10.00 a.m. GMT, the British Broadcasting Corporation broadcast over the British Isles the Thanksgiving Service for the recovery of His Majesty King George V, given in Westminster Abbey. For the Overseas Dominions, this service was transmitted from the experimental Short Wave Station 5SW at Shelmsford, which is operated by the British Marconi Company on behalf of the B.B.C.

A few days before the service the Amalgamated Wireless Company of Australia requested the Canadian Marconi Company to retransmit to them for rebroadcasting in Australia, the service transmitted from 5SW since direct reception from this station was not satisfactory at that particular time of the day. The Canadian Marconi Company desiring to give the best possible retransmittion to Canada and Australia made arrangements with the British Broadcasting Co.—through the General Post Office—for the transmission of the service from the Abbey over the short wave beam circuit between Bodmin, England, and Yamachiche, Canada. Transmission of the received broadcast at Yamachiche would then be carried over special broadcast lines provided by the Bell Telephone Company to the Beam Transmitting Station at Drummondville for re-transmission to Sydney, Australia by a second short wave beam circuit normally used for telegraph operation between the two Dominions.

The beam circuit between England and Canada has, for the last few months, used the multiplex system of communication. This system enables both telegraphy and telephony to be carried on simultaneously, at the same stations using the same aerials and equipment, without interference with each other. The present equipment provides for one telephone circuit and two high speed telegraph channels, each operating between speeds of 100 to 200 words per minute. In order to prevent interference between the telephone and telegraph channels, the frequency band of the telephone channel is cut off at 3,000 cycles while the two telegraph channels are operated at 7,000 and 9,000 cycles respectively. These frequencies are superimposed on a carrier of 12 k.w. power which is modulated to a depth of 90 per cent.

The special receiver provided for the reception of these combined signals is of the double heterodyne type. The received telephone signal is amplified in conjunction with the two telegraph signals after the first frequency change and is then separated by filters. After further amplification, the telephone signal is automatically controlled by a gain device which keeps the speech level constant in amplitude.

In order to transmit the range of frequencies necessary for good broadcast transmission, it was necessary to close down the telegraph circuits whilst the Abbey transmission was being made. The filters limiting the range of speech transmission to 3,000 cycles were then cut out at both transmitting and receiving stations and the fully modulated power of the carrier was utilized for this special broadcast. For normal operation, connections between the receiving station at Yamachiche, the central office at Montreal, and the transmitting station at Drummondville consists of carrier circuits, both telegraph and telephone, provided by the Bell Telephone Company. Here, again due to limited frequency range of the telephone channels, the filters were cut out and the lines wholly used for the broadcast.

For the rebroadcast of the Abbey's service from Canada to Australia, the short wave beam transmitting equipment at Drummondville normally used for telegraph transmission to Australia, was utilized. This equipment is operated on the simplex principle—that is, only one channel is provided using the absorption method keying. The absorbing circuit was replaced by a modulating circuit with the necessary power and speech amplifiers.

Conversations had been carried out with Australia, almost daily, for a month between Drummondville and a short wave station at Sydney. This station, 2ME, and the Sydney broadcasting station were used to rebroadcast the service in Australia.

In Canada the Marconi Station, CFCF at Montreal, working in conjunction with Canadian National Stations, gave the service to the Canadian listeners.

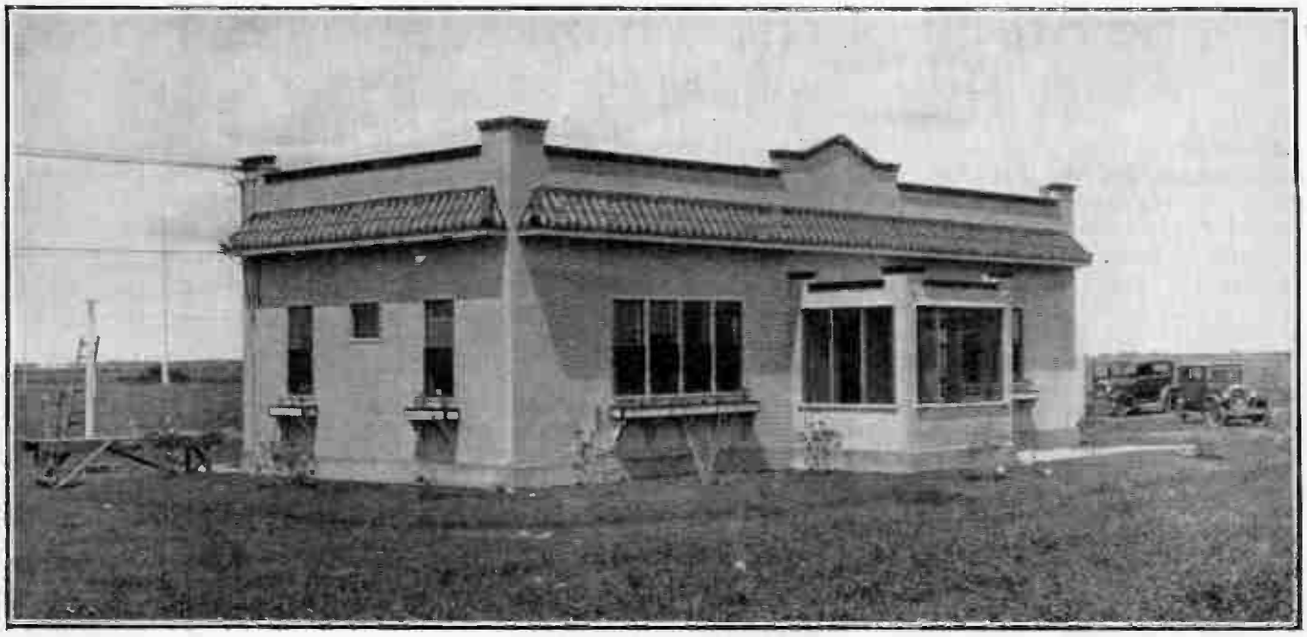
The control of the received broadcast to the various transmitting points was carried out at the Bell Test Office in Montreal, the necessary line circuits being also provided by the Bell Telephone Company.

A few minutes before the service commenced, the Canadian Marconi and Bell engineers in Montreal were in touch with both London (England) and Sydney (Australia) by wireless telephone over the beam circuits at Drummondville, Canada, Bodmin, England and Sydney, Australia, at which time all arrangements were made regarding the order of the programme. During the rebroadcast of the service to Australia, the transmission from station 2ME at Sydney—rebroadcasting the Drummondville retransmission—was picked up at Yamachiche and sent up to the engineers at the control point at Montreal. This rebroadcast was also picked up by the engineers in England who heard the service after it had been rebroadcast twice and had travelled over a distance of 26,000 miles.

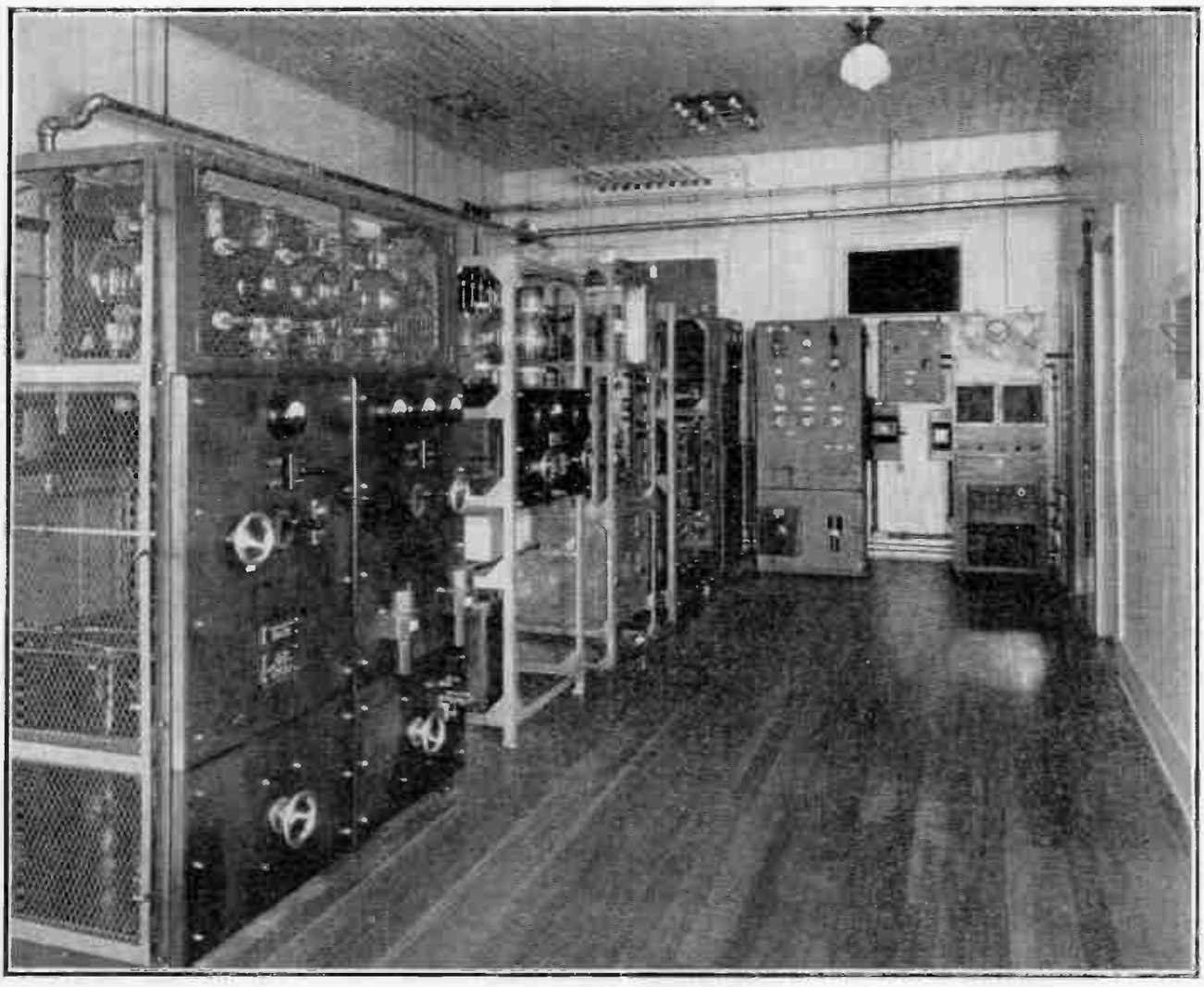
Immediately after the service had finished, Station 2ME at Sydney, Australia, transmitted a programme to Yamachiche which was relayed to all Canadian broadcast stations in this link-up.

The service from the Abbey was clearly heard both in Canada and Australia and was believed to be, by far, the best broadcast reception from England heard on this continent. The programme from Australia was also an unqualified success.

At the completion of the programmes, the English, Canadian and Australian, Canadian telephone circuits were connected together in Montreal and Australian and English engineers conversed over the relayed beam circuits with Canadian engineers listening, and at times joining in the talk.



The Transmitter house of CJRX, a short-wave station at Winnipeg. It is located at Middle Church, a few miles north of Winnipeg. In the same building are a number of short-wave transmitters by means of which, on other wave-lengths, the local offices of James Richardson & Sons, Limited, carry on radiotelegraph communication with Eastern and Western branches.



The Transmitting room of CJRX at Winnipeg showing the various controls.

The C.G.E. Vagabonds

SOMETHING ABOUT THE VAGABONDS

A summertime radio feature which has been bringing its sponsors a flattering volume of approbatory letters from midsummer listeners is the concert series sent outon the weekly radio hour of the Canadian General Electric Company, Limited, by the "C. G. E. Vagabonds," shown above. The troupe is composed of (left to right, standing): Oswald Roberts, cello; Maurice Solway, violin; Robert Hodgson, accompanist; Norman Lucas, baritone; "Don" Copeland, announcer; Walker McAdam, tenor; Simeon Joyce, director and pianist; (seated): Madge Hunter Parker, soprano; Ada Howard, accompanist. These "Vagabonds" are heard over CKGW each Wednesday evening from 9 to 10 o'clock.

THE RECEIVER AT CJRX, WINNIPEG

A question frequently asked by listeners who hear re-broadcast, "What kind of receiver is used?" Well, here it is. Rather an unusual-looking receiver, isn't it?

Duplicates of this apparatus are employed at the big trans-Atlantic wire stations. This one has been slightly modified to suit local conditions.

Without going into technical details, it might be said that the receiver operates with seventeen tubes and is equipped with meters which enable the operator to maintain it at a high state of efficiency.

Installed in a specially-built hut on the outskirts of Winnipeg, the receiver is coupled to special lines, so that received programmes can be conveyed to a central amplifier, the output of which is connected with CJRW and CJRX.

HOTEL WINS RADIO SUIT

Composers Fail to Bar Loud Speakers in Rooms

The right of hotels owning central receiving sets to receive and transmit to guest rooms over loud speaker systems copyrighted music broadcast from radio stations was upheld by Federal Judge Merrill E. Otis, at Kansas City, April 18th last.

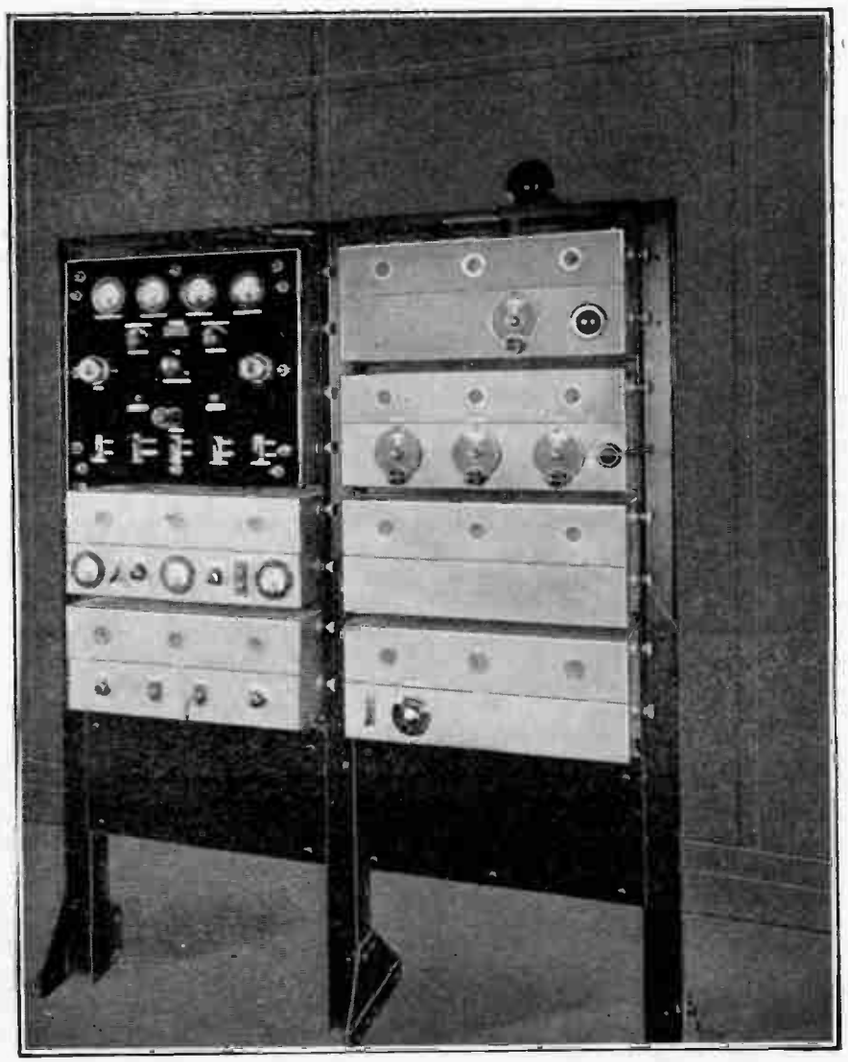
The case was American Society of Composers, Authors and Publishers against the La Salle Hotel of Kansas City.

The decision drew a line between radio programmes and talking machine records.

Judge Otis held that in the case of the radio programme, the hotel owners did not perform the copyrighted work but merely provided means by which it might be heard.

"The right to perform a musical composition does not carry with it a proprietary interest in the waves that go out upon the air," the decision said. "They are as much the common property of all as the sunshine and the zephyr."

A talking machine record, it was held, is a separate, distinct thing from the original performance in the studio where it was made, whereas in the case of a radio programme the waves sent out upon the ether are the performance itself.



Solving the Apartment House Antenna Problem

With the growing popularity of radio in cities, the apartment house antenna problem has assumed serious proportions. This problem has to do with the unsightly maze of tangled antenna wires and poles seen on the roofs and down in the court yards of America's apartment houses today. Yet tenants must have their radio. No landlord dares interfere with the pursuit of happiness by his tenants. Each tenant is usually left to follow his own idea regarding a suitable antenna. And the landlord is helpless in the matter, since any objection to radio these days is tantamount to an empty apartment house.

Indoor antennas, socket-antenna devices and loop antennas are not a solution of the problem. Experience has shown that these devices are usually unsatisfactory in the modern fire-proof apartment house, owing to the steel construction. Also, such devices are subject to excessive inductive interference from electric motors, elevator contactors, electric refrigerators, electric household appliances, and so on.

Having specialized in antenna problems of all kinds for several years past, three well-known radio engineers were assigned the task of evolving a simple, inexpensive and altogether practical antenna system for the average apartment house. These engineers, Ernest V. Amy, Julius Aceves, and Frank King, operating as the consulting engineering firm of Amy, Aceves & King of New York City, undertook an exhaustive study of the subject, made many experiments with various devices and arrangements, and finally developed and patented an entirely new antenna circuit arrangement which meets all requirements.

The basis of the new apartment house antenna system is a device known as the multi-coupler. This comprises a bakelite case 6 inches long and 1½ inches in diameter, containing the necessary circuit components. The case has connecting lugs at top and bottom, and a binding post on the side. There is nothing to wear out or to renew in the multi-coupler. It provides satisfactory service over many years, without additional expense of any kind.

With the multi-coupler as the basis, the new apartment house antenna system is simplicity itself. As many as 25 radio sets may be operated on a single or common antenna by means of one multi-coupler for each radio set, but a fair average of 12 to 15 is followed in practice. Briefly, a common antenna is installed for every 12 or 15 radio sets in the apartment house. The down lead from the common antenna, instead of being brought to a single radio set as in usual practice, is brought down alongside the wall of the house and close to a vertical row of windows, thus catering to the needs of a row of apartments. The down lead carries a multi-coupler at the level of each floor, or near the window for that floor. There are as many multi-couplers as there are floors in the vertical row. The binding post of the multi-coupler serves as the antenna connection for the radio set of the apartment. At the bottom of the down lead there is installed a lightning arrester with a high resistance shunted across it, so that the antenna system is protected from lightning in accordance with the requirements of the fire underwriters.

With this antenna system, each radio set owner has the use of an excellent antenna of far better characteristics than the usual antenna of today. Furthermore, the multi-coupler serves as a filter, passing mainly the broadcast frequencies to the radio set. Therefore, inductive interference of electric motors and household appliances is reduced to a minimum. However, when short-wave reception or television reception is desired, the apartment house tenant simply winds four or five turns about the down lead, above the multi-coupler, and thereby secures the advantages of an outdoor antenna about 20 feet long.

In the average apartment house installation of the multi-coupler antenna system, each row of apartments is served by a common antenna. For a neat arrangement, the common antennas can be arranged in the umbrella form, supported at the centre by a pole, water tank or other suitable structure. There is a down lead for each vertical row of apartments.

Several apartments in New York City have already been equipped with the multi-coupler antenna system and highly satisfactory results have been obtained. It will be noted that this system lends itself to old as well as new apartment houses, since the entire installation may be placed on the outside of the building, if so desired. The cost of the system, both for materials and for labor, is remarkably low. The installation is neat, inconspicuous, yet exceedingly handy for each tenant. There is nothing to replace or service, so that there is no maintenance cost.

All in all, the apartment house antenna problem appears to be satisfactorily solved for owner and tenant alike. The pursuit of happiness in radio terms can continue unhampered.

NEW APPOINTMENT FOR MR. BRISTOW

The McLagan Phonograph Corporation Limited, of Stratford announces the appointment of G. Carl Bristow as the McLagan sales representative for Ontario and Quebec, with headquarters in Stratford. Mr. Bristow, who is Canadian-born, assumes his new duties with a wide knowledge of radio and phonograph merchandising. For two years he was connected with the Radio Sales Company of London and has also had eight years selling experience in the Eastern and Southern States. He is now getting in touch with the retail trade in connection with McLagan's new radio-phonograph combination.

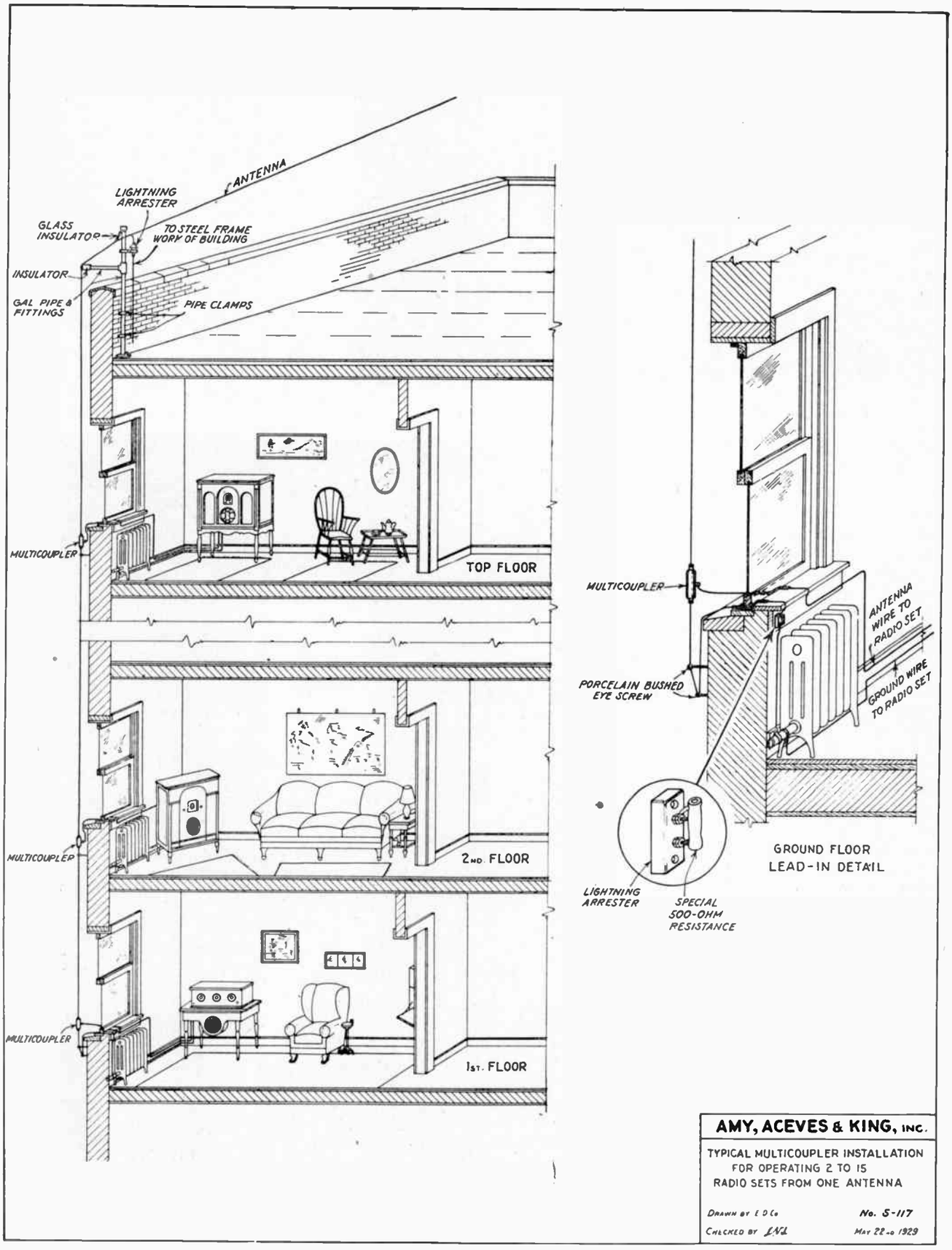
SUMMER RADIO SALES "EXCELLENT" SAYS RADIO MANUFACTURERS' ASSOCIATION

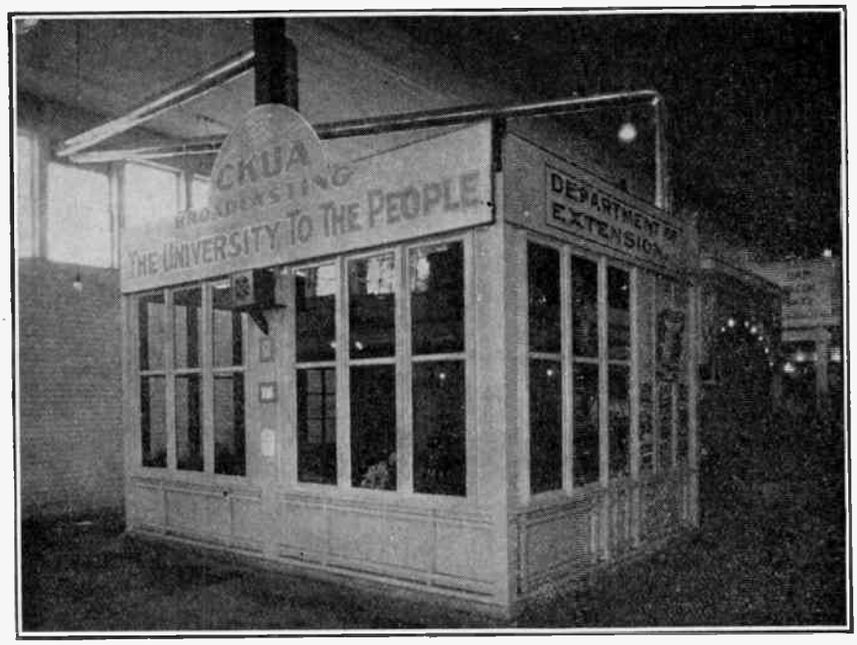
A mid-summer survey of the radio industry, according to President Richmond of the Radio Manufacturers' Association, indicates another "excellent" radio year. Summer sales are in unusual volume, although the present season lacks the stimulus of the presidential election campaign enjoyed last year.

"The actual number of receiving sets sold this year may not equal last year's record total," "but, all in all, this season shapes up as an excellent one. Business in accessories, such as tubes, is greatly increased and during the 1929-30 season probably will smash all previous records. Whether the total volume of radio sales will change materially over last year is questionable as the average price of receiving sets will be lower, with a decrease in unit cost, despite an increase in performance and value given to the public per dollar."

Moose Jaw's (Saskatchewan) first annual Rodeo on July 1, 2, 3 last was broadcast by Billy Ward, at Station CJRM.

A Good Plan For Wiring An Apartment House





The University of Alberta Studio in Exhibition Grounds

BROADCASTING THE UNIVERSITY IN ALBERTA

The new screen-grid tube sets demonstrated for the first time in Western Canada at the annual fairs. At the Edmonton Exhibition co-operation between the broadcasting stations and the dealers enabled the latter to present the new receivers in an unique way. Both the Edmonton Journal Station, CJCA, and that of the University of Alberta CKUA had studios on the exhibition grounds, and both were the subject of interested inspection by visitors to the fair. In addition to the regular early evening children's and news periods. CJCA broadcast the midway and other features, including a programme from a captive balloon 1,500 feet above the grounds. The University confined itself to studio programmes, and a concert with prominent local artists was given every evening from the studio of CKUA in the Manufacturers' Building. On one evening, scenes from a costume play, presented by the Dickens Fellowship Players, attracted especial attention. The programmes, carried many miles by land wire to each station, were successfully received back at the many radio exhibits on the fair grounds, and the Edmonton dealers are duly appreciative of the special service rendered by the local broadcasters.

The Temple Corporation, which makes receivers, has doubled its production to over a thousand sets a day.

A committee has been appointed in the States to consider the use of Radio for educational purposes.

NEW BROADCAST MANAGER AT CHML

This introduces C. R. (Bob)) Dickey, Broadcast Manager of CHML, the Maple Leaf Radio Station at Hamilton. A comparative newcomer to the broadcasting field, Mr. Dickey is an experienced advertising man, and has also been actively associated with commercial art. This, however, now takes its place as an avocation rather than a vocation, as very little spare time is left after announcing, selling advertising, arranging programmes, and the hundred and one details that fill the days of the radio man.

Mr. Dickey is still on the better side of thirty and is unmarried because, as he says, he hasn't met anyone yet who could put up with his untidiness for life.

Quite aside from the popularity of the Powerizer System or power amplifying and distributing installation in homes, schools, churches, hospitals and hotels, there are many theatres turning to this method of obtaining a world of music and no end of sound effects for screen or stage presentations. A steadily increasing number of theatre owners are turning to the simple and expensive Powerizer System.

MR. C. R. DICKEY OF CHML

THE NEW MARCONI MODELS

"Triumph" Marconi Radio Discussed by Mr. R. M. Brophy

"Good as 30 years of radio research and experience can make them," is the way Mr. R. M. Brophy, Sales Manager of the Canadian Marconi Company, describes the new receivers which will be presented this coming season under the Marconi name plate.

"Never in our experience have we felt so genuinely enthusiastic," declared Mr. Brophy. "We consider this series of radio receivers to be the most perfected and the most saleable ever turned out under Marconi auspices."

"We have named them the New Triumph Marconi Radio," he went on, "And the word 'Triumph' would seem to very aptly describe the higher standard represented in each andeveryone of our pve new models. We realize, of course, that a critical public looks for something better from the hands of Marconi Radio engineers and we certainly feel that our new Triumph Series will measure up to expectations."

"We are providing a standard of performance that will constitute a further triumph of Marconi achievement, a performance which we believe is not surpassed by any radio at any price. And knowing how important the matter of good appearance is, we have taken particular care to provide a measure of cabinet beauty that will merit the approval of those who must have radio that is just as good to look at as it is to listen to."

"Batteryless and Battery Operated Models are included in the Triumph Series," said Mr. Brophy, "We are featuring a 9-tube circuit in all models, one tube acting as an aerial coupler to compensate for varying lengths of aerials. This tube has a further function. It operates to promote the finer selectivity which is a notable feature in these new Marconi receivers and which is still further assured by the use of a Four Gang Running Condenser."

"Our engineers," continued Mr. Brophy, "have so designed the first Radio Frequency Stage that uniform tuning is provided over the entire scale. The Four Gang Tuning Condenser also contributes to the securing of this desirable feature. We are confident that this even tuning will prove of much interest to the prospective buyer as will the Total Shielding feature which is designed to baffle local interference."

Asked which new Marconi Model he considered topped the list, Mr. Brophy stated that the New De Luxe Therm-ion-ic Combination represented the very utmost achievement of Marconi design and engineering, and offered many features calculated to win interest from the radio public. "It offers everything in radio and recorded music," he said, "Presenting the listener with voice and music almost startling in its vivid realism. When plying phonograph records a unit is provided by which the listener may set the machine to play one, two, three or any number of selections up to the full capacity of ten after which no further attention is called for. The instrument will change its own records and when the desired number of selections has been played it will stop of its own accord and turn off the power automatically. A 'rejector' device is also provided which enables the listener to reject any particular record before it is played through. Pressing this rejector button causes the instrument to automatically pass up the unwanted record and change to the next."

Most decidedly, Mr. Brophy is enthusiastic about the New Triumph eries. He is confident that his enthusiasm and his confidence in the sales possibilities of the new Marconi line will be more than justified before the end of the coming radio season.

SASKATCHEWAN STARTING TO ENTER COMMERCIAL FIELD

Something About Radio in the West

Saskatchewan's pioneer radio station, CKCK, the Leader-Post Publishing Company, Regina, is to go into the commercial field, commencing September 1.

CFQC, the Electric Shop Wholesale, Ltd., Saskatoon, will be linked up with CKCK under the new arrangement in order that the entire province may be covered.

As programme and service bureau of the two stations, the Plainsman Broadcasters have been organized under the direction of H. N. Stovin, who has been actively engaged in radio work since pre-war days.

W. Knight Wilson, head of the violin department of Regina College Conservatory of Music and conductor of Regina Symphony Orchestra, is to be the musical and programme director, and L. D. "Pete" Parker will be in charge of sales and continuity.

"Pete" Parker has the unique honor of being the first person to announce hockey play-by-play broadcasts in the world. The first hockey game ever to be broadcast play-by-play, by remote control, went over CKCK in March, 1923. Since then Pete has become known to hockey fans throughout the West, having acted as hockey announcer for this station.

Under the new arrangement the "Voice of CKCK" will remain the same. "Bert" Hooper, widely known announcer, will continue to go on the air. Bert's fame was indicated last Spring when a small but worried fan wrote to ask, "Will Mr. Hooper still talk over CKCK when he has gone to White House to be president?"

CKCK commenced operating July 19, 1922, and was formally opened by the Lieutenant-Governor of Saskatchewan, the premier of the province and the Mayor of Regina, ten days later. In the field of remote control, it has played a pioneer role.

Besides being the first station in the world to broadcast hockey, play-by-play, by remote control, it was the first in the British Empire to broadcast church service by remote control.

R. S. WILLIAMS CO. OF TORONTO MAKES PROFITS AGAIN

Old-established Re-organized Music Store Again Successful

The re-organized R. S. Williams Co., Limited, which was taken over by Messrs. B. A. and F. A. Trestrail of Q.R.S. Canadian Corporation, Limited, last spring, has just made public its first financial statement for the fiscal year ending May 31, 1929, showing an operating profit of approximately $40,000 with $30,000 available for dividends.

The showing is made in the face of very heavy expenditures in building up the prestige and goodwill of the company. The earnings represent a net return of about 10 per cent on the issued capital stock available for dividends.

The company operates its main store in the ten-story building at 145 Yonge Street, with branches at Danforth and the Beach districts, in Toronto. Plans are under way for further expansion this year in and around Toronto.

B. A. Trestrail, who has become vice-president and director of the Rogers Radio Corp'n. Limited, under the amalgamation recently announced, will sever active connections with the R. S. Williams Co. Limited, but will remain as a director.

The R. S. Williams Company's main business at the present time is in Rogers and Majestic radios and Q.R.S. moving picture cameras, as well as pianos and other musical instruments.

YOUR *Monthly* MAIL BOX

Correspondence is invited on any matter pertaining to subjects in this magazine. Tell us what you want to know—how you like Radio news or why you don't like it.
All letters will be answered in this section. Address "Mail Box c/o Radio News.
Technical Section Under Direction of J. C. Wilson, President, Canadian Radio College, Toronto.

WIRING AN APARTMENT HOUSE

I have a 48 suite apartment to wire for Radio, could you please tell me the best way in which to install aerial and for same I enclose stamped envelope for answer as I wish to know as soon as possible. Could I get any result from one aerial.

S. G. SMITH,
475 Greenwood Ave.,
July 14, 1929. Toronto.

Reply

There are several means of installing antenna systems for apartment houses but there is one which is, in our estimation, much simpler and more satisfactory than the others.

You will of course have a wall plate, or outlet, for the antenna and ground in each suite. Take the ground lead from each plate to the closest cold water pipe.

For the antenna, take a lead from the live side of the hydro 110 volt lighting line, place a fixed condenser of ".02 mfd. capacity having an A.C. breakdown of at least 400 volts" in series with it and the antenna outlet on the wall plate.

This is by far the most satsifactory system, as it does away with unsightly wires on the roof and all the trouble connected with them. The installation, if made properly, will last as long as the apartment. It is also much cheaper to install than any other system.

We are enclosing a wiring diagram.

ATWATER KENT 6-TUBE RECEIVERS

"In the July issue of Radio News of Canada just received, I notice on the Mail Box page a question and answer for Reginald E. Chapman of Toronto. Also the suggestion re Atwater Kent 6-Tube Radio, which fits my case well, as I have an Atwater Kent without much volume. Would you be good enough to give me particulars regarding variable Helix as I intend to get one and have it put in my machine.

I would like to say that I have not yet received the June issue of your magazine. I am well satisfied with it, and would not like to miss any more numbers.

Yours truly,
A. HAWKSFORD,
1081, 3rd Avenue E.,
July 13, 1929. Owen Sound.

CANADIAN RADIO COLLEGE

Could you give me any information regarding the Canadian Radio College, on Yonge Street. I live so far away that I have no means of ascertaining the reliability of the college and courses. I wish to take up a course in radio, but have to finance my own way. I saw the advertisement in your April issue and have been corresponding, but would like to know what you think of the college and radiotricians course.

J. E. Skinner.
R.R. 1, Wilsonville, Ont.

Reply

The Canadian Radio College has advertised in the Radio News of Canada as a very efficient concern. Mr. Wilson, president, has for many years been employed in various branches of the radio business and is well-known throughout the trade. Their laboratory is exceptionally well equipped and their course is very thorough. We understand that they have placed quite a number of their students in good positions immediately on their graduating from the radio course.

If there is any further information you desire, please do not hesitate to call upon us.

MASTER TUNING SELECTOR

I noticed in August issue, page No. 21, an illustration of a Master Tuning Selector. Can this device be satisfactorily attached to the De Forest-Crosley Combination Set, Model No. 29-6? I am very interested in this and if it is possible to use it on the above model. Would you kindly advise where I can get one.

H. Cudney.
3138 Masson St., Rosemount, Montreal.

Reply

The Master Tuning Selector, as shown on page 21 of our August issue, can be obtained from the Master Manufacturing Co., Chicago. We understand it is quite suitable for the De Forest-Crosley Combination Set, Model 29-6. We are having the Master Manufacturing Co. send you full data on this new tuning unit.

HOME-MADE SCREEN-GRID RECEIVER

In your July issue you publish, on page 20, instructions for making a three-tube A.C. Screen Grid Receiving Set. I would be much obliged if you would let me know the approximate cost of this set complete and which make of speaker you recommend to go with it, where all these parts may be bought and if the receiver, when made, is a really good one. I am very amateur and have never built one. Is this set adaptable to Hydro power here in Hamilton, 25 cycle. Some dealers say home-made A.C. sets are not satisfactory with Hydro power. I should be very glad if you would give me this information.

R. G. Dean.
115 King E., Hamilton.

Reply

July 16th, 1929.

Dear Mr. Dean:

We have to hand your letter of recent date, and, although we cannot give you all the information you requested, we can give you the names of concerns from whom it can be obtained.

The receiver when properly built is a very good one and will give very satisfactory results.

Almost any type of good speaker can be used, either magnetic or dynamic.

The power at Hamilton is quite satisfactory for it, but when ordering the apparatus be sure to mention that the parts you require are for use on 25 cycle current.

Prices and other information may be obtained from Aikenhead Hardware, 14 Temperance St., Toronto, or Toronto Radio Co., 241 Yonge St., Toronto.

Hoping your receiver turns out to be all you expect, we are,

Yours very truly,
Radio News of Canada.

When publishing the specifications of the A.C. Screen Grid "Find All Three" you did not say that it was O.K. for 25 cycles. And where may the parts be procured, and for what price?

I would like to build one right away.

H. E. Bates.
169 Main St., Sarnia, Ont.

Reply

Although we cannot give you all the information you asked for, we can give you the names of the companies from whom it can be obtained.

The Screen Grid "Find All Three" can be operated from both 25 and 60 cycle current. Of course if the current you have is 25 cycle you must order 25 cycle apparatus. Theoretically the circuits, etc., are the same, but 25 cycle apparatus has to be heavier and of better design than 60 cycle. And incidentally it is more expensive.

We cannot give you the prices on this apparatus, but if you will make out a list and send it to either the Toronto Radio Co., 241 Yonge St., Toronto, or Aikenhead Hardware, 14 Temperance St., Toronto, they will gladly send you their catalogue and any other information you may require.

Hoping your receiver works as well as those we have experimented with.

RADIO SCHOOL

I would be obliged if you could advise me whether or not there is a school in Canada or United States for people interested in radio broadcasting.

Mary P. Phelan.
768 King E., Hamilton.

Reply

Replying to your letter of June 28th, we would suggest that you give us a better idea of just exactly what branch of radio broadcasting you wish to take up.

Do you desire to study the technical end or to become a radio entertainer?

If you will write us your ideas more fully we shall be very glad to give you whatever information is available.

BUILT-IN RADIO MARKS FUTURE RADIO TREND

The public will soon be buying more radio and less furniture, states the President of The National Radio Institute. Furthermore, radio equipment will be built into the home, just as plumbing, electric light wiring, the heating system and other features are now part and parcel of the building.

"I believe the radio of the near future will take the form of built-in, centralized radio equipment with remote control and with extension wiring to scattered loudspeakers," states Mr. Smith. "I look ahead to simple radio sets in plain metal cases, for flush mounting in walls, together with extensive radio wiring to loud speakers and remote controls throughout the house. Where an ambitious radio installation is desired, two or more radio sets will be installed so as to provide two or more simultaneous programmes to meet the various tastes of the household.

THE DEADLY DULL IN EUROPE PROGRAMMES

The following article is taken from the Radio Times of London. It is one of the official journals of the British Broadcasting Company which has the monoply of radio broadcasting in the Old Country. As our readers will notice the writer of the article thinks very little of broadcasting in the States, and, inferentially, in Canada. He seems to think that radio as managed in the Old Country is the best in existence. We most certainly disagree with him. Radio in the Old Country is deadly dull. The programmes may be high class and educational, but they are most boring. There may be weakness in the North American methods but the programmes here are certainly lively and alluring. One can spend almost every evening of the year in Toronto listening to charming music, or plays, or lively educational material—which, by the way, few want. We hope the Old Country system will not be introduced here. It would kill radio effectively. Our readers, however, should remember that the Radio Times is prejudiced because it is the official organ of the British Broadcasting monoply and would scarcely be likely to condemn its own system. We are not quite so sure in our own opinions as regards European broadcasts generally. We have heard concerts from Spain, France, and Germany, but like the Old Country programmes they are nothing to write home about. We have listened too often to concerts in England to be mistaken in our views and we always return to Canada with the firm conviction that we are on the right lines in North America and that there is nothing like competition amongst the broadcasting stations to get results. A monoply is always fatal.

Shall We Sell the Air?

America, if one visits it, is in a thousand ways inspiring. I have been there twice. I was there this year. I propose next year to breathe that exhilarating air again. The clean slate of that continent is being written upon with enormous rapidity. The glittering, great buildings are rising in their hundreds. The great democratic educational experiment, in spite of all foreign criticism, advances by leaps and bounds. Literature develops; native fine arts tentatively advance; painters come into prominence; there is a tremendous public for the opera and the theatre; there is a general air of optimism, of readiness to welcome new ideas; youth is given its head. America may be attacked on some grounds, and applauded on some. But American broadcasting! That ever a man should have had the face to suggest in a serious English review that the American wireless services were ideal and should be made a model for our own! I can hear my American friends laughing!

America is a continent; this is a small island. America is still developing its crude resources and filling up its empty spaces. America is a new and loose federation in which the powers of the central government are limited and uncertainly exercised. America is inhabited by a very independent and democratic people, or congeries of peoples, not easily to be persuaded that anything for their good can be done "from above." America is a country which seizes new things rapidly. We are old, slower, less enthusiastic, more docile, less delighted by the sight (so naturally attractive in a pioneering country) of somebody (no matter who) making immense profits. These, and scores of other reasons, may be advanced to account for the difference between the way in which broadcasting has been developed in America and that in which it has been developed in this country. But how on earth any sane man can prefer the American way, or how on earth any sane man could decide that it had led to better results than ours, beats my imagination.

We decided here to create a monoply of the ether. We fixed a license-duty and set out, with an organization which is a semi-department of State to provide the various publics both with the entertainment which they demanded and the entertainment which they might learn to demand if they got used to it. It has always been the object of the B.B.C. to give the listener what he liked already, and to afford him a chance of something else, and in the course of its operations it has put upon the ether almost every transmissible piece of classical and modern music and a vast variety of talks, of which each may have been one man's meat and another man's poison. All this the listener has received for ten shillings a year. In America the system has been different. Private companies have owned the broadcasting stations, which are very numerous. They have no license duties

This bold man attempted to broadcast (through the National Broadcasting Company) whilst falling from 10,000 feet by means of a parachute. The many contrivances he had to wear made the operation pretty difficult and it wasn't much of a success from the broadcasting point of view. He stopped talking altogether when the parachute was 1,500 feet from the ground, having no doubt as much as he could manage in other directions.

to finance them. The only source of revenue is advisers who naturally "put out" what they want to "put out." What should we expect from that system? We should expect that the advertisers would cater all the time for the largest public and that they would insinuate the merits of their products between the "items." We should not be surprised if cigarette manufacturers should get athletes to come to the microphone (and this has happened) to suggest that cigarettes (I am not saying a word against them in any other connection) are good for training; and we should be surprised if we got an evening of good music without any intrusion of advertising. That is precisely what has happened in America, in spite of Mr. Reynold's assertion that the competition of advertisers must produce "the finest programmes."

The American programmes are precisely what we should expect them to be. "First-class," says our author, and "subjected to the closest scrutiny." Al Jolson gets $5,000 for a quarter of an hour's work. The "Lucky Strike" cigarette manufacturers found that broadcasting paid them:

> The Blank Company, which manufactures, say, coffee, wishes to take advantage of wireless broadcasting as an advertising medium. It books one hour a week on the National Broadcasting Company network. Each week, at the commencement of what becomes known as "The Blank Hour," the announcer makes a statement something like this: "And now we introduce to the radio audience the Blank Quartet, which will entertain you for an hour by courtesy of the Blank Company, manufacturers of Blank coffee. The first item will be ———." That is all. For an hour the announcement relate to items on the programme only. At the end of the hour, the announcement which concludes it runs something like this: "That, ladies and gentlemen, concludes the programme of the Blank Quartet, which comes to you by courtesy of the Blank Company, manufacturers of Blank coffee."
>
> The listener has enjoyed, entirely free of charge, a very excellent hour's entertainment. The name of Blank coffee becomes associated in his mind with this enjoyable hour, and his or her next grocery order will probably include a tin of Blank's coffee.

This is the inducement which is being held out to us to adopt the American system: programmes aimed at possible purchasers of coffee, and coffee intrigued into the notice of the enjoyers of the music. Even in theory it is disgusting that we should not be able to listen to a Beethoven Symphony without a quiet hint that we should buy coffee. In practice we should not, and the Americans do not, get very much Beethoven. All the advertisers are going for the largest public. One movement from Beethoven, for the sake of prestige, is quite enough. "Ole Man River" is a very good song, and Mr. Paul Robeson sang it very well, but a few weeks ago, in a country house in New York State, I heard it six times from different stations on a single Sunday afternoon. I have before me a copy of the New York Times for Sunday, June 9. It is a great paper in many regards; but the radio programmes it can cerely record, and from the radio programmes it can merely select the best there is. A song or a pianoforte recital which would here be merely part of the day's work would, in the U.S.A., be starred as something memorable. The Times, selecting the relatively memorable items from a week's programmes, has to mention the ceremonial dedication of a railway train, a programme in which an excerpt from Cavalleria is surrounded by rubbish, and other programmes in which the illustrious items appear to be the Ballet Music from Faust, the Overture to Oberon, "The Lost Chord," and "Where my Caravan has Rested," most of the other pieces in these programmes being of the "I wanna Go Back to the Farm in Timbuctoo," "My Baby is So Blue," and "My Congo Sweetie" type. It is only natural, if we let the advertisers in, they would do it here, thinking only of one public instead of many publics. But to think that anyone should urge that American broadcasting should be our ideal! Our service, whatever its defects, is the best in the world, although this Mr. Reynolds calls it "mediocre" and "uninteresting." Bored as any listener might be if he listened, without intermission, to our services, he would be much more bored if he listened, without intermission, to any foreign service, and of all foreign stations the American are the worst. It is a consolation to know that Mr. Reynolds is wrong even on the matter of commercial success. I take this paragraph also from the New York Times of the quoted date:—

> Judge G. O. Sykes, radio commissioner, in a recent opinion regarding fees for broadcasting stations, said there is no objection to making the broadcasters pay licenses, but added that as few stations are making any money now he deems it inadvisable to put any fee into effect at this time.

Herein is indicated a line of thought at present being followed in America. There are those amongst the thoughtful in America who are wondering whether it would not be better to adopt the British system, abolish the private advertising stations, and establish a few monoply stations financed out of licenses.

Should adverse criticism of the British programmes be required, nobody could be more willing than I. I believe that I was the first person publicly to suggest, in the days of the old single programme, the need for an alternative programme, and I am now of the opinion that a third programme (which might easily be financed if the government would cease arbitrarily confiscating part of the B.B.C. receipts) might be put out which would minister to the national pleasure and still the national criticism. There are moments when I find that both 5XX and 5GB are doing music which I do not like, or talks to which I do not want to listen, or Children's Hours from which my children are glad to be spared. I say of these, like the "Shropshire Lad";—

> You may be good for someone,
> But you are not good for me,

and wait patiently for the next hour which will certainly bring me something which I want to hear. "You cannot please all the people all the time," as Abraham Lincoln might have said had he tried to cope with this question. A third British programme (and in America they have hundreds—almost all the same) would probably enable the ingenious and hard-working officials of the B.B.C. to silence all criticism save from those crusty persons who, in any place or time, would grumble at whatever they got.

But imagine the grumbles there would have been here had nothing been on the air but the programmes devised by Moonlight Soap, Army Cut Cigarettes, and Teachem's Pills, with a view to getting their commodities sympathetically introduced to the "greatest possible number!" What the newspapers would have said! What the newspaper correspondents would have said! What Mr. Bennett, and the Messrs. Huxley and Miss West would have said about the vulgarization of art, the missed opportunities, the prostitution of something which might have been a great criticizing medium to merely commercial ends! They have pungent pens and they all of them care for civilization. The Realist, in those circumstances, would have sung or shouted a very different tune.

THIS SHOWS JAZZ POPULARITY IS DECLINING

Old-Time Songs and Classical Numbers Preferred

The recent questionnaire campaign conducted by the makers of Sylvania Radio Tubes has proved that jazz is rapidly declining in popular interest.

The returns from five hundred thousand questionnaires, distributed among a half a million radio listeners all over the country, show that the pendulum is swinging away from jazz in favor of old-time songs and classical numbers.

When the Sylvania Products Company undertook this survey there was disposition to suppose that by far the most popular programme would be that which had the cleverest of syncopated dance numbers.

However, the acceptance of this idea seems to sponsor its own difficulty, for with dozens of orchestra leaders in an eternal scramble for every newborn child of the syncopated melodists, songs which prior to radio might have lived six months are today definitely in the graveyard in six weeks.

"Television—The Eye of Radio." Under this title, the Jenkins' Television Corporation of Jersey City, N.J., has published a booklet of 32 pages and cover, which contains a readily understood discussion of just what television is, what has been done so far, what is being done for the future, and why the television experiment is about to develop into the television industry. The booklet contains photographs and descriptions of the equipment about to be introduced for home use, as well as the television studio and transmitting equipment. A copy is free for the asking.

W. F. Kelly, who has operated a Manufacturer's Agency for the past nine and a half years, is moving from his previous address 104 Richmond St. W., to Room 411, 137 Wellington St. W., Toronto 2. Mr. Kelly advises us that his business is growing, and that he expects to carry a limited stock in his combined warehouse and office. The Trade are invited to call, and will be made royally welcome at the new address.

The Screen-Grid, Push-Pull Five

A Modern All-Electric Receiver of Exceptional Merit

by H. G. Cisin, M.E.

The "Screen-grid, Push-pull Five" is a receiver which should appeal to everyone. Those who insist upon getting "dx" are certain to be impressed with the distance-getting possibilities of an r.f. stage using the sensitive and powerful 224 a.c. screen-grid tube, followed by a regenerative detector.

Those who place tone quality before every other consideration, will appreciate the design of the audio portion of the circuit, which utilizes the new 245-type power tubes in push-pull amplification arrangement. Fans who favor simplicity of operation, will like the single dial control and the all-electric feature.

In fact, this receiver has been designed to please those who know their radio and especially those who wish to take advantage of the recent developments in vacuum tube design. It is interesting to note that all five tubes operate at the same filament voltage, thus simplifying the problem of filament supply. The 224-tube uses the same type of cathode as the 227-tubes, so that the possibility of hum being transmitted from the a.c. on the filaments, is reduced to a negligible minimum.

Describing the technical features of the receiver briefly, the antenna coupler is a Hammarlund coil, especially designed for this type of work. The secondary is tuned by a .0005 mid. Hammarlund "Mid-line" variable condenser. A Hammarlund coupler coil, TCT-23, is used between the r.f. stage and the regenerative detector. In this case, also, the secondary is tuned by a .0005 mfd. "Mid-line" condenser. Both variable tuning condensers are "ganged" together, being controlled by a Silver-Marshall drum dial. In case it is necessary to "equalize" the two condensers, a Silver-Marshall midget condenser is provided, this being shunted across the variable condenser (4). After the midget condenser has been adjusted, it is unnecessary to touch it again, and for this reason it is located in back of the panel on the wood base.

An 85 millihenry Hammarlund r.f. choke is used as the load on the plate of the screen-grid tube. This also serves the purpose of keeping the r.f. currents out of the "B" supply. The various by-pass condensers used throughout the receiver are all Polymet condensers. These are specified because of their rugged construction, long life and high efficiency.

A Durham metallized resistor grid leak is used, shunted by a Polymet grid condenser. Regeneration is controlled by a small Silver-Marshall midget condenser. In most cases, only a small amount of regeneration will be necessary and the midget condenser will only be put to use when one wishes to sharpen up the tuning, or to bring in some "hard-to-get" distant station.

A small Silver-Marshall r.f. choke is used in the plate circuit of the detector tube to keep the radio frequency currents out of the audio stages. The volume control is simple, but highly effective. It consists of a 100,000 ohm Electrical potentiometer connected between "B" minus and "B" plus 45 volts, with the rotable arm connected to the double grid of the shield grid tube. This permits reduction of the voltage on the double grid from 45 volts to zero, thus giving a very smooth, even volume control, entirely free from distortion.

The first audio transformer is a Thordarson R-300. A Thordarson type T-2922 is used as the input push-pull transformer. This is a 2 to 1 ratio transformer. If less amplification is required, a T-2408, having a 1 to 1 ratio, may be substituted for the T-2922. A 50,000 ohm Durham metallized resistor isolating resistance is connected between the centre-tap of the secondary of the input transformer and "B" minus. The output transformer is a Thordarson T-2903 speaker coupling transformer. This matches the Racon Junior Dynamic speaker specified for use with this receiver. The movable coil of the speaker is connected directly to the secondary terminals of the T-2903 output transformer.

The audio portion of the "Screen-grid, Push-pull Five" makes an excellent phonograph amplifier, when used with a good electric pick-up, such as the Amplion. The pick-up may be connected either by using the plug furnished with it, inserting this in the detector socket, or by connecting across the primary of the first audio transformer with a single-throw, double pole switch. The casing of the electric motor operating the phonograph turntable, should be grounded.

The filaments of the 224-tube and the two 277-tubes are heated by a Thordarson T-3660 filament transformer. This has a 2½-volt secondary of ample current-carrying capacity. In the schematic diagram, the filament circuit of the first three tubes (7, 19, 24) is shown in heavy lines, separated from the other wiring for the sake of clarity. It will be noted that three amperites are shown (36, 37, 38), these being provided to give automatic voltage regulation and also to protect the tubes. Grid bias for the 224-tube is obtained through the use of an Electrad flexible resistor (8) connected between the cathode and "B" minus. An Electrad resistor (25) serves a similar purpose, in the case of the first audio tube (24). With the former, a 300-ohm resistor is necessary, while with the latter, a 2000-ohm resistor must be used. An 800-ohm Electrad resistor provides the correct grid bias for the two 245 power tubes. This resistor is connected between "B" minus and the centre-tap of an Electrad "V" resistor, whose ends are connected across the five-volt filament supply. This filament supply is obtained from the Thordarson R-245 compact, which also provides filament and plate voltage for the 280 rectifier and all necessary plate voltages for the receiver.

The voltage divider used is an Electrad Truvolt tapped unit, kit 1-T or C-130S, having a total resistance of 13,000 ohms. Since the divider has a relatively low resistance, with a high current-carrying capacity, it serves as a ballast to compensate for variations in receiver current drain, thus steadying the voltages delivered to the receiver and giving automatic regulation. A compact Polymet condenser block furnishes the necessary filter condensers for the "B" supply.

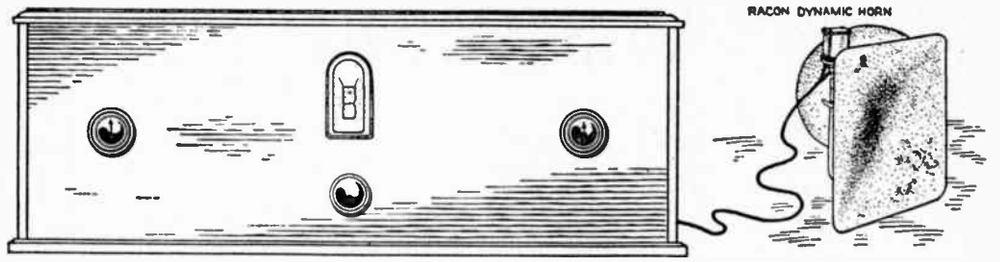
The actual construction and wiring of the receiver will be explained in detail in the next article. Baseboard type of construction is called for, and the entire receiver, with "A" and "B" supply, is designed to be housed in a single cabinet. Eby sockets and binding posts are used throughout. Flexible insulated wiring of the push-back type, such as Corwico Braidite, is recommended and Kester rosin core solder should be at hand, for soldering joints. The power switch for the complete receiver is connected in the primary circuit of the R-245 compact. It is combined with the volume control to reduce the number of parts on the panel and to add to the simplicity of operation.

In order to get best results with any receiver, it is preferable to match the speaker to the set. The speaker selected for use with the "Screen-grid, Push-pull Five" is the new Racon Junior Dynamic reproducer, used in conjunction with a Racon No. 13155 air column horn. This speaker has exactly the right impedance for the receiver. One would naturally expect something close to perfection in a combination including 245-tubes in push-pull, a Thordarson power amplifier, and this remarkable new home-type dynamic and all expectations are more than fulfilled. Every note is clear and true, no matter whether the volume is at a maximum or a minimum. At high volume, there is no distortion whatsoever. Voice reproduction is amazingly natural. Incidentally, this constitutes one of the real tests of a speaker. Both high and low notes are reproduced with equal amplification, the entire audible range being covered with wonderful fidelity.

All components are mounted on the wood baseboard, with the exception of the combination Electrad volume control and power switch and the S-M regeneration control, these being mounted on the panel. The Silver-Marshall drum dial (16) is mounted at the front centre of the baseboard, with the Hammarlund variable condensers (4, 15) located symmetrically on either side. The two Hammarlund coils, (2 and 14) are mounted next, as shown in the top view illustration. While the antenna coupler (2) is shown mounted vertically, it may be desirable to mount this horizontally instead.

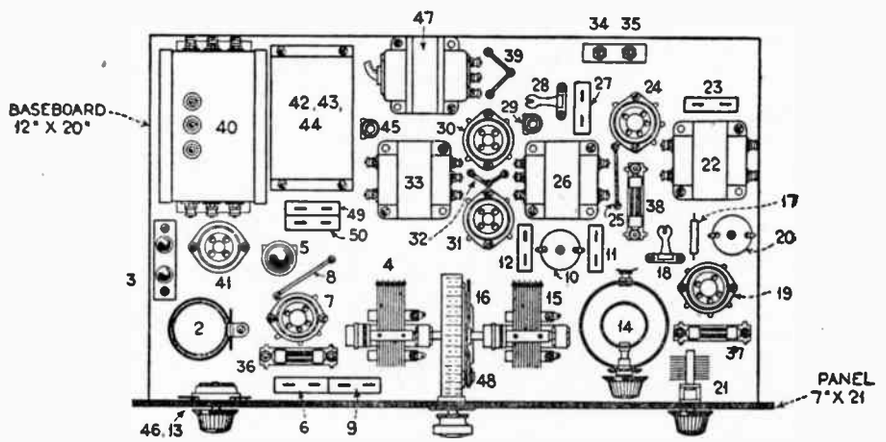
The Thordarson transformers (22, 26, 33) are fastened in position as indicated, then the Eby sockets and next the three amperites. Other parts may be mounted in the order named: the r.f. chokes (10, 20); the Silver-Marshall equalizing condenser (5); the Polymet by-pass condensers; the Durham resistors and the various Electrad resistances. Resistances (8) and (25) are soldered directly to the cathode terminals of their respective sockets. The "V" resistor (32) is connected directly across the filament terminals of one of the push-pull sockets. A 20-ohm Electrad potentiometer may be substituted for the "V" resistor (39) as this will serve to give the exact electrical centre more accurately.

The Electrad Truvolt resistor (29) is



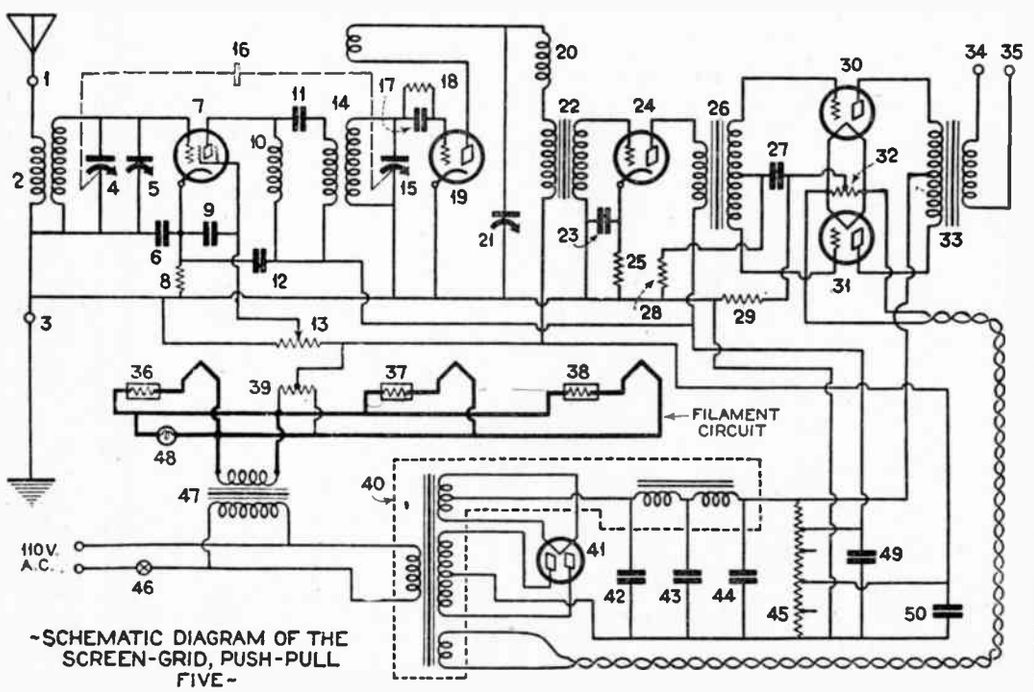
FRONT VIEW OF THE
SCREEN-GRID, PUSH-PULL FIVE~

ALLIED ENGINEERING INSTITUTE SUITE 429. 30 CHURCH ST. N.Y CITY



~TOP VIEW OF THE SCREEN-GRID, PUSH-PULL FIVE~

ALLIED ENGINEERING INSTITUTE. SUITE 429. 30 CHURCH ST., N.Y. CITY



~SCHEMATIC DIAGRAM OF THE
SCREEN-GRID, PUSH-PULL
FIVE~

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mounted vertically. The voltage divider (45) is also mounted vertically. The Thordarson filament transformer (47), the Thordarson R-245 compact (40) and the Polymet condenser block (42, 43, 44, 49, 50) are mounted next. (Note: Through a draftsman's error, condensers (49) and (50) are shown separately on the top view, whereas these are really an integral part of the Polymet condenser block, F-1000).

The Eby binding posts and the tip jacks are fastened on Insuline strips and mounted, thus completing the assembly of the baseboard. The panel is next prepared for mounting. A hole is cut for the Silver-Marshall drum dial window and for the dial control shaft, and the escutcheon plate is fastened in place. The Electrad combination volume control and power switch are mounted on one side of the panel and the Silver-Marshall midget condenser is mounted symmetrically on the other side and the panel is then fastened to the wood baseboard by means of three wood screws.

The receiver is now ready for wiring. Break one of the connections leading to the 245 compact (40) primary and connect the wires for the power switch (46). Remove the plug from the wires leading to the primary of the Thordarson filament transformer (47), shorten the leads and connect them in parallel to the wiring from the compact, being sure to make the connections between the switch and the primary, so that the operation of the switch will control both the filament transformer and the power compact.

The wiring from the compact connector cord to the power switch on the panel should be twisted and all filament wiring should be twisted also. The filament wiring to Eby sockets (7), (19), and (24) is wired in first, with an amperite in series in each separate branch. This filament wiring is shown separately in heavy lines on the schematic wiring diagram. The filaments of the two GSX 245-tubes are wired in next, the leads in this case going to the 5-volt winding on the Thordarson compact (40). If a 2½-volt pilot light is used for the dial, it should be connected as shown at (48). If a 5-volt bulb is utilized, this should be connected across the 5-volt winding, used to supply the filaments of the 245-tubes.

Complete List of Parts Required for the "Screen-grid, Push-pull Five"

2 .0005 mfd. Hammarlund "Mid-line" Variable Condensers (4, 15).
1 Hammarlund Antenna Coupler, type AC-23 (2).
1 Hammarlund Coupler Coil, type TCT-23.
1 Hammarlund R.F. Choke, type RFC-85 (10).
1 300-ohm Electrad Truvolt Flexible Wire Resistance (8).
1 2000-ohm Electrad Truvolt Flexible Wire Resistance (25).
1 Electrad Truvolt Wire Fixed Resistance, type B-8 (29).
1 Electrad Truvolt, type "V-100" Centre-tap Resistance (32).
1 Electrad Truvolt, type "V-20" Centre-tap Resistance (39).
1 Electrad "Royalty" type "B", 100,000-ohm Potentiometer (13), with Power Switch (46).
1 Elected Truvolt Tapped Resistor Kit, type 1-T (45).
3 ½ mfd. Polymet "Hi-Volt" Filter Condensers, type C-908 (6, 9, 12).
2 1 mfd. Polymet "Hi-Volt" Filter Condensers, type C-904 (23, 27).
1 Polymet Block Condenser, type F-1000, (42-2mfds), (43-2 mfds.), (44-8 mfds.), (49-1 mfds.), (50-1 mfd.)
1 .001 mfd. Polymet Fixed Mica Condenser, type MC-1212 (11).
1 .00025 mfd. Polymet Fixed Mica Condenser, type MC-1207 (17).
1 .000004 to .000075 mfd. Silver-Marshall Midget Condenser, type 342-B (5).
1 .000003 to .000025 mfd. Silver-Marshall Midget Condenser, type 340 (21).
1 Silver-Marshall R.F. Choke, type 276 (20).
1 Thordarson Audio Transformer, type R-300 (22).
1 Thordarson T-2922 Push-pull Input Transformer (26).
1 Thordarson T-2903 Push-pull Transformer (33).
1 Thordarson 2½-volt Filament Transformer, type T-3660 (47).
3 Eby Sockets, UY type (7, 19, 24).
3 Eby Sockets, UX type (30, 31, 41).
2 Eby Engraved Binding Posts.
1 Silver-Marshall Drum Dial, type 810-R, (16), with Dial Window, type 807 and Dial Light (48).
1 2 meg. Durham Metallized Resistor Grid Leak, with Vertical Single Mounting (18).
1 50,000-ohm Durham "Powerohm" Resistor, with Vertical Single Mounting (28).
3 Amperites, No. 227, with Mountings (36, 37, 38).
2 Rolls Corwico Braidite, Stranded Core Hook-up Wire.
1 Can Kester Radio Solder (Rosin Core), by the Kester Solder Company.
2 Tip Jacks (34, 35).
1 Insuline Panel, 7" x 21" x 3/16".
2 Insuline Binding Post Strips.
1 Wood Baseboard, 12" x 20" x ½".
1 Gold Seal GSX224 Screen-grid Tube (7).
2 Gold Seal GSX227 Tubes (18, 24).
2 Gold Seal GSX245 Power Tubes (30, 31).
1 Gold Seal GSX280 Full-wave Rectifier Tube (41).
1 Racon Junior Dynamic Speaker, with 104" Racon Air Column Horn, No. 1315.

The grid circuits may be wired in next. The connection from the stator of variable condenser (4) goes to the cap of the Gold Seal 224 screen-grid tube. The plate circuits are wired, then the cathodes and the negative returns, then the antenna and ground circuits and the various by-pass condensers. The wiring of the "B" supply portion of the circuit is then completed and the set is ready for checking and testing.

All wiring is in plain view, since the baseboard type of construction is used. Corwico Braidite is used throughout. This has a great advantage over other types of wiring, in that it is unnecessary to strip the insulation off the wire. With Braidite, the braid is simply pushed back until the soldering is performed and then it slips back into place again. If desired, the rolls of Braidite may be obtained in different colors, so that the wiring may be checked over more readily when completed. In soldering connections and joints, Kester rosin core solder should be used exclusively, as this will insure rapid work and permanent joints.

The wiring should be checked over with great care before connecting the set to the 110-volt a.c. source. If possible, old tubes should be used in making the initial tests. Then the aerial and ground should be connected and the Racon dynamic speaker and the Gold Seal tubes specified should be put in their respective sockets. The GSX 224-tube, the 227's and the 245's are recent important developments of the Gold Seal research laboratories and no tube substitution should be permitted if best results are to be attained.

The Racon Junior dynamic speaker will handle enormous volume without blasting or distortion. The No. 1315 air column horn specified, is of the exponential type. The air column is 104 inches long and the bell of the horn is 18 inches by 24 inches. The weight of the horn, without the dynamic unit is eight pounds.

A new self-adjusting line control device has recently been developed by amperite which serves a very important function in conection with a.c. receivers. The new amperite line control looks very much like a vacuum tube and has a standard tube base, but with only two prongs. It will handle a line fluctuation of about 30 volts and will regulate the current to a constancy of within 10 per cent. over the range of this fluctuation. The operation of this device assures a constant reliable, instantaneous response to even slight fluctuations in line voltage. As a result receiver operation is immensely improved and tuble life is greatly lengthened. To install this device on the "Screen-grid, Push-pull Five" it is necessary to use a power transformer with an 80-volt primary or else an auto-transformer.

In operating the "Screen-grid, Push-pull Five" receiver, regeneration may be kept at minimum for local broadcasting. The regeneration control is used only when "fishing" for "dx." With regard to the reception of distant stations, it should be kept in mind that a good aerial and a good ground are of fundamental importance. This means well-soldered joints and a well-insulated aerial. The aerial should not be over 100 feet in length and should be as high as possible.

(Note: Part (40) was inadvertently omitted from the list of parts required for the "Screen-grid, Push-pull Five." This part is a Thordarson R-245 Compact.)

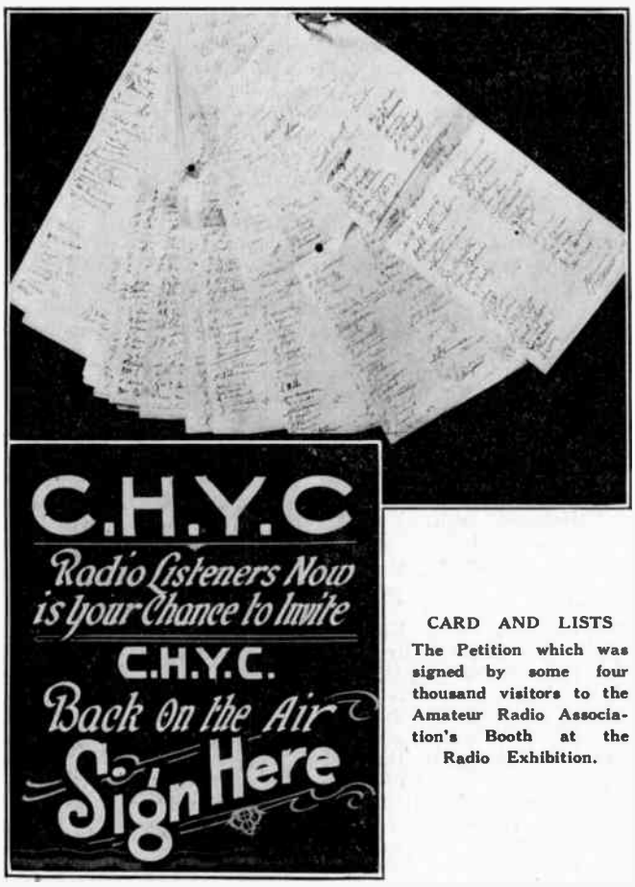
The practice of a common radio receiver supplying a number of scattered loud-speakers in a building is rapidly gaining favor. The Piedmont Hotel, in Atlanta, Ga., is being remodelled to include a centralized radio installation. The Farrand Manufacturing Company announces that it has received an order for 450 inductor dynamic speakers for installation in that hotel. The speakers will be built into the wall of each room to provide a variety of radio entertainment for the guests.

The development of the screen grid tube, which has produced a revolution in the building of radio receivers, has emphasized in the public mind the fact that radio engineering comprises two distinct schools: tube engineers and set engineers. The screen grid tube has had the effect of making the tube engineers a bit more cocky this year than has been their habit. Heretofore they had been the sort of silent craftsmen who labored in quiet, content to realize their new ideas and take their satisfaction in accomplishment.

There seldom have been any startlingly quick developments in radio tube engineering. All of the noteworthy results that are familiar to-day have come about over a period of years of steady application and much co-operative effort. The screen grid tube was pioneered in Germany before the war. Many minds contributed to its improvement ever since.

C.H.Y.C. and the Seven Churches

FROM its inception in 1928, under the direction of F. W. Johnson, first Studio Manager, and later under the supervision of Norman S. Richards, it was the policy of CHYC, the Montreal Station of the Northern Electric Company Limited, to broadcast each Sunday the religious services of some of the leading city churches of various denominations for the benefit of "shut-ins," but owing to a combination of circumstances in the Summer of 1928, broadcasting was discontinued from this station.



CARD AND LISTS
The Petition which was signed by some four thousand visitors to the Amateur Radio Association's Booth at the Radio Exhibition.

So greatly however, did the radio public miss this service that, at the following Radio Exhibition held in the Windsor Hotel in Montreal over four thousand visitors signed their names to the petition shown above.

This petition was a purely voluntary gesture on the part of executives of the Montreal Amateur Radio Association requesting the return of CHYC to the air for the broadcasting of good musical programmes and particularly services from the leading churches.

This petition was duly presented to Mr. P. F. Sise, President of the Company, and at the same time representations were made to the various church organizations in the city. In addition to this thousands of letters were received by the churches and by the Northern Electric Company from listeners in all parts of Quebec and New England who were shut in by ill health or other causes and depended upon radio for their edification and entertainment, this indicating a strong desire on the part of all sections of the public, for the return of CHYC.

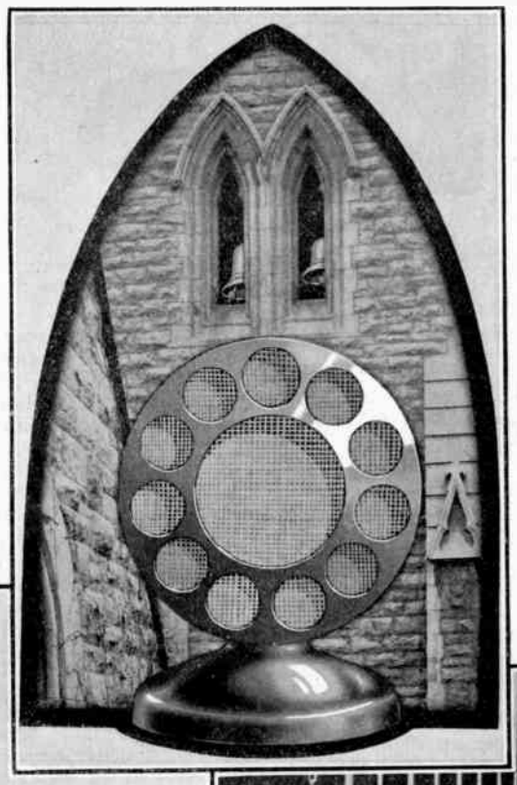
JOHN B. STARKE
Announcer at CHYC

In response to these petitions an organization comprised of representatives of seven churches in Montreal was formed under the title of "The Central Broadcasting Committee," under the chairmanship of Mr. A. O. Dawson, President, Canadian Cottons Limited and a director of the Bank of Montreal, to arrange for the broadcasting of morning and evening services from each church in turn, in co-operation with the Northern Electric Company, and the first programme under the new arrangement was given on Sunday, March the third, when the services of the First Presbyterian Church was broadcast.

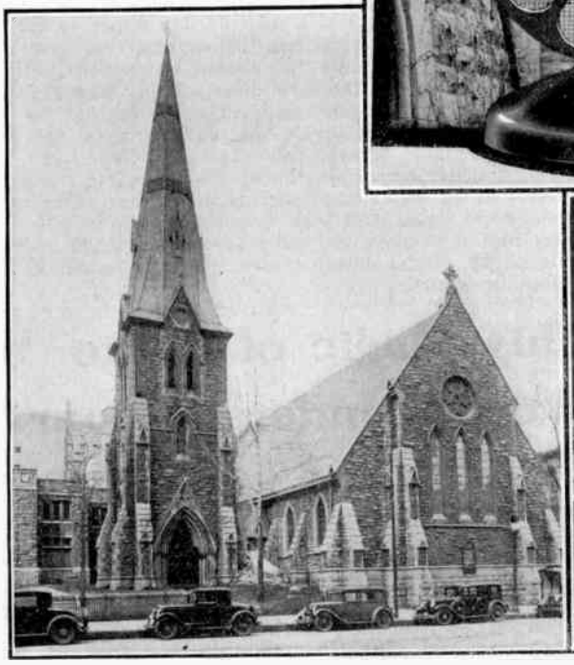
At that time a new voice was heard from CHYC when John B. Starke, entered upon his duties as announcer for this station. Mr. Starke made his debut over CHIC and CHNC at Toronto two years ago as Announcer-Manager. Norman S. Richards, the well-known director of CHYC, however, still has charge of arrangements for the programmes.

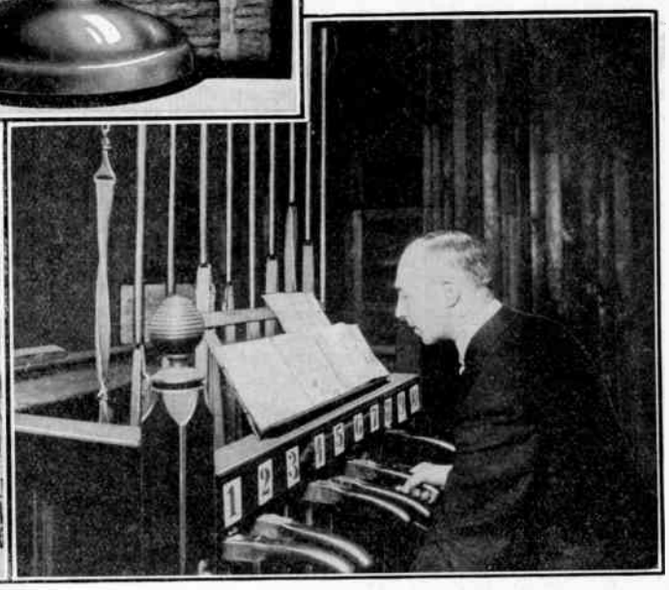
C.H.Y.C. and the Seven Churches---*Continued*

One of the features of broadcasts from the church of St. James the Apostle through CHYC is the playing of the bells. Below — The church located near the centre of the city.



At Left — The Belfry seen through the winddow where the microphone is placed for broadcasting the bells. Below — Mr. H. Robinson, the volunteer Bellringer, at work.





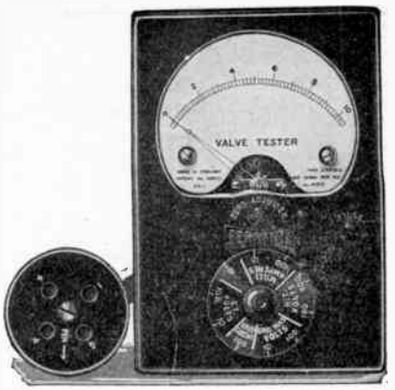
At the present time, owing to the disposal of the equipment formally used at CHYC, a comparatively low powered plant is in use, but as soon as the building is finished, which is being erected at Ste. Hyacinthe, Quebec, to house the great new station, is completed, CHYC will cover an infinitely wider area than ever before, using the same wavelength as heretofore, viz.: 411 metres of 730 K.C.

The new equipment comprises every known improvement, including water cooled vacuum tubes and crystal control which holds the wavelength rigidly on the allotted wave at all times, and the modulation is of such a high value that although the station will be rated as 5 K.W., its effective power will be in the neighborhood of 20 K.W., thus placing it high above all other stations in Quebec and amongst the very best in Canada, and indeed on this continent.

THREE USEFUL FERRANTI METERS

One of the Ferranti Radio Meters

A Multi-Range D.C. Test Set



A Ferranti Tube Tester

A MULTI-RANGE D.C. TEST SET

The Ferranti Multi-Range Test Set comprises two 2½" Moving Coil Instrument elements of similar design to Standard Radio Meters, fitted in the same case and calibrated, respectively, to read voltage and current independently.

Each instrument has eight ranges and is provided with a ten-way switch to select the required range, the combination forming a self-contained unit for the measurement of direct current, voltage, power and resistance within the limits.

The ranges included are:—

Volts		Amperes	
0— 0.1	0— 10.	0— 0.01	0— 1.
0— 0.5	0— 50.	0— 0.05	0— 5.
0— 1.	0—100.	0— 0.1	0—10.
0— 5.	0—250.	0— 0.5	0—25.

As the current for full scale deflection on the Voltmeter is precisely 1 milliampere, an additional range of 0—1. milliamp. can be obtained on this instrument, connection being made to the "low volts" terminals with the switch set at 0.1 volt.

A USEFUL TUBE TESTER

This Tube Tester comprises one of the Ferranti Radio Meter elements assembled in a polished bakelite case. The instrument is fitted with a flexible lead and plug, the latter being suitable for inserting in a standard tube holder, the tube being inserted in the socket at the top of the plug, thus enabling measurements to be made in the Receiver itself.

The rotation of the selector switch with the plug inserted in the Receiver gives the following reading:—

Low Tension—0-10. volts.

Grid Circuit—This reading is an indication of the continuity of the Grid Circuit. The actual value is dependant upon the Grid Bias used and the value of the resistance (such as a Transformer secondary winding) connecting the Gird Bias to the Grid of the Tube.

Grid Bias—0—10. and 0—100. volts.

High Tension—0—100. and 0—300. volts, type VT1.
0—100. and 0—500. volts, type VT2.

Anode Current—0—10. and 0—100. milliamps.

DETAILS OF FERRANTI RADIO METERS

The Ferranti Radio Meters include voltmeters, milliammeters and ammeters, either single range or combined instruments, and may be used for measuring the A and B and C voltages, as well as the various plate and filament currents.

Radio meters enable the user to adhere strictly to the proper voltages which are essential to true reproduction and also in the case of the filament voltage insure full length of life to the tubes.

Voltmeters

For accurate measurement of voltage the voltmeter should have a very high resistance, otherwise its use materially disturbs the conditions in the circuit and the reading obtained is not the correct one. Further, a high resistance instrument consumes very little current and does not drain the "B" battery as do low resistance instruments.

Ferranti voltmeters are available in two patterns having resistances of 200 ohms and 1,000 ohms per volt respectively.

The total current output of a B-eliminator is seldom over 60 milliamps, so that when an ordinary voltmeter requiring from 10 to 30 milliamps is used for test purposes, the resulting indication is off as much as 50%. The Ferranti 1,000 ohm per volt voltmeter consumes only 1 milliamp and is specially suitable for measuring the voltages in high resistance circuits such as in B-eliminators, where the reading of any low resistance instrument are very inaccurate. For the higher voltages the 200 ohms per volt voltmeter may be used and the errors will be small enough to give a reading sufficiently accurate for all ordinary purposes, but for measuring detector plate voltages where a B-eliminator is used the voltmeter should have a reristance of not less than 1,000 ohms per volt.

Milliammeters

A milliammeter may be considered even more essential than a Voltmeter. It indicates the consumption of "B" current and adjustments can be made for economical working, thereby prolonging the the life of the "B" battery. At the same time it gives a direct indication whether the valves are being operated correctly, and whether they are the cause of any distortion which may occur, for example:—

If a milliammeter is connected in the plate circuit of the last tube when music or speech is not being received, the needle will take up a certain position. The reading should still be the same when music or speech is being received, even during the loudest passages. Any appreciable movement of the needle indicates overloading, which may be due either to the use of an unsuitable tube, insufficient "B," or incorrect Grid Bias.

Not less than 120 volts "B" should be applied to the plate of the last tube and the Grid Bias suitably adjusted. If the meter pointer is still not steady, it indicates that the tube is either defective or incapable of dealing with the required signal, and should be replaced.

A milliammeter may also be used in the plate circuit of the detector as an indicator of oscillation. The application of reaction when using grid leak rectification causes the milliammeter needle to move gradually downwards when used in the plate circuit of the detector tube, giving a violent kick when oscillation occurs.

VOLUME AND TONE FROM THE BATTERY SET

With the advent of socket-power radio sets, most of the discussion has been along the lines of increased power and how to apply it without overloading the tubes and the loud-speakers. Nevertheless, there are a few of us still interested in battery operation, and this point is especially true in the rural districts and even in city homes without electric light wiring. In the case of battery operation, the interest to-day is how to obtain satisfactory volume and tone quality—in brief, how to make the most of the little power available.

Many of our present-day socket-power radio sets with outputs of the order of 1,500 to 15,000 milliwatts, are capable of far more work than we actually require. Indeed, much of the energy is wasted, as it is through inefficient design, which is perhaps fortunate for the eardrums of America.

In Europe, it is different. There the radio sets for the most part are operating on batteries, and the outputs are relatively modest. Yet amazing tone quality and volume are obtained, due to extreme conservation of energy. Perhaps the utmost in tone and volume is obtained for the present status of the radio art, so that the results often match those of American sets using many times as much energy. With an output of 50 to 120 milliwatts, which is equivalent to that of a battery set with a low-power output tube, or again an output of 500 milliwatts, which is fair for a power tube of the 71A type working within its distortion less limit, ample volume and tone are obtained.

Queer enough, the true bottleneck of battery-operated sets has been quite overlooked all these years. While radio experts and laymen have worked on radio-frequency amplifiers and detectors and audio amplifiers in search of greater volume and better tone, the loud-speaker has been accepted as it stood. Yet the real beginning of efficient battery operation is the loud-speaker. The set can be no better than its loud-speaker, so that is the starting point.

And what have we in the way of loud-speakers? Well, there is the magnetic type, which has hitherto been employed for battery-operated radio sets. Yet this type is relatively inefficient. If it is made quite sensitive, it is necessary to have the pole pieces quite close to the balanced armature, and the latter member must be stiffly tensioned in place to prevent pole slap. This stiffness immediately cuts off the lower frequencies in the response, so that bass notes and tonal depth are entirely missing. Again, if sufficient spacing is employed between pole pieces and armature, the device is insensitive and no considerable volume is obtained. It is a case of being between the devil and the deep sea.

The dynamic type of loud-speaker combines in a most happy fashion the desired volume and tone quality, but requires far more input than is available with battery operation. Hence it is out of the running.

Recently, however, with the introduction of the radically different inductor dynamic type, invented by C. L. Farrand, a recognized authority in the field of radio acoustics, a new day dawns for the battery set. This type is a compromise between the power and tone of the dynamic and the simplicity of the magnetic. While it employs a permanent magnet field, it has no other similarity with the magnetic type. The inductor dynamic makes use of a double bar armature, freely suspended between two sets of pole pieces and moving parallel to the pole faces, so that the swing or amplitude is not limited by the magnetic gap. In fact, the gap can be set very close, for remarkably high efficiency, without danger of pole slap and without tensioning the armature which is therefore extremely free to move. Extreme sensitivity at all frequencies—the very low frequencies as well as the high—is obtained. The entire musical scale is reproduced with striking fidelity heretofore not believed possible with battery operation.

TELEPHONE SERVICE TO SHIPS AT SEA

Slowly but surely there is being evolved a successful system of telephone service to ships at sea. The Bell System engineers have been working on this problem for many years—as far back as 1916, when two-way radio telephony, in conjunction with the usual telephone network, was conducted between the Secretary of the Navy and the captain of the U.S.S. "New Hampshire."

"I firmly believe that radio telegraphy will always be the main medium for traffic to and from ships," stated J. E. Smith, president, National Radio Institute, when interviewed on this subject. "Nevertheless, radio telephone service to and from ships, establishing the close personal touch between those afloat and those on shore, will eventually play a large part in ocean travel, in its own right and quite apart from radio telegraphy. There have been ample demonstrations of radio telephone service to ships at sea to indicate the feasibility of the idea. Nevertheless, I see many practical problems which will have to be overcome. One of these is the proximity of radio telegraph transmitter and radio telephone receiver. On most ocean greyhounds, the radio transmitter is going most of the time, and it is quite a problem to receive radio telephone signals so close to a powerful telegraph transmitter. Yet it can be done through good engineering development. Another problem is the inductive interference from the electrical equipment aboard ship. No doubt a very elaborate system of shielding must be employed."

AND NOW—AUTOMOBILE RADIO!

Several firms are now engaged in manufacturing radio equipment for automobiles. Automobile manufacturers are known to be developing suitable radio equipment and reducing ignition interference to a minimum. Many automobile owners have already equipped their cars with radio sets. All in all, radio now enters a new phase—automobile radio—according to J. E. Smith, president of the National Radio Institute of Washington, D.C. The set, which is of a special type with regard to compactness, may be built into the dashboard. It is not only a constant source of entertainment for the automobile passengers, but keeps them posted as to the news of the day, market reports, weather forecasts, storm warnings and so on. It is particularly valuable when one is driving alone over a great distance, for it offers real companionship. It is also desirable when the automobile is in camp or on the farm, since it provides no end of entertainment and enlightenment.

WHAT THE MANUFACTURERS ARE DOING TO IMPROVE RADIO

Expansion of engineering service to members of the Radio Manufacturers' Association and to the industry generally is being planned by Walter E. Holland, the new Director of the Radio Manufacturers' Association, Engineering Division.

This Division has been reorganized, and standardization and other needed technical work of the industry will be handled by a unified technical organization under the leadership of eminent engineers.

There will be three major sections of the Division, the Safety, the Service Section and the Standards Section. The Chairman of the Safety Section, is Mr. A. F. Van Dyck, Manager of the Technical and Test Department of the Radio-Victor Corporation, Camden, New Jersey.

Heading the Service Section as Chairman is Mr. H. A. Fenner, General Sales Manager of the American Bosch Magneto Corporation, New York City.

Ray H. Manson, Vice-President and Chief Engineer of the Stromberg-Carlson Company of Rochester, New York, has been appointed Chairman of the General Standards Committee. Mr. Manson is one of the principal contributors to radio standardization during the development of the radio industry.

As reorganized, the General Standards Committee will consist of five special committees as follows:

Committee on Receivers and Power Supply, Ralph H. Langley, Director of Engineering of the Crosley Radio Company, Cincinnati, Chairman.

Committee on Vacuum Tubes, George Lewis, Vice-President of the Arcturus Radio Company, Newark, N.J., Chairman.

Committee on Acoustic Devices, F. W. Kranz, Chief Engineer of the United Reproducers Corporation, St. Charles, Ill., Chairman.

Committee on Television, D. E. Replogle of the National Carbon Company, New York City, Chairman.

Committee on Cabinets, R. H. Ewing, Chief Engineer, Adler Manufacturing Company, Louisville, Ky., Chairman.

The Safety Section, a small but important group, will maintain contact with the Underwriters Laboratories, Inc., and handle all work in connection with safety standards.

The Service Section is a new activity, formed in response to demands for co-operative work among service managers to solve the ever-increasing service problems in connection with radio sales. This group will keep in close touch with the R.M.A. Merchandising Committee.

Standardization will be a major function of the Engineering Division. A review of all existing radio standards with a view to developing such new standards as may be needed, under a procedure that will safeguard manufacturers and the R.M.A. against improper or undesirable standards, is planned.

General and sectional meetings of the Engineering Division and its committees are being arranged.

IMPORTANT JUDGMENT IN U.S. ON LIGHT SOCKET ATTACHMENT

A judgment involving 95 per cent. of the radio manufacturers and $20,000,000 in back royalties was delivered this month by Federal Judge Morris against the Radio Corporation of America. Two of the beneficiaries are Francis W. Dunmore, a government employee in the bureau of standards in Washington, and Percival D. Lowell, a former employee in the bureau of standards, and at present employed in the engineering department of a radio manufacturing company. The Dubilier Condenser Corporation of New York, is the third beneficiary.

The decision is the result of a suit brought in December, 1927, by the three plaintiffs against the Radio Corporation of America, charging the latter company with infringing patents owned by the plaintiffs for manufacturing instruments for radio machines which eliminated the necessity of the storage battery and made it possible to operate from the ordinary electric light socket.

This decision, according to William Dubilier, of the Condenser Corporation, will affect 95 per cent. of the radio manufacturers in the country, as practically all of them are making radio sets almost exclusively with electric light socket attachments. Mr. Dubilier estimates that the Radio Corporation of America alone has sold $50,000,000 worth of these sets, and the other companies, another $100,000,000 worth.

CONSIDER THE RESISTORS IN RE-CONDITIONING OLD SETS!

In testing many old radio sets which have been taken in trade and must be disposed of, the service man often encounters serious loss of sensitivity. This may be traced to altered resistance values since several years ago the resistors were not thoroughly seasoned as at present and were apt to change in value over a period of time. Actual measurement on some resistors indicate an increase in resistance of several hundred per cent., which obviously alters the operation of any radio circuit.

"The resistors should not be taken for granted," states the engineering staff of the International Resistance Company. "In fact, in the old set that fails to prove sufficiently sensitive, the first thing that should be done is to replace all the resistors in the receiving circuits proper, with new metallized resistors. It is surprising how efficient the old receiver then becomes, while the cost is relatively small. Many radio sets are being discarded or broken up for their parts, when with a new set of resistors they could be sold or used to good advantage for many more years.

RADIO IN EASTERN CANADA

Plans are now underway for hooking up by hand line all the different Maritime radio stations for the purpose of broadcasting commercial programmes. It is expected, commencing on the 6th of September, and every other Friday for six months, that CHNS at Halifax, CJCB at Sydney and CFCY at Charlottetown, will broadcast a commercial programme over what will be known as the Maritime Broadcasting System. It is hoped to take in the New Brunswick stations before the winter is over.

GOVERNMENT MONOPOLY IN BROADCASTING IN AUSTRALIA

On July 1 a new order of things came into operation in Australia, for on this date the Government took over control. The broadcasting stations are divided into classes: "A," "B," and "C." The "A" class stations, which comprise those best known in this country, are to be taken over—so far as the programme service is concerned—by a new company, and will be the recipients of the listening license fees. A limited number of "B" stations will be used. These will receive no share of the license fees, but will be used for advertising purposes. In addition, some "C" class stations will be established. They will be owned and controlled by the Post Office Department, and will be leased to organizations and firms for the purpose of transmitting programmes based upon publicity.

The Australian Broadcasting Company

In reorganizing Australian broadcasting the Government took the unusual step of inviting tenders for the supply of programmes. Eight organizations submitted figures, the successful competitor being a group consisting of cinema proprietors, a theatre company, and a firm of music publishers. This group has now formed itself into the Australian Broadcasting Company, and will operate the programme side of the eight "A" class stations. The company will received as remuneration one-half of each license fee of $6—the income being estimated at $900,000 per annum. The growth will be gradual, for at first only three stations will be available, the licenses of the remainder not expiring until—in some cases—nearly two years hence. The experiment will be an interesting one to watch—for one reason that the new company will have to provide better programmes with less money than its predecessors, since $3.50 was formerly allotted from each license fee, against $3 under the present contract. The Australian Broadcasting Company seem confident that, during the currency of their contract—i.e., during the next three years —they will raise materially the standard of broadcast programmes in Australia, and —they will approach the contract in a broad national spirit, and will use the best material which can be had, irrespective of any rivalries which exist. The technical side will be retained by the Government, which intends to spend no less than $3,750,000 on improvements in and additions to equipment.

RADIO PATENTS ISSUED DURING THE MONTH OF JUNE, 1929

290,178—Telephone Transmitter. The Graham Amplion Limited, London, Maria Graham & Alfred Graham —June 4, 1929.

290,211—Radio Device for Phonographs. The Victor Talking Machine Co. — Edward Emanuel Linehan — June 4, 1929.

290,246—Dialless Radio. Dale D. Bast—June 11, 1929.

290,290—Loud Speaker System. Frederick August Kolster—June 11, 1929.

290,507—Vacuum Tube System. Frederick A. Kolster—June 18, 1929.

290,530—Loud Speaker Unit. Frank J. Reichmann—June 18, 1929.

290,717—Electrical Eenergy Control Method. Louis George King—June 25, 1929.

It is estimated that nine times as many A.C. sets are now sold as compared to battery sets.

Women write 80 per cent. of the fan letter received at the broadcasting stations.

There is said to be three times the demand for trained radio men compared to last year.

For the benefit of trappers in Polar regions the Soviet Government is planning the erection of a short-wave station at Turukhansk, Siberia, on the edge of the Arctic Circle. The transmissions will include news bulletins and weather reports.

SILENT ZONES

There is a completely dead zone in Southern Russia, between Odessa, Batum and Feodosia (Crimea), in which reception of short waves is impossible. The discovery is due to a Russian experimenter named Gordejew, who, strangely enough, was successful in transmitting short waves from Feodosia to practically the whole of Europe and to India, Asia and Africa. Peculiar effects have previously been observed with medium and long waves over the Black Sea area, particularly at Batum, but were thought to be accounted for by screening or reflection. With the object of conducting further investigation of the mystery, the experimenter Gordejew has sailed from the port of Batum and is transmitting by day and night on 40 and 20-metre waves with a power of 50 watts, hoping to receive reports which, duly collated, may be of material assistance.

LADY HEARS RADIO WITHOUT MACHINE

Sir,—Every night I hear music! I have no radio. The nearest one is nearly a quarter-mile away, and I cannot check up any tunes with what the owners hear. I have a telephone; its wires are the only ones around my house. I think the music comes from broadcasting, because the day after I have heard it extra plain my daily paper says, "Radio reception was excellent last night." The nearest broadcasting station is about 30 miles away, as the bird (or the word) flies.

I have heard it for over two years. It began gradually; I could not distinguish tunes at first, but thought my nearest neighbor (who has a wireless set now, but did not have one then) must be playing the victrola, with the window open. But no!

I will explain my circumstances. My husband died seven years ago, very suddenly. He left me our home, a poultry farm. I have lived here alone ever since. The house is not more than a hundred feet from the bank of a small river. The land is of rocky formation, the rocks cropping through in some places.

Out of a few friends who have tried to hear this music only two young girls have been able to do so. I attribute the failures usually, though not always, to noise. It must be perfectly quiet, and the later at night the better. The breathing of three or four persons will stop my hearing it. I can sometimes hear it plainly, when another with me cannot hear it. I can hear it in my living-room, but must first carry out the clock. I hear it best, after I have retired, in a room over my living-room. The stovepipe comes up, entering the chimney near the ceiling. There is a low attic over the room. The roof is of galvanized roofing. A large porch adjoins, with iron roof.

The night before writing this letter I heard "Bonnie Doon," "Auld Lang Syne," "A Hot Time in the Old Town," and "Old Black Joe." Then I slept. It sounds like singing usually, with what seems like an organ accompaniment; though I often hear orchestral music, the violin sounding especially nice. More old songs than anything else, but sometimes tunes that are not familiar to me. Sometimes I hear a rattling sound, which I think must be the announcer speaking. I love this musinc. I have heard hundreds of different tunes.

You may think it odd that I have not told radio experts about it. Well, I am a busy woman, living alone. If the expert brought one or two with him nothing could be heard. I don't say much about it. I therefore ask you not to print my true name at the end of this article. A friend told me once that it has been said that "Mary is hearing things." I don't want to get the name of being "a little out." I may want to sell this house, and I don't want it to get the name of being haunted.

I have stayed away from home over night once in the two years. Listened then, but heard no music.

I often hear tunes, played evidently for dancing, late at night. The only thing not agreeing with broadcasting is that I often hear tunes, obviously for "setting-up" exercises, at six, whereas they are not listed in my paper to begin before 6.45. My hearing of ordinary sounds seems just average; but I do hear extra well when using the telephone. Everything I have written is strictly true.

Yours faithfully,

New Jersey. MRS.

The Radio World's Fair is to be held in Madison Square Garden, New York, on September 23 to 25, next.

The great Chicago Radio Show is to be held on October 21st to 27th, next.

It is expected that over 600,000 people will attend the two exhibitions.

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Agents Wanted in every town in the Dominion, for a new device for eliminating headlight glare. Low priced, highly efficient—a money maker. Write Box 110, Radio News of Canada.

LOW PRICED RADIOS BEING SOLD

"While it is vital that radio manufacturers produce high price sets to satisfy the demand, the industry to-day must realize that the service it owes to the public can best be rendered by the perfection of a low price quality radio set which meets all conditions everywhere," says the Vice-President in Charge of Sales for the Freed Eiseman Radio Corporation.

"Over three-quarters of the population of North America cannot afford to buy a radio receiver that is priced over $100 without inconvenience. Yet it is this very vital part of our country's population that makes up the backbone of the nation. To deprive them of fine radio reception is to defeat almost entirely the benefits that accrue from broadcasting."

The Freed Eiseman Radio Corporation are following these ideas in presenting to the public an 8-tube neutrodyne radio receiver in a walnut veneer lowboy type console, making use of the new inductor dynamic speaker and prices it at less than $100 in the U.S. In order to accomplish this there had to be erected a tremendous manufacturing plant covering over 6 acres of ground in New Jersey and employing over 3,000 people. A minimum production of 3,000 sets a day had to be planned and the output of several furniture factories contracted for in order that a radio receiver at this price might be marketed.