

America to Hear Europe's Programs

Radio Digest

EVERY
WEEK

Illustrated PROGRAMS

TEN
CENTS

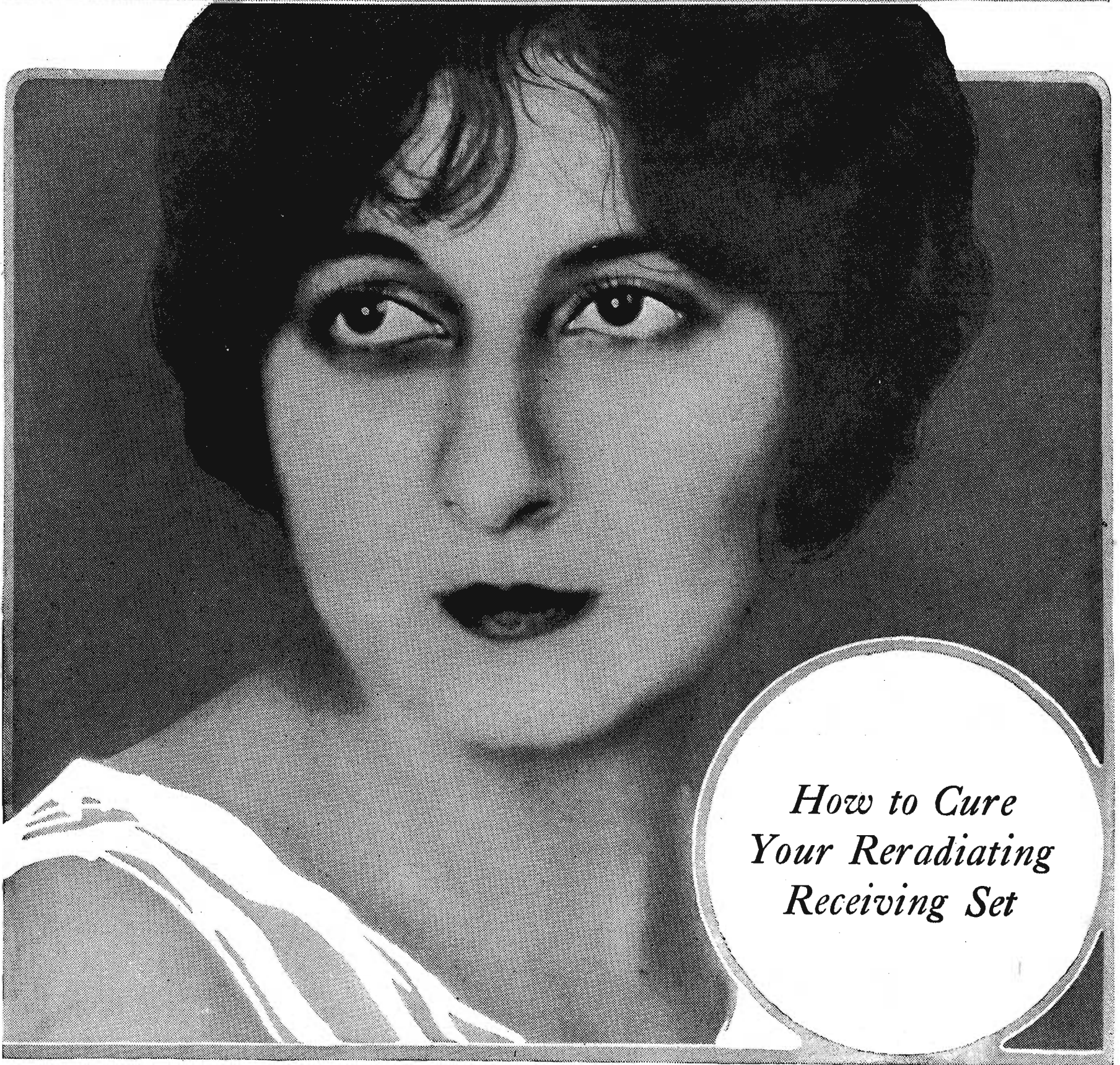
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Vol. XV

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SATURDAY, DECEMBER 5, 1925

No. 9



*How to Cure
Your Reradiating
Receiving Set*

*The Story of the Mouth Organ; Ukulele Ladies You Should Know; Women's Page;
WJZ-WJY Picture Page; Counterphase Receiver; Operating and Trouble Shooting*

Law Recommended by the Radio Conference

THE following recommendations to Congress for a new law regulating Radio communication in all its phases, were made by the committee on legislation at the fourth national Radio conference. The report of the committee was accepted and all its resolutions passed by the general conference. To make it a law Congress must pass and the president must sign a bill embodying the principles set forth here-with.

Because this law will affect millions of listeners, all Radio manufacturers, broadcasting, commercial, experimental and amateur stations, it is believed advisable to publish the complete report of this committee. The chairman of the committee was Judge S. B. Davis, solicitor for the department of commerce, and probably the best informed man on the subject of Radio in the department of commerce.—Editor's Note.

IT HAS been the pride of the Radio industry that it has been to a large extent self-regulating, most of the regulatory features necessary for its efficient functioning being discussed and agreed upon at these annual conferences rather than imposed by governmental authority. It is highly desirable that this condition shall continue to the greatest measure possible.

Nevertheless, it must be recognized that in the widespread network of stations that now exist throughout the country, each a potential destroyer of the messages of the other, regulation to keep open the traffic lanes is absolutely essential and that regulation can be imposed efficiently only by the central authority of the federal government, which must have the right through issue of licenses, control of power, assignment of wave lengths, and other appropriate measures, to handle as a whole, the interstate and international situation.

Government to Keep Free of Details

This power should be vested in the secretary of commerce, as it is to a limited degree at present. But governmental authority should not be extended to mere matters of station management, not affecting service or creating interference, nor should it under any circumstances enter the forbidden field of censorship.

That authority should exist to limit the number of stations in any community has already been determined by this conference, which has likewise recommended that benefit to the listener must be the basis for the broadcasting privilege. With these determinations, your committee is of course in hearty accord.

Not Strictly Public Utilities

We would, however, point out that recognition of the principle of public benefit does not bring the broadcasting stations into the category of recognized public utilities.

The owners of broadcasting stations have not dedicated them to public use in a legal sense, and such matters as regulation of rates and other similar features of supervision exercised by governmental bodies over public utilities generally, should still, in the judgment of your committee, remain under the exclusive control of the station owner.

In many respects, these provisions are inapplicable to broadcasting stations, by their very nature, and in any event we do not believe the time has come for their imposition.

Basis for Action

As to the specific matters referred to this committee, we respectfully submit the following report:

It is the opinion of this committee that:

- (1) Existing federal statutes are inadequate to permit proper administration of Radio communication activities.
- (2) The congress of the United States is empowered by the statutes to enact legislation necessary to provide such adequate administration.
- (3) Present conditions and the public interest require that such legislation be enacted.

Recommended Legislation

Your committee therefore recommends that Congress do enact such legislation, incorporating therein the following principles:

- (1) That the administration of Radio legislation shall be vested in the secretary of commerce who shall make and enforce rules and regulations necessary to the proper administration of the provisions of such legislation.
- (2) Such administration shall be exercised by the secretary through the officers or employees of the department of commerce, except that the secretary may appoint such boards or committees as he may consider necessary or desirable to assist him in an advisory capacity in the administration of problems of national scope.
- (3) That the doctrine of free speech be held inviolate.
- (4) That those engaged in Radio communication shall not be required to devote their property to

public use and their properties are therefore not public utilities in fact or in law; provided, however, that a license or a permit to engage in Radio communication shall be issued only to those who in the opinion of the secretary of commerce will render a benefit to the public; or are necessary in the public interest; or are contributing to the development of the art.

(5) That in time of war or other national emergency the president shall have the power to discontinue or commandeer existing stations, with just compensation.



Secretary of Commerce Hoover, "big boss" of Radio in all of its forms, again displayed that remarkable ability of his for getting things done, when he piloted the fourth national Radio conference. Now all he has to do is convince the law-makers that a law is necessary.

It is recommended that call letters shall be recognized as representing a property right and be treated accordingly, during the life of the license. The secretary shall not change call letters, wave length, power, time of operation, nor character of emission except on the application by, or consent of the licensee; provided however, that if in the opinion of the secretary such changes are required as a public necessity, any change or changes may be made.

"LOOKS AS GOOD AS SHE SINGS," WEAF

CECELIA BRANZ, the sweet-faced and sweet-voiced contralto, is the original of the girl on the Radio Digest cover this week. Miss Branz is heard regularly over WEAF, New York. She is a recent recruit to the "Roxy Gang" which helps to make eastern nights merry over this New York station. Her voice, mellow and clear, has the quality that adapts itself most pleasingly to the mechanical limitations of the microphone. The New York Radio music critics predict that she has a future with nationwide fame as an air artist.

Provided, further, that the term of a license to operate a broadcasting transmitting station, the character of which is to be defined in the Act, shall be not to exceed five years, with the privilege of renewal for like periods, and provided further, that the secretary may suspend or revoke any license for failure to maintain regular operation of a transmitting station without just cause.

(9) No license shall be issued to operate a transmitting station not already operating in Radio commun-

ication, except mobile or amateur stations, unless prior to the application for such license there shall have been issued by the secretary of commerce an erection permit; provided further that an erection permit to engage in Radio communication shall be issued only to those who, in the opinion of the secretary of commerce, will render a benefit to the public; or are necessary to the public interest; or are contributing to the development of the art.

(10) Each license to operate a transmitting station in Radio communication shall prescribe the responsibility of such station with respect to distress signals; but in any event all licenses shall provide that upon due and proper order from governmental authority such stations shall cease operation until released by the same authority.

(11) That the Act should define the following terms, to wit: Commercial Stations, Broadcasting Stations, Amateur Stations, and Experimental Stations.

(12) That the secretary shall have the power to revoke or suspend any license whenever he shall determine that the licensee has violated any of the terms of his license, regulation of the secretary, federal Radio law or international treaty.

(13) That in order to insure financial stability to Radio enterprises, capital now invested must receive reasonable protection; therefore all stations which contribute to the public interest and benefit shall be given a reasonable length of time to conform to the provisions of the proposed Act and the rules and regulations prescribed thereunder.

(14) That rebroadcasting of programs shall be prohibited except with the permission of the originating station.

(15) The secretary of commerce shall be empowered to make and enforce such rules and regulations as may be necessary to prevent interference to Radio reception emanating from Radio sources.

(16) Authority should be provided to prescribe and enforce, uniform regulations regarding the use of Radio transmitters on ships in territorial waters.

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Looking Ahead

Sometime Communication with the Dead May Be Established by Radio—Sometime. When that time comes Romaine Fielding will be all set to make King Tut feel at home for an evening of broadcasting at the KFVE studio, built like an Egyptian palace at University City, Mo. That's one for next issue, and then there will be, "Radio a la Carte," as it is conducted by the Canadian National Railways' ten broadcasting studios.

"Willie the Weeper," Caught Unguarded and Alone in the city room of the Atlanta Journal by a ruthless interviewer, is shown no mercy and compelled to tell his real name and reveal many of the most harrowing secrets of his life for Radio Digest readers next week.

Daredevil Radio Operators Scale New York Church Spire to broadcast chimes for Radio parishioners. How and why? Tell you next issue.

The Adjusting and Operation of DX-Seven will next week complete the series by John G. Ryan on this deluxe little super-heterodyne. Even though one has owned a super before, there are features of this set, such as a C battery in a detector grid return and a grid leak in the oscillator grid circuit, which make it almost imperative that one study the adjusting chapter carefully.

Counterphase, First of the Bridge Circuits for which parts are available on the market, gets to the wiring stage in next week's issue. Three stages of tuned and neutralized radio frequency amplification give a degree of selectivity that will snit the most critical while the volume on DX stations equals that of a super.

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ALL CONFLAB PLANS MAY NOT WORK OUT

LACK OF LEGISLATION MAY BLOCK RESOLUTIONS

District Inspectors Feel Class Ratings Necessary; to Try for More Feasible Plan

WASHINGTON, D. C.—With the close of the fourth Radio conference officials of the department of commerce are giving their attention to the resolutions passed and to the possibility of enforcing some of the recommendations.

It will be impossible to enforce some of them because of lack of legislation.

It has been stated by some of the officials of the Radio section of the department that following the recommendations of the conference there will be no more division of time and no more licenses will be granted for broadcasting except in such places as there will be no possibility of interference. There are many stations being held up because of this attitude taken as the result of the recommendations of the conference.

Inspectors Feel Classes Necessary

There is question in the minds of some of the officials as to just what can and cannot be done relative to abolishing class A and class B stations. Some of the officials take the stand that there must be some differential between the two kinds of stations because the class A stations will immediately want to step up to class B and this would make conditions worse than they are at present.

Radio inspectors from the various districts who came here to help out at the conference have this matter under discussion at the present time in an effort to see if some feasible plan can be worked out.

Roxy Will Broadcast from Own New Theater

\$8,000,000 Structure Is Equipped with Broadcasting Room

NEW YORK.—A broadcaster which will contain the latest in modern Radio equipment will be one of the features of the new Roxy theater, 50th street and 7th avenue, New York, where Roxy (S. L. Rothafel) and his gang will continue to delight Radio fans on a scale never before attempted.

The new theater, which is to cost \$8,000,000, will not only be notable for the class of pictures presented but will be unique among motion picture houses in many respects. It will have a seating capacity of 6,000 and an orchestra pit which will accommodate 110 musicians. There will be an organ in the grand foyer and one in the broadcasting room.

Sixteen Orchestras at Once

CINCINNATI.—The Post Zoo cabaret program broadcast through Station WLW was the banner event in Cincinnati's contribution to the Radio art for the month of November. Sixteen orchestras broadcast on one program.

TO EXCHANGE OVERSEAS PROGRAM

POWERFUL STATION REACHES FAR IN DAY

WJZ USES 50,000 WATTS; HITS TEXAS AT NOON

New York Station Experiments with Strong Transmitter; To Have Many Features Later

NEW YORK.—Turn down your rheostats when you tune in WJZ on 455 meters. On November 9, this station went on the air experimentally with their evening program using 50,000 watts.

A few days later they dropped down to 25,000 watts, and daily since that time have increased their power back to 50,000 watts, which they are using at the present time.

The transmitting equipment for the new power is located at Bound Brook, N. J., approximately 40 miles from their studio, located in the Aeolian building here.

Towers 300 Feet High

Three 300-foot towers carry the aerial which can be observed for miles around the countryside. At high noon, observation posts located at Fort Worth, Texas, have reported excellent reception. Illinois and Indiana, in the Middle West, have reported the same conditions existing throughout that territory.

WJZ began November 9 to increase their power. One hour each evening the station switched over to the superpower and results compared to their regular equipment. Although no special schedule has been contemplated, WJZ will inaugurate a number of features for the coming months.

McNAMEE MAKES HIS STAGE DEBUT

Gold Cup Announcer Plays Part in Baseball Comedy at New York Opening

NEW YORK.—When the curtain rose on the last act of "Solid Ivory," which opened at the Central theater before a crowded house on a recent Monday evening, Graham McNamee, WEAF's most popular announcer, made his debut on the legitimate stage. The scene depicted a thrilling baseball game between the "Hyenas" and the "Blue Sox" and McNamee in his most inimitable manner described each play very earnestly before a "dummy" microphone.

While McNamee appeared only on the opening night, his place before the microphone throughout the further run of "Solid Ivory" has been assumed by A. V. Lufrio, one of WEAF's pioneer announcers and more recently with WGBS and WMCA, New York.

Atwater Kent Star to Visit Coast Station

Toscha Seidel Will Give Recital from Station KPO

SAN FRANCISCO.—Toscha Seidel, the famous Russian violinist, will appear in a recital before the microphones of KPO here, Sunday evening, December 6.

Seidel, who is one of a group of stars recently contracted to make Radio appearances by A. Atwater Kent, will arrive in California early in December on tour and will make his western Radio premier for KPO listeners. Accompanying the violinist will be a stellar pianist, yet to be named, the two artists contributing an hour of music.

Although Seidel is the only one of the Atwater Kent artists definitely "booked" for KPO, Oliver W. Tuttle, managing-director, stated that negotiations are in progress for appearances of others of similar rank.

Proposed New British Plant Would Exceed 2LO in Power

LONDON.—Immense interest has been aroused by the proposal for a new broadcasting station in southeast England, although no permission for such a station has yet been granted.

If the new station is erected, its power will certainly be greater than that of 2LO, whether 2LO is reduced or not.

The idea is that the new station should operate on a wave length of something between 400 and 500 meters at as great a clearance from 2LO's wave length as is convenient.

PRISON BARS DO NOT KEEP OUT AIR CHEER

WETHERSFIELD, Conn.—Through the ingenuity of a young inmate who constructed an eight-tube receiver the prisoners at the state penitentiary here are having their morale uplifted and their morals reclaimed by programs from WTIC, the Travelers Insurance company station at Hartford, according to Warden Henry K. W. Scott. Loud speakers are located in the hospital, insane ward, female department and cell houses.

BLIND BOY STUDIES BY WAVES OF WSUI

IOWA CITY, Iowa.—Among those who listened to the first lectures in the fall course of the University of Iowa "College of the Air" broadcast from WSUI, was a blind young man, William Klontz of Grundy Center, a graduate of the State School for the Blind at Vinton. It is through Iowa Radio education that he is working for a collegiate degree. He runs a typewriter by touch and hence can study by ear phone and report his progress without help.

TURN TALENTS TO MICROPHONES



Mme. Eva Gauthier (above), noted Canadian soprano, who recently sang in an Atwater Kent Radio Hour of Station WEAF, and Ruth Roland, screen beauty credited with a perfect broadcast voice, who entertains regularly from Station KMX.



Aladdin Outdone by London Inventor Who Directs Magic Lamp with Voice

LONDON, Eng.—Radio and electricity have combined to produce a marvelous lamp reminiscent of that of Aladdin in the "Arabian Nights." The lamp will light at the word of command and go out when ordered.

L. H. Pearson, a Nottingham Radio fan, is the inventor of this uncanny device. He made the discovery while transmitting from his own station (5CK) about a year ago. At that time he did not realize its commercial value, but he now has the device patented.

Describing his invention, Mr. Pearson said: "It is an electrical switch, which

can be controlled by the human voice, or any vibration or sound."

He produced the wonderful lamp, which looks like an ordinary electric bulb.

Controlled by Voice

"On!" he commanded, and it was at once illuminated.

"Off!" he said, and the light was immediately extinguished.

The experiment was repeated several times, and the current "jumped to" the word of command on every occasion, to the astonishment of the onlookers, many of whom were unaware that the commands were spoken into a "mike."

WILL BRIDGE ATLANTIC BY RELAYS SOON

International Exchange Is Agreed to by Several Foreign Countries

Superpower to Be Used

Predicts Entire Country Will Hear Programs of Europe by Next Year

WASHINGTON.—An international exchange of broadcast programs is in prospect for the next year. This is the promise of David Sarnoff, vice president and general manager of the Radio Corporation of America.

"We have reached agreements with several countries," says Mr. Sarnoff, "for the exchange of programs. There remains the problems of getting the programs back and forth across the ocean with sufficient clarity to rebroadcast."

Receiving Station Under Way

"We are proceeding with an energetic program for the exchange of programs. We are building a receiving station at Belfast, Maine, because we have found that reception is better there. We can hear the foreign stations now, but we cannot get their signals well enough to rebroadcast them."

"Just as soon as our Boundbrook station is in regular operation we can get our programs across. A station is to be constructed in Germany with sufficient power to bring the German programs to us. The new British station at Daventry is equipped to use 40,000 watts, and, it is believed, will be able to furnish Americans with their programs."

Entire Country to Hear

"The programs picked up by our Maine station will be transmitted by wire to New York and from there sent out over the entire country either by land wire for rebroadcasting or by Radio."

AMERICAN RADIO HOMES INCREASE

Survey Shows Talking Machine and Autos Still Exceed Radio; Sets to Lead in Seven Years

CHICAGO.—Although the number of automobiles and the number of talking machines to each 100 people in the United States at present greatly exceeds the number of Radio sets in the same ratio, the great activity in the Radio industry since its start indicates that in not over seven years there will be more receivers per capita than phonographs. Recent surveys show that there are now sixteen Radio sets in every hundred homes as compared with fifty-two automobiles and thirty-six phonographs.

It is estimated that there are today 24,000,000 homes in this country equipped with some sort of a Radio set. This however is only about 84 per cent of the total number of homes in the land. Standardization, stabilization, and concentration in the Radio industry will make for a still better market, due to reduced prices, time payments and better products. Between 1,000,000 and 1,500,000 manufactured sets will be sold this season and it is believed that many thousands will be constructed by listeners in themselves.

Fur Country Indians Like Broadcasts of WCCO Radio

MINNEAPOLIS, Minn.—Up in the fur-trading country in northwestern Canada, 250 miles beyond civilization, Radio is the only link with the outside world, according to a letter received recently by Gold Medal Station WCCO, Minneapolis-St. Paul, from Harold Hemp, of the Revellon Trading company, Ltd., of Lac la Poudre Range.

"We are at fur post on the Churchill river, 250 miles from civilization, and have only monthly mail, so Radio is our only link with the outside. Wish you could drop in some night and see how big you go with some of our Indians."

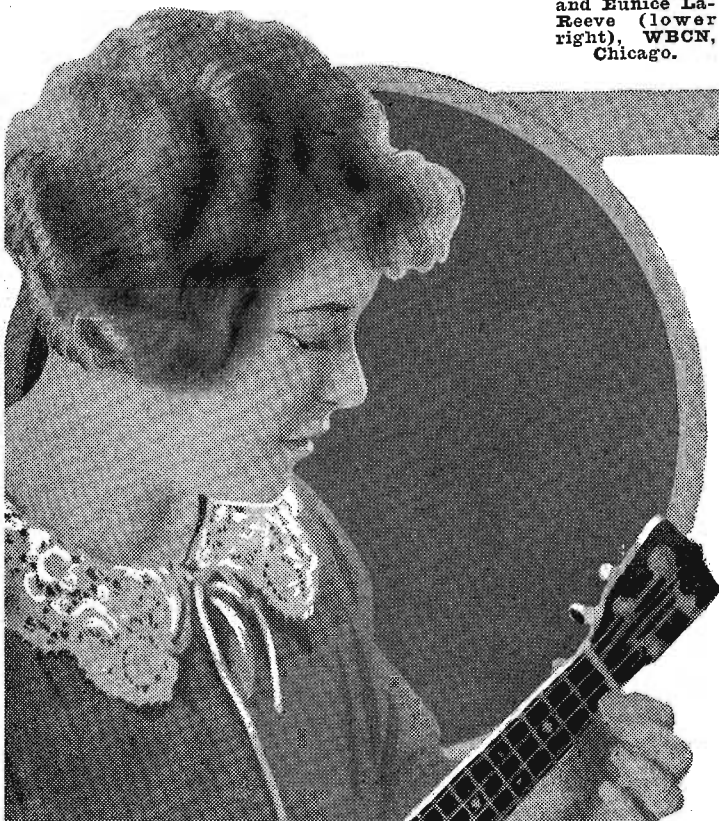
You "Like-a" Ukulele Ladies Like These?



"If you like-a Uk-u-le-le lady
Uk-u-le-le Lady like-a you."

WONDER what you wondered, Mr. Man, when you tuned in on a soft, throaty voice humming and strumming that Ukulele Lady singing over your Radio during the late lamented season of its popularity? Didn't it just get you a wee tiny bit—give you a slight palpitation as you visioned in the fringed shores of Hawaii, mountain lakes by moonlight and some, exotic Hawaiian maidens with gently undulating arms weaving and waving as they swayed and fluttered beneath the dancing shadows? And that quaint, plaintive rhythm of sound—the gentle night birds twittering themselves to sleep—which was the ukulele, perhaps two, three or half a dozen of them. Don't deny it. There's a charm to this Hawaiian stuff that stirs up dreams, a desire to wander in tropic jungles where the world is primitive and unsullied by the clashing cymbals of our life civilization. What did you wonder, Mr. Man? Did you catch the rush of the singer's breath between the verses? Did you feel that she was very, very near to the source of the sounds that

Oh happy day when you can see as well as hear these charming Ukulele Ladies by Radio! For instance, Henryetta Turner (in both the above poses) as she appears in the WEBJ studio, New York, a la Waikiki. And May Singh Breen (below, left) of WMCA and Eunice La-Reeve (lower right), WBCN, Chicago.



came to your ears? Did you wish you could look through the receiver, right through everything to the very spot where that song came from? That you could look into a pair of melting, merry eyes—so near you could reach out and touch the brown, silky skin of the singer's hand as she strummed and twinged the baby guitar called a ukulele? Confess, Mr. Man. Be not ashamed. Take a look at the fair ones shown in the pictures here. You were right. Your ears did not deceive you, for here you have the evidence of your eyes. These are just a few of the many beautiful maidens who have thrilled Radio listeners in every Radio home with their sweet Hawaiian music. From New York to Frisco the ukulele ladies have entwined themselves into the hearts of their Radio listeners. Only a handful of those who hear them ever see them. But here they are as they look and, possibly, even more charming than you had imagined. There are scores of them along the ether lanes—too many to properly acknowledge in these columns. Millions have (Continued on page 11)



Mouth Organ, "Child of Gods," Wins Fame

"Way Down Yonder in the Cornfield," by the New York Junior High School Harmonica band (right) playing at WOR. Walter Peterson (below) aids and abets his mouth organ concerts with a guitar. The harness discloses how he does it.



But that was a few short years ago—before Queen Radio came into our lives and homes, bringing with her the mouth organ crowned with glory as a musical instrument of artistic attributes. Please observe that we use the word "mouth organ." We do so advisedly. "Harmonica" is just a highfalutin name assumed for "professional reasons." There is no excuse for it in the dictionary. Look it up. You will find Webster's International says the harmonica was invented by Benjamin Franklin and consisted of a revolving series of hemispherical glasses played by putting the dampened finger on the edges.

Look up the mouth organ and you will find it is a direct descendant of the gods—an Arcadian nymph changed by Pan to a tuft of reeds, fashioned into a mouth organ that sings at the touch of her lover's lips.

Now comes the age of broadcasting. All the symphonies of the musical world go on the air to the great delight of listening millions. Program directors ransack the entire known repertoire to answer the demand for "something new."

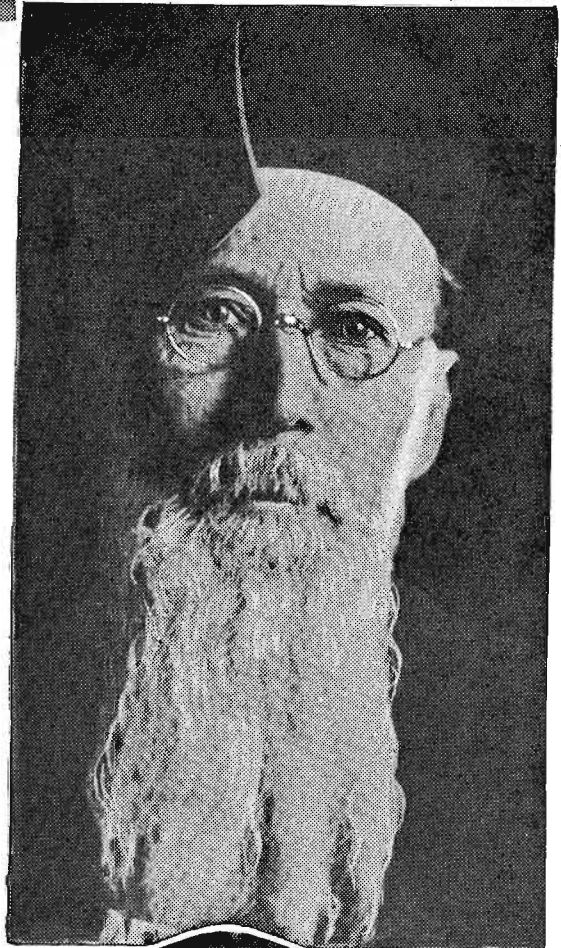
At last—the great discovery! Over the ether waves trembled a thin, piping melody of notes all sprayed together in harmony like a tinkling fountain

of crystal waters. From the realms of Mount Olympus, it may have been, passionate kisses from the lips of Pan and the sobbing answer of the dying nymph.

"What is that?" many people wrote to the Radio station to inquire. And—

"What do you reckon that new fangled thing is?" asked Zeke Godfrey at Snider's Corners, Indiana. They were in Snider's store with a loud speaker on top of the cheese case. Young Josiah Hoskins, sitting on the cracker barrel, unhooked his legs and fished a mouth organ out of his pocket. He played "Sweet Adeline," an echo of the selection they had just heard.

So the mouth organ has "grewed up" as Zeke put it when Josiah had finished. (Continued page 12)



"MORE harmonicas are going into the Christmas stockings this year than ever before in the history of the mouth organ," states an item in the Detroit Free Press. For that let the mouth organ makers offer paeans of praise to the era of Radio broadcasting—mouth organ paeans.

A few short years ago a mouth organ was just "one of those things" in the life of every boy. It came along soon after the tin horn age at Christmas time and was to be endured for a week or two in justice to the rights of a growing boy. By the end of that time it was expected either to be lost or entirely blown out of commission.

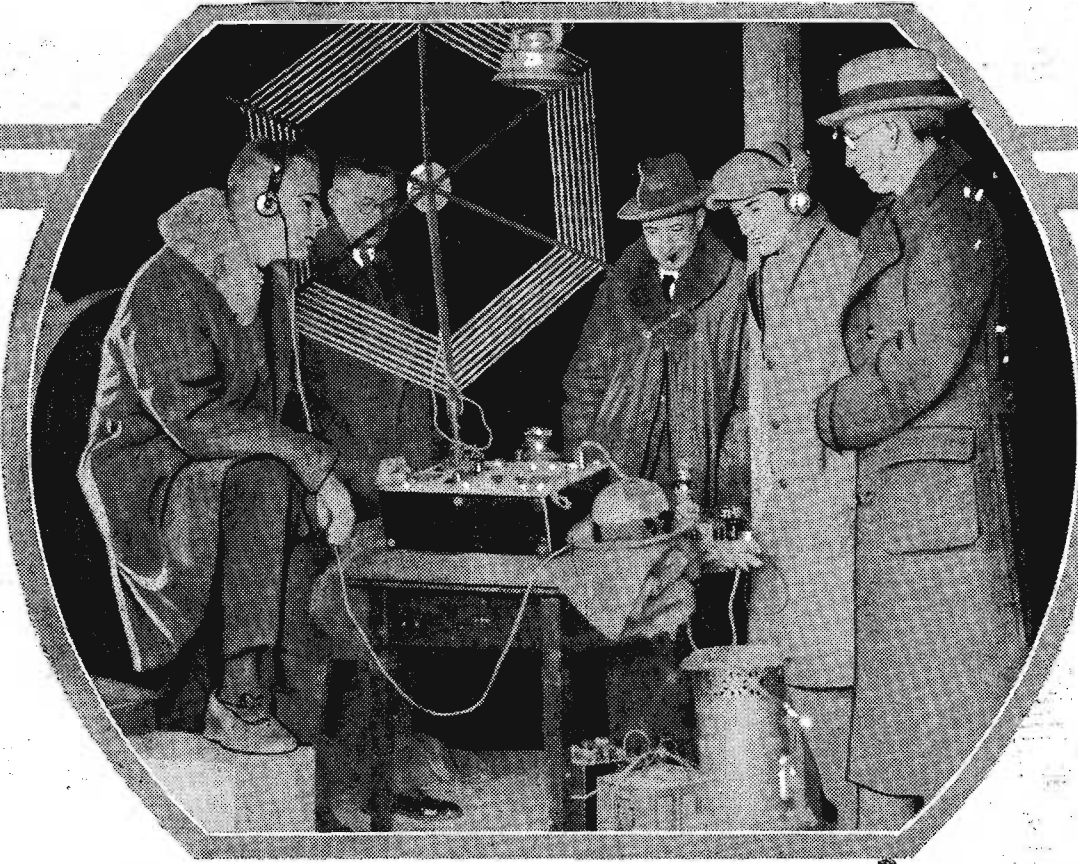


Uncle Tom Marris, (above, right), blew himself into national fame with a small mouth organ at KFRU, Okla. Borrah Minevitch, (right), broadcasts grand opera harmonically. Notice E. E. Hardy's (left) three-deck system.



WCAD Picks Its Programs "Out of the Air"

At the top of the page is shown the receiving room of the WCAD broadcasting station where programs are "picked from the air" 175 miles distant and rebroadcast. Left to right—H. K. Bergman, E. L. Manning, S. E. Barber, Charles Geyh and Professor Ward C. Priest.



Below is the transmission room of Station WCAD, St. Lawrence university, Canton, N. Y., showing how one man can sit at the microphone and run the entire station. Left to right are shown Mr. Bergman (at microphone), S. E. Barber, F. A. Thompkins and Professor Priest, general supervisor of the station.

WCAD, "The Voice of the North Country," is probably the only one man broadcasting station in the world. It is another one of those highly efficient university student and professor stations similar to the WHAZ station described in Radio Digest last week. The "Voice of the North Country" comes from the St. Lawrence University at Canton, N. Y.

When there are exams next day or it is necessary to do a little remote control experimental work away from the university the station is turned over to one attendant-director-announcer-engineer-operator who takes care of the artists, picks up the outside stations, rebroadcasts and rests between times.

Canton isn't such a large place up there among the foothills of the Adirondacks that one broadcasting station, more or less, doesn't make any difference. When WCAD is off the air most of the Canton receivers are dumb. Also, one of the most serious problems at Canton is artist material—good what there is of it but not enough variety.

However, anything that resolves itself into a problem is duck soup for a school like St. Lawrence University whether it be watts, power or artists. Nobody kicks about the WCAD program—not even those who have receivers limited to WCAD programs only.

"Well, how do you manage for talent?" demanded the interviewer of Professor Ward C. Priest, of the physics department and general overseer of the station.

"Very simple," replied Professor Priest. "We get our programs out of the air just like anyone else."

Then he explained how it was done. They merely couple their own receiver which pulls down the WGY programs from Schenectady to their own broadcasting station and out go the WGY programs over WCAD to all the small set users in the countryside round about. Of course it is not the ordinary wave used in the home receivers. These programs come in on 1560 meters from the development transmitter of the General Electric company, near Schenectady. Canton, also will receive the benefit of WGY's increased facilities through the latter's wire connections with New York, Washington, Poughkeepsie, Albany, Buffalo, Rochester, Syracuse and Utica, now practically completed.

Various wave lengths have been tried out as the result of regular Radio research at the university. Canton is about 175 miles from Schenectady and it has been demonstrated that up to a distance of 300 miles the long wave lengths are most reliable and satisfactory. Observations of the transmission on each wave length were made over a long period of time and under widely different conditions. The experiments included changes in the amount of power used and also changes in the types of antenna.

As the result of these experiments it has been held out that the benefits of Radio may be ex-

tended to other communities now using low power and similarly situated for lack of home talent and artist material. Thus the best programs in the country may be relayed, it is claimed, to the humblest set owners in the most remote places. WCAD is a 250-watt station.

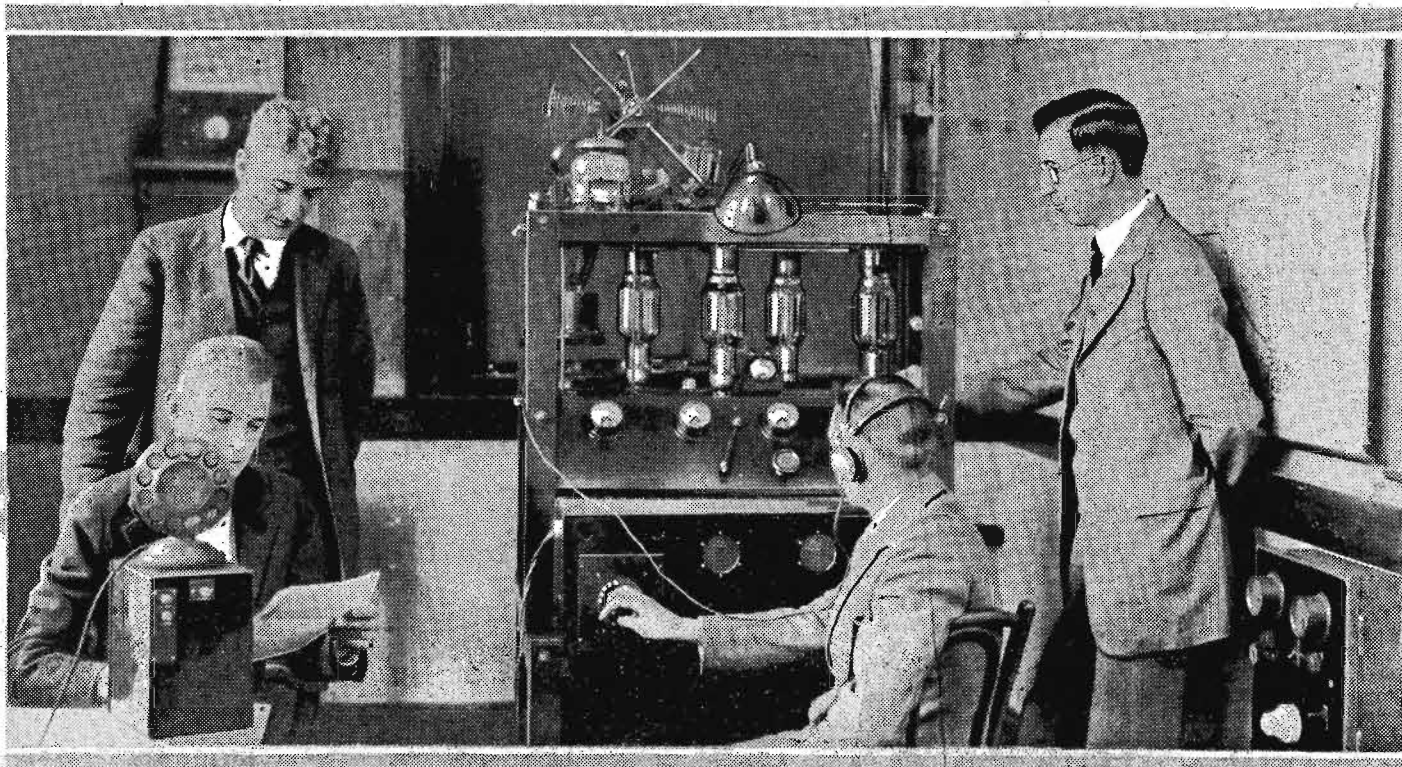
Canton, the home of St. Lawrence university, is the county seat of St. Lawrence and is only eighteen miles south of the St. Lawrence river. Its slogan, "The Voice of the North Country," is a tribute to a prominent St. Lawrence alumnus, Irving Bacheller, who immortalized this region in fiction as "The North Country."

WCAD grew from the need of the inhabitants of Canton and vicinity for Radio entertainment and for information on agricultural topics. The larger stations were available to those who had selective sets but not all who would appreciate broadcast programs could afford the type of set needed to pick up "distance."

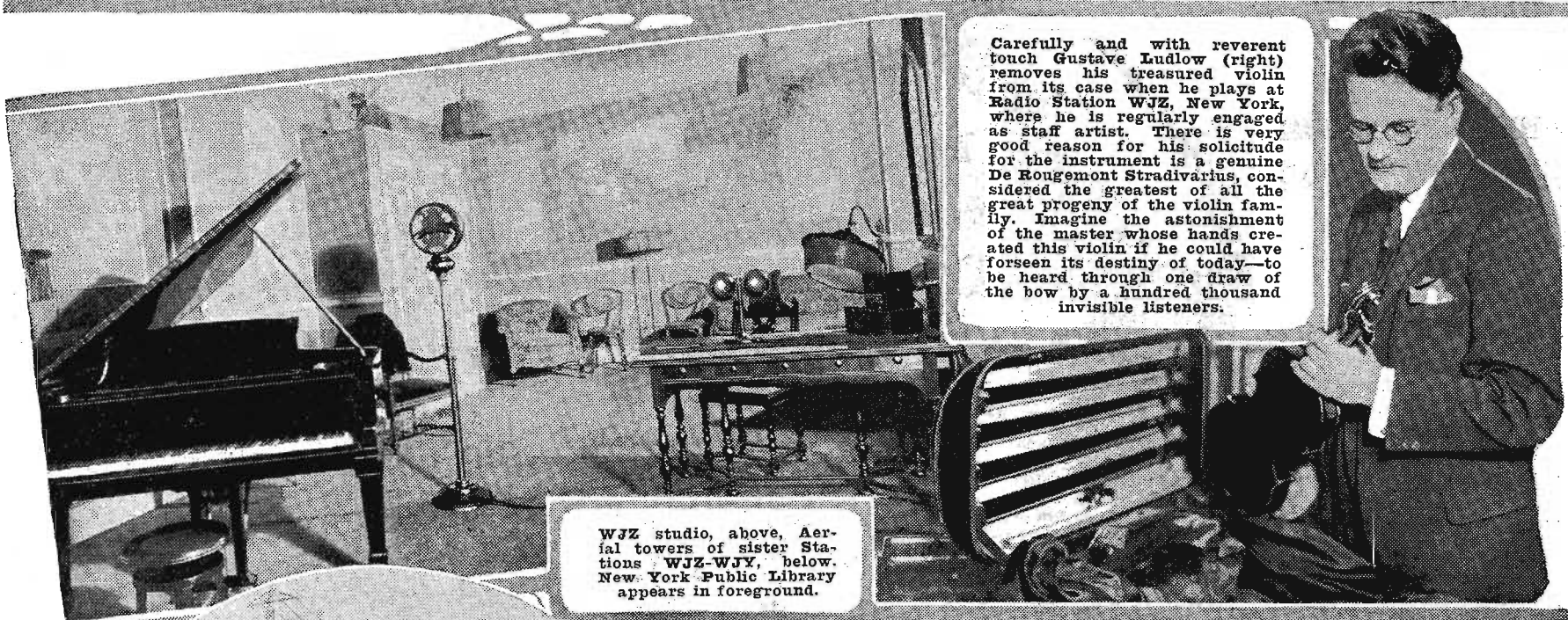
Professor Priest began the construction of the station in 1923. Harold K. Bergman, the Radio operator, was assisted by S. E. Barber of Canton, a Radio expert, in the preliminary plans and in designing and constructing the station.

Control of the speech amplifier is located in a shielded cabinet in front of the transmitter and through this arrangement it is made possible for the one man, alone, to conduct an evening of broadcasting.

Not such a bad idea, is it?

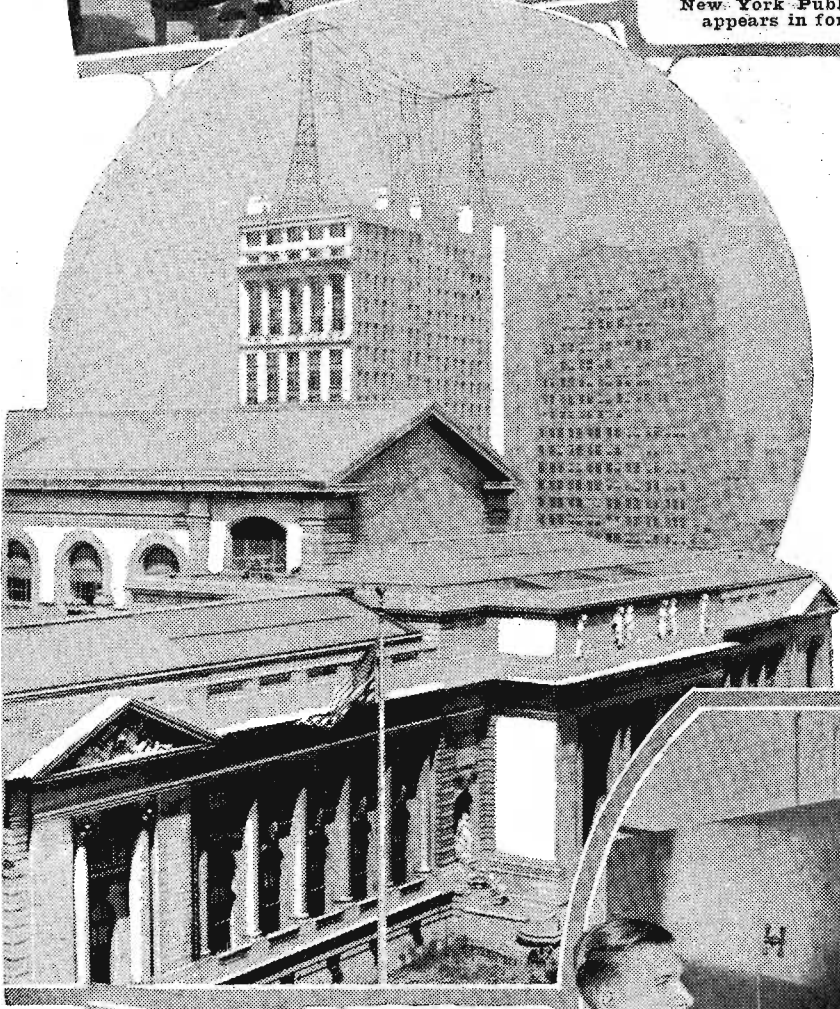


Visiting the New York Twins, WJZ-WJY



Carefully and with reverent touch Gustave Ludlow (right) removes his treasured violin from its case when he plays at Radio Station WJZ, New York, where he is regularly engaged as staff artist. There is very good reason for his solicitude for the instrument is a genuine De Rougefont Stradivarius, considered the greatest of all the great progeny of the violin family. Imagine the astonishment of the master whose hands created this violin if he could have foreseen its destiny of today—to be heard through one draw of the bow by a hundred thousand invisible listeners.

WJZ studio, above. Aerial towers of sister Stations WJZ-WJY, below. New York Public Library appears in foreground.



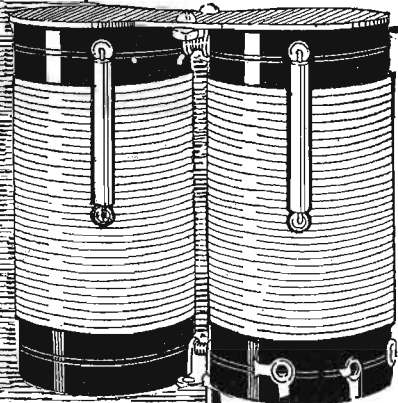
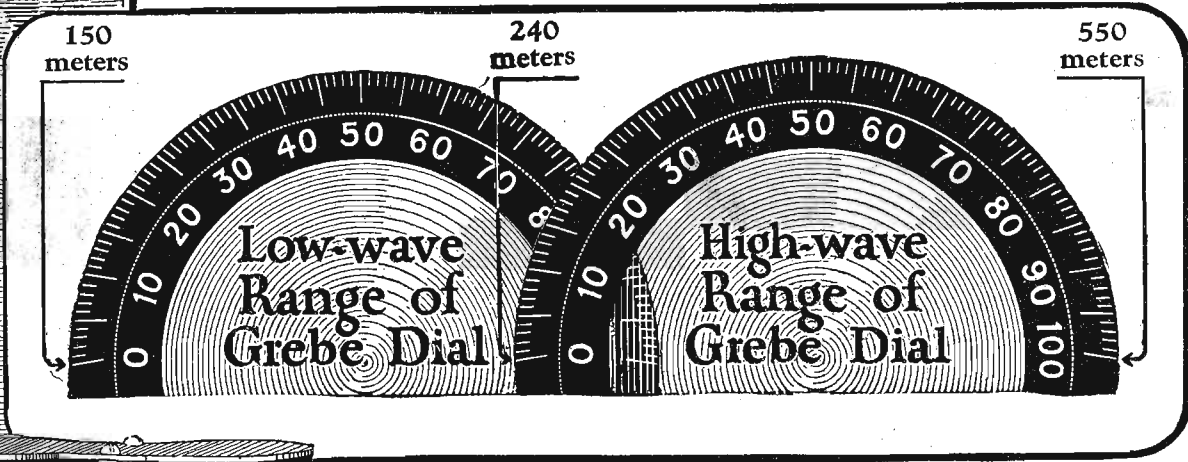
HIGH up in the Aeolian building, overlooking Bryant park and a goodly portion of New York's interesting skyline, WJZ, while really situated in the heart of New York, seems to be apart from the great city. Upon entering one of the reception rooms, a uniformed attendant relieves you of your wraps. Immediately you are impressed with the air of luxury, of peace and calm—it is indeed a different world. But you are not alone in the room. In one corner you recognize a popular novelist whose works you have read and whom you have often wished to see. And there is a famous contralto whom you have often heard at the opera and wished you could see "off stage." In the background you are able to hear a piano solo very faintly. You look for the instrument but can find none. Suddenly the music ceases and you are able to hear the announcer telling the Radio audience of the selection played and the artist's name. It is all coming from a loud speaker hidden in the wall. Then a door opens on the far side of the room

and a young man appears, nods pleasantly to the opera star who rises and follows him through the door. Passing through a door over which a small electric sign suggests caution, you find yourself in a vestibule and a sign over the next door requests silence as you pass into the studio. There is a strange stillness—an absence of those minute sounds which one does not ordinarily notice, but which become "audible" by their presence. This is explained by the unique construction of the walls. Touching them with the finger, you notice that the material is fabric treated with wax. Behind this is a layer of felt which absorbs all sound waves not intended for the microphone. The room itself is delightfully harmonious in its dignified and restful beauty. The announcer's table, with its switch boxes and double microphone faces the entertainer from the left side of the room. From this position the announcer controls both his own microphone and the large movable one used by the artist.



Ultra refined control room (above, right). Lower left is the transmission room of WJZ-WJY and at the right the studio of WJY located in the Aeolian building, New York, N. Y.

As you stand in the studio, you are conscious of being watched and occasionally you catch a glimpse of a face at a window at the far end of the room. It is the operator in the control room. The control board is a very vital part of a broadcasting station. Its use is especially necessary when the program is being brought from distant points to the station. Without it there would be insufficient energy to materially affect the Radio waves. Used in connection with programs being rendered in the studio, it is invaluable. You will be interested in the oscillograph, a device which shows the wave oscillation in a revolving prismatic mirror. And now you enter an elevator which shoots you upward eighteen stories. A short walk across the roof brings you to the operating room. Your gaze first rests upon the operating table. This faces two complete sets of powerful transmitters. Only (Continued on page 12)



Grebe
Binocular Coils
Reg. U. S. Pat. Off.
and
Low-Wave
Extension Circuits

Can Your Set Receive ALL Stations?

OVER 100 stations are broadcasting on less than 240 meters. How many are beyond the reach of your set? The Synchronphase can get them all.

Grebe Low-Wave Extension Circuits make possible a range of from 550 down to 150 meters. This is accomplished by an automatic switch which enables one dial to cover two wave ranges. The first, from 550 to 240 meters, corresponds to the practical tuning range of the usual set. The second overlaps this and extends down to 150 meters. To change from one range to the other is simplicity itself. Simply move the center dial past the 100 mark for the high range and beyond the zero mark for the low range.

The Synchronphase is thus well-equipped to take care of future station assignments as well as all present ones.

Ask your dealer to demonstrate this and other Grebe advances in radio development

A. H. Grebe & Co., Inc., 109 West 57th Street, New York

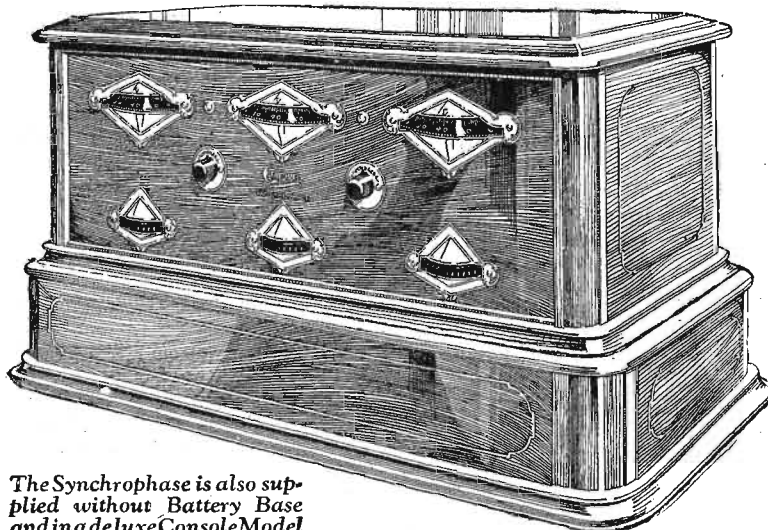
Factory: Richmond Hill, N. Y.

Western Branch: 443 So. San Pedro Street, Los Angeles, Cal.

This company owns and operates stations WAHG and WBOQ; also low-wave rebroadcasting stations, mobile WGMU, and marine WRMU.

THE GREBE SYNCHROPHASE

TRADE MARK REG. U.S. PAT. OFF.



The Synchronphase is also supplied without Battery Base and in a deluxe Console Model



"The Gods cannot help one who loses opportunities."

—Mencius

The wise man will provide against the future by securing a Synchronphase.

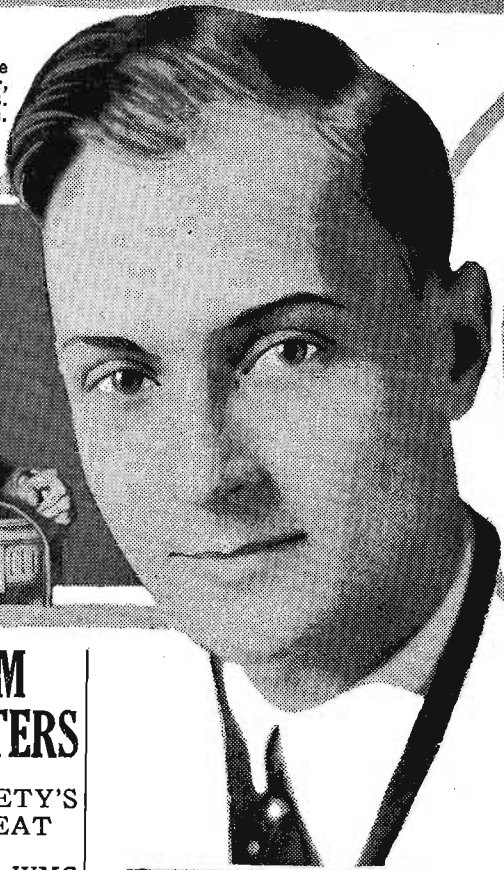
Doctor My



All Grebe apparatus is covered by patents granted and pending.

HERE ARE SOME OF THE "MIKE" MEN YOU OFTEN HEAR BUT SELDOM SEE

The two announcers on this side of the page are Snedden Weir, WMCA, New York, left, and C. E. Locke, WBAP, Fort Worth, Texas.



And these three gentlemen of the microphone are: W. G. Gorman, KFWA, Ogden, Utah, left; Preston Graves, WMBB, Chicago, right; and Alvin E. Hauser, WFBH, the "Voice of Central Park," New York, below.



NEWS BRIEFS FROM THE BROADCASTERS

PHILHARMONIC SOCIETY'S ORCHESTRA TO REPEAT

Peter Pan with Tinker Bell at WMC —Turnverein Milwaukee Makes Radio Debut

New York's Philharmonic society orchestra concerts have been so well applauded by fans that they will be continued during December. The two concerts for this month will be given in Carnegie hall, New York, broadcast by WJZ and relayed to WRC and WGY. Tune in December 5 and 19.

Peter Pan and Tinker Bell have come to WMC, Memphis, to stay. Every night except Sunday and Wednesday at 7:15 p. m., central time, these two favorites will tell children's stories. Bob O'Brien, of the recreation department of the Memphis park commission, is in charge of the new children's hour. He is also instructing children in the building of inexpensive Radio sets so that they can tune in for the stories.

Milwaukee enters upon the seventy-second season of the Turnverein concert season. This year marks the Radio debut of this well-known musical organization. Beginning at 3:15 p. m., central time, WHAD will broadcast the Sunday afternoon concerts. The season ends April 25, 1926.

An oratorio, "The Holy City," by Alfred R. Gaul, will be presented on the latter half of the KGO program, Tuesday evening, December 8. Carl Anderson, known to listeners as "C. A.," will direct the twelve singers in the cast, and an orchestra especially arranged for Radio. "The Rainbow," comedy, will be given by the KGO players under the direction of Wilda Wilson Church, Thursday night, December 10. At the beginning, between the three acts, and at the end of the piece, the Arion trio will play music selected to divide the sound output into the necessary parts, create locale in the imaginations of listeners, and refresh their minds for action to follow.

Convinced that there is still a large army of "distance hunters" not only in the East but in the Middle West, WRC, Washington, D. C., has arranged to present two midnight programs every week for the benefit of these listeners. The late entertainment will be presented on Tuesday night by Otto F. Beck, organist at the Tivoli theater, and the Meyer Davis La Paradis band, and on Saturday night by "Crandall's Saturday Nighters," and one of the Capital's dance orchestras.

College yells, songs, stories and campus gossip make up the Saturday programs of WBBM, Chicago. A different college will be heard from each week.

The famous studio joke about an artist bringing his own piano along was actually enacted when Mme. Olga Samaroff, brilliant American concert pianist and Atwater Kent link program star, brought her own piano for use in WEAF's studios. This move was said not to be a slur on WEAF's piano nor a precedent for other artists to follow, but merely the prerog-

New Stations

Three new stations joined the ether family last week. They are: WJBQ, Lewisburg, Pa., 100 watts, 211.1 meters; KFYZ, Bismarck, N. D., 10 watts, 248 meters, and KFUT, Salt Lake City, Utah, 100 watts, 261 meters. These stations were just under the line previous to the Radio conference ruling against licensing more broadcasters.

KFCY, Le Mars, Iowa, a 50-watt station, will be known in the future under the call KWUC.

A new 500-watt station is operating in Cedar Rapids, Iowa. This broadcaster is owned by H. F. Carr and may be heard on 278 meters.

Nebraska will have a new 1,000-2,500-watt station sometime in the near future. It will be located at Clay Center, Nebr., and will be dedicated to poultry raisers of America.

ative of genius. The slightest difference in the "touch" of a piano has been found disconcerting to many artists.

The Davis saxophone octet whose director, Clyde Doerr, hopes to wipe out the stigma usually attached to the blaring saxophone, is doing missionary work through Station WSAI, Cincinnati, for its music is being broadcast every Tuesday evening at 6:30 p. m., central time, from that station.

Dr. George Earle Raiguel, who broadcasts a "current topics" talk every Wednesday evening from WLIT, Philadelphia, is an international traveler and lecturer. He is the recipient of two letters from the White House, complimenting him on the quality of his talks.

The Goodrich Zippers, under the direction of Lieutenant Gitz Rice, made their debut from WEAF and chain recently. They will present a series of original musical comedies entitled, "A Whirl Around the World."

The "Literary Appreciations," written and read by William L. Widdemar at WGY, Schenectady, Monday night are gaining steadily in popularity. Some listeners request copies of the lectures and others reading lists.

Navy Would Sell Station

PUGET SOUND, Wash.—By order of the secretary of the navy, the United States Naval Radio station at Kodiak, Alaska, is no longer to be operated by the government, but is to be turned over to commercial interests for operation under long term lease, or offered for sale subject to removal from the present location. Bids are open for either.

George Hay to Attract Fans to Atlanta Show

Announce December 7-12 as Dates of Georgia Exposition

ATLANTA.—George Dewey Hay, "The Solemn Old Judge," now back in Dixie as announcer of WSM, Nashville, will be one of the famous guest announcers who will talk to the world from the crystal studio during Atlanta's first national Radio exposition, December 7 to 12.

In addition to Mr. Hay, several more of the most distinguished personalities of the ether will be present at the Atlanta show.

As an innovation on this particular occasion, Lambdin Kay, WSB's director-announcer, is arranging special programs for each visiting announcer with the idea of capitalizing the particular type of entertainment that each spokesman is best qualified to handle.

KDKA HAS WEEKLY SACRED MUSIC TREAT

Anonymous Sponsor Believes It Entitled to Place on Program

PITTSBURGH.—A "Half Hour of Sacred Music" anonymously sponsored by a Pittsburgh church woman and philanthropist who believes that sacred music has an important place in the weekday Radio program along with popular songs, jazz and classic music, is being given over Westinghouse Station KDKA every Tuesday night at 8 o'clock, eastern time.

Most of the programs will consist of the singing by vocal ensembles, and soloists, of hymns and hymnal anthems. It is planned to have some of the famous hymn writers and gospel song leaders appear on the programs. To further add variety and interest to the programs, they will include occasional comments on the lives of the authors of the hymns or composers of the tunes, or account of the circumstances under which the song was written.

Rejuvenate Butte Fans' Club

BUTTE, Mont.—The Butte Radio club of this city recently held a rejuvenation meeting and is planning to hold semi-monthly meetings during the winter. It will work for better receiving conditions in and around this city.

CHAMBER MUSIC ON WJZ WINTER SERIES

EXCELLENT MUSICIANS TO GIVE HUNTER PROGRAMS

First Course in Music Appreciation to Be Offered to Public Without Expense

NEW YORK.—WJZ announces that it will broadcast the Lewisohn free chamber music concerts from Hunter college every Wednesday night during the 1925-1926 season.

The chamber music series was founded by Dr. Henry Fleck, of Hunter college and they are still under his personal direction. They comprise the first course on musical appreciation ever offered to the public and are in a progressive order by Dr. Fleck quite similar to a regular college course. The cost of the series is defrayed by the philanthropist, Mr. Adolph Lewisohn and through his generosity the public is able to hear the finest compositions played by the best artists the world can offer.

Fine Artists Listed

In arranging the coming concerts, Dr. Fleck has devoted the first part of the program to the classical school of writers and they will be handled in a chronological order. The second part of the program will be left open to modern works regardless of how radical or ultra-modern they may be. By this method he covers the past, present and future. This is only possible through the use of the very finest musical organizations in America and with this in view, he has engaged for this year's work such organizations as the Press-Schultz quartet, the Lenox quartet, the Philharmonic quartet, the New York trio, the Lenox trio and the Thrane trio and a number of other organizations of equal importance and standing.

Loos Brothers Back on Air After Stage Tour

"Ernie and Billy" Now Exclusive KYW Studio Artists

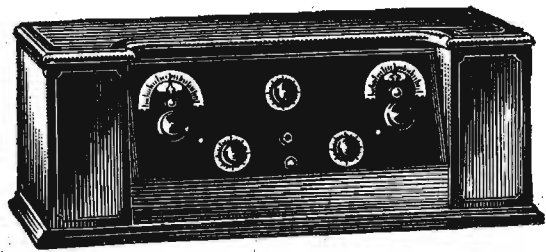
CHICAGO.—The return to Chicago of Radio's famous harmony boys, the Loos Brothers, Ernie and Billy, was celebrated recently at Westinghouse station KYW here, where they are exclusive entertainers.

For three weeks or more they have been skipping from pillar to post in the state of Michigan, where they took Radio fans by storm.

Ernie, the bigger one of the pair who packs the two hundred pound voice, and Billy, the little fellow who rattles his devious path o'er the ivories, can be heard by tuning in the Hearst square studio of KYW, during the afternoon frolics on Tuesday and Thursday as well as during the evening broadcasts.

KNX to Broadcast Coast Game

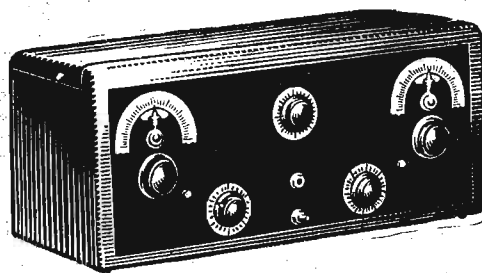
HOLLYWOOD, Calif.—One of the last football games of a very interesting season will be broadcast from Station KNX (336.9) here on December 5 when St. Marys plays the University of Southern California.



CROSLEY
Super-Trirdyn Special

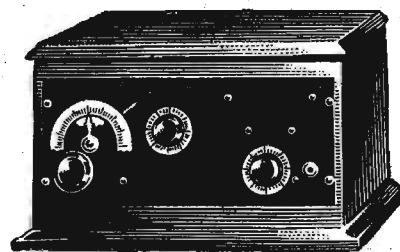
The improved Super-Trirdyn panel is assembled in a new solid mahogany cabinet finished in duotone. This cabinet with its striking lines and simple detail decoration is of ample size to house all dry batteries required for dry cell tube operation..... **\$60.00**

Performance That Has No Peer in Any Field of Radio



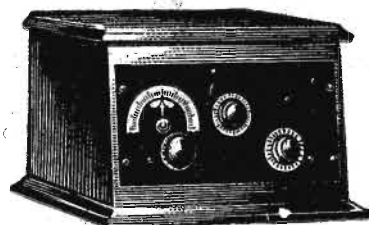
CROSLEY
Super-Trirdyn Regular

Incorporating the famous Trirdyn hook-up, this set brings in stations sharp, clear, and mellow on the Musicone. The cabinet is of oil rubbed solid mahogany, exquisitely simple in design and beautifully finished. For sheer performance under all conditions the Super-Trirdyn cannot be surpassed..... **\$45.00**



CROSLEY
3-Tube 52 S. D.

In this improved model are introduced radical refinements that increase its general efficiency. Refinement of parts and improvements in design have made it a truly remarkable set considering its nominal price. Genuine Armstrong regeneration with the double circuit to reduce radiation to a minimum. Beautifully proportioned with attractive sloping panel. Cabinet holds all necessary dry cells. A genuine long range radio, easy to tune, easy to enjoy, and easy to pay for.. **\$32.50**



CROSLEY
2-Tube 51 S. D.

This superb long range set combines Armstrong regeneration and one stage of audio frequency amplification. The handsome mahogany finished cabinet, with sloping panel, holds all required dry batteries. Improvements include new worm type tickler, new vernier plate condenser, and a double circuit to minimize radiation. Unusual selectivity and distance, extreme accuracy of control..... **\$23.50**

SINCE the announcement of the present new Crosley models, Crosley sales have been leaping to sensational figures, literally taxing the production facilities of all Crosley plants.

This new leadership in sales is based on Crosley's new leadership in value; and this latter resolves itself into two simple propositions:

Crosley sets consistently deliver a performance that has no peer in any field of radio—and this matchless performance is offered at the lower prices that only the economics of tremendous production make possible!

On this page are shown four of the new Crosleys—the two famous Super-Trirdyns and the two Special DeLuxe models. Not only do they offer an effective beauty and accurate workmanship but they provide a performance that cannot be surpassed in the \$23.50 - \$60 price range or many dollars above it!

Make your own comparison on the basis of selectivity, distance, clarity, and volume. Place the competing receivers side by side with lead-ins from the same antennae, and put them through their paces.

Forget the radical difference in price. Reach your conclusion solely on results. Then and only then will you understand why thousands upon thousands of radio buyers are singling these Crosleys out of the entire field—unwilling to pay more because a greater investment cannot provide greater enjoyment.

See the complete Crosley line at the nearest Crosley dealer's. Address Department 49 for his name and our illustrated catalogue.

THE CROSLEY RADIO CORPORATION, CINCINNATI, OHIO

Cable Address: Listenin-Cincinnati

Owning and operating WLW, first remote control super-power broadcasting station

Crosley manufactures receiving sets which are licensed under Armstrong U. S. patent No. 1,113,149 and priced from \$9.75 to \$60.00 without accessories. None of the prices quoted include batteries, tubes, headphones, etc. Add 10% to all prices west of the Rocky Mountains.

CROSLEY RADIO

BETTER • COSTS LESS

BRITISH WOULD GIRD GLOBE OVER THE AIR

SCHEME IS TO USE SUPER-POWER FOR RELAYING

England to Canada to Australia to Straits Settlement to India Is Plan

LONDON, Eng.—In a speech just delivered here, Major Gladstone Murray, of the British Broadcasting company, said it was important that there should be an early adoption of some general scheme which would enable programs to be exchanged regularly and rebroadcast across all parts of the British Empire.

He regards 5XX, the Daventry high-power station, as the first link in the new Empire broadcast chain. By this chain it will be possible to transmit from 5XX to a listening post in the maritime provinces of Canada, whence it will be carried by land-line and Radio link to Winnipeg, and there be radiated by a central Canadian high-power station.

These signals will be collected again by the Pacific high-power station in British Columbia, which will reach New Zealand and Australia. Another high-power station in Australia will enable the messages to go forward to the Straits Settlements and thence be relayed from Rangoon, Burma, to Ceylon and India.

"CHILD OF GODS" BACK

(Continued from page 5)

Uncle Tom Marrs of Dale, Okla., supporting half a yard of patriarchal beard, lived 65 years without being known beyond his own county. But he played a mouth organ and fame found him, yanked him before a microphone at Station KFRU and now he is known from coast to coast. "Harmonica" (plague take the word) bands have been organized by New York and Chicago school boys. Walter Peterson, Elmer E. Hardy and other mouth organ artists have rigged up devices whereby they play the mouth organ and use their hands for accompaniment instruments.

Probably the very pinnacle of glory has been achieved for the newly arrived—or perhaps more properly "newly recognized"—mouth organ. Through Professor Borah Mimevitch of New York it has as-

ceeded to grand opera and the enthusiastic praise of the best known musical critic of the metropolis.

No wonder Santa Claus is going to have a hard time to fill the orders for mouth organs this year. They are in everybody's mouth, it seems—that is everybody is talking about them.

But, for the love of Mike, why not call it a MOUTH ORGAN, a child of the gods, as the family tree shows it to be!

WJZ-WJY, NEW YORK

(Continued from page 7)

one set is in use at a time, the other serving as a reserve unit should it be needed. On the operating table opposite the transmitters is the apparatus by which the operator may listen to the outgoing program at various stages of its progress.

The force required to maintain a broadcasting station the size of WJZ—and WJY, as her sister station is known—is between forty and fifty persons.

There are two large divisions of the staff—the administrative and program division under Mr. Charles E. Popenoe,

and the operating division under Mr. Carl Dreher. The duties of the two main divisions are entirely separate and distinct. Assistants to Mr. Popenoe are Miss Bertha Brainard and Robert D. Newton.

Keith McLeod is the studio manager and cooperating with him in the announcing capacity are Milton J. Cross, J. Louis Reid and John B. Daniel. Godfrey Ludlow, famous throughout the country, is staff violinist to the station. Herbert B. Glover is the young man who tells the public all the inside information on the various artists who appear before the microphone at this station.

Then there are a number of unsung heroes who travel out to remote places so that WJZ can broadcast important events that cannot be brought to the studio. They are the field operators.

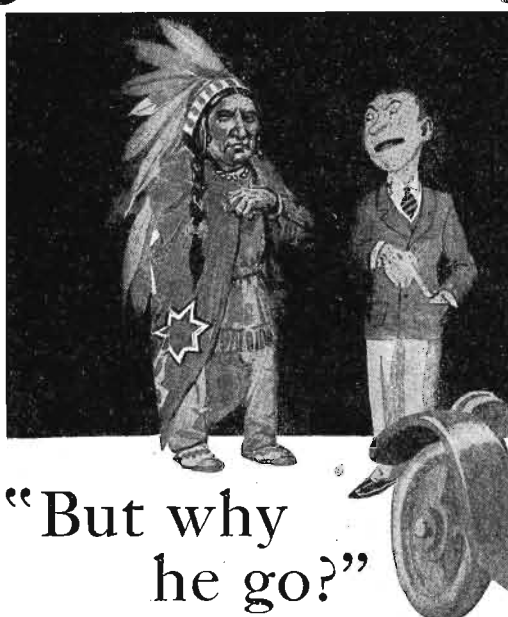
Did you realize that behind the scenes there were so many people who serve unheralded—unsung—to make life just a little pleasanter for all the world? But they rejoice in their work for it is the finest one can do—to do good for others.

One of the most interesting features

at Stations WJZ-WJY is Godfrey Ludlow and his famous Stradivarius violin, heard in the Sunday evening recitals. The instrument was acquired by its present owner after he had returned to London from a long internment in a German prison camp at the end of the war. The instrument came direct from the De Rougemont family through an English dealer. The De Rougemonts had owned the instrument for over 100 years. It was built by Antonius Stradivarius in Cremona, Italy, 1703. A recent examination of the instrument in New York revealed that the four interior supporting blocks remained and are just as Antonius Stradivarius left them when he glued the violin together 222 years ago.

Of course the neck, fingerboard and tail piece are all modern to fit the requirements of the present day hand, for in the days of Stradivarius the manual measurements were much smaller. The head, considered most important, and all other tone producing parts remain intact, as they were assembled by Stradivarius more than two centuries ago, even to the rich colorful varnish for which the master was so famous.

ATWATER KENT RADIO



"But why he go?"

WHEN they struck oil on the Indian lands in Oklahoma many of the Indians became suddenly rich. One of them, anxious to begin his life of luxury, went to buy an automobile.

The salesman launched into a description of the car in detail. Technical term followed technical term in a bewildering stream. Finally the salesman thought his work was done. He produced an order blank and paused.

"Now," he asked, "is there anything else I can tell you?" The Indian scratched his head.

"Um," he said. "You tell me: He have no horse. Why he go?"

We could give you a description of the Atwater Kent Radio Receiving Sets and Speakers that would fill hundreds of pages.

But what would be the use? You would still judge an Atwater Kent, as you should, by its performance. We want you to judge it that way, to compare it with any other radio.

By looking at it and listening to it, you will get some of its technical perfection. When you have owned it and lived with it, you will know how good it is.

Hear the Atwater Kent Radio Artists every Sunday evening at 9.15 o'clock (Eastern Standard Time) through stations:

- WEAF . New York
- WFI } Philadelphia
- WOO } alternating
- WJAR . Providence
- WCAE . Pittsburgh
- WGR . Buffalo
- WWJ . Detroit
- KSD . St. Louis
- WCAE . Washington
- WEEI . Boston
- WOC . Davenport
- WSAI . Cincinnati
- WTAG . Worcester
- wcco . Minneapolis-St. Paul

Write for illustrated booklet of Atwater Kent Radio

ATWATER KENT MANUFACTURING CO.
A. Atwater Kent, President
4708 WISSAHICKON AVENUE • PHILADELPHIA PA



Model R, \$12



Model H, \$22



Model 12 (without tubes), \$100



Model 19, \$60



Model 20, \$80

Prices slightly higher from the Rockies west, and in Canada



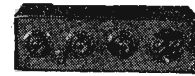
Model L, \$17



Model M, \$28



Model 10 (without tubes), \$80



Model 20 Compact, \$80



Model 24, \$100

Prices slightly higher from the Rockies west, and in Canada

Give their radio a beautiful new voice!

This Christmas, delight your radio friends—or the family!—with the clearest voiced of all reproducers, the international favorite of music lovers, an Amplion!

AMPLION

The World's Standard Loud Speaker

The result of over 30 years' experience

Hear this creation of the actual originators and oldest makers of loud speakers. Your ears will tell you why it leads internationally in sales. Six models, including console units, \$12 up. All Amplions equipped with cord and panel plugs. Write for 'Amplion Pedigree' and dealer's name.

THE AMPLION CORPORATION OF AMERICA

Suite A, 280 Madison Ave., New York
Bandept of Canada, Ltd., Toronto

Alfred Graham & Co.
London, England
Patentees



ADVANCE PROGRAMS FOR THE WEEK

Saturday, December 5

Headliners Today

Eastern	Central	Mountain	Pacific
8:15 p. m. WLS (545.6)	7:15 p. m. KFBM (340.7)	5:15 p. m. WRC (488.5)	5:15 p. m. KXLB (640.5)
8:25 WJZ (454.8)	8:30-9:30 p. m. KFBM (340.7)	5:25 WRC (488.5)	5:25 KXLB (640.5)
8:30 WIP (508.2)	8:30-9:30 p. m. KFBM (340.7)	5:30 WRC (488.5)	5:30 KXLB (640.5)
8:30 KSD (545.1)	8:30-9:30 p. m. KFBM (340.7)	6:30 WRC (488.5)	6:30 KXLB (640.5)
8:30 WLV (422.3)	8:30-9:30 p. m. KFBM (340.7)	7 WRC (488.5)	7 KXLB (640.5)
8:30 WMC (499.7)	8:30-9:30 p. m. KFBM (340.7)	7 WRC (488.5)	7 KXLB (640.5)
10 WOC (483.6)	8:30-9:30 p. m. KFBM (340.7)	8:10 WRC (488.5)	8:10 KXLB (640.5)
11:10 KGO (361.2)	8:30-9:30 p. m. KFBM (340.7)	8:10 WRC (488.5)	8:10 KXLB (640.5)
2:30 KNX (336.9)	8:30-9:30 p. m. KFBM (340.7)	11:30 WRC (488.5)	11:30 KXLB (640.5)
2:30 KHJ (405.2)	8:30-9:30 p. m. KFBM (340.7)	11:30 WRC (488.5)	11:30 KXLB (640.5)

Saturday, silent night for: CFAC, CFCA, CNRA, CNRC, CNRE, CNRM, CNRR, CNRT, CNRV, CNRW, KFDW, KFMQ, KFMX, KFRU, KFUD, KLDS, KLY, KMA, KOAC, KWSC, KTAB, WBAP, WBZ, WCAP, WCAU, WCOG, WEAO, WEAU, WEPW, WEGC, WGGP, WGR, WGST, WHAD, WHAZ, WHB, WHN, WHO, WIAD, WIAR, WIJZ, WKAR, WLWL, WOAI, WOI, WOS, WTAG, WTIC, WWJ.

Eastern Time Stations

CHIC. Toronto, Can. (356.9), 5 p. m., George H. Graham, organist.
CKNC. Toronto, Can. (357), 8 p. m., Charles E. Bodley and his dance orchestra; Elsie Addison, contralto; Gerrard J. Kelly, tenor.
CNRO. Ottawa, Can. (435), 7:30 p. m., Uncle Dick; S. Chateau Laurier concert orchestra; O. Irene Woodburn, pianist; Mrs. Orville A. Jarvis, soprano; Norman McKewen, violinist; Dr. P. J. Nesbit, tenor; duologue, "The Eternal Masculine"; Mary Edwards, Mrs. Bonnie Gorrell; Leslie McKenna, bass; Chateau Laurier dance orchestra.
KDKA. Pittsburgh, Pa. (309.1), 7:15-8 a. m., exercises, O. Shannon, physical director; 6:15 p. m., concert, Little symphony orchestra, direction of Victor Saudek; 7:30, Dudley Winkum; 8:30, concert, Westinghouse band, T. J. Vastine, conductor.
WAFD. Port Huron, Mich. (275), 9-11 p. m., studio program; 11:30-2 a. m., musical program, Addison hotel.
WBEB. New York, N. Y. (272.6), 8 p. m., Prof. Charles Rohner, violinist; 8:10, Fred Twarosch, tenor; 8:20, Bible questions and answers, Judge Rutherford; 8:40, Fred Twarosch, tenor; 8:50, Prof. Charles Rohner, violinist.
WCAE. Pittsburgh, Pa. (461.3), 3 p. m., music, Aldine theater; 6:30, concert; 7:30, children's period; 8, studio concert.
WCX. Detroit, Mich. (517), 6 p. m., dinner concert, Book-Cadillac hotel.
WEAF. New York, N. Y. (491.5), 6-7 p. m., dinner music, Hotel Waldorf Astoria; 7-10, Banjo Boys, V. Lahnurst, pianist; Lewis Williamson, tenor; Triangle club, Princeton university college songs, Irvine players, one-act comedy; talk, J. Edwin L. Garvin; J. Steingard, pianist; 10-11, Vincent Lopez and orchestra, Casa Lopez.
WEAR. Cleveland, Ohio (389.4), 11 a. m., home service talk; 7 p. m., Hotel Statler concert orchestra.
WEEL. Boston, Mass. (348.6), 6:45 a. m., tower health exercises; 7:45, morning watch, Estey organ studio.
WGBS. New York, N. Y. (315.6), 3-3:15 p. m., children of all nations program, direction, Mrs. Edward Thomas; 6:30, Uncle George; 8-9, Wayside Troubadours; 9:30-10, Warner's theater; 10:30-11, Arrowhead inn orchestra.
WGGP. New York, N. Y. (252), 2:15-2:30 p. m., Mirror race; 2:30, results half hourly; 2:45-3, Henry Rogers, pianist; 3:3-4:15, John Landers orchestra; 3:45-4, 20th Century entertainers; 4-4:15, Johanna Cohen, ukulele; 4:15-4:30, Ricst and Hennicksen, bandleaders; 4:30-5, studio program.
WGR. Buffalo, N. Y. (319), 2:30-4:30 p. m., WGR's afternoon program.
WGY. Schenectady, N. Y. (379.5), 9:30 p. m., dance program, Hotel Ten Eyck orchestra.
WHAR. Atlantic City, N. J. (275), 2 p. m., Seaside hotel trio; 7:30, lecture period; 8, Seaside hotel trio.
WIF. Philadelphia, Pa. (508.2), 5-6:15 a. m., exercises, Dr. Francis D'Eliscu; 7, Dr. Francis D'Eliscu; 10:30, reducing exercises, Dr. Francis D'Eliscu; 1 p. m., organ recital; 3, Dal Buch and his Arcadians; 6:05, music, Benjamin Franklin orchestra, W. Irving Oppenheim directing; 7, "Uncle Sam's bedtime story and roll call"; Ernest McCortie, choral director; 8, "Romance of Medicine"; Prof. Charles H. LaWall; 8:15, sports corner, Dr. Francis D'Eliscu; 8:30, the University of Pennsylvania instrumental club; 9:15, two one-act plays, the Emille Krider Norris Dramatic school; 10:5, Benjamin Franklin orchestra; 11:05, organ recital.
WJAR. Providence, R. I. (305.9), 1:05 p. m., Ideal orchestra; Annie Stockdale, soprano.
WJH. Pontiac, Mich. (517), 7 p. m., Jean Goldkette's Petite symphony orchestra and soloists; 9, Jean Goldkette's Serenaders; soloists; 10, Jean Goldkette's orchestra; 11:30, "The Jewett Jesters," the "Merry Old Chief" presiding.
WJZ. New York, N. Y. (455), 1-1:50 p. m., Irwin Abrams' Knickerbocker Grill orchestra; 1:50-4, discussions, Dr. P. W. Kuo and Charles C. Batchelder; 4, New York American News service; 4:30-5:30, Hotel Lorraine grill orchestra; 5:30-5:32, New York American News service; 5-8, Bernhard Levitov's Hotel Commodore dinner concert; 8-8:30, talk, Cosmo Hamilton; 8:30-9, Sherry's dance orchestra; 9-10:30, to be announced; 11:30-11:30, Paul Specht's Moulin Rouge orchestra.
WKAR. E. Lansing, Mich. (285.5), 12:30 a. m., dance program.
WLIT. Philadelphia, Pa. (394.5), 1 p. m., Straw-bridge and Clothier tea room ensemble, Harold Minkler, director.
WMAK. Providence, R. I. (265.5), 7:30-8:30 p. m., Royal Aldwood orchestra; 8:30-9, musicale; 9-10, program, Sunrise Point Development company.
WMCA. New York, N. Y. (340.7), 6-6:30 p. m., Oleott Vail; 6:30-7, Robert Soffer, pianist; 7-8, orchestra; 8-8:30, quartet; 8:30-8:45, Edward French, pianist; 8:45-9, Erva Giles, soprano; 9-9:15, Edward Morris, pianist; 9:15-9:30, Henry Burbig and Henry Kaye; 9:30-10, Cinderella dance orchestra; 10-10:15, Patrick O'Connor and Thos. Halloran, flutists; 10:15-10:30, Wm. Bonner, tenor; 10:30-10:45, Anna Daly, violinist; 10:45-11, Snedden Weir, baritone; 11-12, Ernie Goldens' Hotel McAlpin orchestra.
WNYC. New York, N. Y. (526), 7-7:30 p. m., dinner concert, Hotel St. George; 7:35-8, dinner concert, Hotel St. George; 8-9, Emily Harford Avery concert; 9-10, remote control event; 10-10:10, lecture, Board of Education; 10:35-11:35, dance program, Hotel St. George.
WOR. Newark, N. J. (405.2), 3:15-3:45 p. m., Zit's Central Park West Casino orchestra; 6:15-6:17, words often mispronounced; 6:17-7:30, Jacques Jacobs Hotel Shelton ensemble; 7:30-8, Van's Collegians; 11-12, Eddie Elkins' Ciro orchestra.
WPG. Batavia, Ill. (299.8), 1:30 p. m., Hotel Morton luncheon music; 6:45, 15-minute organ recital, Arthur Scott Brook; 7, Hotel Ambassador dinner music; 8, magazine review, Walter F. Greuninger; 9, Hotel Traymore concert orchestra; 10, dance orchestra.
WRC. Washington, D. C. (469), 12 m., organ recital, Homer L. Kitt studios; 1 p. m., orchestra, Hamilton hotel; 6, orchestra, Hamilton hotel; 7, orchestra, Hotel Washington; 7:55, zoological talk, Smithsonian institution; 8:10, Bible talk; 8:25, New York Philharmonic orchestra, WJZ and WGY; 10:30, "Crandall's Saturday Nighters."
WRED. Lansing, Mich. (285.5), 6-7 p. m., "Speed-Wagon Serenaders" and "Gold Standard" ensemble; 10-12, "Speed-Wagon Serenaders."

WTAG. Worcester, Mass. (268), 12:05-2 p. m., WTAG trio.
WWJ. Detroit, Mich. (352.7), 12:05 p. m., Jules Klein's Hotel Statler orchestra; 3, Detroit News orchestra.
Central Time Stations
KFAB. Lincoln, Neb. (340.7), 8:30-9:30 p. m., Schmoller and Mueller musically.
KFJF. Oklahoma City, Okla. (261), 12:15-2:15, luncheon program; 6:30-7:30, music.
KFMX. Northfield, Minn. (337), 7-8 p. m., vesper service.
KFNF. Shenandoah, Iowa (266), 7 p. m., H. S. sym-

phony orchestra, Princeton, Mo., director, Stephen LaMar.
KFVE. University City, Mo. (240), 8:30 p. m., "Amusement Review," Romalme Fielding; dance night; Gene Wiatkack's orchestra; comedy, jazz.
KLDS. Independence, Mo. (440.8), 5-8 p. m., organ request program, Herbert Johnson.
KMA. Shenandoah, Iowa (252), 11:30-12:30 p. m., garden, flower, orchard talks, Earl E. May; domestic science talk, Leona Teget, June B. Case; 6, Pollyana stories, Mrs. Dwight Nickols; chimes, William Howie; retailers program, Benedet Piano company; 9-10, William Howie, organist.

KPRC. Houston, Texas (296.9), 12 m., public health talk, Dr. A. H. Flickwir; 7:30 p. m., Bible class, Rev. M. M. Wolf; 8, Frank Tilton, blind pianist; 11, Palace theater stock company and orchestra.
KSD. St. Louis, Mo. (545.1), 6:45 p. m., Aberg's concert ensemble; 9, Grand Central theater orchestra.
KTHS. Hot Springs National Park, Ark. (374.8), 12:30-1, orchestra; 9-10:30, dance concert, New Arlington hotel orchestra.
KYW. Chicago, Ill. (535.4), 6:30-7 a. m., exercises; 11:35, table talk, Anna Peterson; 1 p. m., concert, Commonwealth Edison company; 1-2, luncheon concert; Joska DeBarry and his orchestra; Coon Sanders Original Nighthawks; 3:10-6:40, musical concert, Commonwealth Edison company; 6:40-7, bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 7:30-8:30, Home Lover's hour; 8:30-11, Congress classic; 11-1 a. m., Congress carnival; 1-2, Insomnia club; Coon Sanders Original Nighthawks.
WAMD. Minneapolis, Minn. (245.6), 12 noon, musical program; Marion Latta, contralto; Carl Schmidt, tenor; Bayne Cummins, accompanist; Hal Keldan, pianist; 7 p. m., Harmony Twins; Fred and Bob; Robert Davis, tenor; Iva Arseneau, soprano; Donald Mensing, violinist; Wayne Hugaboom, accompanist; 11, Skyrocket frolic, George Osborn's Hotel Radisson Skyrocks.
WBBM. Chicago, Ill. (226), 4-6 p. m., Valentino In orchestra; Harry Sosnik, Sandy Meek; Court Bank; Johnny Black; Russell Meyers; 9:30-11, Harry Sosni Sandy Meek; Moulin Rouge orchestra; William L. Anderson, steel guitar; Fred Jacobson.
WBCN. Chicago, Ill. (266), 10-10:30 a. m., shopping talk, Penny Wise; 3-5 p. m., tea time matinee; Clarence Jones, pianist and song writer; Cecelia and Johanna Arends, violinist and pianist; Marie Wright, soprano; 10-11:15, jazz jambo, Midway Dancing Gardens orchestra; Cameron and Felt "The Wizard's," harmony duo; Albert Blaba, concertist; Johnny Special, the harmonica acrobat; Elizabeth Emmet Stone, soprano; Jack Parker, tenor; 11:15-12, King State's court; Frank H. McDonald, "King Statie"; Mary Williams, "Queen Live"; Harry A. Zook, Jr., "prime minister"; "Big Boy" Yagle, "court jester."
WCCO. St. Paul, Minn. (416.4), 9:30 a. m., program for boys; 10:45, talk, Betty Crocker; 12:30 p. m., Emmet Long, Golden Pheasant orchestra; 2:30, concert; 6:15, Chadbourne's orchestra; 8, "Fireside Philosophies," Rev. Roy L. Smith; 8:15, musical program; 10:05, Wallie Erickson's orchestra.
WDAF. Kansas City, Mo. (365.6), 3:30-4:30 p. m., Star's string trio; 6-7, School of the Air; address, Roger W. Babson, organ music; Trianon ensemble. Hotel Muehlebach; 11:45-1 a. m., Nighthawk frolic; Plantation players; Johnnie Campbell's Kansas City club orchestra; Earl Coleman's orchestra; Eddie Kuhn's Kansas City Athletic club orchestra.
WEBB. Chicago, Ill. (370.2), 7-8 p. m., Oriole orchestra; Radio Sunday school lesson; 9-10, Oriole orchestra; Beulah Lodon, violinist; 11-1, Oriole orchestra; Marie Kelly, reader; Frank Greif, tenor; Rick and Snyder; Wayne Myers; Kay Ronayne.
WFAA. Dallas, Texas (475.9), 12:30-1 p. m., Johnny Davis, pianist; 6:30-7, Don Bestor's orchestra; 8:30-9:30, Schubert Choral club recital; 11-12, midnight, the Adolphus hotel orchestra, Jack Gardner directing.
WHAD. Milwaukee, Wis. (275), 11 a. m., Andy Hertel, pianist; children's story, Faye McBeath; Margaret Cunningham, child pianist; Willard Kaleibe, tenor, banjolist.
WHAS. Louisville, Ky. (399.8), 4-5 p. m., musical, Harry S. Currie; editorial readings; reading, Martha Pope, Robinson; 7:30-9, concert, vocal and instrumental, Arthur Lindling, baritone directing.
WHT. Chicago, Ill. (399.8), 10 p. m., Jean Sargent's woman's club, Jelko Good Luck and group; 11, pedal studio features; 12 m., Al Carney's organ hour; 1-2 p. m., special studio features; 6, final football scores, classical program, dinner organ recital, Grayling's string trio; Eleanor Kaplan, violinist; Estell Stanley, soprano; Antonette Bennett; W. A. Dyckman, baritone; Florence White, Rush, soprano; 7:45-9:15 (258), musical features; 9:30 (399.8), Jelke entertainers; Kitchen Klenser Klassics, Harry Langdon, harmonica; Marie Wright, soprano; the Golden trio, Oscar Heather, tenor; Al Carney, organist; Badger Four male quartet; Clark Hawaiian trio, Vic Fredericks, baritone; Irene Beasley, "The Girl from Dixie"; Marguerite Morris, "The Girl from Georgia"; Jacobson, humorist; 12, Pat Barnes and Al Carney.
WJBL. Decatur, Ill. (270), 9:30-11 p. m., artists.
WJL. Mooseheart, Ill. (302.8), 10 p. m., Rosemary Hughes, Robert Duphney, Robert DeWar, Marie Winers, Log Cabin orchestra; 12, Jack Nelson, Jack Mason, Fayette Miller, Courtland Banks, Dick Vail.
WLH. Chicago, Ill. (308.2), 7-8 p. m., dinner concert, Blackstone and Drake hotel orchestras; 9-10, popular, Hamm's orchestra; 11-12, Drake and Blackstone orchestras.
WLS. Chicago, Ill. (344.6), 9 a. m., announcements of R. P. D., program for day; home question box, Ellen Rose, Dickey; Sears Roebuck agricultural foundation; 7 p. m., Lullaby time, Ford and Glenn; 7:15-12 p. m., program, Ford and Glenn; Ralph Emerson; Grace Wilson, contralto; Tony Corcoran, baritone; barn dance fiddlers; Joe Bren's minstrel company.
WLW. Cincinnati, Ohio (422.3), 7 p. m., organ concert, Johanna Grosse; 7:30, football results; 7:40, Seketary Hawkins; 8, old-time songs, Crocosol Community Fireside sing, chorus from the Cincinnati Conservatory of Music; 8:30, excerpts, "The Garden of the Shah."
WMAF. Chicago, Ill. (447.5), 6 p. m., organ, Chicago theater; 6:30, orchestra, Hotel LaSalle; 8, Russell Pratt and Frederick Daw; 8:30, Radio photologue on "Africa," Prof. Frederick A. Starr; 9, Chicago theater review.
WMBB. Chicago, Ill. (250), 7-8 p. m., Trianon duo, Beatrice Heller, Louise Reichert, Preston Graves; 9-11, Trianon orchestra; Dell Lampe, Woodlawn theater orchestra, Earl Smith.
WMC. Memphis, Tenn. (499.7), 8:30 p. m., WMC opera quartet.
WOAW. Omaha, Neb. (526), 6 p. m., Sandman's visit, Val McLaughlin; 6:20, Rialto orchestra; 7, after dinner hour, speakers, musical program; Chamber of Commerce historical anniversary; sports talk; 9, deluxe program; 10:30, Frank Hodet and his Nightingale orchestra; 11, Arthur Hays and his organ jubilee, Dr. Applesauce announcing.
WOC. Davenport, Iowa (483.6), 3:45-6 p. m., chimes concert; 6:30-6:50, Sandman; 9-10, Murray family orchestra; 11-12, baritone, LeClaire hotel; Peter MacArthur, baritone.
WOI. Ames, Iowa (270), 12:45 p. m., discussion of soil problems, Prof. P. E. Brown.
WOK. Chicago, Ill. (217.3), 12-2 p. m., Bob Duffy, tenor; Gus C. Edwards and his orchestra; Banks Kennedy, organist; Bob McKreys, pianist; WOK string trio; 5:30-7, Howard Will; tenor; Robert York, tenor; Gus C. Edwards and his orchestra; Banks Kennedy, organist; WOK string trio; 10-1, Fred Witmer, pianist; Gus C. Edwards and his orchestra; Harold Morava, tenor; Herman Sinaiko, violinist; Harriet Lee, contralto; WOK string trio; Bill Hay, bass; Banks Kennedy, organist; Bob McKreys, pianist; Paul Vernon, violinist; WOK male quartet; Charles Lomb tenor; Henry Byler, tenor; Jack Keyes, baritone; N. Bartlett, bass; Honolulu Serenaders.
WOO. Kansas City, Mo. (278), 8-9 p. m., musical program; 10-11, musical healing service.
WORD. Batavia, Ill. (275), 8:30 p. m., Webster hotel concert trio; solo artists; Chicago Motor club speaker; World news digest.
WQJ. Chicago, Ill. (447.5), 11-12 m., talk on art, Marjory Curry; "A Frozen Salad and Dessert for Your Christmas," Mrs. George M. Shirk; 3-4 p. m., Koffee Klatch, Jerry Sullivan, percolator; Rose Vanderbosch, soprano; Hal Lansing, ukulele soloist; 7-8, Ralph Williams and his Rainbo Gardens orchestra; Ralph Keim, pianist; Ann Keim, soprano; prano; Lavina Price, pianist; Sheppard Lavine, tenor; Helen Reed, accompanist; 10-3, Ralph Williams and his Rainbo Skylarks; Ambrose Wyrick, tenor; Jerry Sullivan; Rose Vanderbosch, soprano; Hal Lansing, ukulele soloist; Everett George Opie, reader; June Lee, comedienne; Bert Davis, Clown of the Air; Clarence Theaders, tenor; Rita McFawn, Mary Blab, harmony duo; George Thurn, kazoo and ukulele soloist; Joey Stool, tenor; Eddie Vogel, baritone; Brundage and Kraemer, harmony singers.
WSA. Cincinnati, Ohio (326), 7:45 p. m., children's stories, Mrs. Ethel Knapp Beirman; 8, Radio chime



Russia contributes to the Atwater Kent program Sunday at WEAF and chain. Maria Kurenko is the New York coloratura soprano whose lovely voice has given her the title of the "New Fatti from Siberia." Felix Salmond, cellist, also entertains.

High Lights of the Week

NEW YORK'S Philharmonic orchestra concerts have been enjoyed by so many fans that they are to be repeated during December. The first concert of the month is set for Saturday, December 5, and will be broadcast through WJZ, WGY, and WRC. Melodies reminiscent of Persia also float upon the ether this evening and may be found by dialing for WLW, Cincinnati. Excerpts from "The Garden of the Shah" will be given during the 8:30 p. m. central time program.

Atwater Kent artists appear on both coasts this Sunday. Maria Kurenko, soprano, and Felix Salmond, cellist, are at WEAF and chain; Toscha Seidel, violinist, at KPO. Comic Swedish programs have been given by many stations but a simple concert given as it might be given in Sweden is infrequent. The Monday program at WOAW, Omaha, includes a Swedish Nobility program which will permit Americans to glimpse a Sweden they do not know.

From New York to the Azores, Gibraltar and Italy fans will travel with WTIC, Hartford, Tuesday evening. The Travelers Symphonic ensemble will give the musical background for all the scenes visited. KGO's program for Tuesday night

includes the serious rendition of the oratorio, "The Holy City." Carl Anderson will direct the twelve singers in the cast.

Ladies of the Northwest will tune in KFDJ, Corvallis, Wednesday, to hear the second of the series of lectures on costume design. "The Three R's of Dressing Attractively" is the appealing title of the talk given by Lila M. O'Neale.

The value of our trees may be learned Thursday at WEZ, Springfield, during the 8 p. m. eastern time program. The second New England Forestry Congress meets, and talks will be given by all the important forestry experts of this country. Dr. C. A. Schneck of Darmstadt, Germany, will deliver an address entitled "What Forestry Means to America."

"Bear Hunting in the Rockies," an address by Dr. R. G. Davenport, will be one of the opening attractions Friday at KOA. It is even hinted that Dr. Davenport knows how to capture or kill the more dangerous grizzlies. "Captain Crossbones" is the title of the lively musical comedy all about pirates and the Caribbean sea to be given this same evening at KOB, State College, by the music department.

WLW TO GIVE "GARDEN OF THE SHAH"



December Brings to WBZ, Springfield, a new pianist, Mary Louise Bacon, who will make her Radio debut during the first week of this month.

Saturday, December 5

(Continued from page 13)
concert, Robert Badgley, 8:15, The Bicycle Playing Card sextet; 9:15, The Bicycle Playing Card sextet, soloist.

WSB, Atlanta, Ga. (428.3), 8 p. m., entertainment; 10:45, Hired Help Skylark.

Mountain Time Stations
KFWA, Ogden, Utah (261), 5-6 p. m., Ogden Radio dealers' program; 9-12, dance music, Olie Reeves and his orchestra.

KOA, Denver, Colo. (322.4), 12:15 p. m., Rialto theater musical; 9, Wurtzbach's orchestra.

Pacific Time Stations
KFOA, Seattle, Wash. (454.3), 8:30-9:30 p. m., program; 9:30-11:30, Eddie Harkness and his orchestra.

KFWB, Hollywood, Calif. (252), 7:15 p. m., microphone belles; 7:30-8, program; Elmer R. Sly company; Nathan Lesiesky, cellist; G. Davls Brillhart, pianist; 8-10, Radio Doings Revels with music, entertainment and technical talks on radio; 10-11, Warner Brothers frolic, direction Charlie Wellman; 11-12, Henry Halstead's Hollywood roof ballroom orchestra.

KGO, Oakland, Calif. (361.2), 7:15-7:30 p. m., health training exercises; 7:45, pep class; 8:15-8:30, health exercises; 11:30-1 p. m., luncheon concert; 4-5:30, concert orchestra, Hotel St. Francis, Vinton LaFerrera, conducting; 8, sport review, Al Santoro; 8-10, National Carbon company program; "The Merry Widow," comic opera; Carl Anderson, director; Vinton LaFerrera's concert orchestra; Editha Wynne, soprano; Grace LaPage, soprano; Claire Harsha Upshut, soprano; James Gerard, tenor; Albert Gillette, baritone; 10-12, Hotel St. Francis dance music.

KGW, Portland, Ore. (491.5), 12:30-1:30 p. m., Rose City trio; 6-7, dinner concert; 9-12, dance music, Multnomah hotel.

KHJ, Los Angeles, Calif. (405.2), 6-6:30 p. m., Lethbridge, Arcade cafeteria orchestra, Jack Cronshaw, leader; 6:30-7:30, history story, Prof. Hertzog; Dollie Wright, Henrietta Poland and Uncle John; 8-10, program, White Motor company; 10-11:30, Biltmore hotel dance orchestra; 11:30-2 a. m., Times Tom Cats.

KMTR, Hollywood, Calif. (238), 8-10 p. m., KMTR concert hour, Turner orchestra, Loren Powell, director.

KNX, Hollywood, Calif. (336.9), 2-5 p. m., play-by-play of Oregon Aggies vs. U. S. C.; 5:30-8:15 p. m., Wurliizer pipe organ studio; Town Tattler; 6:15, travel talk, W. F. Alder; 6:30-7, Atwater Kent Radio orchestra, Paul Finstein, leader; 7, talk on insect life, H. W. McSpadden; 7:15, church announcements; 7:30-8, Wurliizer pipe organ studio; 8-10, program, Commercial Construction company; 10-11, Ray West's Coconut Grove dance orchestra from Ambassador hotel; 11-2 a. m., Filmland Frolics, direction Chet Boone.

KPO, San Francisco, Calif. (428.3), 7-7:30 a. m., daily doze exercises; 1-2 p. m., Rudy Selger's Fairmont hotel orchestra; 2:30-3:30, matinee program, Otto Raubul, violinist, director; 3:30, Palace hotel concert orchestra, Cyrus Trobbe, director; 6:35-7:30, Waldemar Lind and the States restaurant orchestra; 8:12, Cabiria cafe orchestra, Jack Coakley, director.

Sunday, December 6

Headliners Today			
Eastern 4 a. m.	Central 3 p. m.	Mountain 3 p. m.	Pacific 2 p. m.
CHIC (357) An hour with the organ.			
WGYY (378.5) Dr. Frank Sill Rogers, organist.			
WSB (428.3) Sacred concerts.			
WCAU (277.6) Potash and Perlmuter, comedy.			
WEAF (491.5) WEEL (348.6) WGR (319) WCAE (461.9) WCAP (468.5) WJAR (305.9) WTAG (268) KSD (545) WCCO (416.4) WOC (483.6) WEI (394.5) WSAI (326), Atwater Kent hour.			
KTHS (374.8) Classic hour.			
WACA (340.7) Daven Radio entertainers.			
KTHS (374.8) Hot Springs Radio Special train.			
KFWB (252) Roy-Al Saxophone sextet.			
KNX (336.9) Lubovski trio.			
KPO (428.3) Toscha Seidel, violinist.			

Sunday, silent night for: CHIC, CKNC, CNRA, CNRC, CNRE, CNRM, CNRO, CNRR, CNRT, CNRV, CNRW, KFAB, KFAU, KFMO, KFOA, KFPG, KFVE, KFWA, KLYX, KMAV, KMTB, KOB, KSAC, KWSC, PWA, WAG, WBAW, WCAU, WCX, WDAF, WEAO, WEBJ, WEBW, WGES, WGCP, WGST, WHAD, WHAS, WHAZ, WGES, WJAD, WJAZ, WKAR, WJBL, WLIT, WMAQ, WMC, WNYC, WOI, WOK, WOR, WRC, WSAI, WSMB, WTAM, WTIC.

Eastern Time Stations
KDKA, Pittsburgh, Pa. (309.1), 11 a. m., church service; 4 p. m., Dr. Charles Hainroth, organist; 4:45, vesper service, Shady Side Presbyterian church; 6:30, dinner concert; 7:45, church service.
WAFD, Port Huron, Mich. (275), 10-11:30 a. m., services; 7:30-8:30 p. m., musical program.
WBBR, New York, N. Y. (272.3), 10 a. m., Watchtower orchestra, Fred Tvarosch, tenor; 10:30, Bible lecture, Judge Rutherford; 11, Fred Tvarosch, tenor; 11:10, Watchtower orchestra; 9 p. m., T. B. S. A. choral singers; 9:55, violin duets, Prof. Charles

Rohner, Carl Park; 9:15, Bible lecture, Judge Rutherford; 9:45, I. B. S. A. choral singers; 9:55, violin duets; 10:05, I. B. S. A. choral singers; 10:15, violin duets.
WBZ, Springfield, Mass. (333.1), 10:50 a. m., church services, Church of the Unity; Rev. Charles A. Wing, pastor; Philharmonic quartet; Robert W. Field, organist and director; 7 p. m., Sunday evening dinner concert, Copley Plaza orchestra, W. Edward Bowle, director; 8, program, Holy Cross college.
WCAE, Pittsburgh, Pa. (461.3), 3:45 p. m., talk, Dr. S. F. Cadman, New York; 6:30, concert, William Penn

WTAG, Worcester, Mass. (268), 3:45-5:30 p. m., address, Dr. S. Parkes Cadman; Gloria Trumpeters, George Botts, chime soloist; 7:30-8:15, Capitol family; 9:15-10:15, Atwater Kent Radio hour; Maria Kurenko, Russian soprano; Felix Salmond, violin cellist.
WVJ, Detroit, Mich. (352.7), 11 a. m., St. Paul's Episcopal cathedral; 2 p. m., Detroit News orchestra; 7:20, Capitol theater gang.
Central Time Stations
KFAB, Lincoln, Neb. (340.7), 4-5 p. m., vesper service.

organ; celestial bell quartet; Erma Reynolds, soprano; Edith Carey, contralto; Hire string trio; Misses Wiedman, Ludlow and Donovan, vocal trios; Josephine Martin, pianist.
WCCO, St. Paul, Minn. (416.4), 11 a. m., Plymouth Congregational church, H. P. Devey, D. D., pastor; 4:10 p. m., House of Hope Presbyterian church, H. C. Swearingen, D. D., pastor; 8:15, Atwater Kent program, WEAF; Maria Kurenko, Russian coloratura soprano; Felix Salmond, cellist.
WEBH, Chicago, Ill. (370.2), 10:40 a. m., Seventh Church of Christ Scientist; 5-6 p. m., twilight musical; 7-9, artists program.
WEBW, Beloit, Wis. (263), 4:30 p. m., College vesper services.
WFAA, Dallas, Texas (475.9), 2:30-4 p. m., Sunday hour for farmers; 6:30-7:30, Bible class, Dr. William M. Anderson, pastor, First Presbyterian church; 7:30-8:30, service, First Baptist church, Dr. George W. Truett, pastor; 9:30-11 p. m., Ligon Smith's orchestra.



From Dixie comes this southern beauty, Irene Beasley. She sings character songs Tuesdays and Fridays at WEBB, Chicago. Her interpretations of the popular songs of the moment are new and unusual.

hotel; 7:20, Capitol theater gang, New York; 9:15, Atwater Kent.
WCAP, Washington, D. C. (468.5), 11 a. m., service, Rhode Island Avenue M. E. church; 4 p. m., service, Bethlehem chapel, Washington cathedral; 7:20, musical program, Minor Edward Bowers, and "Capitol Family," Capitol theater, N. Y. C.; 9:15, Atwater Kent Radio hour; Maria Kurenko, Russian coloratura soprano; Felix Salmond, violin-cello artist.

WCAU, Philadelphia, Penn. (277.6), 5:20 p. m., R. Floyd Fox, bass; 5:35, undenominational Radio church service, Rev. John W. Stockwell; 5:45, "The Letters of Paul," Rev. J. W. Stockwell; 5:55, recital; 6:05, "Finding One's Self," Rev. J. W. Stockwell; 6:30, Clarence Seaman's orchestra; 7:30, The Bonvill Toller concert company; 9, topics of the day; Potash and Perlmuter.

WVJ, Detroit, Mich. (352.7), 11 a. m., services, Central Methodist Episcopal church.
WEAF, New York, N. Y. (491.5), 2:45-3:45 p. m., Sunday Radio Service, auspices of the Greater New York Federation of churches; 3:45-5:30, men's conference in the Bedford Branch Y. M. C. A., Brooklyn; 7:20-9:15, musical program, Major Edward Bowers and the Capitol Family, Capitol theater; 9:15-10:15, Atwater Kent Radio hour, Maria Kurenko, soprano.

WEEL, Boston, Mass. (348.6), 10:50 a. m., morning service, Old South church; 3:30 p. m., Chamber of Commerce organ recital; 3:45, Dr. S. Parkes Cadman; 7:20, Major Bowers and his Capitol theater family; 9:15, Atwater Kent hour.

WFI, Philadelphia, Pa. (395), 7:30 p. m., Arch Street Presbyterian church, sermon, "The Clock in the Strassburg Cathedral," Dr. Clarence Edward McCartney; 9:15, Atwater Kent Radio hour, Maria Kurenko, Russian coloratura soprano.

WGBS, New York, N. Y. (315.6), 3:30-4:30 p. m., Warner's theater program; 9:30-10, Vanderbilt hotel orchestra; 10-10:30, Mendelssohn quintet elb.
WGR, Buffalo, N. Y. (319), 3 p. m., vesper service, Buffalo Council of Churches; 7:45, Central Presbyterian church service; 9:15, jointly with WEAF, Atwater Kent program.

WGY, Schenectady, N. Y. (379.5), 11 a. m., service, First Unitarian church; 12:30 p. m., symphony orchestra; 5, organ recital, Dr. Frank Sill Rogers; 7, Carillon program; 8, First Unitarian church; 9, WJZ studio program; 10, Godfrey Ludlow, violinist.

WHAR, Atlantic City, N. J. (275), 10:45 a. m., services; 2:15 p. m., Seaside hotel; 2:45, sermon; 7:50, Chelsea Baptist church; 9, Seaside hotel orchestra; 11:15, Strand theater organ recital.

WHN, New York, N. Y. (361.2), 1-1:30 p. m., Loew's Lexington organ recital; 2-3, Queens County Christian Endeavor program; 3-4, Calvary Baptist church services; 5-5:30, Roseland Dance orchestra; 7:30-10, Calvary Baptist church services; 10:45-11:15, Janssens Hofbrau orchestra; 12-12:50 a. m., Harry Richman and his entertainers.

WIP, Philadelphia, Penn. (508.2), 4 p. m., "Passing the Buck," Josephus Danfelt, Germantown Y. M. C. A.; 7:15, services, Holy Trinity church, Floyd W. Tokins, D. D., rector; 9:30, Ben Stad's Little symphony orchestra.

WJR, Pontiac, Mich. (317), 8:30 p. m., "The Merry Old Chet" and "Tawlet Jesters," in a Radio frolic.
WJCA, New York, N. Y. (340.7), 11-2 p. m., services, Eighth Church of Christ Scientist; 6-7 p. m., Roemer's Homers; 7-7:35, Ernie Golden and his Hotel McAlpin orchestra; 7:35-8, Olcott Vail; 10-11, Daven Radio entertainers.
WREO, Lansing, Mich. (285.5), 10:30 a. m., chimes, Plymouth congregational church; 10:30, services; 7:30, services.

KFDM, Beaumont, Texas (315.6), 8-9 p. m., sacred program.
KFJF, Oklahoma City, Okla. (261), 10 a. m., Bible class, Rev. Lincoln McConnell; 11, church service; 7:30 p. m., church service.

KFNF, Shenandoah, Iowa (266), 10:45 a. m., services, First M. E. church; 2:30 p. m., Golden Rule song service; 6:30, services Golden Rule circle; 7:30, Christian church services.

KFUO, St. Louis, Mo. (545.1), 4 p. m., "I Am the Resurrection and the Life," Rev. A. Korrts; 9:15, "The Messiah Came," Prof. W. Arndt, songs and music.

KLDS, Independence, Mo. (440.8), 11 a. m., studio service; quartet, Mrs. John Watkins, Mrs. James Gault, Mrs. Mark Siegfried, Mrs. Madge Kueffer; Wesley Brocaw saxophone; Mrs. George Willis, soprano; sermon, U. W. Greene; 6:30 p. m., service, music, First Christian Church of Independence; Mrs. J. M. Sexton, soprano; Mrs. M. R. Leach, contralto; W. J. Frost, tenor; J. M. Sexton, bass; Cammie Johnston, organist; sermon, U. W. Greene; 9, L. D. S. choir, Paul N. Craig, director; Stone church men's chorus; Mrs. John Watkins, soprano; Mrs. James Gault, contralto; Robert Miller, organist; sermon, Dr. Frederick M. Smith.

KMA, Shenandoah, Iowa (252), 4-6 p. m., services; music; talk, G. H. Van Houten.
KPRC, Houston, Texas (296.9), 2 p. m., "Elks" memorial exercises; 7-7:55, Bible lecture, First Church of Christ Scientist; Robert D. Hardcastle, Mrs. Estelle P. Wood, readers; Vivian G. Buchanan, organist; Mrs. Josephine D. Neibel, soloist; 9:30, Ray Mullins' orchestra.

KSD, St. Louis, Mo. (545.1), 6:15 p. m., "Good Will" program, WEAF.

KTHS, Hot Springs, Ark. (374.8), 11-12:15 a. m., services, First Presbyterian church, Chauncey Hinkok, pastor; Frances Hardin, organist; 9-10 p. m., "Classic Hour," Meyer Davis grand ensemble; Lon Chassey, violinist; John G. Heyn, accompanist; Louis Culp, organist; 10-11:30, "Hot Springs Radio Special Train"; frolic, Benny Ford's orchestra.

KYW, Chicago, Ill. (535.4), 11 a. m., Central church services; 2:30 p. m., studio chapel service; 3:30, studio concert, Edwin Harper; 7-9:30, Chicago Sunday Evening club service; 9:30-11, classical concert, Commonwealth Edison company.

WAMD, Minneapolis, Minn. (243.8), 2:30 p. m., musical program, Twin City bird contest winners; 9:30, Gayle Wood, harmony hurricane; 11, Skyrrocket frolic, George Osborn and his Hotel Radisson Skyrockets.

WBAP, Fort Worth, Texas (475.9), 11 a. m., First Methodist church, Rev. J. W. Berlin; 12:30, kiddies' hour; Uncle Wally; 5-6, program, School of Gospel music, Baptist seminary; 11-12, popular music, Shelly Lee Alley and his entertainers.

WBBM, Chicago, Ill. (226), 12:30-2 p. m., classical program, William P. Zimmer; Wheeler Harold Morava; Edna Wheeler Bullard, harpist; Harry Sosnik and Sandy Meek; 4-8, Zigler sisters; Jack Garcia, Hawaiian guitarist; Harold Anderson, accordionist; Lester Anderson, banjo; orchestra; Lew Russell; Les Skow; 8-10, Jeanne St. Anne, baritone; Christian Grimm, accompanist; Joseph Lincoln, tenor; string trio; Marie Morgott, harpist; Moulton Rouge orchestra; 12-2 a. m., Nifty club; Moulton Rouge orchestra.

WBCH, Chicago, Ill. (266), 10:30-12 m., morning service, People's Liberal church; talk, Rev. Rufus A. Whitte; 4-5 p. m., Dain & Son classical hour; Velma Cook, soprano; Oriental quartet; male harmony group; Robert Strozach, pipe organist; 7:45-9:15, evening service, Thornburn M. E. church, 40-piece Thornburn semi-symphony orchestra; 80-voice choir, special vocal soloists; speaker.

WCBM, Zion, Ill. (344.6), 8 p. m., mixed quartet,

WHAD, Milwaukee, Wis. (275), 3:15 p. m., Milwaukee Turnverein symphony orchestra.
WHAS, Louisville, Ky. (399.8), 9:57 a. m., organ prelude; 10, service, Fourth Avenue Presbyterian church, Dr. Charles W. Welch, pastor; choir, William E. Conen, organist, directing; Esther Metz, soprano; Virginia Shaefer Herrick, contralto; Williams Layne-Vick, tenor; William G. Meyer, baritone; 4:30-5:30 p. m., choral service, Christ church cathedral, Rev. Richard L. McCready, dean; Ernest Arthur Simon, organist and choir director, boys' choir.

WHO, Des Moines, Iowa (526), 1 a. m., church service; 7:30-8:30 p. m., Reese-Hughes orchestra.
WHT, Chicago, Ill. (399.1), 12 m., Sunday dinner sacred concert, vocal, instrumental and organ; 12:45 p. m., sunshine hour, special program for the shut-ins and the sick; 1:15, shepherd time for the kiddies; 1:30, aerial girls program; 1:45, Radio rangers, boys' program; 2, Radio capoteur; 2:05, missionary program; 2:15, fellowship program; 2:50, afternoon services, Chicago Gospel tabernacle; 5:30, vesper concert; 5:45, Young women's council; 6:30, concert tabernacle band and choir, sermon, Paul Rader; 9:30, request program; 10:30, back home hour.

WKRC, Cincinnati, Ohio (422.3), 6:45 p. m., songs and service, Walnut Hills Christian church, Dr. I. Castellberry, pastor; 10, classical program.
WLIB, Chicago, Ill. (308.2), 5-6 p. m., jazz scamper, Hamm's orchestra; 6:30-7, Edward Benedict, organist; 8-9, popular program Liberty orchestra.

WLS, Chicago, Ill. (344.6), 6 p. m., prelude; 7-7:55, Little Brown church in the vale; Ralph Emerson, organist; Little Brown church choir.
WLW, Cincinnati, Ohio (422.3), 9:30 a. m., school, editorial staff of Sunday school publication; Methodist Book concern; 11, morning worship, Seventh Presbyterian church, Jesse Halsey, minister; Dan Beddoe, soloist; Adolph Stadermann, organist; 7:30 p. m., services, First Presbyterian church, Dr. Frederick McMillan, pastor; 8:30, the H. and S. Pogue company concert, Walter Esberger, director; Helen Remley, soprano; Arthur Condro, violinist; Arthur Bowen, cellist.

WMBB, Chicago, Ill. (50), 3-5 p. m., Trionan orchestra; Woodlawn theater orchestra; Bob Bennett, Earl Smith, Walter Duffy, James T. Carney; 7:40-9, Fifth Church of Christ Scientist; 9-11, Trionan orchestra, Woodlawn theater orchestra, F. C. Carney, Preston Graves, Earle Smith, Ed Hines, Billie Allen Hoff, Walter Duffy, Trionan harmonists.
WMC, Memphis, Tenn. (499.7), 11 a. m., First Baptist church services.

WOAI, San Antonio, Texas (394.5), 11 a. m., services, First Presbyterian church, Rev. P. D. Hill, pastor; 7:45, services, Central Christian church, Rev. Hugh McLellan, pastor.
WOAW, Omaha, Nebr. (526), 9 a. m., chapel service, Rev. R. R. Brown; 2:30 p. m., Belleure, Nebr.; 6, Bible study period, Mrs. C. R. Gray, director; 9, chapel service, First Unitarian church.

WOC, Davenport, Iowa (483.6), 1-2 p. m., Palmer Little symphony concert; Erwin Swindell, conductor; Paul J. Opperman, tenor; 6:50-7, services, Presbyterian church, Rev. E. Kirk; 8:15-9:15, Atwater Kent musical program; 9:45-11:45, Palmer Little symphony; Erwin Swindell, conductor; soloists.
WOI, Ames, Iowa (270), 10:45 a. m., college chimes; 11, services, "The Greatest Thing in the World," W. B. Boyd.

WOK, Chicago, Ill. (217.3), 1-2 a. m., Harriet Lee, contralto; Herman Sinaiko, violinist; WOK male quartet; 6:30-8:30 p. m., WOK string trio; Gus C. Edwards and his orchestra, WOK male quartet.
WOO, Kansas City, Mo. (278), 11 a. m.-12:30 p. m., services; 7-7:45, services.

WORD, Batavia, Ill. (275), 10 a. m., hymns, sacred songs, duets, solos; 10:15, address, B. F. Hollister; 9 p. m., hymns, sacred songs; I. B. S. A. choral singers; 9:15, Bible lecture, M. Smith; 9-10, Ebel Flentje, pianist; I. B. S. A. choral singers.
WQI, Chicago, Ill. (447.5), 9:30-11 a. m., sermon, Dr. Preston Bradley; Clarence Eddy, organist; 3-4 p. m., Maria Dneprova, Russian soprano; Saida A. Ballantine; 8-10, Ralph Williams and his Rainbow Gardens orchestra; Leonard F. Keller, violinist; Elias Blasgen, lyric soprano; John Zwick, pianist; string trio; Bela Marta, violinist; Oscar La Pedus, soloist; John Zwick, accompanist; Helen Holman, soprano; Herman Techtentine, baritone; Jean Carlsson, soprano; Ambrose Wyrlick, tenor.

WSAI, Cincinnati, Ohio (325.8), 2:45-4:30 p. m., address, Dr. S. Parkes Cadman, WEAF; Gloria Trumpeters; 7:45, chime concert, Robert Badgley; 8, sermon, Dr. Parkes Cadman, WEAF; 8:15-9:15, Atwater Kent hour, WEAF; Marie Kurenko, Russian coloratura soprano; Felix Salmond, violin-cello artists; 9:15, Union Central Life Insurance company orchestra, Sigmund Culp, director.

WSB, Atlanta, Ga. (428.3), 5 p. m., sacred concerts.

Mountain Time Stations
CFAC, Calgary, Can. (435.8), 11 a. m., First Baptist church, Rev. Dr. H. H. Bingham.
KFXF, Colorado Springs, Colo. (250), 7:30-9 p. m., First Methodist church service.

KOA, Denver, Colo. (322.4), 10:55 a. m., services, First Unitarian church of Denver, Unity service; 3 p. m., Mrs. Faye Roswell, organist; 7:45, services.
KUOM, Missoula, Mont. (244), 9:15 p. m., musical program, Jeanette Wayne, studio director.

Pacific Time Stations
KFWB, Hollywood, Calif. (252), 9-11 p. m., late news and Warner Brothers movie frolic, Roy-Al saxophone sextet, Charlie Cole, popular songs; Jack Kurtz, pianist and others.
KGO, Oakland, Calif. (361.2), 11 a. m., service, First Methodist Episcopal church, Dr. Edgar A. Lowther, pastor; 3:30, KGO little symphony; D. A. Ervin, guest artist.
KGW, Portland, Ore. (491.5), 10:15 a. m., Church of Our Father; 7:25-9 p. m., First Presbyterian church.

KHJ, Los Angeles, Calif. (405.2), 4-5 p. m., musical, Western Auto Supply company; 6:30-7, Leighton's Arcade cafeteria orchestra, Jack Cronshaw, leader; 7-7:30, organ recital, Arthur Blakely, organist; 8-10, program, Martin Music company, Ruth Pitts, soprano; John Martin, pianist.
KMTR, Hollywood, Calif. (238), 6:30 p. m., Hollywood Christian church program, Rev. S. J. Mathieson, speaker; Charles W. Beam, baritone.
KNX, Hollywood, Calif. (336.9), 7-8 p. m., First Presbyterian Church of Hollywood; 8-9, Ambassador hotel concert orchestra; Josef Rosenfeld, leader; 9-10:30, program, Beverly Hills nurseries, Lubovitski trio; Raquel Nieto, coloratura soprano.

KPO, San Francisco, Calif. (428.3), 9:45-10:45 a. m., "A Shelter in the Time of Storm," Dr. E. H. Smith, pastor. Epworth Methodist Episcopal church; Ira D. Morgan, baritone; Uda Waldrop, organist; 10:45, "Ye Towne Cryer," amusement information service; 5-6 p. m., Marshall W. Gieselman, organist; 6-6:30, Waldemar Lind's orchestra; 6:30, "Ye Towne Cryer"; 6:35-7:30, Palace hotel concert orchestra, Cyrus Trobbe, director; 7-8:30, Palace hotel concert orchestra, Cyrus Trobbe; 8:30-9, Rudy Selger's orchestra; 9-10, Tosch Seidel, violinist, direction of Ernest Ingold, Inc.

KTAB, Oakland, Calif. (240), 9:45-10:45 a. m., Professor E. G. Linsley, bible lecture; 11-12:30, church service; 7:45-9 p. m., church service; 9:30-11, concert.

(Continued on page 15)

KOB TO GIVE "CAPTAIN CROSSBONES"

Wednesday, December 9

(Continued from page 18)

on the Art of Cooking and some of my best recipes"; 4, cooperating with Settlement Schools and all other institutions, William Dunning, assisted by Cincinnati Exchange club, shut-in concert; 7, Hotel Gibson concert, Robert Visconti, director; 7:30, talk, representative of the National Farm Radio council; 7:40, Hotel Gibson concert; 10, "Pep" concert, Ohio Epsilon Chapter of Sigma Alpha Epsilon, University of Cincinnati; 10:30, Cincinnati Zither players, Ruth Hohe; Chas. Hohe; A. Roehrich; 10:40, Tridyn instrumental trio; 10:50, The Cino male quartet; 11, Johanna Grossa, organist; 11:15, pianoguess, "Newport" Carl Bamberger; 11:30, the Tridyn instrumental trio.

WMAQ, Chicago, Ill. (447.5), 12:45 p. m., Radio farm school; 1, luncheon, Chicago Association of Commerce; 2, program, Radio show, Coliseum; 4, Cosmopolitan School of Music; 4:30, Red Cross talk on home nursing; 6, organ, Chicago theater; 8:30, Georgene Faulkner, the Story Lady; 8, lecture, Northwestern university; 8:30, Lester Mather, Paul Breitweiser, pianists.

WMBB, Chicago, Ill. (250), 7-8 p. m., Trianon duo, Beatrice Teller, Joseph Kreloff; 9-11, Trianon orchestra, Woodlawn theater orchestra; Scotty Welsh, Madison sisters, Earle Smith, Billie Allen Hoff, Jimmy Eggert, Bob Bennett.

WOAW, Omaha, Nebr. (526), 12:45 p. m., Phyllis Griswold, organist, Rialto theater; 5:30, Sandman's visit, Val McLaughlin.

WOC, Davenport, Iowa (483.6), 12:15-12:25 p. m., Farm school "Dairy Day—How to Select a Dairy Sire," Prof. H. E. Kildee; 4-4:45, musical program; Marian Peters, pianist; A. E. Edwards, baritone; Bud Morley, harmonica player; 9-10, Erwin Swindell, organist; Clayton Meyer, baritone; 9-3:30, home management schedule, Aunt Jane; 5:45-6, chimes concert; 6:30-6:50, Sandman's bedtime stories; 9-10, Erwin Swindell, organist; Clayton Meyer, baritone.

WOI, Ames, Iowa (270), 12:30 p. m., college chimes; "Poultry Husbandry"; 12:45, Professor H. A. Bittender.

WOK, Chicago, Ill. (217.3), 5-7 p. m., Gus C. Edwards' orchestra; Capitol theater organ; Ed Kemp, tenor; Bob Mokrejs, pianist; Bryce Talbot, baritone; 10-1:30 a. m.,

Mountain Time Stations
CFAC, Calgary, Can. (435.8), 4 p. m., Red Cross address; 8-9, Ladies string trio.
KFWA, Ogden, Utah (261), 5-6 p. m., Ogden Radio Dealers program; 9-10, studio program.
KOA, Denver, Colo. (322.4), 12:15 p. m., Rialto theater musical; 6:30, concert, Brown Palace string orchestra, Howard Hillston, director; 7:30, book of knowledge; 8, Kiwanis quartet selection; Mrs. Dye G. Liggett, soprano; Clarence C. Moore, baritone; Joseph Butterworth, tenor; Mrs. Frank W. Hirth, contralto; Mrs. Dye G. Liggett, soprano; Lucille Fulton, Betty Gundler, Mrs. Joseph Butterworth, accompanists; "Chili Welfare," E. C. VanDiest; KOA orchestra; 10, dance program, Harmony Peerless orchestra.

Pacific Time Stations
KFDJ, Corvallis, Ore. (282.5), 7:30 p. m., musical selections; 7:45, "Christmas Confections," Annelia Burns; 8-8:15, "The Three R's of Dressing Attractively," Lila M. O'Neale.
KFWB, Hollywood, Calif. (252), 5-6 p. m., children's hour, Big Brother of KFWB; 7-7:30, Mutual Motors fun contest; 7:30-8, microphone brevities; 8-9, program, Cheek-Neal Coffee company, Maxwell House Coffee string quartet; Chas. Beauchamp, tenor; Leo Kent and her terapapi; 9-10, program, Western Pacific Securities company of Santa Monica; 10-11, Warner Brothers frolic, direction Charlie Wellman; 11-12, Henry Halstead's Hollywood Red ballroom orchestra.
KGO, Oakland, Calif. (361.2), 8:45 a. m., inspirational songs, Madame Elfrida Wynne; 11:30-1, luncheon concert, Pacific States Electric company; 8-4, Oakland high school band; 4-5:30, concert orchestra, Hotel St. Francis; 6-7, Norman Woodside's Metropolitan orchestra.

KGW, Portland, Ore. (491.5), 12:30-1:30 p. m., Rose City trio; 6-7, dinner concert; 8-9, 7th United States Infantry band; 10-11, concert, Sherman, Clay and company studio.
KHJ, Los Angeles, Calif. (405.2), 6-6:30 p. m., Leigh-ton's Arcade cafeteria orchestra, Jack Crosshaw, leader; 6:30-7:30, history story, Prof. Herzog; Donald McKenzie and Dorothy Graves, saxophonists, Uncle John; 8, Dr. Mars Baumgardt, scientific lecturer; 8:30-10:30, program by Silverwood's Inc.; 10:30-11:30, Art Hickman's Biltmore hotel dance orchestra.
KLX, Oakland, Calif. (508.2), 4-5 p. m., women's hour; 5-5:30, Aunt Elsie's Sunset matinee; 8-9, educational program, Roy Harrison Danforth, Ad Schuster, Harry Noyes Pratt, Madine Shaphard, Professor E. R.

Thursday, silent night for: **CHIC, CKNC, CNRA, CNRE, CNRO, CNRR, CNRT, CNRV, CNRW, KFAB, KFAU, KFDM, KFMQ, KFMY, KFOA, KFRU, KFUD, KFVE, KFWA, KGW, KKL, KOA, KOB, KTGL, KWSC, PWX, WAFD, WAHG, WGE, WEBJ, WEBW, WGPC, WHAD, WHAZ, WJAD, WJBL, WJJD, WLIT, WOAI, WOR, WOS, WSM, WSUI, WTAM.**

Eastern Time Stations
CNRC, Calgary, Alberta, Can. (435.8), 7 p. m., Aunt Mary; 9, Mrs. Boese, pianist; Gerald Fitzgerald, tenor; Pauline Johnson, accompanist; Clara Powell, accompanist; Mrs. Nickle, violinist; Gerald Fitzgerald, tenor; Mrs. Nickle, contralto.
CNRM, Montreal, Quebec, Can. (411), 8:30 p. m., Hercule Lavole, baritone; Yvette Lamontagne, cellist; Blanche Archambault, soprano; Yvette Lamontagne, cellist; Emile Gout, tenor; Yvette Lamontagne, cellist; address, Victor Marin, president, Montreal Historical society.
KDKA, Pittsburgh, Pa. (309.1), 6:15 p. m., KDKA Little Symphony orchestra; 8, program, National Stockman-Farmer studio; 8:30, half hours with famous composers, Giuseppe Verdi, Richard Kountz; KDKA Little Symphony orchestra; 11, Pittsburgh Post, midnight revue.
WAHG, New York, N. Y. (315.6), 12-1 p. m., musical program.

WBBR, New York, N. Y. (272.6), 8 p. m., Hawaiian quartet; 8:10, Barbara Jonash, soprano; 8:20, Sunday school lesson, S. M. Van Sipma; 8:40, Barbara Jonash, soprano; 8:50, Hawaiian quartet.
WBS, New York, N. Y. (315.5), 10-10:10 a. m., timely talks with Terese; 10:10-10:20, June Warren, pianist; 10:20-10:30, talk, Capitola Ashworth; 10:30-10:40, June Warren, pianist; 10:40-10:50, talk, Alide Clark Barnhill; 10:50-11, June Warren, pianist; 1:30-1:35 p. m., scripture reading; 1:35-1:45, Anna E. Seeley, soprano; 3-3:15, New York American in the home hour; 6-6:30, Uncle Geebee; 7-8, Voltaire music; 8-8:30, Crystal Palace orchestra; 8:30-9:30, talk, Oliver Saylor; 9:30-10:30, Y. M. C. A. program; 10:30-11:30, Vanderbilt hotel orchestra.
WBZ, Springfield, Mass. (333.1), 6:15 p. m., dinner concert, KDKA; 7-7:05, English literature series, "Norman Story Telling," Prof. E. Charlton Black; 7:30, Hotel Kimball dance orchestra; 8, opening program, second New England Forestry Congress; address, George Pratt; "Public Education in Forestry," Charles Pack; "What Forestry Means to America"; 9:15, musical program, Noyes Buick company; 10:20, McEvelly's Singing orchestra.

WNN, New York, N. Y. (361.2), 5:30-6:40 p. m., Jack Cohen, pianist; 6:40-7, talks, Billy B. Van; 7-7:30, Iceland orchestra; 7:30-8, Standing by; 8-8:30, Will Oakland's Chateau Shanley; 8:30-9, Guardian entertainers; 9:30-10:30, Congregation B'nai Jeshurun Centennial Jubilee banquet, Hotel Astor; 10:30-11, Club Kentucky orchestra; 11-11:30, Swanee club orchestra; 11:30-12, Rodeo club orchestra; 12-12:30 a. m., Ted Lewis and his orchestra.

WIP, Philadelphia, Pa. (508.2), 10 a. m., menu, Mrs. Anna B. Seaver; 1 p. m., Gabel Tea Room orchestra; 3, Celste trio; Iris Virginia Gruber, soprano; 6:00, Pagoda cafe orchestra; 8, Sesqui-centennial, talk, Hon. Harry A. Mackey; 8:15, Etude hour, James



Not a "ukulele lady" but a "banjo girl" is Mary Thompson (above), University of Iowa coed, who comes from Iowa City, to entertain at KOIL, Council Bluffs. This gay group of pretty ladies, left, belongs to Roxy's gang and has no little part in making his Wednesday programs on WFAE and chain attractive. Note Roxy at the piano.



Gay Melodies may be heard at KGO, Oakland, Tuesday at 8 p. m. Pacific time, when Gertrude Landram, soprano, entertains from this station.



do Ong; 9-10, concert, Philomels of the Business and professional women's club; 10-11:30, Tom Genovitch's ballroom entertainers.
KMTR, Hollywood, Calif. (238), 5-6 p. m., home hour, Mammy Simmons in honor of birthday of Joel Chandler Harris of Br'er Rabbit fame; 7, "Health," Dr. Dahn T. Tasker; 8-10, KMTR concert hour, Turner orchestra, direction Loren Powell; Roudau male quartet.
KNX, Hollywood, Calif. (336.9), 5:30-6:15 p. m., Wur-litzer pipe organ studio; Town Tattler; 6:15, travel talk, W. F. Alder; 6:30-7, Atwater Kent Radio orchestra, Paul Pinstein, leader; 7-8, Ambassador hotel concert orchestra, Josef Rosenfeld, leader; 8-9, program, Security Trust and Savings bank; 9-10, program, W. W. Rainey organization; 10-11, dance music, exercises; 10, sewing talk, Betsy Ross; 10:30, "Ye Towne Cryer," amusement information service; 12 m., scripture reading; 1-2 p. m., Rudy Selger's orchestra; 2:30-3:30, matinee program; 3:30, fashion talk, "Breath of the Avenue," Ninon; 5:30-6:15, Big Brother; 6:30, "Ye Towne Cryer," amusement information service; 6:40-7, Waldemar Lind's orchestra; 7-7:30, Rudy Selger's orchestra; 8-9, Atwater Kent artists; 9-10, dance music, Goodrich Silvertown Cord orchestra; 10-11, Waldemar Lind's orchestra.
KTAB, Oakland, Calif. (240), 9-9:30 a. m., Rev. Geo. W. Phillips, prayer service.
KWSC, Pullman, Wash. (348.6), 7:30-9:30 p. m., special artists' program, faculty members; Mary Cameron, pianist; B. L. Robinson, vocalist; "The Selection of Breeding Stock," J. S. Carver; "Light and Electricity," Dr. H. E. Briggs.

Thursday, December 10

Eastern 8 p. m.	Central 7 p. m.	Mountain 6 p. m.	Pacific 5 p. m.
WJZ (393.1) 8:15	New England Forestry Congress. 7:15	6:15	5:15
WIP (508.2) 8:30	Etude hour. 7:30	6:30	5:30
WREO (285.5) 8:30	Rajoon trio. 7:30	6:30	5:30
WEAS (309.8) 8:30	Kentucky Ramblers. 7:30	6:30	5:30
KPRC (296.9) 8:30	Cantor Kaplan, lyric tenor. 7:30	6:30	5:30
WEN (361.2) 9	B'nai Jeshurun Centennial Jubilee banquet. 8	7	6
WKRC (422.3) 10:15	Post Wur-litzer classical series. 9:15	8:15	7:15
KNTR (238) 10	Campus night, U. of California students. 9	8	7
KDKA (309.1) 12	Midnight revue. 11	10	9
KGO (361.2) 12	"The Rainbow," 3-act comedy. 11	10	9
WJAZ (322.4) 12	E. Warren K. Howe's classical program. 11	10	9
WAAMD (243.8) 12	Skyrocket frolic. 11	10	9

WCAE, Pittsburgh, Pa. (461.3), 12:30 p. m., program for day; 8, program, Loew's Aldine theater; 6:30, concert, William Penn hotel; 7:30, children's period; 8, Larkin period, N. Y.; 10, concert, Goodrich Zippers, WFAE.
WCAF, Washington, D. C. (468.5), 6:45-7:45 a. m., exercises, Metropolitan Tower, N. Y. C.
WCAU, Philadelphia, Pa. (277.6), 6:30 p. m., Billy Haes' orchestra; recital, N. Shellenburg and company; Dr. James Davenport, tenor; Virginia Klein, pianist; 8, Marjory Watson, contralto; Florence Neale, pianist; Howard McNeil, tenor; D. Barry O'Moore, the Irish tenor; 9:30, the Musical Chets; 10, Sesqui Centennial hour; 11, the Parolians; 11:30, Clun Dadix review.
WCX, Detroit, Mich. (517), 6 p. m., dinner concert, Book-Cadillac hotel; 8, studio program.
WEAF, New York, N. Y. (491.5), 6:45-7:20 a. m., Tower exercises; 11-11:10, Harriet Spink, soprano; 11:30-11:35, talk, Mayfair Subject Plum Pudding; 11:35-11:40, Harriet Spink, soprano; 11:40-12, Columbia university cooking school, direction of Teachers College; 4-4:15 p. m., Madeline Hulsizer, soprano; 4:15-4:30, Mildred Silverman, pianist; 4:30-4:45, Leslie Arnold, bass; 4:45-5, talk, Mrs. Maude Applebaum; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:30, Mid-week Hymn services, Federation of churches; 7:30-8, Cushman's serenaders; 8-8:30 Larkinites; 8:30-9, pop concert; 9-10, music to be announced; 10-11, Goodrich Zippers; 11-12, Vincent Lopez orchestra, direct from Casa Lopez.
WEAO, Columbus, Ohio (293.9), 8 p. m., "Putting Nitrogen Where It Pays," farm talk, Prof. Firman E. Bear; 8:15, children's story, Uncle Al; 8:30, "Individual Differences and their Measurement," Prof. H. E. Burt; 10, Hotel Fort Hayes hour of music; Mary Holliday trio; C. C. Schiffer, baritone; Robert Der-vinger, tenor.
WFI, Philadelphia, Pa. (395), 1 p. m., Strawbridge and Clothier tea room ensemble; 3, program, Shetwood Country club; 6:30, Bellevue Stratford concert orchestra; 7, Bellevue Stratford hotel dance orchestra; 8, Larkinites; 9, WEAF ensemble; 10, Goodrich Zippers.
WGPP, New York, N. Y. (252), 2:15-2:30 p. m., mirror race; 2:30, results half hourly; 3-3:15, Mrs. Elvira Rosa Geiger, pianist; 2:15-3:30, Bert Dagmar, songs; 3:30-3:45, studio program; 4:45-4, Constantine Ramos, saxophonist; 4-4:15, Hughie Woodford, pianist; 4:15-4:30, Doris Freeman, songs; 4:30-4:45, Frank Galassi, ukulele; 4:45-5, Sylvia Schatz, pianist, elocutionist.
WGPH, Detroit, Mich. (270), 10-12 p. m., the Midnight Mariners aboard the Good Ship Skylark, Skipper and his crew, the Skylark dance band.
WGR, Buffalo, N. Y. (319), 2:30 p. m., WGR's afternoon program; 6:30, Vincent Lopez Hotel Statler dance orchestra, Harold Giesler, director; 8-11, jointly with WEAF, including Larkinites and the Goodrich Zippers.
WGY, Schenectady, N. Y. (379.5), 3 p. m., "Small Kitchen Equipment," Ruth Kellogg; 6:30, dinner program, Ten Eyck concert trio; 7:30, WGY Book Chat, L. L. Hopkins; 7:45, WGY orchestra; 8, U. S. Army band; WBC; 9, Royal hour, Royal Salon orchestra, WJZ; 10, "Europe and Ourselves, Where Do We Stand," Herbert Adams Gibbons; 10:30, WGY orchestra; Matilda Biglow Russ, soprano; 11:30, Stephen E. Boisclair, organist.
WHAR, Atlantic City, N. J. (275), 2 p. m., Seaside hotel trio; 7:30, health talk, Dr. Henry Reik; 8, Seaside hotel trio.

Francis Cooke; 9, Penn Mutual Glee club, William P. Benz, director; 10:05, "Believe in and Invest in Philadelphia," 10:15, Joe Ray and the California Nighthawks.
WJR, Pontiac, Mich. (517), 7 p. m., Jean Goldkette's petite symphony orchestra; soloists; 9, Jean Goldkette's serenaders; soloists; 10, Jean Goldkette's orchestra.
WKAR, Lansing, Mich. (285.5), 7:15 p. m., Radio school; marketing, agriculture, English and soil lectures.
WMCA, New York, N. Y. (340.7), 6-6:30 p. m., Oleott Vail; 6:30-7, Frank Gebbias Red Lion Inn orchestra; 7:15-7:45, Pace Institute program; 7:45-8:45, Larson's orchestra; 9-9:15, Regabuto sisters, pianists; 10-10:15, talk, Harry T. Rainess; 11-12, Ernie Golden and his Hotel McAlpin orchestra.
WNYC, New York, N. Y. (526), 7:10-7:30 p. m., dance program; 7:35-8, dance program; 8-8:15, talk, John B. Foster; 8:15-10:10, Dr. Sydney N. Ussher, talk.
WOR, Newark, N. J. (405.2), 6:15-6:17 p. m., words often mispronounced; 6:17-6:30, sports talk, Bill Wathey; 6:30-7:30, Jacques Jacobs Hotel Shelton orchestra.
WRC, Washington, D. C. (468.5), 10 a. m., women's hour, WJZ; 12 m., organ, Homer L. Kilt studios; 1 p. m., Hotel Mayflower orchestra; 2, Hotel Hamilton orchestra; 7, Smithsonian talk; 7:10, Shoreham hotel orchestra; WJZ; 9:30, Royal Salon orchestra, WJZ, WGY; 10:30-11:30, Meyer Davis' "Swanee" orchestra.
WREO, Lansing, Mich. (285.5), 6-7 p. m., concert, "Speed-Wagon serenaders," "Gold Standard ensemble"; 8:15, Rec broadcasting orchestra, Carl Hall Dewey, director, Thos. E. Metzger, futeist; Rec string quartet; vocal and instrumental solos.
WTAG, Worcester, Mass. (288), 12:05-2 p. m., WTAG orchestra; 8-8:30, Larkinites; 8:30-9, WEAF pop concert; 9-10, program from WEAF; 10-11, Goodrich Zippers.
WTIC, Hartford, Conn. (475.9), 6:30 p. m., music, Hub restaurant trio; 7:30, talk.
WVJ, Detroit, Mich. (352.7), 6 p. m., dinner concert; 8, concert from New York through WEAF.

Central Time Stations
KFMQ, Fayetteville, Ark. (299.9), 8 p. m., "Water, Sanitation and Medicine," Harrison Huley; "Bural Electric Line Service and Rates," W. B. Steiner; "Your Feeling Tone—Do You Want to Get Up in the Morning," Emma Johnson; "Books for Children," E. Purnell Wilson.
KLDS, Independence, Mo. (440.8), 8 p. m., lecture course series, Dr. F. M. McDowell; 8:15, Emily Cox, pianist; Mrs. Rudolph T. Wickman, soprano; Mildred Woolman, violinist.
KMA, Shenandoah, Iowa (252), 11:30-12:30 p. m., RFD program; garden talks, Earl E. May; music; 12 m., flower talk, Lina Ferguson; 6-7, dinner program; 9-11, evening program; Delmonico Dreamers, Walter Nixon, pianist, director.
KPRC, Houston, Texas (286.9), 12 m., station program of music; Houston public library book talk; 5:30 p. m., Uncle Judd's Kiddies' hour; 7:30, Blanchard's dance orchestra; 8:30, Cantor E. Kaplan, lyric tenor; Victor record artist, assisted by the boys' choir of Adath Yeshurun congregation; 9, Gregor Jassel, violinist; Mrs. S. J. Paffen, accompanist.
KSAC, Manhattan, Kansas (341), 9-9:25 a. m., music, talks, agricultural primer, calisthenics; 9:55-10:25.

(Continued on page 20)

Thursday, December 10

(Continued from page 19)

readings, question box; "Planning Today's Meals," 12:35-1:05 p. m., "Darning the Gullies," Claude Dhedd; 4:30-5, Community Civics, high school credit; 6:30-7:30, music; College credit course, Business English; "Fleet Comfort—What Your Feet Have to Say," Alene Hinn; "Electrifying Your Home," Harriet Allard.

AN EVENING AT HOME WITH THE LISTENER IN IN EASTERN TIME

Table with columns: Call, Location, Met., Saturday, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday. Lists radio stations and their broadcast schedules.

12:45, "Farm Crops," Professor H. D. Hughes; 7:30, Dairyman's course; 7:50, program.

Mountain Time Stations
CFAC, Calgary, Can. (435.8), 7 p. m., bedtime travel

Pacific Time Stations
KFWB, Hollywood, Calif. (252), 7 p. m., "Plastic Surgery," Dr. P. Eloy Brown; 7:15, microphone brevities

Friday, December 11
Headliners Today
Eastern 7:15 p. m. Central 6:15 p. m. Mountain 5:15 p. m. Pacific 4:15 p. m.

Friday, silent night for: CHIC, CKNC, CNRC, CNRM, CNRO, CNRR, CNRW, CFMC, KFBU, KFUD, KGO, KLDL, KPRC, KUOM, PWX, WAFD, WAFW, WCBW, WCAO, WCBW, WGBS, WGST, WHAZ, WIP, WJAZ, WEL, WKRC, WLW, WLWL, WOI, WOR, WRC, WRED, WSAI, WSUI, WSMB, WTAM.

Eastern Time Stations
CNRT, Toronto, Can. (356.9), 6:30 p. m., Luigi Romanelli and his King Edward hotel concert orchestra

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Read This to Your Senator

ALTOGETHER, it was a most successful conference which recently concluded its business at Washington. Radio for the present, and even for the future, was well taken care of by the recommendations made by the representatives of the people, the broadcasters and the Radio manufacturers present.

The keynote, announced by Secretary of Commerce Herbert Hoover, in his opening speech at the meeting, was service to the public. "Service to the public," then, shall be the guiding and ruling factor in the administration of Radio.

That is good. Service to the public has proven beneficial, in fact necessary, to the welfare of many large enterprises, and the popular pastime of broadcast listening should prove no exception.

"He Who Serves Best Profits Most," is the motto of the Rotarians. They, and kindred organizations with that thought in mind, have proven its truth.

The public interest must be served. The conference resolutions, which have been given wide publicity in this and other publications, are purely cooperative in nature. For four years Radio has been regulated only by pure cooperation of the interested parties. But now we need some sort of law—now that we are fairly sure of what is wanted—to make the conference's rulings stick.

And before we can have a law we must go to the senate and house of representatives with a bill. This bill must be passed by both houses and signed by the president.

Representative White of Maine, sponsor of the Radio bill for several years back, will present a new or amended bill shortly after congress convenes December 7.

Will it be passed? What selfish interest will block its path? Or will the bill, as it should, be passed by both houses with overwhelming majorities and receive the president's signature?

We hope, for the benefit of Radio that the latter course will be the case. We should not want to begin an investigation, in the "interest of the public"—note the phrase—as to why certain congressmen voted against, amended, or voted down the bill. If it passes and is signed we will be happy and content.

If it DOES NOT, we shall get busy and investigate the records of the congressmen "conscientiously objecting" to what the Radio industry, the Radio public and the broadcasters have asked to be made into a law of this great country.

Selfish interests of congressmen, be they senators or mere representatives, cannot be tolerated when the interest of the nation's public is at stake.

Buy the Kiddies Their Set

BUY the kiddies their own set so that they can listen in whenever they want and to whatever they wish.

Radio is the greatest potential educational medium ever invented since the printing press. It is greater in one sense for the kiddies, because the average child can understand the spoken word before he or she can read. The bedtime story or lullaby hour of nearly every station has proven itself indispensable, and many a mother has been caused to write applause letters to the lullaby heroes and heroines to satisfy the worship of the little ones.

But childish fingers and curiosity have wrecked many a perfectly good receiver. If the kiddies had their own little set, the family Radio receiver's (and tubes') life would be lengthened, we believe.

Besides, the kiddies can't listen in with the older folk and enjoy what they do. Vice versa, we grown-ups sometimes want to hear other than a continuous stream of children's programs.

Buy the kiddies their own little set!

Superpower and Supersuperpower

ONE year ago we were thrilled to learn that a half a dozen or more broadcasting stations were planning to install five thousand watt stations. Now the style is trending toward fifty thousand watters. WGY and WJZ are at it with their giant stations and many more similar plants will follow. Some day, perhaps, the supersuperpower stations will get enough power to cut through the summer reception interferences.

RADIO INDIGEST

"Silent Night"

(With due apologies and all respect to the poet mentioned.)

The whistle's blown the end of parting day,
I've hied me home to old four thirty-three,
With switches, knobs and dials I will play
To find what wintry air will bring to me.

Now fades the glimmering landscape on the sight
And "Silent" eve forecasts DX galore,
With pencil, log, my pouch and Jimmy Pipe,
I'll tune them all and then I'll try for more.

Full many a song of purest tones and theme
The unseen waves of ether clearly bear,
With quips of wit and opera too, and melodies serene
They'll come to me from out the frosty air.

But as I turn with care the knobs,
No voices do I hear,
Tough luck has come to me in gobs,
'Tis "silent night" no fear.

If Thomas Gray could scan this lay,
He'd surely turn his head,
Then he'd reverse, my thoughts are worse,
The Blank Blank "A" is dead. D. B. M.

Our Own Q and A

Dear Indi: What to do? Being an old reader and faithful follower of Radio Digest, I am at loss how to follow this hint from your October 31 issue.

"Gas pipes have rubber and other insulting materials at the joints."

If I should connect my ground wire to a gas pipe do you suppose I would get any of that insulting material over my set? Please advise me on this because if so, I do not want to connect my ground to a gas pipe when I have a lot of company. A. S.

We have taken this matter up with John G. Ryan and his advice is that you only use this connection when the landlord calls to complain about your aerial on the roof being unfit for use as a clothes line on account of the corrosion on it turning the clothes green.

A Radio Tourist

In winter when the north winds blow
And drift the thickly falling snow,
Far from their chilly blasts I roam,
Although I do not leave my home.

I travel far by Radio,
And move to San Antonio
Where lingers still the summer time,
And whence come songs in Spanish rhyme.

Los Angeles to Florida's coast
I travel with the tourist host:
The snow may fall outside my door,
But inside summer reigns once more.

GEORGE.

Your poem sure hits an old sunshiner like Indi, George. We once lived in a land of perpetual summer and for some reason or other we returned to this city of crowded air lanes. Now everytime we hear the rustle of the palms coming over the loud speaker we long for sunshine, the Southern Cross, and the land of manana.

How About Solomon?

Dear Indi: This was copied from one of the papyrus rolls found in the Valley of the Kings. Please publish it for the benefit of the history students who read your column.

Old King Tut was a Radio nut,
And a merry old nut was he,
He called for his grid,
He called for his plate,
And he called for his Shebadyne III.

SCOTTY.

Recent reports have it that King Tut was only fifteen years old when he signed off. It is rumored that an old copy of the Radio section of the Daily Egyptian states that he was one of those boy "hams" who made the air sing with a spark set and that he got his early in life. When they planted him in that tomb they encased him in gold so he would not reradiate.

We Know Him!

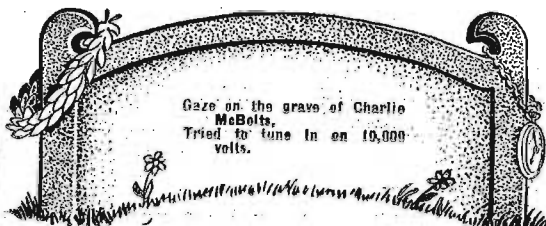
Dear Indi:
Story of WSM (Nov. 7) mentions the "lovely announcer's table"—Now, let's have a contest for the "loveliest" announcer!

MAMA HAYMES.

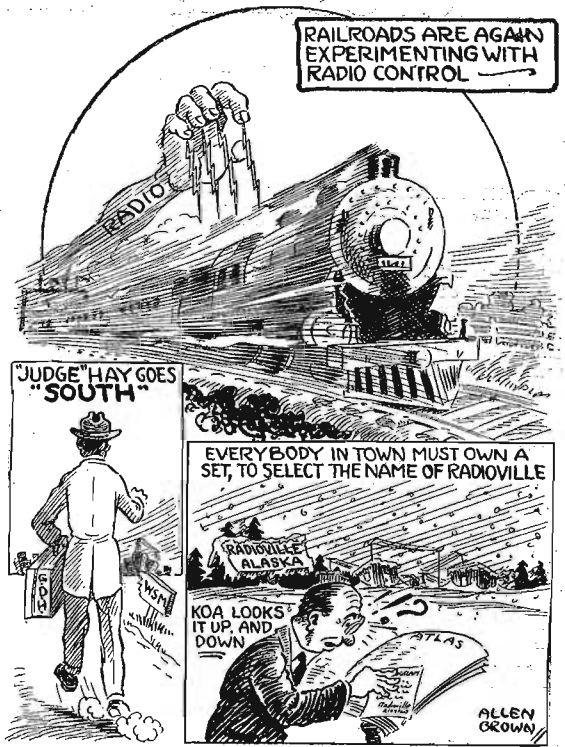
Good idea Mama, but we think we should bar those with those cute little mustachios that get caught in the mike.

Of all sad words that have been spoken
Are these—no concert, our tubes are broken.

RADIO EPITAPHS NO 5 BY THE THIRD TROMBONE PLAYER



News of the Week



Condensed

BY DIELECTRIC

When WJZ came through the air with its tremendous power there were some despairing fans abroad in the neighborhood of New York City. No possibility of tuning them out for any station except on a very low wave length, they seemed to think. The inability of a great many fans to get out of that metropolis with their receiving sets, because of continuous nightly programs from a group of broadcasting stations, already made silent nights a subject of intense interest. WJZ's transmission on high power apparently disturbed very little the quality of music or speech and permitted reception where before it had been very weak or unobtainable. Silent nights in New York, on some workable basis, are certainly needed and may be secured by persistence of the listeners.

KDKA, Pittsburgh, possesses an orchestra in their little symphony which will stand comparison with any of the studio orchestras in the country, surpassing some of them by a fair margin. Their playing of Suppe's "Light Cavalry" was particularly enjoyable in a program which comprised many popular numbers. Another number of unusual merit was provided by two members of the orchestra, a trumpet duet of "Sweet and Low," that for beauty of tone emission was all one could ask. Should any of you readers be without first hand information of the band of musicians mentioned I suggest you watch for their next appearance.

Armistice Day was suitably observed by almost every station on the air both in music and speeches commemorative of this day in history. Those tuned to WNAC, Boston, in the evening heard a program arranged and presented through the efforts of the Veterans of Foreign Wars. As in most other instances, the selections chosen for the entertainment were popular songs during the war and brought back memories to thousands of listeners in. Dance numbers of the usual order followed.

As the New York stringed quartet played gracefully through a Haydn number it seemed as if the four instruments were but so many strings of one, so perfect the ensemble and certain the interpretation. These Steinway concerts, coming originally through WJZ, New York, are one more evidence of a growing realization of the importance of utilizing Radio to further musical appreciation. This is something one may, and does, refer to days after the concert with keen pleasure. So thorough a musical artist as Ernest Hutcheson could have given no greater pleasure than to have chosen the master works that he did and perform with the ease and surety characteristic of this pianist.

A medley of airs of purely American origin played with spriteliness by an orchestra in the studio of WEBB, Chicago, was a feature of merit, as was the singing of that dramatic song "There is no death." These were the leading numbers of an otherwise ordinary program.

It is quite possible that the Fox theater programs which come to us through WOO, Philadelphia, will include some features of real value such as the Ten Royal Hussars, whose singing is excellent. Violin and cello solos were good but nothing more. The single detraction to this particular broadcast was the announcer's lack of familiarity with music and composers, otherwise we would not have heard that Ave Maria was composed by "Gu-nod." These programs are to be a regular feature on the schedule of Wana-maker's store in the Quaker City.

Interesting and Simple Explanation of Radio

Chapter VI—More Efficient Tuning and the Variable Condenser

By H. G. Tanner, Associate Professor, University of Oregon

THE construction of a variable condenser is quite simple. It usually consists of two or more sets of metal plates facing each other, with a means provided to move one set away from the other, or sideways so that the areas exposed may be varied. By connecting the two sets of plates to the two ends of a coil the rate at which electrons will freely oscillate in the coil can be varied.

The functioning of a condenser might be made clearer if the illustration were given first.

Were you ever served a cup of hot coffee and in hastening to cool it blew across the top of the cup? Perhaps during some idle moments you blew in puffs and watched the waves spread to the opposite side and be reflected back. If the puffs were well timed the waves would be quite high. (The author never did this himself but saw someone else do it!) The significant thing is that resonance is produced by the reflection of the waves in tune with the puffs.

Developing Resonance Waves

Consider a trough containing some water, and that some means be provided to blow air upon this water at regular intervals, first in one direction and then in the other. If the trough be just the right length, resonance waves will develop, or if not, the length can be adjusted to suit these puffs.

This is but another illustration of tuning by the adjustment of length. But suppose the length of the trough cannot be changed conveniently and that it is too long to develop resonance. Its effective length can be shortened by bending it upward. A wave of water approaching an end will build up a head a little earlier than it did before and consequently start back sooner.

Regulation by Abruptness

By making the abruptness of the ends of this trough variable the natural period of the water oscillations can be regulated between fairly wide limits.

An electrical condenser of the variable type just described is a device by which the abruptness of the ends of a wire can be regulated. (Of course the word abruptness is being used here in an electrical sense and not physical.) The two ends of the wire whose abruptness is to be controlled are connected to the two sets of condenser plates respectively.

How Condenser Works

In figure 4, H is one set of plates and I the other. They are connected to the two ends of the coil EF. When an ether wave strikes the antenna A and if BC

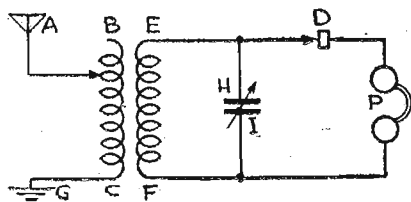


Figure 4

is properly adjusted as to length, resonant oscillations of electrons will be set up in the circuit ABCG. It will be noticed that the coil BC has the abruptness of its ends modified by their connection to the ground and antenna. For this reason one frequently reads that the antenna and ground act like a condenser, which is true.

The electronic oscillations in BC develop alternating ether puffs which blow electrons in EF into oscillation. These oscillating squads of electrons are virtually waves of electricity. These waves of electrons splash into the plate H, build up a head just like the water waves did in the trough, and then run out through the coil EF, which is the trough, to the plates I, and return. If the abruptness of the coil (area of the condenser plates exposed to each other) is just right, resonant waves of these electrons are developed in tune with the ether puffs coming from the coil BC, which in turn are in tune with the waves coming from the broadcasting station.

Condenser as a Reservoir

A portion of the electron waves in the circuit HEFI splash over through the detector and phones with the results already described.

In closing this discussion of a condenser, attention is called to the common comparison of a condenser to a reservoir. This analogy is correct provided one always has in mind a reservoir above the piping system.

The position of the reservoir (abruptness of the pipe system) is the important consideration. The cubical content is but a confusing detail. The emphasis fre-

quently placed upon a condenser "holding" electricity is unwarranted.

Because of the efficiency of a transformer as compared with a variocoupler, and because a transformer can be tuned with a condenser, more energy reaches

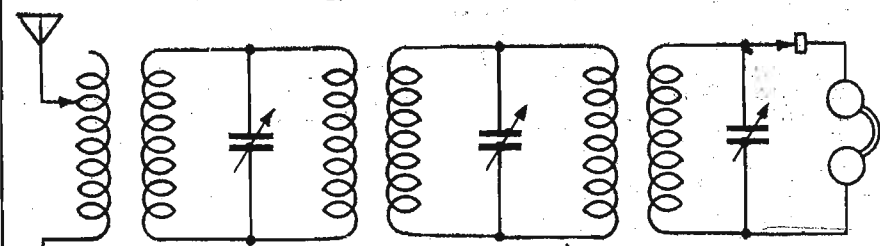


Figure 5

the phones. This permits more circuits of like construction to be added with corresponding increase in selectivity. Such a circuit might be as in figure 5.

Although more efficient than some circuits there are still big energy losses and the gain in selectivity when employing

too many circuits is apt to be offset by the decrease in signal strength.

What is really needed is a means of pumping some additional energy into these circuits to make up for the losses, or better yet, if there could be more

energy added than to make up for the losses the very faintest of signals could be made comfortably audible. We could add as many circuits as we pleased and our selectivity worries would be over.

Vacuum Tube Adds Energy to Set
For many years Radio receivers had to

depend entirely upon the energy absorbed from the waves by the antenna to actuate the phones after passing through the various circuits. The only thing to do was to make the set as efficient as possible and to build gigantic sending stations in order that there might be sufficient energy at the receiving station. Finally an American, Dr. Lee De Forest, made the epochal invention of the three electrode vacuum tube.

Although the major amount of credit is due Dr. De Forest, several others have made very important contributions to the development of the tube, especially Thomas Edison, Dr. Fleming, an English scientist, and Dr. Irving Langmuir, an eminent American chemist and electrical expert.

(Vacuum tubes and amplification will be explained next week by Mr. Tanner in the concluding article of his excellent series on "painless" Radio.—Editor's Note.)

A variable B battery will help get the correct B battery potential for a soft detector tube.

Earn \$50 to \$200 a Week in RADIO

You can! Hundreds of ambitious men are already earning thousands of dollars in this wonderful new industry—you, too, can get your share. Mail coupon below for Free Book which describes fully the amazing money-making opportunities in Radio and tells you how YOU can earn from \$5,000 to over \$10,000 a year.

THE astounding growth of Radio has created thousands of big money opportunities. Millions of dollars were spent during the past year on Radio, and thousands of young men are needed right now to meet the ever-increasing demand of work. Men are needed to build, sell and install Radio sets—to design, test, repair—as Radio engineers and executives—as operators at land stations and on ships, traveling the world over—as operators at the hundreds of broadcasting stations. And these are just a few of the wonderful opportunities.

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become a Radio Expert, by our marvelous new method of practical instruction—instruction which includes all the material for building the latest up-to-date Radio apparatus.

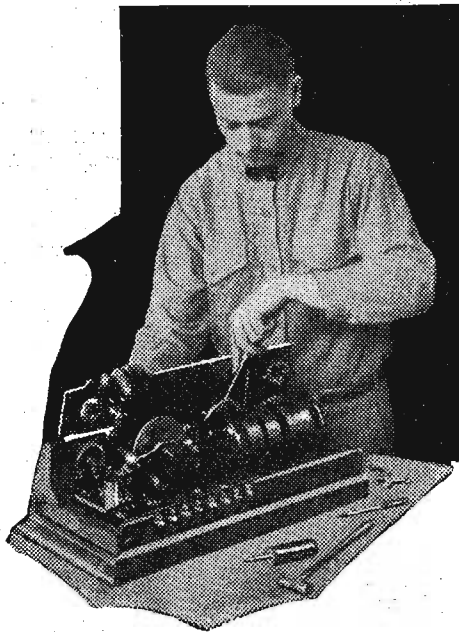
Scores of young men who have taken our course are already earning from \$75 to \$200 a week. Merle Wetzel of Chicago Heights, Ill., advanced from lineman to Radio Engineer, increasing his salary 100% even while taking our course! Emmett Welch, right after finishing his training, started earning \$300 a month and expenses. Another graduate is now an operator of a broadcasting station—PWX of Havana, Cuba—and earns \$250 a month. Still another graduate, only 16 years old, is averaging \$70 a week in a Radio store.

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Take advantage of our practical training and the unusual conditions in Radio to step into a big paying position in this wonderful new field. Radio offers you more money than you probably ever dreamed possible—fascinating, easy work—a chance to travel and see the world if you care to, or to take any one of the many Radio positions all around you at home. And Radio offers you a glorious future!

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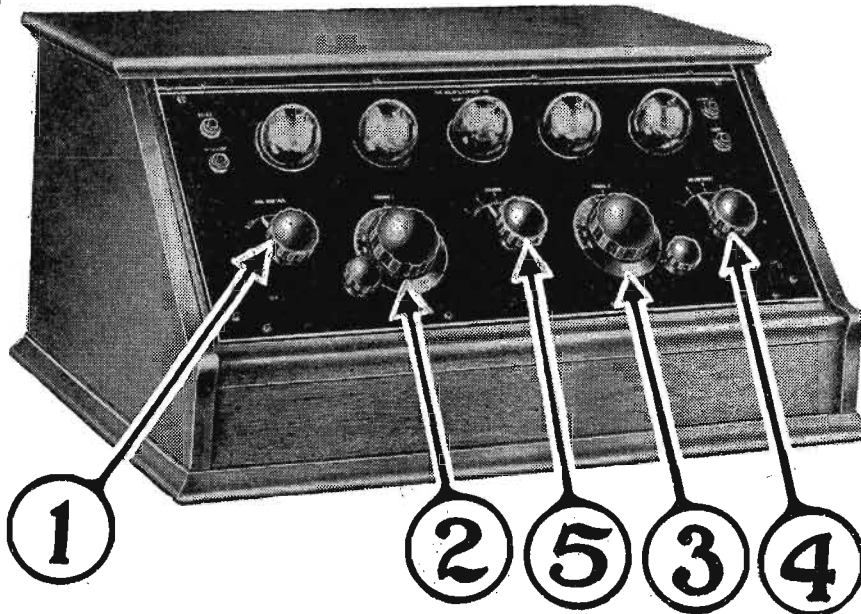
OPERATING AND TROUBLE SHOOTING

OPERATING and Trouble Shooting, is a Radio Digest feature the purpose of which is to give practical information on the operation, care and cure of simple troubles in every kind of receiver. Standard Radio receivers of wide distribution and use are studied from the standpoint of instructions for installing and connecting, tuning and operating, and remedying little difficulties. The suggestions below, if executed faithfully, will make winter broadcast listening yield all there is to yield to the reader and give your set a fair chance to show its worth.

For the Owner of a Kennedy Model XV Receiver

KENNEDY engineers have long known that tuned radio frequency amplification used in a Radio receiver would have two especially desirable advantages, namely, ability to pick up very weak signals and great selectivity. Many of the sets on the market today, embodying some variation of this system are, however, rather too complicated for the average person, as they require three principal controls for tuning-in stations. Long development and experimental work in the Kennedy factory finally produced in the Model XV a Radio receiver that anyone can operate regardless of whether he or she has ever operated a set of any kind before.

The controls necessary to tuning the Model XV have been reduced to a minimum and are so connected in the circuit



that even though no previous instructions have been given or read anyone can tune in and receive different stations without one interfering with the other; something that can be done with few other five tube tuned radio frequency receivers. The Model XV Kennedy set is truly a two-handed set; and uses but two tuning controls. These are always set about the same for any given stations; therefore, it is only necessary to log the settings for one dial in order to accurately record a definite station. This setting will always remain the same even though different antennas are used.

There are six principal features on the Model XV: the antenna is loosely coupled to the first radio frequency tube and this coupling is variable, giving extreme selectivity when desired. Both stages of tuned radio frequency amplification are controlled by one dial; the new Kennedy method of utilizing tuned radio fre-

quency enables the tubes to operate at maximum efficiency at all wave lengths and under all conditions. A jack is provided so that a loop antenna may be used; this makes the set a combination for either antenna and ground or loop. A control is provided so that volume may be regulated; this control is a coupling coil in the second step of radio frequency and uses no current as is the case in many sets where a potentiometer is used for volume control. This receiver cannot be made to howl or squeal regardless of the tubes used or how the controls are operated. Model XV functions equally well on either dry cell or storage battery tubes, requiring no readjustment other than the insertion of adapters.

The set is constructed on a rugged aluminum frame minimizing the chance of anything getting out of alignment and

causing trouble. It has the familiar Kennedy sloping panel, that makes for easy tuning, of polished black formica and engraved. Controls are symmetrically placed and the unit is mounted in a solid mahogany cabinet with piano finish.

The controls of the Kennedy receiver are: (1) Tube control; this is a rheostat that regulates the current supply to the filaments of all the tubes. (2) Antenna tuning condenser; this tunes the secondary circuit when operating with antenna and ground and tunes the loop when the loop plug is inserted in loop jack. (3) Radio frequency control, which tunes two stages simultaneously. (4) Selectivity control, which makes it possible to adjust the set to fit local conditions and the antenna with which it is to be used. (5) Volume control that enables the user to bring the volume up to tremendous strength yet cannot cause the set to oscillate or radiate.

Space is provided within the cabinet for two forty-five volt batteries or four twenty-two volt units, and if dry cell tubes are used three additional 1½ volt cells can be housed inside without crowding. All binding posts are mounted on a Bakelite strip inside the cabinet and to the rear of the apparatus making them convenient to get at, yet out of sight.

Connecting the Receiver

First connect the antenna and ground to their proper binding posts, connect the positive and negative leads of the A battery, then the negative B battery lead, the 22½ volt positive B lead and the 90 volt positive B lead. Now insert the plug connected to the loud speaker in the jack marked stage 2 and insert the tubes in the sockets. The order of the tubes is as follows, looking at the set from the front: the first tube socket at the left is the detector, the next is the second radio frequency, the third is the first audio amplifier, the fourth is the first radio frequency amplifier and last is the second audio amplifier.

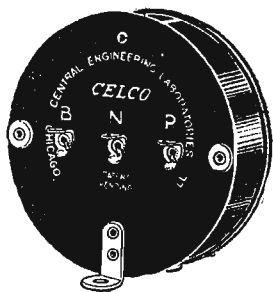
Operation of the Set

To operate the set first turn the knob 1 to the right about three-quarters of its

(Continued on page 26)

CELCO PRODUCTS

Specified for
DX-SEVEN D-COIL RECEIVER



D-COIL

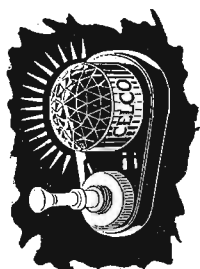
Intermediate Frequency Transformer

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NO SHIELDING NECESSARY

5 Units
INCLUDING COUPLER
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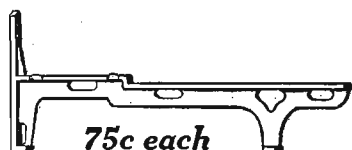
There need be no more annoyance over tubes burning all night if a Celco Battery Switch is in your set. The jeweled pilot light emits a soft golden glow that makes it as hard to forget to turn off as it is easy to turn on. Simple to install—only two holes to be drilled in panel, one for pilot light and one for switch.



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Designed especially to accommodate the new type of tubes when used with a 7" panel and to provide a place for the C-Battery.



75c each

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- DENVER.....1641 Stout St.
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SUPERTRON

A SERIAL NUMBER GUARANTEE

Counterphase: Perfect Bridge Tuned R.F. Set

Part II—Drilling and Assembly of Panels

By James McDonald

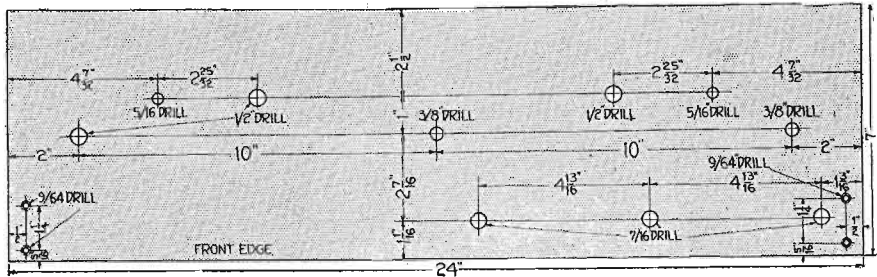


Figure 5

DUE very largely to the fact that most of the wiring of the radio frequency portion of this set is above the sub base and all units on the panel are of the single hole mounting type, there is comparatively little drilling. To the newcomer at set building it may seem like a great deal but there really is but little when the writer thinks of some of the sets he has put together.

are accustomed to making their templates from small reproductions or those who wish to try it for the first time, the writer is presenting these small diagrams with this article. Each must be enlarged to full size with ruler and pencil and a little care is necessary if you want the parts all to go on without trouble. Figure 5 is the layout for the front panel. Considering that illustration, and

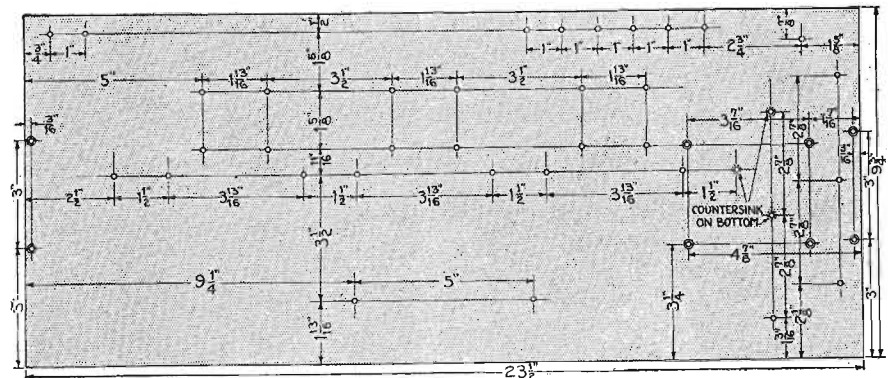


Figure 6

As usual, Radio Digest will have full size drilling templates for those not so sure of their ability as draftsmen, which may be obtained by writing to Dept. 5 Radio Digest, 510 North Dearborn street, Chicago, and asking for the Counterphase blueprints. With the letter, enclose 25c in cash, stamps or M. O. For those who

reading from left to right, the two holes in the lower left corner are for one of the Benjamin brackets which support the sub base, while the large single hole above them, and 2 inches in from the edge, is for the Carter switch. Above it and further to the right are two holes for the first of the B-T twin condensers. The shaft hole

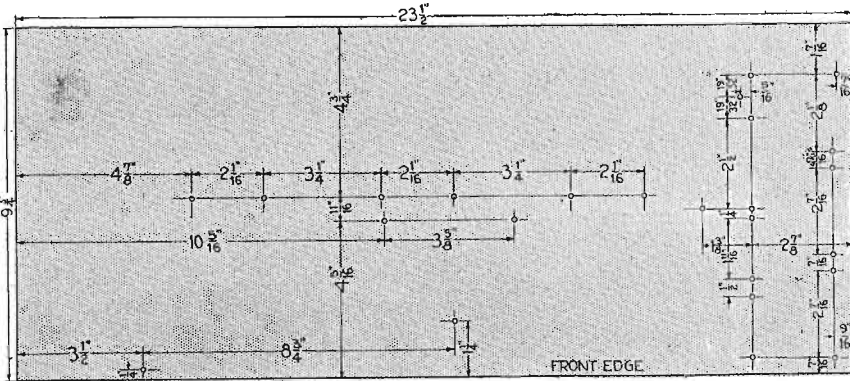


Figure 7

is the larger of the two while the 5/16-inch hole is for the vernier control of the front condenser. In the center of the panel, and on a line with the switch hole, is the place for the dual resistor which is part of the Counterphase kit.

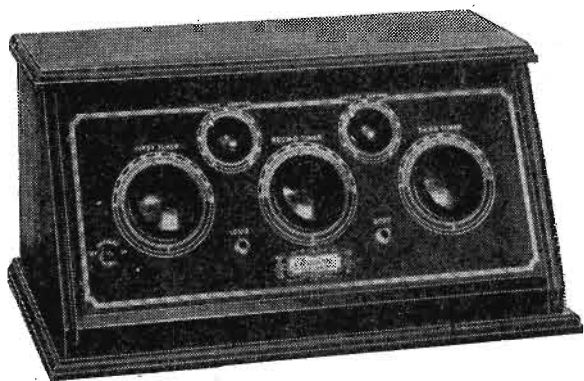
Two more holes at the right are for the second B-T twin while the hole which balances that for the switch is for the Carter Imp rheostat. In the lower part of the right half of the panel are holes for the filament switch, first stage jack and final output jack and the last two holes are, of course, for the other Benjamin bracket. The 9-point Carter switch is to be placed with the rotor terminal swung up slightly to the right as, if it were placed squarely at the bottom, the sub base could not come tight up against the front panel.

Two front panel holes have purposely been omitted from the drawing so they will not be put in if not needed. Dials are the only item on this set in which there is any leeway. If you do not have dials, get

the Mar-co as specified and drill a hole with a 9-64 or 5-32 drill just 25/32 inch below shaft hole center for each of the B-T twins. If you have dials already, a different hole, as shown on the slips with those dials, will be necessary or possibly none at all. The Mar-co pin holes are not to be countersunk.

To use either the Radio Digest template or that which you may make yourself, trim it close to the outer edge all the way around and lay on the front surface of the panel. It can be temporarily secured against slipping either with a drop of paste in each corner or with small "C" clamps. Lay panel and template flat on a solid surface and, with hammer and center punch mark the center for each hole. One moderate tap of the hammer should be sufficient for each. Be careful on the placing of the center punch, as all the accuracy of your drawing will be lost if holes are not started exactly where they

(Continued on page 26)



MacMillan received and sent with Thordarson Transformers

If you were commissioned to explore the polar regions, you too would be very particular to select the best equipment—especially in radio, your sole means of communication.

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The wisdom of MacMillan's choice is further confirmed by the fact that year after year, leading builders of fine sets—makers of fine instruments especially noted for distance and superb tone qualities—use more Thordarsons than all competitive transformers combined.

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Give this set at Christmas time. Its rare performance and appearance both bring such satisfaction and joy that it truly breathes the very spirit of Christmas.

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Price \$85.00 with radiotron tubes. Tubes include either five UX-201A, or four UX-199 and one UX-120 power tube. Can be used with either dry cell or storage batteries.

We also sell seven tube loop sets, complete—Nothing additional to buy.

THE CLEARSTONE RADIO COMPANY
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CLEARSTONE Complete
RADIO SETS

"COUNTERPHASE" SET

(Continued from page 25)

should be. Look the sheet over carefully before removing template to be sure none are missed.

The same procedure is to be followed when laying out figure 6 and getting the holes in the sub base. The two holes in the rear left corner are for aerial and ground binding posts, in that order. The pair of holes close to the left edge are for the flange on the Benjamin bracket. There are six holes on a line and 2 1/2 inches in from the rear edge, and placed in pairs. These are for the mikro-mikes and the end with the adjusting screw on top is to be placed at the right in each case.

In front of each pair of holes is another pair, which three pairs are for the Cutler-Hammer sockets. Place these with G and P terminals to the rear. In front of these, 1 1/16 inch, is a long horizontal line on which are four pairs of holes, each pair 1 1/2 inch apart, for the torostyle coils. That which does not have a separator within the coil, about 1/4 way around, is to go to the left while the choice on the rest do not matter. We now come to the audio transformers which go underneath the sub base. First, locate on figure 6 the hole 3 1/4 inches from front edge and 4 1/2 inches in from right edge. Got it? To the right of that hole 3 7/16 inches is another; both are countersunk on top. The 2.2-1 transformer is secured beneath sub base by these holes with P and B terminals toward the front.

Straight back from each of these holes about 2 inches is another, and this new pair of holes is for the 4.7-1 transformer, also mounted with P and B posts forward. Close to the right edge of this sub base are two countersunk holes 3 inches apart for the flange of the second Benjamin

(Continued on page 30)

the little knobs at the right and left of the tuning dials 2 and 3. Just push them in lightly and turn. By accustoming oneself to using them instead of the larger dials one will develop and get a more sensitive "feel" and will not pass over distant stations while tuning.

The first thing to do when using the Model XV is to get familiar with the controls and practice tuning out local stations. After carrier wave of a station has been picked up adjust the selectivity control by moving it to the right; as this control is moved, the station will get weaker so that dial 3 will have to be readjusted slightly either to the right or left. The selectivity control 4 has no effect on control 2 so it is not necessary to retune this control after it is once adjusted to its correct position.

The degree of selectivity attained by the operator of the set depends upon the adjusting of control 4; this should be made with great care, especially in the metropolitan districts where four or more powerful broadcasting stations may be operating at the same time. The Model XV will positively "go through" the locals and pick up distant stations regardless of where the set may be.

Aerial Installation

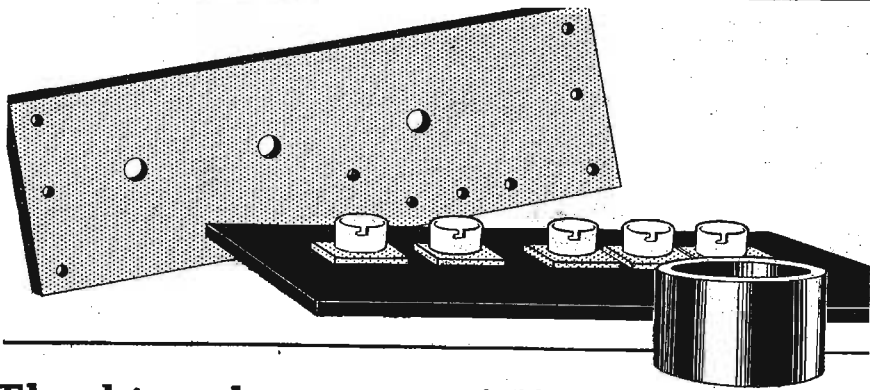
To obtain best operation of this or any receiver, an outdoor antenna suspended well above the ground should be used, its length not less than 50 feet nor more than 150 feet, if a single wire is used. Several wires supported by wooden cross-pieces, may, of course, be substituted for a single wire antenna, in which case it may be somewhat shorter than the dimensions given. All wires must be carefully insulated at the points of support by means of the commonly available antenna insulators. The part of the antenna known as the lead-in, which runs from the antenna proper to the receiving set, should be no longer than is necessary. Where it passes through the walls of the house, use should be made of some form of insulating tube, and wherever supported along the sides of the building, insulating cleats are necessary. Where it is impractical to erect a good outdoor antenna, wires inside of the building can be substituted at but a slight loss of range.

If no other type of antenna can be installed, the electric light or telephone wires may be found useful. In such cases, so-called socket antenna plugs are necessary.

OPERATING KENNEDY 15

(Continued from page 24)

possible rotation and, if connections have been rightly made, the filaments of the tubes will light. Now place the knobs 4 and 5 at 1 on their respective scales, the left hand on dial 2 and right hand on dial 3. Turn both over slowly keeping them at approximately the same numbers on the dials. The better way to tune is to use the verniers; they are



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DEALERS: Home set builders know and prefer Formica. It has been a highly profitable account for radio jobbers and dealers everywhere.

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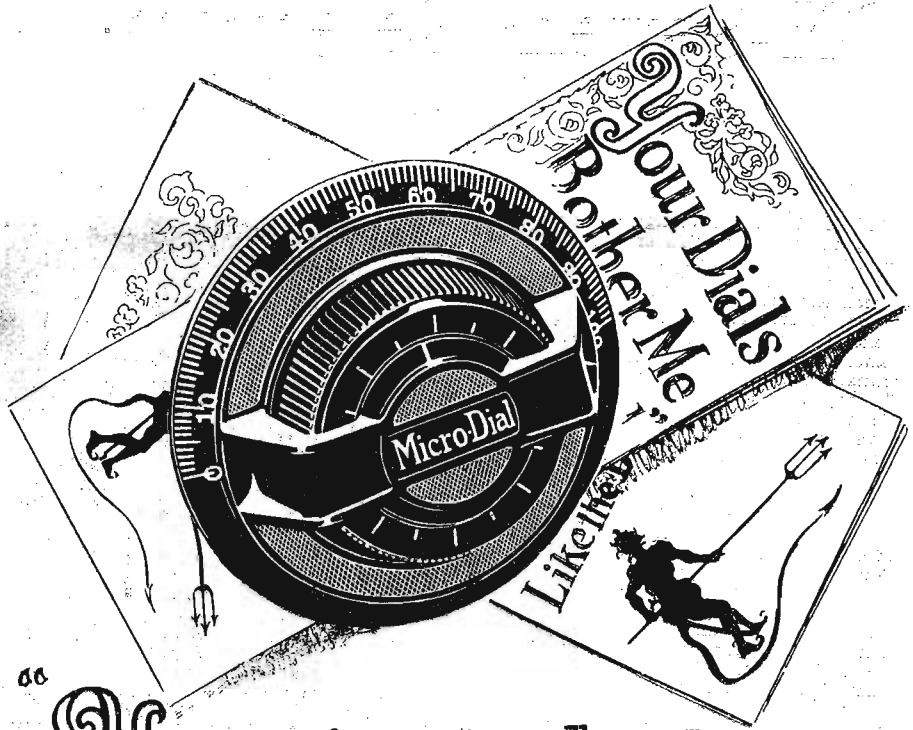
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Part III—Six More Holes and the Wiring

By John G. Ryan

IN STUDYING over figure 3, which was part of last week's article, the writer noticed that two dimensions on the lower part of that figure were omitted, which are essential to the placing of the transformers. The lower part of that illustration shows the small, vertically placed panel on which the Celco intermediate transformers are mounted and, across the top are four holes $3\frac{1}{2}$ inches apart. No dimension was given as to how far from the top edge they are to be. This distance is $\frac{1}{8}$ inch. The four holes near the bottom edge are also $\frac{1}{8}$ inch from that edge.

With this lower line drawn on your template, put four more holes on it, in addition to those shown, for the wiring. Working across from the left, the first is to be $4\frac{1}{8}$ inches from the left end, the second is to be $\frac{1}{8}$ inch from the first hole. The third goes 6 inches further to the right while the fourth goes $4\frac{1}{2}$ inches from the third. These will, when wiring, pass plate and grid leads. The fifth hole is to be in the upper left corner and $\frac{3}{4}$ inch from the left edge and $\frac{1}{8}$ inch from top edge. The sixth hole is also $\frac{1}{8}$ inch down and is 2 inches to right of the fifth.

Referring now to figure 5, you will note in the lower right corner, quite a vacant space to the right of the last intermediate transformer. The Daven Leakandenser is to be mounted on the back of the transformer strip so that it projects back into that space. The fifth and sixth holes mentioned in the preceding paragraph are used for mounting the two clips with the Leakandenser. The Dubilier .10 mfd. bypass condenser is mounted on the front side of the strip, flat against it. Referring to figure 5, the terminals are to the left and one of the mounting lugs is slipped under the nut holding the third intermediate transformer from the left. The Dubilier grid condenser, with clips is mounted on the under side of the tube shelf behind the oscillator coupler by loosening the nut on the machine screw which holds the Amperite on the upper side. This Amperite is just in front of the first tube socket from the left, looking at the set from the top with panel toward you. This will put the grid condenser squarely behind the oscillator coupler.

1. The first wire to put in is in the negative filament circuit. With the rear of the set toward you, a wire is put in on under side of shelf from the fourth binding post from the right, going forward between under side of shelf and the transformer strip, then to left until opposite filament switch, forward and down to lower terminal on the switch.

2. From upper terminal of switch proper, next wire parallels the first along under side of shelf but continues straight across to the Amperite at right end. Remember, all directions as to right and left are with rear of set toward you. This wire we are putting in goes up through hole at left end of Amperite.

3. Where wire number 2 passes under right end of the other Amperite, that behind the audio transformer, run a short extension up through hole to the Amperite.

4. On upper side of shelf, run short wire back from left end of left hand Amperite to negative terminal on Benjamin socket nearest to left end.

5. Run short wire back from right end of right hand Amperite to negative terminal on the socket nearest right end of shelf.

6. Where wire number 2 passes back of the rheostat, run a lead from that wire toward panel and down to left terminal of rheostat (still looking at set from rear).

7. From negative terminal of second socket from right end, drop wire through the eyelet and across on under side of shelf to negative terminal of sixth socket. Wire goes up through eyelet.

8. Where this wire passes under the negative terminals of third, fourth and fifth sockets from right, run short wire from it up through eyelet to those terminals.

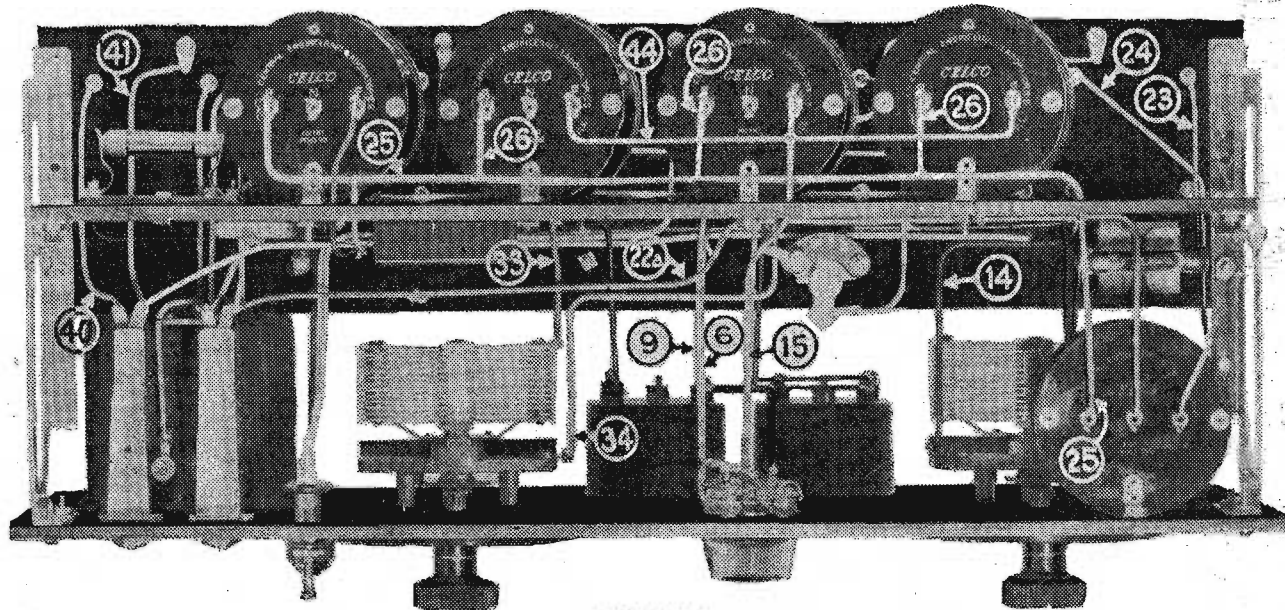


Figure 7

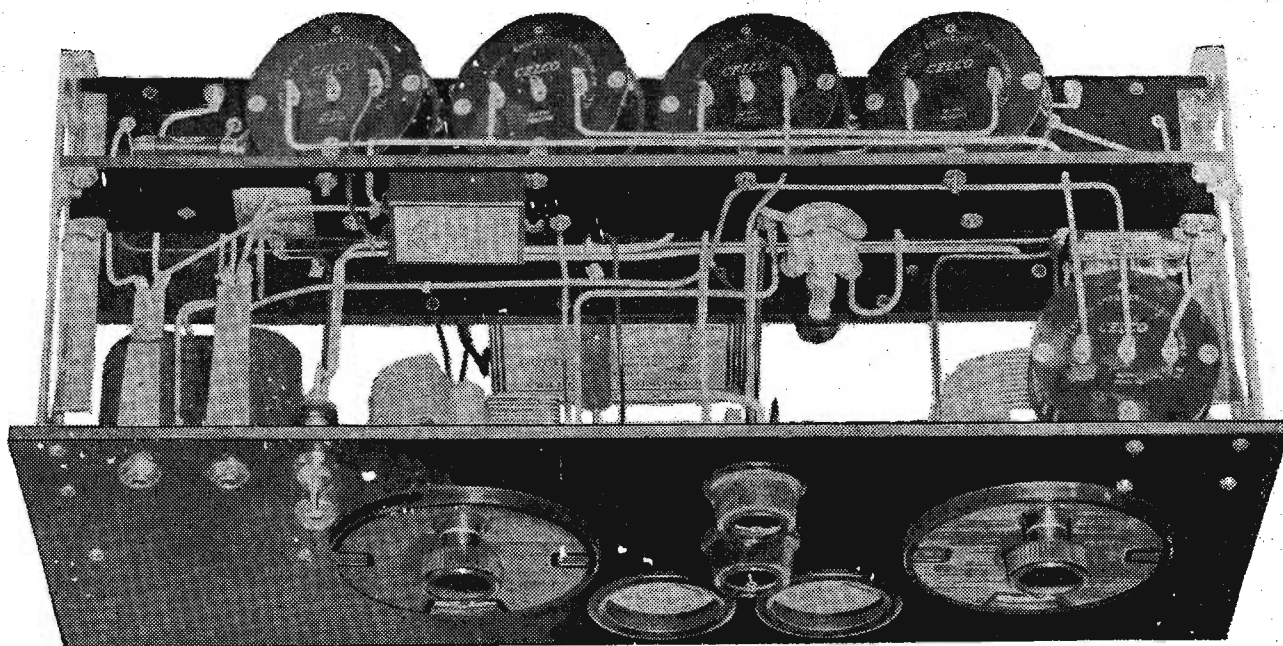


Figure 8

9. The right terminal of rheostat is to be connected to wire 7 by wire paralleling wire 6 part of the way.

10. Where wires 2 and 6 come together run a wire up through shelf to right end of the C battery (the plus binding post).

11. From left terminal of rheostat run wire straight up to left terminal of potentiometer.

12. From plus terminal of socket at left end of shelf, run wire across in front of transformer strip to plus terminal of socket at right end of shelf.

13. Where wire 12 passes under the plus terminals of the five intervening sockets run a short lead up through each eyelet to the plus terminals of those sockets.

14. On the front end plate of the variable condenser at right end of set just above oscillator coupler, there are two soldering terminals. From the one at left side of plate run wire straight down and back to wire 12.

15. From wire 12 run a wire forward and up to the right hand (plus) terminal of the right hand meter. Run wire across to right hand terminal of the left meter. Run wire down from this last

named terminal to the right hand terminal on the potentiometer. From left hand terminal on right hand meter run wire to wire 7.

16. From left terminal on left hand meter run wire down, beneath shelf and back to transformer strip, to left, and back to negative B binding post, fourth from right at rear edge of shelf. (Passes between upper edge of transformer strip and shelf.)

17. At top of the combination filament switch and lamp there is a third terminal.

Run wire straight back from this to wire 12.

18. The Dubilier fixed .002 mfd. condenser is placed against front surface of transformer strip with terminals vertical so that upper terminal is soldered to the joint of wires 17 and 12. At the same time run short wire to upper terminal of the 1.0 mfd. bypass condenser. From the upper terminal of the 1.0 bypass condenser drop a wire to the hole just to right of the transformer mounting screw.

(Continued on page 28)

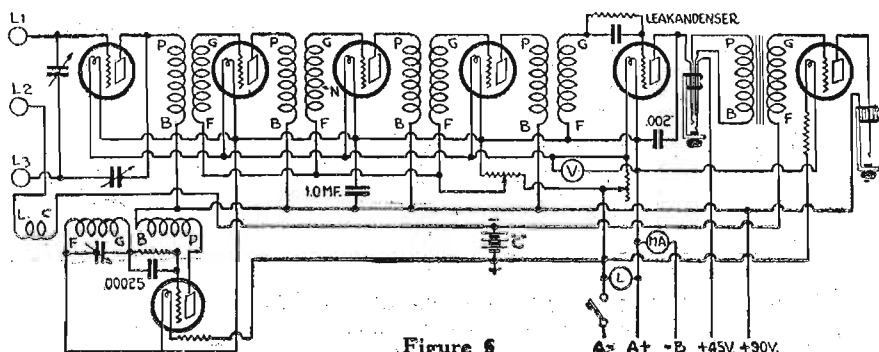


Figure 6

A+ A+ B +45V. +90V.

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MAGNATRON

DX-SEVEN SUPER-HETERODYNE PLATE AND GRID WIRING

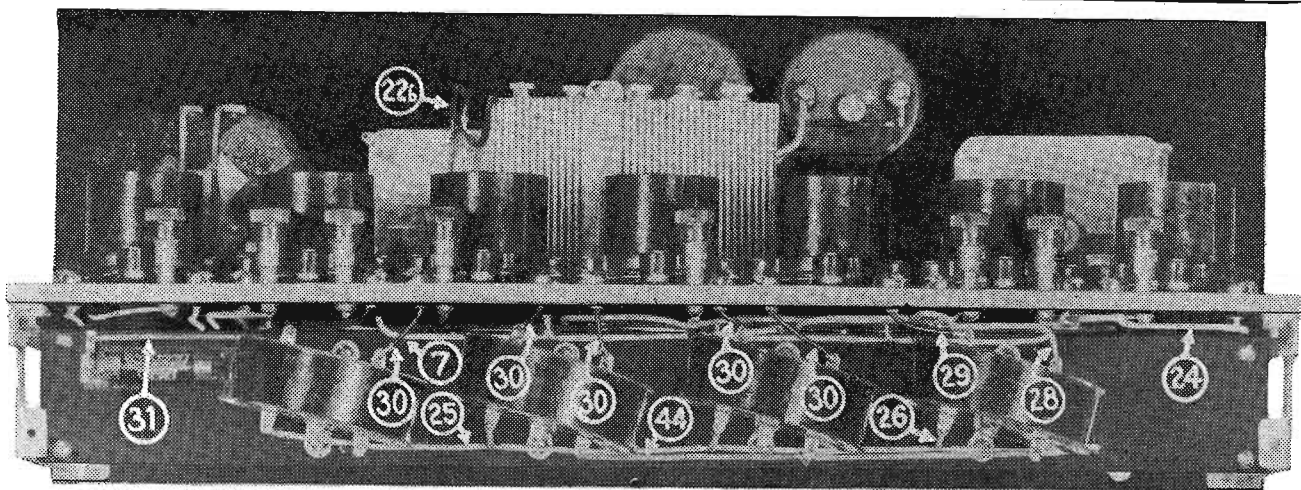


Figure 9

DX-SEVEN SUPER-HET

(Continued from page 27)

through it and back to the F terminal on the under side of the first Celco transformer to left.

19. Going back to the condenser mentioned in operation 14, put in a wire from the end plate terminal at right down to the F terminal on upper side of oscillator coupler.

20. From the L terminal next to it, put in wire going back under shelf to the center of the three loop binding posts, the second from the right at rear edge of shelf.

21. From the soldering terminal on back stator plate of the condenser at right end of set (still looking at it from rear) drop a wire to G post on upper side of oscillator coupler and continue it back under shelf to left end of the Dubilier grid condenser with clips, which has been secured to under side of shelf.

22. On under side of oscillator coupler is a C terminal. Wire is to be put in from this post, across to left close to front edge of shelf and then up in front of shelf to the F terminal of the Erla audio frequency transformer. Where this wire passes under the left end of the C battery, connect a wire from it, up through hole in shelf to the binding post at left end of C battery.

23. The next wire is to go from the right end of the Dubilier grid condenser, referred to in operation 21, toward the rear on under side of shelf and up through eyelet to the G terminal of first socket at right.

24. From the P terminal of this same socket, drop wire through eyelet, then forward and down to P terminal on the under side of the oscillator coupler.

25. This next wire is to be a long one starting at the B terminal, also on the under side of the oscillator coupler, straight back through hole provided in transformer strip, then to left about 1/2 inch behind strip to the B terminal on the last Celco transformer to left.

26. Where wire 25 passes the B terminals on the under sides of the other three transformers connect wire 25 with those terminals by short 1-inch connectors.

27. Plate of the second tube from right is to be connected to the rotor

(lower) terminal of the Gleason midget condenser.

28. Where wire 27 comes down through eyelet, and on under side of shelf, put in a short wire to the left to the P terminal on upper side of first Celco unit.

29. Also on the upper side of that Celco unit is a G terminal. Connect with G terminal on third socket by short wire running up through eyelet.

30. Connect P terminal of second Celco to P terminal of third socket. Connect G terminal of second Celco to G post on fourth socket. Connect P terminal on third Celco to P terminal on fourth socket. The G terminal of this third Celco goes to G post on fifth socket. The P post on fourth Celco goes to P post on fifth socket.

31. The G terminal of the fourth Celco is handled differently. From it a wire goes straight forward to the transformer shelf, then to left to the left terminal of the Leakandenser.

32. From the right terminal of the Leakandenser pass a wire to the right and up through the eyelet of the G terminal of the sixth socket.

33. There are three loop binding posts on rear right corner of shelf. From the one nearest to right end run a wire to left about 3/4 inch and forward so it passes under G terminal of second socket, then to the left until under a point midway between the fourth and fifth sockets. Then bent forward passing between top of strip and under side of shelf until in front of shelf, then up to the right hand terminal on the back

plate of the left hand variable condenser. Put in a short wire connecting this last wire with G of second socket.

34. The third of the three loop binding posts is to be connected, by a wire running to the left and forward, to the upper terminal of the Gleason midget and the wire is continued forward and then to the left to the right hand terminal on the front plate (the heavy plate close to panel) of the condenser mentioned in operation 33.

35. We go now to the jack with four springs and four terminals which is the one next to the switch. The upper terminal is connected to the P terminal of the sixth socket.

36. The next spring connects to the P terminal on the Erla transformer.

37. Third spring is to be connected to the B post on the Erla unit.

38. The fourth or bottom spring goes to the next to the last binding post from the left end of the row in back. On page 28 of the November 28 issue, when discussing the assembly, the copy read to put plus 90 binding post in this position and plus 45 at the end. This was a typographical error which can easily be rectified by switching posts if they are engraved, putting + 90 at end.

39. Going back to the upper terminal of this jack mentioned in operation 35, drop a wire to the lower terminal of the .002 mfd. fixed condenser.

40. The upper terminal of the two terminal jack at the left end is to be connected with the P terminal of the last socket at the left.

41. The lower jack terminal connects to the last binding post at the left, plus 90.

42. A short wire is to go straight back from the lower terminal of the 1.0 mfd. bypass condenser, through the strip to wire 25.

43. From that same lower by-pass condenser terminal run a wire to the left to the lower terminal of the end jack.

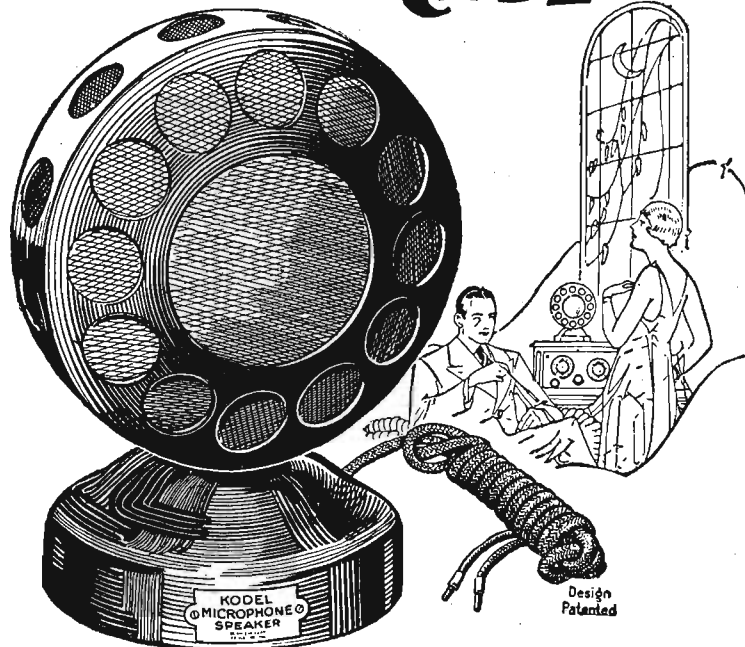
44. On the under sides of the first three intermediate transformers to the right is an F terminal. Connect the F terminals on the first and third.

45. Now run a wire forward from the F post on the second one, through the strip until almost at the front panel, then up to the center post on the potentiometer. Where it crosses the wire connecting the F posts on transformers 1 and 3, solder it to that wire.

46. Connect G post terminal of last socket to left with G post on Erla transformer.

(Next week Mr. Ryan will explain the operation of this set.—Editor's Note.)

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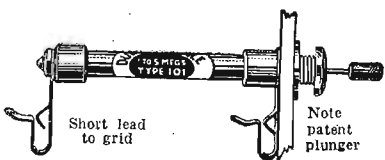
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How Badly Does Your Receiver Reradiate?

AT THE recent fourth national Radio conference, held in Washington, D. C., at the request of Secretary of Commerce Hoover, much stress was laid upon the evils of reradiating receivers. Readers must not gain the impression that "regenerative" receivers are the only offenders.

The latter mistake was even prevalent at the conference as a result of a carelessly worded report filed by the interference committee. But the report was corrected before the resolutions were accepted by the general conference.

One of the worst of the offending reradiating receivers that sets up squeals

left. Don't run the test more than three minutes, as it might be so successful as to ruin some other neighbor's Radio evening. After doing the above, telephone or visit the neighbor assisting you in the test and learn what he heard.

He can tell you if your set reradiated. And we'll bet it did, almost regardless of what manufacture it happened to be.

Reradiation is an evil of poor operation of receivers, of burning the filaments too brightly in an effort to catch distant stations, and of twisting the dials rapidly too and fro for no reason at all.

Experienced station loggers will advise you that their success came with painstakingly slow turning of the dials, with the filaments burning just below the oscillation or "spill over" point. The latter point on the rheostats, as a matter of fact, is the most satisfactory for the operation of nearly any receiver.

The Thatcher Unit, as it was called when described previously in this magazine, is one fairly positive cure for reradiation. It consists of a single stage of radio frequency amplification, so arranged as to make its going into oscillation practically impossible.

The circuit of the Thatcher non-reradiating unit is shown here as figure 1. The whole unit can be constructed by the average fan, or by nearly any Radio shop for the reader, for fifteen dollars or less.

After having determined that your set DOES reradiate, assuming that you still want to be a member of the community in good standing, build the Thatcher unit, connect it ahead of your present receiver, and live to die a natural death!

Although only the hook-up for the unit and its constants are given here, a view of the back panel and baseboard layout, and a panel drilling diagram will be given next week. However, those readers who wish to go ahead with the construction of the unit from the circuit shown, may do so without going amiss. Its building is not difficult.

Not alone will the unit make a receiver non-reradiating, but it will, if properly made, increase the set's range and selectivity. A marked increase in the sharpness of tuning stations should be noted. The list of parts necessary to make

the Thatcher unit are given herewith. The coil which is connected to aerial and ground is wound on the 2 3/4" length of 3" tubing. Using No. 26 dsc. wire, start 1/2" from the end and wind 15 turns, take a tap, and continue winding for fifty more turns. On the 4" length of 3" tubing, starting 1/2" from the end, wind thirty DOUBLE turns, by using two lengths of wire, and winding them side by side at the same time as ordinarily with a single wire. This gives a double coil, sixty turns in length, thirty turns of which are in each of two coils. Connect the

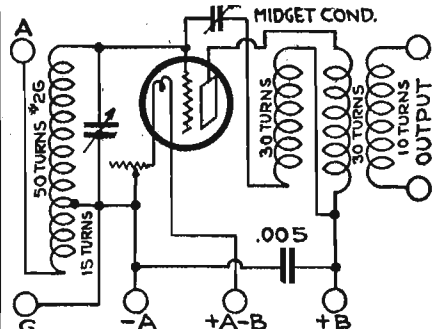


Figure 1

wire marking the beginning of one coil to the wire marking the end of the other coil. This point, where the two coils are connected together, forms also the B positive connection.

From 1" to 1 1/4" from the double coil, wind the output coil of ten turns.

The two coil units, the one consisting of 65 turns tapped at the fifteenth, and the other consisted of a thirty double turns and ten output turns, are to be mounted at right angles to one another and spaced apart as far as is practical—at least two or three inches. It is also important that the antenna coil be centered on the thirty double turn section of the other coil.

(A more detailed explanation of the construction of the Thatcher unit, together with instructions for its adjust-

ment and connection ahead of the radiating receiver, will be published in next week's issue.—Editor's Note.)

The Reader's View

"Let Them Have a Million?"

So many letters in reference to the editorial in our issue of October 31, headed as above, have come into this office that it will be impossible to find space to print them all. Therefore we are running a few paragraphs from a few of the letters to show the attitude of the real Radio fans on the "Starving Composer" question.

From the West

"Wonderful programs, music and other features can be arranged without the assistance of either musicians or the Hod Carriers Union."—E. C. Highmore, S. D.

From the East

"If the publishers of Radio magazines throughout the country are organized each will take up the question and publish some blank form for a guide for each fan to follow and if each fan will write a personal letter to his or her member of congress and to each of their senators, we can get the law. Make them think we mean business. I am willing to act and do all I can."—F. S., Oneida, N. Y.

From the South

"I for one am willing to pledge myself not to listen to any station who announces that what they are using is by permission of that society until the society agrees to be reasonable. It seems to me that the pay ought to come from the society to the stations rather than from the stations to the society."—T. E. S., Elmwood, N. C.

From Canada

"If you ask me and act accordingly just tell them (the music trust) to take a big jump in the lake. The stuff that is copyrighted these days, at least what goes under the name "popular," is 97 per cent blah, etc., and so on. Be polite but firm and tell them where to go and what to do. Then ignore them."—H. C. W., Weyburn, Sask., Canada.

List of Parts

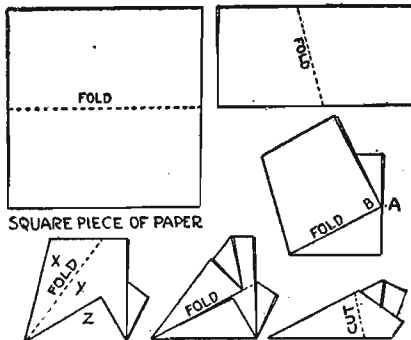
1 Variable condenser .0005 mfd.	\$ 5.00
1 Midget variable condenser .000010 mfd.	1.50
1 Rheostat 30 ohm.	1.00
1 Socket	1.00
7 Binding posts	1.05
1 Panel 7"x12"	1.20
1 Piece of 3" tubing 2 3/4" long.	.50
1 Piece of 3" tubing 4" long.	.70
1 Fixed mica condenser .005 mfd.	.60
1 Spool 1/4-lb. No. 26 dsc. wire.	.85
Miscellaneous, bus bar, screws, etc.	1.00
Total cost	\$14.40

and howls for several miles radius is the super-heterodyne when coupled to ground and aerial instead of to the conventional loop aerial. If you think your receiver doesn't "bloop" or reradiate, arrange a test with your neighbor.

Have him listen in on, say, 260 meters at a prearranged time while you bring your set up and into oscillation at that wave length or close by. Then slightly tune and detune the dial closest to the antenna. If a five tube set, this will usually be the first tuning dial from the

To Get Sevenths of a Circle

The attached drawing shows a method of making a heptagon by folding paper, which will help many Radio fans in finding the sevenths of a circle when making coil forms, etc. A square piece of paper



is used; at the fourth stage, fold in thirds so that section z is equal to section x or y, then fold between x and y. The final stage is folding between y and z. When opened there are 14 points, taking every one, or 7, if every other one is counted.—Marvin Shreffler, Kanokakee, Ill.

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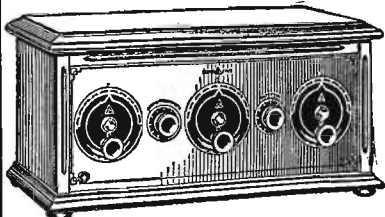
DISTANCE

Lends added enjoyment to radio with an indescribable fascination of tuning-in far away stations, which is always possible with the APEX SUPER FIVE.

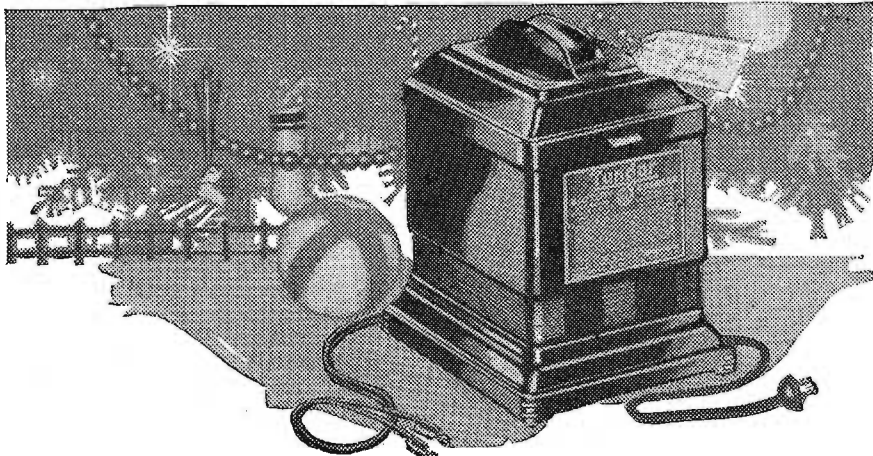
Ask your dealer for a demonstration. Your eyes and your ears will tell you that APEX stands at the high point of perfection in both performance and appearance. \$80—without accessories.



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GENERAL ELECTRIC

LOOKING DOWN ON SUB BASE OF "COUNTERPHASE"

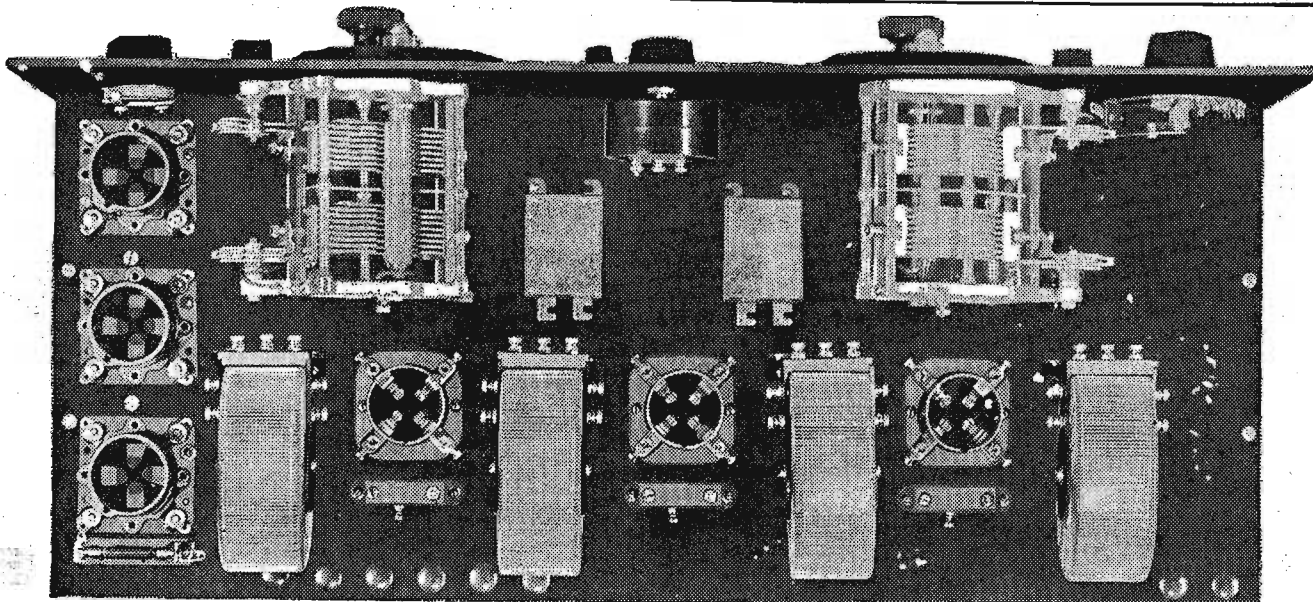


Figure 8

"COUNTERPHASE" SET

(Continued from page 26)
 bracket. Slightly further in from the edge is another line running from front to back with three holes on it. This should have been indicated as 1/8 inch from the right edge. A little further to the left is another line with 3 holes on it which is to be 2 1/2 inches from the right edge. The rear holes on each line go together as a pair for mounting a Benjamin socket with P and G to the right. The center holes also go together for a second socket of this make, similarly mounted, while the two front holes are for the third Benjamin. The single hole in the rear right corner 1 1/2 inch from right edge is for the Daven No. 50 mounting which is to go crosswise just behind the rear Benjamin socket. All holes are for 6-32 screws and a 5/32 or 9/64 drill is used.

Near the center of the sub base crosswise, and near the front edge, are two holes 5 inches apart for the Sangamo 1.0 mfd. bypass condensers. They are put in with terminals to the rear and, on the left hand condenser, the left mounting lug is secured beneath the head of a round head screw, while, on the right hand condenser, the right hand lug is used.

Few directions are necessary in connection with figure 7. The holes shown

are for wiring to pass through the sub base and any size drill giving a hole

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613

Takes Place of Tube

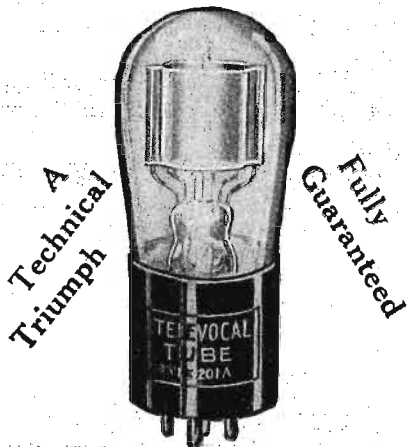
The **Towner Radio Mfg. Co.**, 2620-C Victor St., Kansas City, Mo., has manufactured a real Fixed Detector known as **RADETEC** which is Highly Successful in both Crystal and Tube Sets.



Tested to Stand **TUBE VOLTAGE** and lasts indefinitely.

It is a Crystal Set in itself with greater distance reception. Wonderful for Reflex—Save A and B Battery. Prolong Tube Life. Get better detection. Every one guaranteed. Money Back if not satisfied. Price \$1 Postpaid including Brackets for mounting. Some Dealer Territories still open. **WRITE TODAY.**

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large enough to pass bus bar will do. These holes have been shown on a separate drawing to avoid confusion as to sizes and that which might result from having too many dimensions on one sheet. The completed assembly is shown in figure 8 and this photo should prove of great help when placing apparatus in the proper places.

(Because of the number of illustrations necessary with this article of Mr. McDonald's series there is insufficient room even to start the wiring instructions, so the complete wiring will form the third article in next week's issue.—Editor's Note).

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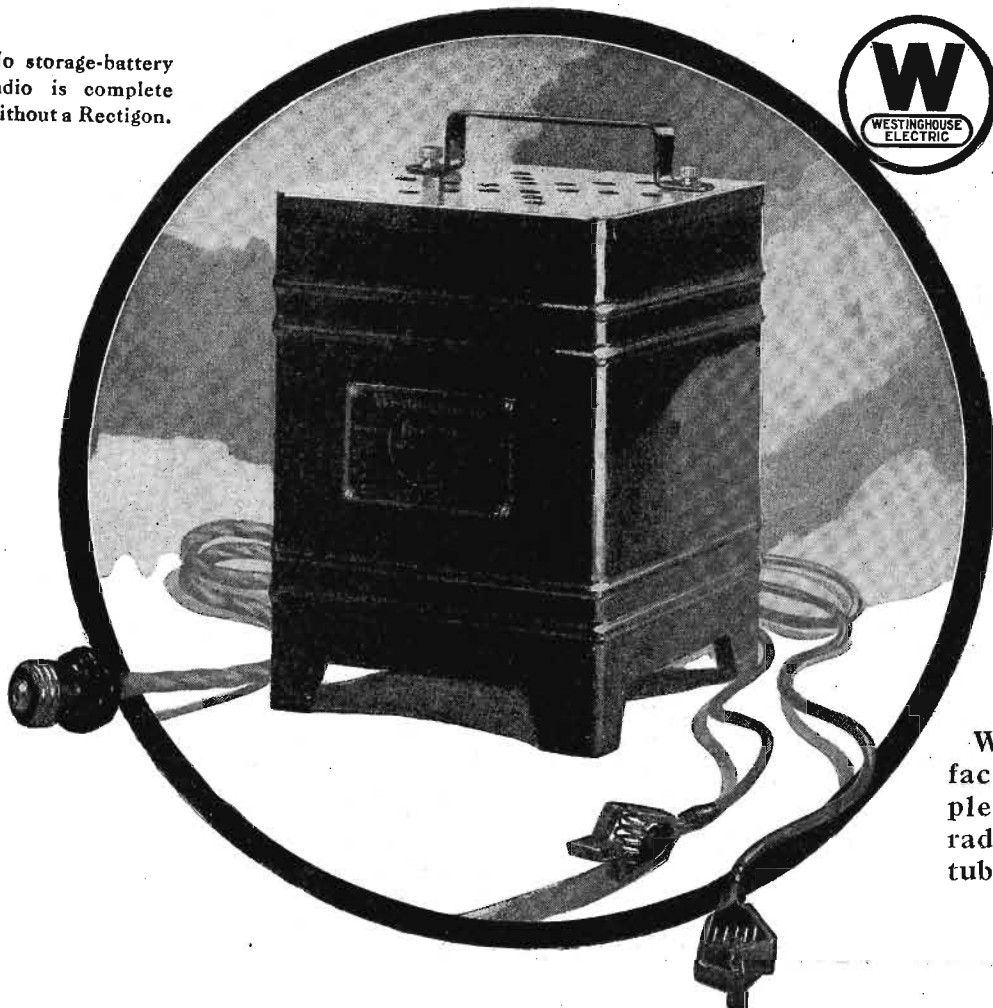
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