

Last Minute Schedules of Football and World's Series Play-by-Play Broadcasts; Bringing Your Old Set Up-to-Date; WCAH, Columbus, a Strictly Home Station

Radio Digest

EVERY WEEK **Illustrated** PROGRAMS TEN CENTS

Vol. XIV Copyright 1925 By Radio Digest Publishing Co. SATURDAY, OCTOBER 3, 1925 No. 13

HOOVER MAY LIMIT RADIO

WBAP NOW TO ENTER HIGH-POWER GROUP

FT. WORTH STATION GOES ON 5,000 WATTS OCT. 5

Has Large Reserve Power Also; Tests Show Reception in Every State, Canada and Mexico

FORT WORTH, Texas.—WBAP, the Star-Telegram station here and the latest to make the change to superpower, announces the opening of their new 5,000-watt plant Monday night, October 5, with a program beginning at 7:30 p. m. and running until 6 o'clock in the morning. Already test programs broadcast with the new equipment have been heard in every state in the Union, Canada and South America. The apparatus used represents the last word in radio and is a radical departure from anything hitherto used. The entire transmitter was designed and built under the supervision of Engineer W. E. Branch of WBAP's staff. The total power available is 10,000 watts.

(Continued on page 2)

WILL DEBATE RESTRICTION OF STATIONS

Ether Confab to Decide

Secretary Sees Way to Relieve Congestion—Asks Opinion of All Concerned

WASHINGTON, D. C.—One of the outstanding features of the forthcoming Radio conference to be held in this city under the auspices of the department of commerce will be the development of ideas as to the number of broadcasting stations which should be licensed, according to Secretary Herbert Hoover. Mr. Hoover is anxious to get the reaction of

(Continued on page 2)

This space is far too small to tell all about the wonderful voice, pleasing personality, unusual complexion, and general loveliness of Jean LaDonne, KYW soprano, below.



"Receiving Studio" Is Newest KTHS Stunt

Ten Receivers Installed to Receive Other Stations

HOT SPRINGS, Ark.—A "Receiving Studio," complete to the last refinement of luxury is the latest addition of Station KTHS, the New Arlington hotel here, for the comfort and convenience of its Radio listener guests, Director G. O. Arnoux has announced.

The studio is in one of the towers of the hotel and will be an adjunct of the broadcasting station. Ten antenna wires serve ten of the finest receivers on the market and each is equipped with wave trap devices so that it may be operated even while KTHS is broadcasting on the same frequency. Loudspeakers and head phone equipment is part of each station and different programs can be tuned in.

Drussilla Taggart, center, was the first American to broadcast from the Eiffel tower station. She has appeared at various stations in this country and on the continent and is a well-known dancer besides. When it comes to vocal syncopated jazz, Helen Armstrong, WCCP, the little lady in the cravine wrap, is hard to beat.

GAY PAREE RADIO IS NOT QUITE SO GOOD

SMITH FINDS 4 STATIONS JEALOUS OF ONE ANOTHER

Lack of Funds Makes Broadcasting System Only Objectionable Feature in City

Article VIII by Fred Smith, WLW Director

THE broadcasting situation in Paris is a strange one. There are four stations, each operating under a very different plan from all others. The Eiffel tower is really a military post, but it is rented for broadcasting to M. Privat who operates it with a daily program of music and news for one hour each evening. He obtains funds from a group of Radio listeners, called "Friends of the Tower," who each pay ten francs a year.



M. Vinot

Radio-Paris is a commercial station in the sense that it is owned and operated by a company representative of the French Radio industry. Third, there is a newspaper station owned and operated by Le Petit Parisien. And finally, the station of the State, L'Ecole Supérieure, generally known as PTT.

Obstacles Impede Progress

With regard to the entire situation in France one becomes immediately conscious of the tremendous obstacles which impede the natural progress of the art of broadcasting. The government has taken no definite stand about taxing the listeners. Theoretically, users of receiving sets are supposed to pay one franc a year for licenses. But nobody pays. Therefore, there is no definite income. An astonishing amount of jealousy exists between stations.

The PTT of the Post, Telephone and Telegraph, is operated by government employees. M. Lucien Chanton, at the head of PTT broadcasting in Paris, is ambitious to perform a beautiful and worthy service which would demand about a million francs a year. But the government will make no provision for funds, and so the director does not know how in the world he will obtain the money.

Commercial broadcasting as we know it in America is not permitted in France. Chanton cannot get his money in that manner. Taxation, such as exists in England, Germany and Switzerland, is not favored, so he has no hope in that direction. For the present he must be content with programs furnished by Association Generale des Auditeurs. This organization, a national club of Radio listeners, pays the PTT four thousand francs a month for the use of the station. A committee of the club prepares the programs, submits them to M. Chanton, who reviews, cuts and completes the entire arrangement for performances. As a result of this method, the work of the performers is gratis and they are practically all amateurs.

The PTT is endeavoring to build up a system of stations throughout the country. Already 500-watt stations are being operated at Lyon, Toulouse and Marseilles, with Angers, Strassbourg and Lille to be opened before January 1. All of these are to be connected with Paris by means of telephone lines, an easy matter for the department of the government.

PTT Controls Telephone Lines

One of the chief causes of the existing unfriendliness between stations in Paris is the monopoly of telephone lines by the PTT. Radio-Paris cannot obtain lines for remote control work. As a result, this station does a great deal of retransmission, picking up programs from other stations.

Radio-Paris is managed by a group of energetic and intelligent business men. Secretary General Tabouis represents France at the international conference at Geneva. The director, M. Vinot, who does much of the planning of the programs, introduced me to his friends, Pierre Cusy and Gabriel Germinet, who have written a book which is just ready for publication, called "Theatre Radiophonique." These gentlemen have ambitious plans to develop the Radio, and thematic performances for Radio. Already they have staged several. Their ideal of the Radio program is already known and certain of growth in America, is the performance written both in speech and music expressly for the Radio stage.

It is with regret that one must point

out this unfortunate condition of Radio broadcasting in Paris. For where in Europe is there so delightful a place to live? Oh, you may travel with high hopes to other cities on the continent, believing that you will encounter a more pleasing life. But not so. You come back to Paris eventually with the thrill of the wanderer returning to his native land. Paris with its boulevards, its cafes, parks, cathedrals, great avenues and twisting streets, its theaters, cabarets, art galleries, shops and hotels, its trams, busses, river boats and honking taxis; Paris with its good food, freedom and historic atmosphere; Paris the city of eternal charm and fascination.

And when the noble steamer "America," pulls away from Cherbourg and your memory flies back over all the scenes of the continental tour, it is Paris that calls you to come back. When the land is lost to sight and you wander about the decks in search of something to do, you enter by chance the reading room, and find upon the shelves the works of Balzac. Eagerly you take down two or three volumes and then spend the spare hours of the days that follow reading his graphic descriptions of his beloved city—Paris.

In the meanwhile you have obtained from that excellent captain, W. Rind, permission to visit the Radio room of the "America." You go there evening after evening with Chief Operator Cohen. In the beginning you hear English and continental music. And then the journey nears completion. American stations roll in, full of pep and variety. There comes a morning when you are awakened very early because—because Miss Liberty is waiting there with her torch to welcome you home. You go on deck, and the big thrill comes—home at last!

(CONCLUSION)

DEBATE STATION QUOTA

(Continued from page 1)

Radio fans, broadcasters, and manufacturers on this point. The secretary is not sure, he has stated, whether legislation will be needed along these lines or whether a cooperative plan can be worked out such as has been in effect during the past two or three years.

At the present time there are close to 600 Radio broadcasting stations in this country and more than 100 are in prospect.

Secretary Hoover, following the recent high-power tests of WGY, has expressed himself as feeling that there was a great improvement in the broadcasting and that no harm had been done. He gave this as the result of his own experience and that of many who have sent letters to his department about the tests.

Radio experts reported to the secretary that there was no great improvement in the fading. Mr. Hoover said that the majority of the communications received by the department showed that the increased power allowed a wider range of distribution and no reports of interference were made.

The changed attitude of the department of commerce is reflected in the fact that several applications have been received and granted recently for the material increasing of broadcasting power to from 3,500 to 5,000 watts.

A year or so ago officials of the department were not at all anxious to grant applications for high-powered stations. In light, however, of the experiments which have been carried on during the past few months and that fact that little if any local interference resulted, has made the officials realize that the high-powered stations will be beneficial in the long run to the listener.

"MERRY OLD CHIEF"

NOW AT WJR 'MIKE'

NIGHTHAWK FOUNDER TO GO TO DETROIT PLANT

Dean Fitzer Succeeds Fitzpatrick as Head of Kansas City Star Radio Department

KANSAS CITY, Mo.—Leo Fitzpatrick, the "Merry Old Chief" of the Nighthawks has left WDAF to accept a position as program director and announcer of the new station of the Jewett Radio and Phonograph, a company, WJR, at Detroit.

The Jewett station is a 5,000-watt transmitter with studio and offices in the Book-Cadillac hotel and is operated in conjunction with WCX, the Detroit Free Press, who share WJR's new transmitter. Mr. Fitzpatrick was a pioneer broadcaster and has been identified with WDAF, the broadcasting station of the Kansas City Star since early in 1922.



Leo Fitzpatrick

Previous to that he was a feature writer for The Star. He was given the position of Radio editor and announcer when The Star first broadcast through the small transmitter of the Western Radio company. December 5, 1922, he established the Nighthawks, now one of the largest and most popular Radio fan organizations in the country. It is estimated that there are now 250,000 persons who have received membership cards bearing his signature.

His informality in conducting the Nighthawk frolics attracted thousands who tuned in nightly at midnight to be entertained by the "chief." He has a ready wit which serves him in good stead at all times and his humorous and timely comments upon messages of application are so entertaining that many have expressed the opinion that they would rather listen to his bantering than to the popular dance music of the Nighthawk orchestra.

Dean Fitzer Succeeds "Chief"

The "Merry Old Chief" is a singer of popular songs and many are the songs which he has popularized by broadcasting them each night on the Nighthawk frolics.

Mr. Fitzpatrick has expressed regret at leaving The Star, an institution with which he has been connected for many years, but the opportunities open to him in Detroit were sufficient to induce him to change location. Mr. Dean Fitzer will take Mr. Fitzpatrick's place as Radio editor of The Star and chief announcer of WDAF.

Mr. Fitzpatrick was a runner-up in the Radio Digest 1935 Gold Cup Award contest and was fourth in the first award conducted by Radio Digest in 1934.

WBAP IS SUPERSTATION

(Continued from page 1)

However, this great surplus of power will not be used on the opening night.

The Star-Telegram entered the ranks of the broadcasters early, being one of the first newspapers in the field. The first transmitter was a small, 10-watt affair which was put on the air in March, 1922. During September of the same year WBAP took the air with a new set of the then powerful 500-watt type.

Wish Better Reception of WBAP

It is in line with the advancement of the art and the desire to reach the Radio audience with programs that are as nearly free from interference as possible that this last increase in power has been made.

The artists and organizations to be presented on the opening night are those who have been identified with WBAP from the first and are well known to fans.

The program follows (Central time): 7:30-8:30 p. m., Wagner Hawaiian trio; 8:30-9:30 p. m., Holy Roller service; 9:30-10:30 p. m., Ward's "Trail Blazers"; 10:30-11:30 p. m., Geo. Orum's Palace theater orchestra; 11:30-12:30 a. m., Stars from the Majestic theater; 12:30-1:30 a. m., Sam S. Losh and assisting artists; 1:30-2:30 a. m., Will Foster, organist; 2:30-4 a. m., Panther Hawaiian trio; 4-6 a. m., Bluebonnet Serenaders.

To square up the edge of a panel or any other similar piece, use a common wood plane that has been set for fine cutting.

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Looking Ahead

All the Latest News in Sports broadcasting will be found on the sporting page next week and every week following. Baseball will soon be over but there will be plenty of other events miked to keep the fans close to the loud speaker all winter long.

Away Up at the Top of the Dials is KSD, the station of the St. Louis Post Dispatch broadcasting from the "Show Me!" state. You can't miss it if you turn up in the high nineties and you must not miss the description of it on the feature page in next week's Radio Digest.

"The Traveler," a Five Tube Tuned Radio Frequency Receiver will be described in full constructional detail beginning in the next issue. A new style of presentation which will, we are sure, make it easier for Radio Digest readers to follow instructions, is to be used by John G. Ryan, author of the articles. There have been articles on four tube sets and super-heterodynes but we preferred to wait until we had a five tube set of unusual merit before presenting one of this type.

The Erection of Outdoor Antennas which is the second chapter of the series by William Fenwick on antenna construction, is most timely in next week's issue, as those who have just purchased a receiver with the coming of better weather for Radio reception, can learn of the various types of antenna possible and how they are put up.

Uses of Oscillators in Radio Receivers is the subject of the next article by Prof. D. P. Moreton in his A. B. C. series for beginners. While most of us are trying to prevent continuous oscillation in our five tube outfits, there are many places in Radio where a tube generating continuous oscillation is essential. The experimenter will do well to follow this subject closely.

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NEWS BRIEFS FROM THE BROADCASTERS

KOA TO GIVE ANOTHER BILL OF 1-ACT PLAYLETS

Alaskan Steamers Get KFOA News Service; Wisconsin University Plant Is on Schedule Again

Another program devoted exclusively to dramas will be heard Wednesday evening, October 7, over KOA, General Electric broadcasting station at Denver. Presentations include "The Rector," a one-act comedy, the scene of which is laid in a country parsonage; a dramatic scene from "Romeo and Juliet," and a one-act fantasy, "Nevertheless." These plays will be given by the KOA players under direction of Iris Ruth Pavey. Instrumental numbers by the KOA orchestra will be featured between plays.

The steamers running to Alaska have as their principal source of news Station KFOA at Seattle. A news bulletin published on board the S.S. Alaska every morning contains news items obtained by the Radio operator.

Station WHA, University of Wisconsin, which has been silent since the close of the summer session during the first week in August, broadcast its first autumn program recently, on a wave length of 535.4 meters. The Monday, Wednesday and Friday evening programs will be continued throughout the year.

In the future, the Thursday night concert of band music will be furnished by the United States army band, playing in Washington and brought to New York by land wire and broadcast by WJZ at 8:30, Eastern time. The first of this new series of concerts was given on Thursday, September 24, and will continue indefinitely.

The WGES News is the name of a monthly four-page paper now being distributed free of charge to members of the audience of WGES, Coyne Electrical school station, Oak Park, Ill. The paper contains interesting articles pertaining to the WGES artists and staff.

Song biographies have been inaugurated as a special weekly feature of the "Little Brown Churn in the Vale" over WLS, the Sears-Roebuck Agricultural Foundation station, Sunday evenings. These are in charge of Harry W. Bundy, Canadian lyric tenor and exclusive WLS artist. He illustrates his stories by lyric interpretations of the various hymns.

Charlie Garland, song writer, baritone and pianist, has been made both program and studio director of Station WBBM, Chicago.

The statement is made locally in Rome, Italy, that listeners in outnumber householders ten to one. While this statement bears marks of exaggeration, Consul Remillard at Rome advises that favorable progress in broadcasting has been evident in Rome since early in 1924.

The Burroughs Adding Machine company of Detroit has entered the field of Radio broadcasting and is giving programs every Wednesday evening from 9 to 10 o'clock, Eastern time, from WJR.

A birthday party was held at Westinghouse Station KW on a recent Thursday when Father Claude J. Perrin, S.J., the man behind KYW's regular Thursday evening feature, "Twenty Minutes of Good Reading," completed his third year of Radio reading.

Eight singers and Vinton La Ferrera and his concert orchestra will present "The Chimes of Normandy," by Robert Planquette, over KGO, October 3, from San Francisco.

The first Pacific coast program to be broadcast by a Chicago Radio station was given recently by Station WOK, broadcasting on 217.5 meters. Hereafter this program will be a regular weekly feature of WOK.

The noonday organ recitals presented daily by WRC, Washington, from the First Congregational church constitute one of the most popular features added to the programs of the Radio corporation station this summer, and arrangements have been made to continue these recitals through the cooler months.

One of the most unique and widely popular Radio organizations in the country is the Pat Barnes Your Hour League, an association formed by Pat Barnes at WHT, Chicago, to spread happiness and cheer into the homes of the nation.

MANY WOULD SAW TUNE ON WOOD SAW

CHICAGO.—The musical saw made known to the world by Radio has developed a following and a desire for instruction. Harlan Merrill, perhaps the best known exponent of the musical saw, whose gift on this unique instrument is being made known to the Radio audience over WHT every Friday night, reports that a manufacturer in Wisconsin has gone into the business of manufacturing musical saws and that the demand is sufficient to keep his small factory operating continually.

WOMEN EQUAL MEN IN RADIO TEST VOTE

DENVER.—Women as Radio entertainers held their own in a recent competition waged with their male contenders during a pretentious broadcasting meet at KOA, Denver. This was the popular expression from broadcast listeners, based upon early returns from twenty-three states and three Canadian provinces. For every 100 letters and post cards sent to Denver in response to the unique Radio presentation, thirty were "strictly neutral," and the remaining seventy votes were split evenly, for and against.

KNOWN TO ALL THE FANS IN DIXIE



When WSM, the new 1,000-watt plant of the National Life and Accident Insurance company, Nashville, Tenn., goes on the air this week, it will be unique in that one of the few women program directors will be in charge. She is Miss Bonnie Barnhardt, for over three years program editor, Radio editor, and bedtime story teller of WSB, the Atlanta Journal. Miss Bonnie is beloved of thousands of little folk and grownups all over Dixie.

Zenith Plant Reaches Greenland on Try-out

WJAZ Heard by McDonald in Far North

MOUNT PROSPECT, III.—WJAZ, the new superpower broadcasting station here of the Zenith Radio corporation, was heard on its first test program near Godthaab Harbor, Greenland, by E. F. McDonald, Jr., president of the Zenith company, who is now returning from the arctic. The new broadcaster was only transmitting with 1,750 watts power when the record was established.

J. Elliot Jenkins, Chicago Radio engineer who designed and built the equipment for WJAZ, was pleased to learn of the splendid initial performance of the plant. Godthaab Harbor is on the middle portion of the south coast of Greenland at about 46 degrees latitude and 50 degrees longitude.

The new Zenith station transmits on a wave length of 322.5 meters, dividing time with KOA, at Denver. Announcement of the official opening program has not been made.

When space is to be conserved when constructing a multi-tube receiver, use a gang socket.

New Stations

The Fort Sill, Okla., army station, KPRM, has not gone off the air after all. This station has renewed its license and is now using a wave of 242 meters and 50 watts power. Chicago boasts another portable station in WBBZ. This 50-watt outfit, operating on 215.7 meters, will broadcast from various of the smaller theaters of the middle west.

KFAE, the State College of Washington's call for over two years, has given place to KWSC. Many of the familiar calls have been changed this summer in accordance with the popular plan of using the initials of the broadcasting organization.

Station WOK has just received authority from the government to increase its power to 5,000 watts. There are only eight 5,000-watt stations licensed in the country, and the Chicago group now includes three of the eight.

The department of commerce has granted the application of three more stations to increase their power. This raises the Willard Storage Battery company at Cleveland, Ohio, WTAM, from 2,500 to 3,000 watts; Nebraska Buick Auto-

CKY ANNOUNCER TO RECEIVE SILVER CUP

D. R. P. COATS HEADS CANADIAN GROUP IN AWARD

Gene Rouse Congratulates McNamee and Field—Contest This Year Larger than Last

The Gold Cup Award of 1925 has one more announcement to make. D. R. P. Coats, chief announcer for CKY, Manitoba Telephone System station at Winnipeg, Canada, is to be presented with a silver token cup in honor of his leading all other Canadian announcers in the final standing.

The precedent thus established by Radio Digest will be continued annually.

The order in which the placing Canadian announcers finished is as follows:

PLACE AND NAME	STATION	VOTES
1. D. R. P. Coats	CKY	4,815
2. J. H. Cartier	CKAC	2,437
3. H. W. Grant	CFCN	2,236
4. R. H. Combs	CHNC	857
5. G. A. Wright	CNRA	356
6. Walter Darling	CFCE	344
7. A. W. Ryan	CNRO	318
8. D. J. Powers	CFCA	311
9. Rud Weese	CHIC	197
10. Fred Carlton	CFAC	88
11. A. L. Hooper	CKCK	87

Rouse Congratulates Winner

Gene Rouse, announcer for Woodmen of the World Station WOAV at Omaha, upon learning the final results of the Gold Cup Award for 1925 in which he placed third, was quick to congratulate Graham McNamee of WEAJ as winner, and Henry Field of KPNP as runner-up.

His telegram to Mr. McNamee read: "I congratulate you upon the meritorious decision of the readers of Radio Digest in proclaiming you the world's greatest Radio announcer. It is my hope that this distinction of which you are most deserving, will continue to be yours."

Study of Past Two Years' Standings

The count shows 317,990 more votes were cast in the 1925 Gold Cup Award than in 1924. The winner last year, George D. Hay, polled 129,651 votes this year to the 189,476 credited to Graham McNamee who topped the list in the 1925 contest. Last year McNamee had but 14,678 counters to his credit when he finished seventh. Sen Kaney who was last among those awarded certificates of merit last year had 7,339 votes, while Norman Brokenshire holder of the sixteenth position in the recent contest had 10,543.

Henry Field this year's runner-up was forty-second in the 1924 finals. Frank S. Lane is a newcomer to Radio and was not in last year's contest. N. Dean Cole finished thirty-second last year. Jerry Sullivan was twenty-second. Robert Emery held the thirty-third billet just below Charles Erbsstein who was in thirty. Norman Brokenshire was not entered in the 1924 race. The others not mentioned were in the list of leaders last year as they are now.

Original Ether College Opens for Second Year

Iowa State Will Again Give Radio Credits for Courses

IOWA CITY, Ia.—The world's first college of the air will open its second year at the University of Iowa October 5, according to Edward H. Lauer, director of the extension division and ex-officio dean of the college. An enlarged faculty and a more complete course than that offered last spring has been provided. Courses will be broadcast Monday and Wednesday evenings for twelve weeks from WSUI on 484 meters.

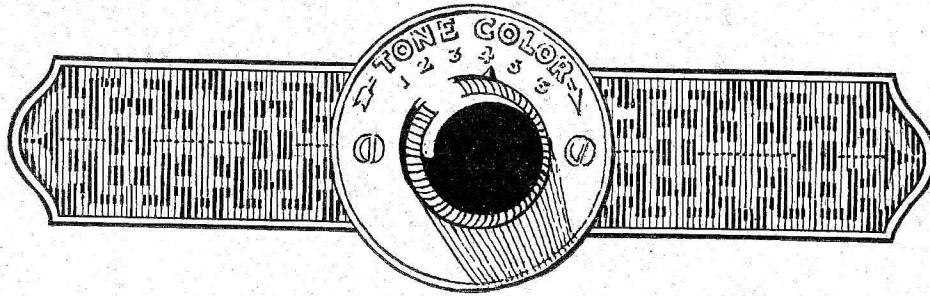
Registration for the new courses will commence immediately and should be completed by the opening lecture in order that students may be provided with the syllabus which outlines the work in each course.

The following courses will be offered: "Early Iowa History," "American Literature," "Iowa Flora," "Problems of Population," "The Teaching of English," Prof. Kirk H. Porter, "Political Parties in the United States," and Prof. Christian A. Ruckmick, "Elementary Psychology."

An enrollment fee of \$2 is charged and \$3 thereafter per semester hour of credit granted. Thus the entire course would entail a charge of but \$66 and the student given university credit which costs the average college attendant from \$200 to \$600.

mobile company, Lincoln Neb., KFAE, from 500 to 1,000, and the General Electric company, Schenectady, N. Y., WGY, from 3,000 to 3,500.

ONE OF THE GREATEST OF RADIO DEVELOPMENTS



Grebe "Colortone"

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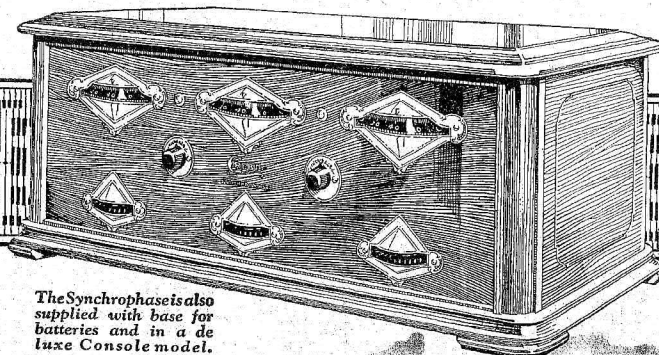
This company owns and operates stations WAHG and WBOQ; also low-wave rebroadcasting stations, mobile WGMU and marine WRMU.




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—Confucius

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Doctor Maer



The Synchronophase is also supplied with base for batteries and in a de luxe Console model.



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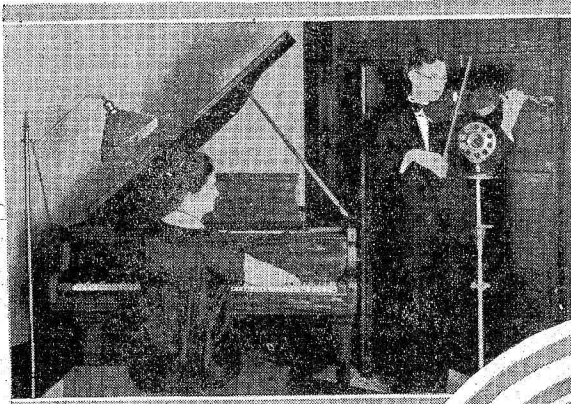


WCAH, at "Columbus, The Heart of Ohio"

William Steinbauer, violinist, and Bessie Speasmaker Parkins, accompanist, playing in the Entrekkin residence studio, are shown below.



Margaret C. Entrekkin, studio manager and program director.



Carl A. Entrekkin, manager, engineer, operator and announcer.

By Alton D. Spencer

ONE, two, three, four. One, two, three, four. This is the Entrekkin Electric company station, 321 West Tenth avenue, Columbus, Ohio, testing."

This was a small group of Columbus' early Radio fans introduced to what a few days later became WCAH, the first regular broadcasting station in the Buckeye capital. I happened to be one of the few listening in that afternoon. It was at about 4:30 o'clock, April 27, 1922. It was indeed a thrill to hear such loud signals on my little one-tube bloop. The testing announcement was followed by several phonograph selections and others agreed with me the next morning that the selections sounded far better than ever issued from a phonograph horn. Announcements and records were alternated for an hour or so, then came a brief silence. This was broken by a woman's voice, saying: "This is the Entrekkin Electric company, 321 West Tenth avenue, Columbus, Ohio, signing off!"

Although I never was bold enough to ask, I always have suspected that the feminine voice was that of Mrs. Entrekkin; that dinner was ready, and the only way she could get "C. A." as Mr. Entrekkin is called by his friends, to leave his new plaything was to sign off and thus end the entertainment.

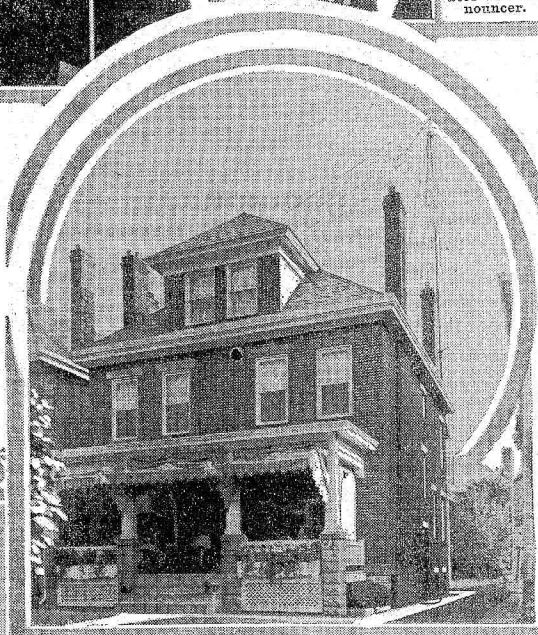
The original transmitter at WCAH had a power rated at only 15 watts, but local listeners considered it a whale of a station. Up to this time they had been limited to hearing half a dozen or so distant stations, such as KDKA, WWJ, WBZ, KYW and WJZ, then located at Newark, N. J.

The first regular program was presented the evening of May 9, 1922, including talks by prominent citizens, classical selections by local musicians and the reading of several news bulletins. Soon afterward, WCAH established a twice-a-day news service, at noon and at 7 p. m. The broadcasting of baseball

scores each evening, as a part of this news service, was relished by those baseball fans who, up to then had waited for the morning paper to learn the results of the previous day's contests.

Just a year after the surprise opening of the station, the power was increased to 100 watts and the anniversary program went out to points that never had heard of WCAH. Six months later, the power was raised to 150 watts and on the next anniversary it went to 200. With each increase in power, the WCAH family of listeners grew in size. Coast-to-coast reception was reported and the country became intimately acquainted with the Entrekkin Electric company, which, before WCAH was born, was known to comparatively few buyers of electrical goods.

The latest increase in power came on April 25, this year, although the formal opening of the newest broadcaster was not held until June 2. The station is now transmitting inter-



This is the Entrekkin residence, 321 West Tenth avenue, where the plant of Station WCAH is located in "Columbus, the Heart of Ohio."

mittenly on 500 watts, but will be on a regular schedule very soon again.

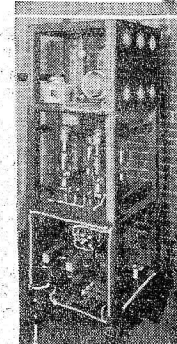
The unique feature of WCAH is the fact that only two persons are included in the staff—Mr. and Mrs. C. A. Entrekkin. They are the owners of the station. Mr. Entrekkin is the manager, engineer, operator and announcer, in addition to being a licensed code operator. Margaret C. Entrekkin, his wife, is the program director, studio manager and hostess.

500-watt set built by C. A. Entrekkin.

Much credit must be given to Mrs. Entrekkin for the high type programs which she has assembled. She declines to permit any but classical programs at the regular broadcasting hours, from 8 to 10 o'clock, but upon occasion allows, popular or jazz entertainments at midnight. No doubt she realizes that at such an hour, listeners would soon be lulled to unconsciousness by the classics. It requires zippy numbers at midnight to hold the listener and keep him awake.

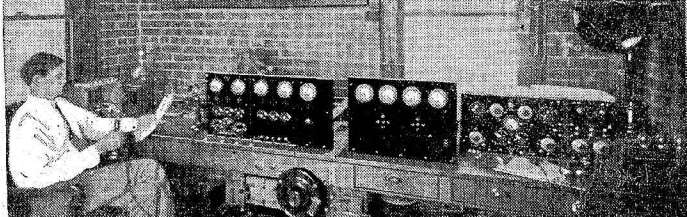
Antenna masts. Building with chimney is shop containing operating room.

The task confronting Mrs. Entrekkin is more difficult than a similar task in



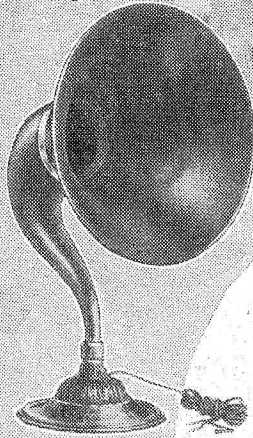
Operating room on the second floor of the shop in rear of the house. At the immediate right of Mr. Entrekkin is the original 15-watt transmitter.

THE ENTRKKN ELECTRIC CO.
321 W. 10th AVE.
COLUMBUS O.
CITIZEN 15394 BELL 1323



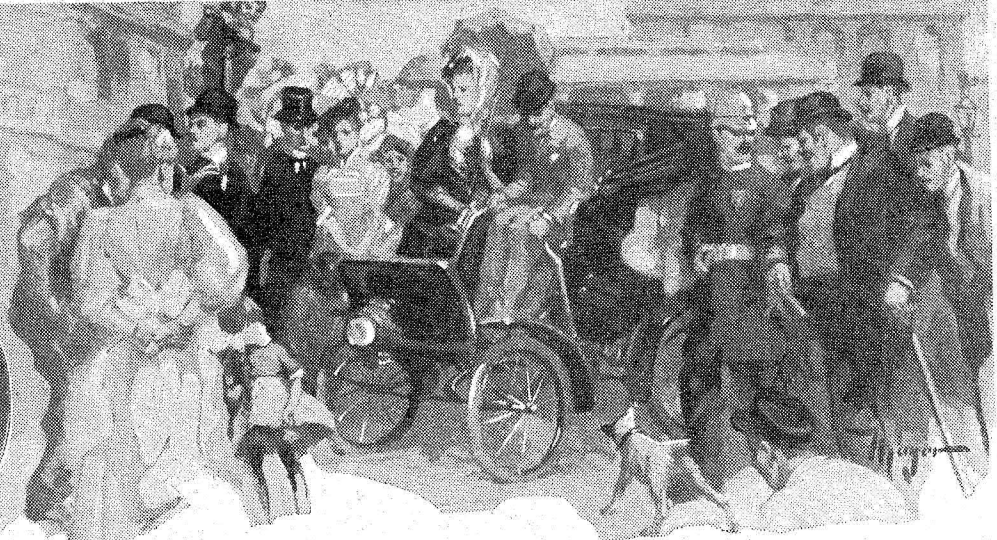
(Continued on page 7)

Music Master
Resonant Wood
Insures Natural
Tone Quality



Model VI, \$30
14" Wood Bell

Model VII, \$35
21" Wood Bell



Radio too is No Longer an Experiment

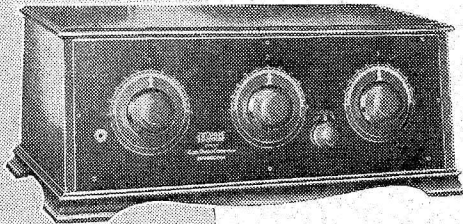
PIONEER owners of automobiles had to buy larger magnets, different carburetors, more accurate timers and what not else, to get some degree of motoring satisfaction!

Today—how smoothly motor cars purr their way over the roads! Pioneer owners of radio experimented with different tubes, more powerful batteries, condensers and all sorts of "loud speakers," trying to balance the power of the set with the quality of the amplifier.

And now—there is no need of "trying out" experimental radio combinations, for MUSIC MASTER Receivers assure radio reception equal in power and efficiency to the supreme quality of reproduction made internationally famous by MUSIC MASTER Reproducer.

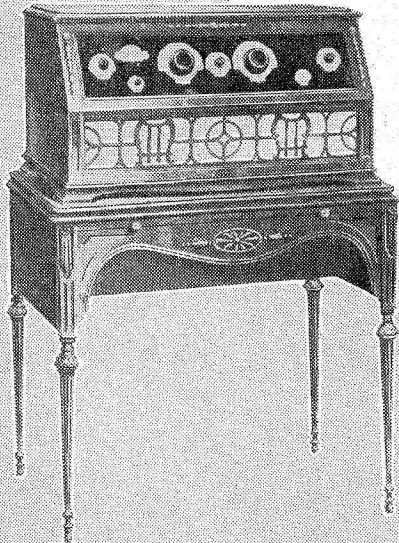
An authorized MUSIC MASTER dealer will demonstrate—in your home if you wish—MUSIC MASTER'S power of distance, clarity and volume, ease of operation—and above all, its faithful reproduction and superb musical tone quality.

See MUSIC MASTER—hear—compare—before you buy any radio set.

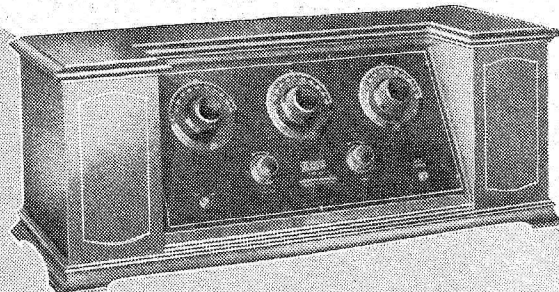


TYPE 60
Five tubes. Special Music Master design. Full, round, natural tone. Three selectors for precise tuning. Without equipment . . . \$60

Ten Models—\$50 to \$460
Guaranteed Unconditionally



TYPE 215
Remarkable for range, clarity, mellowness. Six tubes, built-in Music Master Reproducer. Beautiful Mahogany cabinet and table. Storage battery compartment concealing both batteries and charger. With out equipment—\$215



TYPE 100
Five tubes. Resonant reproduction, exceptional range. Massive mahogany console cabinet. "B" battery compartments in cabinet. With—\$100

(Canadian Prices, Slightly Higher)

Music Master Corporation

Makers and Distributors of High-Grade Radio Apparatus

128-130 N. Tenth Street
PHILADELPHIA

NEW YORK CHICAGO PITTSBURGH

Canadian Factory: Kitchener, Ontario

Music Master

RADIO PRODUCTS

MORE PAID ARTISTS BRING BETTER BILLS

WEEI ADDS PROFESSIONALS TO IMPROVE PROGRAMS

Boston Station Maps Out Excellent Schedule of Acts for Winter's Entertainment

BOSTON.—Better broadcast programs assured through the addition of more paid artists is the plan for the coming season at WEEI, The Edison Electric Illuminating company's station of Boston.

WEEI will continue through the season featuring regular and special programs from WPAF in New York. By securing more paid professional talent, this station is certain to become even more popular during the coming year.

Already, contracts have been signed for broadcasting music by the Vannini ensemble of the Boston Symphony orchestra and the 18th Century Candlelight orchestra under the direction of Raffaele Martino.

Organize Dance Orchestra

Arrangements are also being made by Professor Martino to organize a real symphony dance orchestra of fifteen musicians. This dance orchestra, composed of symphony musicians, will be heard early in October in their first program.

Another group added for the season is the Boston Orchestral Players, under the direction of Joseph Boetje. Working with this orchestra will be artists well known to Radio fans, including Miss Helen Barr, who possesses one of the most charming soprano Radio voices on the air; Howard Reunis, tenor, whose voice blends wonderfully with that of Miss Barr in duet numbers; Miss Marjorie Posselt youthful violinist who has studied both here and abroad, and Mrs. Nina G. Del Castillo accompanist and solo pianist.

The local jazz dance programs from this station will be supplied for the most part by Dok-Eisenbourg's Sinfonians and Ed Andrews' Nautical Garden orchestra.

No Local Opera

Operas will not be stressed locally. The tabloid opera presented by WPAF Grand Opera company, which is broadcast from this station, seems to fill the bill for opera music.

Dinner speeches are not received any too favorably in New England. Lectures on important subjects will be heard occasionally however.

The World's series baseball games and the important college football games of the Big Four, and play by play description of the Davis cup tennis matches are to be featured during the fall.

Punkinville Program Unique

WEEI has not experimented to any extent with the average Radio drama but they have originated a Punkinville program that seems to have gone the Radio dramatists one better. In creating this broadcast, a program has been developed that is a combination of the old time rural comedy and the hick burlesque vaudeville act. The action is not only speedy but simple, uninvolved, and easy to follow. The characters in these programs, which have become so popular, are well known to the listeners as the voices are distinctive.

Every Radio listener in New England knows Punkinville.

WCAH, COLUMBUS, OHIO

(Continued from page 5)

the ordinary Radio studio, since the WCAH studio is located in the Entrekin residence. This means that on broadcast nights, she must entertain the artists just as if she were giving a party. Any woman would shrink from the task of giving from one to three parties a week in her home, but that's what broadcasting means in the Entrekin home.

On the other hand, the congenial atmosphere of the home is attractive to the artists and it never is difficult to obtain talent at WCAH.

Mr. Entrekin answers every communication to the studio whether it be post-card, letter, or telegram with a personal note.

When the slogan fever hit the broadcasters, Mr. Entrekin was among those who climbed onto the band wagon early.

"I'm going to announce like this," he told his wife: "WCAH, broadcasting from Columbus, the Heart of Ohio."

"They'll kid you to death," she told him.

"Let them kid," he replied, "I'm going to try it." And he's still broadcasting from "Columbus, the Heart of Ohio."

KTHS to Give Dixie Series

HOT SPRINGS, Ark.—The New Arlington hotel station here, KTHS, has announced that it will broadcast the Dixie baseball league series play-by-play.

WORLD'S SERIES GAMES TAKE AIR

Thirteen Stations Sure to Carry Play-by-Play Results—WEAF Chain May

CHICAGO.—World's series broadcasts are the order of the day. During the past week eight more stations have announced their intention of carrying the baseball classic play-by-play, in addition to the five announced in these columns last week.

The eight are: KDKA, Pittsburgh; KFOA, Seattle; KTIS, Hot Springs National Park; KYW, Chicago; WBEZ, Springfield and Boston; WPAF, Cleveland; WGY, Schenectady, and WMAQ, Chicago.

The five stations announced last week as to carry the games are: KOA, WDAQ, WJZ, WRC and WSE.

Although no further stations had made their plans public at the time of going to press, undoubtedly many more broad-

casters will give play-by-play descriptions of the national game's wind-up.

One of the most important groups of stations which may carry the games is the WEAF chain. It is understood that Graham McNamee will announce the games direct from the field as was done last year. This chain includes WEAF, WCAE, WCAE, WOO, WJAR, WBEI, WWJ, WOC, WSAI, WCCO, WCTS, WVIC, WFI and WGR.

Honor Great Composers on Birthdays at Station WLW

CINCINNATI.—Radiophone Station WLW, of the Crosley Radio corporation here, has made plans to pay tribute to all the noted composers on their respective birthdays by broadcasting special programs of their music. Thus on October 9, one of St. Saens' compositions will be featured in his honor. On October 10, Giuseppe Verdi will be honored. Other composers' birthdays to be celebrated this month are Franz Liszt's on the twenty-second and Alex. Cesar Leopold Bizet's on the twenty-fifth.

Old Timers Assist at WBZ's Fourth Birthday

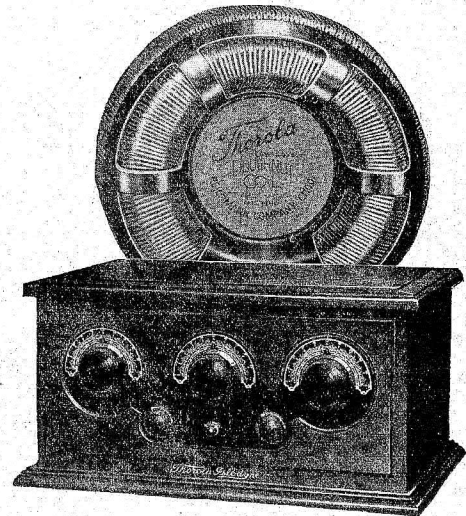
Westinghouse Station Celebrates with Four Hour Program

BOSTON.—Westinghouse Station WBZ, which went on the air along with the first broadcasters in the country on September 18, 1921 to be exact, celebrated its fourth anniversary Monday, September 21, with a program lasting four hours.

An all-star program of well-known radio artists and orchestras were heard during the evening. Nearly every regular entertainer or group of entertainers that had broadcast from WBZ during the past year, was microphoned again during the four-hour celebration.

George H. Jaspert, incidentally, who is director of WBZ, is one of the first persons to act in this capacity. At the time of the opening of KYW in Chicago, four years ago, he was director of the pioneer Chicago station and was later transferred to his present post.

Something Easy to Understand



The radio show season is on. You can go to the show without hopelessly bewildering yourself. Just keep certain basic things in mind:

You don't want any set of a passing type. You can tell very largely by the coils. Most coils "spray" energy all over a set, almost like short-circuiting the wiring! Such coils are also like little aerials in themselves, picking up signals uncontrollably.

There you have the chief causes of inter-coupling, scrambling, broad tuning, and loss of power, now defeated by Thorola Low-Loss Doughnut Coils. They are of a shape which literally "turns in upon itself." So there is no indiscriminate "spraying," no stray pick-up of signals. Selectivity is at last a positive thing, even in the most congested centers. Losses are overcome, increasing range and volume.

The coils that assure these results are to be found only in the 5-tube Thorola Islodyne receiver. It is one radio instrument at the show whose selectivity, range, volume, clearness, and uniformity of results have definite reasons behind them. You see the reasons when you see Thorola Low-Loss Doughnut Coils in this set. Here is superiority you can identify, understand and hear. For Thorola Islodyne tone is the tone which established Thorola as one of the permanently great names of radio.

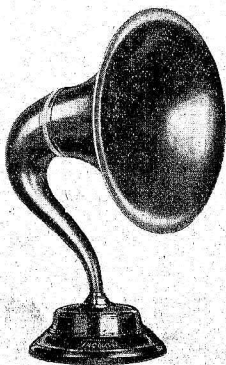
At the show, or at your dealer's, keep straight on the modern radio you want. Seek out the set with Thorola Low-Loss Doughnut Coils—Thorola Islodyne. Its entire construction and its appearance are promise of performance which cannot be measured by price.

REICHMANN COMPANY, 1725-39 West 74th Street · CHICAGO

THOROLA SPEAKERS

With vital technical refinements including the self-harmonizing feature, Thorola Loud Speakers increase their margin of leadership. The new Bakelite bell is the largest Bakelite form ever produced. The ingenious throat construction and identifying gold throat-band lend inspiring grace and rugged strength.

Thorola Loud Speaker Model 4.....	\$25	Thorola Jr. Loud Speaker.....	\$15	Thorola Islodyne (5-tube) Walnut Cabinet.....	\$115	Thorola Islodyne (5-tube) Thoroco Cabinet.....	\$85
Thorola Low-Loss Doughnut Coils—Set of 3.....	\$12	Per Coil \$4	Thorola Low-Loss Straight Line Frequency Condensers.....	\$5.50 and \$6	Thorola Golden Audio Re-producing Transformers.....	\$4.50	



Thorola ISLODYNE

SUNDAY EVENING CLUB OPENS AT KWV

Saturday, October 3

Saturday, silent night for: CFCA, CHNC, CNRC, CNRE, CNRM, CNRR, CNRW, KFAB, KFDM, KFKX, KFMG, KFLS, WBAP, WBZ, WCAU, WCTS, WDX, WEEI, WEEI, WTIC, WTTG, WVV, WWA, WJAB, WKCA, WLIT, WSM, WTC, WWJ.

Eastern Time Stations

CHIC, Toronto, Can. (357), 8 p. m., CHIC Symphony orchestra; ...

WABG, Richmond, N. Y. (315.6), 12:15-12:35 p. m., musical program; ...

WBRR, New York, N. Y. (272.6), 8 p. m., Malcom Carnot, clarinetist; ...

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; ...

WCK, Detroit, Mich. (517), 4:15 p. m., The Detroit symphony; ...

WEAF, New York, N. Y. (491.5), 7:15 p. m., "Old New York"; ...

WFAA, Dallas, Texas (475.9), 8:30-7:30 p. m., Frank Davenport and his C-Sharps; ...

WGN, Chicago, Ill. (370.2), 12:40 p. m., Drake concert ensemble; ...

WHAS, Louisville, Ky. (398.8), 7:30-9 p. m., concert, Archer Phillips; ...

WIBO, Chicago, Ill. (228), 2-4 p. m., lullaby time, Ford and Glenn; ...

WKRC, Cincinnati, Ohio (328), 8 p. m., Marion McFay and his orchestra; ...

WLS, Chicago, Ill. (344.6), 7 p. m., lullaby time, Ford and Glenn; ...

WLW, Cincinnati, Ohio (422.3), 7 p. m., Johanna Cressel and her orchestra; ...

WMAQ, Chicago, Ill. (447.5), 2:45 p. m., baseball; ...

WMBB, Chicago, Ill. (258), 7-8 p. m., Prizono ensemble; ...

WMC, Memphis, Tenn. (468.7), 8:30 p. m., musicals; ...

WDAW, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; ...

KFAB, Lincoln, Neb. (340.7), 4-5 p. m., vesper services; ...

KFVE, University City, Mo. (249), 6:30 p. m., amusement review; ...

KHLS, Hot Springs National Park, Ark. (374.8), 9-10 p. m., football and baseball; ...

KMA, Shenandoah, Iowa (252), 6-7 p. m., dinner program; ...

KRCR, Houston, Texas (296.50), 10-10:15 p. m., First Congregational church; ...

KWV, Chicago, Ill. (335.4), 6:35-7 p. m., children's bedtime story; ...

WBMB, Chicago, Ill. (226), 5:30-6 p. m., kiddies' joy digger club; ...

WCCO, Minneapolis-St. Paul, Minn. (414.4), 6:15 p. m., George Osborn's Nicollet hotel orchestra; ...

WDAF, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; ...

WDB, Buffalo, N. Y. (319), 2:30-5:30 p. m., WGR's afternoon program; ...

WEEI, Boston, Mass. (479), 7:30 p. m., Major Jones and his Capitol theater band; ...

WGB, New York, N. Y. (315.6), 8:15 p. m., Charlotte Treadwell; ...

WGR, Buffalo, N. Y. (319), 5 p. m., vesper service; ...

WJAB, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; ...

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WJAB, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; ...

Headliners of the Week

GRANDALL'S Saturday Nighters, the only troupe of broadcasting artists in the United States capital, will take over the microphone of WRIC this Saturday night to present an unusual program in an original way.

The Chicago Sunday Evening club opens October 4. Dr. Henry Howard, noted Australian evangelist, will be the principal speaker.

Monday is a gala night for WBAP, Port Worth. The twenty-four hour program, presided over by the Hired Hand himself, celebrates the opening of the new 5,000-watt equipment.

The Veiled Prophet parade again mystifies the Radio fan as he looks at the programs for Tuesday.

Radio has revealed the fact that America is producing many promising composers. Robert H. Whitcomb, who composes both for the voice and the piano, will present some of his compositions Wednesday night at WEBZ, Springfield.

Friday night is a night when broadcast listeners come into their own. GWS and listeners should tune in for WLS and listen to the model program being put on by the Broadcasters' association.

Mountain Time Stations KOA, Denver, Colo. (322.4), 12:15 p. m., Bialto theater music; 9, dance program.

Mountain Time Stations

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

KGWB, Holtville, Calif. (252), 7:30 p. m., microphone favorites; 8-9, Bill Blake, tenor; Myrtle Waters, soloist.

KGW, Portland, Ore. (491.5), 10-12 midnight, Indian Girl dance music.

KOAK, Oakland, Calif. (381.2), 8:10-9 p. m., Baldwin Piano Company program; comic opera, "Clines of Norway."

KJL, Los Angeles, Calif. (495.2), 5:30-6 p. m., Leighton St. Arcade cafeteria orchestra, Jack Cronshaw, leader.

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Sunday, October 4

Sunday, silent night for: CHIC, CHNC, CNRC, CNRE, CNRM, CNRR, CNRW, KFAB, KFDM, KFKX, KFMG, KFLS, WBAP, WBZ, WCAU, WCTS, WDX, WEEI, WEEI, WTIC, WTTG, WVV, WWA, WJAB, WKCA, WLIT, WSM, WTC, WWJ.

Eastern Time Stations

KDKA, Pittsburgh, Pa. (309.1), 10:15 a. m., church services; 2:45 p. m., vesper services; ...

WBRR, New York, N. Y. (272.6), 9 a. m., I. B. S. A. Luther; 10 a. m., I. B. S. A. choral singing; ...

WBZ, Springfield, Mass. (333.1), 10:55 a. m., South Congregational church; 8 p. m., Henry ...

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner concert, William Penn hotel; ...

WCK, Detroit, Mich. (517), 10:30 a. m., services, Central Presbyterian church; ...

WEAF, New York, N. Y. (491.5), 2:45 p. m., "Sunday Hymn Sing"; ...

WFAA, Dallas, Texas (475.9), 8:30-7:30 p. m., Frank Davenport and his C-Sharps; ...

WGN, Chicago, Ill. (370.2), 12:40 p. m., Drake concert ensemble; ...

WHAS, Louisville, Ky. (398.8), 7:30-9 p. m., concert, Archer Phillips; ...

WIBO, Chicago, Ill. (228), 2-4 p. m., lullaby time, Ford and Glenn; ...

WKRC, Cincinnati, Ohio (328), 8 p. m., Marion McFay and his orchestra; ...

WLS, Chicago, Ill. (344.6), 7 p. m., lullaby time, Ford and Glenn; ...

WLW, Cincinnati, Ohio (422.3), 7 p. m., Johanna Cressel and her orchestra; ...

WMAQ, Chicago, Ill. (447.5), 2:45 p. m., baseball; ...

WMBB, Chicago, Ill. (258), 7-8 p. m., Prizono ensemble; ...

WMC, Memphis, Tenn. (468.7), 8:30 p. m., musicals; ...

WDAW, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; ...

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WJAB, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; ...

WJAB, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; ...

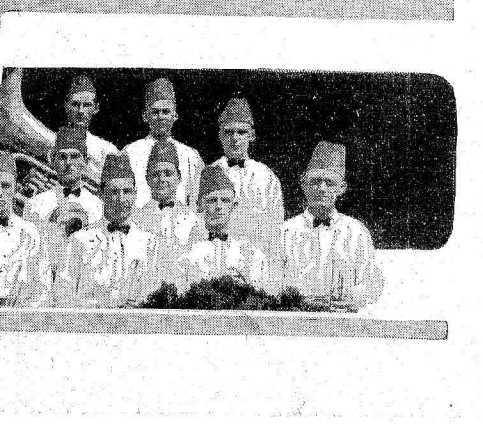
WJAB, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; ...

WJAB, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; ...

WJAB, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; ...

WJAB, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; ...

The DeMolay band, below, of Lake Charles, La., is visiting KFDM, Beaumont, this week. They plan to give Tuesday a program of popular, patriotic and old time songs which will be long remembered.



(Continued on page 9)

VEILED PROPHET PARADE FROM KSD

Sunday, October 4

(Continued from page 8)

WBAP, Fort Worth, Texas (475.9), 11 a. m., First Methodist church; 12:30 p. m., kiddies hour, Uncle Billy.

WBBM, Chicago, Ill. (226), 5-6 p. m., Stewart-Warner studio, ten dance program, Keith brothers, Earl Bergman's orchestra, Charlie Garland, Nate Caldwell, Eddie Lottis, Honky Tomk Glenn dancers; Corinne Jordan; 8-10, Hazel McDaniel, contralto; Samovar orchestra; Sunset male quartet, Joseph Hatoff, Jim Sullivan, Joe Kronenberg; 12-2, Nitty club request feature.

WCBD, Zion, Ill. (344.6), 8 p. m., mixed quartet; Gerald and Daniel Mason, cornet and trombone; A. E. McKortie, R. Korbelt, vocal duet; John Thomas, baritone; H. E. Mayfield, soprano; Gerald Mason, tenor; Lillian Edwards, pianist; reading, Hester Robinson.

WCOO, Minneapolis-St. Paul, Minn. (416.4), 10:20 a. m., Plymouth Congregational church; 4:10 p. m., House of Hope Presbyterian church; 7:45, Central Lutheran church; 9:15, classical concert.

WDAF, Kansas City, Mo. (365.6), 4-5 p. m., program, Mrs. E. N. Brinkman; 5-5:30, International Sunday school lesson, Dr. Walter L. Wilson.

WEER, Chicago, Ill. (370.2), 7-9 p. m., artist program.

WENR, Chicago, Ill. (266), 2-4 p. m., Rankin lyric

program, William Penn hotel; S. A. & P. Gypsies; dance music, Sanders Inn.

WCAU, Philadelphia, Pa. (277.6), 8 p. m., Charles Magee, saxophone; 8:30, Mary Wagoner, soprano; Kathryn O'Boyle, pianist; 9:30, Al Lockhart, piano-accompanist; 9 song hits, Danny Dougherty; 9:50, talk, Wilson N. Durham; popular songs, Don Travaline, Isabel Fine, Max Freedman; 10, Herman Schwartz and his Blue Jackets.

WCTS, Worcester, Mass. (268), 8 p. m., concert program.

WCX, Detroit, Mich. (517), 4:15 p. m., The Detroit

program, William Penn hotel; S. A. & P. Gypsies; dance music, Sanders Inn.

WCAU, Philadelphia, Pa. (277.6), 8 p. m., Charles Magee, saxophone; 8:30, Mary Wagoner, soprano; Kathryn O'Boyle, pianist; 9:30, Al Lockhart, piano-accompanist; 9 song hits, Danny Dougherty; 9:50, talk, Wilson N. Durham; popular songs, Don Travaline, Isabel Fine, Max Freedman; 10, Herman Schwartz and his Blue Jackets.

WCTS, Worcester, Mass. (268), 8 p. m., concert program.

WCX, Detroit, Mich. (517), 4:15 p. m., The Detroit

Office Mismanagement"; 6:17-7, Hotel Shelton ensemble; 7:17-30, sports talk, Bill Wether; 8:30-9:30, Al Reid's hour; 9:30-9:45, talk, Edward H. Rivesdale.

WTIC, Hartford, Conn. (470), 9:30 p. m., Bail Heineberger's Hotel Band trio; 7:45, "Bill Groussing," John W. Atwood; 8, dinner music.

WVJ, Detroit, Mich. (352.7), 12:05 p. m., Jules Klein's Hotel Stadler orchestra; 3, Detroit News orchestra; 9, dinner concert; 8, News orchestra.

Central Time Stations

KFAB, Lincoln, Neb. (340.7), 5:30-6-50 p. m., Buick Little symphony, Belsaw's orchestra; 8:30-10:30, Belsaw's orchestra; Mart Grammstadt, bandist; Clyde Davis, violinist; Hazel Miller and Frank Carroll, duet; Buick Harmonica studio.

KFKX, Hastings, Neb. (238.3), 9-11 p. m., musical program, Hotel Clarke studio.

KKMF, Shenandoah, Iowa (266), 7 p. m., Smith-Bellevue orchestra.

KFVE, University City, Mo. 6:30 p. m., Amusement review, Romane Fielding; 10, popular music concert, Brunswick-Balke-Collender company; Orchestra Masone.

KMA, Shenandoah, Iowa (252), 6-7 p. m., dinner program, May's Flower orchestra; 9-11, familiar songs and music; chimes, William Huette, boy pianist; KOL, Council Bluffs, Iowa (278), 7:30 p. m., Hugo Heyn and his New Happy Hollow club orchestra; 8, William E. Ocker, organist; 11-12, Hickey Dancy hour, Ray Winn and his orchestra.

KPRC, Houston, Texas (236.6), 5:30 p. m., Uebel Janda's kiddie band; 8:30, 330, 330, 330, Rumbler's orchestra; 8:30, Elizabeth Tracy, classical pianist; 9, recital, Mrs. Mark Westcott.

KSD, St. Louis, Mo. (345.1), 9 p. m., program.

KTHS, Hot Springs National Park, Ark. (374.8), 9-9:30 p. m., Meyer Davis orchestra; 9:30-9:45, W. C. Brown, baritone; 9:45, Ethel, organist; 9:45-10:30, Arthur Platz, pianist.

WBAP, Fort Worth, Texas (475.9), 7:30 p. m., Wagner Hawaiian trio; 8:30-9:30, Ward E. Trail Blazers; 11:30-11:50, George Ornn's Palace theater orchestra; 11:30-12:30, stars, Majestic theater; 12:30-1:30 a. m., Sam S. Lash and assisting artists; 1:30-2:30, Will Foster,



Marjory Weber Bobestreit, left, is the pianist and organist who is entertaining during the noon hour Wednesdays at WLW, Cincinnati. Dorothy Talbot, above, is the coloratura soprano who has recently joined the staff of the new Oakland station, KFAB. She is well known to fans because of her former appearances at KPO. Elmer Grosso, right, and his versatile orchestra broadcast dance music from WEAJ every other Saturday afternoon.

and Warner brothers movie frolic; Frank Stever, baritone; Howard Flynn, tenor; Peggy Maloney, blues singer; Frank Pierce and The Boals, comedy songs and others.

KGO, Oakland, Calif. (361), 11 a. m., First Baptist church; 8:30 p. m., KGO Little Symphony orchestra; 9:30, First Baptist church.

KOW, Portland, Ore. (484.5), 10:55-12 noon, services, Church of Our Father, First Unitarian; 7:55-9 p. m., services, First Presbyterian church.

KPL, Los Angeles, Calif. (405.2), 8-6:30 p. m., Leigh-ton's Arcade cafeteria orchestra, Jack Cronshaw, leader; 6:30-7, Art Hickman's Hillmore hotel concert orchestra, Edward Elmore, director; 7-7:30, Arthur Blakely, organist; 8-10, birthday program, Walker's Fifth Street Store company, arranged by J. Howard Johnson.

KNX, Hollywood, Calif. (336.9), 6-8 p. m., First Presbyterian church of Hollywood, Rev. Stewart P. MacLennan, pastor; 8-9, Ambassador hotel concert orchestra, Josef Rosenfeld, director; 9-10:30, program, Beverly Hills Nurses; Russian string trio; Calman Lubovitch, violinist; Raquel Nieto, soprano.

KPO, San Francisco, Calif. (428.3), 3-4 p. m., Marshall Ginsman, organist; 8, Waldemar Lind and the States Restaurant orchestra; 8:35, concert orchestra, Palace hotel; 8, Palace concert orchestra; 8:30-10, Rudy Seiger's Palmont hotel orchestra.

Symphony trio; 6, dinner concert, Book-Cadillac hotel; 8, musical program.

WEAF, New York, N. Y. (491.5), 2:30-4:30 p. m., Government club meeting; 4:30-4:40, Gertrude E. Tule, soprano; 4:40-5, Shell Beach girls; 6-7, dinner music, Waldorf-Astoria; 7-7:15, musical program; 7:15-8:30, program, Mark Strand theater, direction, Joseph Blumfeld; 8:30-8:45, Tower hall talk; 8:45-9, Paul Platfeld, pianist; 9-10, music, A. and P. Gypsies; 10-10:30, musical program; 10:30-11:30, Ben E. Holt, soprano; 11:30-11:45, "New Astrology," Belle Bart.

WEAR, Cleveland, Ohio (389.4), 11 a. m., household science Betty Crocker; 7, Alton theater orchestra.

WEEL, Boston, Mass. (474), 8:30 p. m., Big Brother club; 7:30, music; 7:50, talk; 8, Dick Blenbow's State theater orchestra; 8:30, Tower hall talk; 8:45, Mrs. William Blatt, reader; 9, A. & P. Gypsies; 10, Thermo Appliance company; 10:10, American House Martinis band; 10:15, Holmes' orchestra.

WGES, New York, N. Y. (315.6), 6-6:30 p. m., Uncle Goebel; 6:30-7, orchestra; 7-7:15, "New Astrology," Belle Bart.

WGCP, New York, N. Y. (315.6), 5-5:15 p. m., Skamille Paul; 5:15-5:18, Mirror race results; 5:18-5:30, Harry Duobis, pianist; 5:31-5, Charles Van Thome, pianist; 5:15-8:30, Jeanne Laval, contralto; 8:30-8:45, Lou Lefebvre, jazzologist; 8:45-9, Vincent Laine, tenor; 9-9:15, Lillian Gurdane, contralto; 9:15-9:30, Kennedy Harmony quintet; 9:30-9:45, Marie McCallister; 9:45-10, Raymond Maher, baritone; 10-11, Strickland's Chorus Gypsies orchestra.

WGR, Buffalo, N. Y. (319), 2:30-4:30 p. m., WGR's afternoon program; 6:30-7:30, dinner music, Jewish community house orchestra; 9-10, children's club; Buffalo Council of churches, singing at Central Presbyterian church; 10-10:45, xylophone, Mary Zoller; 11-1 a. m., supper, dinner music, Vincent Jones, Hotel Statler dance orchestra, Harold Gies, director.

WGY, Schenectady, N. Y. (378.5), 6:30 p. m., dinner program, Hotel Van Curter orchestra; 7:30, WGY orchestra; Radio Post quartet.

WHAR, Atlantic City, N. J. (275), 7:30 p. m., stories for little folks, Mildred C. Hazen; 8, Seaside hotel 110.

WHN, New York, N. Y. (361.2), 7:30-8 p. m., Swanne club; 8-8:45, talk, H. D. Shonst; 8:45-8:55, Roseland dance orchestra; 11-11:30, Marsh McCarly, organist; 11:30-12, Silver Slipper revue; 12-12:30, Ted Lewis and his Parody club orchestra.

WJAR, Providence, R. I. (305.9), 8 p. m., Berry Spring Sing; 8:45, quartet, Fire Prevention; 9, A. and P. Gypsies.

WPHL, Philadelphia, Pa. (384.5), 7:30 p. m., Dream Dance, bedtime stories, 8, program from Philadelphia Radio show; 10, Arcadia cafe dance orchestra.

WVAZ, New York, N. Y. (489.9), 8-8:30 p. m., Olcott Valley string ensemble; 8:30-7:30, Ernie Golden and his Hotel McAlpin orchestra; 7:30-8, Jullaby music; 9-10, lecture, "Child Church of Christ Scientist"; 10-12, popular program.

WNVO, New York, N. Y. (526), 7-7:10 p. m., market lunch notes; 7:10-8, Stony Brook orchestra; 7:30-7:35, police alert; 7:35-8, Stony Brook orchestra; 8-8:30, song recitals; 9-9:15, string quartet; 9:45-10, concert; 10-10:30, talk, Dept. of Education.

WOR, Newark, N. J. (465.2), 6:15-6:45 p. m., "Words

organist; 2:30-4, Panther Hawaiian trio; 4-6, Bluebonnet serenaders.

WBBM, Chicago, Ill. (226), 6-7 p. m., Stewart-Warner studio, Clem Dacy, Jimmy Jordan, Charlie Garland, Nate Caldwell, Eddie Lottis, Corinne Jordan, Patky O'Sullivan, Lou Russell, Alton orchestra.

WCOO, Minneapolis-St. Paul, Minn. (416.4), 8:45 p. m., C. M. Rogers; 9:15-9:30, Hamlin, organist.

WDAF, Kansas City, Mo. (365.6), 6-7 p. m., piano tuning in number on the Duo-Art; dialect readings, C. M. Rogers; 9:15-9:30, Mary Adey, Trianon ensemble; 8-9:30, Ivanhoe band; Ivanhoe Glee club; 11:45-1 a. m., Merry Old Chief, Carl Nordberg's Plantation players; Ted Metz, organist; Eddie Kuhn's Kansas City Athletic club orchestra.

WFAA, Dallas, Texas (475.9), 6:30-7:30 p. m., Artie Collins and his orchestra.

WGN, Chicago, Ill. (370.2), 12-10 p. m., Drake concert ensemble; Blackstone string quintet; 4-5:30, tea time music, Marshall Field tea room orchestra; 6:30-7, Drake concert ensemble; Blackstone string quintet.

WHAD, Milwaukee, Wis. (275), 6-7 p. m., Arthur Medley, organist; 8-10, Marquette university studio program; Herman Lengend, tenor.

WHO, Des Moines, Iowa (520), 8:30-8:50 p. m., advance students, Drake University Conservatory of Music; 8-9, Drake University Conservatory of Music, Dean H. C. Rogers; 9-9:15, Dean Sugar orchestra.

WKRC, Cincinnati, Ohio (422.4), 6 p. m., Alton Roddy's Hotel Alton orchestra; 10, Fred Sunkler's orchestra; 11, program, Robert B. Bentley Post, American Legion; 12, theatrical stars, Wesley Heiley's Troubadours.

WLW, Cincinnati, Ohio (422.3), 7 p. m., dinner concert, Ethel Gibson orchestra, Robert Visconti, director; 8, concert, artists from the Cincinnati Conservatory of Music, arranged by Helen Hill; 8:45, instrumental trio; 9:15, a quartet, group of Hungarian folk songs, Bertha Pasty, soprano, Thomas Zellars, accompanist; 9:30, the first in a series of famous O. Henry plays "The Handful of Hyacinths," concluding selections on the Wurliتزton Unit.

WMC, Memphis, Tenn. (499.7), 8:30 p. m., Britling's Nonpareils orchestra.

WOAW, Omaha, Neb. (526), 6 p. m., Phyllis Griswold, organist; 6:30, popular song period, Lillian Latham; 7, Radio's Royal Pontenelle orchestra; 8, American Legion program.

WOK, Chicago, Ill. (217.3), 6-7:30 p. m., Ada Allan, soprano; Hanson, baritone; LeRoy Lottis, pianist; Banks Kennedy, organist; Gus C. Edwards orchestra; WOK string trio; 7:30-1 a. m., Herman Strubbe, organist; Banks Kennedy, organist; LeRoy North, pianist; Gus C. Edwards orchestra; Lew Butler, tenor; Harlan Merrill, musical saw; Jimmie Cairns, tenor; Buck Weaver, banjoist; Fred Bealio, banjoist; Paul Saal, tenor; WOK string trio.

WOWA, Omaha, Neb. (526), 6 p. m., Phyllis Griswold, organist; 6:30, popular song period, Lillian Latham; 7, Radio's Royal Pontenelle orchestra; 8, American Legion program.

WOK, Chicago, Ill. (217.3), 6-7:30 p. m., Ada Allan, soprano; Hanson, baritone; LeRoy Lottis, pianist; Banks Kennedy, organist; Gus C. Edwards orchestra; WOK string trio; 7:30-1 a. m., Herman Strubbe, organist; Banks Kennedy, organist; LeRoy North, pianist; Gus C. Edwards orchestra; Lew Butler, tenor; Harlan Merrill, musical saw; Jimmie Cairns, tenor; Buck Weaver, banjoist; Fred Bealio, banjoist; Paul Saal, tenor; WOK string trio.

(Continued on page 10)

Monday, October 5

Monday, silent night for: CHIC, CNRR, CNRE, CNL, CNRE, CNEW, CNRT, KFDM, KFMD, KHL, KIDS, KTCL, KYW, WBBM, WCBD, WEER, WENR, WFL, WGAS, WGES, WGN, WWS, WIP, WJAZ, WLS, WMAQ, WMBB, WOB, WJQ, WRFD.

Eastern Time Stations

CHIC, Toronto, Can. (357), 8 p. m., CHIC Symphony orchestra; George Miner, vocalist.

CNRR, Toronto, Can. (356.9), 10 p. m., CENR Little Symphony orchestra; Alice Holdreiss, soprano; Sydney Walsh, tenor.

KDKA, Pittsburgh, Pa. (309.1), 6-15 p. m., dinner concert; 7:30, children's period; 8:30, concert.

WAHG, Richmond Hill, N. Y. (315.8), 12:15-12:55 p. m., musical program; 7:30-8 p. m., musical program.

WBBR, New York, N. Y. (272.6), 8 p. m., Sylvia Oriental musicians; 8:30, World News Digest; 8:30, musical program; 9:30, 9:35, Bible instruction; 9:50, Sylvia Oriental musicians.

WBZ, Springfield, Mass. (383.1), 6:30 p. m., Capital Blue's orchestra; "The Presentation," Theodore A. Glynne; 7:30, Gladys Ruth Bridgman's juvenile playlets; 8, Capital theater orchestra; 8:30, Flare band; 9:30, Minnie Bohler, soprano; 9:55, Bible instruction; 10, Cross Program for 1926; James T. Nicholson; 10, Grace Loomis Kompton, soprano; 10:20, Hotel Brunswick orchestra.

WCAE, Pittsburgh, Pa. (461.3), 6:30 p. m., dinner

program, William Penn hotel; S. A. & P. Gypsies; dance music, Sanders Inn.

WCAU, Philadelphia, Pa. (277.6), 8 p. m., Charles Magee, saxophone; 8:30, Mary Wagoner, soprano; Kathryn O'Boyle, pianist; 9:30, Al Lockhart, piano-accompanist; 9 song hits, Danny Dougherty; 9:50, talk, Wilson N. Durham; popular songs, Don Travaline, Isabel Fine, Max Freedman; 10, Herman Schwartz and his Blue Jackets.

WCTS, Worcester, Mass. (268), 8 p. m., concert program.

WCX, Detroit, Mich. (517), 4:15 p. m., The Detroit

STAR GAZE THURSDAY WITH WTIC



Mrs. Refuge Beye Loving, soprano, is called upon to sing during special long distance programs at KFDM, Beaumont. Her renditions of Spanish songs appeal to the fans of Central and South America.



Fred East is one reason for the popularity of Cran-dall's Saturday Nighters at WEGC, Washington, D. C. His jovial baritone voice has endeared him to the hearts of many fair fans.

Little Symphony orchestra, Victor Soudck, director; Alberta Baker, contralto; Frederick Rodgers, baritone; 10-30, concert.

Anita Vinograd, below, is the promising young violinist who is appearing regularly Monday nights at WEAH, Milwaukee. Miss Vinograd won first place in the District Music contest at the Milwaukee Normal school in May and during the past season has been concert mistress of the all-city orchestra.

Wednesday, October 7

(Continued from page 10)
WGES, Oak Park, Ill. (250), 7-9 p. m., Richard Dale, baritone; Louisa Weiss, soprano; John MacFarlane, bass; John Stamford, tenor; 11-2 a. m., Kampus Collegians orchestra; Rose Strenney, soprano; Frank Gallery, tenor; Lew Russell, Sing Olmsted, ukulele soloist; DeWitt & Owen; Evans Lloyd, baritone.

Mountain Time Stations

KOA, Denver, Colo. (322.4), 6-30 p. m., Herbert White and his Silver State orchestra; S. scientific football, Tom McNameer; 8-10, "The Rectory," scene from "Romeo and Juliet," KOA players; 10, dance program.

Pacific Time Stations

KFOA, Seattle, Wash. (454.3), 6:45-8:15 p. m., Hoppet Kelly company; 8:30-10, Times studio program.
KFWB, Hollywood, Calif. (252), 6-7 p. m., children's hour, Eds Brothers of KFDM; 7-7:30, Mutual Motors night concert; 7:35, interphone specialties; 8-9, program, John Wright, Barbara Bennett, blues singer; John Wright's orchestra; Kathryn Martin, soprano; Rogers Hawaiian trio; 9-10, Joe Martin's Studio Six dance orchestra; Violet Preston, blues singer; Emma Kimmel, soprano; Harold Lord, bass; 10-11, Warner Brothers' frolic, direction Charlie Wellman, arranged by J. Howard Johnson; 10:30-11:30, Art Egan's Billmore hotel dance orchestra, Earl Buttner, leader.

Central Time Stations

KFNF, Shanandah, Iowa (269), 7 p. m., concert, Packet family.
KLOS, Independence, Mo. (441), 8 p. m., Rogaine Jean, reading; Pauline Patterson, soprano; Elizabeth Clinton, pianist; Elizabeth Clinton, soprano; A. G. Harwood, violinist; Corinne Hayes French, soprano.
KMA, Shanandah, Iowa (252), 6-7 p. m., music; 6:35, flower talk, Lina Ferguson; 9-11, Dolomede Dragner, Delmaria hotel orchestra; Walter Niran, director.
KOL, Council Bluffs, Iowa (270), 7:30 p. m., old time music jubilee, Louis Lann; 9, community information service, the reference desk of the public library, Margaret Black; 11, Baker's plantation six.
KPRC, Houston, Texas (296.9), 5:30 p. m., Uncle Tudd's kiddies' hour; 7:30, (221) music, dancing orchestra, Claude Blanchard, leader; 8:30, R. S. Pearson, baritone; C. Gregor Jassel, Russian violinist; S. J. Pfeiffer, pianist.
KTHS, Hot Springs National Park, Ark. (374.8), 9-9:30 p. m., New Arlington hotel orchestra; 9:30-10:15, Lawson Hall, organist.
KYW, Chicago, Ill. (555.4), 7-7:30 p. m., dinner concert, Congress hotel; 7:35-7:55, American Farm Bureau federation; 8-8:30, "Twenty Minutes of Good Reading," Rev. C. J. Perry; 8:30-9:15, Joy Jones, soprano; Joe Harkett, humorist; Genevieve Howard, reader; 10, "Clanless for Lincoln," Frank Babco Clark; 11:15, KYW's Aerial Stringers.
WEAF, Fort Worth, Texas (672.9), 7:30-8:30 p. m., Harmon club; 9:30-10:15, program, John Tarleton, University College of Stephenville.
WBMM, Chicago, Ill. (226), 8-9 p. m., Senator orchestra, Charlie Gardin, Kate Caldwell, Edith Loftis, Jim Gleason; 9-10, Senator-Warner studio, Alamo orchestra; Lew Russell, vocal soloist; Corinne Hayes French, Corinne Jordan, Vera Gilbert, Fred Jess, Frank Nuber; 10-13, Senator orchestra, Hazel McCreary, Paul Smith, Doris Ryan, Dorothy O'Sullivan, Fred Jesko, Frank Nuber, Corinne Jordan, Vera Gilbert.
WCBD, Zion, Ill. (344.6), 8 p. m., saxophone quartet; 8-8:15, and all-Newton, cornetist and saxophonist; Florence Farrar, E. E. Parker, vocal duet; E. E. Florence Farrar, cornetist; Florence Farrar, contralto; Misses Weidman, Laddie and Demovon, vocal trio; E. D. Paxton, baritone; Esther Naffziger, pianist; Mrs. J. McNeilly, reader.
WCCO, Minneapolis-St. Paul, Minn. (416.4), 7 p. m., The Larklarkies; WEAF, 8-10, concert, Alwater Kent Radio artists; 9-10, Silvertown Cord orchestra.
WDFW, Kansas City, Mo. (565.6), 6-7 p. m., book talk, Louis Meeker; "Yell-Me-a-story" duet; Thianon ensemble; 11:45-11:55, Jerry Old Chief; Carl Nordberg's Plantation Players; Earl Coleman's Earl Coleman's Kansas City Athletic club orchestra; Tod Mey, organist.
WEBB, Chicago, Ill. (370.2), 9:30-10:30 p. m., Oriole orchestra; Upton theater; 9:30-10:30, Oriole orchestra; Katherine Forbes, soprano; Ruthal Ladd, organist.

Thursday, October 8

Thursday, silent night for: CHIC, CHNC, CNHE, CNRE, CNRT, KFAB, KFDM, KFKA, KFMC, KFWE, KFWE, KGD, KSD, KGL, FWG, WANG, WCEE, WEBI, WHAD, WJJD, WKAC, WLIT, WFR.

Eastern Time Stations

CNRM, Montreal, Can. (411), 8:30 p. m., H. M. Canadian Grenadier Guards band.
KDKA, Pittsburgh, Pa. (580.1), 8-15 p. m., dinner concert; 7:30, children's burlesk; 8:30, concert, KDKA orchestra.

(Continued on page 12)

FOLLOWING SPORTS THROUGH MIKE

DISTANT GAMES ARE ON WGN SCHEDULES

RYAN AND NEAL WILL MIKE BIG MIDWEST CONTESTS

Station Engineer Will Use Unique Microphone Arrangement in Broadcasting Big Ten Gridiron Tilts

CHICAGO.—Preparations for broadcasting four of the most important Big Ten conference football games and a trio of unusual inter-sectional contests by WGN, the Chicago Tribune station on the Drake hotel, have been almost completed, Director Quin A. Ryan has just announced. The following list of games will be broadcast by WGN:

- October 3, Nebraska at Illinois
 - October 17, Wisconsin at Michigan
 - October 24, Michigan at Illinois
 - October 31, Illinois at Pennsylvania
 - November 7, Chicago at Illinois
 - November 21, Minnesota at Michigan
 - Thanksgiving, Notre Dame at Nebraska
- "The schedule outlined above is by no means a final one," said Director Ryan, "since it is the station's policy to present all the most important games of this season and to give the fans an opportunity to 'hear' the best midwest teams in action. There may be some mid-season changes in the present list to include games of wider interest."

Game Every Saturday

"As will be noticed in the schedule, there are several open Saturdays on all of which games will be broadcast. The teams so far listed represent, according to the football sharps, probably the strongest aggregations in the midwest."

"Notre Dame, last year's national champion, will of course be forced to build an entire new team owing to losses by graduation, but Coach Knute Rockne's success building elevens, makes the inclusion of at least one Notre Dame game imperative."

Distance makes no difference to WGN when there is an interesting game due. The Nebraska-Notre Dame game and the Illinois-Pennsylvania contest will be broadcast respectively direct from Lincoln (Continued on page 21).

Big Kick-Off Saturday in 1925 Radio Football

Harvard, Chicago, Cincinnati, and Holy Cross on Air

Most of the leading college football teams start their regular schedules on Saturday, October 3, and at the same time several broadcasting stations will start carrying the games over the air to those unable to attend. Among these stations are WBEZ, WSAI, KYW and WMAQ.

The high spots on the WBEZ schedule include the games of the "Big Three, Harvard, Yale, and Princeton, and other important tilt. In the East. Play-by-play accounts of these games will be miked direct from the field. Station WJZ, in New York, will have charge of the pick-up for games played in New York and in return WBEZ will pick-up the Harvard-Yale game for them.

Besides the Harvard games, the Boston station will fill out its schedule with games played by Holy Cross.

- The complete WBEZ schedule follows:
- October 2—Harvard vs. Rensselaer.
 - October 10—Harvard vs. Middlebury.
 - October 17—Harvard vs. Holy Cross.
 - October 24—Harvard vs. Dartmouth.
 - October 31—Holy Cross vs. Bucknell.
 - November 7—Princeton vs. Harvard.

Sport Broadcasts

FOOTBALL

Saturday, October 3

- Amherst-Princeton, WJZ (454.3).
- Chicago-Kentucky, KYW (585.4), WMAQ (447.5).
- Hanover-Cincinnati (8:00 p. m. Central time), WSAI (325.9).
- Harvard-Rensselaer, WBEZ (333.1).
- Michigan Aggies-U. of Michigan, WWJ (352.7).
- Nebraska-Illinois, WGN (370.2).
- North Dakota-Minnesota, WCCO (416.4).
- South Dakota-Northwestern, WBBM (226).

WORLD'S SERIES

Opening Date, October 7

- KDKA, KPOA, KOA, KPRC, KTHS, KYW, WBEZ, WCAE, WCCO, WDAG, WEAB, WEAR, WGN, WGY, WGR, WJZ, WMAQ, WRC, WSB, WTIC, WWJ.
- (See page 15 for wave lengths.)

- November 14—Yale vs. Princeton.
- November 21—Harvard vs. Yale.
- November 26—Cornell vs. Pennsylvania.
- November 28.—Boston college vs. Holy Cross.

Mikes Night Games

Station WSAI opened the 1925 football season over the mike last Saturday with a rather unique game to describe to the fans. The game was played at night between the University of Cincinnati and Transylvania. A special radiant fluid was placed in the hall and it appeared silver-like under the rays of the powerful arc lights illuminating the field. The next game, that on October 3, when "Cincy" clashes with Hanover, will also be played under the same night conditions.

The remainder of the games will be played in the afternoon, and they like the first will be brought to the homes of the listeners by Eugene Mittendorf, play-by-play. Mr. Mittendorf is now manager of WKRC, but he will be back at the WSAI mike for the games as he was last year.

The other Cincinnati home games to be miked are: October 10, Georgetown; October 17, Otterbun; October 24, Dennison; October 31, Dayton; November 14, Ohio; and November 26, Miami.

Totten Back at WMAQ

After having successfully broadcast most every home game played by the Chicago Cubs baseball team, Hal Totten will commence another season of football announcing over WMAQ, the Chicago Daily News station, on October 3, when the University of Chicago tackles the University of Kentucky at Stagg field, Chicago. H. M. Beardsley will cooperate with Totten this time as he will subsequently at Stagg field.

KYW, Chicago's Westinghouse station, will also broadcast the Chicago U home games. The KYW microphones will be in charge of Harold "Shorty" Fall, assistant director.

The dates of the games are: October 10, Ohio State; October 17, Northwestern; October 31, Purdue; November 14, Dartmouth; and November 21, Wisconsin.

Washington U. Games Over KFOA

SEATTLE, Wash.—All University of Washington football games will be broadcast direct from the university stadium through Station KFOA, Rhodes Department store here. The first game will be on Saturday, October 10.

FOR ADDITIONAL SPORTS REFER TO PAGE 7

STATIONS IN ORDER OF WAVE LENGTHS USED

Meters	Call	Meters	Call	Meters	Call	Meters	Call	Meters	Call	Meters	Call
215	KTAB	275.3	WJAS	309.1	KDKA	365.6	WDAF	406	WBAR	488.5	WCAP
217.3	WOK	278	KOIL	315.6	KPDM	365.6	WHB	410.7	CKAC	488.5	WRC
226	WBBM	278	WCAU	315.6	WAHG	370	CYB	416.4	WCCO	475.9	WBAF
226	WBBO	278	WLBL	315.6	WAG	370.2	WEBE	421	KIAP	475.9	WTIC
249	KYWB	278	WRBL	319	WGR	370.2	WGN	422.3	WLV	475.9	WFSA
243.8	WAMD	280.2	WNAC	319	WSMB	374.8	KTHS	422.3	WKRC	480	CYL
250	WGES	282.3	WOAN	322.4	KOA	374.5	WGT	428.3	WSB	488.6	WOC
250	WMBP	285.5	WKAR	329	CYX	384.4	CKY	428.3	KPO	491.5	KGW
252	KFWB	285.5	WRBO	332.1	WBEZ	384.4	KJR	434.5	CNRO	491.5	WBAP
261	KFWA	288.3	KPKX	336.9	RNX	384.4	WMBP	434.5	NAA	491.7	WMC
265.5	WMAK	293.9	KJIS	340.7	WKAQ	389.4	WTAM	435	ATW	508.2	KLN
266	KPNE	293.9	WEOA	340.7	WMCA	394.5	WFI	440.9	KLDS	508.2	WIP
266	WBCN	293.9	WEOA	344.6	WGBD	394.5	WLIT	440.9	VDWP	516.9	WCO
268	WCTS	296.9	KPRC	344.6	WLS	394.5	WQAI	440.9	WVW	516.9	WCX
272.6	WBER	299.8	KFMQ	344.6	WVW	394.5	WQAI	447.5	WMAQ	516.9	WJR
272.6	WBEJ	299.8	KSL	348.6	WVSC	399.8	WHAS	447.5	WQJ	526	WHO
272.6	WFBH	299.8	WFG	352.7	WVJ	399.8	WHIT	454.3	KFOA	526	WNYC
273	KWKH	299.8	WJTD	356.9	WCA	400	PWX	454.3	WJZ	526	WOAW
273	WRW	302.8	WJTD	356.9	WCA	400	PWX	454.3	WJZ	526	WOAW
275	WHAD	302.8	WJTD	356.9	WCA	400	PWX	454.3	WJZ	526	WOAW
275	WTAZ	305.9	KYCL	361.2	KGO	405.2	KHJ	455	KTW	535.4	KYW
275	WTAZ	305.9	KYCL	361.2	KGO	405.2	WJY	461.3	WCAB	545.1	KFOO
275	WORD	305.9	WJAR	361.2	WHN	405.2	WOR	467	KPT	545.1	KSD



"The voice of the people"

If you are confused about Radio—if the din of conflicting claims and statements has left you more puzzled than ever—turn to the one infallible test—the consistent preference of the public.

Choose wisely by analysing the judgment of the multitude who have already made a careful selection. Their choice is summarized in the circle above. Study it! By official figures, it shows that to an overwhelming degree FREED-EISEMANN is the largest manufacturer of Neurodyne Radio Receivers in the world.

The pre-eminence of FREED-EISEMANN is solidly founded on ACCOMPLISHMENT

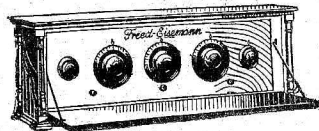
Back in the very beginning of the Radio industry, even before the days of general broadcasting, FREED-EISEMANN engineers were already perfecting tone, simplicity and selectivity.

The new FREED-EISEMANN sets mark the furthest advances in Radio engineering.

Without cost or obligation—
A home trial for a liberal period

Our dealers are so sure of the performance of the FREED-EISEMANN that *this week* they will gladly install a set in your home *without obligation*—so that you may learn the joys it will give you. Telephone your dealer today for your set.

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MANHATTAN BRIDGE PLAZA, BROOKLYN, N.Y.



The famous NR-20, \$175.00

Ade luxe Neurodyne® Receiver in a handsome mahogany cabinet.

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Other sets at \$75, \$90 and \$110.

FREED-EISEMANN

Mastery in Radio

An Evening at Home with the Listener In

(FOR CENTRAL TIME)

(FOR PACIFIC TIME)

(Tabular form and listings copyrighted. Reproduction is forbidden.)

Table listing radio stations by call letters, frequency, and broadcast schedule for various cities including Atlanta, Chicago, New York, and Los Angeles.

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Limitation of Broadcasters

SECRETARY HERBERT HOOVER, of the department of commerce, under whose administration Radio falls, has expressed himself as desirous of the consideration of a plan for the limitation of broadcasting stations. Note: Mr. Hoover does not necessarily recommend the limitation of stations. He only announces that this is a subject he would like to have discussed at the forthcoming Radio conference. He asks the opinions of dealers, manufacturers, broadcasters and the general public.

Radio Digest is in a splendid position to give much valuable information to the department of commerce on this very subject from the standpoint of the general public. Over fifty thousand "Consensus of Opinion" ballots, it will be remembered, were received by this publication from its readers and their friends when it was desired to learn what the public thought of the limitation of issuance of broadcasting licenses in accordance with the Kintner or some similar, perhaps improved, plan. These are still on file. Almost unanimous the vote stood in favor of limiting licenses according to some logical plan.

We do not ask that existing stations be forced to go off the air, but we do believe that it would be most desirable not to allow new stations to take the air until an exclusive wave is available for the period of operation of the station, either as a result of some older broadcaster closing down, or as a result of technical research which will open up new wave bands, the "ether roads."

Time and time again we have suggested that the United States senate and house of representatives study the problem a bit more carefully and provide sufficient funds with which the Radio section of the department of commerce might work. The "police force" of the air cannot keep the "traffic" regulated without "whistles" and "traffic semaphores." In Radio language, the Radio supervisors, limited in number as they are in the first place, cannot adjust broadcasting stations and keep them adjusted to the exact assigned wave lengths without possessing precision frequency meters and similar Radio measuring and observing apparatus.

These meters sometimes cost as much as would a new and useless culvert for the tributary between the sovereign states of Wynken and Blynden—paid for, of course, from the famous pork barrel, or rivers and harbors appropriation bill.

Or a decimal, calibrated wavemeter has been known to cost all of a tenth of what it does to send a senator on a beautiful joy-ride on a U. S. Shipping Board vessel, the Leviathan for example (first-class \$2,000 stateroom), to the Zulu or Philippine Isles to investigate the proximity of vermin in the straws of the straw-thatched roofs of native huts.

However, we must not stoop, in these dignified columns, to criticize the actions of senators. We will leave that mission for Vice-President Dawes, a very capable gentleman, who knows the kind of language to use on such occasions.

What we started to say was, let's first of all provide sufficient funds for the Radio section. Congress allowed \$125,000 last year. That wasn't half enough. Give the supervisors what they need so that the listening public will get what they want—clear reception from properly adjusted and operated broadcasting stations.

Then, if it is still necessary to limit broadcasting stations, all right, we'll limit them!

Radio Beckons Youth

IT WAS once, "Go West, young man, go West," but now has changed to, "Study Radio, young man, study Radio." Opportunities in Radio, far beyond the most vivid imaginations, await the youth of today. Not long ago a Seattle boy—he is hardly more than that—sent in a drawing of a cone type reproducer to a large Radio manufacturer. That manufacturer is now making nearly a thousand of these cone speakers every day, and the youth is in the employ of the company at a splendid salary.

Do not discourage the lad who "messes up" the basement work room with wires and "that Radio junk!"

RADIO INDI-EST

To Graham McNamee, Gold Cup Winner

Whether at home, or club, or seashore,
Or mountain realms so rare,
A treat is sure in store for you
When Mac is on the air.

Just twist and turn the dials around
Till New York comes in. You'll see
That you have stumbled onto
WEAF and McNamee.

He handles all the worth while stuff
And takes you right along
With him to mingle, see, or hear
Be it sports, dance or song.

He makes you see just what he sees
Tho' he's nowhere around
For description, wit, his equal
In Radio cannot be found.

E. V. L.

The foregoing are but four stanzas of a ten stanza poem written by E. V. L. in honor of McNamee's victory.

Useless Facts and Figures

Ed Squires, former announcer at many stations, is a Yale graduate, according to a newspaper clipping. So that's the reason we uneducated bozos can't comprehend him!

Earthquakes are said to clear the air of static, but who the hell, who cares to have pet earthquakes under his antenna?

Swear words are almost as handy as electric soldering irons when building one's own receiver.

Radio helped save seven tourists and four Swiss guides and porters during the past tourist season in the Swiss Alps. The number of Swiss cheeses so rescued has not yet been tabulated.

The Duke of York makes dictaphone records of his broadcast speeches from 210, London. He likes to hear his speeches repeated. The duke seems to be alone in this proposition.

Magnetized screw drivers will not pick up brass screws.

Bachelors tune in the most distant stations on the loud speaker.

Unmarried women get a chance to listen in much more than their homemaker sisters. GOOPY GUS.

The Mystery of the Ether

Through walls of my humble cottage
Comes the breath of the mountain air;
And lo! the voices of angels
Seem to vibrate everywhere.
Over the waves in the ether
Such harmony divine—
It seems to come from another world
And enter this soul of mine.

RHEA SHELDON.

A Warning

Now that I have killed off all the slow announcers, abolished most sopranos, and put out of business all stations not observing silent nights, I will next train my guns on editors of Radio journals who throw my contributions in the W. B.

I am vindictive, revengeful, and remorseless when I go on the war path! GEORGE I.

Listen here old bean, you should threaten Radio editors who live in Chicago! It is to laugh! Ha! Ha! Next time one of the overland limited trains whizzes through one of those tanks you make on your shoe string selling trips, wave at someone on the reservation platform and maybe they will toss you and old Chicago paper containing some of our choice crime news. Besides that our desk overlooks the Cook county jail, or "Hotel de Druggan," where our best gunmen sleep off the effects of nocturnal carousing in the company of the guards.

And now to show you that we are not afraid of you we will publish one of your poems:

An Ambitious Egoist

I want to be a 'nouncer,
And in a studio stand;
A microphone before me,
A program in my hand.

I want to be a 'nouncer,
So folks may hear me speak;
I know I'd be a dandy,
My voice is soft and sleek.

I want to be a 'nouncer,
And next year's contest win;
I'll bet I'd have as many votes
As all the rest get in.

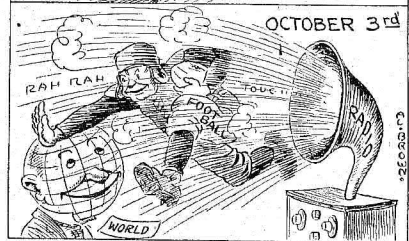
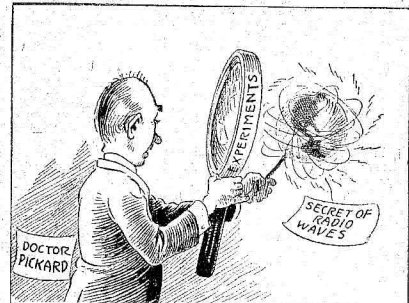
GEORGE, THE WANDERING MINSTREL.

Beware of Static!

Frantic Mistress: "Jane, Jane! Come quickly, and take the parrot away—the master's dropped his tube set." CHEERIO.

Not long ago the Japanese government announced that they were going to erect a station on the island of Yap, and now E. H. C. writes in and says they are all wrong, that we have enough Yap stations now!

News of the Week



Condensed BY DIELECTRIC

There is a fascination to one station, among the hundreds of broadcasters, that doubtless assures it a very large nightly audience—WSB, Atlanta. It is not only the personality of their popular announcer which impels one to dial to four hundred and twenty-eight meters, but to an atmosphere of southern hospitality. "Atmosphere" is sometimes difficult to get across the footlights, yet a number of broadcasting studios are really successful in accomplishing that very thing. Who, for instance, fails to note it when the Melody orchestra is performing for us?

At least a portion of one of the programs presented through WEAF, Cleveland, recently was of a satisfying nature in more than one respect. A variety of vocal arrangements won first place, although the violin selections were not far behind and the orchestra's work left a favorable impression, if not especially impressive. The voices of a tenor and baritone blended to make their singing of well-known numbers quite the hit of the evening. Then followed a quartet singing of "Kentucky Babe", which deserves honorable mention, and violin playing of no mean order.

Once in so often I manage to get around to WBZ at Springfield, Mass., to see how this old timer is coming on. The other evening was one of such occasions. The Hotel Brunswick orchestra should be classed among our leaders entertaining by Radio and usually has a program with a broad appeal. As I listened, however, the numbers selected appeared to have been chosen with less care than customarily, while their rendition was at times open to censure. That will soon be forgotten and forgiven.

Another station to be mentioned here for its variety program with capable execution is WSAI, the United States Playing Card company at Cincinnati. Here also we had violin playing which certainly brought pleasure to most in the Radio audience and soprano and contralto singing equally effective. In the course of the singing there was a contralto and soprano duet of "The Rosary". There is a song demanding intelligent treatment or it degenerates into a sad mess of meaningless phrases set to commonplace music—countless times it is so. Again, one may sit in awe and reverence, as we did when these two ladies used their voices to reveal its soul.

After the multitudinous renditions of "The Sidewalks of New York" to which so many listeners were treated who sat in at the past Democratic convention in New York city, the song should be familiar in every state in the Union. Taking this as his text, an entertainer in the studio of WHT, Chicago, presented various ways in which the music might be given. The stunt was rather novel in that it included not only varying interpretations of the melody, but also as played on different instruments. The effect was out of the ordinary and discloses another means of varying features.

WEAF, New York, is no doubt rejoicing over the high honor paid to one of its announcers, Graham McNamee, the recipient of the gold cup award (which is simply another item in the list Radio Digest has sponsored for improving broadcasting). "Mac" has my sympathies, for every announcer and his friends will immediately prepare to wrest the honor from him another year. So much for that. My purpose in mentioning WEAF was to call attention to Jacob's symphony orchestra. They played two compositions recently, one composed by Sibelius and the other by Albanez which stood out in a splendidly arranged program. The former was especially graceful and well played.

Bringing Your R.F. Amplification Up-To-Date

How to Modernize Your Old Set

By P. E. Edelman

INTRODUCING refinements in radio frequency amplification, let us suppose, first of all, that you have a tuned radio frequency set that won't quite work through local broadcasters. Maybe you have one of the kind labelled neutrodyne or some other dyne. Or, instead of a diner variety you have a home built luncheon or breakfast type which is satisfying, except that you cannot just reach out through locals every night.

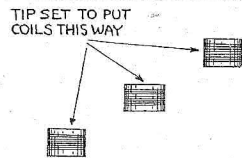
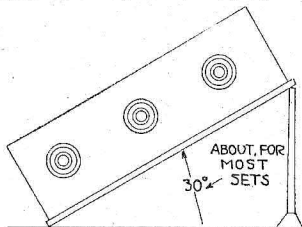


Figure 1

If you remove your aerial and ground wires you can still tune in the local stations nicely. This is because coils, acting as radio transformers, also act as miniature loop antennas. Now, as a simple experiment requiring no changes in wiring, tip your entire set up on one end, as illustrated by figure 1, so that the turns of the tube coils are in exact horizontal position. Work the set this way, and the coils no longer act as loop pickups. This is because the magnetic

component of the Radio wave front slides by the coils instead of cutting them to set up high frequency potentials (volts-ages). Only that energy coming by way of the aerial will now work the set.

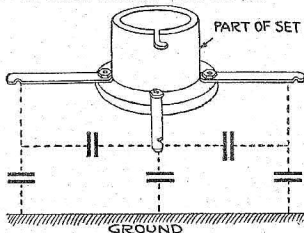


Figure 2

Fine business, so far. But perhaps your set is weighed down with ounces and ounces of old style bus bar wiring, pretty perhaps, yet forming a fairly good size condenser plate, as indicated by figure 2. The heavy bus connector does some good if actually used between the coils and

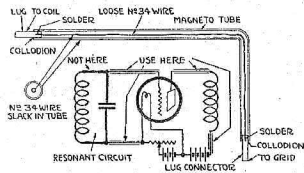


Figure 3

condensers only, that is, in the resonant circuit, but it is superfluous in the connecting wires requiring no large area. I find by test that a number 34 dsc. wire works exactly as well as a number 14

wire when properly applied as a connector in such parts of the circuit as are not measurably affected by the very small resistance offered by the smaller wire. Yet this change reduces capacity coupling, and is a real refinement. To get mechanical strength in small wire I have designed the combination shown in figure 3, which is easily made from magnet tubing, wire and collodion. Such conductors can be used from the resonant

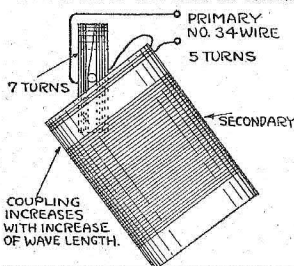


Figure 4

coil and condenser circuit (not in resonant circuit itself) to grid, to filament and to plate terminals. Minimize capacity effects in the set and you minimize capacity energy pickups. A further improvement in this general refinement or overhauling of familiar R.F.

circuits, is to replace the primary windings of the radio frequency transformers with a new coil wound with number 34 dsc. wire. This further reduces capacity coupling energy leakage. If further, you

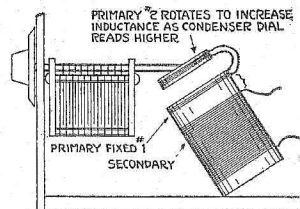


Figure 5

will now make the primary of the second transformer coil as shown by figure 4, as a variometer wound with number 34 dsc. wire, and turnable by a knob, you can throw away the stabilizers in the old set, potentiometers, neutralizing condensers, resistances, and what-nots. Besides, you will now begin to range those higher wave length stations which were but feebly heard with the old set. The reason is that most stabilizing methods to be effective on the lower range of broadcast wave lengths have to do this at the expense of full amplification efficiency at the higher wave lengths. This fault may be overcome by automatic or (Continued on page 18)



Good Radio Requires Good Material

Veri-Chrome Panels

By the purchase of a controlling interest in the Veri-Chrome Laboratories, the financial and production resources of the Formica Insulation Company have been placed behind this remarkable new process for decorating radio panels. Elaborate decorations can be produced much more rapidly and more economically than by engraving. Reproductions designed by the leading American artists are offered. Tuning scales may be marked directly on the panel eliminating the standard dial and substituting numbers instead. The reduction in cost is large. Write for prices on complete panels finished in this way in quantity.

IT IS just as impossible to build dependable radio with poor material as it is to build a good automobile or a good locomotive that way. Formica panels, base panels, winding tubes, insulating bushings and washers have the qualities that make lasting durability possible. They have electrical qualities that are more than sufficient for any need—and they combine with them equally essential mechanical strength, resistance to warping, and cold flowing. They never distort in use so that instruments are displaced. The Formica finish is unequalled in richness and gloss. And that finish is one of the most permanent in the world. It does not discolor, grow dull, check or craze. No ordinary varnish or lacquer can equal it. These are all things that count. They make or break the satisfaction a radio set will give. And that is why for years the great majority of radio manufacturers have used Formica.

DEALERS: Formica panels in individual envelopes furnish a line on which dealers make a very satisfactory profit.

THE FORMICA INSULATION COMPANY
4667 Spring Grove Avenue, Cincinnati, Ohio

- 1 Formica is used by nearly all the leading set makers—and has for years been used by more set makers than any other material.
- 2 Formica is unaffected by weather and time—it lasts forever.
- 3 Formica in appearance is the finest of all panel materials and always remains so.
- 4 Formica's electrical qualities of every kind far exceed any possible requirement.
- 5 Formica has high mechanical strength and will not break in use.
- 6 Formica will not sag from heat or cold flow under pressure. It retains its dimensions. Everything you fasten to it stays tight and precisely where you put it.
- 7 Formica panels are sold in neat craft paper envelopes which assure you that you are getting the genuine.
- 8 Formica is one of the most widely adopted materials in radio.

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| 327 Cutter Bldg..... | Rochester, N. Y. | 585 Mission Street..... | San Francisco, Cal. |
| 422 First Avenue..... | Pittsburgh, Pa. | 419 Ohio Building..... | Cleveland, Ohio |
| 6 Beacon Street..... | Boston, Mass. | 309 Plymouth Street..... | New Haven, Conn. |
| 55 Calle Obispo..... | Havana, Cuba | Whitney Central Bldg..... | New Orleans, La. |

FORMICA

Made from Anhydrous Bakelite Resins
SHEETS TUBES RODS

Hear the Formica Orchestra over WLW every Tuesday evening from 9 to 10 Central Standard Time.

To unscramble the stations

The New AMSCO Allocating Condenser (S.L.F.) spreads the stations evenly around dials. Eliminates the crowding of low wave stations and simplifies tuning. And unlike previous straight line frequency condensers, its "half-a-heart" rotor plates save space in the cabinet. Three sizes—single or Siamese.

To get the finest tuning

The New AMSCO Vernier Dial is as easily installed as an ordinary dial—and as easily manipulated. But—each turn of the dial is stepped-down to 1-13th the motion—giving fineness to your fingers. A precision instrument, without momentum or back-lash. There is no vernier like it for distance-getting. Low in price.

Ask your dealer for these and other AMSCO Engineered Radio Products. Everything in Condensers, Rheostats, Potentiometers, tube sockets, dials, etc.

AMSCO PRODUCTS INC., Dept. O
Broome and Lafayette Streets, N. Y. City
Makers of the Melco Supreme Radio Receiver

MODERNIZING YOUR OLD R.F. SET

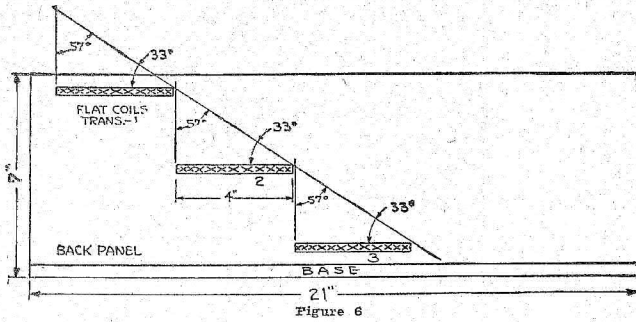


Figure 6

(Continued from page 17) semi-automatic change in the primary to secondary coupling, or the effective number of primary turns of the transformer may be varied simultaneously with changes in the wave length range of dial settings on the condensers. Figure 5 indicates this.

Coming back to the tipped up set, arranged to get the coils horizontal; well, the old set doesn't look so handsome that way. Besides, to arrange the coils this way on a new panel, we may think, requires an unlikely tall panel. Not at all. Look at figure 6; use flat type coils, keep the old inter-coil angles, but leave the coils horizontally placed if you are not so anxious to hear the local stations when distant programs are on the air.

Combining Dials

Maybe by this time you are considering rebuilding the old dimer set? Well, you are in for an interesting time, and perhaps several genuine silent nights while changes are in progress. Why not cut off one of those three dials? See figure 7, and get any of the better makes of tandem condensers on the market. Don't forget to

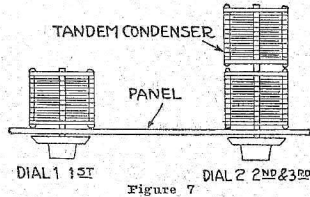


Figure 7

keep the coils in proper arrangement, and the leads to the coils of nearly equal

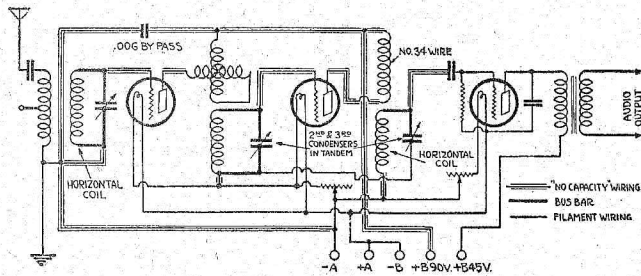


Figure 9

length in each Radio stage, as indicated for example by figure 8.

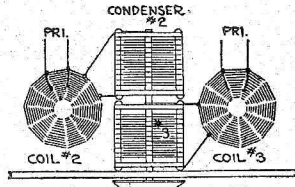


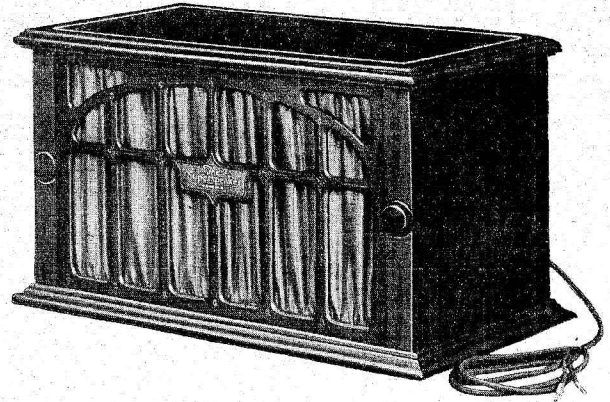
Figure 8

If you have really gone this far in re-vamping the old set, maybe you will go further and fix up the audio stages and speaker in latest 1925-26 style. But that is another subject, reserved, as the song says, for "Some Other Day."

Figure 9 shows about the way the revamped circuit on the old R.F. set should look when entirely changed, and you may be disappointed if you do not make at least some of the changes suggested, because local broadcast stations are being built closer and closer. Some morning you may find one going up right in your own city block.

Just as a final suggestion, if you have never had any experience before at rebuilding set, better study the whole thing carefully before touching a wire. Decide definitely just what changes you are going to make and have all new parts ready before starting.

Never drive a nail into hard rubber or composition. Drill a hole.



Two Superspeakers Now-- Both by JEWETT

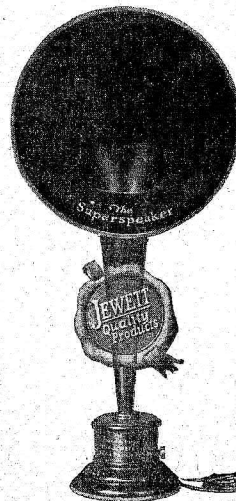
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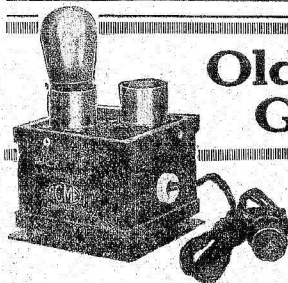
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A. B. C. Course in Radio Fundamentals

Chapter XXVIII—Electron Tube Oscillator Circuits

By David Penn Moreton

IN THE previous chapters it was pointed out that, in order that a vacuum tube may sustain undamped oscillations, it was simply necessary to couple the plate and grid circuits to a common oscillatory circuit, or some arrangement of coupled oscillatory circuits, in such a manner that the resulting grid to plate coupling will be negative. The number of circuits which will meet these requirements is very large, and the actual quantitative relations are special in practically every case. In spite of their many differences, all of these vacuum tube oscillator circuits may be shown to be derived from one of a comparatively small number of circuits. These fundamental or elementary circuits will be briefly described in the following paragraphs.

Inductive Coupling

The first fundamental circuit is shown in figure 111, where the plate and grid

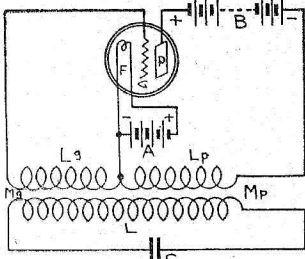


Figure 111

circuits of the tube are independently and inductively coupled to the coil L by means of the coils L_g and L_p . The coil L forms part of an oscillatory circuit. If an oscillation is in some manner started in the circuit composed of L and C, the resulting oscillatory current induces, through the mutual inductance M_s , an alternating electrical pressure in the grid coil L_g , which, in time, sets up a corresponding pulsating current in the plate circuit. This pulsating plate current, flowing in the plate coil L_p , induces, through the mutual inductance M_p , an alternating electrical pressure in coil L, which, for suitable coupling and coils, is

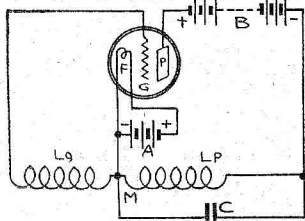


Figure 112

in synchronism with the electrical pressure operating in the oscillatory circuit LC, and just of the required amplitude to compensate for the energy losses in that circuit.

Special cases of the circuit shown in figure 111, are shown in figure 112 and 113. These two circuits, although based on the same principle of inductive coupling between the grid, plate and oscillatory

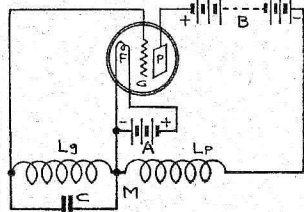


Figure 113

atory circuits, are used for different purposes.

Another modification of the circuit shown in figure 111, is given in figure 114. In this circuit the oscillating cur-

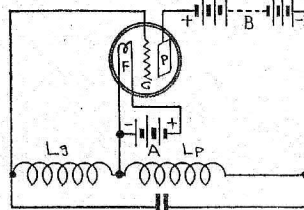


Figure 114

rent flows in the grid and plate coils connected in series and no mutual inductance is required between these coils. The voltage drop across the two coils due to the common alternating current flowing in them, determines the alternating plate and grid electrical pressures.

A special form of the circuit shown in

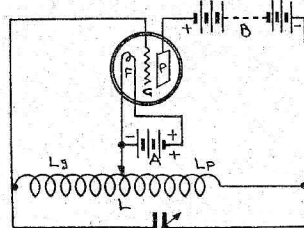


Figure 115

figure 114, is shown in figure 115. In this case the filament is connected to the grid and plate through a sliding contact, the coils L_g and L_p being actually parts of a single coil wound on a straight cylindrical form. The coupling between the grid and plate circuits is then adjusted by means of the filament sliding contact, while the frequency of the generated oscillations may be varied by means of the variable condenser C. This arrangement has the

decided advantage that the adjustment of the coupling and frequency of oscillation are practically independent.

Capacity Coupling

Electrostatic or capacity coupling of the circuits may be used instead of the inductive coupling. For example, the circuit shown in figure 116, has been used quite extensively as the basis of a number of circuits using capacity coupling. In this circuit it would not be possible to connect the plate battery at X as was done in the previous circuits, since the direct current plate-to-flament circuit would then be unable to convey the direct current plate current, the plate being insulated from the filament by the condensers C_g and C_p . It is necessary to connect the plate battery B as shown, directly between the filament and plate. The choke coil K is required to prevent the high frequency oscillations from passing through the battery and thus the coil prevents the

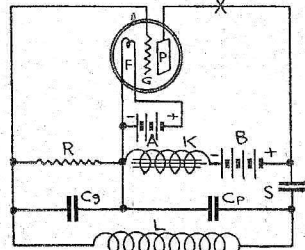


Figure 116

battery from short circuiting the condenser C_p . The grid is insulated from the filament and a high resistance R is connected as shown in the figure to provide a leakage path for the negative charge which would otherwise accumulate on it, and which, after a short time, would stop the flow of current in the plate circuit, and block the tube. A choke coil is some-

times used in series with the resistance R in order to avoid short circuiting the condenser C_g , but, in general, the resistance R is sufficiently high in value so that the choke coil is not required.

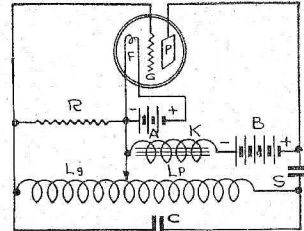


Figure 117

The same method may be used in supplying direct current energy to the plate circuit by electromagnetic coupling as shown in figure 117. These methods of

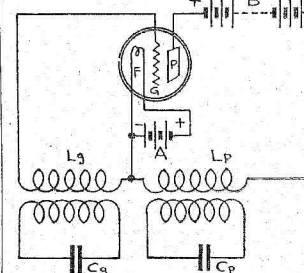


Figure 118

connecting the plate battery B require a condenser S, as shown in figures 116 and 117 between the battery and plate circuit (Continued on page 20)

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Radio owners are buying the Crosley Musicone at the rate of 500,000 before January first for the very sensible reason that it reproduces the entire range of music and the human voice with uncanny naturalness.

Two Models; \$14.75 and \$27.50

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But, for all of this, the enjoyment of the Karas Harmonik amplification has been too greatly confined to one class of radio enthusiasts. Home set builders bought Karas Harmoniks by the tens of thousands.

It was the owners of factory-built sets who missed the delightful pleasure of real, true radio music in their homes. For set manufacturers were prevented by price from adopting Karas Harmoniks for their sets.

Today there are in use, hundreds of thousands of sets—good sets—which could be vastly improved in musical quality by the simple operation of replacing the old transformers with Karas Harmoniks. Your set may be all you desire from the standpoint of selectivity, of range, and other tuning qualities. But, if it is not equipped with Karas Harmonik Audio Frequency Transformers, you are NOT getting nearly the musical quality you can just as well enjoy.

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Hints on Antenna Erection

Part I—Aerial Insulation

By William Fenwick

IT is the purpose of the writer in the present series to describe for the benefit of the Radioist the best procedure in the construction and installation of the many varieties of Radio antennae, or as some prefer to call them "wave-catchers."

In the writer's opinion at least, every broadcast-listener who has not had, or does not intend to have, an expert install their outfit, should obtain an elementary text-book on radio frequency alternating currents, several of which are on the market that sell for less than one dollar. The reason for this is so the beginner may acquire a knowledge of their peculiar behaviour, which is indeed, to put it mildly, amazing in the extreme in the mind of a layman. As this subject handled completely is not within the scope of this series, just a brief outline of it shall be given.

Losses at Radio Frequency

These high frequency oscillations—or alternating currents—which are set up in a receiving antenna by a passing Radio wave will creep along any surface which is moist, or which merely has a thin film of dirt upon it, as dust particles are fairly good high frequency conductors. For example, a few years ago the majority of "hams" utilized as a grid leak, a piece of cardboard with either a pencil or India ink line on it; thus, the graphite or carbon particles deposited, created a high resistance unit. Also, when these oscillating currents flow along a conductor—e. g., a wire—any mass which happens to be located within a few feet will absorb a certain amount of energy from it; i. e., an alternating electromotive force will be induced in the object in the same manner as when two coils are inductively coupled in a circuit, and energy is transferred from one to the other.

Obviously, when the aforementioned conductor is an aerial wire or the lead-in, and an object such as a building, a tree, etc., is near it, it means just one thing—losses. And when the small amount of

energy which is induced in the antenna circuit (equal to a few billionths of the power exerted by the common housefly in climbing one inch up a wall) is considered, and if the receiver incidentally happens to be of the crystal variety, one begins to appreciate the emphasized paragraphs of articles on antenna insulation, low loss apparatus, etc.

Insulation Very Important

Undoubtedly the most important single thing in designing an aerial of any sort is insulation, for the difference between a goodly and a poorly insulated antenna is just that between reception of quality and of weak signals, frying noises, et cetera. Therefore, as has often been said, and which is evident from the foregoing, "a good antenna is half the battle." A poorly insulated aerial is one of the greatest menaces to long distance and quality reception, for most of the energy collected leaks away, and what actually does get to the receiver is often too weak to be reproduced.

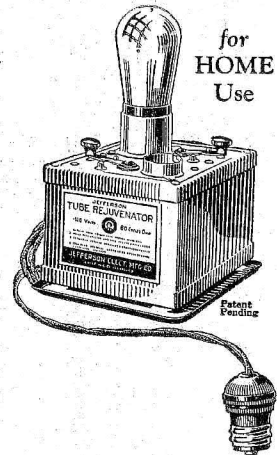
For this reason, when you begin any sort of an installation be sure to buy the best insulation obtainable; it may cost a little more but the increase in efficiency soon compensates for it. The best types to use for the antenna are those made of Pyrex (glass), porcelain, or of a composition called Electrose, and having corrugated and highly polished or glazed surfaces, as they minimize the chances of surface leakage.

The foregoing paragraphs also refer to the lead-in's place of entry into the house. A good grade of insulating bushing should be provided here as the covering on the wire is not sufficient to prevent leakage at this point. The lead-in should be hung free in the air, entering the operating room directly from outside and being kept away from walls, etc., as much as possible for the reason explained above. The antenna, too, should have an ample clearance of all surrounding objects for the same reason. Five or ten feet above

(Continued on page 22)

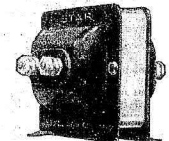
Better reception this season than last!

WOULD you like better radio reception this fall and winter than last? Better distance? Better volume? Better tone? You will enjoy better results in every way, this season, if you keep your tubes at full efficiency with the Jefferson Home Tube Rejuvenator.



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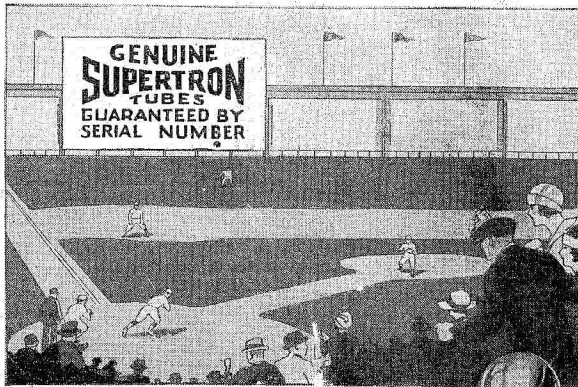
JEFFERSON TUBE REJUVENATOR

Keeps radio tubes like new



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That moment!

THE last inning—tie score—and the bases are full—you hear the crowd yelling!!!—then you hold your breath, for that moment—Alas! You are disappointed, reception has ceased due to faulty tubes.

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Switch Doubles Condenser's Range

Wiring Scheme Permits 3 Scales on Condenser

I had a variable condenser with a maximum capacity of .00025 mfd. and a minimum of .000007 mfd. which I wished to use in a regenerative three circuit set. In

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THERE are many little kinks worked out at home that would aid your fellow Radio Worker if only he knew about them. There are new hook-ups, new ways of making parts and various unique ways of operating sets that are discovered every day. Radio Digest is very much interested in obtaining such material. Send them in with full details, including stamped envelope, so rejected copy may be returned. The work must be entirely original, not copied.

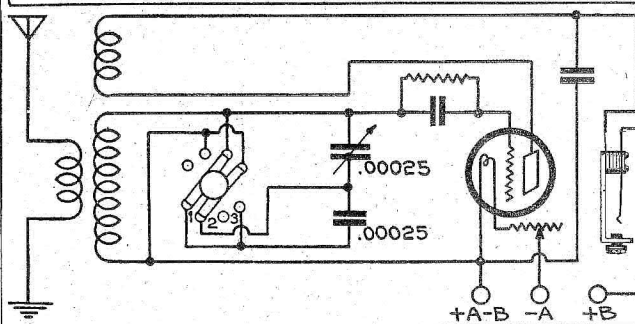
RADIO KINKS DEPARTMENT
Radio Digest
510 North Dearborn St., Chicago

connection with the proposed lowering of the broadcast wave band from 200 to 150 meters, I inserted the scheme shown here, which is, I trust, self explanatory.

In one position you will note that the two condensers are in parallel giving a maximum capacity of .0005 mfd. or 500 micromicrofarads, in the next position the variable condenser is used alone with a maximum of .00025 mfd. or 250 micromicrofarads, while in the third position the two condensers are in series giving a minimum of 6-4/5 micromicrofarads and a maximum of .000125 mfd. or 125 micromicrofarads.

With a coil that puts KSD at 99 on the condenser dial when the two capacities are in parallel, I can get well below 150 meters when the capacities are in series. This stunt can also be used on tuned radio frequency sets and super-heterodynes.—L. R. Hennessy, Hudson, N. Y.

DIAGRAM FOR TRIPLING VARIATION



WGN GIVES FOOTBALL

(Continued from page 14)

and Philadelphia, necessitating the use of over a thousand miles of leased telephone wire in each case to bring the story of each game to the transmitting set atop the Drake hotel. All of the other games will mean out-of-town lines for WGN, as well.

Ryan Has Style of His Own

Mr. Ryan, who made a name for himself last fall as a football announcer, will again handle the microphone for WGN, following the same methods that thrilled his hearers during the big games presented a year ago. In depicting a football game, Quin has left the stereotyped lanes of announcing in favor of a style distinctively his own—one that is deft, witty and sparkling—which does more than convey the mere mechanical details of the game in progress.

It takes no great mental effort on the part of the listener to imagine he is viewing the contest; in fact, through the medium of his loud speaker he becomes, under the stimulus of Ryan's vivid description, an attendant at the game—he is

one of the rabid, cheering fans, or in the next instant he is circling the ends with a fleetfooted halfback—the urge and roar of it are omnipresent. The listener "feels" the game, and his excitement rises with each daring maneuver of the elevens.

Unique Microphone Arrangement

When broadcasting a football game, WGN goes on the air about half an hour before the referee's whistle summons the combating elevens, and Ryan's introductory announcement prepares the listener for what is to follow.

The technical details are in the hands of Paul G. Neal, chief engineer of WGN. He evolved the idea last fall of paralleling five microphones and placing them at various points on the gridiron to catch the sounds of the game.

A "mike" is usually situated at each goal post to get the cheers, the college songs, and those spontaneous roars that greet every successful play. Other microphones occupy still other vantage points,

and one is at Quin Ryan's elbow where he identifies the different cheers and songs for the listeners.

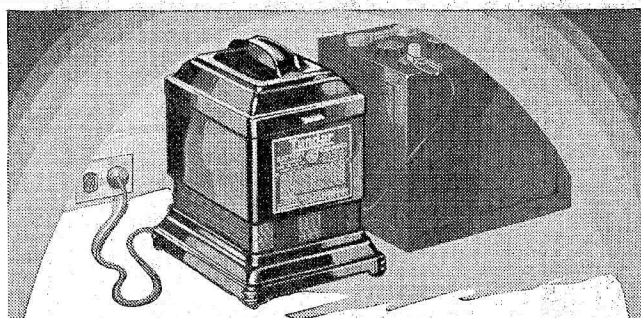
It is this microphone arrangement coupled with Ryan's announcing that makes WGN football broadcasts what they are. Mr. Neal will be in charge of the mechanical arrangements at all the games this fall.



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The Tungar charges while you sleep—it makes no disturbing noise—keeps your batteries at top notch. For power there is nothing like a good storage battery—with a Tungar to keep it good.

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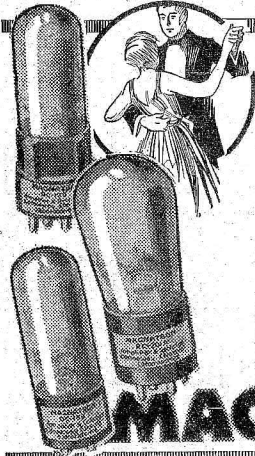
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TUBES make all the difference in the world. You'll agree with that statement the moment you switch to MAGNATRONS, the moment you notice how clearly and powerfully these tubes bring the concerts to you.

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SHELDON FAIRBANKS, Director

Questions and Answers

Amplifier Voltage
(4612) P.S. Waite Park, Minn.
Why is it that I cannot use more than 45 volts of B current on my 4-tube regenerative set?

A.—Without more data on the construction of your receiver we cannot advise why the limit to the voltage you can apply is but 45 volts. Send on the circuit and some details as to make of parts etc., and we may be able to help you. Using audio transformers of any ratio, if two stages, or not more than 2 to 1 if three stages, you should be able to put 90 volts on the amplifiers; with any of the resistance coupling kits, this should be feasible also, and 135 volts would be better.

Delco Plant as B Power Supply
(14602) E.B. Evansville, Ind.

I would like to have a hook-up for a B eliminator to use with a farm lighting plant supplying 32 volts D. C. Also, how I might cut down the voltage to six volts to get rid of the A battery?

A.—The only possible way you could get B battery power from such a system would be in the purchase of a 32-volt to 150-volt dynamo, and then carefully filter the output with condensers and chokes. Such units are for sale by many concerns, being army material purchased during the war from General Electric company.

The other problem is easily solved as you need only connect a wire to the negative end of the 32-volt bank of batteries and tap in after the third cell for the plus 6-volt lead. If the set is some distance from these batteries it may be necessary to tap in after fourth cell to get 8 volts

Men wanted to build radio sets in spare time. Leon Lambert, Wichita, Kansas.

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(or more still with greater distance) to allow for voltage drop in the long lines to set.

A. B. C. RADIO COURSE

(Continued from page 19)
inductance L_p in circuit to prevent the direct current plate circuit BKFPB being short circuited by the low resistance coil. The capacity of the condenser S is sufficiently large to offer a low impedance to the alternating current component of the plate current.

Another possible combination is given in figure 118, which shows the use of separate plate and grid oscillatory circuits.

(Having explained, in successive chapters, the principles of oscillating tube circuits and methods of combining inductance and capacity to form them, Professor Moreton next week shows a number of practical applications in Radio usage, of these hook-ups.—Editor's Note.)

ANTENNA ERECTION

(Continued from page 20)
a roof is considered about right, while much more separation than this is desirable from metal covered roofs, steel buildings, trees, and such.

Short vs. Long Aerial
When utilizing a tree as a support, always remember to insert the insulator

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taught thoroughly. Big salaries. Wonderful opportunities. Expenses low; chance to earn part. School established fifty years. Catalog free. Dodge's Institute, Sixth St., Valparaiso, Ind.

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not less than ten feet from the nearest branch. Although this may shorten your aerial quite a bit, keep in mind that a short one away from all obstacles is infinitely more efficient than a long one whose energy is being almost completely lost by absorption, etc. cetera. A point worth noting here is, that a low, short aerial is more selective and will pick up much less interference than a long, high one. Therefore, the logical thing for those who are fortunate enough to possess such a location to do is, to erect a large antenna for winter use, when the ether is practically static free, and a small one for the summer when there is so much "noise flying around."

It might be worth noting here that the connections become corroded from the weather as time goes on, and that he is wise who attempts to combat it. An excellent aid in so doing is to wrap each joint in the antenna proper with waterproof tape and then give them a coat of varnish or shellac. Thus it can easily be seen that any soot or other substances

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which would tend to accumulate on the wires and eat away the connections—introducing high resistance—will effectively be prevented from doing so. Undoubtedly it is unnecessary to add that every joint in the aerial should be soldered, for no matter how good an unsoldered connection is made, each wire will acquire from weather conditions a thin film of dirt, thereby creating a separation between wires.

(Having shown the necessity of care in antenna construction, Mr. Fenwick will next take up the various types of outdoor antenna and the construction of each. Portable types are also considered, as is the directional effect of most aeri—Editor's Note.)

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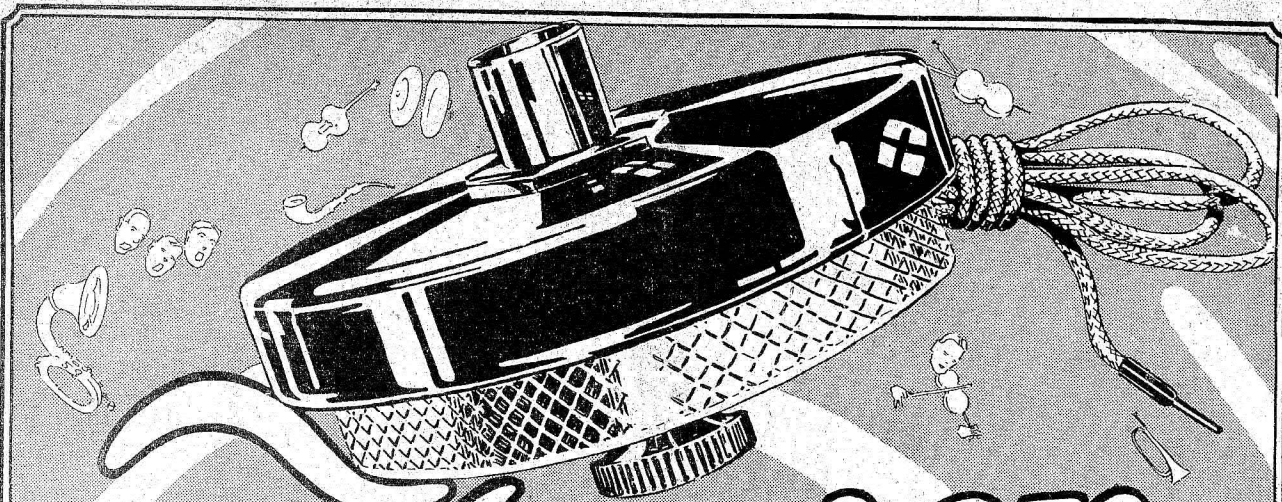
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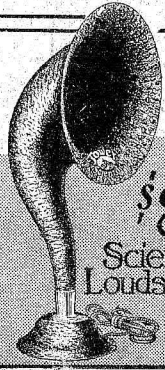
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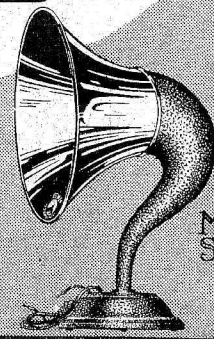
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