

How to Give a Radio Party; Making "WLS Unlimited"; WMC, Down in Dixie; Helpful Articles for New Beginners; How to Make Cabinets and Consoles

Radio Digest

EVERY WEEK **Illustrated** PROGRAMS **TEN CENTS**

REG. U. S. PAT. OFF. & DOM. OF CANADA

Vol. X

Copyright 1924
By Radio Digest Publishing Co.

SATURDAY, SEPTEMBER 20, 1924

No. 11

WHO WINS GOLD CUP?

SEE PAGE 3

CANDIDATES SPEAK TO THIRTY MILLION

DAVIS, LA FOLLETTE AND WHEELER USE RADIO

Open Campaigns by Using Most Modern Methods—Feat Considered Great Political Experiment

WASHINGTON.—"There's music in the air" was changed to "there's politics in the air" on Labor Day when a number of the principal broadcasting stations of the country were occupied in sending political speeches from early afternoon until long after the supper hour.

The barrage began at 1:30 Eastern time, with the Labor Day speech of John W. Davis, Democratic nominee, at Wheeling, W. Va.

At 3:30 "Fighting Bob" La Follette, Progressive candidate for President, talked at the studio of the telephone company in Washington, Station WCAP. At 6 o'clock in the evening, Burton K. Wheeler, Progressive candidate for vice president, spoke at Boston.

It is estimated that more than thirty million persons listened in to at least a part of the speeches. It was undoubtedly the greatest political experiment of this generation.

The results of Radio campaigning will be watched closely and are awaited with interest. Soon many more speeches will be on the air.



Madge Bellamy, motion picture star, is no stranger to Radiophans, who have heard her talk from many stations. She hardly needs the aureole to bring out her piquant beauty. Lois Ewell (left), soprano, is one of WOR's entertainers. Few sopranos surpass her popularity with listeners in.

WDAF Piano Class Studies Black Keys

Group Taught by Maudellen Littlefield Makes Progress

KANSAS CITY.—In addition to the study of the grand staff, new sight reading and hand training, The Kansas City Star's Radio piano class is taking up the naming of the black keys and the study of dotted notes now.

Miss Maudellen Littlefield is preparing and presenting the lessons for WDAF.

One composer is studied by the Radio piano class each week. Lessons are each Tuesday and Thursday at 6 o'clock, Central time.

TOLL STUDIO OPENS IN CLEVELAND SOON

WARREN R. COX, FORMERLY OF WHK, BEHIND PLAN

Radio Apparatus Company to Open WJAX Remote Control Station October 1—Promise Good Programs

CLEVELAND.—October 1 will see the establishment of a third class B broadcasting station here. It will be the station of the Radio Apparatus company, wholesale distributors in northern Ohio for Radio Corporation of America and Western Electric products.

Henry Hallock is president of the company and Warren R. Cox, formerly of Station WHK, will be vice-president and general manager.

The studio of the Radio Apparatus company station will be located in Carnegie Hall at 1120 Huron Road, formerly the Creswell Garage. Call letters have not yet been allotted by the government but it is known that the station will operate on a wave length of 390 meters and will have 500 watts in the antenna.

To Broadcast for Toll

The policy of the Radio Apparatus company's station will be similar to that of (Continued on page 2)



Warren R. Cox

SAN FRANCISCO'S SHOW HAS CROWD

Radio Exhibition on Coast Just Closed Pulled Attendance of 55,000 People

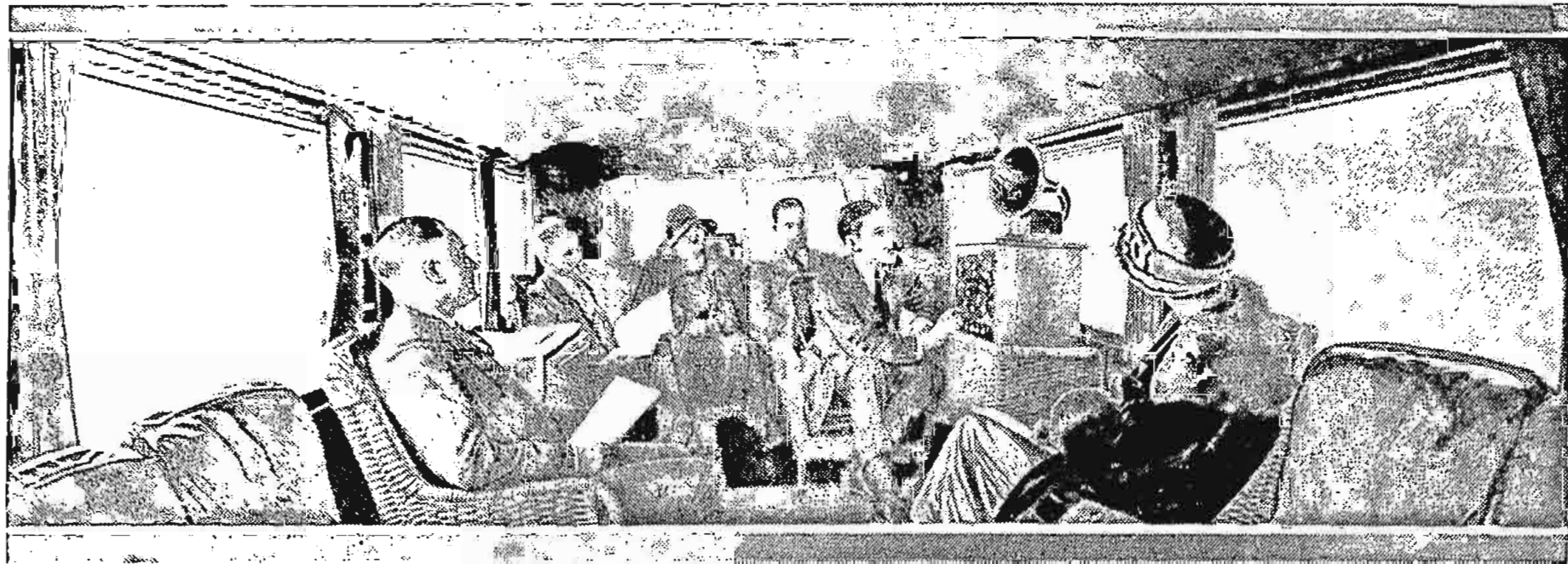
SAN FRANCISCO.—With an attendance of approximately 55,000 persons, the Pacific Radio exposition closed its first annual Radio show at the Civic auditorium here recently.

Had it not been for other bookings in the great auditorium building for the following week end, the show would have been continued at least three more days.

RADIOCAST OF FIGHT TAKES TRAINING, TOO

NEW YORK.—Few people realize the careful preparation necessary preceding the successful Radio description of a prize fight. J. Andrew White, Radio Corporation station WJZ's famous fight announcer, prior to the Wills-Firpo go last Saturday, visited both camps and took careful note of the two fighters and their methods of boxing.

RADIO-EQUIPPED BUSES ATTRACT PASSENGERS



Radio while you travel is the latest novelty in the Southwest. The Inter-State Stage Line has equipped its new fleet of luxurious busses with super-heterodyne Radio receiving sets, and has a Radio operator to entertain passengers in each of the busses. These busses run on regular schedule from Kansas City to neighboring towns, and the officials believe that Radio is helping to increase the popularity of their lines. R. S. Turner Photo

PATRICK WELCOMES WORLD ENCIRCLERS

GENERAL GREETS FLYERS FROM STATION WCAP

Special Weather Warnings from Naval Radio Save Army Aviators from Forced Landings

WASHINGTON, D. C.—One of the unusual uses of Radio came into play here recently when General Mason M. Patrick, chief of the Air Service, U. S. A., welcomed back by Radio from Station WCAP, this city, the around the world air flyers.

The Radio speech of welcome by General Patrick was made upon the occasion of the American flyers reaching this continent on the evening of the day they arrived in Labrador. At the time the speech of welcome was made thousands of listeners in were on the air hearing the same thing that the Army flyers were listening to on their sets in Labrador. In his speech, General Patrick extolled the work of the flyers.

Weather Forecasts Aid World Fliers
A special warning sent by the weather bureau via Naval Radio to the cruiser Milwaukee off Greenland and relayed to the world flyers, may have saved them from forced landings and the dangers of the recent storm which swept up the northeastern coast of the United States toward their objective Indian Harbor, Labrador. Following the receipt of the warning, the flight was delayed until the storm had passed. Further reports will aid in guiding these intrepid aviators to Washington and their home station in California.

Besides the special forecasts covering the route of the flyers, cryptic messages are Radioed twice daily to the temporary army air service base at Indian Harbor for rebroadcast to the pilots. Recently Washington sent the following "Top notch run up," which, according to the weather bureau, gave the barometer pressure, temperature, indicated a west wind, clear weather and the mean temperature.

Pershing Farewell Dinner Broadcast Through WEA

NEW YORK.—The dinner tendered to General John J. Pershing, Commander-in-Chief of the Armies, by the Government club, held at the Hotel Astor last Tuesday evening was broadcast through Station WEA here. The dinner was in the nature of a farewell reception to mark General Pershing's official retirement from active service and was the General's last appearance in New York as General of the Armies of the United States. The elaborate program included music rendered alternately by the band from the United States Military Academy and the City Bank club orchestra.

3,700-Watt Station Aid to Joseph Smith's CKAC Band

MONTREAL.—Joseph C. Smith and his Mount Royal Dance orchestra is running a close race with Vincent Lopez and other famous Radio orchestras. During the past three weeks, Joe and his orchestra have received a combined total of 4,266 letters from coast to coast.

This is attributed to the fact that CKAC, La Presse, has boosted its power gradually, operating at the present time on 3,700 watts. The total amount of 7,500 watts will be in the air by the end of September.

WHAZ Gives Second Anniversary Party

Troy Plant Features Domino Novelty Orchestra Again

TROY, N. Y.—Radiophone WHAZ at the Rensselaer Polytechnic Institute here celebrated its second anniversary recently

with a program by the Domino Novelty orchestra, the same group which presented the first program from the station September 11, 1922, and the first anniversary program September 10, 1923. Dr. Palmer C. Ricketts, President of the Institute, delivered a brief address.

This is the Centennial Year of Rensselaer Polytechnic Institute, first school of science and engineering to be established in any English-speaking country, which will celebrate the one hundredth anniversary of its founding October 2-4.

CONTENTS

Radio Digest, Illustrated, Volume X, Number 11, published Chicago, Illinois, September 20, 1924. Published weekly by Radio Digest Publishing Company, 510 North Dearborn Street, Chicago, Illinois. Subscription rates, yearly, Five Dollars; Foreign Postage One Dollar additional; single copies Ten Cents. Entered as second-class matter at the postoffice at Chicago, Illinois, under the Act of March 3, 1879.

"All the Live News of Radio"	1 to 13
In the Heart of the Cotton Belt—Memphis; Pictures and Story of Station WMC.....	4
Aboard the Unlimited with Solemn Old Judge; Pictures and Story of Station WLS	5
An Evening at Home with the Listener In, a chart to show when to listen in for your favorite station.....	14
Advance Programs for the Week at the Larger Stations.....	15 to 18
Operating and Trouble Shooting, for the Owner of a Federal Four Tube Type 102 Receiver	19
Editorial; Indi-Gest; Condensed by Dielectric.....	20
Helpful Hints to Get Most from Radio, Chapter I—What to Expect of Your Set, by Thomas W. Benson.....	21
Thirty-Minute A-B-C Lessons for Radio Beginners, Chapter XXV—The Home Radio; New Things to Try, by P. E. Edelman.....	23
Amplidyne Type Radio Frequency Amplifier, Part II—The Amplidyne Circuit, by Thomas W. Benson.....	25
Console and Cabinet Making for Receiving Sets, Chapter I—Construction of In-expensive Cabinets, by Charles F. Smisor.....	27
Combination That Saves A. F. Stages, Two Circuits in One Set, Different Circuits Use Two Stage Amplifier.....	29
Questions and Answers.....	30
Radiophone Broadcasting Statics, Corrected Every Week—Part II.....	31

Looking Ahead

Full Page Picture of the World's Greatest Announcer—winner of the Radio Diges solid, 14-carat gold cup—will be included in the next issue of Radio Digest. You'll want to save this portrait. Then too, there will be a smaller photograph of the winner of second place.

KGO, Wonderful Pacific Coast Station, Heard Far East, will be pictured in detail next week on the two pages to be devoted entirely to this purpose. Not alone will the excellent equipment be shown pictorially, but there will be a descriptive story of the sun-kissed state's Radiocaster.

World's Series Time Is Near and the "air reporters" soon will be busy again. Did you ever wonder what an air reporter thinks about as he describes football and baseball games, prize fights and races? Read next issue.

Putting Dramas in Sound Form—another article coming next issue. Henry D. Saddler, playwright and producer, director of the WLS Theater, tells interesting things about his work.

A Hundred Meter Receiver will be described in detail by Charles T. Kirk next week. Another set worth trying is the simple three tube set H. J. Marx will tell about. Panel layouts for the Amplidyne will also be provided next issue.

Helpful Hints by Thomas Benson next week takes up the aerial system. The aerial, though not usually visible, is quite important. Learn more about it.

Newsstands Don't Always Have One Left

WHEN YOU WANT

Radio Digest

YOU WANT IT!

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Publisher Radio Digest, 510 N. Dearborn St., Chicago, Illinois.

Please find enclosed check M. O. for Five Dollars (Six, Foreign) for One Year's Subscription to Radio Digest, Illustrated.

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TOLL STUDIO OPENS IN CLEVELAND SOON

WARREN R. COX, FORMERLY OF WHK, BEHIND PLAN

Radio Apparatus Company to Open WJAX Remote Control Station October 1—Promise Good Programs

(Continued from page 1)

Station WEA in New York and a number of other stations in this country, in that it will admit paid broadcasting. In other words, it will be what is known as a "commercial" or "toll" station, where broadcasting may be purchased if desired.

This, however, will not in the least interfere with the degree of entertainment afforded by the programs from the new station, and in fact, this station plans to go farther than any station has yet gone in Cleveland to be of general service to the Radio public.

"For some time" says Mr. Warren R. Cox, vice-president and general manager of the Radio Apparatus company, "we have felt in Cleveland a demand for a type of broadcasting which has not as yet been done. This demand has taken two forms. First, a large number of organizations of a civic nature have desired announcements by Radio, and second, a number of firms such as department stores and various retailers and manufacturers have wanted to secure broadcasting programs for themselves. This new station will do its utmost to fill these two demands.

New Station's Program Format

"Our station, for instance, will give the city of Cleveland an opportunity to broadcast new traffic regulations, police and fire department bulletins, and the like. It will enable the chamber of commerce, The Automobile club, and similar organizations to release current bulletins to listeners in. It will give the Museum of Art and the Cleveland Public Library still another means of letting the public know what is of interest in these particular institutions. Furthermore, it will provide an opportunity for all sorts of lodges, churches, clubs and organizations of every character to give Radio announcements of coming events which may be of interest to the public.

"In addition to items of this sort, the station itself will furnish many interesting Radio talks, among which will be included Babson's weekly release, which will be of particular interest to business men.

Will Tell of Current Amusements

"A special feature which the public will, we hope, greet enthusiastically will be current announcements of what is at the theaters, the music halls and perhaps the picture shows, so that at supper time the family will know what amusement may be had downtown and may make their choice.

"Still another attraction," continued Mr. Cox, "will be current news items, particularly news of the sporting field, such as baseball scores, tennis results, and in the school season, football and basketball scores. In addition, the new station contemplates putting on excellent musical entertainers, orchestras, readers, and the like, giving programs which will compare favorably to those of any station in the country."

The new station will have noon-day programs and dinner hour programs every weekday and concerts on Friday evening. On Sunday church services will be broadcast both morning and evening and after the evening services there will be a Sunday evening concert.

Will Use WJAX Transmitter

The Radio Apparatus company will use the transmitter of the Union Trust company when not in use for WJAX programs, and programs given in the Radio Apparatus company studio will be relayed to the Union Trust transmitter by private telephone wires.

The studio of the new station will be a double one, consisting of one large and one small broadcasting room, between which will be located the control panel, set within a glass partition. The operator, seated within this glass cage, can switch items on the program from the small studio to the large studio or back again in such a way that there will be no intermissions in the broadcasting. The larger broadcasting room will accommodate orchestras and groups, while solo performers in the smaller studio can be made ready to go on the air the moment numbers in the large studio are completed.

The establishment of the new station will in no way alter the broadcasting or the hours of broadcasting of WJAX or WTAM.

Gayoso Orchestra Leader Killed in Auto Accident

MEMPHIS, TENN.—Prof. Gaspar Pappalardo, leader of the Hotel Gayoso orchestra, heard regularly on Monday evenings from Station WMC, Commercial Appeal here, was killed recently in an automobile accident. Thousands of letters of sympathy have been received by the "Down in Dixie" station.

GEORGE HAY WINNER OF GOLD CUP

"SOLEMN OLD JUDGE" TAKES HIGHLY CONTESTED TROPHY

Will Be Presented with Prize September 27 at New York Show—Complete Standings to Be Announced Next Week

Over the finish line with the same speed and endurance he has shown every week throughout the sixteen weeks of the Radio Digest First Annual Gold Cup Award, George Dewey Hay, announcer for WLS, Sears-Roebuck Agricultural Foundation station in Chicago, won the coveted trophy, leading his nearest competitor by several score thousands of votes, and earning the title of world's most popular Radio announcer.

Newspaper reporter and feature writer previous to his Radio debut at WMC, Memphis, George Hay, "The Solemn Old Judge," will be awarded the solid, 14-carat gold cup on Saturday, September 27, at the Radio World's Fair, Madison Square Garden, New York, where the prize, insured for \$5,000, will be on exhibit at the Radio Digest booth.

Complete Standings Next Week

Standings of the remaining 134 nominees, the next fifteen highest of whom will be presented with certificates of honorable mention, will be made public in the next issue of Radio Digest. Final tabulations are now being made by the Gold Cup Award Editor and a busy group of assistants.

The cup, made entirely of 14-carat gold, is in shape and size similar to the standard broadcasting microphone, "mike" as it is popularly known. Standing on a pedestal with its gracefully spun handles entwining the disk, the golden "mike" is representative of the gateway to the waiting world and the best there is in Radio-casting.

First to Announce Harding's Death

Mr. Hay was born in Attica, Indiana in 1895. His family moved to Chicago when he was ten years old and he finished his schooling in the public and high schools of Chicago. He served in the world war and after discharge took up newspaper work as a cub reporter with the Commercial Appeal, Memphis, Tenn. After "covering" all phases of newspaper work he originated his well-known column "Howdy Judge" which he conducted for two years.

It was then that the Commercial Appeal took up broadcasting and Mr. Hay became Radio editor and director-announcer of WMC. He was the first man to broadcast news of the late President Harding's death. He came to WLS in April, 1924 as chief announcer.

"The Solemn Old Judge" has announced world's series baseball games play-by-play, championship prize fights, big political events and many other original features. He is usually, but not always, accompanied by his whistle, first the "Hush-puckinny" and now the "WLS Unlimited."

CHECKS TELL HIS WBZ ENTHUSIASM

Connecticut Radiophan Would Help Support Favorite Station, but Money Is Returned

SILVER LANE, CT.—With enthusiasm running as high as is conceivable and an appreciation for what Radio has done for the entertainment of the home, a resident of this small Connecticut town recently submitted a monetary contribution to the support of Westinghouse WBZ's concerts.

The letter in which the checks were enclosed was decidedly laconic, but between the lines could be read the justification for the enclosure. The evenings of pleasure which this fan was afforded in the comfort of the home by Radio programs could easily be evaluated in terms of dollars and cents.

Figuring that with whatever the amount of the contribution, he would be ahead of the game, a liberal allowance was made. Needless to say that the spirit of the letter and the contributory sense of its writer were far more valuable to the station and the checks were returned with thanks.

DUBLIN.—The Dail Radio broadcasting committee has recommended that a government broadcasting station be established in the Irish Free State.

THIS SET CONNECTS UP VERSES OF SONG

ATLANTA, GA.—He was listening to the Atlanta Journal, WSB, broadcasting, "Carry Me Back to Old Virginia." He decided to tune in another station. The last words he heard from Atlanta were "Carry Me Back." In a few minutes he tuned in Washington, D. C. He was amazed to hear a voice singing, "To Old Virginia." Both stations were broadcasting the same song, but Washington was behind WSB enough for the coincidence.

WALES TUNES IN ON GREETING FROM AIR

PLANE ABOVE BERENGARIA GIVES PRINCE WELCOME

Rebroadcast Plane from WJZ and WGY —Repeat Stunt When World Flyers Arrive

NEW YORK.—From the sky came the first news that the Prince of Wales had arrived in America aboard the Berengaria! As the prince sat in the salon of the ship, he, along with many American Radiophans in their homes ashore, heard a loud speaker shout out, "Greetings!" The voice came from an airplane circling overhead.

The welcome to the Prince of Wales was delivered by Major William Hensley, Jr., commandant at Mitchel Field, who flew out to meet the Berengaria as she passed Long Beach. The voice the Radio audience heard was that of Major Hensley. The plane was equipped with a transmitting set made for the United States Signal Corps.

A super-heterodyne receiver at Mitchel Field picked-up Major Hensley's signals which were then delivered by land wire to Station WJZ here. From WJZ the signals were carried by land wire to general Electric Station WGY.

Stunt Repeated for World Fliers

Practically the same set-up was planned to be used in connection with the welcome to the round-the-world fliers. Major Hensley planned to accompany the welcoming squadron of planes to Boston and return with the escort. It was expected that the signals of the plane would be picked up when the squadron was about 100 miles out. Major Hensley was to describe the approach to Mitchel Field, and by means of a microphone on the landing field, the listeners were to hear the roar of the motors as the planes taxied by.

The formal ceremonies of welcoming the fliers was also to be broadcast. This included a brief welcome by Governor Alfred E. Smith. A dance was planned for the evening in honor of the fliers and WGY and WJZ listeners were to hear the dance numbers and probably a few words of greeting from the pilots of the round-the-world planes.

SURVEY WSAI FOR HIGH POWER SET

Plans Call for Five Kilowatt Equipment on Air by December 1

CINCINNATI.—J. S. Ward, special Radio engineer of the Western Electric company, has completed the final survey upon which specifications for installing the new five-kilowatt transmitter at Station WSAI are being drawn.

The transmitter, according to Mr. Ward, is an improved model of the set in operation at WEAJ, the American Telephone and Telegraph company station in New York, which is the original laboratory model, and said to have been heard in South Africa 30 minutes after it was opened up on five kilowatts.

Plans are being made for the completion of the WSAI installation by December 1, but it is probable that the new outfit will be in operation before that date.

Education from Broadcast Station Equal to College

SCHENECTADY, N. Y.—The educational value of broadcasting is recognized by Frank E. Seavey of the department of English, Tufts College, who, in a recent letter to WGY here, wrote: "When I think of the thousands of homes into which you are sending excellent music daily, homes in which, three years ago, no music above street songs was known, I feel that your work in education is vastly more important than ours."

Church Services on Once More from Radiocast WBZ

SPRINGFIELD.—After an absence of several months, the Sunday morning church services have been returned to the programs of Westinghouse WBZ here. Beginning last week, morning sermons, choir and organ music will be broadcast every Sunday morning by the Springfield station. During the hot months and vacation period these popular services were temporarily discontinued.

WORLD'S BEST RADIO ANNOUNCER



George Dewey Hay, who by reason of his winning the Radio Digest Gold Cup Award is entitled to the distinction of being known as the world's most popular Radio announcer. Entries and ballots for the contest were received from Switzerland, England, France, Cuba, Mexico, Australia, New Zealand and Canada. Atwell Photo

SHERIFF EQUIPS CARS TO RUN DOWN CROOKS

Sets Prove Aid in Catching Fleeing Criminals

DETROIT.—The sheriff's department of Wayne county has just equipped all his cars with Radio receiving sets as an aid in detecting and running down criminals in a campaign inaugurated in connection with the Detroit police department to stamp out increasing crime.

Reports of stolen automobiles and escaped criminals are broadcast at frequent intervals during the day and night. "With our patrols scattered all over the county," says Sheriff George Walters, "they are thus able to keep in touch with the latest reports at the Detroit police headquarters. I believe Radio is one of the greatest agencies in detecting and running down criminals that has ever been brought into use. We have proven it to be such even in the short time it has been used."

Poland has lifted the ban on Radio. Broadcasting licenses will soon be issued to scientific, educational and manufacturing organizations.

BELGIUM PASSES NEW DRASTIC RADIO LAWS

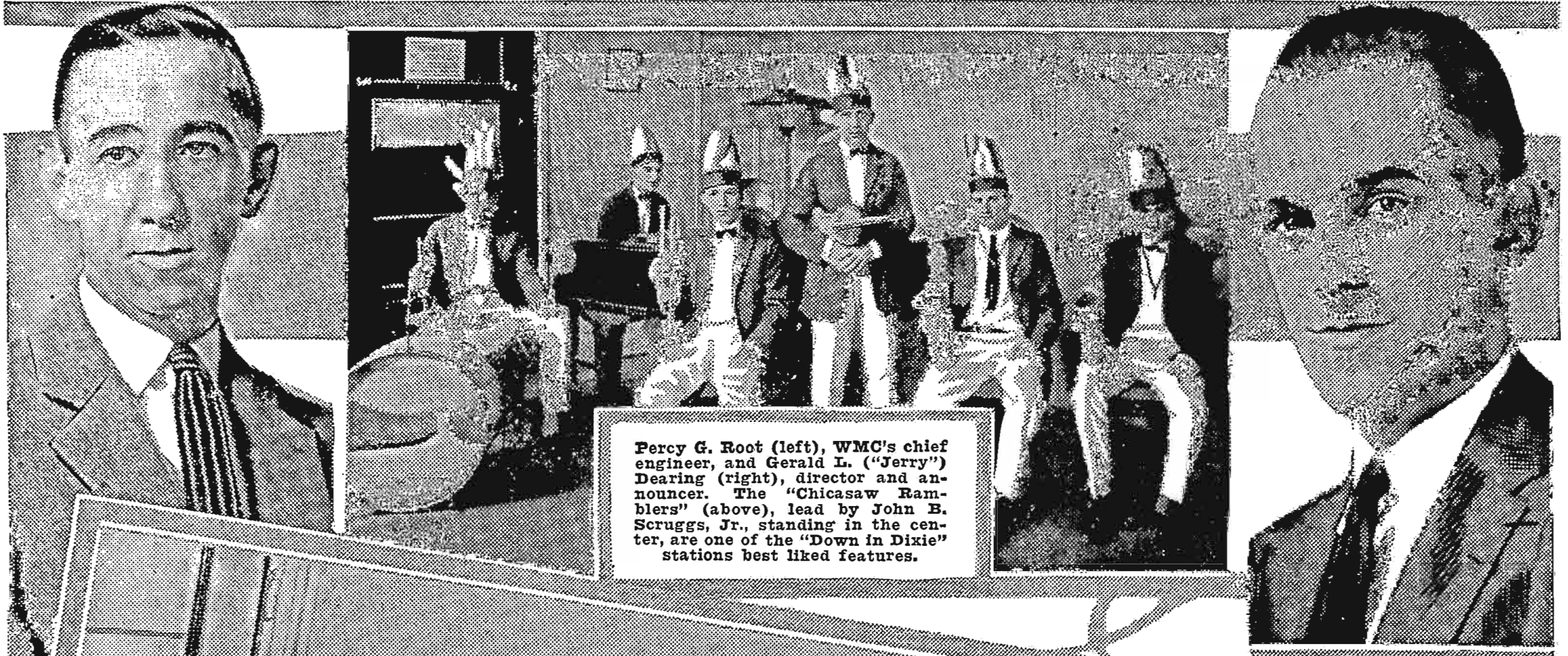
Tax on Transmitters Based Upon Power Used

BRUSSELS.—Belgium is now going through the transitory periods of readjustment in Radio legislation, in which the Postal Ministry is wavering between imposing absurd taxes on transmission sets and not granting licenses for transmission at all. For such sets too, a peculiar formula for taxation has been worked out. It reads:

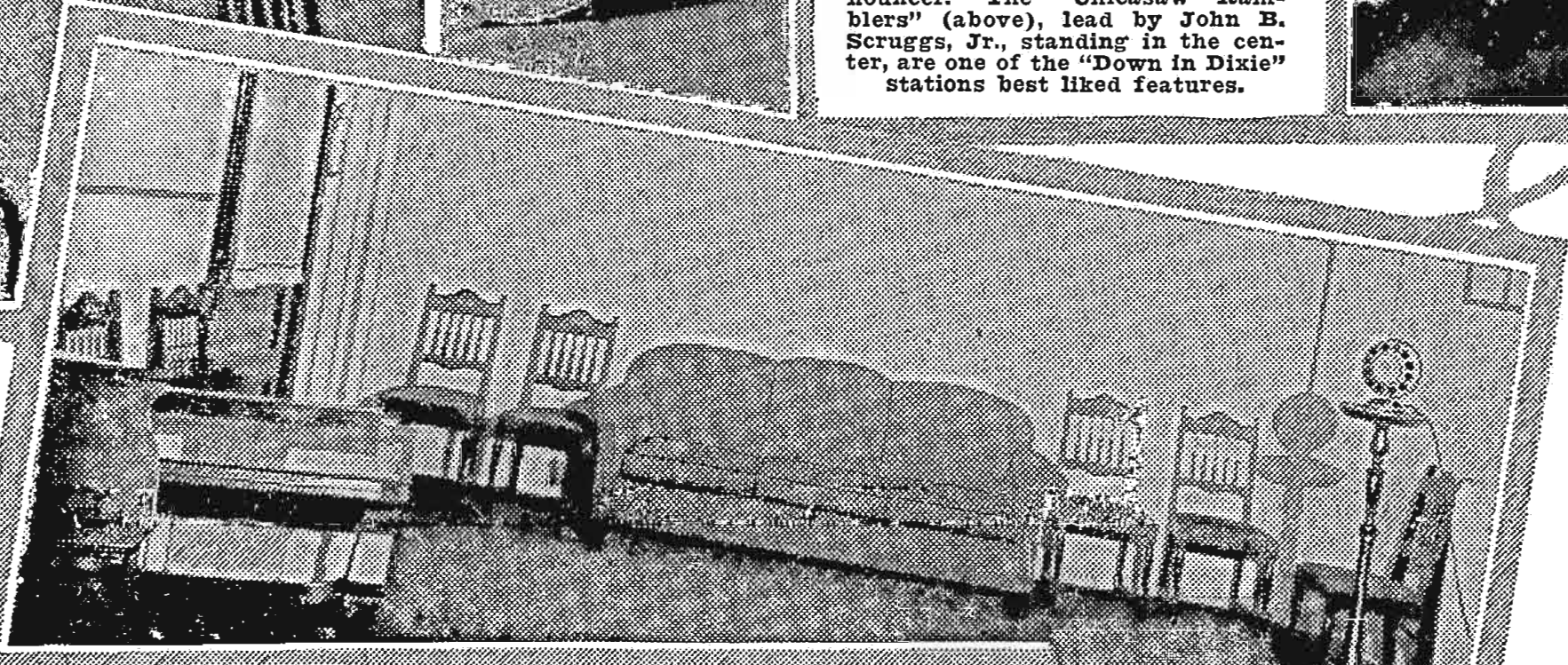
200 fr. + 100 fr. W over 100
This means that primarily there is a fixed tax of 200 francs on any authorized transmission set, plus 100 francs per 100 watts. As the hectowatt in Belgian electric meters is indivisible, it means that they must use kilowatts.

The recent Radio-on-train tests in England and Germany, which have had such great successes in both countries, have resulted in the suggestion of placing loud speakers in the dining cars so that passengers can enjoy concerts with their meals.

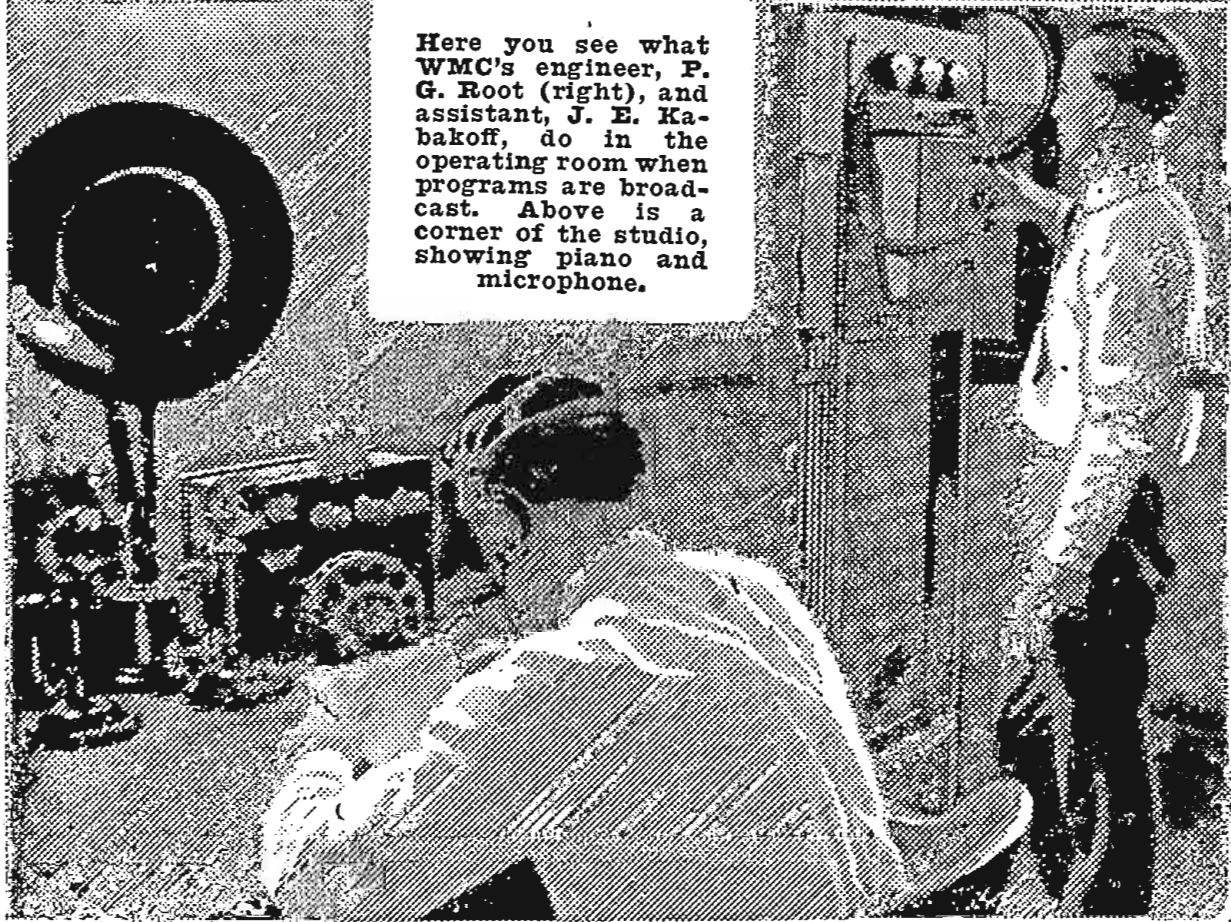
In the Heart of the Cotton Belt—Memphis



Percy G. Root (left), WMC's chief engineer, and Gerald L. ("Jerry") Dearing (right), director and announcer. The "Chicasaw Ramblers" (above), lead by John B. Scruggs, Jr., standing in the center, are one of the "Down in Dixie" stations best liked features.



Here you see what WMC's engineer, P. G. Root (right), and assistant, J. E. Kabakoff, do in the operating room when programs are broadcast. Above is a corner of the studio, showing piano and microphone.



Dixieland's Station, WMC

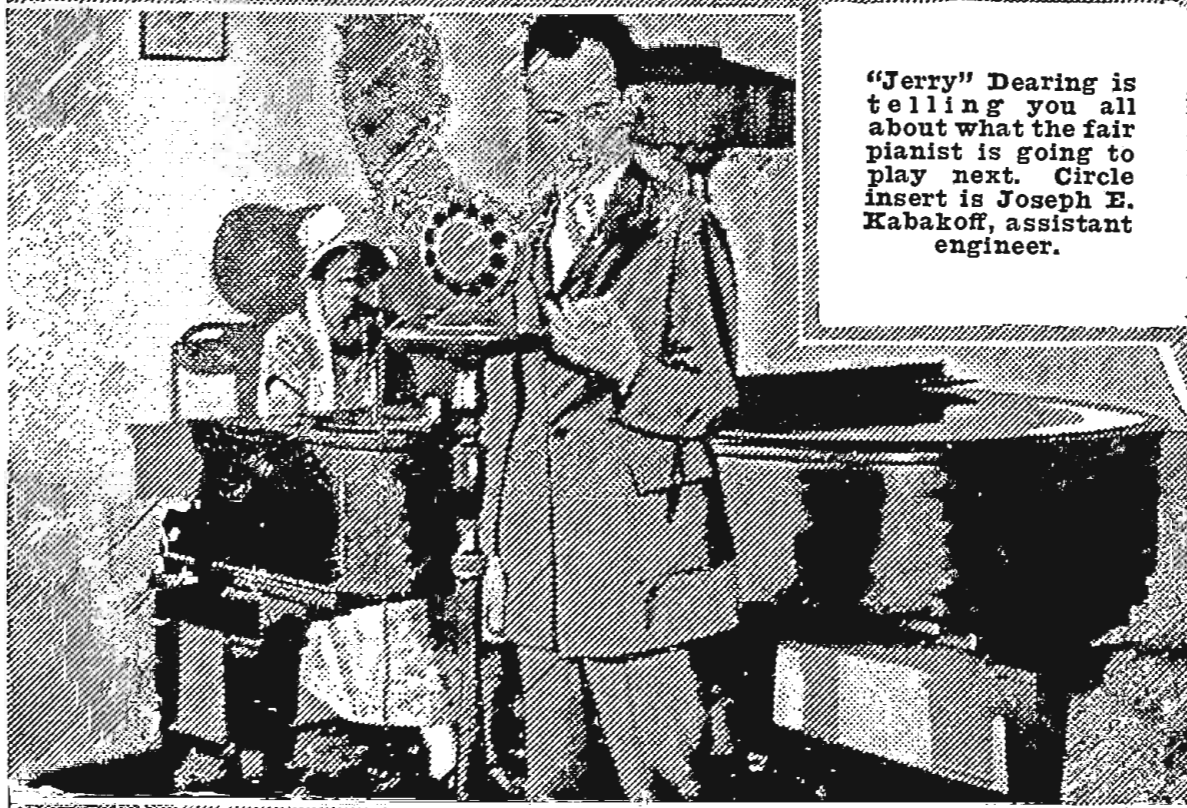
By Katherine Nelson

DOWN in the southwest corner of Tennessee, on the romantic banks of the Mississippi river and in the very center of the greatest agricultural and cotton belt in the country, reigns WMC, Radiocast station of the Commercial Appeal, Memphis, "Down in Dixie."

The Bluff City boasts of some 200,000 citizens and is recognized as the most progressive trade center in the South. It is the logical distribution point for the greatest territories of Mississippi, Arkansas, Tennessee and adjacent vicinities. In addition to the river, which makes for cheaper transportation, there are ten main line railroads operating on regular and frequent schedules.

Memphis stands as the largest inland cotton market in the world and has the largest cotton warehouse of any country. This warehouse covers an area of 170 square acres, nearly 90 of which are under cover, accommodating a larger amount of supplies than any other terminal in the world.

Memphis is rapidly expanding along manufacturing lines. The most recent addition to the factory equipment is the location of the huge Ford plant which will be maintained for assembling cars, but in which a certain amount of actual manufacturing will be done. The recent completion (Continued on page 13)

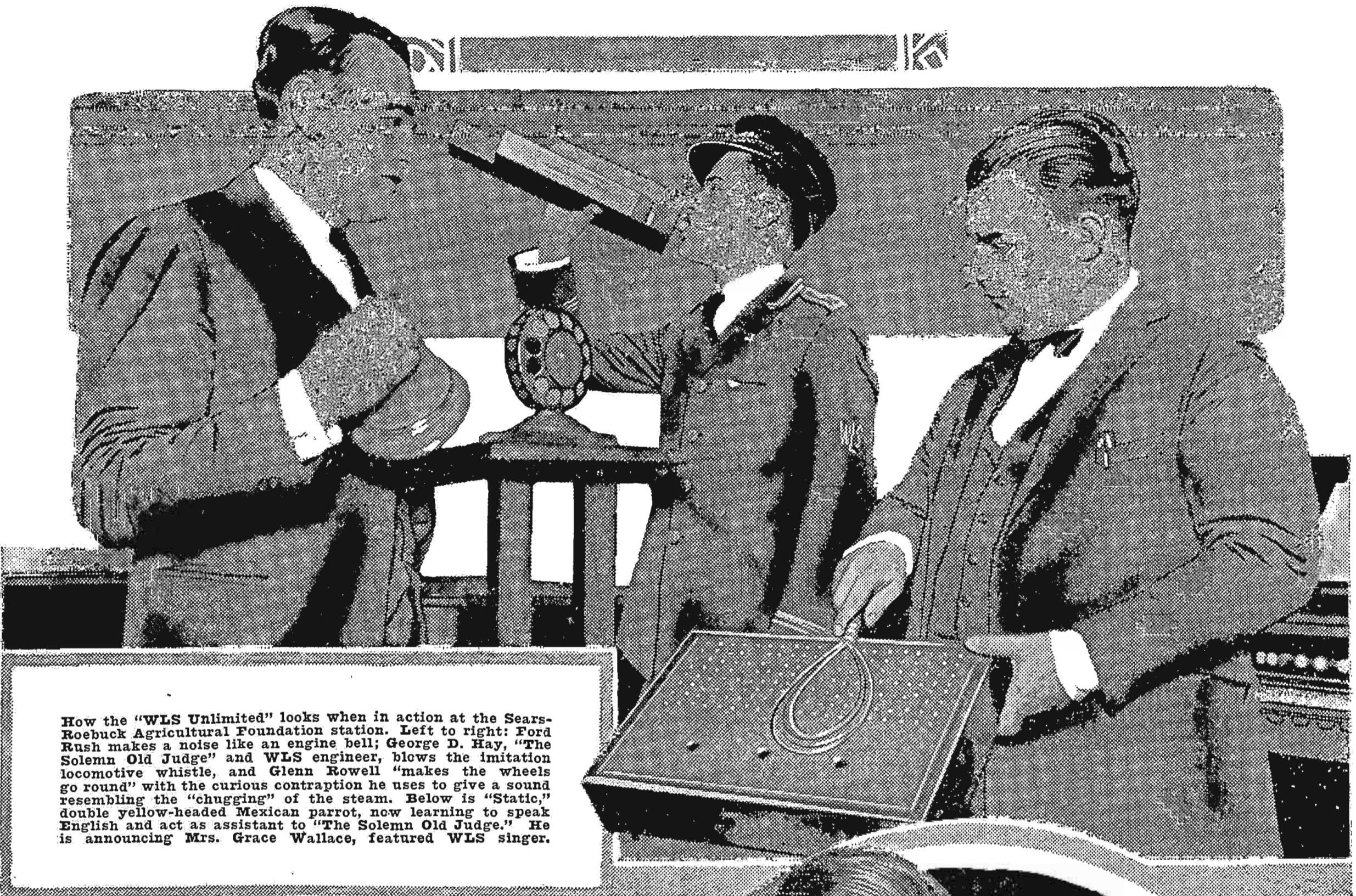


"Jerry" Dearing is telling you all about what the fair pianist is going to play next. Circle insert is Joseph E. Kabakoff, assistant engineer.



Katherine Nelson, assistant program director and secretary to "Jerry" Dearing, is known to WMC friends as "Miss Kitty."

Aboard the Unlimited with Solemn Old Judge



How the "WLS Unlimited" looks when in action at the Sears-Roebuck Agricultural Foundation station. Left to right: Ford Rush makes a noise like an engine bell; George D. Hay, "The Solemn Old Judge" and WLS engineer, blows the imitation locomotive whistle, and Glenn Rowell "makes the wheels go round" with the curious contraption he uses to give a sound resembling the "chugging" of the steam. Below is "Static," double yellow-headed Mexican parrot, now learning to speak English and act as assistant to "The Solemn Old Judge." He is announcing Mrs. Grace Wallace, featured WLS singer.

WLS, Unique and Interesting

By George King

ONE long, mellow note of a locomotive whistle—it floats across the valleys, echoing down the corn rows, whispering over America's waving bread fields to lose itself in the haze of the hills. There is a chugging of a powerful engine and a crinching of steel wheels; the bell rings. A long, softly lighted train filled with song and laughter slips into the darkness.

"WLS—Chi-caw-go." The WLS Unlimited is starting on its daily transcontinental trip over the trackless paths of the air. "The first stop will be Clinton, Ia." It is George Hay talking, the engineer announcer for the Sears-Roebuck Agricultural Foundation broadcasting Station, WLS. The station, which is less than five months old, was built to give rural America a cross section of every line of thought in the nation. Director Edgar L. Bill has worked out many series of unusual farm features, in which the greatest farm leaders of the country talk through the air.

Six million farmers' wives are going to school together. An institute for women covering every phase of household economy is being conducted in every farm woman's living room. The junior farmer is being given special attention through the Boys' and Girls' club work, under the direction of Benjamin Darrow. The "Farm Adviser," E. B. Heaton, answers any question the farmer asks. But the educational programs of this station are supplemented by many of the best entertainment for both young and old.

(Cont'd on page 11)





IN THESE days when you have become familiar with the great achievements in the automobile and other industries, outstanding accomplishment in any new field is sure to prove of more than passing interest.

Although the radio industry is an infant in arms compared to all others, here is already an outstanding figure in its commercial development—Powel Crosley, Jr., President of The Crosley Radio Corporation.

His position in this new field of endeavor—radio—has been the result of a fixed policy to make the most efficient radio receivers at the lowest possible cost. This policy was actuated by a desire on the part of Mr. Crosley to make receiving sets so good that everyone would want one, and to make them so low in price that everyone could afford one. That he is succeeding is shown by the fact that during the past twelve months we believe The Crosley Radio Corporation has made and sold more sets than any other manufacturer in the world.

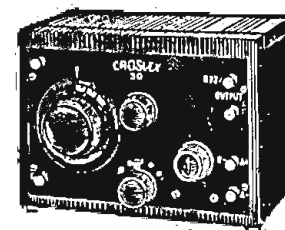
Mr. Crosley has now made it possible for everyone to own a radio receiver. You can start with the one tube Armstrong Regenerative Receiver at \$14.50, without accessories—\$22.25 with tube and headphones—the lowest priced regenerative set on the market, and equivalent in reception to many two tube receivers. Then as more volume is desired, you can add to it at a very low cost.

Or, you can purchase the three tube Crosley Trirdyn Regular which has come through the summer period of comparatively poor reception with colors flying—for only \$65. In special mahogany cabinet to house necessary accessories \$75.

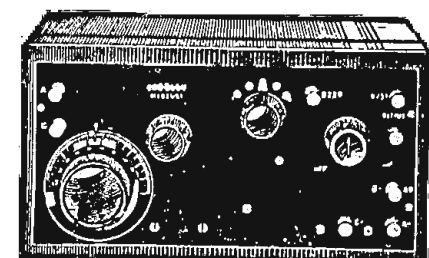
The combination of one stage of tuned radio frequency, with regenerative detector and reflexed amplification, has proven beyond a doubt that the features of selectivity, volume and ease of operation can be obtained with three tubes better than heretofore has been possible with five tubes. We believe that no other set on the market combines these features so well incorporated in the Trirdyn.

In addition there is the Crosley 51, the two tube Armstrong Regenerative Receiver that became the biggest seller in the world in just 24 days, price \$18.50. This set will at all times bring in local stations on the loud speaker and distant stations under fair receiving conditions; distant stations can at all times be heard with ear phones. The three tube Armstrong Regenerative Receiver Crosley 52, brings in distant stations with loud speaker volume under practically all conditions, price \$30; and the Crosley 50 and 51 set in portable cabinets at \$18 and \$25.

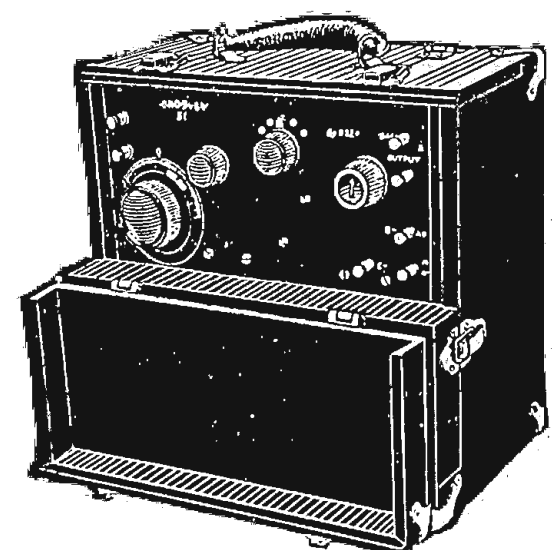
These receivers, each in its own class, though assuring you as good or better reception than any other instrument of the same number of tubes, is by far the least expensive ever offered to the public.



Crosley 50, one tube Armstrong Regenerative. \$14.50



Crosley 51, two tube Armstrong Regenerative \$18.50



Crosley 51-P, the two tube 51-inch portable case. \$25.00

Before You Buy—Compare

Your Choice Will Be a Crosley

FOR SALE BY GOOD DEALERS EVERYWHERE

Crosley Regenerative Receivers are licensed under Armstrong U. S. Patent No. 1,113,149.

Prices quoted do not include tubes, batteries or accessories

Write for Complete Catalog

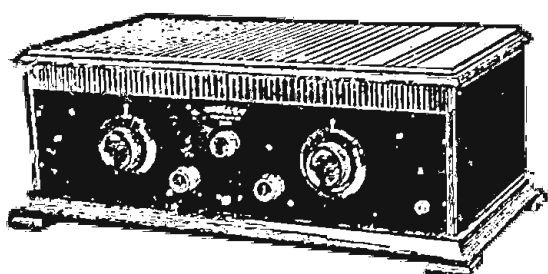
THE CROSLY RADIO CORPORATION

POWEL CROSLY, JR., President

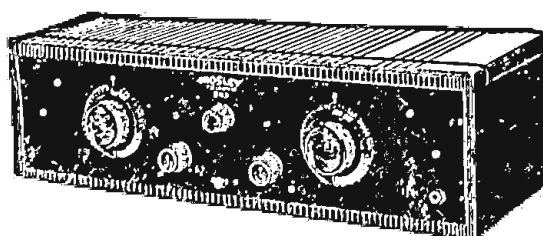
9493 ALFRED STREET

Crosley Owns and Operates Broadcasting Station WLW

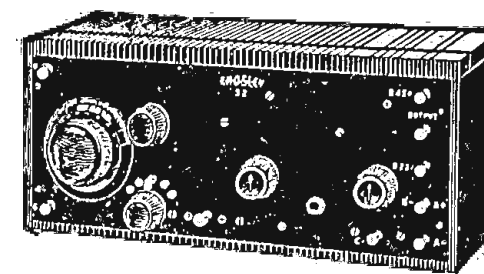
CINCINNATI, OHIO



Crosley Trirdyn Special, the three tube Trirdyn in a special case. \$75.00



Crosley Trirdyn Regular, three tube Armstrong Regenerative with reflex. \$65.00



Crosley 52, three tube Armstrong Regenerative. \$30.00

WLS MOVES TO FAIR GROUNDS FOR WEEK

SPECIAL WIRE WILL CARRY PROGRAM TO CHICAGO

All Regular Features, with Illinois State Fair Happenings, Put on from Special Studio

CHICAGO.—WLS, Sears-Roebuck Agricultural Foundation, will broadcast from the Illinois State Fair grounds at Springfield, Ill., this week by means of a special wire running a distance of 200 miles to the station in Chicago.

Almost continuous programs from noon until midnight every day of the fair, including the fair winnings, harness and running races, special programs by the State Fair Boys' school, Illinois Farmers' institute and other farmers' organizations will be broadcast on the farm programs. All the familiar sounds of the fair will be heard. The cry of the pop corn man, the peanut and pop vendor and street fakir will mingle with the sound of the horses' hoofs on the pavement and the cheering of the crowds.

All WLS Features from Grounds
Band concerts, orchestral music, lullaby time and all the features of Station WLS on its Chicago programs will be sent through the air from the fair grounds.

The complete personnel of WLS has been transferred to Springfield for the week, according to Edgar L. Bill, director of the station. Many special features have been arranged, including addresses by outstanding men of the country.

County fiddlers tuned up industriously for the big Old Time Fiddlers' contest, which was held in connection with the national barn dance on September 13, the first day of the fair. The contest was state-wide. Three cash prizes were awarded the most popular fiddlers; the listeners in sitting as judges.

HOOVER ISSUES NEW RADIO CONFAB CALL



Secretary of Commerce Hoover has called the third Radio conference to be held beginning September 30 at Washington. New regulations will be formulated. P. & A. Photo

New Standard Wave Signals Announced

WWV and 6XBM Announce Schedule for Fall

WASHINGTON.—Amateurs and fans desiring to test their wavemeters and sets on standard wave lengths will have opportunity to do so when Station WWV at the bureau of standards and 6XBM at Palo Alto, Calif., go on the air September 22 and October 8 and 21.

A revised schedule for both Atlantic and Pacific coast standard wave transmissions, shows that both stations will transmit wave lengths from 1,000 down to 200 meters on September 22 and wave lengths between 222 and 93.7 in October. Instead of starting at 11 p. m. as in September, the Palo Alto station will commence sending at 10 p. m. Pacific time on October 8 and 21, and stop an hour earlier. The signals from both stations should carry between 500 and 1,000 miles inland, the bureau of standards states.

WILDERNESS CAMP KEPT WELL POSTED

TWO RECEIVING SETS GET ALL AVAILABLE NEWS

Prairie Club of Chicago Maintains Radio Station in Province of Ontario, Canada

MICHIPICOTEN RIVER, ONT.—To the Prairie Club of Chicago goes the distinction of maintaining one of the most northerly Radio stations in the Province of Ontario, Canada. In this northern camp of the Prairie Club, located 150 miles due north of Sault Ste. Marie, Mich., and in the "wilds where the moose and red deer roam and nature is unspoiled," fifty members of the club are camping. The camp is practically out of touch with the outside world, except by Radio; and with two one bulb sets the members of the club are kept in close touch with the many powerful Radio stations in the United States and Canada.

This year's camp had not been pitched more than a few hours and the aerial erected when WTAM was heard and within a few days WOC, WGY, and even far away WOS were heard very distinctly.

Receiver Aid to Camp's Success

C. A. Young, a resident of Chicago, one of the members in camp who is an ardent Radiophan, says that the programs received on the two sets have contributed considerably to the success of the northern camp, although the sets were not considered part of the camp equipment.

Dr. J. M. Nicholson, also of Chicago, is expected on the next boat. In a recent communication to the camp he announced his intention to bring along a five tube set. When this set is installed it is expected the camp will be in close touch with every big broadcaster on the North American continent. The programs obtained, it is thought, will give the campers, who select the wild places of the continent for their vacation, all the utilities and pleasures that is part of the life of the Radiophan in the big cities.

STATION KFI HAS LINE TO THEATER

New Remote Control Studio at Metropolitan to Provide Excellent Program Features

LOS ANGELES.—The gala dedication and opening of another new remote control station to be under the direction of the Earle C. Anthony, Inc., Station KFI, occurred on a recent Sunday evening when the Metropolitan theater broadcast its first complete hour program from its own studio and theater.

Albert Kaufman, managing director of the theater, arranged a super-concert for the opening evening and many listeners in who tuned in remained during the hour in order not to miss the program.

The addition of the Metropolitan theater to the chain of pick-ups in the Anthony unit is a boon to Pacific coast Radio because of the high caliber of artists appearing at the Metropolitan and the excellence of the forty-five piece orchestra there.

The Metropolitan theater concerts will continue as a regular broadcast feature each Sunday evening between 7 and 8 o'clock, Pacific time, and will be looked forward to eagerly by ether listeners who have enjoyed the few recent miniature recitals presented several weeks previous to the opening of the theater-studio.

WJAX UKULELE SONG ACT BIG HIT



The Metro Trio: Josephine Peterka (left), Bell Barrows (center), June McMahon (right). The first Radio appearance of these pretty girls on a recent Cleveland News program from WJAX caused the station's telephone system to break down under the strain of applause calls. Their singing, with ukulele accompaniment, will be heard whenever WJAX, Union Trust company station, can prevail on them to appear.

BELL-LIKE SIGNALS CKAC'S, NOT MARS'

MONTREAL PLANT EXPERIMENTS WITH PICK-UP

Leonard Spencer, La Presse Technician, Merely Was Trying to Do Away with Microphone

MONTREAL, P. Q.—There has been considerable controversy in Boston, Montreal and Ottawa, regarding the odd, bell-like signals heard when Mars was flitting by old Earth, whilst amateurs, keen on the subject, were listening for a sort of "Howdy" from some Martian Radiophan.

Newspapers have devoted a great deal of pros and cons with reference to the matter; and all seem to be at a loss so far as identification of the funny notes is concerned. It all appears, judging by the confirmation of time, that these notes, heard with an heretofore unheard of intensity, were none but the result of novel experiment carried out by Leonard Spencer, technician of the big La Presse plant, CKAC, here.

How "Mars" Signals Originated
Mr. Spencer, who is probably the youngest technician in charge of a big broadcasting station, developed the idea that musical instruments using steel wire strings, such as piano, banjo, guitar etc., could be broadcast with ten times more clarity and purity if only the microphone could be eliminated. After a few days experimenting, Mr. Spencer tried his stunt. Immediately after signing off the Mount Royal hotel dance program, and making no comment whatsoever, he followed by sending out the intermittent notes.

This was done by merely placing magnetized steel wires in the earth's field and vibrating them, manually. The natural period thusly can be transmitted without resorting to any pick-up system, such as microphones, batteries and other paraphernalia, which according to Spencer will soon be in the discard.

Foreign Mission News Is Latest Feature at WFBH

NEW YORK.—Radio has for the first time been used to send out news of foreign missionaries. This information is now being regularly broadcast from Station WFBH, New York, under the heading "World Neighborhood Events."

KDKA SENDS MUSIC; FRUITS ARE RETURN

PITTSBURGH.—KDKA sends out concerts — fruit growers return fruit. Watermelons and peaches are keeping the Radio staff at the Westinghouse Station here in good humor. Radiophans in Aberdeen, N. C., Lovington, Va., and Alexandria, Ga., have recently shown their appreciation by sending in products for which their states are famous.

Victor Saudek Tells About Instruments

KDKA Little Symphony Leader Plans Novel Series

E. PITTSBURGH.—Victor Saudek, director of the KDKA Little Symphony orchestra, and musical director of Westinghouse KDKA, is planning a series of concerts featuring the various instruments which comprise a symphony orchestra.

He will give a short lecture on the instrument, describing it and its manufacture, illustrating his talk with a solo played on the instrument.

Mr. Saudek has given lectures before high schools and various colleges, and during the war included them as a part of the bandmasters' course for the government.

The concerts of music of foreign countries will also be placed on the broadcasting schedule at regular intervals, including music of all the countries, announcements being made in the language of the country.

McEnelly's Orchestra Back on Air at WBZ

Excellent New England Band Returns for Winter

SPRINGFIELD, MASS. — McEnelly's Singing orchestra, dance exponents and one of the feature entertainers from the local studio of Westinghouse WBZ last winter, have returned to the audience of this station. A special concert of overture, semi-classical selections and dance numbers was broadcast on the evening of the return.

This musical organization, rated among the finest in New England, has been together for over fifteen years. A home has been built here for the orchestra, known as The Butterfly, a beautiful dance palace. WBZ has a special line running into this building and a microphone stands directly in front of the stage on which the orchestra plays. Arrangements have been completed to have dance concerts played by this orchestra every Monday, Wednesday and Friday throughout the winter.

Touching the high spots of life

THERE is a wonderland of sport and adventure for either the expert or the new user in a radio instrument which is both fool-proof and capable of fine work.

You sit in your own library—you reach out into space with a simple turn of the dials and soon you have contact with—Boston or Schenectady or Pittsburgh, or perhaps some more distant point.

The thrill you get is a real one—it means another stage of amplification of man's contact with man. It means more than that to you; it means that you are bringing more and more of the world about that important centre—yourself. It means again that you are learning a new art—an art that you can carry into the finest technique if you are technically inclined, or that you can gradually improve on by merely the practice which repeated operation will give you.

Your pleasure increases with your skill

As you learn the habits of your instrument, you learn how to get satisfying results every time you try. You acquire a measure of skill in spite of yourself.

Almost any radio set can be made to work. There are several makes of good ones; and the one you should have is the one best suited to your personal requirements; but remember that for general excellence, surety, and smoothness of results the De Forest D-12 stands pre-eminent.

The invention of the Audion tube by Dr. De Forest made the present high development of radio receiving apparatus possible. De Forest is the great name in radio. The De Forest Company has been the pioneer in simplifying the outfitting and use of radio. Our D-12 is a complete, self-contained unit, with batteries, wires, tubes and antenna all ready for use the minute the battery wires are connected and the loop placed in its place on top of the cabinet.

Without either outside antenna or ground wire it does its perfect work. Where the outside antenna and ground wire are installed it may extend its range somewhat.

Its four tubes do the work of seven

It is built for convenience, and for exactness and economy of operation. Its four tubes do the work of seven, and do it better. It is easy on batteries, and above all, De Forest has won an outstanding reputation in the industry by years of notable performance. It is an instrument you will be proud to own and tell others that you own.

Every great industry has its great standardized product—known by the public for its efficiency, its reliability, and its honestly earned reputation. In the automobile field—the talking machine field—the piano field—there are such. You probably can name them. In the radio field its name is De Forest.

Economical to use

It is not a "cheap" instrument, because such standardized performance as the De Forest D-12 will give you is not a cheap thing, and the instrument is worthy of the attractive housing which it has; but it is most economical to use, because once adjusted it works most satisfactorily, and takes the minimum of current for operation. Though it is not "cheap," it is very low-priced in comparison with any

other radio set that will give equal or approximately equal results.

This radio industry is beyond its "pin feather," or elementary experimental stage. The radio receiver was really invented when Dr. De Forest invented the audion tube—although the world didn't know it for several years.

Good receiving sets today are standardized. You will no more throw away your radio after a year or so than you will throw away your good piano.

There is much splendid broadcasting being done today—and it will be better tomorrow; but the so-called "latest word" in receiving sets does not differ in essential principles from that of several years ago—just as the automobile of today's purchase is in essentials the same as the car of the same name was several years ago. Don't be fooled on this. The De Forest Radiophone you buy now will be essentially up-to-date for years.

It is as simple as eating to use De Forest D-12

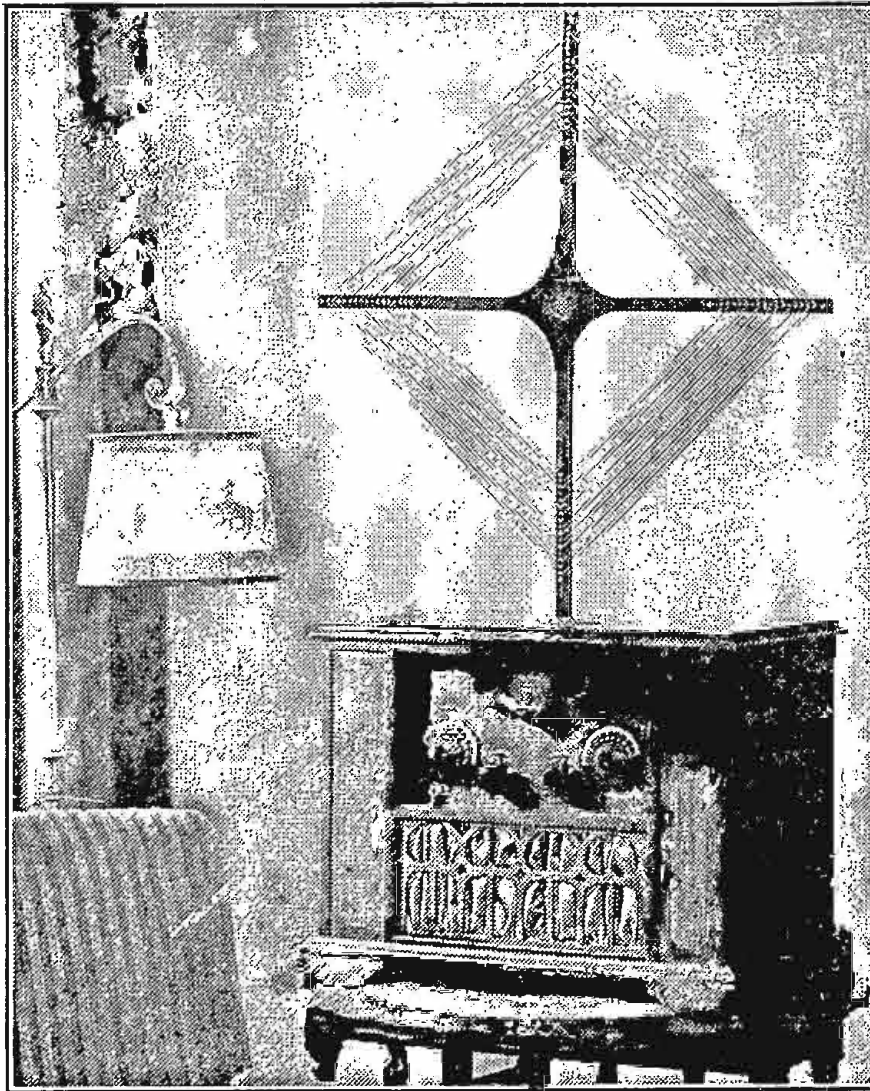
You learn how to catch the good things as you follow the broadcasting programs; that is fun. You learn how to get the reproduction clear and strong; that is fun. You learn the delicate art of picking up distant stations, and that is heaps of fun.

You learn what radio won't do in the summer and what it will do in the winter. You learn its whims and whimsies. You learn it is as interesting as a beautiful girl—as temperamental as an artist, and you learn to be a master of its whims and temperaments. You may do this with or without learning its mechanical and scientific principles. Suit yourself. It is fun either way.

Here are directions for using De Forest D-12—

Have your dealer deliver the instrument to you ready for use completely wired—put the loop into its place, turn the dials till you get your station (your dealer will show you how) and then your fun begins. Listen and change your stations to your heart's desire.

DE FOREST
RADIO TEL. & TEL. CO.
Jersey City, N. J.



DE FOREST D-12 REFLEX RADIOPHONE

Your Receiver Deserves De Forest Tubes

YOUR radio set is no better than its tubes. For volume and beauty of tone reproduction you must rely on them.

De Forest tubes satisfy the requirements of the most exacting set owner. They are the latest developments in the manufacture of tubes begun many years ago, when Dr. Lee De Forest invented the three-electrode vacuum tube which makes present-day radio possible.

For volume and beauty of tone De Forest tubes are unsurpassed. They are non-microphonic—do not rattle or howl. They use little current, and last long.

For dry batteries use the De Forest DV-3. This tube is specially adapted for use on

camping trips, and for general use in locations where there is no electric power.

For storage batteries make sure you have the DV-2. With these tubes you can operate practically every circuit in use today.

The name De Forest on these tubes is a guarantee against defects in material, character and workmanship. All De Forest tubes are inspected thoroughly during and after production and are tested. They are packed in individual cartons containing instructions for proper operation and connection. Sold only by authorized De Forest agents. Look for the name De Forest on each tube.

De Forest D-12 Reflex Radiophone

A four-tube, long distance indoor loop receiver, with self-contained batteries and loud speaker

1. COMPACTNESS—Completely self-contained in beautifully designed case with two foot antenna. No bothersome aerial and ground wires, or outside batteries or loud speaker.

2. SIMPLICITY—Controls simple enough for the veriest amateur, critical enough for the expert. Calibrated tuning chart with each set. Raising the cover makes all parts accessible.

3. EFFICIENCY—Six stages of amplification and one stage detector gives high selectivity on this four tube circuit. Tuned radio. Volume controllable from faint whisper to the crashing of a brass band, with perfect fidelity of tonal quality. Great distance range.

4. ECONOMY—This four tube reflex circuit cuts cost of tube replacement and battery upkeep.

If more than five tubes are used the "B" batteries are used up at ruinous rate.

5. MOBILITY—The D-12 is so light and compact you can easily move it from room to room and is so well built that this will not put it out of commission. Can easily be carried in the tonneau of your car. The leather covered set will not mar easily.

6. BEAUTY—This is the smartest and handsomest moderate priced set, in either its embossed two-toned leather or its plano finished two-toned mahogany case.

7. Remarkably low price. The De Forest D-12 Reflex Radiophone is several hundred dollars below any other set that compares with it in distance range, efficiency or beauty.

DECIPHERERS GIVEN MARS FILM RECORD

WILL TRY TO SEE IF SIGNALS ARE ON PHOTO

C. Frances Jenkins, Photographer of "Mars Talk," Thinks Not—Planet Makes Faces for Earth?

WASHINGTON.—The deciphering of the record of Radio signals taken on a thirty-foot strip of photographic film during a period of twenty-nine hours while Mars was closest to the earth, has deepened the mystery attending the peculiar dots and dashes reported heard over the same period of time by experienced Radio operators in widely separated parts of the world.

The device which took the record, called a "Radio photo message continuous transmission machine," is the invention of C. Frances Jenkins, well known for his Radio still photo and motion picture transmitter.

Mr. Jenkins was induced by Dr. David Todd, professor emeritus of astronomy at Amherst and organizer of the international "listening in" for Mars signals, to use his machine to record what might be signals from the visiting planet.

Man's Face Appears on Film?

The film, thirty feet long and six inches wide, discloses in black on white a fairly regular arrangement of dots and dashes along one side, but on the other side at almost evenly spaced intervals are curiously jumbled groups each taking the form of a crudely drawn face.

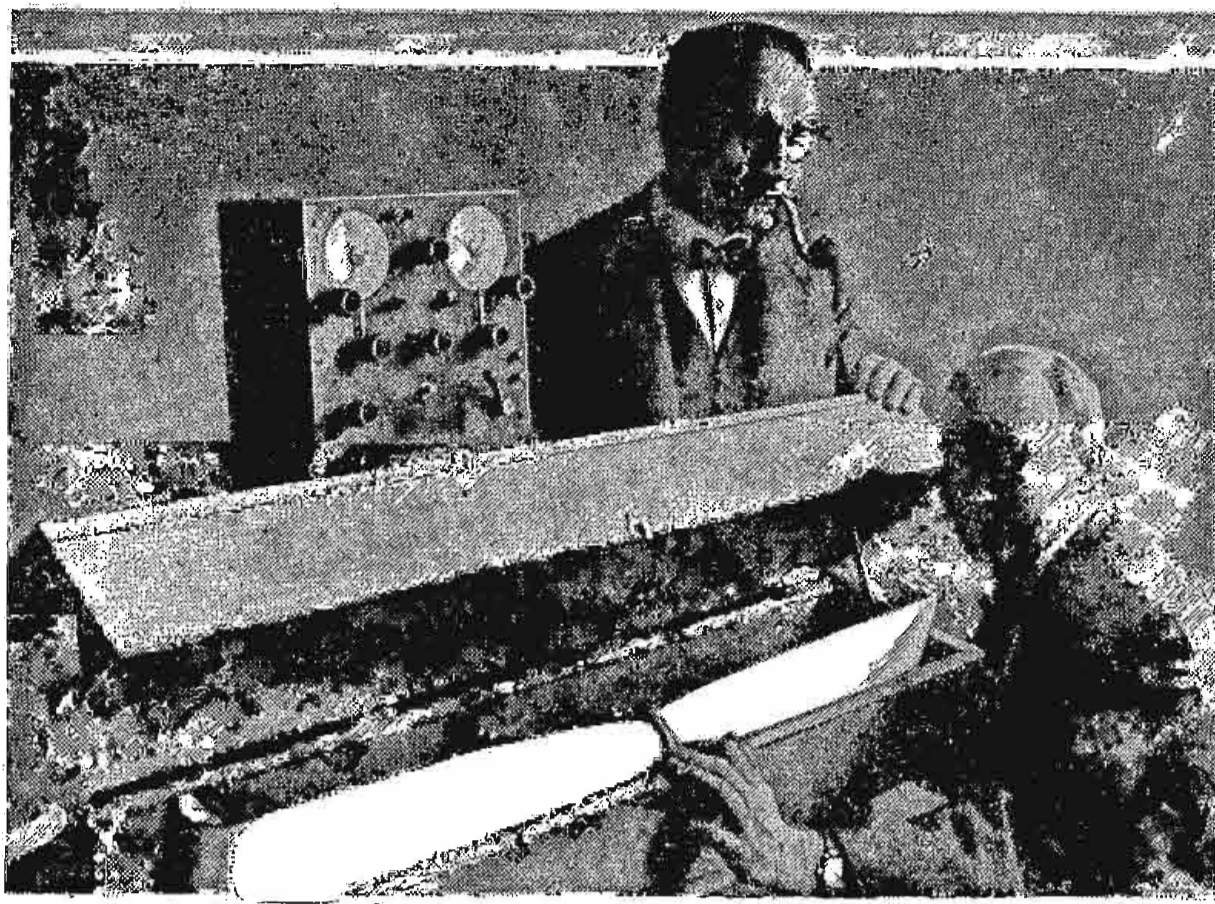
"I don't think the results have anything to do with Mars," said Mr. Jenkins.

"Quite likely the sounds recorded are the result of heterodyning or interference of Radio signals. The film shows a repetition, at intervals of about a half hour, of what appears to be a man's face. It's a freak which we can't explain."

The films have been sent to the cipher experts of the navy department. It will be their job to determine, if possible, whether any intelligence or code can be discovered in the mysterious symbols on the photographic film.

SAN FRANCISCO.—Norma Talmadge, one of the most popular motion picture stars, made her first broadcast at Station KPO, Hale Brothers, of this city and is now an ardent believer in the publicity value of broadcasting.

DID DEVICE PICTURE 'MARS' TALK?



C. Francis Jenkins (right) explains to Prof. David Todd of Amherst the new photographic Radio receiving apparatus used in an attempt to record signals from Mars. The camera is fitted with a long roll of film capable of photographing one hundred hours continuously. The record made by the camera, while not believed to be significant, shows some peculiar markings and has been turned over to the cipher experts of the navy for study.

Henry Miller Photo

HEAR NIGHT FOOTBALL FROM WSAI SEPT. 27

"ESM," Sport Announcer, to Talk from Lighted Field

CINCINNATI.—WSAI will introduce a Radiocast innovation on Saturday, September 27, when "ESM," the station's sport announcer, will call each individual play direct from the field in the first night football game between the Cincinnati university Bearcats and the Kentucky Wesleyan team.

The field and stadium will be flooded

with light from a battery of high-power electric searchlights, which it is believed will enable all spectators as well as the players to follow every move of the game. A white ball will be used.

On the following Saturday WSAI will Radiocast, play by play, the night game between the Bearcats and Georgetown university team.

Four Miles to Next Receiver

INTERLAKEN, N. Y.—How ideal is a location for Radio on the west shore of Cayuga lake, nineteen miles north of Ithaca, N. Y., and no receiving set within four miles of you? Absolutely ideal is the answer. That is the rare pleasure which an Interlaken fan enjoys.

HIRED HAND'S HOME ON FALL SCHEDULE

WBAP RESUMES EVENING CONCERTS THIS WEEK

Dixie Baseball Series May Be Broadcast —Cost \$15,556 to Operate Station Year

FORT WORTH, TEX. — WBAP, far-famed haven of the Hired Hand, mysterious announcer for the Star-Telegram, spent Monday evening of this week in a hilarious opening program for the fall and winter season.

Evening concerts were resumed following the Monday program, but the noon day frolics, broadcast throughout the summer, have proven so popular that they will be continued.

When the artists arrived at the studio for the reopening evening program they were surprised at the many changes made. The newly redecorated studio is arranged artistically enough to please the most temperamental artist.

Dixie Series; Cost of Operating

It was planned, at the time of writing, to broadcast the Dixie baseball series in case Fort Worth finished with the leaders. The series was to have begun Wednesday of this week. Southern baseball fans are greatly interested in the outcome of the play.

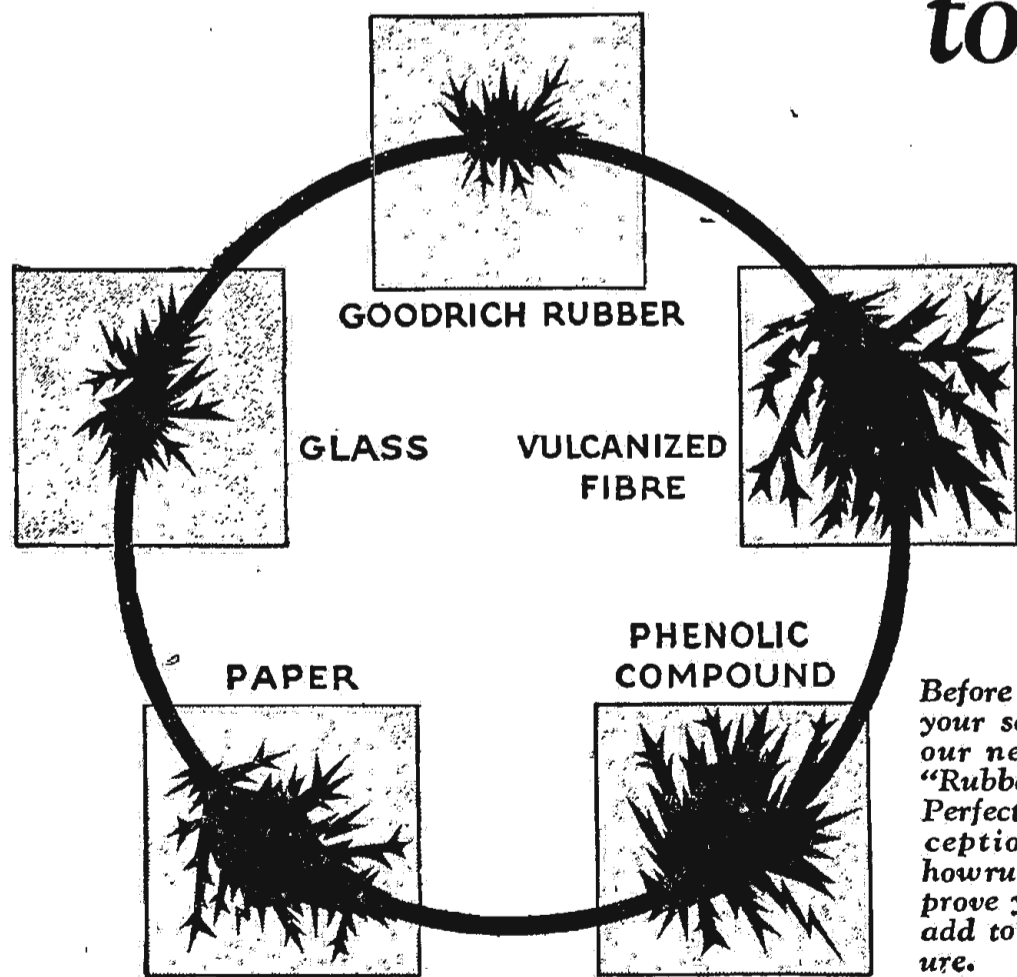
A recent report of the cost of maintenance for Station WBAP for the fiscal year gives this figure at \$15,556. The cost considering the number, character and scope of the Star-Telegram's audience, is believed to be a record of economy compared to the expenditures of many other stations.

Cincinnati Stations Give Songs of Britt and Finch

CINCINNATI.—Andy Britt and Dick Finch, popular song writers and Cameo record artists, who are making a tour of the country visiting a number of the larger broadcasting stations, were featured the first week of September on the programs of Stations WMH and WSAI here. They were heard every night of the week, singing their own compositions.

The new law which recently went into effect in Poland will undoubtedly stimulate the development of Radio there.

Science says use Hard Rubber Panels to avoid Dielectric Losses



Before you build your set write for our new booklet, "Rubber for More Perfect Radio Reception." Learn how rubber can improve your set and add to your pleasure.

DIELECTRIC losses reduce range and selectivity. Use hard rubber radio panels in building your set and minimize these losses. Hard Rubber—the chart shows—has the lowest dielectric losses.

And more, it is easily worked with ordinary tools—more moisture-proof—and less expensive.

Goodrich Radio Panels give you all basic hard rubber advantages—and more!

☞ Won't warp from the heat of tubes because their softening point is 25° Fahr. higher than that of usual hard rubber.

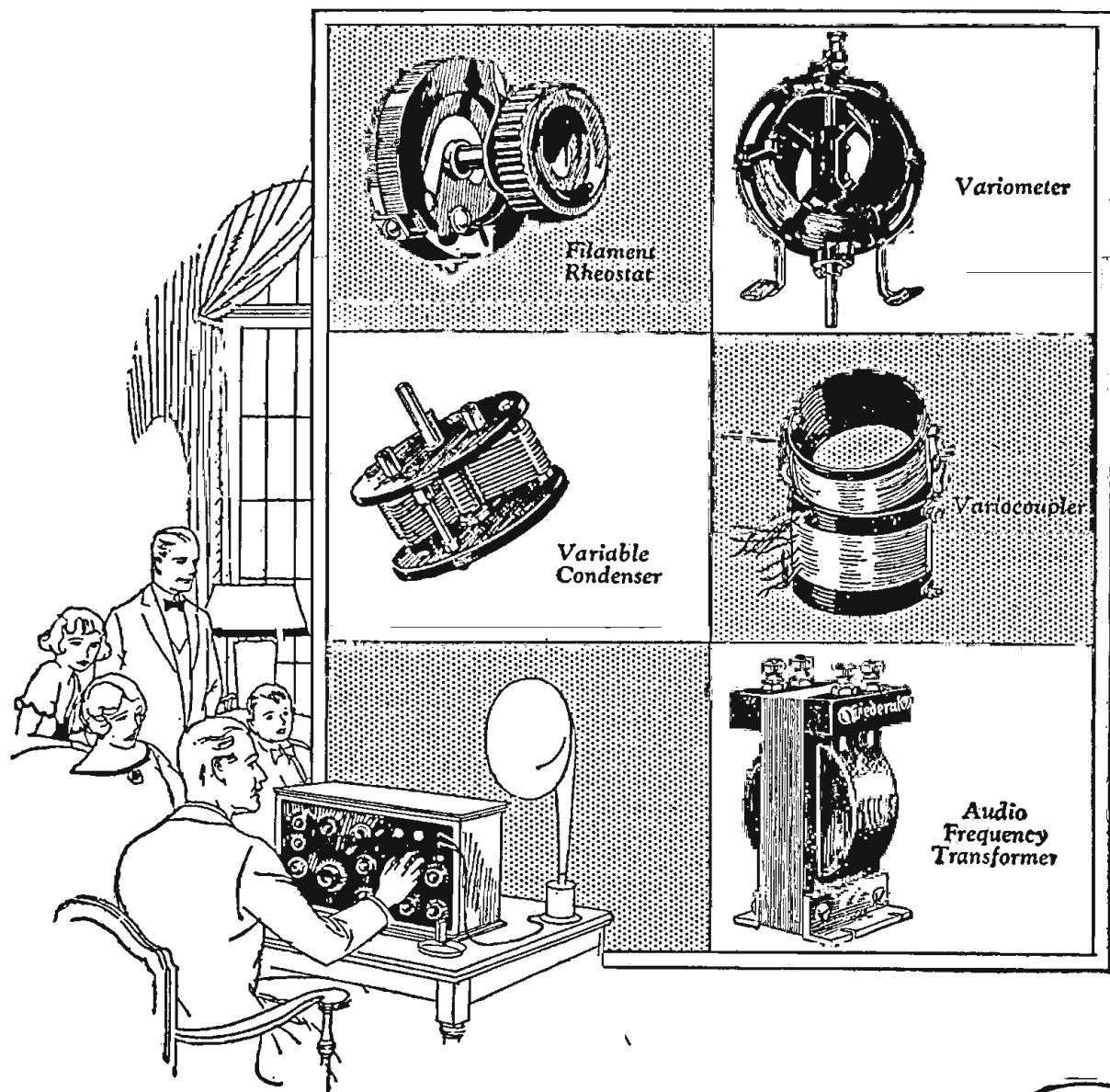
☞ Permanently retain their rich, glossy finish because of a much lower free sulphur content.

☞ Conserve all electrical properties because of lower moisture-absorption.

So ask for Goodrich! Two attractive colors—black and mahogany. All standard sizes—individually packed.

THE B. F. GOODRICH RUBBER COMPANY
Akron, Ohio ESTABLISHED 1870

Goodrich HARD RUBBER Radio Panel



FROM smallest screw or binding post to condensers, vario couplers and transformers, each of the 130 Federal Standard Radio Parts are made to give maximum service and are backed by the iron-clad Federal performance guarantee.

Federal Telephone Mfg. Corp.
Buffalo, N. Y.

For a quarter century Federal has specialized in tone qualities. Today the rare beauty of Federal Tone and also the simplicity of Federal operation are spoken of as ideals in the field of radio.

Federal sets may now be purchased on easy payments. Ask your dealer.

Look for this sign



When assembling your set, insist that each part be of Federal manufacture

Federal

Standard RADIO Products

Boston New York Philadelphia Pittsburgh Chicago San Francisco Bridgeburg, Canada

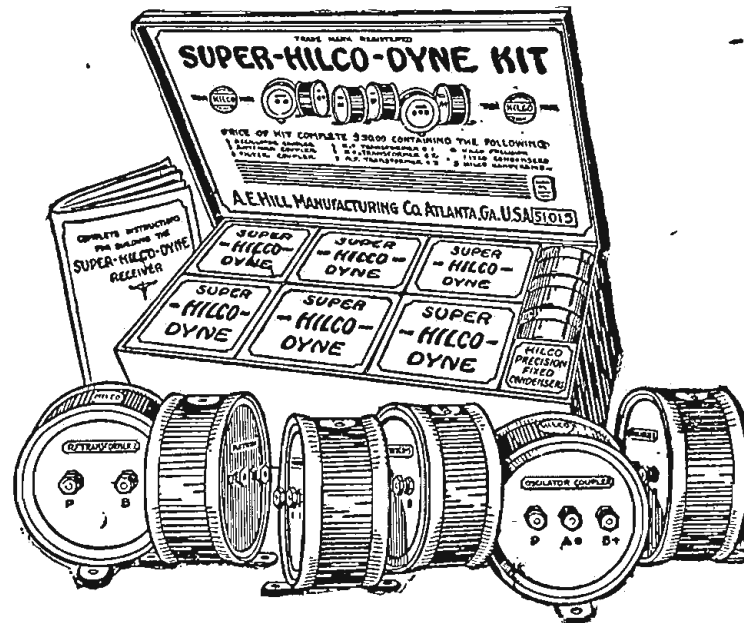
The SUPER-HILCO-DYNE KIT

Scientific Radio Apparatus That Is Distinctively Different and Superior in Efficiency and Appearance

Do you want to dance,
No matter where the music is?
Do you want to hear a lecture,
No matter where the speaker is?
Do you want to hear a song,
No matter where the singer is?
THEN—

Go to your dealer, purchase a Super-Hilco-Dyne Kit and build this seven tube long distance receiving set that gets what you want when you want it!

Coast to Coast Reception
Only Two Tuning Dials
Stations can be Logged
Seven Tube Set, 7 x 28 inch Panel
Receives 90 Meter Stations Too!



Each unit has been tested and is guaranteed for accuracy and quality.

\$30.00

- 1 Hilco Oscillator Coupler
- 1 Hilco Antenna Coupler
- 1 Hilco Filter Coupler
- 3 Hilco Intermediate Frequency Transformers
- 5 Hilco Precision Fixed Condensers
- 3 Hilco Handykans
- 1 Instruction booklet

Complete explanation, BLUE PRINTS and instructions for assembling a SEVEN TUBE SET

Make Your Own Rolls Royce Receiver!

A.E. Hill Manufacturing Co. ~ Atlanta, Ga.

LABOR DAY IS STUNT DAY FOR CINCINNATI

POLITICS, LION AND CIRCUS KEEP FRED SMITH BUSY

Crosley WLW Keeps Busy Business Men Busy on Holiday—Lion Outroars Politicians

By W. G. Welbourne

CINCINNATI.—Labor Day was "stunt day" for WLW listeners. The stunts ranged from political speeches to a lion's roar and then in the evening Fred Smith took a big invisible audience with him to a circus.



Fred Smith

Thousands of busy business men not busy that day because Congress by an act passed April 19, 1904, decreed they might rest, heard the speech of John W. Davis, who told the people at Wheeling, W. Va., what a good president he believes he would make, and that of Robert M. La Follette, speaking in Washington.

No one heard a rooster crow when Mr. Davis had finished and the La Follette effort was followed by silence quite as depressing, but presently those who stayed tuned in heard a ferocious, terrifying roar of a wild beast. No sound just like this had ever gone out through a microphone.

Lion Puts Politicians to Shame

Out at the Zoo Superintendent Stephan teased and bantered the biggest lion there until he bellowed, roared and snarled sonorous yelps into the portable microphone provided for the occasion and the roar. As a noise maker this lion put both Messrs. Davis and La Follette to shame, but modern politicians and candidates are not like those of the olden days. Years ago the lion more likely would have been the shamed one. Times have changed.

Just to prove that he is no shirker, even on Labor Day, when it is supposed a man don't have to work, and shouldn't if he wants to, Fred Smith kept on moving and turned up in due time on the circus grounds out Cumminsville way.

Takes "Mike" to Circus

Fred hadn't been to a circus since the war! nor did he attend any during that event. He knew there were a lot of other people in Cincinnati and elsewhere who hadn't seen one for a long time, some, perhaps, who never had experienced that glorious sensation, and some who never will, so he took along with him his microphone and his audience. Mr. Smith bought pink lemonade and peanuts outside, got by the doorkeeper at the side show by giving the "profesh" high sign, and after a tour of the menagerie, entered the "big top."

He told his listeners everything he heard and saw and let them hear some of the things he heard. He relayed the performances of the bare-back riders, the acrobats, wire walkers, jugglers and tumblers, and transmitted to the air the inharmonious tones of the typical circus band.

It was some Labor Day for Fred Smith and his WLW audience.

THE "WLS UNLIMITED"

(Continued from page 5)

Lullaby hour is a bedtime feature for the kiddies broadcast every evening between 7 and 7:45, Central daylight saving time, with Ford Rush and Glenn Rowell playing "Sandman." It is an hour of stories, old and new nursery rhymes, barnyard jingles set to music that fits the themes.

"Static" Assistant Announcer

The story of WLS would not be complete, however, without a word about "Static"—a double yellow-headed Mexican parrot, the only parrot in the world to have taken up a Radio career as an announcer. "Static" was brought here from the southland by George Hay to assist him in calling out the stations of WLS Unlimited. In a short time it is planned that "Static" will do some real announcing.

His vocabulary is increasing daily. During lullaby hour it is "Static's" job to assist "Smoky," the duck, entertain the 3,000 lullaby club members. The Radio parrot has the run of the studio. He may break into any program and have his say. His name gives him that privilege. If "Static" is bored by too long a speech it is his right to demand that the speaker "tune off," or "dry up," or "clear out," whichever phrase fits his vocabulary.

The train feature of broadcasting was the idea of George Hay, the popular announcer who came here from the Memphis

Twin Cities May Have Big Station

Washburn-Crosby Company Would Install Five-Kilowatt Set and Pay Half Operation Cost

MINNEAPOLIS, MINN.—Broadcasting on a large scale will be renewed here soon, it is believed, due to the generous offer and co-operation of the Washburn-Crosby company, flour millers. It will be remembered that Station WLAG went off the air recently when the local co-operative agreement terminated.

The Washburn-Crosby company has made an offer to purchase and erect a new five-kilowatt (5,000-watt) station and pay half the cost of its maintenance for three years. Minneapolis and St. Paul are to raise the balance of the maintenance cost.

The offer stipulates that the company will pay \$50,000 a year for three years providing the Twin Cities raise a like fund of \$150,000. Local committees and business men's associations are actively engaged in signing subscribers.

WJZ's Two-Part Thriller Is in Nature of Tryout

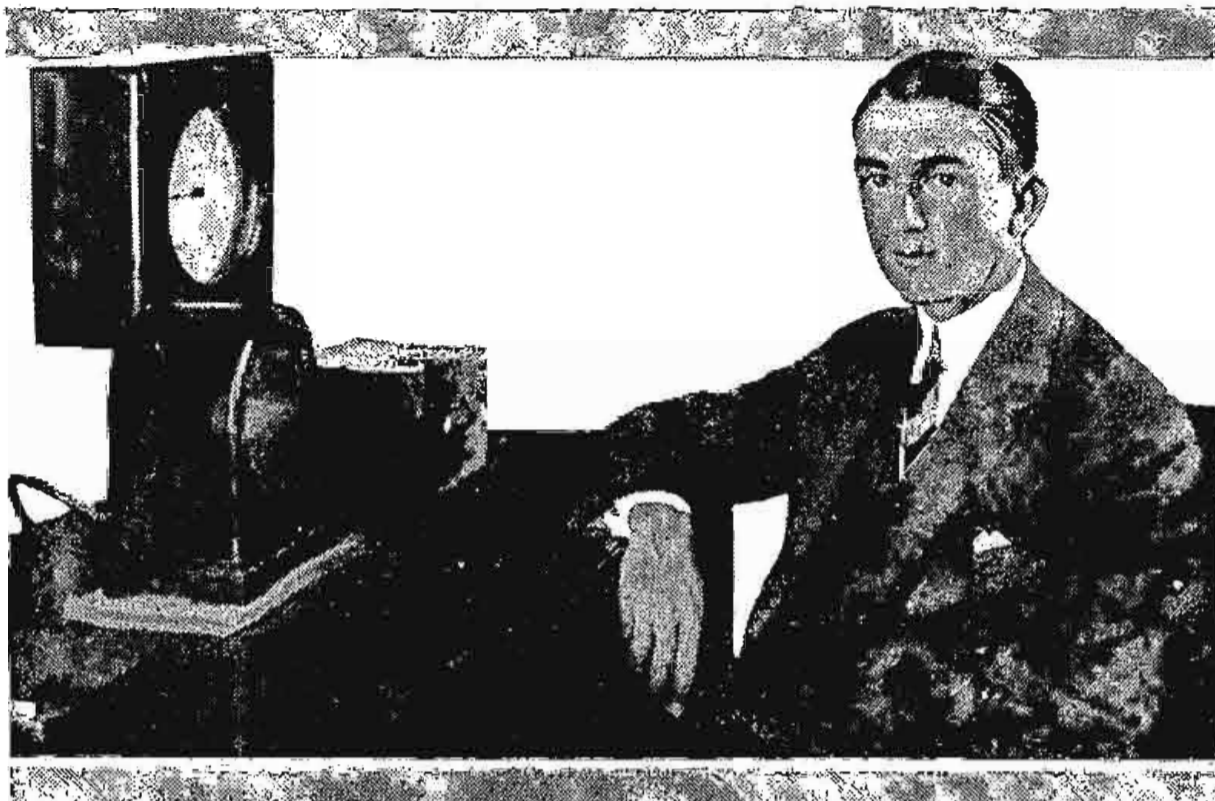
NEW YORK.—Presenting the latest alliance between Radio and literature, Station WJZ, recently took one period each week to broadcast the two parts of a thrilling mystery story, "By the Breath of a Hair," written especially for Radio by Arthur B. Reeve, noted detective story author. The broadcasting of this story was an attempt to solve the question of just what type of literature is most acceptable to the invisible audience.

The story, specially written by Mr. Reeve to suit the peculiar needs of Radio, was carefully prepared to be broadcast in a short period of time without losing any of its interesting or forceful features. An accurate check-up of the reaction of the unseen audience will be made, and if the response warrants it, this form of broadcast will undoubtedly become a regular weekly program feature.

Appeal station, where he attained popularity with his steamboat whistle and his "boat trips" to various parts of the country.

When he became the chief announcer for WLS he converted his steamboat whistle to a locomotive whistle and started the WLS Unlimited on its way. He is the conductor of the train, but he has two able assistants in this transportation feature in Ford Rush and Glenn Rowell. Ford acts as the engine bell, and

EPINARD EASY COMPARED TO MIKE



A six furlong horse race is nothing in the life of Jockey Everett Haynes but he was very nervous in his first microphone experience at WGY, the Schenectady broadcasting station from which he told many interesting and intimate things about Epinard, the famous French thoroughbred which he rode during its recent invasion of the American tracks.

Glenn "makes the wheels go round," so that the Radiophans get all the thrills of the sound of the start of a fast train, its getting into high speed and slowing down at the end of the trip.

"Sound Dramas" Latest Addition

Sound experiments have been one of the interesting features of WLS, among which was the "Trip down the Mississippi," with all the crap shooting of the darkies and singing which typify the famous trips down the great water way. Another was "The Spirit of the Wars of American History," which was broadcast on July 4.

The latest feature in this unique broadcasting program is the inauguration of a permanent theatrical company organized for the production of "Sound Dramas," to be broadcast each Friday evening. Harry D. Saddler of Bloomington, Ill., playwright and producer, has been secured to head the company. Rebuilding plays to fit the ear is the task of this WLS theatrical company. Tragedy, pathos, humor—all emotions the drama portrays by color, lighting effects, settings and facial expressions, as well as the voice, must be sent by one agency—sound.

FOURTH DISTRICT HAS ASSISTANT INSPECTOR

Second Office to Be Located at Savannah, Ga.

ATLANTA, GA.—A statement from Major Walter W. Van Nostrand, supervisor of Radio in the fourth district, with headquarters in the Federal building here, is to the effect that the department of commerce has authorized the appointment of an assistant Radio inspector in the fourth district.

The assistant inspector will be stationed at Savannah, Ga., with offices in the Custom House. This new office will care for the inspection of ship stations, at Savannah, Ga., Charleston, W. Va., and Jacksonville, Fla.

Atlanta is the headquarters of the fourth Radio district and the only one of the nine district headquarters located inland. With the opening of the Savannah office Georgia will be the only state in the Union with two Radio offices.

What Are Inferior Parts Costing You?

Just as much as you'd pay for Bremer-Tully parts—the difference is in the results you get.

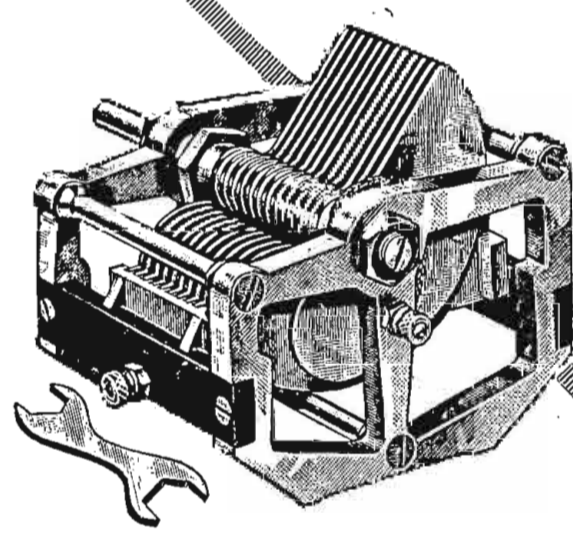
The Bremer-Tully Low Loss Tuner

This is not a trick tuner, but a standardized electrical instrument now in its third successful year. The unsurpassed results obtained by thousands of users has demonstrated the unquestionable superiority of this product. The untuned adjustable primary, the skeleton frame, the "series bank" windings of the coils, are improvements of vital importance, insuring extremely low losses, greater

selectivity, distances and volume.

No switches or taps are required, the bearing is adjustable, rotor is pig-tailed. All windings terminate in binding posts clearly marked. Single hole, panel or base mounting can be used.

The short wave tuner brings in the low wave broadcasting which is becoming so popular.



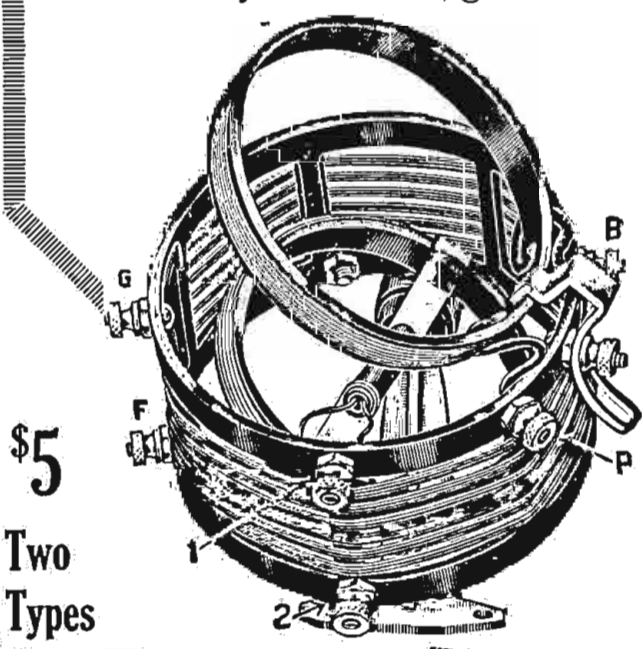
- 150 M.M.F. 7 plates \$4.25
- 250 M.M.F. 11 plates 4.50
- 520 M.M.F. 23 plates 5.00
- 800 M.M.F. 35 plates 6.50

The Bremer-Tully "Lifetime" Condenser

The Only Low Loss Straight Line Wave Length Condenser. Light in Weight—Compact in Size.

This product has all the essential features of condenser perfection—a two-step adjustable, thrust type, lubricated bearing—which has no equal in radio. It can be tightened without changing the plate alignment. We guarantee it to last a lifetime. A pigtailed

rotor, exclusive design of die cast rotor and stator plates giving positive contact and minimum resistance. Specially designed cut away end plates reduces capacity. This condenser is rigidly constructed—it has our unqualified guarantee. Go to your dealer and see it today—"20 Point" folder gives you fuller details. Write for it.



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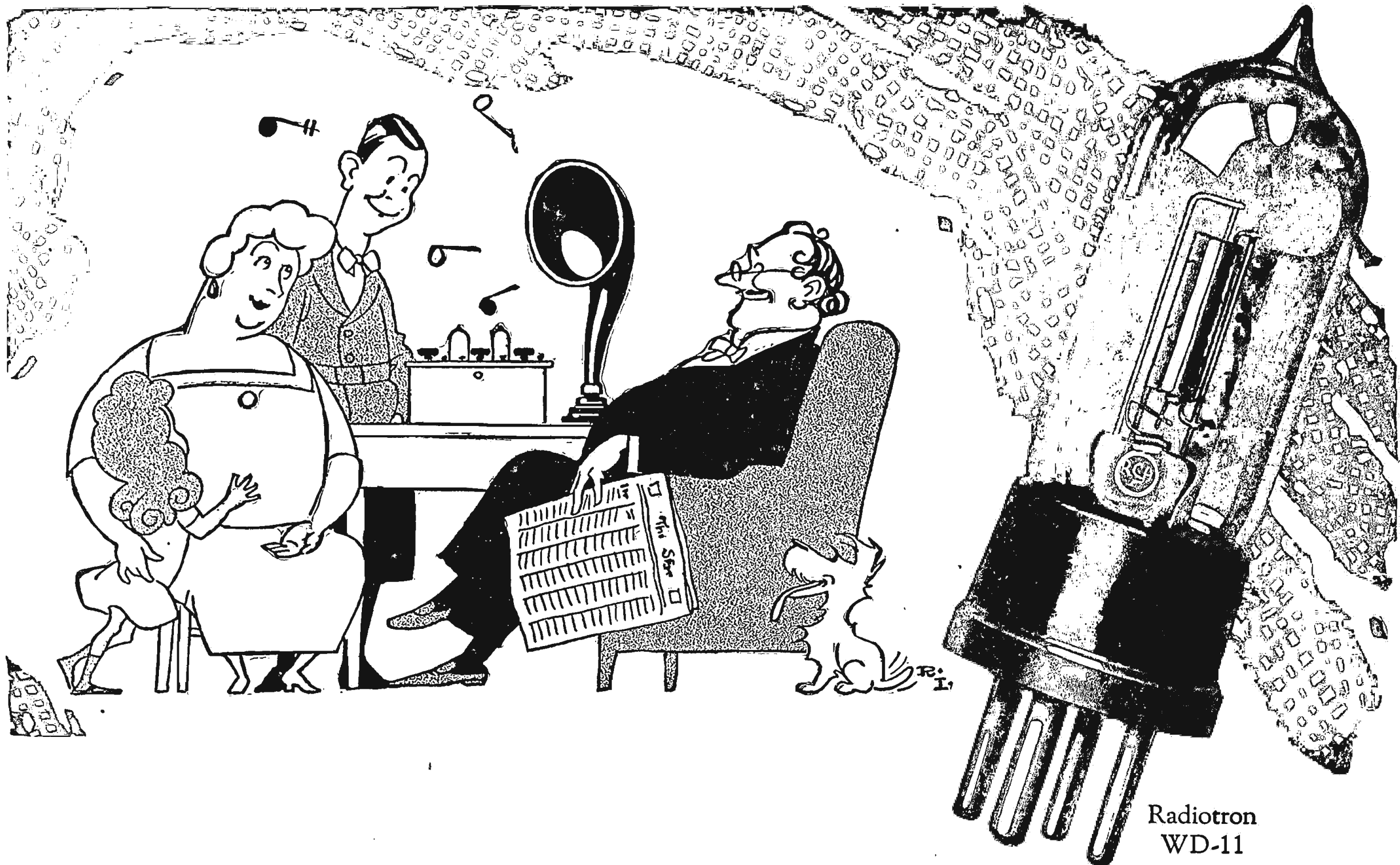
Two Types

Short Wave
50 to 150 meters
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It isn't a genuine UV-201-a
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Buying anything but the best in vacuum tubes is like trying to run a car on gas that is half water. In radio, everything, in the end, depends upon the Radiotrons. You can put perfectly good Radiotrons in a poorly made set—that's true. But the point is that the very finest receiver made can be no better than its tubes. This is

no new or startling announcement. Everyone knows it. And that's why, at the radio counter, you see each man pick up a Radiotron, and look at the base for the word "Radiotron" and at the glass for the "RCA" mark. For best reception—real music—nothing short of the best in tubes will do.



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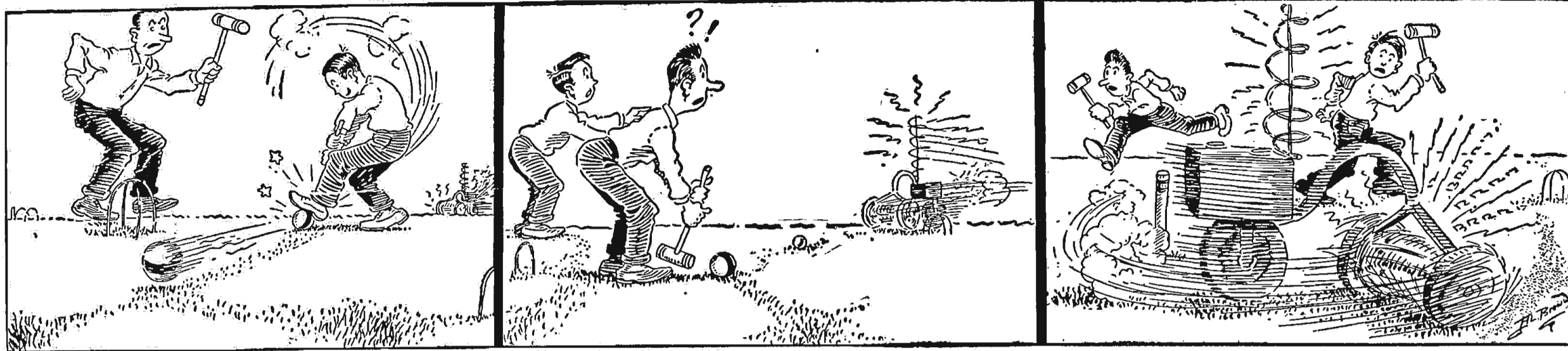
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THE ANTENNA BROTHERS

Spir L. and Lew P.

Sarah Scores a Wicket



DRAMA OF 'PIT' PUT IN WGN QUOTATIONS

FANS HEAR CRIES OF TRADERS AT CHICAGO BOARD

How Market Information Is Handled by Tribune Station, Formerly WDAP—Schedule Used

CHICAGO.—The drama of "the pit" in Chicago's Board of Trade is now on the air. The Chicago Tribune Station, WGN, formerly WDAP, has installed a microphone suspended above the pit. For one full minute, as a colorful preface to its half-hourly quotations, WGN has the pit on the air. Like the prologue in the theater, on comes the hubbub of the trading—the calls, the cries, the signaling, the babel of barter in the pit. Then the WGN announcer, in the studio on the Drake hotel, gives call letters and announces the opening of the market bulletins. Immediately the listener is switched to the soundproof announcing

booth in the Board of Trade, from which the quotations are read. Eight times a day "the pit" does its turn; 9:35 a. m., 10-10:30-11-11:30-12 noon-12:30 p. m. and 1 Central daylight saving time. High, low and closing quotations at 1:25 p. m. are broadcast after the Board of Trade is closed and the pit silent. Other market information broadcast includes butter and egg market report at 11:10 a. m., Chicago stock exchange closing quotations at 5:50 p. m. and the Board of Trade market summary at 6:00 p. m.

DIXIELAND'S STATION

(Continued from page 4) of the River and Rail Terminal promotes co-operation between those two types of transportation. This city, too, is the home of Piggy Wiggly, Clarence Saunders and "Memphis Bill" Mallory, of football fame. In a short time the handsome and completely appointed Municipal Auditorium will be opened and will include a direct line into the studio of WMC, whereby broadcasting of such entertainments as Sousa's and Paul Whitman's bands, San Carlo Opera company, Jeritza and other splendid programs, may be accomplished for thousands of Radio listeners.

The Launching of "Hushpuckinny" During the past two years, however, probably the greatest contribution to the fame of Memphis has been through WMC itself. This station opened on January 20, 1923, with its principal objective to supply the best possible entertainment and to attain a personal contact with its unlimited audience by means of human, optimistic and well-controlled broadcasting. A few months after this station stepped into the air, there came George D. Hay, the "Solemn Old Judge." He grasped the helm of the good ship "Hushpuckinny," whose whistle, along with the slogan "Down in Dixie" soon became synonymous with WMC. Cleverly he steered her forth on many a long and enjoyable trip through the clouds. The "Hushpuckinny" went into drydock in Chicago when George Hay became chief engineer of "WLS Unlimited." Right now the old boat has just been

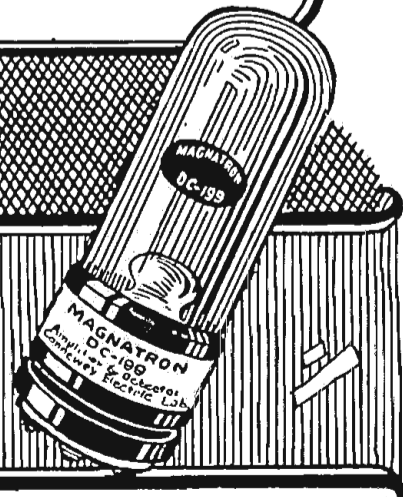
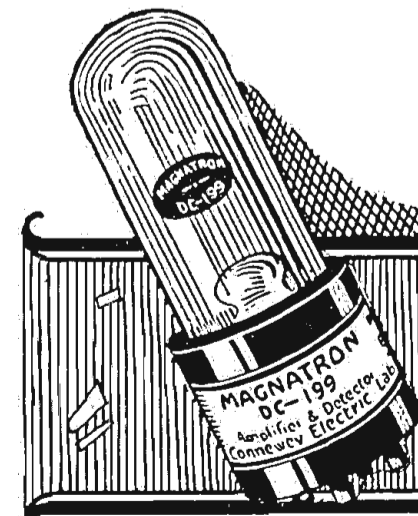
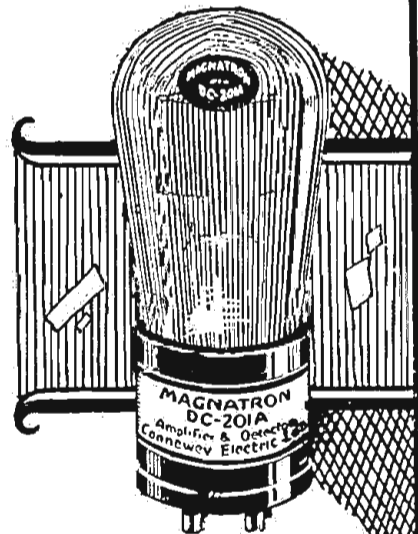
thoroughly overhauled; its barnacles are scraped off; its decks are holystoned, and a resplendent coat of white paint has been applied. Recently she slid down the ways once more, this time under the skillful hand of Captain Gerald L. Dearing, better known as "Jerry," who now carries the glad tidings of WMC through the length and breadth of the land. Jerry Dearing's Announcing Appeals Mr. Dearing, who hails from the state of New York, is one of the youngest announcers in the air today and bids fair to become one of the most popular. He has an individual manner of announcing which appeals to the majority of listeners. Before taking charge of WMC, for more than two years Mr. Dearing was on the editorial staff of the Commercial Appeal. Percy G. Root, chief engineer for WMC, was born at Natchez, Miss. He has been interested in Radio for a long while and (Continued on page 14)

MAGNATRONS Improved and Reduced

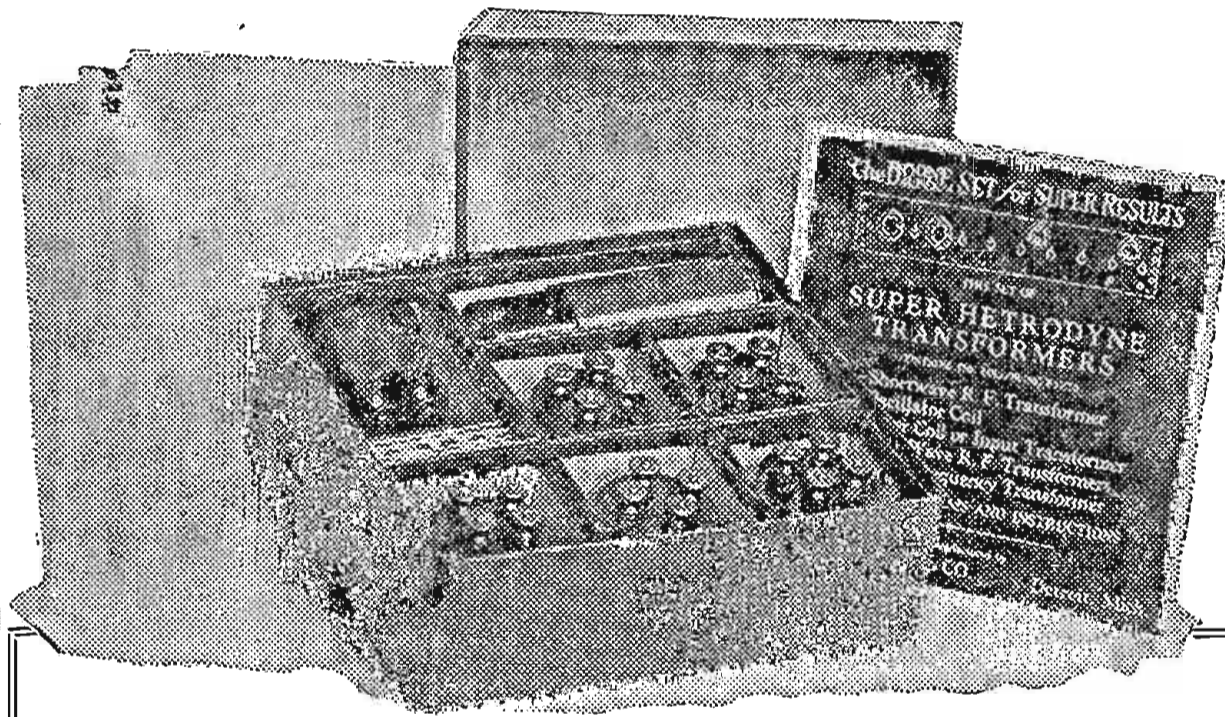
At one stroke we have both improved the MAGNATRON and reduced its price! The vacuum tube upon which discriminating radio users have come to depend is now even better than it ever was before—and yet it costs only \$4.

The new MAGNATRONs are tipless. That feature is important; it prevents breakage. Then there are internal changes which make MAGNATRON tubes unequalled for radio and audio frequency amplification.

The MAGNATRON DC-201A, the MAGNATRON DC-199, and the MAGNATRON DC-199 with the large base can be bought at your dealer.



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Unusual receiving range, remarkable selectivity, clarity of reception and ease of operation—these are distinguishing characteristics of radio sets made from the Boone Super Hetrodyne Transformer Kit. One user says "it is truly a remarkable achievement"—another, "results attained speak volumes for the sensitivity of your equipment."

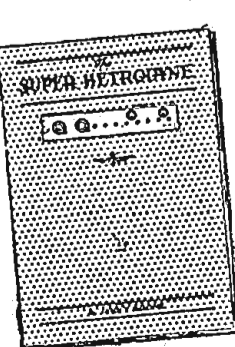
The complete set contains 1 Short Wave R. F. Transformer, 1 Oscillator Coil, 1 Filter Coil or Input Transformer, which is carefully balanced with the three Long Wave R. F. Transformers, 1 Audio Frequency Transformer, Complete Wiring Diagrams and Instructions accompany each kit, and if carefully followed, satisfactory results are guaranteed. Price \$50.00 at your dealer's or direct. Send the coupon today for complete description.

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BOONE SUPER FOLDING LOOP AERIALS—2 and 3 ft. sizes, collapsible. Center tap. Brown mahogany finish. Range 200 to 600 meters. Price \$20.00, either size.

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AN EVENING AT HOME WITH THE LISTENER IN (SEE INSTRUCTIONS FOR USE BELOW)

Table with columns: Station and City, Met., Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday. Lists various radio stations and their broadcast times.

Instructions for Use.—All the hours above are given in Central Standard Time. If your city uses Eastern Time, add one hour to each of the periods stated; if your city uses Mountain Time, subtract one hour; if your city uses Pacific Time, subtract two hours. If in addition, your city uses daylight saving time, add one hour to this result. This table includes only the evening Radiocasts, and, on Sunday, the late afternoon program.

STATIONS IN ORDER OF WAVE LENGTHS USED

Table with columns: Meters Call, Meters Call, Meters Call, Meters Call, Meters Call, Meters Call. Lists stations grouped by wave length.

DIXIELAND'S STATION (Continued from page 13)

the perfectly modulated programs which WMC puts into the air are due to his expert technical knowledge of Radio-casting. Joseph E. Kabakoff, a Memphis boy, is assistant to Mr. Root. Mr. Kabakoff also gives the market and weather reports, as well as the river news, during the day. He and Mr. Root are known throughout the country as the "Gold Dust Twins." The writer blushes under the title of secretary. To her lot falls the genial task of answering hundreds of letters from critics and admirers of the station and a goodly part of the arrangement of programs. To the many friends of WMC she is known as "Miss Kitty." "Chickasaw Ramblers" Big Feature One of the outstanding features of Station WMC is the "Chickasaw Ramblers," an aggregation of fast and furious jazz players. The orchestra has appeared on many of WMC's programs and its popularity has been proven by the hundreds of telegrams and letters received at Memphis from all parts of the country.

While they style themselves jazz players, they are veritable "ramblers," for they ramble from the classics down to jazz, playing one equally as well as the other. When they don their feathers and give their true Indian yell, one might believe they had gone back to the days of Buffalo Bill. The director, John B. Scruggs, Jr., is a Memphis boy. He started playing the violin when but a chap and is now recognized as one of the leading violinists of the city. Each member is a soloist of ability and, taken as a whole, it is one of the best orchestras WMC has had. WMC Has Small Personnel WMC has the smallest studio personnel of any class B, 500-watt station in the country. Four persons outline the work, arrange all the programs, announce and operate the station. The station is located on the fourth floor of the Commercial Publishing company building, where is published the Commercial Appeal, known as the "South's Greatest Newspaper." There are three rooms. The studio proper has the conventional padded walls with perforated,

covering, containing well-chosen furniture and a Chickering grand piano. The other two rooms are devoted to the mechanical features, mainly the 500-watt broadcasting set. With this equipment WMC has reached every state in the Union. It was heard by the MacMillan expedition within eleven degrees of the North Pole, on board a ship in the South Seas and proportionately as far east and west. It now stands as

one of the most popular stations in the United States. WIP Off Air for Week PHILADELPHIA.—Station WIP, Gimbel Brothers, is closed from Monday, September 15, through Saturday, September 20, for repairs and extensive improvements. The morning service will be broadcast as usual from the Holy Trinity church, Sunday, September 21.

Pfanstiehl See The New Model 7 Receiver at the Show. Embodiment of the most recent advance in radio reception, the Pfanstiehl Non-Oscillating System of Tuned Radio Frequency. The ease with which you read is the ease with which you tune. See the unique station "selector." It tells you where to find any station. Jobbers and Dealers who are interested may write PFANSTIEHL RADIO CO. Highland Park, Illinois

"PUTTING A SOUNDER HEART IN RADIO" You be the Judge! Already the most notable jury of experts known to the radio world have given this much talked of new tube their hearty endorsement. Such spontaneous enthusiasm has rarely greeted any new device before. A tube can be as good as its filament only—and there is the great secret of W. Harrison Cole's latest achievement. With perfect oscillation in all circuits, it brings to radio perfection of reception never before known. Unique in Clarity Immense Volume With Guarantee—That Means Something \$350 At your dealers or sent prepaid anywhere All Types BACKED BY A MILLION DOLLAR CORPORATION BRENDDONNE CORPORATION ORANGE NEW JERSEY Makers of the Brendonne Radiometer Precision Tube Certifier

WLS FEATURES ILLINOIS STATE FAIR

Wednesday, September 17

Headliners of the Week

Silent night for: CKAC, KGO, WFAA, WFI, WGV, WIP, WMC, WOAW, WRC, WSAI.

CHYC, Montreal, Can. (Eastern, Daylight, 341), 9 p. m., Leo Ross and Party.

CKAC, Montreal, Can. (Eastern, Daylight, 425), 1:45 p. m., Mt. Royal Hotel luncheon concert.

KDKA, E. Pittsburgh, Pa. (Eastern, 326), 11:15 a. m., Daugherty's orchestra; 5:30 p. m., dinner concert, Pittsburgh Athletic association orchestra; 6:30, children's period, Wimble, the wanderer with his story-cap is coming; 8, concert mixed quartet, Charlotte Brewer, soprano; Ella Herdman Dosch, contralto; Lemuel Windgard, tenor; Ashley Brocket, baritone; Metropolitan trio of mandolins and guitars.

KFAE, Pullman, Wash. (Pacific, 330), 7:30-9 p. m., Jaroslav Sotola, violinist; "Fairs, Not Fakers," Lincoln R. Lounsbury; "Development of the Practical in Higher Education," Pres. E. O. Holland; "Business of Being a Good Citizen," Rev. Norman McKay.

KFI, Los Angeles, Calif. (Pacific, 469), 6:45-7:30 p. m., Nick B. Harris detective stories; vocal concert; 7:30-8, "Mammy" Simmons and Crosby sisters; 8-9, Evening Herald, Kennedy broadcasters; 9-10, Examiner studio concert; 10-11, Hollywoodland community orchestra; 11-12, Ambassador Coconut Grove orchestra.

KFKB, Milford, Kans. (Central, 288), 7:20 p. m., "College of the Air," music department; 7:30, "Relative Value of Coals Available in Kansas," J. P. Calderwood; 7:45, "The Farm Water Requirements," H. B. Walker; 8, KFKB orchestra; "The Functions of the Endocrines," Dr. J. B. Brinkley; 9, KFKB artists; 10-12, dance music.

KFNF, Shenandoah, Ia. (Central, 266), 7:30 p. m., band concert, Elks' band.

KFOA, Seattle, Wash. (Pacific, 455), 8:30 p. m., Heinie Brown, violinist; Gwendolyn Mines, pianist.

KFSG, Los Angeles, Calif. (Pacific, 278), 2:30-4:30 p. m., auditorium service, organ; congregational singing; prayer; music; "deeper bible teachings on divine healing," Aimee Semple McPherson; altar call; 6:30-7:30, Gray studio program presented by Mrs. Edward Hughes,

WLS WILL bring to those of you who cannot attend in person the chief events of the Illinois State Fair at Springfield. The races will be described as witnessed by George Hay. Tune in and get the voices of the fairground.

Wednesday the New England Rotary club will meet via Radio in connection with the New England business week. WBZ will broadcast the singing and speeches of the Community club.

A special program designed to reach all Spanish speaking countries will be given in Spanish and English Thursday night by KDKA. Something uniquely new in creative music will be broadcast by WRC this same evening when Louis B. Thompson directs the "Dramatized Song Cycle" of the lovely "Eliland." Many noted Washington artists will sing the leading roles.

WBAV will carry you "way back when" Friday night. Dr. W. A. King has arranged a two hour program of old time sacred songs. If you desire something a bit more lively, the Hotel

Winton Station WHK, Cleveland, promises all kinds of fun and frolic in its carnival night program.

The Hired Help of WSB, Atlanta, is skylarking Saturday. These hands do so well on the programs that it is hard to believe that they are only the help around the station. C. Francis Jenkins, the famous inventor of the Radio-Movie will give a talk from WRC.

Sunday afternoon WJAR will radiocast the opening exercises of the "Temple of Music" which is to be dedicated to the leading composers and artists of the past. A chorus of 350 voices and the United States Marine band will furnish the program.

Lovers of good music will enjoy the concert to be given from WFI Monday by the Curtis School of Music, a school well-known in musical circles.

WDAF will have tryouts all winter for child talent programs to be given twice-monthly. All winners must make a score of over 95. The first series of successful young folks will be heard this Tuesday.

the Star's string trio; 6-7, school of the air, piano tuning in number on the Duo-Art; address, speaker from the Health Conservation association; address, speaker from the Meat Council of Greater Kansas City; the Tell-Me-a-Story Lady; music, Fritz Hanlein's Trianon ensemble, Hotel Muehlebach; 8-9:15, program arranged and presented by Mrs. E. N. Brinkman, soprano; Mrs. Ella Schutte Clark, pianist; Mrs. Leon C. Hinkle, soprano; and others; 11:45-1 a. m., night-hawk frolic, the "Merry Old Chief" and the Plantation players, Hotel Muehlebach.

WDAR, Philadelphia, Pa. (Eastern, Daylight, 395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; 12:30, services, auspices, Philadelphia Federation of churches; Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 4:30, Edna Finestone, pianist; 7:30, Dream Daddy's bedtime stories; 10, Arcadia cafe dance orchestra.

WEAF, New York, N. Y. (Eastern, Daylight, 492), 11-11:15 a. m., Minnie Weil, pianist; 11-11:45, Young Mother's program; 4-4:15 p. m., Bernard A. Ahrens, baritone; 4:15-4:30, Richard B. Gilbert, Tarapatch player; 4:45-5, Margaret McKnight, soprano; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:15, United Synagogue of America; 7:30-7:45, Rose Becker, violinist; 7:45-8, American Agriculturist; 8-8:15, Mildred T. Mills, soprano; and Frank La Forge; 8:30-8:45, American Bond and Mortgage company; 9-10, Vic's dance orchestra.

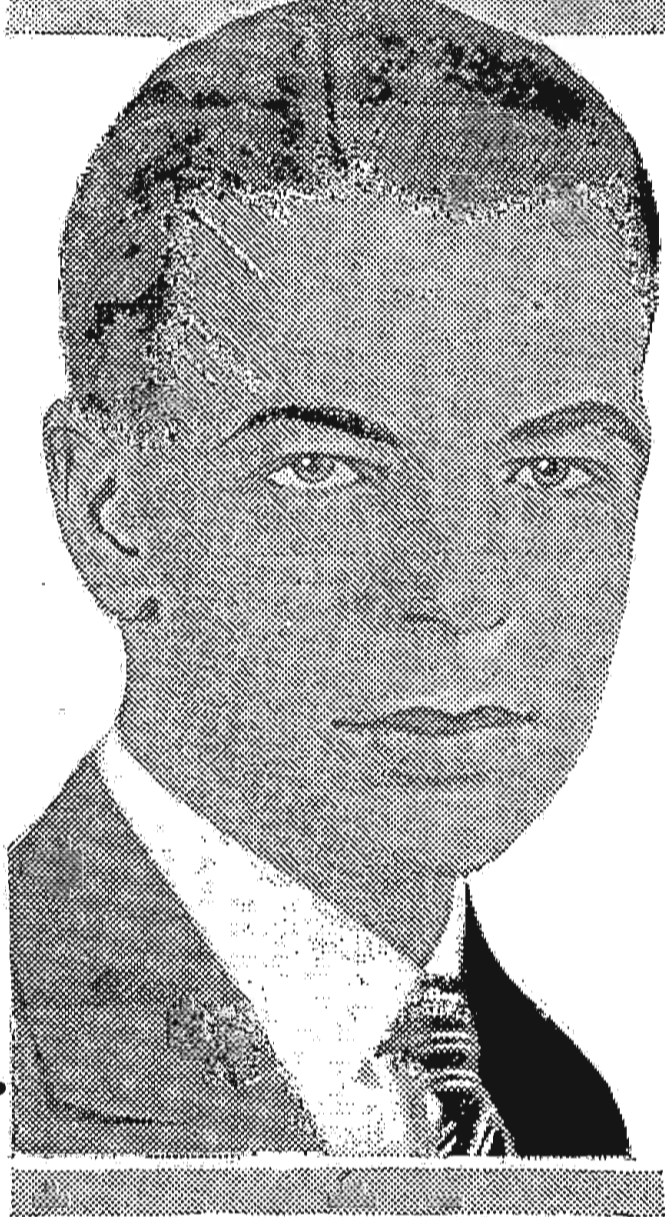
WEAO, Columbus, Ohio (Eastern, 360), 1:30 p. m., educational talk, member Ohio State University faculty; 4 p. m., farm talk, faculty member; music, university talent.

WEH, Chicago, Ill. (Central, Daylight, 370), 7:30-8:30 p. m., Louise Navigato, soprano; everyday songs, Robert Bonell; Edgewater Beach Oriole orchestra; 9:30-10:30, Langdon brothers, steel guitarists; Marle Kelly, reader; Edgewater Beach Oriole orchestra; 11:30-12:30, songs, George Little, Larry Shay; trio, Nick, Ted, Frank; Oriole orchestra.

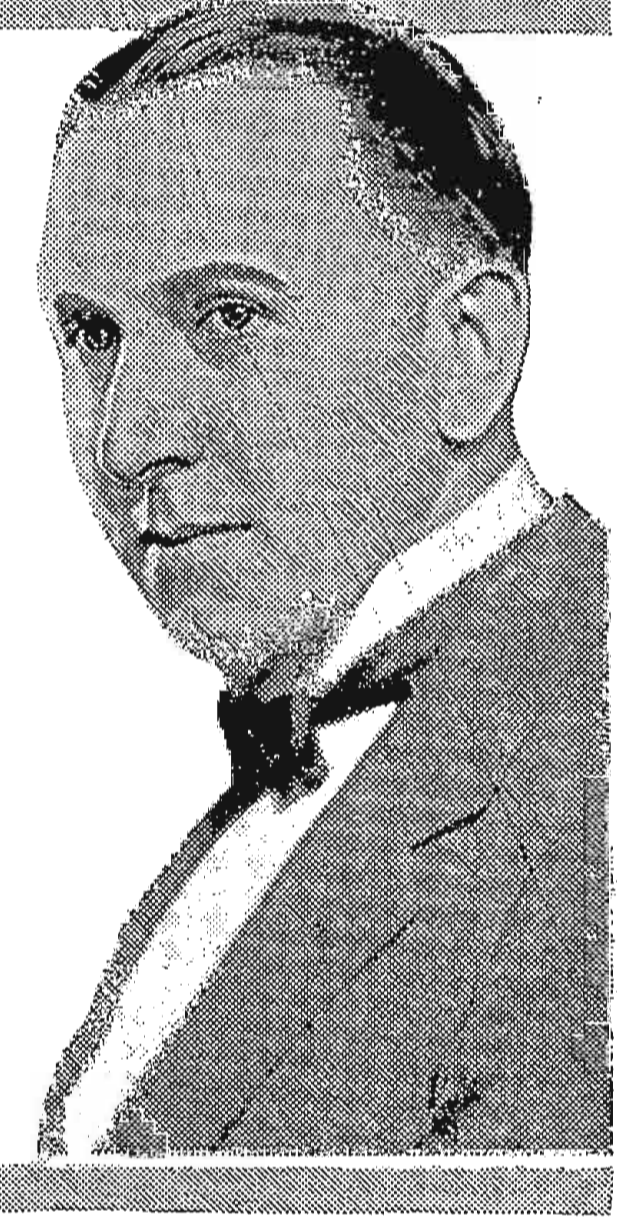
WFAA, Dallas, Tex. (Central, 476), 12:30-1 p. m., talent, Dallas theater.

WFI, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3, Loretta Kerk, pianist; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, the Kiddle's pal.

WGAQ, Shreveport, La. (Central, 263), 8-9 p. m., vocal



Who would believe that this stern looking gentleman is the soft voiced bedtime story teller loved by all the children who tune in for WJAX, Cleveland. His name is Elmer G. Johnson. Charming Morrine Marselles will sing from WQJ, Friday, September 19.



Ralph W. Fuller is the baritone soloist of the Palmer School Radio orchestra at Station WOC, Davenport, Iowa. Tune in some Thursday or Saturday evening.

Eagle Rock, assisted by her daughters Mary Elizabeth and Betty; Mrs. Rose, pianist.

KGO, Oakland, Calif. (Pacific, 312), 3 p. m., musical program and Cora L. Williams institute speaker; 4-5:30, concert orchestra of the Hotel St. Francis, Vinton La Ferrara, conductor.

KGW, Portland, Ore. (Pacific, 492), 3:30 p. m., talk, Jeanette P. Cramer; 8, concert, Western Union Telegraph company; 10, dance music, George Olsen's Metropolitan orchestra.

KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:15 p. m., Oaks Tavern orchestra, courtesy, Oaks Tavern; Fred C. McNabb, from Aggeler and Musser Seed company, speaker; 6-6:30, Art Hickman's concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, children's hour, "American History," Prof. Walter Sylvester Herzog; Jane Hall, age 11, pianist, pupil of Margaret Hobart; "Baby" Muriel MacCormac, screen juvenile; bedtime story, Uncle John; 8-10, concert; courtesy, Hellman Commercial Trust and Savings Bank, arranged by A. K. Berkland; lecture, Dr. Mars P. Baumgardt; 10-11, Art Hickman's dance orchestra.

KLX, Oakland, Calif. (Pacific, 509), 8-10:20 p. m., program, Commercial Trust and Savings Bank; Tommy Tomlinson trio, J. Brothers, violinist; Tommy Tomlinson, pianist; L. S. Sutherland, saxophonist; Vine Lowry, pianist; Scotch songs, Robert Robertson; "Deforestation and Conservation," S. E. Biddle; Metropolitan Four, Thelma Werli, soprano; Sylvia Haampa, contralto; Harold Spaulding, tenor; Philip Pedgriff, baritone; Vira Parker, accompanist; "Forging Ahead," Mrs. George A. Rigg; "A Little Bit O' Scotch," Robert Robertson; American theater; Horace Heldt's Claremont hotel orchestra; Mrs. E. Lindquist, vocalist.

KPO, San Francisco, Calif. (Pacific, 423), 1-2 p. m., Rudy Selger's Fairmont hotel orchestra; 2:30-3:30, Garry Flaner's Amphians; 4:30-5:30, Rudy Selger's Fairmont hotel orchestra; 5:30-6:30, children's hour, Big Brother of KPO; 7-7:30, Rudy Selger's Fairmont hotel orchestra; 8-11, E. Max Bradford's Versatile band; Baron Keyes, composer; "Thrill in Education for Your Boy and Mine," William T. Elzinga.

KQV, Pittsburgh, Pa. (Eastern, Daylight, 270), 9-10 p. m., novelty quartet, Mrs. Maurice Goodman; Maurice Goodman, Stanley Goodman, George Albrand; Betty Stein, pianist.

KSD, St. Louis, Mo. (Central, 546), 6:45 p. m., concert,

Abergh's concert ensemble; Arne Arnesen, violinist; 9, Mary J. Moore, soprano; Hedwig Niehoff, violinist; Mrs. J. H. Fulgham, pianist; Byron Smith, baritone; Mrs. Chas. Horner, reader.

KYW, Chicago, Ill. (Central, Daylight, 536), 11:35 a. m., table talk, Mrs. Anna J. Peterson; 6:35-7 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 7:30-8, program, Duncan Sisters Music Publishing company; 8-8:30, musical program; 8:30-8:45, "Around the Town with ICYW in Chicago," stage revues; 8:45-9, music; 9:45-12:30, midnight revue.

PWX, Havana, Cuba (Eastern, 400), 8:30 p. m., General staff band of the Cuban army, Lieut. Juan Iglesias, leader.

WBAV, Columbus, Ohio (Eastern, 423), 12 m., Ila Lorbach Oweus, pianist.

WBBR, New York, N. Y. (Eastern, Daylight, 273), 8 p. m., Irene Klincpeter, mezzo-soprano; 8:15, "The Progression of the Divine Plan," 8:45, Irene Klincpeter.

WBZ, Springfield, Mass. (Eastern, Daylight, 337), 6 p. m., dinner concert, WBZ, trio; 7:10, "What the Home Economics Extension Service Did for Me and How It Can Help Other Women," Mrs. Gardner R. Files; 7:30, bedtime story; 7:40, WBZ trio; Mrs. Carl W. Rommel, pianist; 8:30, McNelly's orchestra; 9, New England Rotary club meeting; music, Community club; 11:30, Leo Reisman and his Hotel Brunswick orchestra; songs, Bill Coty, Jack Armstrong.

WCX, Detroit, Mich. (Eastern, 517), 4:15 p. m., musical program; 6, dinner concert; 8:30, musical program; Nichols' King Wah Ho Cafe orchestra.

WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p. m.,

and instrumental program; 9-10, 11-12, dance music, Youree Roof garden, Louisiana Rambler Hotel Youree orchestra.

WGN, Chicago, Ill. (Central, Daylight, 270), 1:45 p. m., luncheon concert; 2:30, "Trib-Lets," women's easy chair hour; 5:30, Skeezix time; 6:30-7:30, dinner concert; 8:30-9:30, Victor H. Jacobs, tenor; Mamie Stillerman, pianist; Jack Stillerman, baritone; 10:30-11:30, Burt Davis; Jack Chapman's dance orchestra.

WGR, Buffalo, N. Y. (Eastern, Daylight, 319), 12:30-1 p. m., George Albert Bouchard, organist; 6:30-7:30, dinner music; 8:50-9, address, "Motor Vehicle Operator's License Law," Henry Seilheimer; 9-9:30, violin soloist, Karl Mahsted; 9:30-10, A. J. Erisman, tenor; Amy Harris, pianist; 10-11, Gortuado Hutchinson, pianist; 11:30, supper dance music, Vincent Lopez' Hotel Statler dance orchestra, Harold Gleser, director.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Alamo theater orchestra; readings, Courier-Journal and Louisville Times; 7:30-9, Kentucky Night Owls, Jake Seligman, director.

WHB, Kansas City, Mo. (Central, 411), 7-8 p. m., music, Sweeney Radio instrumental trio; readings, Walt Filkin, poems of his own composition.

WHN, New York, N. Y. (Eastern, Daylight, 360), 2:15-2:30 p. m., Gene Ackerman, pianist; 2:30-2:45, Gene Austin, baritone; 2:45-3:15, Al. King's Original Louisiana Five; 3:45-4, "The Modern Girl in Physical Education," Jeanne Lamar; 4-4:15, Victoria Markman, soprano; 4:15-4:30, Carl Hallgren, baritone; 4:30-4:45, Bella N. Zilberman, pianist; 4:45-5:30, Izzy Meyer's California Syncopators; 6:30-7:30, Olcott Vail's trio and Paul Specht's Almanac orchestra. 7:30-9:15, dinner, Jewelry Crafts Assn.; 9:30-10, Gem Safety Razor orchestra; 10-11, Clover Gardens dance orchestra.

WHO, Des Moines, Ia. (Central, 526), 7:30-9 p. m., the Bankers Life Radio orchestra, W. L. Marsh and Stewart Dulaney, directors.

WIY, New York, N. Y. (Eastern, Daylight, 405), 7:30-8 p. m., weekly French lesson; 9-10, Al Reisor's Club Perrier orchestra.

WJZ, New York, N. Y. (Eastern, Daylight, 455), 10-10:10 a. m., daily menu; 10:20-10:30, "Visit the Sir-John, It's a Noble Joint," Meet Council of New York; 10:50-11, Eleanor Gunn's fashion talk; 7-8, Selzer's Cafe Boulevard orchestra; 8-8:15, Wall Street Journal review; 8:30-10, Sons of American Revolution program; (Continued on page 16)

FRANCIS JENKINS AT WRC SATURDAY



Clarence W. Allen (left) is the director of the Church Community chorus, the exclusive WJZ religio-musical organization which broadcasts every Sunday. Mrs. Dale Poole is the coloratura soprano who is providing such a popular feature of WDAF, Kansas City. Ethel Grant is a general handy man about WRC. Tune in Friday afternoon and hear her play the piano. WHO has added L. Carlos Meier (right) the organist of the Capitol theater, to its list of attractions. He will be a regular feature.

Where to Hear Talks

TALKS, instructive, serious, humorous and even frivolous, are Radiocast daily and below are listed the stations.

- Wednesday:** 6, WDAF; 6:15, WBBR; 6:30, WGR; 6:45, WGY; 7:00, WOH; 7:15, WKB; 7:30, KFKB, KYW; 7:45, WMAQ; 8:00, CNRT, WOS; 8:30, KFKB; 9:30, KYW; 10:30, KFOA.
- Thursday:** 6, WDAF; 6:30, WFI; 7, KYW, WEO, WMAQ, WRC; 7:30, WBBR; 7:45, WMAQ; 8, WAAW; 8:15, KYW; 8:30, KFKB; 9:30, WBBR.
- Friday:** 5:30, KFAE; 6, WDAF; 7, WDAF; 7:15, WOC; 7:30, KFKB, KYW; 7:45, WMAQ; 8, CNRT, WOS; 8:30, KFKB; 9:30, KYW; 10:30, KFOA.
- Saturday:** 6, WDAF; 6:15, WBBR; 6:45, WRC; 8, KYW, WRC.
- Monday:** 6, WDAF; 6:30, WDAF; 6:45, WOR; 7:30, KFKB; 8, WOS; 8:30, KFKB; 9:30, KFAE; 10, KGO.
- Tuesday:** 7, WMAQ; 7:30, KFKB; 8:30, KFKB.

WQJ, Chicago, Ill. (Central, Daylight, 448), 11-12 m., Fred Mann and his Sunday dinner menu; "Color Combinations for the Home Dressmaker," Marcie Meadows; 3-4 p. m., Sunday Night Suppers, Helen Harrington Martin; "Fruits from the Golden West," Mary Hale Martin; 7-8, dinner concert, Ralph Williams and his Rainbo Garden orchestra; Frederick W. Agard, tenor; Muriel Keenly, soprano; 10-2, Ralph Williams and his Rainbo Garden orchestra; Paul Lougher, tenor; Langdon brothers, steel guitarists; Mornie Marcelles, soprano; Lester Cook and Burns.

WRC, Washington, D. C. (Eastern, 469), 3 p. m., fashion developments of the moment, Women's Wear; 3:10, Arthur McCormick, baritone; 3:20, "Beauty and Personality," Elsie Pierce; 3:25, current topics, editor The Review of Reviews; 3:35, Ethel Grant, pianist; 6, stories for children, Peggy Albion.

WSB, Atlanta, Ga. (Central, 429), 8 p. m., Mary Lunceford, soprano; 10:45, Mr. and Mrs. Edwin McConnell, Georgia song makers.

WTAS, Elgin, Ill. (Central, 286), 7:15-12:30 midnight, Arcadia ballroom orchestra; songs, Charley Hughey.

WTAY, Oak Park, Ill. (Central, 283), 6:45-7:45 p. m., Sandy Meek, baritone; Glenn Bruce, reader; Black Cat orchestra.

WVJ, Detroit, Mich. (Eastern, 517), 8 a. m., setting up exercises, R. J. Horton; 9:30, talk, woman's editor Detroit News; 12 m., Detroit News orchestra; 7 p. m., Detroit News orchestra; Alice Graze, soprano.

Saturday, September 20

Silent night for: KFAE, KLX, WCX, WOAR, WGR, WHB, WHO, WIP, WLW, WOD, WOS.

CKAC, Montreal, Can. (Eastern, Daylight, 425), 7 p. m., "Kiddies' stories in French and English; 7:30, Rex Battle and his Mount Royal hotel concert orchestra; Napoleon Dansereau, cellist; 10:30, Joseph C. Smith and his Mount Royal hotel garden dance orchestra; xylophone specialties, Teddy Brown.

KOKA, E. Pittsburgh, Pa. (Eastern, 326), 5:30 p. m., dinner concert, Westinghouse band; 6:30, the children's period, the Gallant Taylor; 8, Westinghouse band; Max Kroen, baritone; Edwin Kroen, tenor.

KFI, Los Angeles, Calif. (Pacific, 469), 6:45-8 p. m., dance orchestra; 8-9, concert, courtesy Pasadena Light opera company; 9-10, Examiner studio concert; 10-11, Packard popular program; 11-12, Ambassador Hotel Cocoonet Grove orchestra.

KFKB, Milford, Kans. (Central, 286), 8 p. m., KFKB orchestra; 12, "Early Bird," fun makers.

KFNF, Shenandoah, Ia. (Central, 266), 7:30 p. m., concert by the Big 4 from Decatur, Lewis M. Andrew, director.

KFSG, Los Angeles, Calif. (Pacific, 287), 3:30-4:30, organ recital, courtesy Roy Reid Brignall; 7-9:30, auditorium service, musical program and song service; choir and soloists; congregational singing; divine healing sermon, Aimee Semple McPherson; altar call.

KGD, Oakland, Calif. (Pacific, 312), 4:50-5:30 p. m., concert orchestra of the Hotel St. Francis; 8, musical selections, Oliver Dison company; Obapela program, Dons of Peralta, Zannette W. Potter, director; 10-11, Henry Haistead's orchestra.

KGW, Portland, Ore. (Pacific, 492), 3 p. m., children's musical program; 10, George Olsen's Metropolitan orchestra.

KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:15 p. m., concert; 6-6:30, Art Hickman's concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, children's hour, "American History," Prof. Walter Sylvester Herzog; Helene Pirie, screen juvenile; 8-9, concert, arranged through courtesy of Lola Perdue, soprano; 9-10, concert, the Piggly-Wiggly girls; 10-11, Art Hickman's dance orchestra, Edward Fitzpatrick, director.

KPO, San Francisco, Calif. (Pacific, 423), 1-2 p. m., Rudy Seiger's Fairmont hotel orchestra; 2:30-3:30, Theodore J. Irwin, organist; 4-4:30, Rudy Seiger's Fairmont hotel orchestra.

KQV, Pittsburgh, Pa. (Eastern, Daylight, 270), 9-10 p. m., Mrs. Mather, soprano; Malcolm Corliss, baritone.

KSD, St. Louis, Mo. (Central, 546), 8 p. m., musicale.

KYW, Chicago, Ill. (Central, Daylight, 536), 11:35 a. m., table talk, Mrs. Anna J. Peterson; 6:35 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 7:30-8, program, Duncan Sisters Music Publishing company; 8-8:45, speeches, auspices of the American Farm bureau; "Boys' and Girls' Club Work in the South," H. J. Schwietert; "What We Saw at the State Fair This Week," Arthur C. Page; 9-10:30, midnight revue; 10:30-10:45, "Around the Town with KYW in Chicago," stage revues; 10:45-12:30, midnight revue.

WBAV, Columbus, Ohio (Eastern, 423), 12 m., Ila Lorbach Owens, pianist; 8 p. m., old-time sacred songs, arranged by Dr. W. A. King, secretary, Columbus Council of Churches.

WBZ, Springfield, Mass. (Eastern, Daylight, 337), 6 p. m., dinner concert, WBZ trio; 7:10, current book review; 7:30, bedtime story for the kiddies; 10, Raymond J. Kelley, tenor; 10:30, Jean Livingstone Sherborn, soprano; Mertina Benoit, pianist; 11, WBZ trio; Troy P. Gorum, baritone; James K. Smith, Jr., violinist; Mrs. Ruth Johnson Reid, accompanist.

WCX, Detroit, Mich. (Eastern, 517), 4:15 p. m., musical program; 6, dinner concert; 8:30, musical program; Cora Joan Haussler, soprano; Huber Haussler, baritone.

WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p. m., the Star's string trio; 6-7, school of the air, piano tuning in number on the Duo-Art; address, speaker from the Kansas City Children's bureau; the Tell-Me-a-Story Lady; music, Fritz Hanlein's Trianon ensemble, Hotel Muehlebach; 8-9:30, the Star's Radio orchestra with the WDAF minstrels; 11:45-1 a. m., nightclub frolic, the "Merry Old Chief" and Charles Domberger's orchestra, K. C. A. C. roof garden; the Plantation players, Hotel Muehlebach.

WDAR, Philadelphia, Pa. (Eastern, Daylight, 395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; 12:30, Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 7:30, Dream Daddy's bedtime stories; 8, book review, Arnold Abbott; 10, Arcadia cafe dance orchestra; special "Morning Glory Club" program; songs, Maerckle Roth.

WEAF, New York, N. Y. (Eastern, Daylight, 492), 11-11:15 a. m., health talk, New York Health Speakers' service; 11:15-11:30, talk on dahlias, New York Botanical gardens; 1-5, club program for women; 6-7, dinner music, Hotel Waldorf-Astoria; 7:30-7:15, Jordan M. Colman, pianist; 7:15-8, "The Happiness Boys"; 8-8:15, Wm. Cabsnyk, violinist; 9-10, B. Fischer's "Astor Coffee" dance orchestra.

WEAD, Columbus, Ohio (Eastern, 360), 1:30 p. m., educational talk, member Ohio State university faculty; 1, farm talk, faculty member; music, university talent.

WGBH, Chicago, Ill. (Central, Daylight, 370), 7:30-8:30 p. m., Myron Muench, reader; Oriole orchestra; Merrick Foster, pianist; 9:30-10:30, Frederick Agard, tenor; Oriole orchestra; Edgewater trio, Ted, Nick, Frank; 11:30-12:30, Sandy Meek, Scotch singer; Winter Garden four; Oriole orchestra; special songs, Nick Lucas.

WFAA, Dallas, Tex. (Central, 476), 12:30-1 p. m., address, Dr. Robert M. Hyer; 8:30-9:30, Southern Metho-

Sunday, September 21

Silent night for: CKAC, KFAE, KGW, WGR, WIP, WDC, WDO, WDR, WRC, WSAI, WTAY.

KGD, Oakland, Calif. (Pacific, 312), 11 a. m., service, Tenth Avenue Baptist church; 3:30 p. m., KGO Little Symphony orchestra and All Souls' Episcopal church choir; 7:45, evening service, Tenth Avenue Baptist church.

KGW, Portland, Ore. (Pacific, 492), 6 p. m., church services.

CHYC, Montreal, Can. (Eastern, Daylight, 341), 7 p. m., St. James Methodist church.

KFI, Los Angeles, Calif. (Pacific, 469), 10-10:45 a. m., L. A. church federation service; 6:45-8 p. m., Metropolitan theater program; 8-9, Ambassador hotel concert orchestra; 9-10, Examiner studio concert; 10-11, Packard six orchestra.

KFKB, Milford, Kans. (Central, 286), 10-12 a. m., religious services, First Congregational church, Dr. Slade, pastor; 8-10, International Bible Students association class.

KFNF, Shenandoah, Ia. (Central, 266), 3 p. m., religious services, Church of Christ; 6:30, regular sacred song service.

KFSG, Los Angeles, Calif. (Pacific, 278), 10:30-12:30 noon, morning service, organ, Esther Fricke Green; congregational singing; prayer; choir; music; anthems; triple male quartet; announcements; vocal solo; sermon, Aimee Semple McPherson; 2:30-4:30 p. m., afternoon service, church of Christ; 6:30, regular sacred song service.

(Continued on page 18)

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KDKA IN SPANISH THURSDAY: C. FRANCIS JENKINS AT WRC SATURDAY

Where to Hear Concerts

THESE are the stations for music lovers to dial, and you can hear, providing you dial correctly and read the programs carefully, everything from jazz to opera.

Wednesday: 6. WBBR, WDAF, WJAZ, WJOP, WJOP, WJOP... Thursday: 5. WDAF, WJAZ, WJOP... Friday: 4. WDAF, WJAZ, WJOP... Saturday: 3. WDAF, WJAZ, WJOP...

Wednesday, September 17

(Continued from page 16) 10:30-11:30, Mills Wagon's Greenleaf Village Inn... WLS, Chicago, Ill. (Central, Daylight, 445), 12 p. m. to 2:30 p. m....

Thursday, September 18

Silent night for: KFAE, KLX, KSD, WJAZ, WJOP, WJOP, WJOP... WDAF, Kansas City, Mo. (Central, Daylight, 309), 11 a. m. to 12 p. m....



Clarence W. Allen (left) is the director of the Chnrch Community chorus, the exclusive WJZ religious/musical organization which broadcasts every Sunday. Mrs. Dale Poole is soprano and Mrs. Helen Williams is alto.



Carlos Meier (right) the organist of the Capitol theater, to its list of attractions. He will be a regular feature.

WLI, Chicago, Ill. (Central, Daylight, 448), 11-12 p. m. The Ham What Am... WFL, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m. to 2 p. m....

WLI, Chicago, Ill. (Central, Daylight, 448), 11-12 p. m. The Ham What Am... WFL, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m. to 2 p. m....

DANCING Central Time Wednesday 6. KXWV 4:30, WOO 7:30, WLN 8:30, WJAZ 9:30, WJOP 10:30, WJOP 11:30...

Friday, September 19 6:30, WJAZ 7:30, WJOP 8:30, WJOP 9:30, WJOP 10:30, WJOP 11:30...

Where to Hear Talks

TALKS, instructive, serious, humorous and even frivolous, are Radiocast daily and below are listed the stations.

Wednesday: 8. WDAF, 8:15, WBBR, 8:30, WGR, 8:45, WCV, 9:00, WJAZ, 9:15, WMAQ, 9:30, KFAE, 10, KFI, 10:15...

Saturday, September 20

Silent night for: KFAE, KLX, WCV, WJAZ, WJOP, WJOP, WJOP... WLS, Chicago, Ill. (Central, Daylight, 445), 12 p. m. to 2:30 p. m....

FRANCIS JENKINS AT WDC SATURDAY

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p. m.,
songs,

360), 2:15-
2:30-2:45, Victor
Banks and his
gue Cross concert
y, violinist; 4:30-
45-5, Chas. Horn,
thern Harmonists;
orchestra; 8-8:15,
onor Rose, soprano;
45-9, Perfect Har-
Gertrude Sammis,
violinist; Segerer
Vote Means," Na-
itzpatrick brothers;
10:30-10:45, Lottie
c and Jack Lauria,
his entertainers;
land orchestra.
aylight, 455), 1-2
Joseph Strissof,
id, baritone; 7-8
8:15, May Singhi
Astor dance or-

4-5 p. m., Alamo
Grand Champion

ght, 345), 7:45-1
Ford Rush; Isham
il barn dance pro-

light, 447.5) 6:30
program, Rudolph

8:30 p. m., music.
aylight, 309), 10
e and Laura Dot-
Margaret Hughes,
id duets, Dorothy
accompanist; 11,
rcholz, director.

6 p. m., popular
axter's orchestra;
ing company.

12 m., chimes; 9
hestra; Ralph W.

aylight, 509), 11
02 p. m., Wana-
Robert E. Golden,
ist; J. W. C. I.

it, 405), 2:30-2:45
orchestra; 3:30-4,
:15-7:15, "Music
's Cinderella or-
Bill Stehke; 8-
9, program under
Arline Felker;

448), 11-12 m.,
Wessling; "A
3-4 p. m., koftec
; Grace Wilson,
0-2, Ralph Wil-
stra; songs, Jerry
die, Benny; Ber-

469), 6 p. m.,
Bible talk; 9,
aylight, 309), 8
alto solos, Mar-
hna Cockburn; 9,
x; 9:20, Hawaiian
d S. Stuebbing;

p. m., all-star
rk, Ernest Rogers,

9 p. m., WTAM
Louise Roach, so-
t.

5-12:30 midnight,
Harley Hughey,
6:45-7:45 p. m.,
Hansen, violinist;
0:15-11:15, Polly
chestra.

9:30 a. m., talk,
n., Detroit News
chestra.

W. WGR, WIP,
WTAY.
11 a. m., service,
m., KGO Little
Episcopal church
rent Avenue Baptist

fic, 492), 6 p. m., church

CHYC, Montreal, Can. (Eastern, Daylight, 341), 7 p. m.,
St. James Methodist church.

KFI, Los Angeles, Calif. (Pacific, 469), 10-10:45 a. m.,
L. A. church federation service; 6:45-8 p. m., Metro-
politan theater program; 8-9, Ambassador hotel con-
cert orchestra; 9-10, Examiner studio concert; 10-11,
Packard six orchestra.

KFKB, Milford, Kans. (Central, 286), 10-12 a. m.,
religious services. First Congregational church, Dr.
Slade, pastor; 8-10, International Bible Students as-
sociation class.

KJNF, Shenandoah, Ia. (Central, 266), 3 p. m., religious
services, Church of Christ; 6:30, regular sacred song
service.

KFSG, Los Angeles, Calif. (Pacific, 278), 10:30-12:30
noon, morning service, organ, Esther Fricke Green;
congregational singing; prayer; choir; music, anthems;
triple male quartet; announcements; vocal solo; sermon,
Almeo Scoble McPherson; 2:30-4:30 p. m., after-
(Continued on page 18)

4-5 p. m., Bruno Brothers dance orchestra; 6-7, dif-
ner music, Hotel Waldorf-Astoria; 7-7:30, dance
music, Alpha Syncopators; 8-8:15, Joseph Mathieu,
tenor; 8:30-8:45, Jimmy Clark, pianist; 8:45-9, Viola
Silva, contralto; 10-11, Vincent Lopez and his Hotel
Pennsylvania orchestra.

WEAO, Columbus, Ohio (Eastern, 360), 1:30 p. m.,
educational talk, member Ohio State university faculty.
WEBH, Chicago, Ill. (Central, Daylight, 370), 7:30-
8:30 p. m., Oriole orchestra; Radio Sunday school
lesson, Dr. Herbert W. Virginia; request program,
Banjo James; 9:30-10:30, Gladys Andes, soprano;
Langdon brothers; Yellow, Red and Orange tales,
William H. Hunt; Marie Kelly, reader; Oriole or-
chestra; 11:30-12:30, Oliver Mellum, baritone; Oriole
orchestra; special songs, Nick, Ted, Frank.

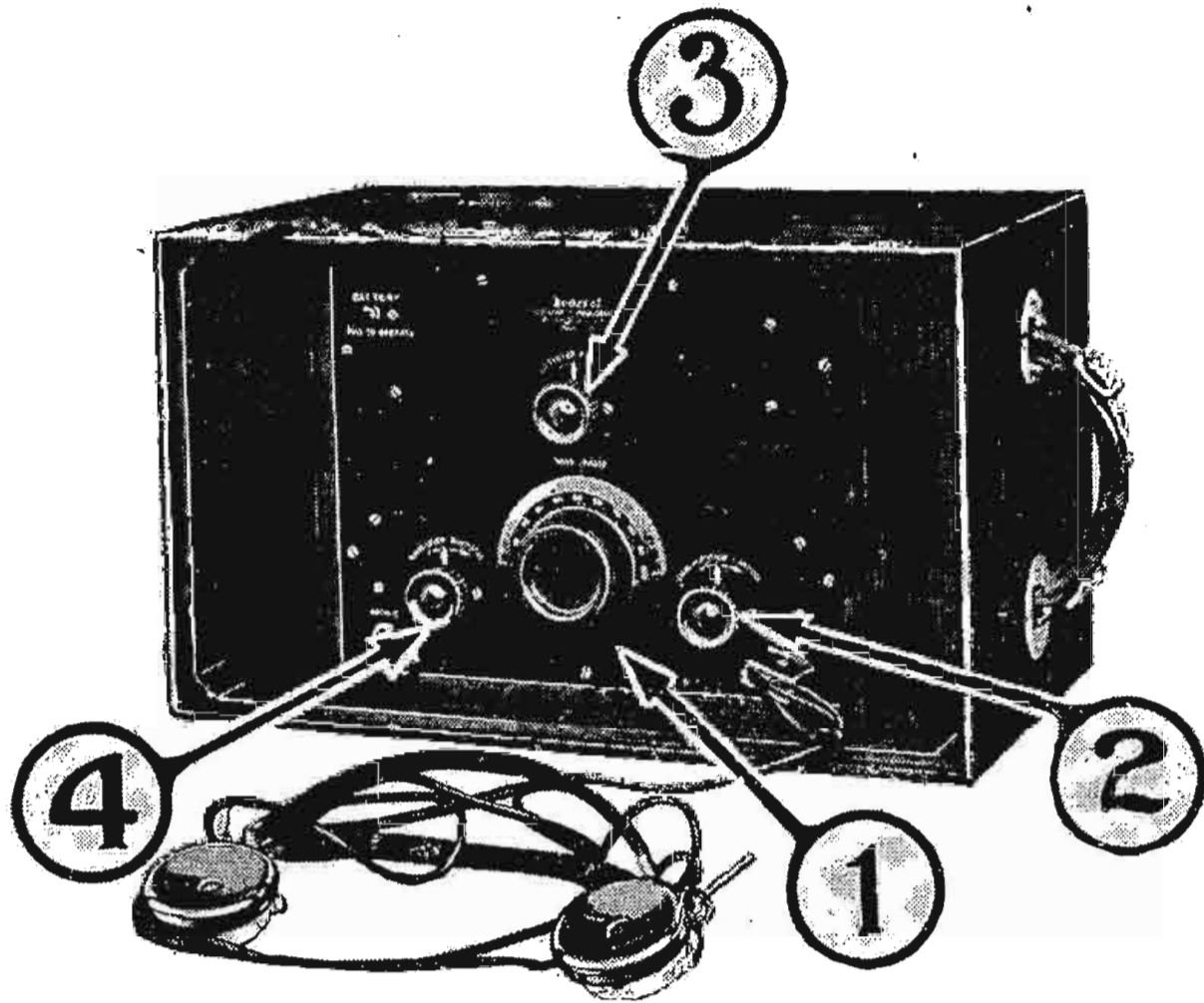
WEAF, New York, N. Y. (Eastern, Daylight, 492),
11-11:15 a. m., health talk, New York Health Speak-
ers' service; 11:15-11:30, talk on dahlias, New York
Botanical gardens; 1-5, club program for women;
6-7, dinner music, Hotel Waldorf-Astoria; 7:30-7:45,
Jordan M. Coban, pianist; 7:45-8, "The Happiness
Boys;" 8-8:15, Wm. Cohnsyk, violinist; 9-10, B.
Fischer's "Astor Coffee" dance orchestra.

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OPERATING AND TROUBLE SHOOTING

For the Owner of a Federal Four Tube Type 102 Receiver

OPERATING and Trouble Shooting" is a Radio Digest feature whose purpose is to study the late models of various standard receiving sets and to show the newly initiated Radiocast listener, who has purchased such a set, how he can operate it to get the best there is in it and how he can overcome minor difficulties which may be causing some trouble. On page 19, 21 and 24 this week the Federal Four-Tube Type 102 Receiver is described. Radiophans with other sets will also find these worth while reading, particularly the notes on trouble finding.



The Tubes to Use

The type 102 receiver is designed particularly for the economical low consumption tubes which are rated at about .060 amperes and 3.0 volts at the tube filament terminals. The type 102 set will be found to give loud speaker operation from high powered stations at a distance of 500 to 1000 miles under good conditions. Higher consumption tubes which are rated at about 0.25 amperes at 5.0 volts at the filament terminals, may be used with this set, but are not recommended for the maximum economy of operation.

Tubes of the C-299, UV-199 and DV-3 type are the best kind of vacuum tubes to be used with the Type 102 receiver. A socket adapter must be used with the UV-199 and C-299 type tubes. The highest

grade adapters should be used for this purpose since cheap adapters will cause a great amount of trouble from bad contacts and poor insulation.

Where it is practicable to use a storage battery, the use of the UV-200 or C-300 type of detector tube in the detector tube socket will produce louder signals than when the C-299, UV-199 and DV-3 tubes are used as detectors. Because of the high current consumption of the filament of the UV-200 and C-300 type tubes, it is impracticable to attempt to operate them from a dry cell A battery.

Use of Dry Cells

The A battery supplies the energy to heat the filaments of the vacuum tubes. Low consumption filaments such as those used in the UV-199, DV-3 and C-299 may

be economically heated from a dry cell A battery. The current consumption of these tubes is .060 amperes, at a filament terminal potential of 3.0 volts. The detector tube rheostat and the rheostat for the amplifier tubes serve to reduce the voltage of the A battery before it is impressed across the filament terminals of the vacuum tubes.

Use three dry cell batteries. These may be the ordinary dry cells for ignition and door bell work, but are preferably those which are especially designed for Radio. Dry cells especially designed for Radio use will give about double the life of those designed for other purposes. When the closed circuit voltage of the A battery is below the voltage which will operate the tubes, it is no longer useful for Radio, but it can still be used for ignition and bell service.

In wiring A batteries, heavy, insulated wires must be used to connect the cells together in order that there will be no voltage loss in these wires.

Space is provided within the cabinet for four dry cells. If three volt tubes are used, only three cells will be used. If WD-12 or similar tubes are used four dry cells will be required. The WD-12 type tube has a current consumption of 0.25 amperes at a voltage of 1.1 at the filament terminals. If desired, the dry cells may be placed outside of the set.

Tuning the Type 102

If the instructions which are furnished in the packing of each vacuum tube have been preserved, the proper degree of heat required in the filament of the vacuum tubes will be found described therein. Should such information not be available, the best procedure is:

Turn the detector rheostat from the "off" position slightly in a clockwise direction. Then turn the amplifier rheostat to a slightly greater distance in a clockwise direction. The proper adjustment of the rheostats will be indicated to the operator when the headset which he is wearing becomes somewhat noisy because of slight irregularities of vacuum tubes and batteries from the ideal condition of perfect quiet when not receiving signals.

The "wave length" dial number 1 should be adjusted in connection with the "R.F."

(Continued on page 21)

NEW MODELS

Bristol Radio Receivers

Incorporating the Patented Grimes Inverse Duplex System

Watch for further announcements in all leading radio publications.

Improved Bristol Audiophone Loud Speakers—gives greater volume, is more sensitive and still maintains its round, full tone and its distinctive freedom from distortion.

Ask for Bulletin No. AY-3017

Manufactured by
THE BRISTOL COMPANY
Waterbury, Connecticut

GRIMES SYSTEM INSURES NATURAL TONE QUALITY



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Price.....\$30.00



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Price.....\$22.50



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With Fibre Horn
Price.....\$12.50

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FIVE million dollars' worth of Freed-Eisemann receivers are in daily use by proud owners. It is the judgment of this vast clientele that has given Freed-Eisemann its supremacy. Make it your business to see these new receivers.

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Eastern Office, 611-12 Times Bldg., Times Sq., New York;
Telephone Bryant 4909, 10462

Member of the Audit Bureau of Circulations

241
PUBLISHED WEEKLY

SUBSCRIPTION RATES
Yearly in U. S. and Possessions and Canada, \$5.00
Foreign postage, \$1.00 additional. Single copies, 10 cents.

Vol. X. Chicago, Saturday, September 20, 1924 No. 11

Brevity Will Bring Votes

Short Speeches Over Radio Will Be Best

PRESIDENTIAL candidates will be given license to say their say into the microphone, and for many of their speeches, relay systems will be employed to reach the widest possible audience. Presidential candidates will be listened to, even at length, it is believed—at least in the earlier stages of the campaign.

But if the army of secondary spellbinders, which will follow in the trail of the three national tickets, thinks it is to have full sway and swing over the ether waves it is indulging in an elusion. Radiocasters have reached conclusion, and probably put their conclusion into effect, that brevity is the soul of Radio, and that the lesser lights must be kept strictly within time limits. Fifteen minutes, it is suggested, will be long enough in most cases and may be too long in many.

The Radiocasters are only anticipating a decision which the listeners in would reach, we think, before the campaign had proceeded far. Gentlemen of long winded eloquence, who have been anticipating addressing millions of invisible hearers for an hour at a time, will do well to revise their notion of the sort of thing which will go in the new method of campaigning. It may prove less embarrassing to have an audience tune out than to have it walk out, but it will be no less unprofitable.

Pith, point and punch are the three essentials to the effective political speech anywhere. They are absolutely indispensable for Radio speaking. "Make it snappy and cut it short," should be inscribed over the microphone.

Radio May Aid World Peace

Possibilities for Affecting Human Society

RADIO is remaking modern life so rapidly and in so many directions that the extent and character of its ultimate development cannot be safely predicted. While the efforts of the new art of communication upon certain aspects of life like public entertainment, education and politics are becoming fairly evident, its permanent results upon complex modern civilization as a whole cannot be forecast at this stage of its development.

In one direction its possibilities for affecting human society have not as yet been generally realized, that is, promoting world peace.

Whatever form of machinery may be eventually developed for maintaining peace, Radio undoubtedly will play a prominent part in creating a spirit of international good will necessary to make it function successfully.

One objection which is always raised to an international organization to promote peace is that it is an organization of governments, and not of peoples.

Whatever views one may hold as to a League of Nations, there will be a general agreement with the proposition that to make any league or association effective, there must be back of it a desire for peace in the hearts of the people in every nation composing the organization. It is in creating this state of mind that Radio has one of its greatest opportunities for service to modern society.

Dreams of enthusiasts for world-wide broadcasting from a single station may not be realized, but already Radio has spanned oceans and connected continents. Developments in broadcasting and receiving in one country are eagerly watched in another.

There is no doubt that in various sections of the United States thousands of persons would be interested in hearing programs broadcast in French, Spanish, Italian and other languages. Such programs would appeal not only to foreign born citizens who speak these languages, but to American born adults and to thousands of students who are studying languages.

When the homes of the nations are in touch with the trends of thought and progress throughout the world by means of Radio, an important step toward peace will have been taken.

RADIO INDI-GEST

Thought for the Day

Maude Muller, on a night in June,
Her one-tube Copp set tried to tune.

Beneath her bobbed hair glowed a wealth
Of paint and powder and drug store health.

Tuning, she sang, and her interlude
Frightened the static from out the tube.

The Judge came walking across the lot
To see Maude's brother, who had a stock

Of pre-war stuff and synthetic gin,
But the brother was out. So he stopped to chin
With Maude, who was glad the Judge dropped in.

They talked of tuners and batteries,
Inductance coils and capacities.

Till Maude forgot her one-tube set
And fancied she had a super het.

The Judge stayed on, for he needed a shot,
But Maudie's brother—he cometh not.

Till the Judge finally made his getaway,
Saying he'd drop in another day.

Maude watched him until he crossed the street,
And murmured: "That guy is hard to beat!"

"Oh, that I were his'n and he were mine!
I'd sure have a super-heterodyne."

The Judge looked back as he crossed the walk,
And said: "Maude's there with the Radio talk."

"But I wish she had come across with the key,
And slipped me a shot of her brother's tea."
PAPRIKA.

News Bulletins from Milwaukee

Furnished in Co-operation with the Milwaukee
Daily Beverage

Mrs. Sauerlich, 18 Amendment street, likes the local broadcasting. She says it makes the Chicago stations sound so good.

A suspicious foreigner, giving the name of Erksine MacAdams, was picked up by Constable Schultz today. In his bag was found a complete set of burglar tools, a number of WEAF programs and one gross of copyright song hits.

Edison Einstein's new circuit was tried out last night but on hooking in the B batt. 6 tubes blew out. The circuit is NAMELESS as this column don't print that kind of language.

THE THIRD TROMBONE PLAYER.

Mrs. Partington Speaks Out



Dear Indi: Mizz Partington says some fellers over to London think maybe they heard a Radio message from Mars, last night, but they couldn't read it because the Mars people forgot to mail them a copy of their code book in advance.

The London scientifics said they wasn't sure they had Mars tuned in, but they couldn't identify the signals as coming from anywheres else. She says if that is all they go by she has had most of the planets in her loud speaker lots of times, and as for Mars, that station wasn't no harder to get last night than lots of U. S. stations she knows of.

She fears the professors is wasting their time, anyhow, a trying to beat the one-tube amateurs to it, as they are most awful likely to do it first so they can print it in "Calls heard."

Probably what the London sports heard was the West Virginia regiment pulling off their sham battle down to camp Knox.

Kaiser Bill heard 'em in a real battle six years ago, and he hain't got over it yet. SIGNING OFF.

Break and I'm Broke

A nice little ditty, sing softly and brokenly:

Break, break, break,
On the nice wood floor, vt!
And it's good that my tongue don't utter
The thoughts that boil up in me.

Oh, well, for the Radio store
That you break with a pop of disdain.
Oh, well, for the dealer who owns it,
But hard for me who is payin'.

You busted for good reason,
Lost your empty vac'um fill;
But, oh! for the touch of a vanished five,
And the sound of a tube that is still.

Break, break, break,
At my feet on the floor, vt!
And the rustling grace of a bill that is spent
Will never come back to me. 5XV.

We Choked It!

Dear Indi: My loud speaker here of late has got to talking politics. What did you do that time to stop your parrot cussing?
IN. S. ULATION.

MUSICIANS OF THE MICROPHONE



Condensed

By DIELECTRIC

Some scientists insist that the planet Mars be peopled although they admit that atmospheric conditions existing there would necessitate a form of humanity differing from ours. Not only should Mars be inhabited but Radio is presumed to be employed. On its near approach to the earth these men of science hoped to substantially prove their contentions. Some wierd sounds were received in a "strange code." Maybe Martian static.

The "pioneer broadcasting station of the world" has done a creditable piece of Radio work with its short wave antenna system which is used to transmit messages under a hundred meters. From Pittsburgh to Buenos Aires is no mean distance to cover at night with all conditions favorable but to accomplish it at noonday is something to note. With this system not only have messages been received in the South American country, but also in England, and with consistency. Carry on, KDKA.

Labor Day offered variety in political speech making. You were able to choose between two party leaders, if either appealed to you; to get the first Radio message from Senator LaFollette opening his campaign for votes, or listen to the views on labor as expressed by Mr. Davis. It is probable that several million people in the United States were listening in to these speeches, and certain that uninformed voters will this year be fewer than ever before. Listen in and VOTE!!

Perfecting the new Radiocasting apparatus used in the army planes over Mitchel Field has resulted, so Lieutenant Connell states, in weighing down the plane until he can "hardly get it off the ground any more." At the same time such improvements as have recently been made showed a greater range for reception and provide the basis for the assertion that within a short time "the army will be able from a height of 4,000 feet or more to Radiocast for a thousand miles to receiving sets on land." During the first test of the device enabling Radiocasting direct from the plane the words of the pilot were distinctly heard by a listener in Atlantic City, N. J.

The trip of the steamship Arctic to Greenland will be watched with unusual interest by Radio men who look for developments of much importance. The vessel is equipped for transmitting on a wave length of 120 meters with call letters "VDM." Two special receivers are on board, one to be delivered to the Bowdoin when Captain McMillan's ship is reached. KDKA will send special signals every Monday night with the expectation of their being picked up by the Arctic. These, of course, are on the low wave length found so effectual for covering great distances.

We are now at the busy season when the educational institutions all over the country open their doors for another school period. Prior to the installation of the first Radiocasting plant in any college, I had persistently advocated the use of Radio by universities as a practical means of extending education. Since schools of higher learning have one after another fallen in with my suggestion results have shown how eagerly listeners accepted the offering. It is not only of benefit to the country at large (tending toward a better educated citizenry), but must influence many to pursue their studies further, a decision of direct value to the institutions. I am in hopes this winter will find programs devoting greater time to a more diversified lecture course, leaving the entertaining feature to non-educational Radiocast stations.

Helpful Hints to Get Most From Radio

Chapter I—What to Expect of Your Radio Set

By Thomas W. Benson

IN THIS series of articles set operation will be told in so simple a manner that the uninitiated can follow instructions and get the most out of reception, whether or not he knows anything about electricity or its application to broadcasting and reception. The series consists of thirteen chapters, of which the six next will be:

- Chapter II—The Aerial System.
- Chapter III—Radio Inductances and Tuning, Part 1.
- Chapter IV—Radio Inductances and Tuning, Part 2.
- Chapter V—Variable Condensers.
- Chapter VI—Crystal and Tube Detectors.
- Chapter VII—Sockets and Rheostats.

a set that will receive a 1,000-watt station 500 miles away will not receive a 500-watt as loud over the same distance under the same conditions. Furthermore, the range of a set is about doubled at night and is greater over water than over land. In addition we have the problem of selectivity. The range of a set that is not selective is naturally decreased by reason of local broadcast stations drowning out the weaker signals from distant stations.

Since the majority of the above range factors are beyond the control of the set owners it is advisable to spend a little time in improving every detail that will give increased efficiency and the greatest satisfaction to the Radiophan. The purpose of the following articles is to point out methods and means for getting the highest efficiency from the receiver and help in the selection of the proper apparatus most suited to the particular needs of the purchaser.

Reliable Apparatus Necessary

Experience has taught many that good results are possible only when good reliable apparatus is used, properly installed and cared for and a little patience until the knack of handling the apparatus is mastered. Just what constitutes the best apparatus is often a problem to many and it can best be answered by advising one to buy apparatus that is backed by the old established manufacturers. Unless one is qualified to judge of quality of material and workmanship it is best to rely on a concern that has gained a reputation by its long existence in a given field.

The day will come, and it should not be far distant, when every Radio instrument will be so labeled that one can determine its characteristics at a glance just as all electrical apparatus is labeled in the commercial field. Thus condensers would have plainly marked their maximum and minimum capacities, resistance at some standard Radio frequency and phase displacement.

Inductances their inductance in millihenries and their resistance at certain Radio frequencies. Likewise a Radio set could be rated as to the damping in its tuning circuits to give an idea of its selectivity and some means devised for rating the change of current in the output or phone circuit when a standard Radio impulse is impressed upon the input or aerial circuit. Then one could specify

a receiving set to meet requirements just as one now specifies a motor for a given service.

Impossible to Give Actual Ranges

It would be impossible now to give actual ranges for any given type of receiver that would mean anything, so the best advice is to buy or build the very best set one can afford. Where one lives in a large city, with broadcast stations within a few miles, select a set that is designed for selectivity, otherwise it will be practically useless for DX work. When a receiver is desired for local work only selectivity is not so important and can be sacrificed for simplicity in control and reduction in the number of tubes. Where the set is to be installed ten miles or more from a broadcast station it need not be extremely selective with the result that

the range will be increased.

As a general rule the selectivity and volume of a set vary in inverse proportion to each other. That is, in order to get selectivity some volume must be sacrificed and vice versa, by decreasing the selectivity greater volume is possible provided no locals are located within ten miles or so to cause excessive interference.

Later on in the series it will be shown how proper installation of the apparatus will aid selectivity, how proper handling will increase the range, how properly cared for apparatus gives good volume, the combination of the three giving that satisfaction and pleasure that comes from getting the best out of the set.

(In the next of the series by Mr. Benson the various aeriols will be considered, described and results given—Editor's Note.)

RADIOING has become America's greatest sport, not only indoors but in the open as well. Simplification and compact design has made all its pleasures available at the seashore, in camp, on ship board and while touring. It will continue to remain our greatest sport for years to come, for in no other pastime, if you wish to call it such, will be found such genuine entertainment, educational advantages, up-to-the-minute information with the elements of skill and chance intermingled.

What to Expect from a Set

Just what you can expect of any Radio set depends upon so many factors, some within and more beyond the control of the operator that the practice of rating sets in miles range is rapidly dying out. When one stops to consider that the range of a set depends upon the nature of the ground in the vicinity of the set; adjacent buildings, trees and other obstacles; the time and kind of day; the condition of the apparatus itself and the skill of the operator; the difficulty of rating any particular set as to its range is impractical.

The true rating of a set is its consistent range, that is, the distance it will receive day in and day out, winter and summer, day and night, and this figure rarely exceeds 10 per cent of the distance that can be covered under favorable conditions.

There are, of course, other elements entering into the question of range. There is the matter of power at the broadcaster,

OPERATION TROUBLES

(Continued from page 19)

"R. F. Amp." control knob number 2, and it will be found possible under good conditions during the night-time to receive broadcasting stations at many different settings of the wave length dial.

The dial settings of the wave length dial may be recorded for each station and those stations may be tuned in again any time they may be operating, by simply readjusting the dial to the setting previously recorded. This will not be true should the aerial or ground connections be changed after recording the dial setting data.

"R. F. Amp." control is important. A good operator will always operate this control simultaneously with the operation of the wave length dial. The sensitivity of the Radio frequency amplifier tube is entirely dependent upon the adjustment of this control. If this vacuum tube is not adjusted to a sensitive condition the signals passed by it to the detector tube must, of necessity, be weak, and accordingly, the Audio frequency amplifier system has little energy upon which to work. It will be evident then that the care in the manipulation of this adjustment determines the success of the reception

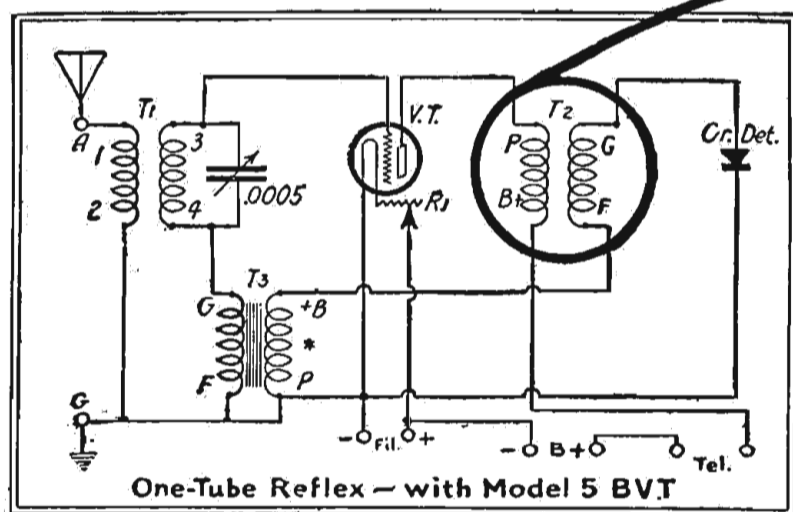
This "R. F. AMP." control knob 2, will normally be set in such a position that the signals as heard in the headset are of maximum strength and clarity. This condition will be obtained when the control has been turned in the clockwise direction sufficiently far enough to obtain the maximum amplification in the Radio frequency amplifier tube. Rotation further in this direction will cause a dull "thud" or "click" in the headset and the voice or music will disappear, but will be replaced by a musical whistle

The set now will not produce intelligible signals on any but the very strongest stations, nothing but whistles will be heard when the "Wave length" dial is rotated. This condition is found extremely useful in locating the broadcasting stations. Without it the operator must adjust the "Wave length" dial number 1 to the voice or speech of the broadcasting station. However, if the "R. F. Amp." control knob 2 is set just past the point where the "thud" or "click" is heard so that loud whistles can be heard as the wave length dial is rotated, it will be found very convenient to pick out the loudest whistle and to carefully adjust the "Wave length" dial until this whistle

(Continued on page 24)

RADIO FREQUENCY AMPLIFICATION with the BALLANTINE VARIOTRANSFORMER

This variable transformer gives better reflex action



* If unstable, reverse P and B +



Transformer only \$9.50 for panel or base At dealers or postpaid



A BOONTON Guaranteed Product

DO YOU favor the economical reflex system? Then, by all means, try the BALLANTINE VARIOTRANSFORMER for the radio frequency side. With it you can accurately tune each stage. Continuously variable windings make this possible from 220 to 600 meters.

The diagram shows how a BALLANTINE is used to improve the now famous One-Tube "Knock-Out" Reflex. Not only is there a marked improvement in reflex action, but also the complete shielding of BALLANTINES greatly improves tone quality.

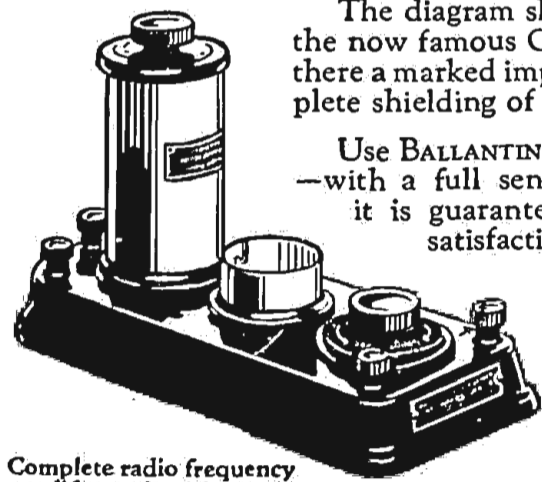
Use BALLANTINES in any standard radio frequency hook-up—with a full sense of protection. As a BOONTON product, it is guaranteed to give satisfaction as you interpret satisfaction yourself.

Send for this booklet

"Radio Frequency Amplification with the Ballantine Variotransformer" is 25 pages of practical helps and diagrams. Yours for the asking.

BOONTON RADIO CORPORATION

824 Fanny Road, Boonton, N. J.

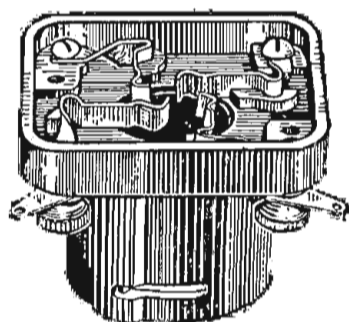


Complete radio frequency amplifier unit with socket and rheostat \$15

RADIO FREQUENCY AMPLIFICATION with the BALLANTINE VARIOTRANSFORMER

The New All-American Tube Socket

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Type R-25 Tube Socket (Standard Base) Each \$0.75

Top and bottom—inside and outside—the new All-American Tube Socket is ALL A SOCKET SHOULD BE!

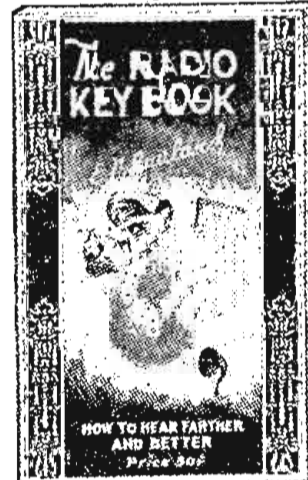
It's husky. Moulded in one piece, of genuine Bakelite, it is thoroughly reinforced at every point liable to breakage.

Look at this bottom view of the Type R-25—it shows the most workmanlike construction, the simplest and most efficient design of any socket on the market. Positive contact is assured with each of the four tube prongs, on the SIDES of the prongs. This means 100% RELIABLE CONTACT, with NO UPWARD PRESSURE. From every angle this new All-American is everything a perfect socket should be.

This Unique Radio Book Is Now Being Mailed

Containing the latest sensational discoveries of All-American radio engineers, the Radio Key Book is now being mailed to the thousands who are eagerly awaiting it. Publication was purposely held up to enable us to announce the very newest information on radio frequency amplification made public for the first time in this unique volume. It is the most valuable radio book you can own—full of helps for the beginner and the expert.

If you have not written for your copy send 10 cents today, coin or stamps, and secure at once advance information on the newest triumphs in Radio. No announcement elsewhere until October and November.



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30 Minute A-B-C Lessons for Radio Beginners

Chapter XXV—The Home Radio; New Things to Try

By P. E. Edelman

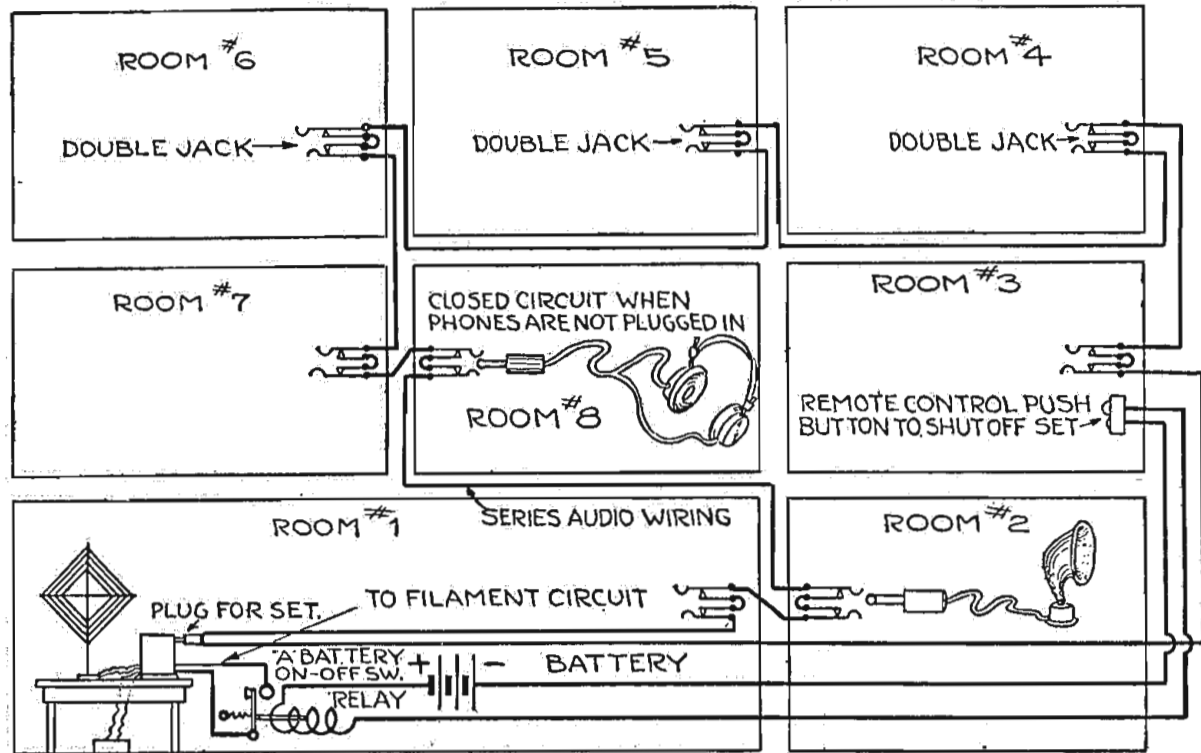


Figure 212

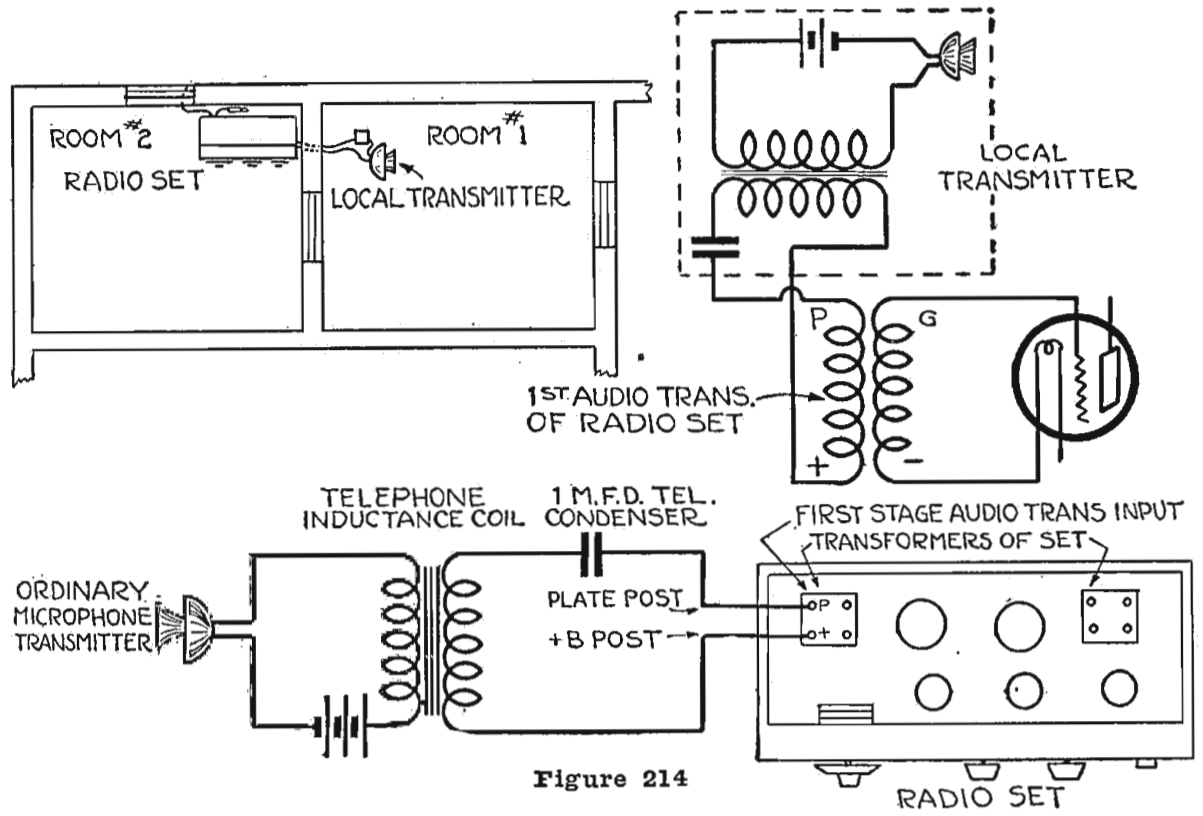


Figure 214

THE entertainment value of a receiving apparatus is recognized as one of its principal functions, and can be enhanced by certain novel uses.

Figure 212 shows how audio output wiring can be arranged to distribute the program to any or all parts of a house or apartment. By using double jacks, all phones or speakers used will run in series connection. Remote control to stop or start the set by turning filaments on or off is also possible as shown.

The new listener getting a special program of interest to a neighbor will often invite others in to hear. Figure 213 shows how several sets of phones can be connected in series when a loud speaker is not available or the signals are too weak to operate such a speaker.

Giving a Radio Party

Instead of talking further about technical features of a Radio set, a few interesting uses will be considered. A Radio

party is an ordinary party livened up by use of Radio interest. The invitations can be "Come on over, and bring your loud speaker along." Favors based on Radio interest may be used. Games featuring the same interest can be devised. Refreshments can be designated as "Vac-

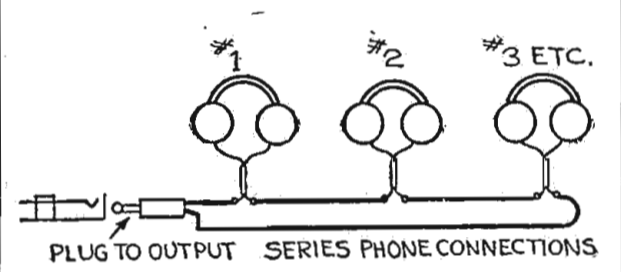


Figure 213

uum tube ice," etc. Perhaps a local Radiocaster will have a dance program and grant a few special numbers for your particular party by request.

Interest is likely to turn to the Radio dance at such a party, so be sure to have plenty of loud speaker output to give good

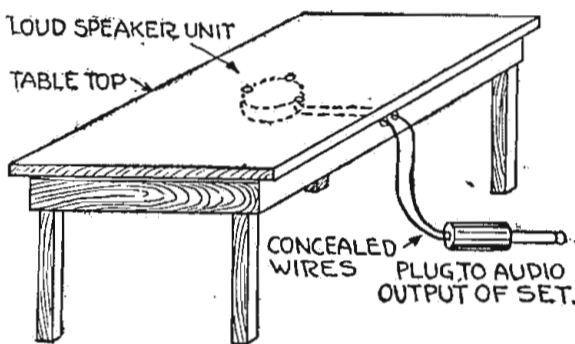


Figure 215

clear volume. It is well to have someone at the tuner to omit undesired announcer advertisements, etc., if the station heard uses much small talk between numbers.

Also it is desirable to have a supplementary source of music, such as phonograph, player piano, or small orchestra, for variety between numbers, according to the size of the entertainment. If you have a program dance, suitable numbers can be termed "Radio Glide," "Wave Length Fox Trot," etc.

Much humor can be placed in a stunt party by connecting a local transmitter to operate through the loud speaker as shown by figure 214, if one of the party is talented in that direction.

Radio Guessing Contest

Another stunt is to have an operator go fishing for long distance stations which will come through on the loud speaker O. K. and the guests are asked to guess ahead of the announcer, what station is Radiocasting and to estimate the air line distance. A prize can be given for the best list of answers. The

(Continued on page 26)



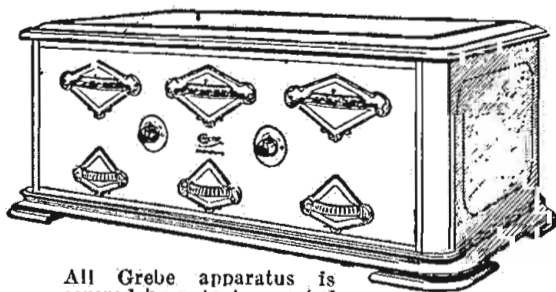
The GREBE SYNCHROPHASE

(Trade Mark)

A BROADCAST Receiver that marks another long step forward in radio design and establishes a new set of standards in craftsmanship.

"It is only when the cold season comes that we know the pine and cypress to be ever-green."
—Confucius

In the coming cold season be not surpassed by thy neighbor—set the pace with your Grebe Synchronphase.
Doctor Mu

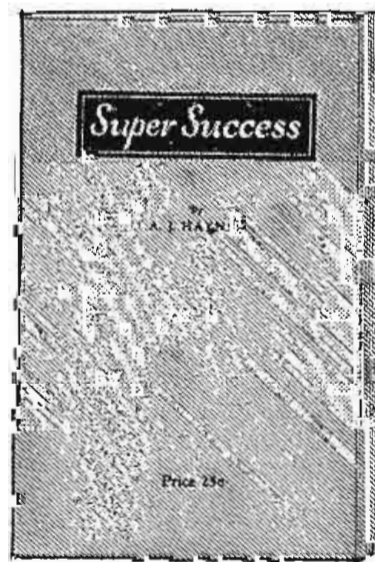


All Grebe apparatus is covered by patents granted and pending.

Ask your quality dealer for a demonstration of the Grebe Synchronphase or write us for literature.

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Solving the Mystery of the Super-Heterodyne



A. J. Haynes' New Booklet Tells the Whole Story

Here is a book which tears away the veil of mystery which has surrounded the Super-Heterodyne. "Super Success" presents the "Rolls Royce of Radio Receivers" to average experimenters in a manner they can understand.

It contains complete information on the Super-Heterodyne, from the theory of the circuit to detailed instructions for construction and operation.

"Super Success" has been written by A. J. Haynes, Assoc., Institute Radio Engineers, an authority on the Super-Heterodyne. In the booklet, Mr. Haynes gives you the results of his 12 months' experimentation with 20 different "Supers."

The book tells you how to use the "Super" to receive the new low wave length broadcasts from KDKA and WGY, how to make use of an English custom, the necessity for matched transformers, how to match your own transformers, and many other tips which Mr. Haynes has discovered.

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I want to know the whole story of the Super-Heterodyne. Enclosed find 25 cents for a copy of A. J. Haynes' new book "Super Success."

Name.....
Address.....

OPERATION TROUBLES

(Continued from page 21)

is centered upon. If the "R. F. Amp." control knob 2 is now turned in a counter-clockwise direction until this very low-pitched whistling condition just disappears it will be found that a very slight change in the "Wave length" dial setting number 1 in one direction or another will bring in audible music or speech.

It may be that the "R. F. Amp." control knob 2 should be moved in some slight degree one way or another in order to secure the maximum volume or the maximum clarity of signal. It is not considered good practice to obtain loud signals at the expense of clarity. It must be borne in mind that the limitations in volume and clarity do not exist in the Federal set itself. The wonderful amplifying system with which this receiver is equipped has been developed through a long period of painstaking research and is without equal.

The two jacks located in the lower right and in the lower left corners of the panel serve to connect the loud speaker or headset to the receiver. The Federal plug which is provided with this set should be connected to the headset or loud speaker employed and when properly inserted in the jack will provide a secure electrical connection. The right-hand jack provides signals of maximum intensity, since it provides the output from all four tubes in the receiver.

Troubles and Their Causes

1. Failure of receiver to operate.
 - (a) Discharged filament or plate batteries.
 - (b) Burnt out or defective vacuum tubes.
 - (c) Open circuit in headset or loud speaker.
 - (d) Antenna lightning arrester improperly connected.
 - (e) Open circuit in antenna or ground system.
 - (f) Antenna grounded.
 - (g) Batteries wrongly connected.
2. Poor or weak signals.
 - (a) Any of above causes.
 - (b) No detector "B" battery connection, or excessive or insufficient detector "B" battery voltage.
3. "Blocking" or continuous "howling" or "grunting."
 - (a) Worn out "B" batteries.
 - (b) "Open" in grid circuit.
 - (c) Insufficient brilliancy of tube filaments.
 - (d) Defective vacuum tube.
4. Failure of tubes to light.
 - (a) Discharged filament battery.
 - (b) Burnt out tube.

- (c) Dirty contact surface on tube base prongs.
 - (d) Bent socket contact spring.
 - (e) Broken wire in filament circuit.
 - (f) Corroded filament battery terminal.
5. Noisy reception.
 - (a) Induction from nearby power, telephone, trolley or telegraph lines or nearby electrical machinery.
 - (b) Static.
 - (c) Worn out "B" batteries.
 - (d) Noisy grid leak.
 - (e) Loose connections in plate, filament or grid circuits.
 - (f) Poor contact between tube and spring contacts on tube sockets.
 - (g) Noisy detector vacuum tube.
 - (h) Excessive generator hum at broadcasting station.
 - (i) Radiation from neighboring receiving sets.
 - (j) Commercial and amateur telegraph stations.
 - (k) Local noises in broadcasting studio or auditorium.
 6. Distortion of tone.
 - (a) Interference of neighboring receiving sets.
 - (b) Excessive amplification of local stations.
 - (c) Two broadcasting stations on same wave length.
 - (d) Leads to loud speaker reversed.
 - (e) Defective amplifier tube.
 - (f) Excessive amplifier "B" battery potential.
 - (g) Overloading loud speaker or headset.
 - (h) Damaged headset, or loud speaker, diaphragm.

Tuned R. F. Transformer

Following is the direction for the making of a tuned Radio frequency transformer at a very slight cost, which has given excellent results:

Using number 24 dcc. magnet wire, wind three spider web coils on a form 1 1/2 inches in diameter with thirteen or fifteen 1/8-inch studs. Connect the coils in series with the turns all running in the same direction. This forms the secondary.

A piece of fibre or bakelite tubing 1 1/2 inches long and of a diameter that will just slip over the coils is required. Drill six 1/16-inch holes 5/16 inch from each end of the tube, spacing them equally around the circumference.

Slip the secondary coils inside the tube and, beginning over the starting point of the first secondary coil and winding in the same direction, wind twenty turns of

number 24 dcc. wire on the tube for the primary.

Pasten both windings in place by passing a strong thread through one of the holes in the tube, around the secondary coils, through another hole and over the primary, repeating the procedure until the starting point is reached, where the ends of the thread should be tied together. The outer or finish lead of the secondary

is the grid lead, while the primary lead at the same end of the transformer should be connected to the plate. It is best to leave the leads long enough to make direct connections to the other parts of the set, instead of using binding posts.

The transformer is tuned to Radiocasting wave length by shunting the secondary with a .0005 mfd. variable condenser.—Floyd C. Welsh, Laclede, Mo.



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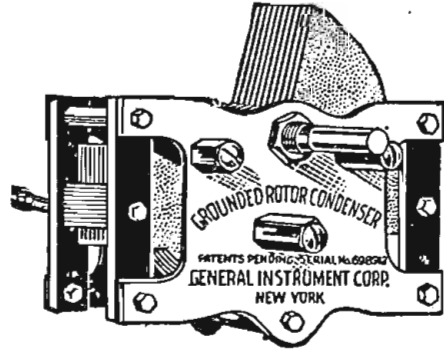
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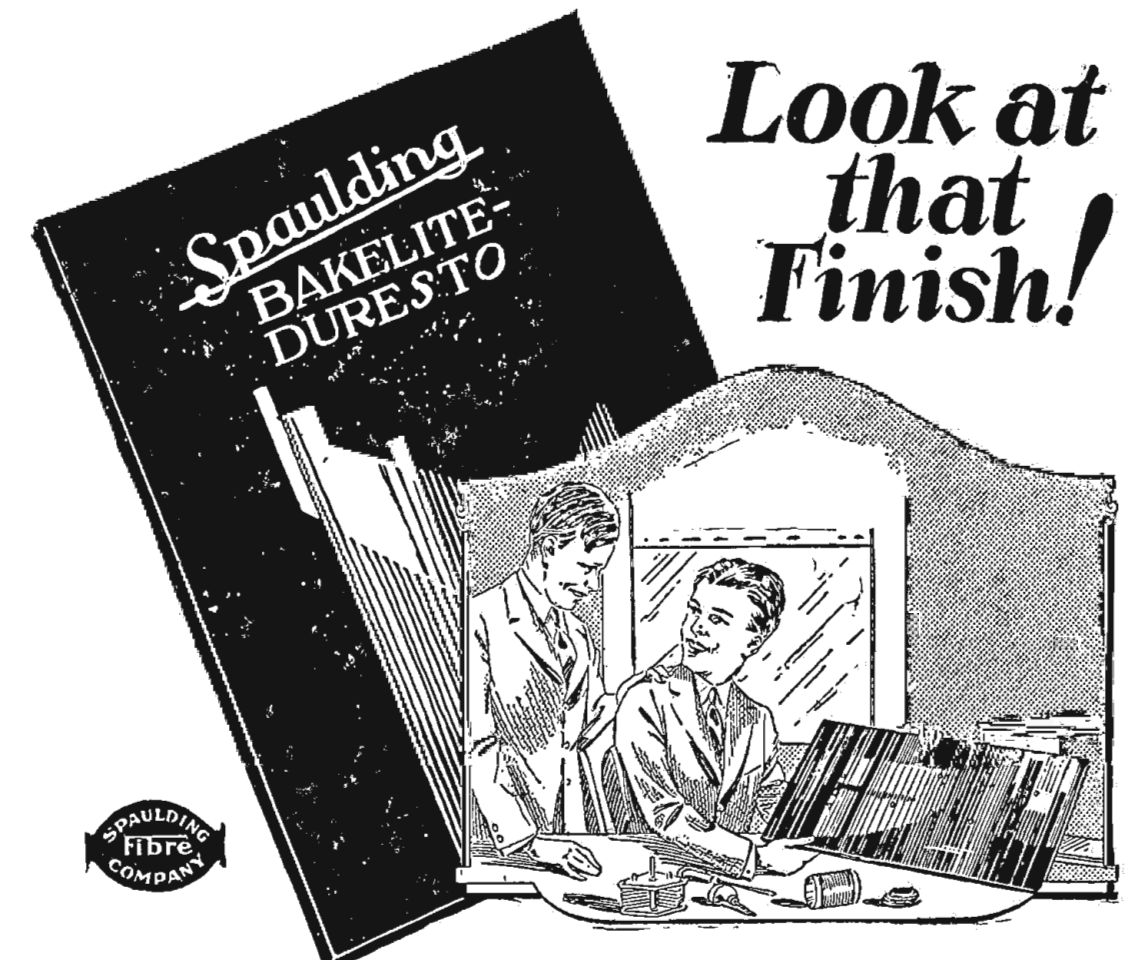
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Amplidyne Type Radio Frequency Amplifier

Part II—The Amplidyne Circuit

By Thomas W. Benson

THE first article described the various systems of controlling the feedback tending to produce oscillations in a tuned Radio frequency amplifier. It also covered the description of the amplifier which is simply a tapped honeycomb coil so connected that it functions as an auto-transformer to couple the tubes in a Radio frequency amplifier.

There are several advantages in this construction, the most important being the fact that this arrangement more nearly approaches the point of unity coupling between the plate circuit of one tube and the grid of the next thus allowing the greatest transfer of energy. This may be a disadvantage at times in that selectivity is lost but this is readily overcome by a slight change of connections to be shown later. Furthermore a step up is obtained in a ratio of nearly three to one and the close linking of the circuit gives practically two circuits, plate and grid, simultaneously tuned by the same condenser.

Circuit Employing Five Tubes

From the circuit given last week it is easy to develop a circuit employing five tubes as shown in the attached illustration Figure 5. It would appear that the complete circuit is rather complicated but on close analysis it will be found that it is actually very simple and easily followed when wiring the set. This work is facilitated by a knowledge of the operation of the various parts of the circuit.

The amplifiers in the circuit are indicated at R. F. 1, 2 and 3. It will be seen that the variable condensers of the three tuned circuits are shunted across terminals A and C, the windings between which points form the tuned circuits. In the grid of the first tube has been included a double circuit jack to permit a loop aerial to be plugged in when it is desirable to use this form of aerial. Normally the ground lead is connected to terminal C while the aerial is connected to terminal D. This gives the highest selectivity, the fifteen turns between C and D acting as an aperiodic aerial circuit.

Where interference is not so troublesome as in sparsely settled districts distant from broadcasting stations, the aerial can be connected to point B. This results in closer coupling and with a low resistance aerial increases the signal strength. The exact connection of the aerial will vary with the location of the set, but the connection shown is best for all around purposes. The aerial circuit being untuned permits the use of the receiver on any type or size of aerial with but a small variation in the setting of the first dial for any given wave-length.

Connections in Plate Circuit

The plate circuit of the first tube is

coupled to the second tube by means of another amplifier. The plate current of this tube flows between terminals B and C of R. F. 2 which also forms part of the tuned grid circuit. This gives an autotransformer effect obtaining good transfer of energy and also a step up in voltage. In order to prevent the tube from oscillating the lower terminal of the amplifier is coupled to the grid through a small variable condenser.

Just how this condenser functions to prevent oscillations in the tube may be easily understood from Figure 6, which shows the parts of the circuit entering into this operation. We have in the plate circuit fifteen turns of the inductance while a similar number of turns is connected to the stabilizing condenser C1.

When a current at Radio frequency flows in the plate circuit it will induce currents in the stabilizing windings of practically equal strength or voltage but the potentials at the ends of the inductances will be of opposite polarities; therefore any currents in the plate winding tending to feedback to the grid through the capacity of the tube shown at C will be counterbalanced and neutralized by an equal but opposing feedback through the stabilizing condenser. This method of balancing the feedback has proven very effective and reliable.

The stabilizing condensers are shown as being variable. This is not absolutely necessary but offers an advantage that makes their inclusion in the circuit worth the trouble and expense. These condensers are mounted on the panel and are known as midget condensers having a capacity of approximately .0004 mfd. Af-

ter the circuit has been balanced as is usual with these circuits the point of balance is marked on the panel and the stabilizing condensers normally carried at that point while tuning.

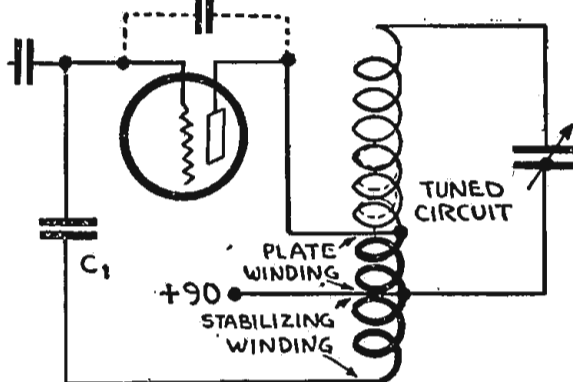


Figure 6.—Detail of amplifier coils showing how two sections of winding feed back to grid to neutralize each other.

When the signals are picked up, a slight adjustment of these condensers will often double the signal strength. The reason

for this is found in the fact that the more nearly a tube can be carried to the point of oscillation without spilling over into oscillations the greater will be the amplification. Hence a slight adjustment on these condensers loosens up the check on the tubes and permits louder signals without the tube oscillating. It would not be practical to adjust the circuit at this point because it would be too critical and tend to oscillate with variations in filament brilliancy and other variable factors. When tuning, the circuit is perfectly balanced and then slightly unbalanced to obtain louder signals after the station has been picked up.

The Radio frequency currents induced in the tuned circuit of the second amplifier are impressed upon the grid of the second tube through a small fixed condenser serving to keep the plate voltage similar to the coupling in the usual tuned plate Radio frequency amplifier, the condenser serving to keep the plate voltage off the grid of the second tube. A grid leak is also connected to the grid to pre-

(Continued on page 28)

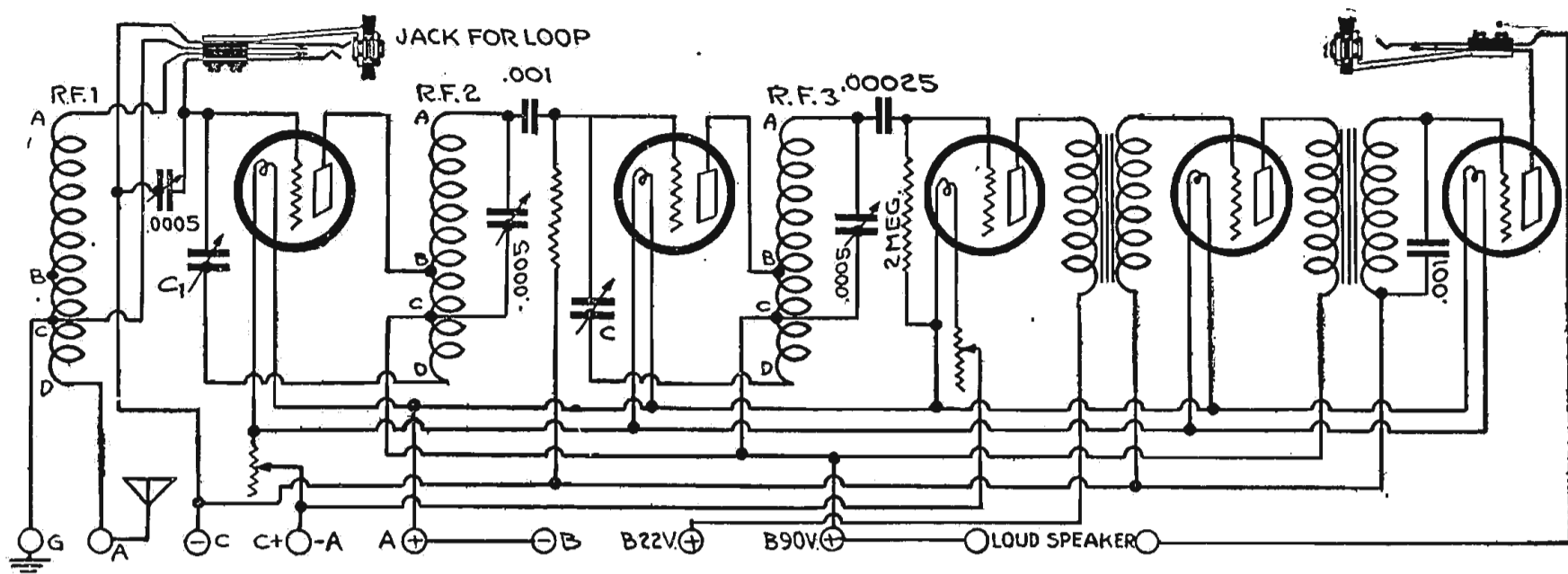


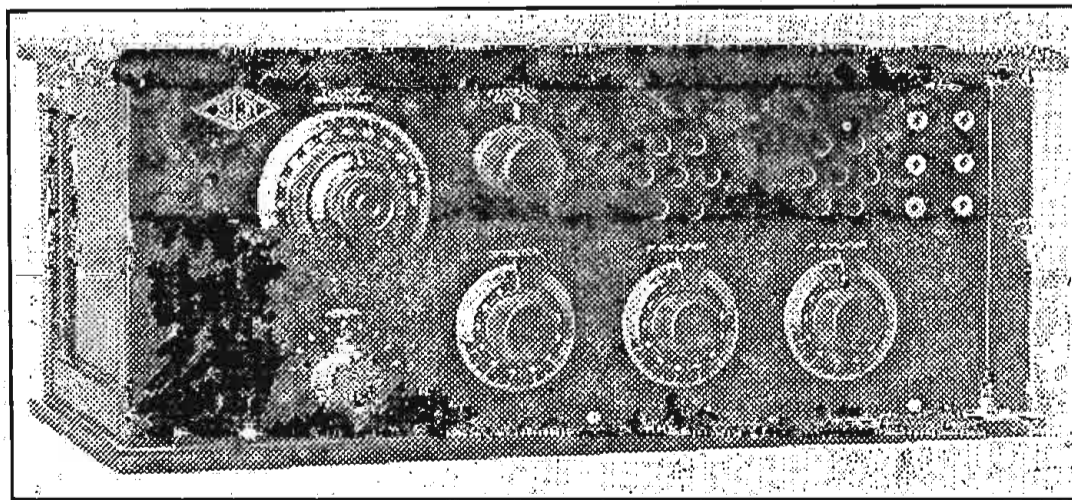
Figure 5.—Amplidyne circuits complete with Stabilizing condensers shown at C.

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- EASIER ASSEMBLED**—No soldering
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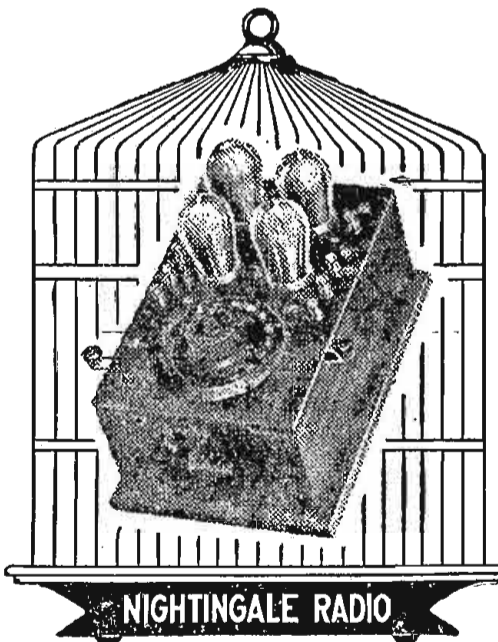
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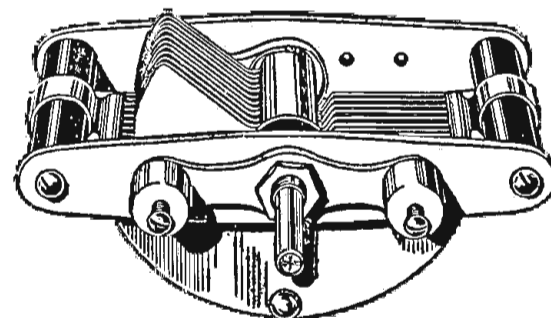
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MANUFACTURERS OF
The "Long 45" Tuner—The Lincoln Oscilloscope—
Lincoln Collapsible Loops—The Lincoln Kit

THIRTY MINUTE A-B-C

(Continued from page 23)

thing about this is to have a wide variety and keep changing stunts so that interest does not lag.

In sections where the ancient Chinese

You can put your phone receiver or loud speaker near an ordinary telephone line transmitter and send the Radiocast program over ordinary telephone line to any friend you wish to call up for this stunt. The audio output can be sent even ten miles clearly in this manner. The

If you have a phonograph with recording attachment, you can use your loud speaker to record certain portions of an incoming Radio program. Doing this commercially would infringe copyrights but it is all proper as an experimental stunt for private amusement. A medical

in a hospital, or to a large room occupied by cigarmakers or other manual workers. There are various useful applications along this line. Usually one stage power amplification will be necessary to obtain sufficient volume for use in a larger room, and seldom will more than two extra stages of power amplification of the audio output be required.

Figure 219 indicates how a loud speaker can be used to reflect programs over a small lake for canoeists, etc.

For summer use, one can take a portable set along with other camp equipment. A loop receiving coil or a flexible aerial is a desirable choice. The flexible aerial can be thrown over any convenient tree or pole, but no pole carrying power currents, should be approached for this.

A variety of uses for a carry-along set, which can be taken in the rear seat of the car, are obvious.

THE END.

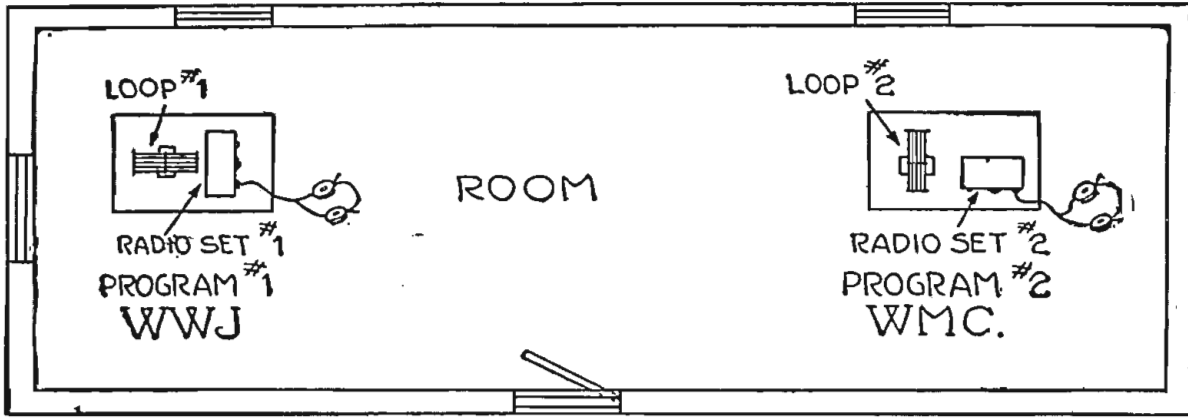


Figure 216

time killer game draws much attention, a Radio novelty can be tried once by using "Radio fishing" in place of dice, to determine positions of players, or suits to follow. Probably you will not want to try this more than once, as the interest depends on the novelty. You can make up your own schedule for this.

loud speaker may also be concealed from view or back of a ventilating grating, etc. You can mount the loud speaker underneath a table to make a talking table, as indicated by Figure 215.

Getting Two Programs Separately in One Room

Figure 216 indicates how two loop sets

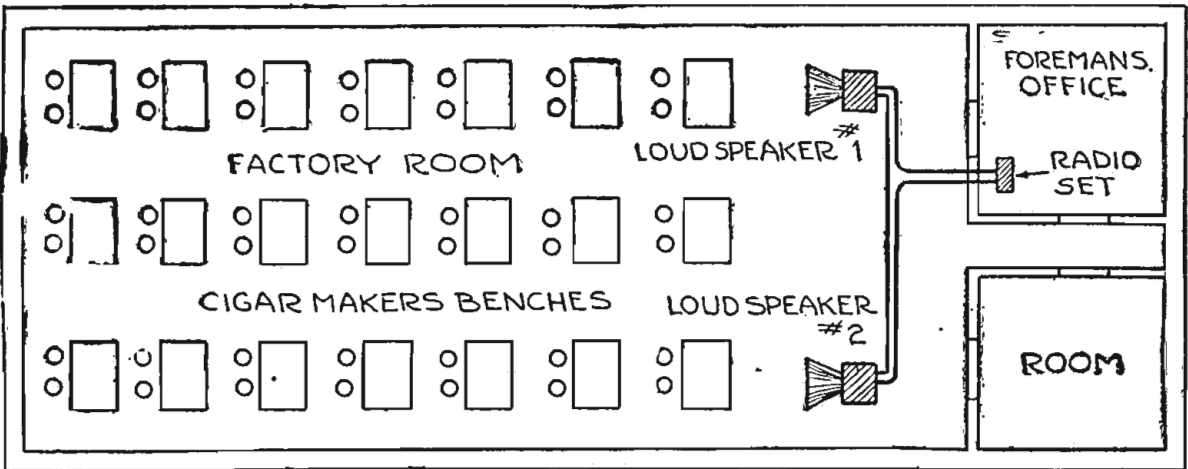


Figure 218

Running a Home Radiocast. "Station I. C. U."

A transmitter can be arranged in one room per Figure 214, to fake a fun Radiocast through the loud speaker of the set, and possibly some of the guests can be induced to entertain with specialties on "ukes," etc., under guise of Radiocasting. Just enough of stunts to be interesting without prolonging to boredom, is the life of a Radio party. A good amateur humorist can put on a children's story with good spirited reference to guests that can make much laughter.

Guessing games can be based on giving only correct titles to numbers on a program, with the regular announcer cut out by the receiving set operator. When a set of phones is used with a loud speaker the set operator can cut off the speaker during the Radiocast announcing. For real novelty, make up your own list of stunts along this line, and keep them "snappy."

can be used in the same room to get two separate independent programs simultaneously without interference between them. If a loud speaker is used, music from one station can be softened down to be an accompaniment for a dramatic reader from another station. Also two loop sets permit different members of the family to use earphones to hear programs they want while others hear different programs.

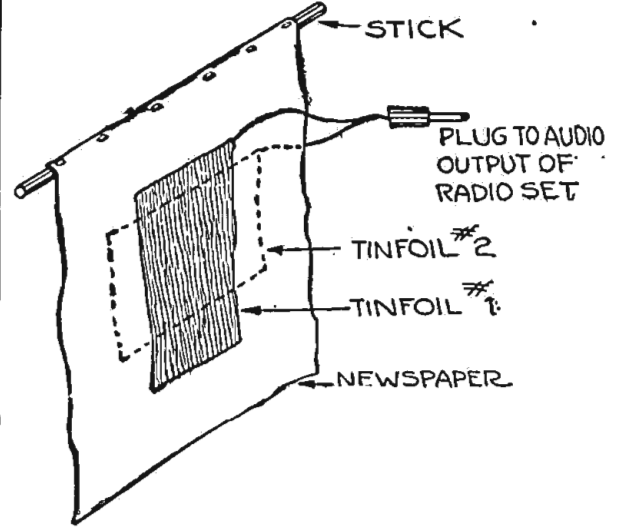


Figure 217

doctor might have part of a program of certain special interest recorded in this manner. Or as a stunt if your means are not limited, you can record part of a program and use it for various private purposes. Thus if a lecturer on the art of speaking is giving good vocal illustrations of pronunciations, a record might be made for some local school.

Figure 217 indicates how a talking newspaper can be made for use in place

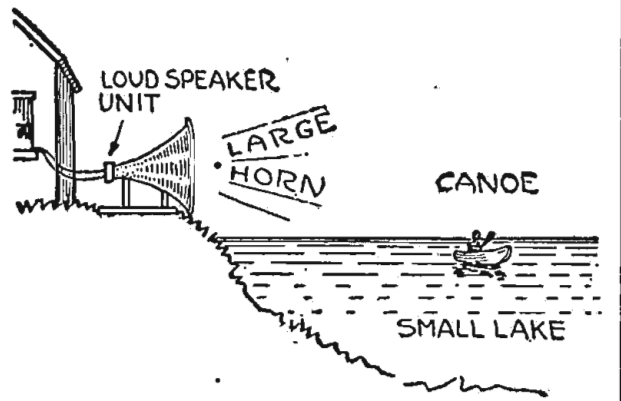


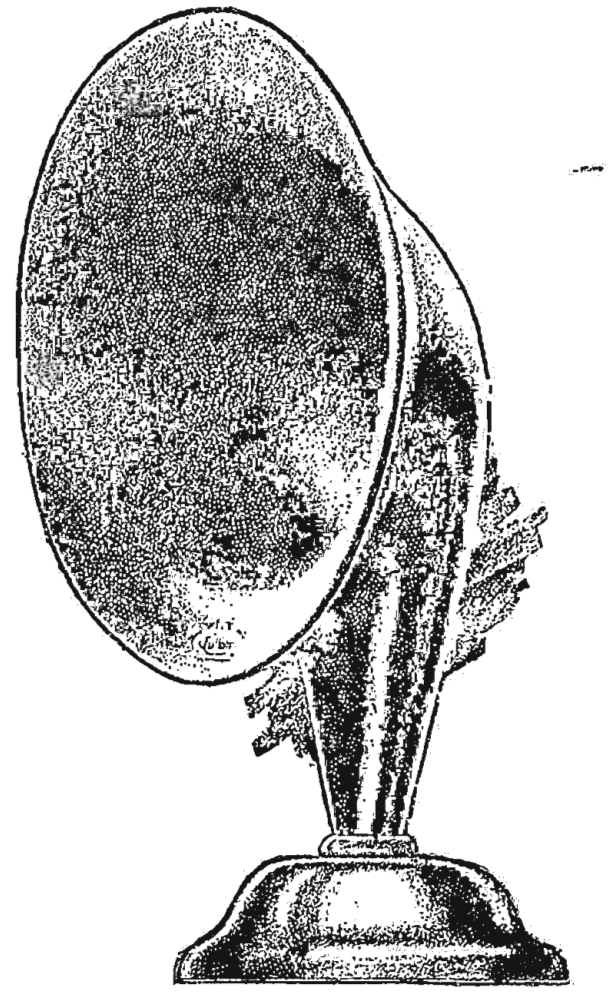
Figure 219

of a loud speaker. It comprises a condenser with loose plates from tin foil. Ordinary phones can be shunted across this "condenser" so that plate current will get to the tube in the receiving set as usual.

Distributing Audio Output

Figure 218 shows how the audio output can be distributed to various rooms

Fultone Loud Speaker



All the Name Implies

—full rounded volume that is sharp, clean, easily understood.

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The Fultone horn and base are constructed in one piece from a non-metallic composition that cannot ring, yet does not deaden. Its unusually wide throat lets the speech and music pass unchoked.

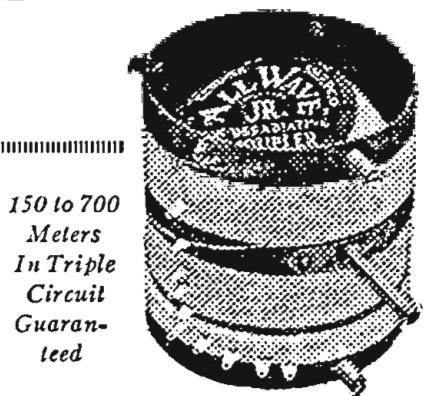
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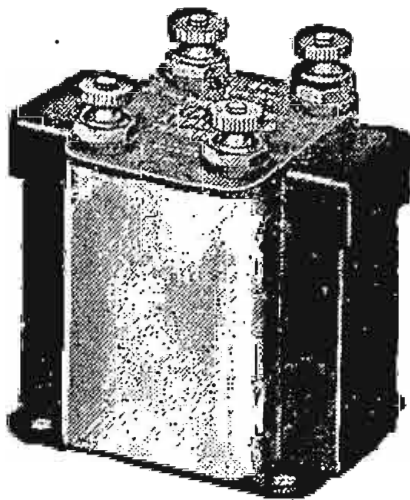
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Console and Cabinet Making for Receiving Sets

Chapter I—Construction of Inexpensive Cabinets

By Charles F. Smisor

IN THE development of Radio new circuits have held the attention of most all beginners. Little thought was given to the appearance of a set, just so that it worked, was the result desired. Every experimenter gave all of his spare time to the hook-up and it made little difference as to how the wires run—the signals were what he wanted.

Now as the circuits have become somewhat stabilized thought has turned toward how the finished hook-up appeared. Most of us are beginning to take pride in the way the wiring is done and to use the fancy bus wire, and to turn neat corners and to have smooth soldered joints.

The housing of the set has been a thing that was farthest from the mind of the fan and any old box or no box at all would

finishing of the cabinets will be given in another chapter.

The material required for a 7 by 7-inch panel set is as follows: Two ends 6 inches long and 7 inches wide; cover 7 inches long and 5 inches wide; one top piece 7 inches long and 2 inches wide; one back piece 6 inches long and 6 inches wide; one baseboard 6 inches long and 6 1/4 inches wide; one pair of 1 by 1 inch brass hinges; 1/4 pound of 3/4-inch finishing nails and four rubber head tacks for the bottom. Dimensions given are for 1/2 inch thick material.

To make a neat cabinet it is necessary to have all pieces perfectly square. If some of the softer woods are used the nail heads holding the pieces together can be concealed as shown in the small

Panel Size	A	B	Baseboard
7 by 7 inches	7 inches	6 inches	6 by 6 1/4 inches
7 by 10 1/2 inches	10 1/2 inches	9 1/2 inches	9 1/2 by 6 1/4 inches
7 by 14 inches	14 inches	13 inches	13 by 6 1/4 inches
7 by 18 inches	18 inches	17 inches	17 by 6 1/4 inches
7 by 21 inches	21 inches	20 inches	20 by 6 1/4 inches
7 by 24 inches	24 inches	23 inches	23 by 6 1/4 inches
7 by 26 inches	26 inches	25 inches	25 by 6 1/4 inches

suffice. However, with the new pride taken in wiring comes the same desire to have the outside covering at its best.

The appearance of the first automobile was far from the present day car. The difference is so great that the old timer is now a curiosity, the same will be for the designing of the housing for the Radio set. In this series constructional data will be given for sets, beginning with the simpler ones and advance into more complicated cabinets that will require more tools and better skill in workmanship.

Naturally the beginner usually starts with a crystal set. The illustration given is for a cabinet suitable to admit a small set of this character. Most any kind of wood may be used, but it is necessary to have it thoroughly dry—killed if possible.

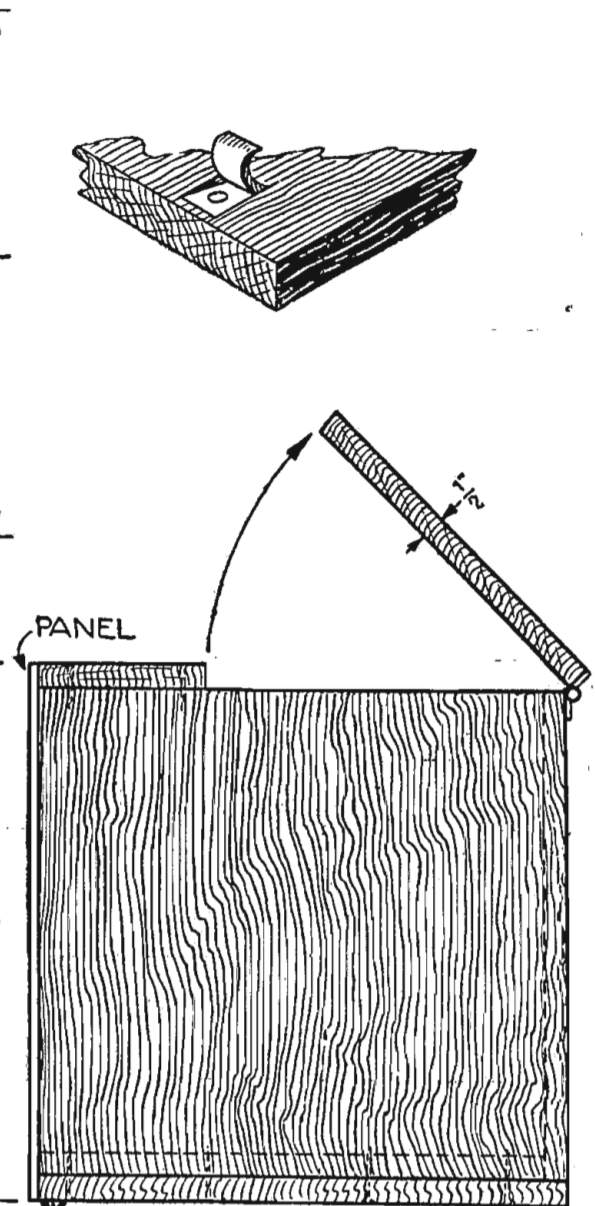
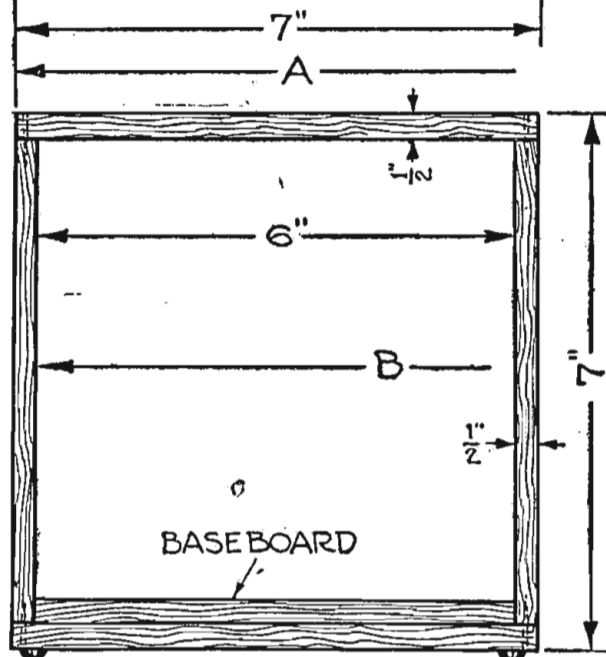
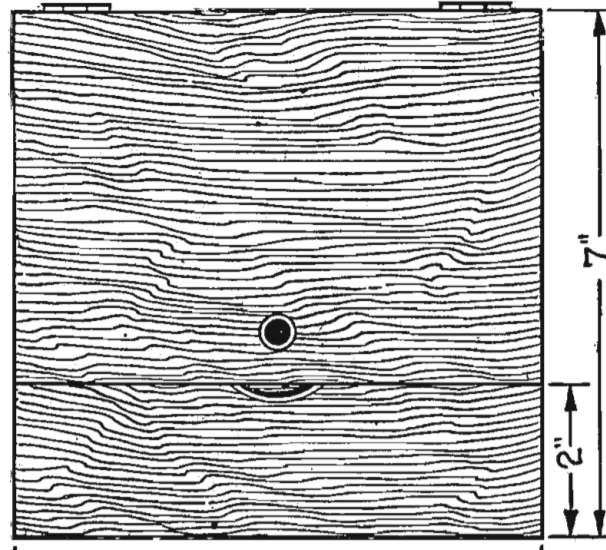
If wood is purchased from a mill or lumber yard the sizes for thickness will not be the same as shown in the drawings. A 1/2-inch board would measure about 3/8 inch for thickness. A 3/8-inch board would measure about 5/16 inch in thickness, therefore in selecting boards be sure that you get the thickness the right size.

Naturally for a fine finish the wood must be surfaced. When bought from a yard or mill surfaced you will need to go over it again with a hand plane, then with very smooth sandpaper or glass paper—a worn sheet is best to use, then there will be no scratches from the sharp sand left to show up in the finished surface. A rub down with pumice will aid greatly in securing a fine gloss or dull finish. The

insert illustration. A sharp chisel is run under the wood at the location for driving the nail and a small piece of the wood is turned up. The nail is driven in and the wood turned back to cover the nail head. It is necessary, however, to place some glue under the wood to hold it in place when the wood is returned to its former place. After the glue has set and the cabinet is put together the final sanding is given to the surface of the wood and these coverings over the nail heads cannot be seen if they are properly made.

The panel on this cabinet is fastened with screws directly to the edge of the wood that forms the cabinet. The baseboard is also attached to the panel that the set may be removed from the cabinet when it is necessary to do so without breaking connections.

In all sizes of cabinets the ends are alike. To make longer cabinets it is only necessary to follow the table to find the lengths for the top, back, bottom and



baseboard pieces. The length of the top, cover and bottom is the dimension A and the back piece takes the dimension B, the baseboard is clearly shown. The ends are 7 by 7 inches in all cabinets.

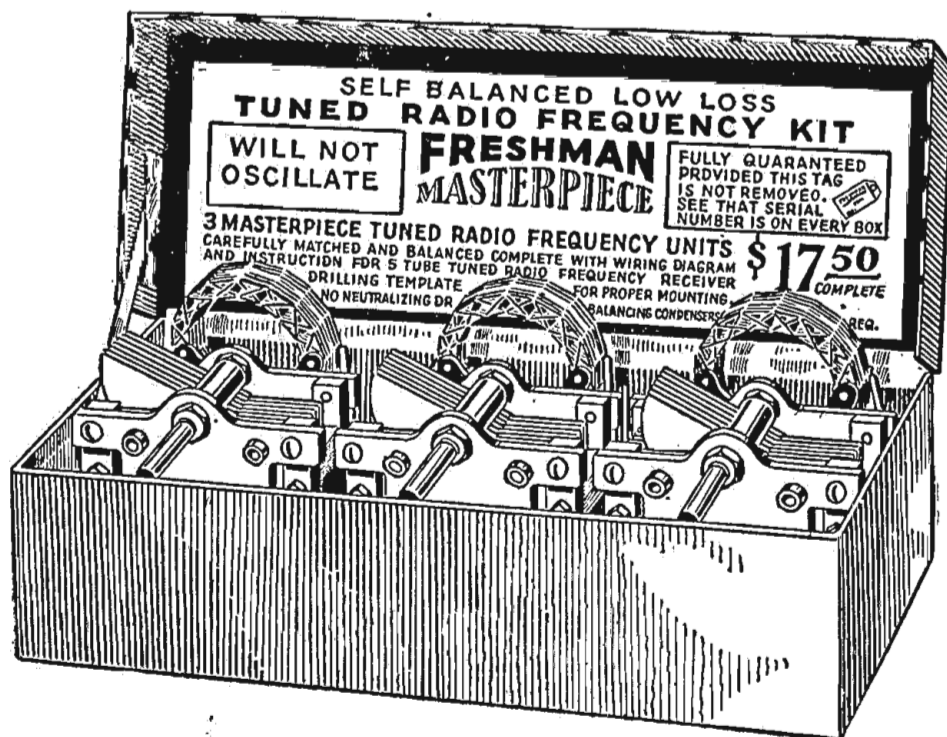
In putting these cabinets together all joints may be glued as well as nailed, or screws may be used instead of the nails. Brass screws with flat heads and countersunk present a neat appearance in the finished cabinet, but to have this

appearance one must lay out the exact locations for the screws to have them uniformly spaced from the edge as well as between the screws. The four rubber head tacks in the bottom prevents scratch-

(Continued on page 28)

It's Results that Count!

When you build a 5 tube tuned radio frequency receiver you want a set that does not oscillate and does not require laboratory testing before it can be of service.



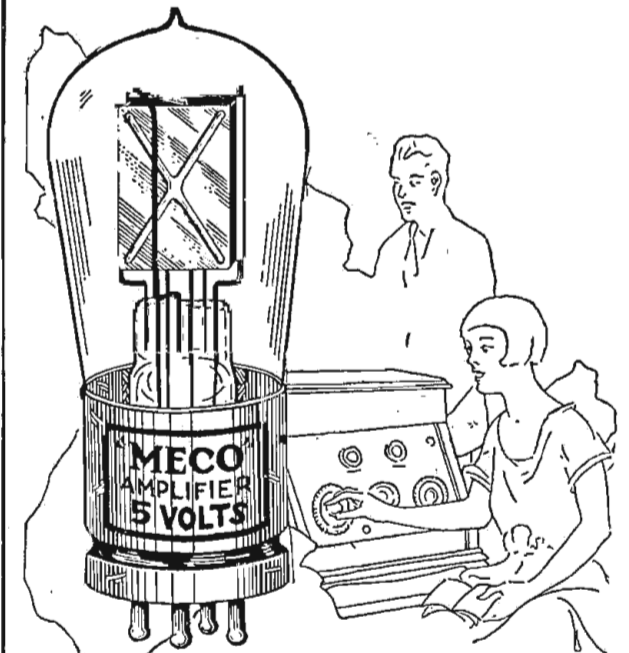
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Sold by dealers everywhere at standard prices and distributed exclusively through recognized jobbers and set manufacturers. Some territory now open for distributors.

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The Standard of the World

The base-type **FRESHMAN VARIABLE GRID LEAK** is the standard for those who build their own sets. It is the most compact and being entirely sealed it always remains unaffected by any climatic conditions. Complete with either .00025 or .0005 Freshman Condenser—without condenser75 **\$1.00**
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At your dealer or by mail postpaid. Write for free catalogue. **65c**
106-7th Ave. New York

CABINET MAKING

(Continued from page 27)

ing table tops where the set may be placed for use.

Two methods for lifting the cover are shown. One is a cut-out in the top piece to admit the fingers and the other is a hole bored in the cover for a finger. It is not necessary to have both. The one that suits the builder may be used.

The hinges are fastened directly to the back piece and to the edge of the cover. It is also necessary to have the hinges spaced evenly from the ends. In the larger sizes three or more hinges may be used. To make a better job use a piano hinge the exact length of the cabinet or the dimension A.

The wood should be cut so that the grain runs with the length as given in the dimensions.

(The next article will tell how to make a series of cabinets in a similar manner, but the joint construction will be different. The corners in these cabinets will be so made that the panel sets in flush and the appearance all around will be of the best kind.—Editor's Note.)

R. F. AMPLIFICATION

(Continued from page 25)

vent loading, the leak being connected to the bias battery as shown.

Coupling Between Tubes

The coupling between the second and third tubes is similar to the above except that a smaller grid condenser is employed and the leak goes direct to the positive of the filament. From there on the circuit is simply a two stage audio frequency amplifier using transformer coupling. The only unique feature of the amplifier is connections to the phone jack which is in series with the posts for the loud speaker. This simplifies the wiring somewhat and the speaker is left in the circuit with the phones plugged in so one can readily determine if the volume is great enough for the speaker without removing phones and plugging in the speaker. There will also be noted a .001 mfd. condenser across the secondary of the second transformer. This takes out all the hissing and scratching in the amplifier, but if the capacity is made too high the music and voices will have a deep hollow sound.

There are but two rheostats to control all the tubes, one taking care of the amplifier tubes, the other for the detector. As shown a C or bias battery terminal is in-

cluded that permits the use of a biasing voltage enabling the owner to adjust the set till maximum results are obtained.

Several receivers have been built using this hook-up and from the short tests given them proven entirely satisfactory. On one occasion Los Angeles has been picked up clear and loud in Philadelphia when the set was being handled by inexperienced operators. They have proven superior to several neodynes they have been compared with and are easier and cheaper to build. Of these sets, the latest will be described in the articles to follow giving all details of its construction.

(The layout of the panels and the assembling of the parts on the base will be the subject of the next articles in this series.—Editors note.)

Filament Switches

Filament switches on each amplifier tube are well worth while. Using the loud speaker, you will want both tubes. If you seek DX with the phones, two tubes are too noisy, so that one step is

Nine out of ten sets use MICADONS

Set builders choose Micadons—standard fixed radio condensers—for many reasons.

They know that the Micadon is a Dubilier product. Supreme in quality and efficiency. They can be obtained in accurately matched and permanent capacities. They can be installed easily—equipped as they are with extension tabs for soldering and eyelets for set screw assembly. Furthermore they are made in types to meet every possible requirement.

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Factory and Offices: Toronto, Ontario

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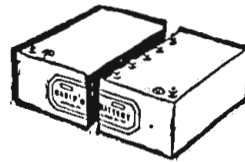
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UV-200 2.50	DV-2 2.50	Moorhead 2.50
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better. With filament switches you can turn off the last tube while hunting DX, and if you get a station you want, the second tube is ready, at proper rheostat setting, at the pull of a knob.

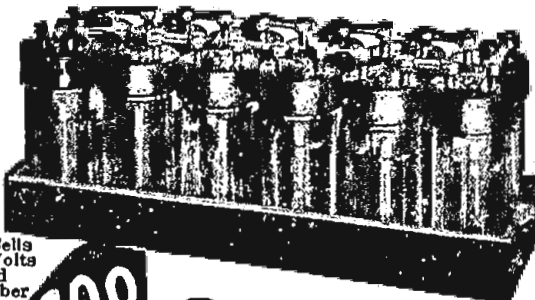


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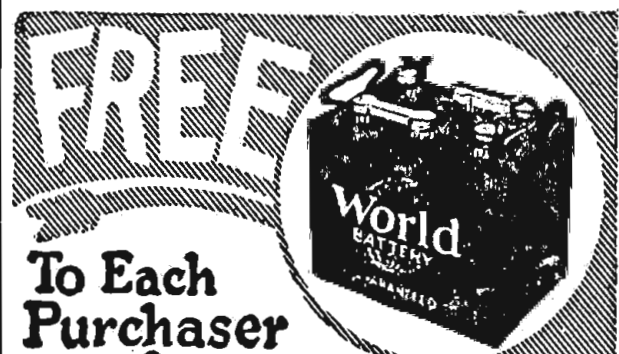
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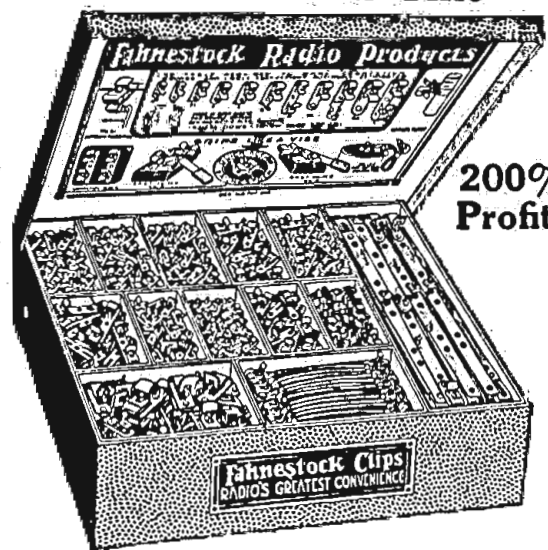
proves satisfactory World performance. Mail this ad with your name and address—we will ship battery day after day or order is received; and give you your choice of "B" Storage Battery or a handsome nickel finish Auto Spotlite, FREE. Write TODAY.

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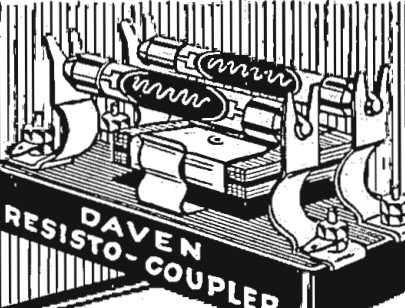
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The size of the "HEGEHOG" is a revelation. It occupies half the space of any other transformer,—hardly larger than an English Walnut. Mounts anywhere. Easy to connect. Ideal for portables.

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Combination That Saves A. F. Stages

Different Circuits Use Two Stage Amplifier

The illustration shows a circuit I have just completed. It is a Harkness reflex combined with a Kleinberger. The main idea is to save the price of two stages of

WORKSHOP KINKS EARN A DOLLAR—

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.

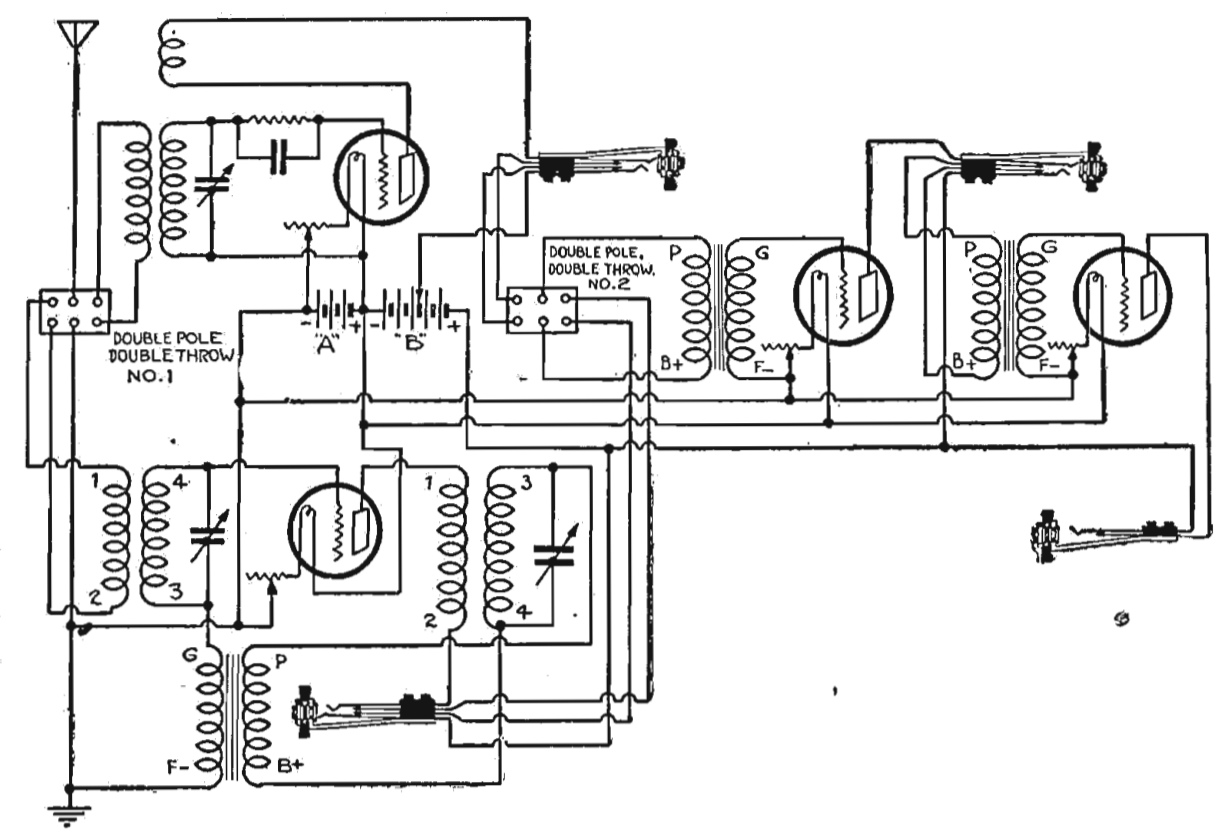
RADIO KINKS DEPARTMENT,
Radio Digest,
510 North Dearborn St., Chicago

audio frequency. By the aid of a switch shown as number 2 the two stages of audio frequency can be used for either the Harkness or the Kleinberger, thus making it a one, two or three tube set for each one. The switch number 1 changes the aerial and ground from one circuit to the other. I find one set better for local and the other for distance. Very little expense is required to combine the two.—William P. Jeans, Philadelphia, Pa.

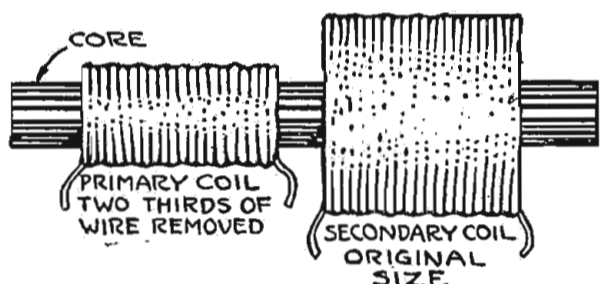
Audio Frequency Transformer

The illustration shows a way to make a transformer for audio frequency amplification. It is constructed from the parts of a Ford automobile spark coil. One of these coils is to be procured and the covering removed. Twist the two small coils, used in the make up of the coil, so that the cores can be removed. After the coils have been taken off re-

TWO CIRCUITS IN ONE SET



move the heavy wire from the core and fill the space with paper. Slide one coil over the core. Remove about two-



thirds of the wire from the other coil and slide it over the core. Test the coils out

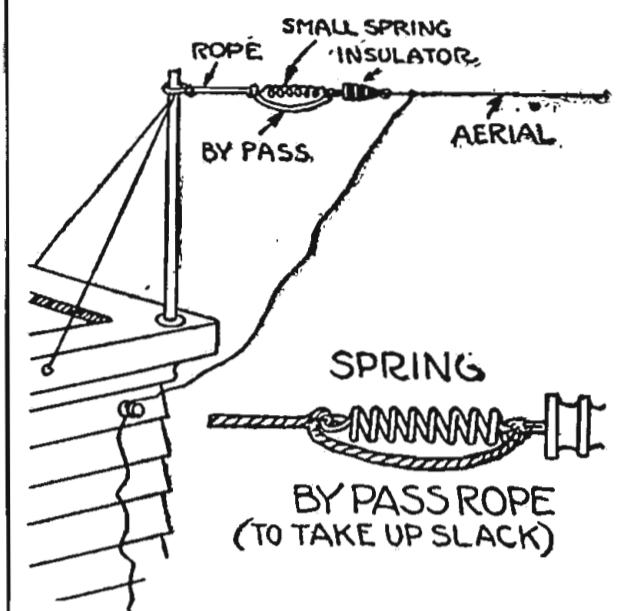
with phones and the B battery. The hook-up is the same for these coils as in the ordinary transformer.—Edward Concannon, Davenport, Iowa.

Inductance Switch

Inductance switches of the type made up with lever and points in one assembly for panel mounting, are much to be preferred over the individual points inserted in the panel. They have the points exactly spaced and the electrical characteristics are usually good. They avoid the danger of loosening when soldering, as is the case when the points are in the panel.

Aerial Line Kept Taut With Spring in Holder

The accompanying illustration shows how to use an ordinary spiral spring, which may be obtained from an old bed, to improve an aerial. By placing one or more of these springs in an aerial between the rope and the insulator an aerial wire may be pulled up tightly between two firm points and still be flexible without the use of weights.



As the fans know the rope is much shorter when it is wet than when dry and also that the wire in the aerial is shorter in extreme cold weather than in hot weather, due to the expansion and contraction in the different temperatures.

The rope is run around the spring simply to guard against the possible breaking of the spring. This will support the wire until a new spring is inserted. I have no trouble with my aerial since I used this stunt.—Robert A. Nolan, Albany, N. Y.

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Minimum capacity less than 9 mmfds.
3600° Dial Rotation
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Questions and Answers

Two Variometer Set

(8232) JHB, Ann Arbor, Mich. I will deem it a courtesy, indeed, if you will refer to issue of March 15, 1924, page 23, and let me have the full dope on the two-tube, two-variometer set, which I intend to try.

To be more specific: What condensers are used in the aerial circuit? The variometers both alike with the exception of the leads? What make is best for the purpose? What tubes are used and what resistances are used between ground and first variometer, between grid and filament of the detector tube? What grid condenser and leak? What phone condenser? Is the 25-turn coil wound in the same direction as the variometer stator? Would there be any advantage in winding the latter in a staggered fashion? So that contiguous wires are nowhere parallel but have an angular relation to each other. Do you think this outfit sufficiently simple for the average experimenter to construct successfully? In performance will it surpass the ordinary, single-circuit, two-variometer set? How selective is it?

A.—One .0005 mfd. and one .001 mfd. condenser are indicated capacities in the antenna circuit.

Any standard, well advertised variometer will serve. Both the same.

The UV-201A tube is recommended. A potentiometer 200 ohms and a 2 megohm grid leak are resistances indicated.

A.—.00025 mfd. grid condenser.

The twenty-five turn coil is wound in the same direction as stator of variometer. No advantage is obtained in stagger-wound coil.

The circuit of discussion is within the ability of the novice and effective.

Electrolytic Rectifier

(08180) HMV, Algona, Iowa.

I am interested in the battery electrolytic rectifier, which you illustrate in the Digest for March 15.

Please tell me where I can purchase the aluminum and lead rods, also the rubber tops.

A.—We are advising in your inquiry that aluminum and lead rods for use in electrolytic rectifier are not manufactured units. The material for this purpose is available through any metal concern, and doubtless, locally.

AGENTS WANTED TO ADVERTISE OUR goods and distribute free samples to consumers; 90c an hour; write for full particulars. American Products Co., 2147 American Bldg., Cincinnati, O.

IVORY RADIO PANEL. Grained white "IVORYLITE" makes most beautiful set of all. Guaranteed satisfactory. Any size 3/16" thick sent prepaid 3c per square inch. Sample free. E. P. Haltom, Dept. D, 614 Main St., Fort Worth, Texas.

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Men to build radio sets for me in spare time. Leon Lambert, 501-H Kaufman Bldg., Wichita, Kansas.

Don't You Get Tired

of only hearing LOCAL stations on your Crystal Set? There's music on your aerial every night from stations far away. If you want to hear it without buying a tube set, WRITE ME TODAY.

LEON LAMBERT
501 South Volusia Wichita, Kansas

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A GOOD TUBE
ALL TYPES \$4.00
All Good Dealers Sell Supertrons
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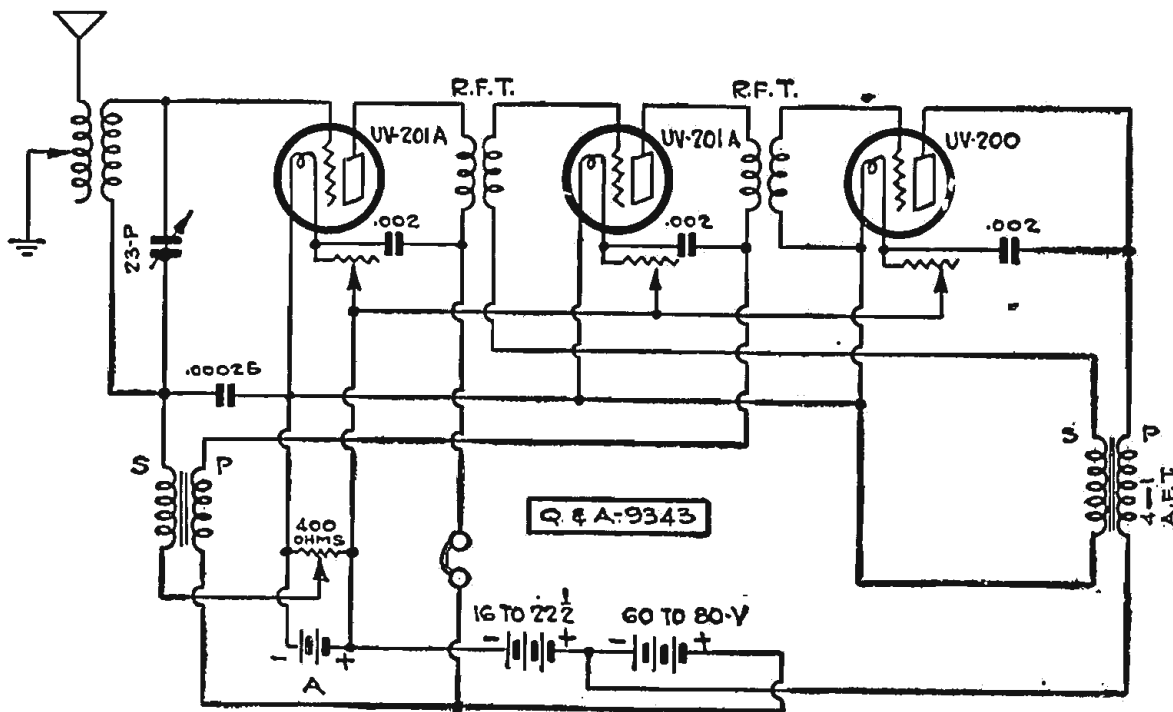
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Est. Dealers Write for No. 11A CATALOG 1/2 Discounts



Grimes Reflex

(9343) GU, Rock Island, Ill.

You will oblige me very much if you show a correct diagram of a three-tube Grimes inverse duplex (two-tube and detector) set.

If you have none, can you tell me where I can obtain one? I have constructed a Grimes according to instructions in your magazine of Dec. 8, 1923, but have had no results.

How is the coupler made to use this set with an aerial and ground? I am using Hedgehog transformers audio 3 to 1 and 4 to 1. Same make Radio transformers—air core 200-600 meter wave length. What results are usually received with a set similar to the above?

A.—We are complying with your request by giving the diagram of a three-tube Grimes Inverse Duplex circuit showing the substitution of the variocoupler for a loop to permit the operation on an antenna system.

ANTENNA EFFICIENCY

USE DRY-GAP INSULATORS and LIGHTNING ARRESTERS to keep your aerial constant in all kinds of weather. The only insulator and lightning arrester that has been developed for radio that has a weather cap. They are on the job after the open end insulator has been broken down in wet weather. They are moulded from black Bakelite with a glazed finish. Check or Money Order.....\$1.25 each

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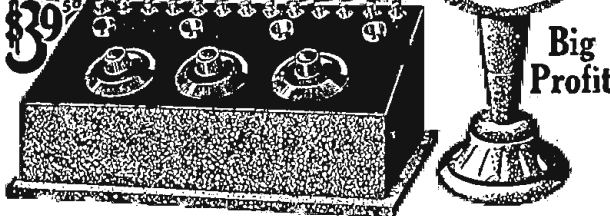
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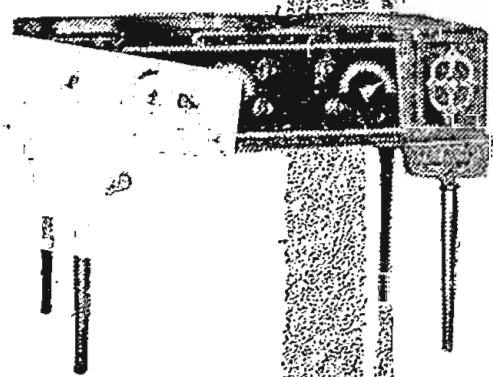
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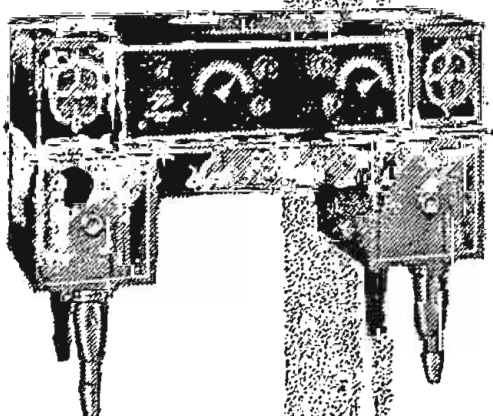


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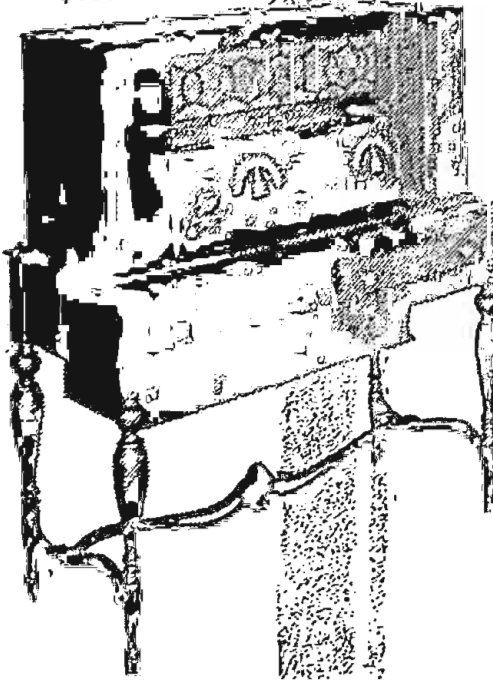


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