

New Experimenter Junior Hook-Up; Complete Wiring Details for Hetduogen; The Mercury Vapor Amplifier; Operating and Trouble Shooting Instructions

Radio Digest

EVERY WEEK

Illustrated PROGRAMS

TEN CENTS

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

Vol. XII

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SATURDAY, JANUARY 17, 1925

No. 2

ECLIPSE TEST BY RADIO

HOOVER DENIES TAX BEING PUT ON FANS

MANUFACTURERS SHOULD PAY FOR PROGRAMS

American Public Would Not Stand for Further Regulation—Improved Entertainment Is Needed Most

WASHINGTON, D. C.—Denial has been made by Secretary of Commerce Herbert Hoover that he is advocating a Radio tax for listeners in as reported in some of the daily papers recently.

"This idea probably originated," Mr. Hoover said, "through statements made at the Third Radio conference that a small percentage of the cost of Radio sets should be contributed by manufacturers toward programs."

In denying the report imputed to him, the secretary said that he did not believe that the American people would ever submit to a scheme of that kind and he is still of the opinion that the listener should not pay the fee.

Put a Tax on Equipment

"I've only heard one very reasonable suggestion," said Mr. Hoover. "That is to fix a certain tax—say two per cent, for instance—on the sale of Radio equipment. One company reports sales running over \$22,000,000 in 1923, and that this year will be twice as high. You could provide enough that way to pay for daily programs of the best skill and talent."

"The material available locally is not enough to insure continuing interest," he continued. "It must be subordinate to the transmission of nationally and internationally important material of all kinds. The local broadcast station must, in other words, make available to the audience the greatest music, entertainment, and enlightenment which the nation and the world affords."

Improvement of programs he deems more important now than further regulation until it becomes possible to say what form of regulation is needed. The British (Continued on page 2)



Above, Nell Gwinn, popular soloist who was recently heard from WGN. Below, Gwen Hitchman, who plays in "The Prince of Mah Jong," broadcast from CNRT recently. Hitchman Photo by Lyonde, Toronto

FANS TO SEE SUN'S EFFECT ON STATIONS

To Listen in January 24

Score of Broadcasters, in Path of Shadow, to Go on Air Forty Minutes

Radio, the dream—Radio, the babe—and now, Radio the giant with a vital relationship to the wonders of the universe—that is the story intertwined with the total eclipse of the sun which certain portions of this country will experience on January 24 of this year.

For millions of Radiophans and a score of broadcasting stations, chosen carefully and instructed in detail, will be on the air for forty minutes that morning over a period extending before, during and after the eclipse, to isolate and classify any

(Continued on page 11)

OSSIPHONE GIVES HEARING TO DEAF

Radio Invention Uses Bones as Means of Transmitting Sounds to Afflicted Persons

LONDON, Eng.—An encyclopedic work on Radio, written by P. J. Risdon, has just been published here, in which the author calls attention to the uses of Radio in cases of deafness. The instrument used for this purpose is called an ossiphone, and it enables a person to hear through his bones independent of the outer ear.

Mr. Risdon claims that by placing the ossiphope against one of his knuckles he has carried on much better telephone conversations than by using the ordinary telephone receiver.

HOLLYWOOD PRAYERS START CONTROVERSY

Friends and Foes Point to New KNX Feature

HOLLYWOOD, Calif.—KNX, "The Voice of Hollywood," recently started a controversy when the station put on as a regular feature a short program at 8 a. m. daily, except Sunday, consisting of a morning prayer and inspirational talk.

Staunch defenders of the morals of Hollywood point to this action as indicative of the true spirit of the movie city, while those who have all along attacked the town because of alleged wild parties, wine women and song, just as emphatically state that a morning prayer is the thing that Hollywood needs more than anything else, and a good thing.



Left, Miss Caryl Marshall, well-known soprano, who is often heard singing from General Electric Station WGY, Schenectady. She is very popular with the Radiophans.



\$1000 GOLD SET AWARD CLOSES

JANUARY 17 IS FINAL DAY TO MAKE ENTRY

Money and Glory Await

Sets Show Promise as End Nears—Fans Urged to Lose No Time

Going, going, but not quite gone—the last chance to step in with an improved circuit or better part and win those Golden Dollars. Bread board assemblies are welcome—starch box cabinets are O. K.; but, you cannot possibly win if Radio Digest doesn't know about your development.

January 17, 1925, will see the close of Radio Digest Gold Award Set contest—the most sincere, generous offer yet made by a publication to stimulate amateur genius in the Radio field. If you do not profit by this opportunity when you have something worth while, the fault is yours. The rules are clear and concise, what is wanted has been carefully outlined, and impartial judges are guaranteed.

Sets Show Promise

Out of the collection of receivers assembled at this office, some points very much desired are sure to be found; even a cursory glance through the descriptive letters shows that. There are Radio frequency sets that bring joy to the heart of the technical editor—mono- and dual-control multi-tube outfits that, seemingly, a child could operate. Is yours there? If not, why not?

Aside from the financial gain, consider the glory to be acquired and the possibilities for yet further benefit. Girls have achieved stardom and fortune in motion pictures by winning beauty contests; authors have received big royalties and contracts from short story contests. Radio, the latest development for the entertainment of mankind, offers even more.

Much Awaits the Wide Awake

Royalties on thousands and thousands of manufactured sets may be yours. Positions as highly paid engineers are open with the larger manufacturers for men of ingenuity and some inventive genius. Magazines are always on the lookout for associate editors for whose articles they will pay well. For a receiver so designed that static, and other undesirable noises of the air will be eliminated, any one of several companies will gladly pay \$1,000,000 and royalties.

For distortionless, efficient, fool-proof and economical amplification at either Radio or audio frequencies, half that amount would be cheerfully paid. The competition among set manufacturers is keen; they will pay well for the improvement that would give their receivers consistently better range or higher quality reproduction than the rest.

But! How are they going to know you have it, if you don't advertise it; and what better method of advertising do you know of than this, where you get paid for advertising? Send that set in now!

GOODYEAR TAKES CHARGE OF WJAX

Tire and Rubber Company Buys Union Trust Outfit—Call Is WEAR

CLEVELAND, O.—"WJAX, the Union Trust company, Cleveland, Ohio," has been heard for the last time. Now it's "WEAR, Goodyear Tire and Rubber company, Cleveland, Ohio."

The sale of the station occurred recently and the rubber company officials planned to broadcast their first program on January 15.

Other than the change in ownership, the station will remain the same. Don S. Knowlton, popular manager of the former Union Trust station, will continue in this capacity for at least three months or until a new manager can be secured.

It is possible that WEAR may be removed to Akron, O. The Union Trust company will continue to give its financial service from WEAR.

The new Marconi broadcasting station at Rome is using a wave length of 426 meters and two kilowatts of power. Its range under favorable conditions is said to be 1,250 miles.

\$1,000 GOLD AWARD SET CONTEST RULES

1. This contest opens at once and will close on Saturday, January 17, 1925, at midnight. All sets received up to that time, will be entered.
2. The thousand dollars in gold will be divided into the following prizes: First, \$500.00; Second, \$250.00; Third, \$100.00; Fourth to Ninth inclusive, \$25.00 each. In the event of a tie, the full amount of the prize tied for, will be awarded to each tying contestant.
3. Contest is open to all Radiophans, whether or not subscribers to Radio Digest Illustrated.
4. A neatly drawn hook-up diagram and short description (200 words) of the salient features of the set should be enclosed in separate letter advising set is being shipped. Entrants do not need to be authors or writers.
5. Sets must be sent insured pre-paid express or insured parcel post. All sets, including winners, will be returned insured collect to entrants.
6. Radio Digest is not to be held responsible for breakage or loss in transit. Pack sets carefully. Mark boxes and contents plainly with name and address of sender. Tubes and batteries need not be sent unless matched tubes are essential to operation.
7. Freak or novelty sets are not desired. Sets enclosed in or built around dolls, finger rings, hats, etc., will not be considered.
8. Sets desired are those based on an original circuit or part of circuit that functions better than circuits commonly in use. Originality is one of the prime considerations.
9. Entrants who are not awarded prizes, but whose sets are considered worthy of constructional description in Radio Digest, will be paid at regular manuscript rates.
10. Entrants must guarantee to Radio Digest exclusive publication rights of all descriptions of their sets. The exclusive publication rights will be in force for all sets winning or picked for later description in Radio Digest.
11. Judges not interested in manufacturing will be selected by Radio Digest to make the awards. The award of prizes will be based on: Selectivity, range, volume, quality of reproduction, simplicity of operation, constructional feasibility, economy of construction, minimum re-radiation, universality, practicability.
12. Ship sets and address correspondence to the Gold Award Set Editor, Radio Digest Illustrated, 510 North Dearborn street, Chicago, Ill. All controversies will be decided by the Gold Award Set Editor, whose decision will be final.

The Peruvian Broadcasting company has been given an exclusive Radio broadcasting concession for a period of ten years in Peru. Under the terms of the contract the company is obliged to construct a broadcasting station similar to the one constructed by the Marconi company in London.

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Looking Ahead

Experimenter Supreme Contains Push-Pull Detection, which is a new idea for the experimentally inclined Radio enthusiast. J. E. Owens gives full details in the next issue for the construction of such a set.

Hetduogen Panel Drilling Diagram will be given next week, and this, with the wiring instructions given in this issue, enables the builder to complete this unique receiver. C. E. Brush will go into operating instructions week after next.

Picture Pages of More Stations—the ones you tune in and wonder what their personnel looks like—are forthcoming. WOC, "Where the Corn Grows Tall," and WNAC, at the Hub City, Boston, will be shown and described soon. WOC's new super-station will interest many.

Operation of the Radiola Super-Heterodyne will be gone into thoroughly next week in an "Operating and Trouble Shooting" article. Listeners who are not owners, as well as those who are, will find much of interest in this data on the only, second harmonic "super."

Superdyne Selectivity and Volume can be remarkably increased by the use of a novel means of coupling the antenna circuit to the remainder of the circuits. H. G. Jones will show you in next issue the use of a switch by which either the present coupling or the new one may be employed at will.

Newsstands Don't Always Have One Left

WHEN YOU WANT

Radio Digest

YOU WANT IT!

BE SURE OF YOUR WEEKLY COPY BY SUBSCRIBING NOW

SEND IN THE BLANK TODAY

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.

Name

Address

City.....State

EDITOR SAYS RADIO NOT PAPERS' RIVAL

NEW YORK. — Probably the only wholly educational regular Radio feature which has persisted through one very successful year of "airing" is H. V. Kaltenborn's talks from WAHG, A. H. Grebe station.



H. V. Kaltenborn

Mr. Kaltenborn, who is associate editor of the Brooklyn Daily Eagle, started his weekly talks on current events over Station WEAF last year and received such a hearty response from Radio audiences that Station WAHG persuaded Mr. Kaltenborn to continue his talks through that station, when it was launched.

Mr. Kaltenborn's opinion of Radio versus the newspaper is very optimistic.

"The Radio can never take the place of the newspaper. There is nothing like the printed word for authentic information. While Radio is the quicker channel for news, the newspaper always will be the surer."

So speaks a man who is well acquainted with both mediums of expression.

Eastern Fan Suggests New Broadcast Stunts

Would Have Farm Auctions and Whistling Contests

SPRINGFIELD, Mass.—Because he believed that every conceivable thing had been invented and patented, an employe of the United States patent office resigned his position in the latter part of the eighteen hundreds.

It has seemed likewise that broadcasting has exhausted all possible "stunts."

Recently a Radiophan wrote to Station WBZ and suggested a long list of possibilities to show this is not so. In the list are these: short typewriter speed contests; shorthand dictation contests, a country vendue or auction in a barn with plenty of wrangling and crowing roosters, a barnyard scene at feeding time, with hungry, bellowing cattle, pigs, sheep, goats, barking dogs and ducks and geese; a rube orchestra or band; burlesque political speeches; a whistling contest and nonsensical comedy songs.

Program directors hear, however, that some highbrow tuning in on the rube orchestra will only think it is another jazz orchestra and turn the dials elsewhere.

HOOVER AGAINST TAX

(Continued from page 1)
licensing system, to cite one regulatory suggestion, would never be tolerated in this country, the secretary thinks.

"Radio is becoming more important in the life of the country every day," said Mr. Hoover. "It is already one of the necessary adjuncts. Right now I think that the most important thing is improvement of what is put on the air. It isn't so much a question of growth, because that takes care of itself, as long as the material put out is really worth while. That is the most vital thing of all."

Broadcast Midnight Frolic from WAAW's Airplane

OMAHA, Nebr.—WAAW, the Omaha grain exchange station recently broadcast a midnight frolic, a feature of which was the christening of an imaginary airship "Omaha". Reservations for trips on the ship were made by listeners by telegram and the crew was kept busy for hours flying to all parts of the continent to pick up passengers.

The stunt brought WAAW an avalanche of letters, not only from the U. S. and Canada, but from Mexico, Alaska and Hawaii. W. I. Harrington, of Wailuku, Maui, Hawaii, reported reception of the program through heavy static.

WHA Receives New Rating

MADISON, Wis.—Because of improved equipment, Station WHA, located in this city, has been granted the class B rating by the department of commerce. This rating is the highest rank of the three grades of Radio stations, carrying with it the privilege to broadcast on a wave length in excess of 360 meters. Until further notice, the programs will be broadcast on the old wave length of 275 meters.

VICTOR ARTISTS GET APPROVAL OF FANS

GIVE CONCERT NEW YEAR'S NIGHT FROM WEAF

First Time Many Have Ever Been Heard Broadcasting—American-Indian Tenor Makes Hit

NEW YORK.—Radiophans throughout the country were treated New Year's night to one of the best program which has ever been broadcast from any station in the country. The concert was given by the artists of the Victor Talking Machine company, and was broadcast by stations WEAF, WCAP, WJAR, WNAC, WDBH, WGR, WFI and WCAE.

E. R. Johnson, president of the Victor company, who has done much to establish music on a higher plane in this country, is responsible for the recitals which will be given via Radio from time to time during 1925.

The first presentation was in the form of a joint recital by Louise Stallings, lyric mezzo soprano, and Jorgen Bendix, the famous Danish baritone. Miss Stallings is an unusually gifted young woman who possesses a voice of rare quality that is rich and mellow in its timber. Mr. Bendix is likewise popular on the concert stage, not only in the United States but throughout Europe.

John McCormack Sings

The Victor Salon orchestra, with Nathaniel Shilkret directing, rendered the next selection, entitled "Out of the Dusk," followed by "Chanson Bohemienne." Immediately following this, the famous Irish tenor, John McCormack, assisted by the Shannon quartet, and with organ accompaniment rendered "Adeste Fideles." Mr. McCormack gave as an encore the beautiful "Berceuse" from "Jocelyn" with violin-cello obligato by Mr. Kennedy.

Miss Lucrezia Bori, the famous prima-donna soprano of the Metropolitan Opera company, whose beautiful voice has been acclaimed the world over, was next heard. Miss Bori presented a group of three songs, "La Paloma," "When Love Is Kind" and "Addio Del Pessato" from "Traviata."

Following this group, Miss Bori and Mr. McCormack were heard in the duet, "Parigi O Cara" from "Traviata."

Kiutus Tecumseh on Program

Again the Victor Salon orchestra grouped about the microphone, this time to render "Memory Lane," "What'll I Do" and "Indian Love Call" from "Rose Marie."

This program, marking the beginning of a new year, and perhaps a new era in broadcasting, came to a close with two final songs by Mr. McCormack, "Marcheta" and that tune familiar to all that know the name of McCormack, "Mother Marchree." Mr. Edwin Schneider was at the piano to accompany Mr. McCormack.

Following the Victor presentation the Brahms Ladies' quartet were heard in a group of light standard songs, and at 10:20 Kiutus Tecumseh, American Indian tenor and a great favorite of Chicago audiences, made his Eastern debut from WEAF.

CELEBRATE FIRST YEAR OF STATION

CHNC Has Anniversary Program with Old Time Artists Again Performing

TORONTO, Can.—Station CHNC, located in this city, recently celebrated their first anniversary on the air. Although only in existence for one year, this station has been instrumental in helping hundreds of Radiophans to better their receiving sets so that they would not re-radiate and spoil their neighbors' programs.

Many of the artists who appeared on the program the opening night were present at the anniversary. The entire second floor of the Hillcrest building being thrown open so that the guests could dance.

Mr. and Mrs. R. H. Coombs were hosts to the large gathering and helped to make it such a wonderful success. Mr. Coombs is very well known locally as one of the leading figures in Radio development, and is announcer at Station CHNC.

This station now boasts of a 500-watt transmitter of the latest design, and its destiny is taken care of by J. B. Parsons, who is chief engineer of the station. It is owned by the Toronto Radio Research society, and has, since its opening, devoted its time to classical and semi-classical programs.

Radio Cook Book Compiled from Housewives' Recipes

NEW YORK.—Terese Rose Nagel, who talks every morning to the housewives from Station WGBS here, is arranging for the publication of a WGBS Radio cook book, to be compiled from the best recipes submitted to her by the women fans.

LONDON TO PACIFIC PROGRAM REPORTED

SAN FRANCISCO.—The longest trans-oceanic reception during the recent international broadcasts, reported to the department of commerce was about 5,000 miles. Dr. Willis Eugene Everett, owner of experimental Station 6XCA, at San Rafael, just north of San Francisco, California, has written to Secretary Hoover that he heard Station 2LO, London, on the second broadcast night for a period of eight minutes.

LEARN WORD A DAY FROM STATION WJZ

NEW YORK.—Station WJZ instituted a nightly novelty of educational value on Monday, January 5, when Dr. Frank H. Vizetelly, noted lexicographer, broadcast his first talk under the title, "Learn a Word a Day." Dr. Vizetelly speaks to WJZ audiences every night for not longer than one minute, presenting a new word and explaining its uses. Dr. Vizetelly is the final authority on the correctness of over 455,000 words.

OPERA STARS HEARD BY FANS



John McCormack, noted Irish tenor, and Lucrezia Bori, prima donna of the Metropolitan Opera company, who gave the first of the Victor Radio recitals New Year's night. This was the first time Victor stars of such magnitude had gone "on the air."

Fiction Lectures Are Success from WEAF

New Columbia Series Popular; French Talks Continue

NEW YORK.—Through the co-operation of Columbia university and WEAF a new series of ten weekly educational lectures has been started. This course, the third lecture of which will be given next week, is entitled "Contemporary English Fiction," and the lectures are given by Professor Dorothy Brewster and John A. Burrell, who have been teaching for several years in the English department of university extension at Columbia. They have also given lecture courses in modern fiction elsewhere.

The weekly French lessons, also given under the auspices of Columbia university, which began recently, has met with the instant approval of WEAF's audience, as was evidenced by the incoming correspondence received. The third of these lessons was given Friday afternoon, January 16.

Publishers Now Seek Poems Scorned Ere Days of Radio

OAKLAND, Calif.—Radio is a boon to the "busted bard," according to Will R. Hill, "old home poet," who is more or less familiar to KGO listeners, because the publishers who would not consider his stuff before he began to broadcast are now anxious to publish his verses.

"I have written many publishers in my life," said Mr. Hill, "trying to interest them in my stuff, but it was without avail until I began broadcasting from KGO."

"When I was able to show them hundreds of letters from Radiophans, asking for copies of the verses I had read over the air, they began to see that my books might sell."

WOC Sandman Recording Stories for Little Kiddies

DAVENPORT, Iowa.—"Val" McLaughlin, the charming young lady who broadcasts the bedtime stories from WOC, may now relate her stories to the kiddies of America at any time.

Even though the Radio receiver may be temporarily out of commission, or when "old man" static has taken possession of the ether, the WOC "Sandman" has recorded a number of her most popular kiddies' stories on Brunswick records.

CHANGE APPARATUS DURING BROADCAST

KFI SWITCHES FROM LOW TO HIGHER POWER

Fans Listening to Program Are Surprised to Learn Change Has Been Made Unnoticed

LOS ANGELES.—At the zero hour of 8 o'clock the night of December 30, the 500-watt transmitter of KFI that has rendered such regular and efficient service for the past two years, sang its swan song and was replaced by its big brother, the first of the new type 5000-watt transmitters to go on the air.

The old 500-watt set of Earle C. Anthony's was in daily use, never missing a program, up to the time the controls were switched over to the big super set. In the two-minute interval allowed for switching over from the remote control station of the Aeolian organ the old transmitter was silenced forever and the new one put on the air, the station going on with 1,500 watts, the maximum allowed at the present time.

Dedicatory Services Simple

The dedicatory services for the new station were brief. A short talk by Earle C. Anthony, owner of KFI, and a man who has probably done more for Radio broadcasting in the West than any other, and by representatives of the local chamber of commerce and the mayor of Los Angeles, completed that part of the initial program.

This transmitter of KFI is the first of the new type super stations to go on the air. It took two months to install, and exclusive of the building in which the transmitter is housed, represents a cost of \$140,000, with a monthly upkeep of over \$10,000. A staff of fifteen persons will be necessary to operate the new station, and the space necessary to house the new giant is over three times that occupied by the old set.

Heard Well in the East

It was the intention of its owner in installing it to provide efficient daylight transmission for the territory immediately adjacent to Los Angeles, as well as to improve the quality of material broadcast. However, within the first few hours of broadcasting telegrams from the Middle West and East indicated that the new station was coming in at those points with great strength and clarity.

One feature worthy of note in connection with the initial program of the new 1500-watt set was the fact that it was no more difficult to tune through locally for other stations than the old transmitter operated with a power of 500 watts.

NEW YEAR'S GAIETY AT KTHS GRAND OPENING

Civic Leaders Officiate in Hot Springs Ceremony

HOT SPRINGS, Ark.—Men prominent in civic life played a prominent part in the opening of the new Arlington hotel Radio Station KTHS here on New Year's eve. The governor-elect of the state, the war time governor, and the mayor of the city all made addresses and acted on the reception committee.

After the invocation by the Rev. Chauncey Hickok, the newly elected chief executive of the state, Tom Terrill, opened proceedings. He was followed by the former governor, Stephen F. Mather, now director of the national park service of America, and then came Mayor Harry A. Jones.

The christening party of the station coincided with the formal opening of the New Arlington, which replaces the historic old hostelry by that name. Fifteen hundred people attended the opening and enjoyed the four-hour initial program from the station first hand.

Mysterious WCEE Is Now Replacing Station WTAS

ELGIN, Ill.—Radiophans who have been hearing the call letters WCEE during the past few weeks and have puzzled over their ownership will be interested to learn that these belong to the new 1000-watt transmitter of Charles E. Erbstein, who also owns and operates WTAS, nationally known station here.

WCEE is licensed to operate on 536 meters, but conflicts with KYW, Chicago, on the same wave length and therefore operates only on Monday nights, when KYW is silent.

Composer Tunes in Own Numbers

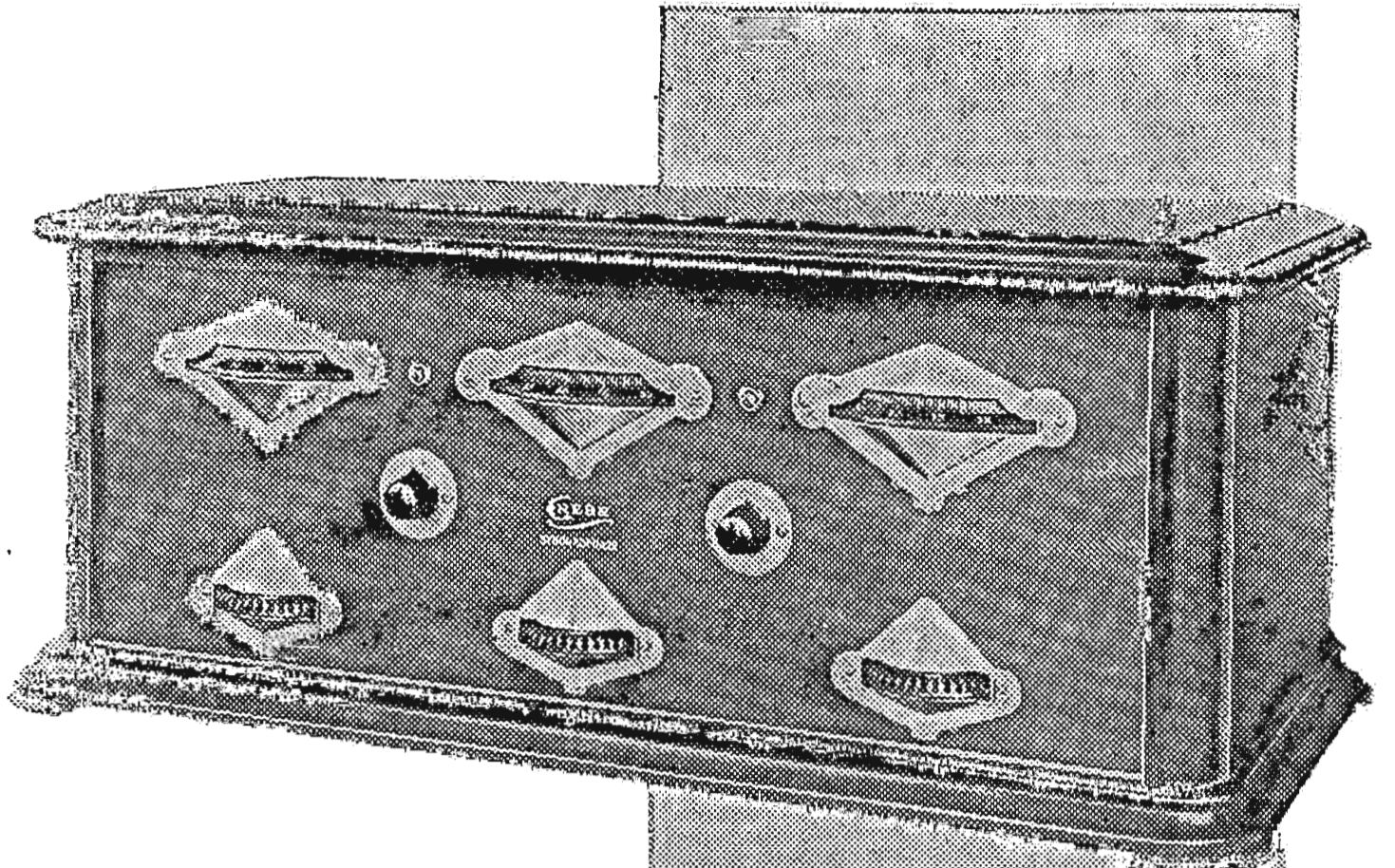
NEW YORK.—Franz Drdla, the composer, whose famous "Serenade" and "Souvenir" have been presented at the Capitol theater from time to time, wired S. L. Rothafel recently that he was tuning in especially to hear the rendition of his numbers.



IT IS WRITTEN:

"Over loud words from an orator jar the ears; music too faint to dance by strains them." The secret of pleasing volume is in the Synchronphase.

Doctor Wa



THE GREBE SYNCHROPHASE

TRADE MARK

WHEN, from so many good radio instruments on the market, one may choose with the same wisdom and deliberation exerted in the selection of a motor car or timepiece, it is not surprising that you will find an ever-increasing number of Synchronphase enthusiasts. A man who has once operated a Synchronphase is content with no other type of receiver.

Binocular coils—unaffected by local interference—arranged in two stages of balanced tuned radio frequency, give greater selectivity and sensitivity. On the S-L-F (straight line frequency) condensers all stations are spaced at equal intervals around the dials. No crowding of stations at the lower end of the dials in the Synchronphase.

The surpassing beauty of the Synchronphase is emphasized by comparison with other radio receivers. Close inspection reveals that every detail was designed and built in the Grebe factory, while in other receivers is found merely a variety of assembled parts.

Write for literature

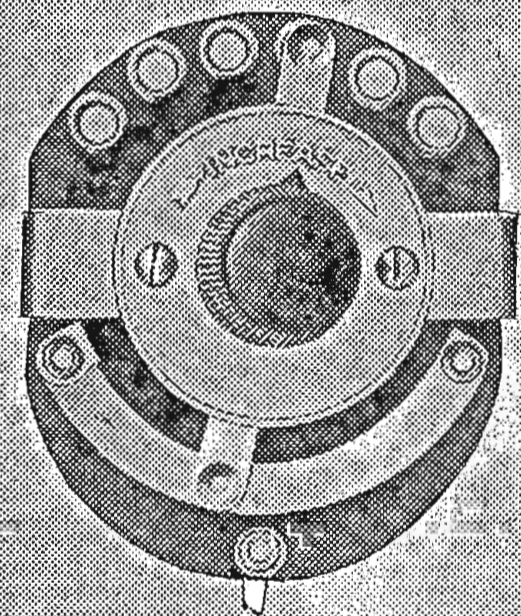
A. H. Grebe & Co., Inc.

Van Wyck Blvd., Richmond Hill, N.Y.

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

THIS COMPANY OWNS AND OPERATES STATION WAHG

All Grebe apparatus is covered by patents granted and pending



**Synchronphase Secrets
No. 3—Volume Control**

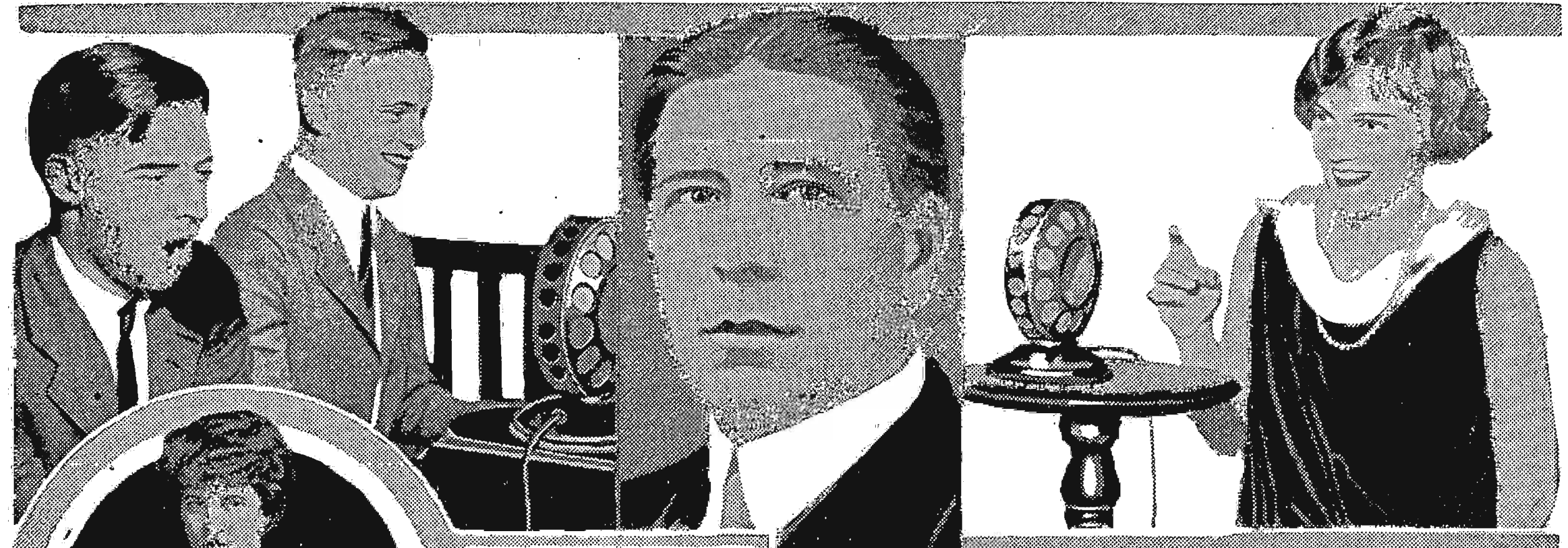
In the Synchronphase an entirely new control for audio amplification is provided.

This volume control with six gradual variations enables you to obtain just the right intensity for a vocal selection, a lecture or a dance.



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

WOAW—"The City Surrounded by the U. S."



Left, William A. Fraser, Sovereign Commander of the Woodmen of the World and creator of Station WOAW. Above, Doris Claire Secord, who every Friday from WOAW tells "Outdoor Tales" written by her father, "Uncle Ross," of the Sunday World Herald children's page.

By Vera Brady Shipman



Above, Florence A. Steunenberg, the bird lady of Omaha. Right, Mrs. Carl Gray, who directs the Sunday evening Bible hour.

"LP," Lester Palmer, co-announcer with Gene Rouse. He is shown playing the piano while Singin' Joe Eaton is living up to his name.



Reverend R. R. Brown, called the "Billy Sunday of Radio," who preaches every Sunday morning to the world's largest Radio congregation. He is well liked.

"TO THE Radio listening public who enjoy our concerts; to the sailors on the seas; to our good postmaster friend in Wai-kulu, Hawaiian Islands; to the sick in the hospitals and in their homes; to the old folks who are unable to visit places of amusement—we extend our thanks for their loyalty and encouragement."

It was the voice of the president of the Woodmen of the World Life Insurance association and sovereign commander of the lodge which bears the same name—William A. Fraser—speaking over the microphone of the Woodmen's own Station WOAW, on the nineteenth floor of its building in Omaha Nebraska. In that brief sentence, Mr. Fraser epitomized the spirit of WOAW.

WOAW was the brain child that William A. Fraser developed to prove to the world that fraternalism as a human touch in the lives of men could be fostered through bridging the open spaces by Radio. It opened on April 2, 1923.

The Reverend R. R. Brown, pastor of the Omaha Gospel tabernacle and minister of the World Radio congregation of WOAW, is known as the "Billy Sunday of Radio." His ability to adapt the gospel message to the terms or language of the man in the street, has made him one of the most popular Radio preachers in the world. He preaches every Sunday

morning at 9 a. m. from WOAW and then goes to his tabernacle and greets his listeners in person. He holds the attention of thousands of listeners, and in his convincing delivery and simple forcible language has had many conversions where ordinary preaching was unavailable. Letters received reveal the strange truths of human fact, stranger than fiction. Stories how the deaf can hear; how the grandmother 79 years old on her death bed listened happily to this modern "crusader of the air"—are but typical.

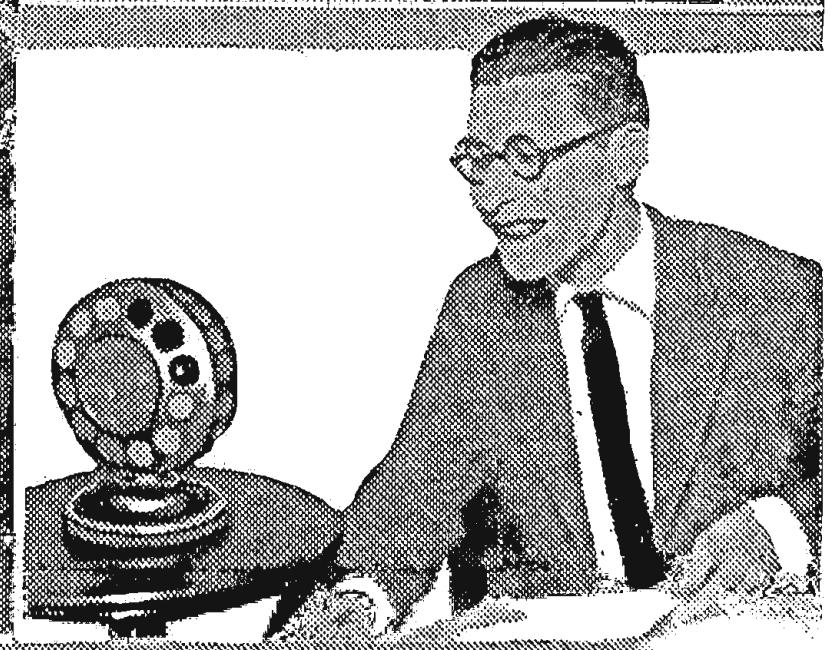
On Sunday evenings, at six, a Radio Bible study class is conducted by Mrs. Carl Gray, wife of the president of the Union Pacific railway, a woman of magnetic personality and a lifelong student of the Bible and its teachings. Her Radio work has been the direct outcome of hours of Bible class room teaching, pulpit and platform addresses and is now concentrated into one weekly talk to the vast Radio audience. So popular have her weekly Bible Radiocasts become, that they have been recently published in book form, in her exact wording with all Bible and other references given.

Every station has a voice which is easily recognized. But WOAW has two which vie with each other in fan popularity.

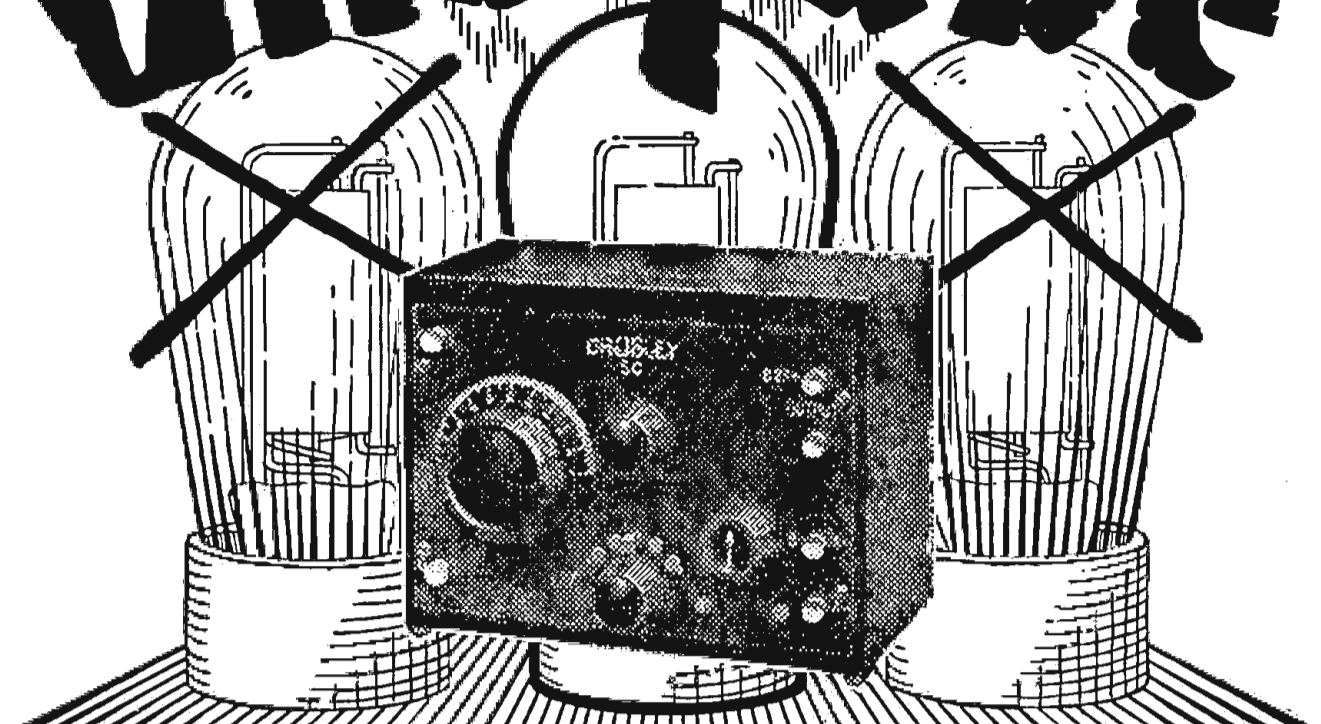
Listeners all know the extremely pleasing voice (Continued on page 18)



Above, the operating staff of WOAW, including W. A. Fraser and Orson Stiles beside the radiator, Gene Rouse at the microphone, Eugene Konecky, publicity director, beside the piano, and others who "make the wheels go 'round." Right, "GR," who is Gene Rouse, one of the two announcers at WOAW.



One Tube



DOES THE WORK OF 3

IN A

CROSLEY

Price **50** \$14.50

WITH the use of only one tube in the Crosley 50, Armstrong regeneration is employed. Without the regeneration it would take two additional tubes to produce the same degree of amplification.

It is for this reason that the Crosley 50 has given results comparable with most three-tube sets in bringing in distant stations consistently and clearly. Even England and other foreign points have been frequently heard with this little one-tube radio which costs only \$14.50.

All Crosley radios, with fewer tubes and hence with less expense and battery consumption, give results as good or better than instruments with two additional tubes where regeneration is not used. And the purchase price of a Crosley, as well as the upkeep, is a great deal less.

This is one reason why Crosley makes and sells more radios than any other manufacturer in the world.

This is one reason why every Crosley owner is a radio enthusiast, who wouldn't give up his set unless he could purchase another Crosley.

**BEFORE YOU BUY—COMPARE
YOUR CHOICE WILL BE A CROSLEY**

For Sale By Good Dealers Everywhere

All Crosley Radios, except the Model 50, will operate a loud speaker

Crosley Regenerative Receivers are licensed under Armstrong U. S. Patent 1,113,149

Prices West of Rockies—Add 10 Per Cent

Write for Complete Catalog

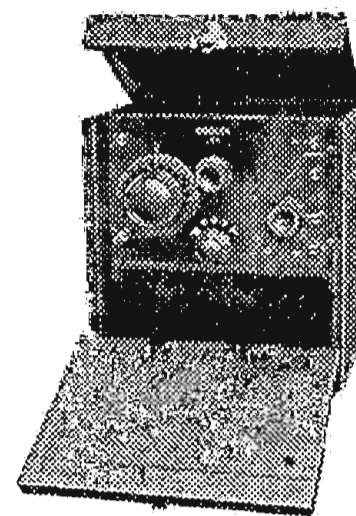
THE CROSLEY RADIO CORPORATION

1493 Sassafras Street

Powel Crosley Jr., President

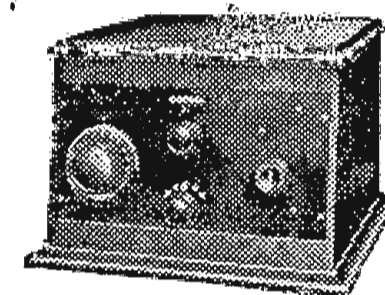
CINCINNATI, OHIO

Crosley Owns and Operates Broadcasting Station WLW



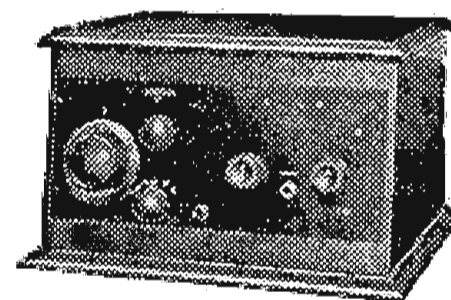
Crosley New One Tube 50-P, \$16.00

A new, compact portable radio with leatherette covered case. This is added to the other popular one tube Crosley Radios the 50 at \$14.50 and the 50 Portable in light oak cabinet at \$18.00. With tube and Crosley Phones, \$23.75



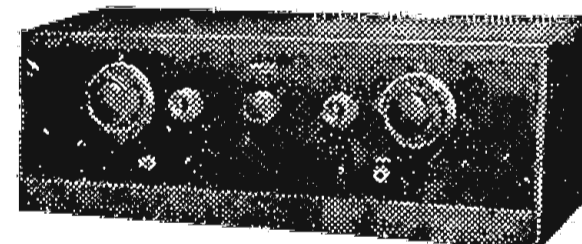
Crosley Two Tube 51-S, \$23.50

Similar to the regular 51 at \$18.50 except that it has cabinet with sloping panel and space to house batteries. With tubes and Crosley Phones, \$35.25



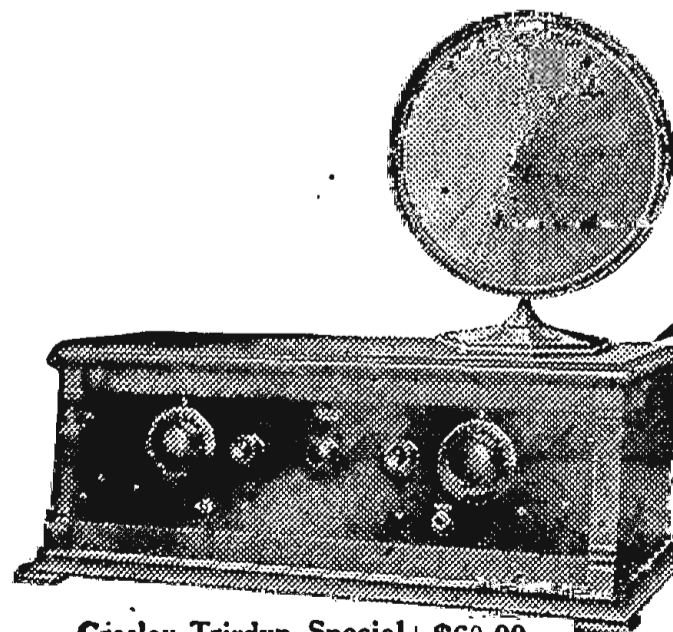
Crosley Three Tube 52-S, \$35.00

This is the Crosley 52 Model, price \$30.00 in new cabinet with sloping panel and space for batteries. With tubes and Crosley Phones, \$50.75



Crosley Trirdyn Regular, \$50.00
With tubes and Crosley Phones, \$65.75

*Crosley
Head Phones
Better—Cost Less
\$3.75*



Crosley Trirdyn Special, \$60.00
With tubes and Crosley Phones, \$75.75
Ask your dealer about the new Crosley Loud Speaker shown above.

**MAIL
THIS
COUPON
AT ONCE**

The Crosley
Radio Corp'n
1493 Sassafras St.
Cincinnati, O.

Mail me, free of charge,
your catalog of Crosley
receivers and parts.

Name _____

Address _____

BOOSTER STATION IS NEWEST AT BOSTON

EXPERIMENT BY WBZ WITH NEW PLANT A SUCCESS

Broadcast Programs Simultaneously from Springfield and Boston—Transmitting Set to Eliminate Fading

BOSTON.—An unofficial unlisted station has been operating in this city for the past three weeks, and local Radiophans have wondered at the clearness with which they have been getting WBZ, at Springfield, Mass., with practically no fading, which formerly was one of the annoying faults of this station.

This unlisted station is an experimental station conducted by the WBZ management on top of the Hotel Brunswick in this city, and is called by the Westinghouse engineers a "booster" station. The WBZ programs are broadcast simultaneously from the Springfield and the Boston "booster" station, with the frequency controlled from the main Springfield station. This plan was devised by J. B. Coleman and his associates, after permission was obtained from Radio Inspector Charles C. Kolster to conduct experiments.

Is Broadcasting Booster Station

This permission granted, a 250-watt transmitting station was established at the hotel, which also houses the studio of WBZ where many of the broadcast programs of the WBZ-Herald-Traveler station were given and transmitted thence over land lines to the WBZ main station. With the booster station established, the program was sent out from Boston both by Radio and by land line.

For a time the broadcasts were ragged, with the WBZ wave very broad at times, owing to the difficulties attendant upon synchronizing two stations in simultaneous broadcasting. The Boston station has since been operating on 150 watts, with the same wave length as WBZ, but as the work is still an experiment, there has been no public announcement of the new station, although an application has been filed with the inspector to operate a "broadcasting booster station, in Boston for WBZ." Supervisor Kolster says that as soon as he is informed that synchronizing has been perfected, he will make a final inspection, and grant a license, if there are no complaints against it.

Uncle Robert Resumes His WHN Programs for Children

NEW YORK.—"Uncle Robert," the children's Radio relative, was among the artists selected to re-open WHN's afternoon programs on a recent Monday. Ever since the afternoon entertainment was discontinued to permit alterations to Loew's State theater studio, letters have been pouring in asking when and where Uncle Robert might be heard from.

His extensive work for the blind and crippled children, as well as his unusual Radio assistance in every vital matter pertaining to child welfare, has placed him high in the opinions of listeners in. The younger Radiophans will be happy to know that his Monday and Friday periods from 4:45 to 5 p. m., Eastern time, will continue to be a regular feature.

Columbia University Organ Broadcasts Sunday Recitals

NEW YORK.—Through the co-operation of Columbia university and the Skinner Organ company, WEAJ is now broadcasting a program of organ music on Sunday evenings from the chapel of Columbia university, where a large Skinner organ is installed. Arrangements have been made to present many well-known organists to the Radio audience in a series of organ recitals which follow "Roxy's" program from the Capitol theater each Sunday evening.

Midway Gardens Orchestra Plays for WBCN Listeners

CHICAGO.—WBCN, Southtown Economist station here, has effected a tie-up whereby the recording orchestra of the Midway Dancing gardens is being Radio-cast nightly. A special glass studio is being built at the south end of the indoor ballroom so that other talent than the orchestra may be broadcast.

Radio Romance—Marriage

PITTSBURGH.—When Thomas Malle, local vocalist and song writer, appeared three months ago on a Pittsburgh station's program, little did he think his program would result in his recent marriage to Miss Dorothy Hess, of Chicago. Miss Hess, an actress, listened in to him in her New York apartment. She wrote him a note of applause. Result—marriage.

BEHIND THE WHEELS OF WHAR



Left, Eugene E. Denison, announcer at Station WHAR. Right, Earl Godfrey, operator of the well-known Atlantic City station.

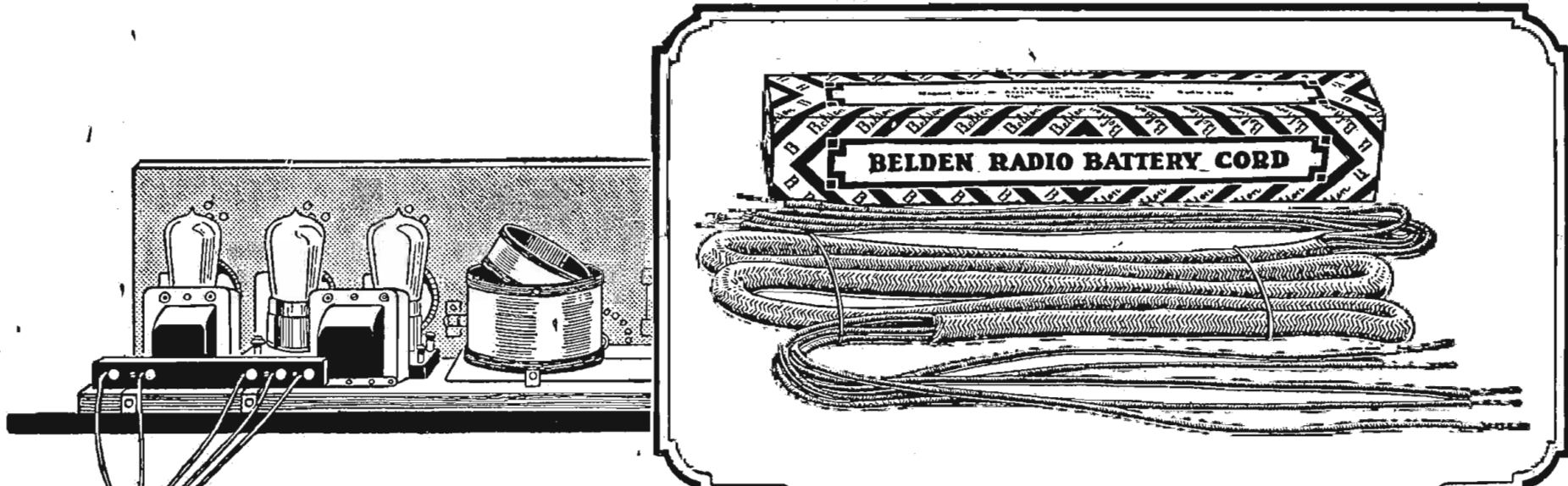
"Lost Angels" Gather at KHJ, Los Angeles

Eastern Fans Lose Sleep Waiting for Old Favorites

LOS ANGELES.—"The Lost Angels of KHJ" is the latest of the ever popular night owl clubs and one that will probably take the prize for keeping the eastern listener up longer than any other.

It made its bow before the Radio public on a recent Saturday night at the stroke of midnight, Pacific time. The initial program went merrily on until 5 a. m., and broke up only because the tubes in the transmitter had to cool off.

The club gets its name from the fact that Charlie Wellman, the leading spirit of the Lost Angels, as well as most of the rest of the "gang" are out in the City of the Angels, lost from their old haunts forever. Mr. Wellman hails from Chicago and entertained the fans quite often from KYW before bidding the lake breeze-good-by and retreating to the sheltering palms of Los Angeles.



No more crossed-wires to burn out your tubes

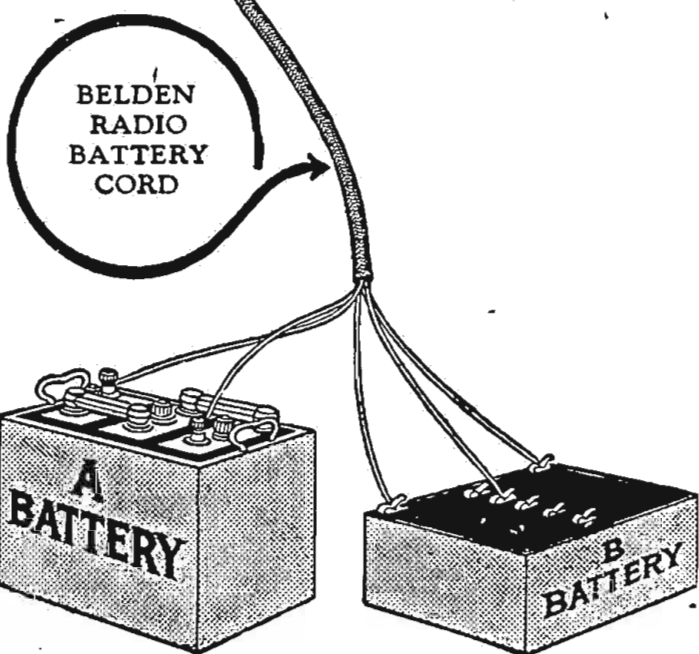
Color Code

Every conductor is marked distinctly in color to identify each battery circuit.

ONE accidental short-circuit between your A-battery and B-battery wires may burn out every tube in your set. It is folly to spend hours making carefully-soldered connections within the set, and then do a hasty, makeshift job of wiring from the set to the batteries.

The Belden Radio Battery Cord eliminates the danger of short-circuits between wires and insures a neat, compact job of battery wiring that improves the appearance of every set. The five flexible conductors (equivalent to two No. 16 and three No. 18 wires) are rubber-covered and then individually protected with a glazed braid. The five conductors are then enclosed in a glazed brown braid that resists wear and protects the conductors.

Try one of these six-foot Belden radio battery cords, before you burn out any tubes. It is inexpensive insurance against trouble, and you will have a better-looking set.



Other Belden Radio Products

Our instructive booklet, "Helpful Hints for Radio Fans," describes many other Belden Radio Products, such as Enamelled Aerial Wire, Loop and Litz Wires, New Terminals, Magnet Wire on Small Spools, and many other items. Send for the booklet, right now!

Send for this Free Booklet!



Radio Dealers

Belden Radio Battery Cords are demanded by all careful set-builders. Send for complete dealer bulletin, by writing us on your business letter-head. Write, today!

Belden Manufacturing Company

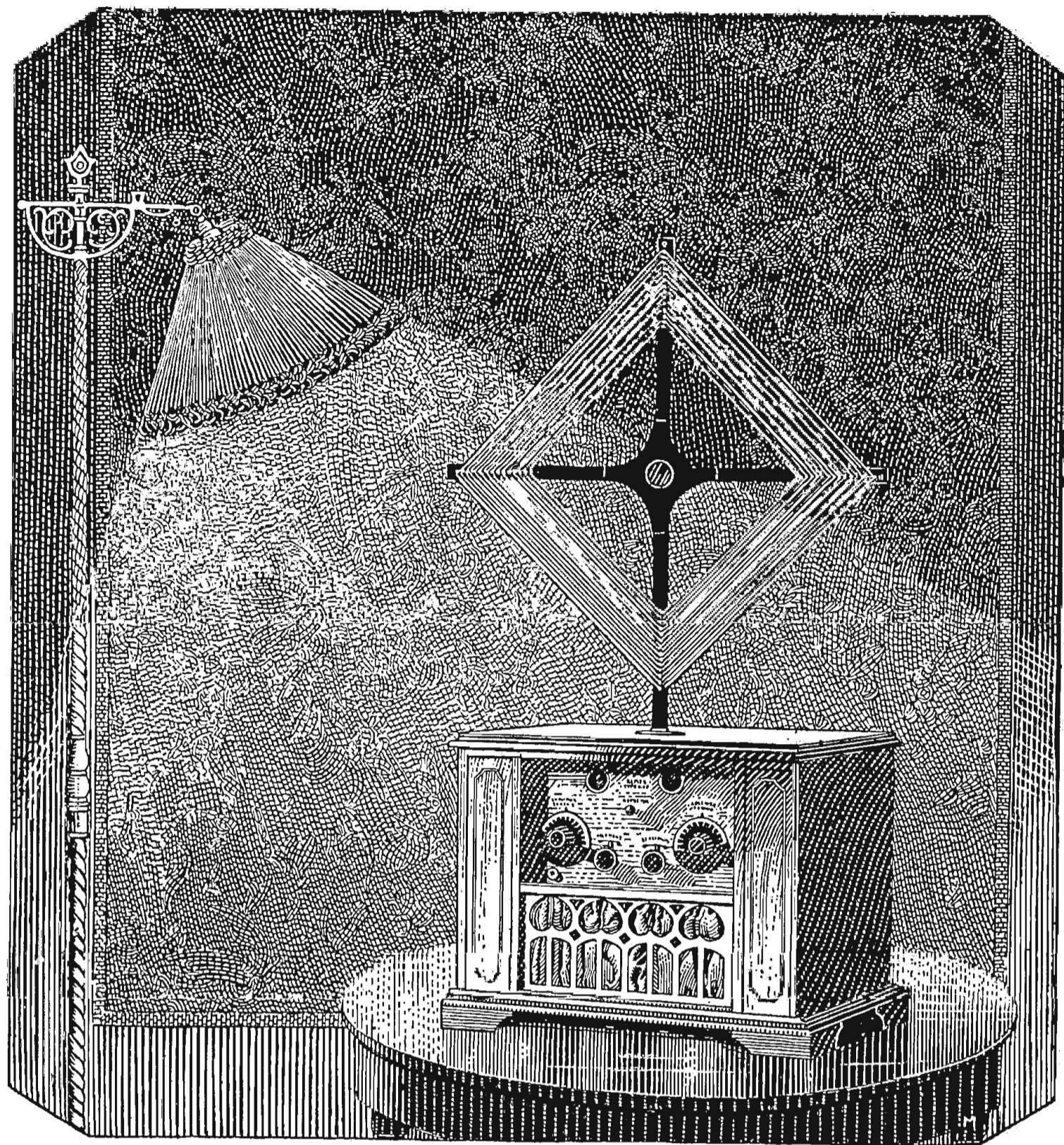
2315 South Western Avenue
CHICAGO, ILLINOIS

Belden Manufacturing Company
2315 South Western Ave., Chicago, Ill.

Please send me your booklet—Helpful Hints for Radio Fans.

Name _____

Address _____



De Forest Radiophone

*Requires no aerial—
no ground wire*

Batteries, De Forest Loud Speaker, and Tubes complete within cabinet.

Easily movable from room to room, it is ready to operate within 5 minutes after it is delivered to your home.

You have the radio habit now! You'd better have a De Forest

WHETHER you have an instrument or not, whether you know it or not, you have the radio habit already. Do you go to the theatre? Do you go to political meetings? Do you read the day's news? Do you seek contact with people who offer either amusement or information? Then you're essentially a radio fan, for radio is giving many of the best of these things in a way in which they cannot be obtained elsewhere.

Here is what the De Forest Radiophone is doing for Radio.

The De Forest is a complete and self-contained instrument with a loop the size of a picture frame instead of an aerial wire, with batteries and loud speaker self-contained.

It can be easily moved from room to room. It has a remarkable tone

quality. It brings out the voice or instrument as sincerely and truthfully as the performer himself does—and clears itself (with the right dial settings) from disturbing or metallic noises. And it is an immediate result-getter that is simple to operate!

Whatever there is in radio, the De Forest can give it to you. It yields good results from the beginning and gradually increasing results as your skill grows. *There is nothing else like it.*

*It will pay you to look up
a De Forest Agent*

He is willing and equipped to teach you the simple technique of using the De Forest. Let him demonstrate it in your own home.

*Your tubes are the key to
your radio reception*

IF you know what the tubes do in a radio set, you'll know why nothing but De Forest Tubes will do.

Used as detectors or amplifiers, these tubes combine ideal operation with long life, sturdy strength and freedom from microphonic noises.

DV-2, for storage batteries, requires a filament potential of $4\frac{1}{2}$ volts, and has a current consumption of 25/100 of an ampere.

DV-3, for dry batteries, requires 3 volts on the filament, and consumes 6/100 of an ampere.

The "Magic Lamp" of Radio
DE FOREST RADIO COMPANY
Jersey City, N. J.

DE FOREST RADIOPHONE

REG. U.S. PAT. OFF.

REG. U.S. PAT. OFF.

RADIO SEEKS ARCTIC EXPLORERS

RALLIES NORTHLAND IN FRANTIC SEARCH

THREE STATIONS HUNT FOR NUTTING AND "VIKINGS"

KDKA, KYW and WBZ Move to Save Emulators of Norsemen, Lost Since September

PITTSBURGH.—The world's most picturesque science has been called upon in an effort to bring about the rescue of the world's most picturesque exploring expedition, and at intervals of two days since December 29, a mystic call has traveled the ether waves from three Radio stations in the United States to locate an arctic expedition that has been lost since September 8.

The stations attempting to locate the travelers are KDKA, KYW and WBZ, all of the Westinghouse Electric and Manufacturing company. And the party for which they are searching is the ill-fated Nutting expedition that set out last fall in a 40-foot sailing barque for a historical search into the secrets of the arctic regions.

Three of Crew American

Calling into the night immediately after the ten o'clock time signals, the stations have read a statement outlining the details of the expedition and asked innumerable listeners—men at trading posts, eskimos, and other travelers—to hurry any information that they may have gathered of the little group.

The party consisted of William Nutting,

FRENCH ANNOUNCER NOW IS GREAT HERO

PARIS, France.—French hero worship often breaks out in queer places. Now "Radiola," the well-known announcer familiar to all French amateurs by that name, forms the subject of a series of picture postcards now on sale here. He is shown in evening dress and top-hat—and is surrounded by complicated apparatus and Jovian thunderbolts.

Arthur Hildebrand, John Todahl, all of the United States, and J. E. Fleischer of Denmark. Their boat was a specially constructed 40-foot sailing vessel and was loaded with provisions for two months and firearms. All the men were experienced sailors but not versed in arctic lore.

It was the intention of the commander to start from Julianhaab, Greenland, for Battle Harbor, Laborador, the idea being to follow the route followed by the historic vikings at the year 1000 and let the winds duplicate the feats of those days. It was thought that valuable data on their adventures could be gathered.

U. S. Navy Searching

The party was sighted once after it started—off the coast of Southern Greenland—and since then has been swallowed in mystery. A few weeks ago the scout cruiser "Tacoma" was sent by the United States government under command of Capt. Bob Bartlett, skipper for Admiral Peary, and for three weeks the cruiser and three airplanes examined every inch of 93,000 square miles of ocean, with no result.

At this time of year the Eskimos and

trappers visit the trading posts and for this reason it was thought that word of the party might have drifted in. The Hudson's Bay company has already informed its agents that it would foot all expenses to locate the party and bring it back.

"Roxy's Gang" in New Production

NEW YORK.—"Roxy's Gang," S. L. Rothafel's group of artists who are now heard through five stations every Sunday evening—WEAF, New York; WJAR, Providence; WEEL, Boston; WCAP, Washington, and WDBH, Worcester, appeared recently in a program surrounding the production, "Wife of the Centaur." Their numbers ranged from the operatic to the popular.

A new code station costing \$50,000 is under construction at Bluefields, Nicaragua. It will have a range of 250 miles.

WEMC GIVES SPECIAL FOREIGNERS' NIGHTS

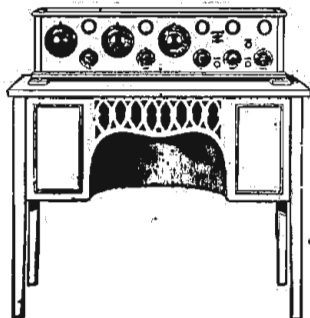
Former KFGZ Plans Special South African Program

BERRIEN SPRINGS, Mich. —"Foreign programs have become quite a common thing at Station WEMC, where a very successful French program was given recently by the students of the French department. WEMC is often heard in Europe, according to reports.

It will be noted that Station WEMC, "the Radio Lighthouse," was formerly Station KFGZ. The EMC represents Emanuel Missionary college.

Students here have perfected plans whereby a fund of \$3,000 is to be raised for added equipment to the station.

Radio Without the Horn



Goodbye to the Old-Fashioned Horn Speaker

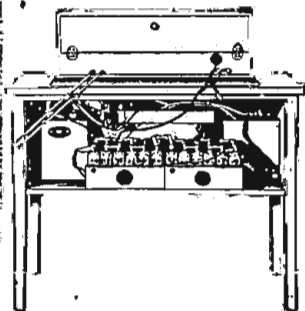
A Vastly Better Reproduction With This New Radio Console!



"Our old horn speaker never gave tones like this! An artistic addition to the living room—everything in its place—it's a joy!"

New Console Has Its Own Perfect Loudspeaker!

Ample Space for All the Rest of Your Outfit!



HERE is something that enables you to enjoy radio in the home without the clutter of unsightly apparatus that plays havoc in the decorative scheme of your living room! The horn speaker is out of date and out of place in radio for the home. This console with its in-built loudspeaker is scientific and sightly.

A Truly Wonderful Tone

It does a good job of reproducing, for it has a good unit and its sound-box is of resonant wood instead of metal, fibre, or composition.

The appearance of a Windsor loudspeaker console is a delight. Its convenience is a joy. A piece of real living room furniture of pleasing lines and finish—and it accommodates all the miscellany of equipment which hitherto had no place except on table tops, shelves or floor. Ample space on top for any set, with plenty of elbow room in front. Nothing in sight but the console and receiving set. Everything else goes inside—behind—in spaces cleverly designed to hold the largest batteries and outfit for home use—besides the self-contained loudspeaker—all unseen and protected from dust or disturbance.

You Need This Console Whatever Your Present Outfit Is

It makes no difference what kind of radio outfit you have—this console was designed for your use. The graceful exterior of this console gives no hint of its inner utility, for it is a simple and effective piece of furniture in every line. But a glance at the interior reveals a most ingenious arrangement of the in-built loudspeaker with space either side and in back. These spaces are ample for the largest A battery, and the largest wet B batteries and the largest charging outfit for home use. It is 38 in. long, 18 in. deep, and 29 in. high. Notice the artistic grill that conceals soundbox, and the provision for "knee room" beneath. Made in mahogany or walnut finish, and the price is only \$40! (West of the Rockies, \$42.50.)

INVESTIGATE!

Dealers everywhere are now showing the Windsor loudspeaker console, and have them for immediate delivery to your home. If you haven't already seen this remarkable contribution to radio enjoyment and convenience, write us now for the name of a nearby store where you may view it. We will also send you complete information. Remember, this console gives you not alone a reproducing unit and sound box, but an altogether new beauty and utility in the provision for your entire radio outfit. Mail coupon or postal.

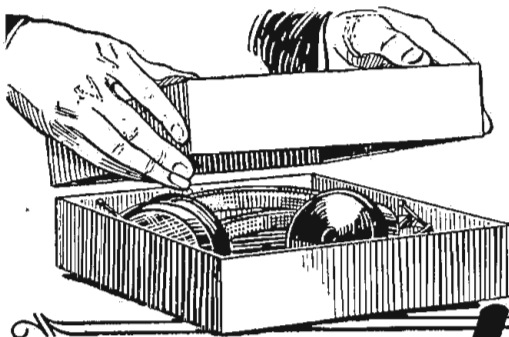
If you wish to use your own favorite unit, a deduction will be made for omission of unit.

WINDSOR FURNITURE COMPANY 13
1422 Carroll Ave., Chicago.

Please furnish pictures and full details, also name of nearest dealer who has the new Windsor loudspeaker console.

Name.....

Address.....



Put Away Your Headphones

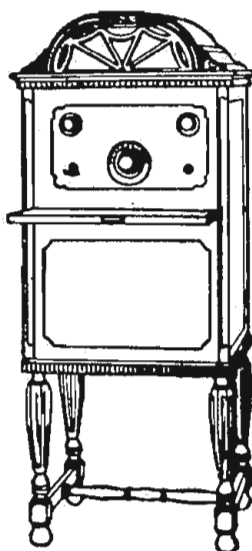
Now! You Can Tune Across the Country with Loud Speaker Volume. 1 on Just ONE Dial

Years ahead in perfected simplified tuning and in loud speaker volume, the sensational new Mohawk is a leader among 5-tube coast to coast radio sets with its true ONE Dial Control. Every good feature of 5-tube power—long recognized as the most efficient—is now improved so that Selective Loud Speaker Distance Reception is now a definite, dependable ONE Dial Control that everyone can operate with ease.

No Need for Headphones

The new Mohawk is fundamentally and essentially conceived and constructed to be a loud speaker receiver. Without headphones the Mohawk's ONE Dial will tune in stations all across the country direct on the loud speaker for everybody to hear. Even more, delightful, the superselectivity of this ONE Dial tuning goes far above the average. It will cut through the nearby stations with unflinching precision and bring in the distant ones loud and clear. Children can do it—elderly people—any member of your family and friends.

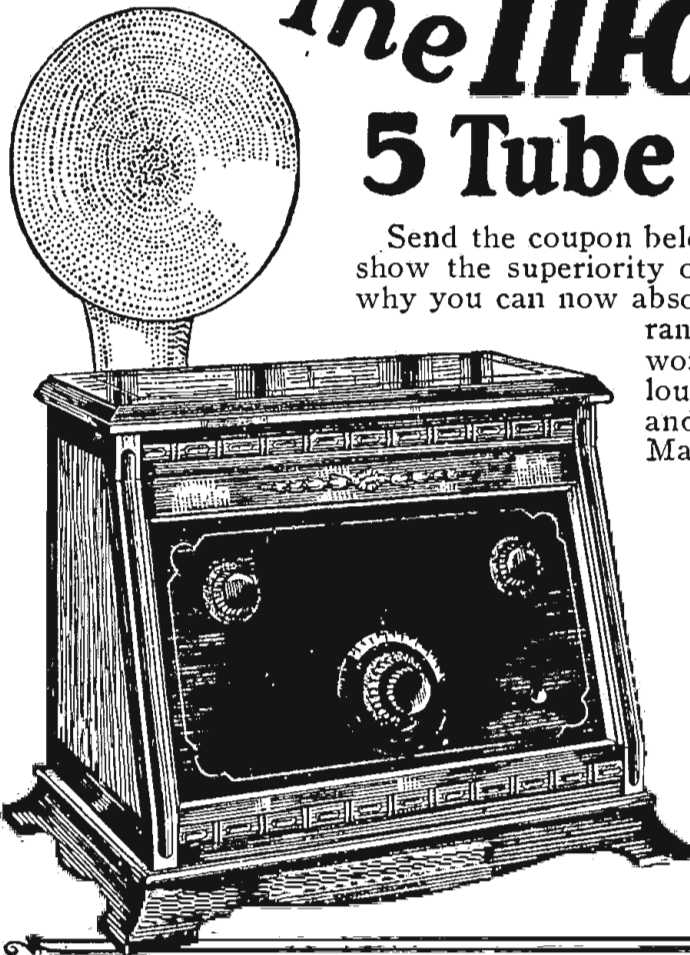
Never before has there been this freedom from the difficult task of carefully adjusting several complex controls. And in your home Mohawk beauty of appearance will again increase the pleasure of its wonderful performance with just ONE Dial. Table model, console and consolette are each built in distinctive period type Adam Brown walnut cabinets. The console and consolette have built in loud speaker, also battery compartments. Every model is broadly, fully guaranteed.



MOHAWK CONSOLE

The Mohawk 5 Tube Receiver

Send the coupon below. Find out the new facts which show the superiority of this five-tube Mohawk set—and why you can now absolutely depend at all times on long range, beautiful clarity of tone and wonderful volume tuned direct on the loud speaker with just ONE Dial—and all at NO GREATER COST. Mail the coupon NOW.



Mohawk Electric Corporation
2224 Diversey Blvd., Chicago, Ill.

Mohawk Electric Corporation,
2224 Diversey Blvd.,
Chicago, Ill.
Send descriptive literature on
the Mohawk ONE Dial Receiver.

NAME

ADDRESS
Please mention your local
Radio Dealer's Name.



Pat. Nov. 18, 1924
\$40

Loudspeaker Included
West of the Rockies \$42.50

Windsor Loudspeaker Console

East - West - South

You Will Hear These Radio Favorites More Clearly

KPO

On The

WMC

FRESHMAN MASTERPIECE



Fern Bachman is a talented violinist appearing frequently at Station KPO, San Francisco.



The Gypsy String Ensemble entertains the radio audience on Monday evenings from Station WEAF, New York.

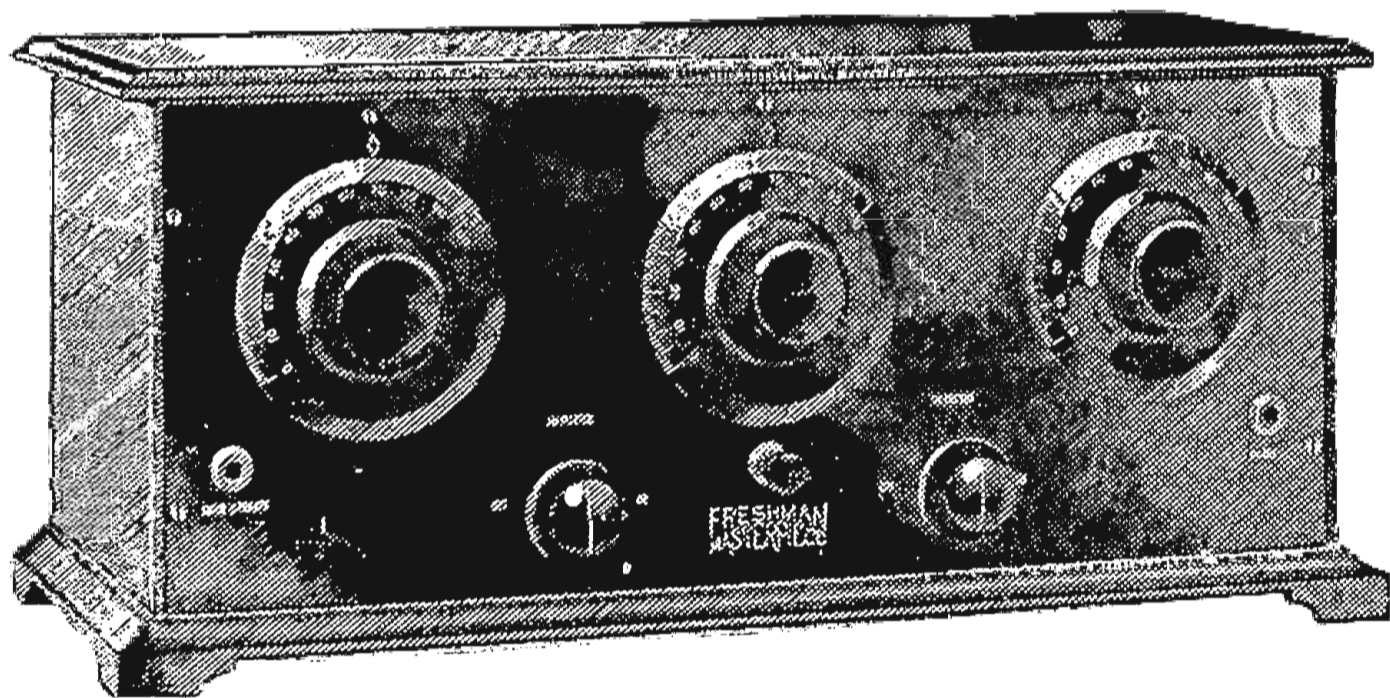


Patrick O'Sullivan is one of the best known pianists in the south. He appears at Station WMC, Memphis.

Five Tube Tuned Radio Frequency

\$60⁰⁰

The Greatest Value Ever Offered in a Radio Receiving Set



Made of the finest low loss materials and in a beautiful, genuine solid mahogany cabinet, that is attractive enough for the most pretentious room, and at sixty dollars, economical enough for the most modest.

The Freshman Masterpiece combines every feature essential to the perfect receiver. Brings in even the most distant stations without a bit of squealing or howling—brings them in night after night at the same points on the dials. And what's more

It's the easiest set in the world to operate.

Have Your Dealer Install One in Your Home!

Every genuine Freshman Masterpiece has the serial number and trade mark riveted on the sub-panel. Sets are not guaranteed if number has been removed or tampered with.

Beware of imitations. Insist upon the genuine. Write for interesting literature.

Chas. Freshman Co. Inc.

Radio Receivers & Parts

FRESHMAN BUILDING
240-248 W 40th St. - New York

WILL SEE IF ECLIPSE AFFECTS RADIO

(Continued from page 1)
relationship that may be exposed during that time.

It will be a meeting of two great sciences—one of them new, highly developed, but a comparative child; the other as old as the world itself, even more highly developed, and yet a subject enveloped in mysteries that astronomers are coping with constantly.

Astronomers Also Busy

Astronomers from all over the world will be at it again during the two minutes or less of complete eclipse, dabbling with their observations concerning the edges of the shadow, the corona, the visibility of the stars and planets, the thousand-mile-an-hour rush of the shadow, the shadow bands, and what not. To the mountains of knowledge they have already piled up they will undoubtedly add other mountains.

These observers will be concentrated in a narrow belt over parts of the states of New York, Michigan and Wisconsin, located mainly near the Atlantic coast where the shadow dives off into the Atlantic.

But while these men of great learning are shunting a myriad of figures about in their minds as they watch developments, millions of other observers, just as intent on what is happening, will be scattered for thousands of miles. And their equipment will consist almost solely of a Radio receiver.

Country Well Organized

Yes, the country will be minutely organized for this great event. And at the base of it all will be an attempt through widespread experimentation and observation to discover the effect of the total eclipse of the sun on Radio broadcasting and Radio receiving.

Last year, out in California, they experienced the bare edge of a total eclipse. And a few Radio listeners, pioneering in a new field, reported strange happenings accompanying the eclipse. Chief among these was a marked increase, then a sharp decrease, in the intensity of signals from the broadcasting stations.

With this as a basis the Radio world this year will attempt to make a dent in this strange unknown field. And every



Radiophans throughout the country which is shaded on the sketch, will have an opportunity to observe the action of the eclipse on Radio transmission and reception. East of the heavy line the sun will rise as usual and the eclipse will be visible from beginning to end.

phase—sending and receiving in the path of the eclipse, to the north, and to the south of it, and completely outside of it—is to be reported.

Select Radio Stations

A picked group of Radio stations have been selected to take part in these experiments. Some of the stations, such as WGR at Buffalo, WGY at Schenectady, and others, will be located in the path of totality or at its edge. Others will be chosen to the north, to the south, and some considerable distance away.

Thousands of Radiophans are to be selected by scientific bodies, such as the American Astronomical society, to tune in on certain stations. These will also be arranged to cover every possible situation—those in the zone of totality will be divided to listen in on stations in the zone, north of it, south of it, and far from it. Likewise those to the north, to the south and at great distances. And nat-

urally there will be hundreds of thousands more experimenting freely without regulation. The reports of all these listeners that become available then will be grouped and conclusions drawn.

Compare Eclipse and Night

The present problem appears to be whether or not the darkness caused by the eclipse has the same effect on broadcasting and receiving that night brings after daylight has passed. The swelling and fading noticed in the California epi-

sode brought forth this theory and based it strongly.

Some theorists do not believe this to be the case. They maintain that the band is too narrow and that the sunlight on each side of it would offset any such tendency. Others claim that the shadow will act as a reflecting mirror and send distant signals far.

It is a well-known fact that the sun weakens ether waves, absorbing 70 per cent of their energy. It is thought that daylight transmission is carried largely by means of waves moving the surface of the ground and night transmission along a "heavyside" layer in the sky.

Several theories say that this heavyside layer is irregular and therefore responsible for fading. Waves transmitted at night are free from the more uniform absorption encountered in daylight and scientists wonder if the shadow of a solar eclipse will have a similar effect.

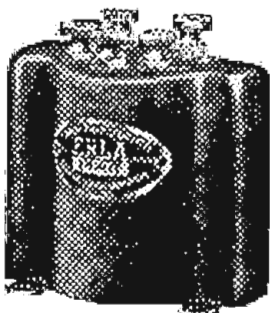
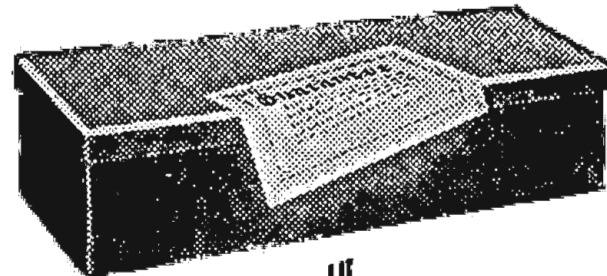
May Cause Freak Result

Astronomers believe that a stream of electrons are flying around the earth continually; affecting Radio waves, and that if the light of the sun is shut off a freak result may be noted. Many maintain that only those stations located within the band of darkness will feel any effect whatever.

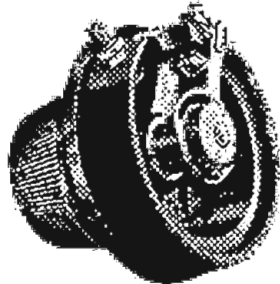
The accompanying map shows the path of the total shadow. Buffalo, Ithaca, New Haven and other cities, are near its center. In New York city the path of totality will start at a point just north of Central park and the eclipse will be total in only the northern part of the city itself, and then for but a fraction of a minute.

Place the battery on frequent charge, rather than to allow it to reach the danger point of discharge.

CIR-KIT brings these Greater Circuits



Erla Push-Pull Transformer is exclusive in core design and shielding. Indispensable for the safe operation of high resistance loud speakers under full power. \$10 pr.



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Neatest, most convenient in form. Erla Autogrip 2-Way Phone Plugs assure smoothest connection of tips and most positive contact, with no manipulation. 75c.

In a motor car—the engine. In a skyscraper—the substructure. In a radio receiver—the circuit. The circuit, Erla knew, must be the foundation of finest possible radio. So Erla first evolved those circuits which have ever since been rated inherently more powerful, tube for tube. Today's trend clearly indicates that Erla Supreflex may be selected in full confidence of continued pre-eminence.

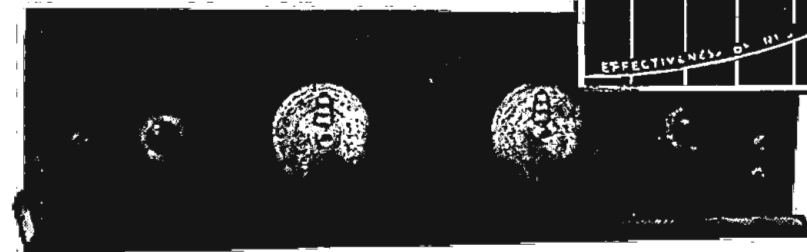
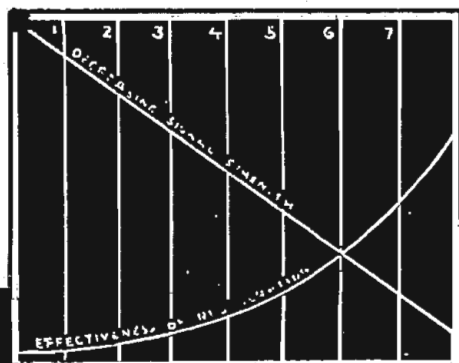
That these fundamentally superior circuits are also easiest to construct, with utmost economy, is another Erla attainment, made possible by the Erla CIR-KIT. With CIR-KIT you yourself can construct Erla Supreflex circuits from genuine Erla apparatus, specially designed to assure most efficient functioning of Erla Supreflex principles.

Erla CIR-KIT supplies everything needed, in a factory-sealed carton, sold under warranty. Erla Synchronizing Transformers, Erla Miniloss Condensers, Erla Precision Rheostats, Erla Cushion Spring Sockets, Erla Tested Crystals, and all the other matchless Erla units are provided. You can assemble them with perfect results virtually guaranteed by full-sized blueprints, drilled and lettered panel, stenciled baseboard, precisely locating every unit and connection. There is no soldering, thanks to Erla Solderless Connectors. Pliers and screwdriver alone are needed to bring you the de luxe radio of Erla Supreflex circuits, at lowest possible cost.

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ERLA

Graph showing how the regenerative effect in the Model L-2 Ultradyne increases as the strength of the received signal increases



Why the ULTRADYNE Gets Distance on the Loud Speaker!

Ultradyne Kit

Consists of one low loss Tuning Coil, one low loss Oscillator Coil, one special low loss Coupler, one type "A" Ultraformer, three type "B" Ultraformers, four matched Fixed Condensers. The Ultraformers are new improved long wave radio frequency transformers, especially designed by R. E. Lacault. All genuine Ultraformers carry this seal (R. E. L.) and are guaranteed so long as it remains unbroken.

\$30.00

Unlike other Super-radio receivers, the Ultradyne, with its exclusive use of the "Modulation System" and special application of regeneration, is capable of detecting and regenerating the faintest signal, making it audible on the loud speaker.

The regenerative effect in the Ultradyne increases as the strength of the signal decreases, until the signal becomes so weak that no amount of amplification will make it audible.

A radical advance in radio engineering and the latest development of R. E. Lacault, E.E., A.M.I.R.E., Chief Engineer of this Company and formerly Radio Research Engineer with the French Signal Corps Research Laboratories.

You will marvel at the unusual selectivity, sensitivity and range of this new Model L-2 Ultradyne.

Write for descriptive circular

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How to Build the Model L-2 Ultradyne

Send for the 32 page illustrated book giving latest authentic information on drilling, wiring, assembling and tuning the Model L-2 Ultradyne Receiver.

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

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. 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 wavelength.

Ease of Tuning—

Type 6-D gives gratifying results in the hands of an inexperienced operator. The three dials are closely matched at all wave lengths, and settings are easily memorized.

Price \$125.00 without accessories

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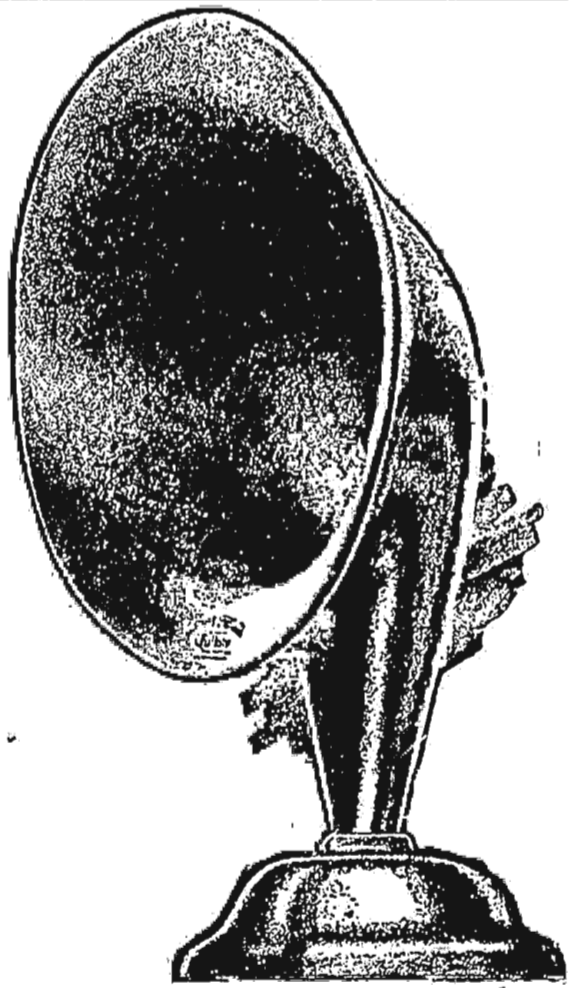


in Principal Cities



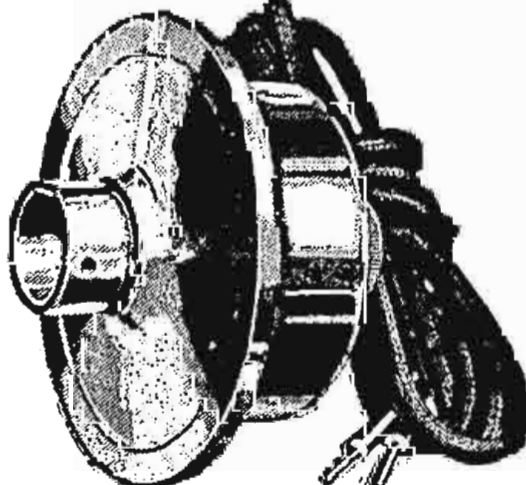
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Use on Your Phonograph Edison Adapter... 25c Columbia or Pathe... 20c Brunswick... 30c HALL & WELLS, Inc. 128 N. Wells St. Chicago, Ill.

Enclosed is \$... for which ship me () Fultone Speaker... () Fultone Unit at once, my money to be refunded if I am not satisfied and return this merchandise within 5 days. NAME... ADDRESS... CITY AND STATE...

CHILD HARPIST AT WLW WEDNESDAY

Saturday, January 17

Saturday, Silent night for: CHNC, CFAC, KFAE, KFAU, KFDM, KFKU, KSND, KJS, WAAW, WBAP, WBBF, WBBG, WCAU, WCBG, WCX, WEAO, WEBB, WEEL, WHB, WHO, WJY, WKAQ, WKBF, WOI, WOS, WWJ.

CHNC, Toronto, Can. (Eastern, 350), 9-11 p. m., Charles E. Bodley and his orchestra; Fred Dawson, inonologist; James S. Brown, tenor.

CNRO, Ottawa, Can. (Eastern, 435), 7:30 p. m., bedtime story, lullaby, Aunt Agnes; 8, overture, "Morning, Noon and Night," concert waltz, "Casino Taenza," "The Maid of the Mountains," Chateau Laurier hotel orchestra; 8:30, "Birthday Song," "Chanson Provinciale," M. Helene Allen; "The Other Department, Please," Bert Lloyd; bagpipe selection, "Scotch Airs," Pipe-Major Sullivan; "On Wings of Song," M. Helene Allen; old-time dance music, Old Time dance orchestra; "Fishing and Hunting in the Gaspé Peninsula, Quebec," Dr. T. J. Alcock; "There Are Flowers at the Bottom of the Garden," M. Helene Allen; "My Beasty Eye Glass," Bert Lloyd; "Selected," M. Helene Allen, violinist; bagpipe selections, "Scotch Airs," Pipe-Major Sullivan; Chateau Laurier hotel orchestra; Jack Grace.

KDKA, E. Pittsburgh, Pa. (Eastern, 309.1), 1:30 p. m., concert, Daugherty's orchestra; 6, dinner concert, Westinghouse band, T. J. Vastine, conductor; 7:30,



Carolyn Hinkle Tison, called the "Virginia Girl with the Guitar," came to WSB two years ago, saw and conquered W. Walter Tison, the chief operator. She may be heard on any Journal Hired Help program.

Headliners of the Week

SATURDAY, January 17, is Benjamin Franklin's birthday and one station, at least, has remembered this forefather of Radio. KGO will broadcast the special program of the East Bay Industrial exposition. G. E. Sleeper will deliver the address on the life of Franklin.

CKAC is offering a silver cup for the most popular band in the Province of Quebec. The Band of Drummondville will enter the race Sunday afternoon.

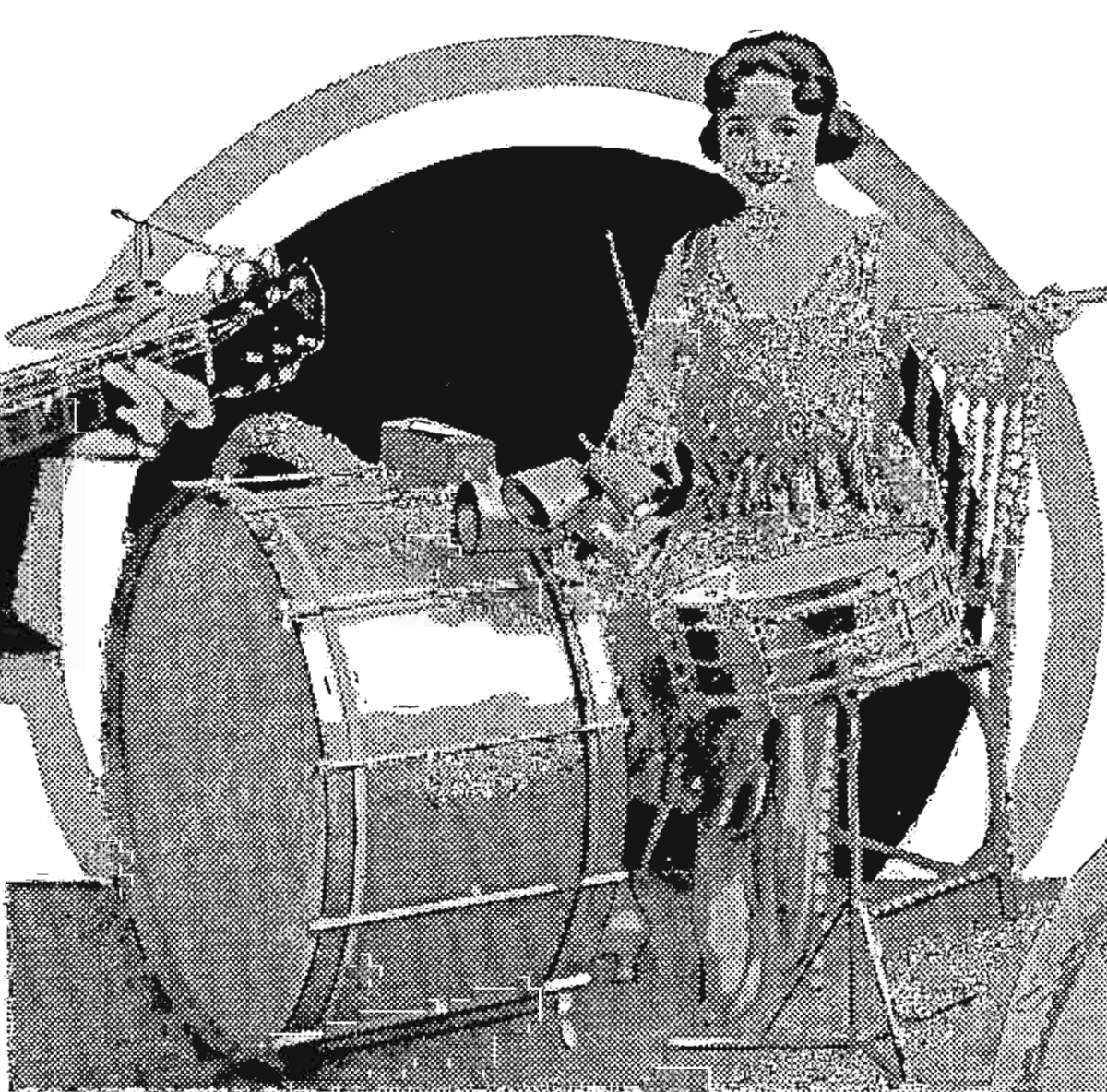
The famous Morningside string quartet will be heard at WAHG, Richmond Hill, this Monday. The quartet is well known in the east. Now that Mexican, Porto Rican and Cuban stations are being heard with regularity, the elementary Spanish lessons from KFKU, Independence, Mo., will be very popular every Monday night.

"The Merry Wives of Windsor," the nearest to a farce of any of Shakespeare's comedies, will be enjoyed Tuesday at WLS, Chicago. Anthony Wons is producing this, and any fan who has heard Mr. Wons' voice over the Radio will anticipate with pleasure his interpretation.

Wednesday, KOB is putting on an international code course. This will, perhaps, make these buzzing interruptions of musical program more enjoyable. Geraldine Vitto, who is only nine years old, will appear this evening at WLW. She is the youngest harpist to play before a Radio audience, and is an excellent musician, which is not surprising with a father who is the solo harpist of the famous Cincinnati Symphony orchestra.

WEAO is planning a Scotch night Thursday. The program will be furnished by Scotch people and will include everything of a Scotch nature except — which fans will have to furnish themselves. This program is in honor of Bobby Burns' birthday anniversary. WMC is also giving a birthday party, having reached the great age of two years.

If you want to get something and not know what it is, tune in for WCCO's surprise program Friday night. This program will probably be a surprise to even the program director. Before signing off do not forget your public speaking class at WJZ. Be the popular announcers of the future.



Mabel Moran (above) is the drummer, contralto and business manager of the Merry Musical Maids heard every week at WOAW, Omaha. Alice Goodmurphy (right) is the soprano who charms the Pacific coast fans regularly through KPO.

Bob Krub's College club orchestra; 1:50-2:05, Vic and Jack Lauria entertainers; 2:05-2:30, Boh Krub's College club orchestra; 3, interview with Arthur B. Reeve, famous detective story writer; Terese Rose Nagel; 3:10, Arnold Meksin, Russian pianist; 3:20, Ruppert Hughes, novelist; 3:30, Ruth Cross, author of prize winning novel; 3:40, Frederick L. Allen, editor; 3:50, Arnold Meksin, Russian pianist; 6-6:30, Uncle Geehee; 6:30-7:30, Cameo Collegians, Dick Shipley, leader; 9-9:30, True Story musical program; 9:30-9:45, "Inside Movie Chats," Sam Comly; 9:45-10:10, Charles Bryden, tenor; Hilda Ramon; 10:10-10:30, Theodore Mattman, cellist; 10:30-11, Louis Zamudio, Mexican harpist; 11-12, Vincent Rose and his orchestra.

WGN, Chicago, Ill. (Central, 370), 1:40 p. m., luncheon concert, Drake Concert ensemble, Blackstone String quintet; 3, rocking chair time; 5:30, skeezy time; 6, organ recital, Lyon & Healy; 6:30, dinner concert; 8, classical concert; 10-11, Don Bestor's Drake dance orchestra; Jerry Conley's Blackstone dance orchestra.

WGR, Buffalo, N. Y. (Eastern, 319), 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Buffalo Courier and Enquirer musical program; 6-7:30, Hall-pryd string quartet.

WGY, Schenectady, N. Y. (Eastern, 380), 9:30 p. m., dance music, Phil Romano's orchestra.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., selections, Alamo theater organ; 7:30-9, concert, Dixie Bluegrass serenaders, Henry L. Dixon, director; Mrs. Frances Carre, reader.

WHB, Kansas City, Mo. (Central, 411), 2-3 p. m., ladies' hour program, Sweeney Radio trio.

WHN, New York, N. Y. (Eastern, 360), 5-5:30 p. m., Harry Moss' orchestra; 6:30-7:30, Vincent Catanese and his Hotel Alamae orchestra; 8:30-9, Strand Roof orchestra; 9-9:10, Alfred Dulin, concert pianist; 9:45-10, Jimmy Flynn, dramatic tenor; 10:45-11, Fitzpatrick Brothers, old time medlies; 11-11:30, Jiminy Clarke and his entertainers; 11:30-12, Roseland dance orchestra.

WIP, Philadelphia, Pa. (Eastern, 509), 1 p. m., Karl Bonawitz, organist; 3, Del Ruth's dance orchestra; 6:05, Hotel St. James dinner dance orchestra; 7, Uncle Wip's bedtime stories; 8:15, Senior Choir of Holy Trinity Lutheran church of Audubon, N. J.; 10:05, Art Coogan and his Club Madrid orchestra; 11, Karl Bonawitz, organist.

WJJD, Mooseheart, Ill. (Central, 278), 7:15-8:15 p. m., Mooseheart theater orchestra; 9-12, dance music, Log cabin.

WJZ, New York, N. Y. (Eastern, 455), 1-2 p. m., Erdody's Park Lane orchestra; 4:30-5:30, Sherry's tea music; 7-8, Joseph Knecht's Waldorf-Astoria dance orchestra; 8-8:10, "Beating the Debt Bogy," E. J. Pease, National Pay Bills a Day; 8:10-8:30, "Learn a Word a Day"; 8:30-8:45, "Art for Laymen," Walter M. Grant; 8:45-10:30, Canadian society banquet, Hotel Biltmore; 10:30-11:30, Hotel Astor dance orchestra.

WLBL, Stevens Point, Wis. (Central, 278), 12 midnight, Enemies of sleep.

WLS, Chicago, Ill. (Central, 345), 7 p. m., Big Ford and Little Glenn; 7:20-12, WLS review night, Ralph Emerson, organist; Isham Jones and his College Inn orchestra; "Harmony Girls," Walter Peterson, "The Kentucky Wonder Bean," Gary quartet; barn dance fiddlers; Ford and Glenn.

WLW, Cincinnati, Ohio (Central, 423), 8 a. m., physical exercises, Wm. Stradman; 3 p. m., Hubert Buschle's orchestra; 6, dinner hour concert, Cincinnati Post, featuring Selsky quintet and Columbian quartet of Dayton, Ohio.

WMAQ, Chicago, Ill. (Central, 447.5), 2 p. m., Union League club forum; 6, Hyde Park Boys' glee club; 8, LaSalle hotel orchestra; 8:30, Radio photologue, "Sweden," Waldemar J. Adams; 9, weekly Chicago theater revue.

WMC, Memphis, Tenn. (Central, 503.9), 12 m., musical program, O. K. Houck Piano company; 8 p. m., bed-

children's period; 8:30, concert, Westinghouse band, T. J. Vastine, conductor.

KFI, Los Angeles, Calif. (Pacific, 469), 5 p. m., Evening Herald, table talk and news; 5:30-6, Examiner's musical half hour; 6:45-7, "Inspirational Psychology," Dr. Clyde Sheldon Shepard; 7-7:45, dance orchestra; 7:45-8, The Book Shelf; 8-9, instrumental quartet; 9-10, Examiner, popular program; 10-11, Packard Radio club.

KFKB, Milford, Kans. (Central, 273), 6-7 p. m., lecture, music; 10-11, lecture, music.

KFNH, Shenandoah, Ia. (Central, 266), 6:30 p. m., program, Tarkio college, J. A. Vissar, director.

KFOA, Seattle, Wash. (Pacific, 405), 4-5-15 p. m., Olympic hotel concert orchestra; today's recipe; 6:45-8:15, Rhodes' Department store program; 8:30-10, Seattle Times, dance music; 10:05-11, Olympic hotel dance music.

KFSG, Los Angeles, Calif. (Pacific, 278), 10:30-11:30 a. m., sunshine hour; 3:30-4:30 p. m., Gray studio impromptu program, Gladwyn Nichols, cometist; Roy Reid Brignall, pianist; 7:30-9:30, auditorium service, sermon on Divine Healing, Almee Semple McPherson, pastor.

KGO, Oakland, Calif. (Pacific, 312), 11:30-1 p. m., luncheon concert, Pacific States Electric company; 4-5:30, concert orchestra, Hotel St. Francis; 8, East Bay Industrial exposition; Arion trio; Eva Garcia, pianist; Neapolitan mixed quartet; address, "Benjamin Franklin," G. E. Sleeper; 10-1 a. m., Henry Halstead's orchestra.

KGW, Portland, Ore. (Pacific, 492), 10 p. m., dance music, Multnomah hotel strollers.

KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:15 p. m., program of news and music; 2:30-5, Charlie Wellman's Saturday afternoon frolic, Dot Street, Helen Smith, Hatch Graham, "Dum-bell twins," and others; 6-6:30, Art Hickman's concert orchestra from Biltmore hotel; 6:30-7:30, stories of American history, Prof. Walter Sylvester Hertzog; bedtime story, Uncle John; 8-10, program, Merchant Tailors' association; 10-11, Earl Burnette's Biltmore hotel dance orchestra; 12-2 a. m., The Lost Angels of KHJ, Charlie Wellman, Chief Lost Angel.

KHX, Hollywood, Calif. (Pacific, 337), 8 a. m., morning prayer; 9, Hired Hand, news; 9:30, talk on Radio, Forbes W. Van Why; 10, Hired Hand's morning message; 5:30-6 p. m., Town Crier and Village Urchins; 6-7:30, dinner hour program sponsored by D. B. Carpenter; 8-10, second edition of the "Tour of the South Seas, Capt. Edw. Salsbury, lecturer; 10-11, Abe Lyman's Coconut Grove orchestra from Ambassador hotel; 11-12, June Purcell, singer of popular songs.

KOA, Denver, Colo. (Mountain, 323), 9 p. m., dance music program, Joe Mann and his Rainbow-Lane orchestra.

KPO, San Francisco, Calif. (Pacific, 423), 1-2 p. m., Rudy Selger's Fairmont hotel orchestra; 3:30-5:30, tea dansant, E. Max Bradford's Versatile hand; 8-12, Art Weldon's dance orchestra.

KSND, Seattle, Wash. (Pacific, 238), 7:15-8 p. m., Aunt Yvlien's bedtime story; 8-9, Earl Gray and his Hotel Butler orchestra; 9-10, concert hour; 10-11, Earl Gray and his Hotel Butler orchestra.

KSD, St. Louis, Mo. (Central, 549.1), 8 p. m., concert, St. Louis Symphony orchestra, Ludolph Ganz, conductor.

KTHS, Hot Springs National Park, Ark. (Central, 375), 6:30-10 p. m., concert; 10:30-11:30, dance program, New Arlington hotel orchestra.

KYW, Chicago, Ill. (Central, 534.4), 6:30 a. m., morning exercises, Paul A. Leonhardt; 11:35, table talk, Mrs. Anna J. Peterson; 6:35-7 p. m., children's bedtime story, Uncle Boh; 7-7:30, dinner concert, Congress hotel; 8-8:58, musical program; 9:05, Youth's Companion; 9:35-11:30, "Congress Classic;" 12-2 a. m., "Congress Carnival."

PWX, Havana, Cuba (Eastern, 400), 8:30 p. m., concert, artists, Prof. Caridad de Miguez, director.

WAHG, Richmond Hill, L. I. (Eastern, 316), 12-2 a. m., Arthur Spence and his Lincoln Serenaders.

WBAV, Columbus, Ohio (Eastern, 293.9), 9 p. m., dance program, Dick Fiddler's orchestra, Spring Lakes pavilion.

WBBR, Staten Island, N. Y. (Eastern, 273), 8 p. m., Watchtower orchestra; 8:15, Bible questions and answers, Judge Rutherford; 8:45, Watchtower orchestra.

WBZ, Springfield, Mass. (Eastern, 337), 6 p. m., Leo Reisman Hotel Lenox ensemble; 7:05, bedtime story for the kiddies; 7:15, sketches from United States Naval history, E. S. R. Brandt; 7:30, Hotel Kimball trio; 8, hockey game, Harvard vs. Yale; 11:30, Hotel Brunswick orchestra.

WCAE, Pittsburgh, Pa. (Eastern, 462), 2:30 p. m., tea-dansant, Nixon restaurant; 4:30, orchestral program, Ed Lally's Rendezvous cabaret orchestra; 6:30, dinner concert, William Penn hotel; 7:30, Uncle Kay-bee; 7:45, inside movie chats; 8:30, musical program.

WCAI, Northfield, Minn. (Central, 360), 9:45 a. m., St. Olaf college chapel services; 12 midnight, Reuben Benson, banjoist; Herbert Hauge, saxophonist; Luther Noss, pianist.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 10:45 a. m., home service, Betty Crocker; 8 p. m., "Florside Philosophies," Rev. Roy L. Smith, pastor; 8:30, musical program, Kiwanis mixed quartet; 10, Minneapolis Athletic club orchestra, C. Eddy Fortier, leader.

WCC, Detroit, Mich. (Eastern, 513), 6 p. m., dinner concert, Book-Cadillac.

WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p. m., the Star's Radio orchestra; 6-7, school of the air, piano tuning-in number on the Duo-Art; personal message from Roger W. Babson, statistical expert; the Toll-Me-A-Story Lady; music, Hotel Muehlebach Trianon ensemble; 11-11:45-1 a. m., nighthawk frolic, the "Merry Old Chlef" and the Plantation players; Cordens-Mac's orchestra.

WDAK, Philadelphia, Pa. (Eastern, 395), 11:45 a. m., Daily almanac; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; Caroline Sherman Johnson, soprano; Marcelia North, pianist; 4:30, Cotton Pickers dance orchestra; 7:30, Dream Daddy's bedtime stories.

WEAF, New York, N. Y. (Eastern, 492), 6-7 p. m.,

dinner music, Waldorf-Astoria hotel; 7-7:15, Gedney and Magee, banjoists; 7:15-7:30, "Thrill," National Thrift committee; 7:30-7:45, Ethel Zabriskie, contralto; 7:45-8:15, Cathedral choral club; 8:15-8:30, Harry Jentes, pianist; 10:30-2, a. m., Uniform Firemen's association entertainment, Eddie Cantor, Olson Band, Harland Dixon, Louis Callahan, Beth Beri, entire Klidd Boots company Horton and Spurr of Tropo company, Mme. Dians of Rose-Marie show.

WEBB, Chicago, Ill. (Central, 370), 7-8 p. m., Erylne E. Conely, soprano; Radio Sunday School lesson, Dr. Herbert W. Yirgin; Oriole orchestra; 9, Marie Kelly, readings; Langdon Brothers, Hawaiian guitarists; 10, Oriole orchestra; 11, Cambridge sisters, songs; Langdon Brothers, Hawaiian guitarists; Nubs Allen, songs; Loos Brothers, songs; Banks Kennedy, pianologues; Wayne Meyers, readings.

WFAA, Dallas, Texas (Central, 472.9), 12:30-1 p. m., address, Hugo Swan; 8:30-9:30, Blue Bonnet serenaders; 11-12, Adolphus hotel orchestra.

WFI, Philadelphia, Pa. (Eastern, 395), 1 p. m., Meyer Davis Bellevue Stratford hotel orchestra; 3, New Century Brass quartet, Henry Kisselman, first trumpeter, Walter MacDowell, second trumpeter, Ralph Blinz, first trombonist, James Waide, second trombonist; 4, Pep Vickers, soprano; Loretta Kerk, accompanist; 4, Pep Williams entertainers; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, the kiddies' pal; 8, Health talk: "Acute Inflammatory Rheumatism. Its causes and preventions," auspices Philadelphia Medical Society; 8, Welsh Women's club.

WGBS, New York, N. Y. (Eastern, 316), 10 a. m., lively talks with Tereze; 10:10-10:10, Eleanor Schurer's kiddie club; 10:40-11, Mildred Smith, soprano; Etta Isaacs, pianist; 1:30-1:35 p. m., Bible reading, auspices American Bible society; 1:35-1:50,



time story, Uncle Percy; 8:30, concert, Memphis Pic-ture orchestra, R. L. Sharp, director.

WNJ, Newark, N. J. (Eastern, 233), 10:30-1 a. m., midnight dance revue, Paradise Dance Palace.

WOAW, Omaha, Nebr. (Central, 522.3), 6 p. m., dramatic hour, Davis Studio of Expression; 6:30, program, studio of Stanley Jan Letocsky, pianist; 9, program, transmitted, WOAW's remote control studio in the May Seed & Nursey company building, Shenandoah, Ia.; 11, Frank Hodek's orchestra; 11:30, organ music, World theater.

WOC, Davenport, Iowa (Central, 498), 7:30 p. m., discussion of the International Sunday school lesson, Rev. M. A. Getzenderer; 9, Louis Connor and his LeClaire hotel orchestra; song and novelty numbers, Peter Mac-Arthur.

WOI, Ames, Iowa (Central, 360), 12:30 p. m., college chimes; "The Agricultural College and Co-operation," Prof. S. H. Thompson.

WOO, Philadelphia, Pa. (Eastern, 509.9), 11 a. m., organ recital, Mary E. Vogt; 12:02 p. m., Wanamaker crystal tea room orchestra, Robert E. Golden, director; 4:45, organ recital, Mary E. Vogt; John Wanamaker Commercial Institute band concert.

WOR, Newark, N. J. (Eastern, 405), 7-7:30 a. m., WOIT gym class; 2:30-2:45 p. m., Cliff club orchestra; 3-3:15, Elsa Schill, violinist; 3:30-3:45, Elsa Schill; 6:15-7:15, "Music While You Dine," 7:15-7:30, resume of day's sports, Jolly Bill Stelnke; 8-8:15, Trinity cathedral.

WRC, Washington, D. C. (Eastern, 469), 6:45 p. m., children's hour, Peggy Albion; 7, dinner music, Hotel Washington-Irving Boernstein orchestra; 8, Bible talk;

(Continued on page 14)

MORNINGSIDE STRING QUARTET; WAHG

Saturday, January 17

(Continued from page 13)

8:45, "An Ear Test for Radio Fans," R. Deane Shure; 9:15, Canadian club dinner; 10:30, dance program, Astor Hotel orchestra; 11:15, Otto Beck, organist.

WSAI, Cincinnati, Ohio (Central, 325.9), 8 p. m., chimes; 8:15, program, Bicycle sextet; 8:45, violin solos, Waldene Johnston; 9, weekly news review, Allison Frederick Stanley; 9:15, selections, Bicycle Male and Mixed quartets; Genevieve Goodman, pianist; 12, WSAI midnight entertainers; 1:45, Freda Sankar's Toad Stool orchestra.

WSB, Atlanta, Ga. (Central, 429), 12 m., entertainment; 5-6 p. m., bedtime story, Bonnie Barnhardt; 8-9, Wendall Hall, Journal hired help; 10:45, old time fiddling contest, Fiddlin' John Carson, WSB star and "Uncle Am" Stewart of Tennessee.

WTAM, Cleveland, Ohio (Eastern, 390), 6 p. m., Guy Lombardo's Royal Canadians orchestra; 9 p. m., WTAM dance orchestra, Ev Jones, director.

WTAY, Oak Park, Ill. (Central, 250), 6:45-7:45 p. m., Hull Sisters; Ardath Irene James, pianist; Glenn Bruce, bedtime story and readings; 9-10, Walter C. Steele, accordion soloist; Nypophone Harmony Kings.

WWJ, Detroit, Mich. (Eastern, 513), 3 p. m., the Detroit News orchestra.



Estelle Mayer, although a very young violinist, is becoming well known to an invisible audience of several millions. Listen in to Radio Station WAHG, Richmond Hill, this week and hear some of her selections.

Sunday, January 18

Sunday, silent night for: CHNC, CFAC, CKAC, KFAE, KFA, KFOM, KFKU, KOB, WSAC, KSNQ, PWAF, WAAW, WAAV, WBAV, WBB, WCAE, WOAF, WOAR, WEAQ, WEB, WGBS, WHAS, WHO, WIP, WKAQ, WKBF, WLBL, WMC, WNJ, WOAI, WOI, WOK, WTAM, WTAY, WWJ.

CFAC, Calgary, Can. (Mountain, 430), 11 a. m., Knox church, Rev. George A. Dickson.

CKAC, Montreal, Can. (Eastern, 437), 4:30 p. m., Band of Drummondville contesting for the silver cup for the most popular band in Province of Quebec; talk, Mayor Molsan.

KDKA, E. Pittsburgh, Pa. (Eastern, 309.1), 11 a. m., services, First United Presbyterian church, Rev. J. Alvin Orr; 2:30 p. m., concert; 4, Dr. Charles Heinrich, organist; 4:45, vesper services, Shadyside Presbyterian church, Rev. Hugh Thomson Kerr; 6:30, dinner concert, Scalzo's orchestra; 7:45, services, Calvary Episcopal church, Rev. E. J. Van Etten, pastor.

KFI, Los Angeles, Calif. (Pacific, 469), 10 a. m., musical program, L. A. church federation; 4-5 p. m., vesper services, Federated Church Musicians; 6:45, musical appreciation talk; 7-8, stage acts, specialties and orchestra from Metropolitan theater; 8-8:30, The Bohemian Players in one act play; 8:30-9, instrumental trio; 9-10, Examiner, dance orchestra; 10-11, Theobald Bennett's Packard Six dance orchestra.

KFKB, Milford, Kans. (Central, 273), 8-9:30, services; 9:30-10, Masonic lecture, J. H. Brinkley, M. D.

KFNF, Shenandoah, Ia. (Central, 266), 3 p. m., religious services, Men's Class Christian church; 6:30, regular seedhouse chapel service.

KFSG, Los Angeles, Calif. (Pacific, 278), 10:30-12:30 p. m., complete morning services of Angelus temple, sermon, Almee Sempie McPherson, pastor-evangelist; 2:30-4:30, afternoon service of Angelus temple, Silver band and Temple choir, Almee Sempie McPherson, pastor; 7-9:45, evening service of the temple with special musical hour program; 10-11, organ recital, Esther Fricke Green.

KGO, Oakland, Calif. (Pacific, 312), 11 a. m., service, First Church of Christ, Scientist; 3:30 p. m., KGO Little Symphony orchestra playing "Petite Valse Francaise," "Pastorale," overture, "Hungarian Lustspiel," O. L. Padell, tenor, singing "Today," "Crossing the Bar," "Gloria," Esther Hale Sittig, pianist, playing "Tarantella," "Arabesque," "The Purple Heather," "A Little Dutch Garden," "Hungarian Love Song," "O. L. Padell; piano solos, "Impromptu, Op. 90," "Maid with the Flaxen Hair," Esther Hale Sittig; orchestra playing symphonic poem, "L'Apprenti Sorcier," explained by Arthur S. Garbett; "Canzonetta," "Tanz unter der Dorflinde," march, "Slavic People," orchestra; 8, service, First Church of Christ, Scientist.

KGW, Portland, Ore. (Pacific, 492), 10:30 a. m., service, First Presbyterian church, Dr. Harold Leonard Bowman, pastor; 3 p. m., municipal concert; 6, church services, Portland Council of churches; 7, dinner concert, Colburn concert orchestra.

KHJ, Los Angeles, Calif. (Pacific, 395), 10 a. m., half hour sermon; 10:30-12:30 p. m., organ recital and complete morning services of First Methodist Episcopal church, Dr. E. E. Helms, pastor; Arthur Blakeley, organist; 6:30-7, Art Hickman's Biltmore hotel concert orchestra; 7-7:30, organ recital, Arthur Blakeley, organist; 8-10, program, Los Angeles Investment company, arranged by J. Howard Johnson.

KIS, Los Angeles, Calif. (Pacific, 360), 10:30-12:30 p. m., regular services of the Church of the Open Door; sermon, Dr. French E. Oliver; Alfred Butler, organist; 6-6:45, vesper services with short scripture talk; Mrs. Fern Barton, organist; 7:15-9:30, evening service of Church of Open Door with special musical program, C. M. Brooks, basso.

KNX, Hollywood, Calif. (Pacific, 337), 7-7:45 p. m., International Bible Students association's hour of music; 8-9, Ambassador hotel concert orchestra, Josef Rosenfeld, director; 9-11, program, C. A. Gray, Dodge Brothers distributors.

KOA, Denver, Colo. (Mountain, 323), 11:30 a. m., First Baptist church; 7:30 p. m., services, First Baptist church.

KPO, San Francisco, Calif. (Pacific, 423), 11-12 m., church services, Dr. Frank Boyd; Harry Bullard, baritone; Theodore J. Irwin, organist; 8:30-10, Rudy Selger's Fairmont hotel orchestra.

KTHS, Hot Springs National Park, Ark. (Central, 375), 11 a. m., services, First Presbyterian church, Rev. Chauncey Hickok, pastor; 9-10, DeLuxe orchestra concert, New Arlington Meyer Davis 10-piece orchestra, Jack Renard, director.

KYW, Chicago, Ill. (Central, 535.4), 11 a. m., Central church service, Dr. F. E. Shannon, pastor; 4-5 p. m., studio concert; 7, Chicago Sunday Evening club, Edgar Nelson, musical director; speaker, Dr. John Gardner, First Presbyterian church.

WBAP, Fort Worth, Texas (Central, 472.9), 11 a. m., services, First Methodist church, Rev. J. W. Bergin,

pastor; Will Foster, organist; 4 p. m., concert, Rialto theater; 11-12, midnight frolics, Ted Miller's Crazy hotel orchestra.

WBRR, Staten Island, N. Y. (Eastern, 273), 9:10 p. m., I. B. S. A. choral singers; 9-10, vocal duets, Thyra Lundberg, Fred Franz; 9:30, "The Joy of the People," Judge Rutherford; 10:10, vocal solos, Fred Franz; 10:20, I. B. S. A. choral singers.

WBZ, Springfield, Mass. (Eastern, 337), 10:45 a. m., church services; 8:30-10 p. m., concert.

WCAL, Northfield, Minn. (Central, 360), 8:30 p. m., sermon, Dr. Martin Hogland; Alice Sillib, soprano; Evelyn Johnson, mezzo-soprano; Martin M. Munson, baritone; Arthur Seeliger, pianist.

WCAU, Philadelphia, Pa. (Eastern, 278), 5:15 p. m., recital; 5:30, Bible talk; 6, dance music, Hotel Pennsylvania dance orchestra, Louis Baer, director.

WGO, Zion, Ill. (Central, 345), 8 p. m., Bull and Paxton, tenor and baritone; Mrs. Beem and Mrs. Crowe, soprano and contralto; Mr. and Mrs. R. M. Steel, soprano and tenor; Mary Sweeney, soprano; John D. Thomas, baritone; Mason and Mason, cornetist and trombonist; Paul Stewart, cornetist; Mrs. Blanche Bishop, pianist; Mrs. Susie Barton Smith, reader.

WCCO, St. Paul-Minneapolis, Minn. (Central, 417), 10:20 a. m., Westminster Presbyterian church, Rev. J. E. Bushnell, pastor; 4:10 p. m., House of Hope Presbyterian church, Rev. H. C. Swearingen, pastor; 7:20, Second Church of Christ Scientist; 9:15, classical program.

WCX, Detroit, Mich. (Eastern, 513), 7:15 p. m., services, Central Methodist Episcopal church.

WOAF, Kansas City, Mo. (Central, 411), 4-5 p. m., classical program, the Star's Radio orchestra; 5-5:45, International Sunday school lesson, Dr. Walter L. Wilson.

WOAR, Philadelphia, Pa. (Eastern, 395), 2:30 p. m., Arcadia cafe concert orchestra, Eeri Sarkozl, director.

WEAF, New York, N. Y. (Eastern, 402), 7:15-9:20 p. m., Roxy and his Gang, Capitol theater; 9:20-10:15, Skinner organ recital.

WEBH, Chicago, Ill. (Central, 370), 5-6 p. m., twilight musicale; 7-9, selected artists program.

WEEI, Boston, Mass. (Eastern, 303), 3:45-5:30 p. m., men's conference, Bedford Branch, Y. M. C. A.; 7:20-9:15, Roxy and his Gang, Capitol theater.

WEMC, Berrien Springs, Mich. (Central, 286), 10:15-10:30 a. m., musical program, Radio choir; 10:35-10:45, Elmer Coulston, pianist; 11-11:20, sermon, Pastor W. R. French; 8:15-8:30, Mrs. Mabel Butterfield, soprano; 8:50-9:15, sermon, Pastor John Knox.

WFAA, Dallas, Texas (Central, 472.9), 3-4 p. m., Grand Symphony orchestra, Nicholas Mirsky, director; 6-7, Radio Bible class, Dr. William M. Anderson; 7:30-8:15, service, First Methodist Episcopal church, Dr. Carl C. Gregory, pastor; 9-9:30, sacred song recital, Dr. Robert A. Hunt; 9:30-11, Jack Gardner and his orchestra.

WFI, Philadelphia, Pa. (Eastern, 395), 4:30 p. m., services, Central Branch Y. M. C. A., Dr. Daniel A. Poling of New York, speaker; 7:30, services, Arch Street Presbyterian church.

WGN, Chicago, Ill. (Central, 370), 11 a. m., Uncle Walt reads the "Funnies"; 11:45, Chicago theater program; 2 p. m., organ recital, Lyon & Healy; 2:30, master artists concert, Carl Craven, tenor; 3, artists of Chicago Musical college; 9, "Evening with the Great Composers," Charles E. Gabriel, Jr.; Ethel Wakefield, soprano; Drake concert ensemble.

WGR, Buffalo, N. Y. (Eastern, 319), 3-4 p. m., vesper service, Rev. Walter W. Hopping of the Second United Presbyterian church, speaker; 4-5, George Albert Bouchard, organist; 7:15, service of the Central Presbyterian church of Buffalo, William Wall Whiddit, organist, and Dr. Robert J. MacAlpine, speaker.

WGY, Schenectady, N. Y. (Eastern, 380), 10:30 a. m., services, Albany Street Methodist Episcopal church,

Halsted and dance orchestra; 5:30-6, Aunt Betty stories, KGO kiddies' club; 8, educational program; "Estate," "Am Meer," Arlon trio; "The Value of Vocational Education," Prof. H. M. Skidmore; "Spanish Dances," Arlon trio; "A Lesson in English," Wida Wilson Church; "Fifth Hungarian Dance," Arlon trio; "The Parent as Teacher," Dr. Aurelia Henry Rinshtadt; "Butterfly," Joyce Holloway Barthelsson, pianist; "Chats About New Books," Joseph Henry Jackson; "Altra's Dance," Arlon trio; 10-1 a. m., dance music, Henry Halsted's orchestra.

KGW, Portland, Ore. (Pacific, 492), 5 p. m., children's program; story, Aunt Nell; 8, concert, Oregonian concert orchestra; 10, dance music, George Oiser's Metropolitan orchestra; intermission numbers, Sheffer's string orchestra.

KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:30 p. m., Carlyle Stevenson and his Bon Ton ballroom orchestra.

KNX, Hollywood, Calif. (Pacific, 337), 8 a. m., morning prayer; 9, Hired Hand, news; 10, Hired Hand's morning message; 10:30, talk on home economics, Mrs. Kate Brew Vaughn; 11, talk on care of domestic pets, Dr. Richard M. Scott; 5:30 p. m., Town Crier and Village Urchins; 8-10, program, Western Auto Supply company; 10-11, movie night at the Ambassador, Abe Lyman's Coconut Grove dance orchestra.

KOA, Denver, Colo. (Mountain, 323), 8 p. m., LIONS Club saxophone sextet.

KOB, State College, N. M. (Mountain, 360), 7:30-8:30 p. m., musical program.

KPO, San Francisco, Calif. (Pacific, 423), 7 a. m., setting up exercises, Bernard Drury; 11, "Home Making," Prudence Penny; 1-2 p. m., Rudy Selger's



Ida Blachson, as she appeared as Deborah in the Radio version of the "Miracle Play" at WLW, Cincinnati. She will be heard at this station in the very near future in answer to fan mail from all over the United States.

Monday, January 19

Munday, silent night for: CKAC, KFDM, KHJ, KJS, KVV, PWX, WBAV, WCAL, WCAU, WEAQ, WEBH, WEBJ, WGN, WHAS, WJY, WKAQ, WKBF, WLBL, WLS, WMAQ, WNJ, WOAI, WRC, WTAY.

CHNC, Toronto, Can. (Eastern, 350), 8:30 p. m., Branson Hall, tenor; Eva Warrington, soprano; instrumental

Fairmont hotel orchestra; 4:30-5:30, Rudy Selger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories, Big Brother of KPO, yodeling, "Topsy" McCune; 7-7:30, Rudy Selger's Fairmont hotel orchestra; 8-9, Theodore J. Irwin, organist; Alice G. Sheriffs, Bass; 9-10, program, Ada Barton, soprano; "Better Lighting," H. C. Barnard; William H. Conway, tenor; Peter Hanson, pianist; 10-11, E. Max Bradford's Versatile band.

KSAC, Manhattan, Kans. (Central, 341), 12:30 p. m., Osceola Hall Burr, pianist; "Crop Improvement Club," Work, A. J. Scoth; "Sweet Clover Seedbed," L. E. Doughty; 7:20, college bell and opening exercises; 7:30, "Types of Hogs," A. D. Weber; 7:40, Radio college quartet; 7:45, "Home Grown Feeds for Dairy Cattle," J. B. Fitch; 8, crop improvement meeting.

KSO, St. Louis, Mo. (Central, 549.1), 8 p. m., music and specialties, Missouri theater; 9, music program, Grand Central theater.

KSNQ, Seattle, Wash. (Pacific, 238), 7:15-8 p. m., Aunt Vivie's bedtime story; 8-9, Washington's month, Seattle's Chamber of Commerce; "The Beauties of the State of Washington," Asahel Curtis; Edna Mayhew, dramatic soprano; 9-10, concert hour; 10-11, Earl Gray and his Hotel Butler orchestra.

KTHS, Hot Springs National Park, Ark. (Central, 375), 8:30-10 p. m., concert, Mrs. Hiram McCafferty; 10:30-11:30, dance frolic, Fisher Exposition Eastman hotel orchestra.

KYW, Chicago, Ill. (Central, 535.4), 6:30 a. m., morning exercises, V. M. C. A.; 11:35, table talk, Mrs. Anna J. Peterson; 6:35-7 p. m., children's bedtime story, Uncle Bob.

WAHG, Richmond Hill, L. I. (Eastern, 316), 8-8:15 p. m., Harry J. Caffrey, tenor; 8:15-8:30, Morningside string quartet; 8:30-8:45, Grace Leslie, contralto; 8:45-9, Dorothy Bartram, reader; 9-9:15, Maude Mason, piano; 9:15-9:30, Harry J. Caffrey; 9:30-9:45, Morningside string quartet; 9:45-10, Grace Leslie, contralto; 10-10:15, Dorothy Bartram; 10:15-10:30, Maude Mason, pianist; 12-2 a. m., dance orchestra.

WBAP, Fort Worth, Texas (Central, 472.9), 7:30-8:30 p. m., dance music, Frenley Moore's Black and Gold serenaders; 9:30-10:45, "Old Gray Mare Band," of Brownwood.

WBAV, Columbus, Ohio (Eastern, 293.9), 8 p. m., classical and popular selections, WBAV orchestra, Frances Handbauer, director.

WBF, Atlanta, Ga. (Central, 270), 9-12 p. m., Georgia Tech. band, Frank Roman, director.

WBBG, Mattapoisett, Mass. (Eastern, 248), 7-9 p. m., Biltmore orchestra.

WBRR, Staten Island, N. Y. (Eastern, 273), 8 p. m., Frank Wood, flutist; 8:10, Irene Klempner, soprano; 8:20, world news digest, Editor of Golden Age magazine; 8:40, Irene Klempner, soprano; 8:50, Frank Wood, flutist.

WBZ, Springfield, Mass. (Eastern, 337), 6-7 p. m., dinner concert; 7-10, kiddies' bedtime stories; 7:15-7:30, lecture, address; 7:30-8, University Extension course; 8-10:30, concert; 11:30-12, McNelly's singing orchestra, playing dance music.

WCBD, Zion, Ill. (Central, 345), 8 p. m., cornet quartet; celestial bells; Newcomer and Newcomer, cornetist and saxophonist; Fred Faassen, organist; Four Wiedman Sisters; Mrs. Mayfield, soprano; Mrs. Faassen, contralto; piano duet, Mrs. Gertrude Deeder, Deborah Kriner; Herbert Hendricks, reader.

WCCO, St. Paul-Minneapolis, Minn. (Central, 417), 2 p. m., woman's hour; 2:30, matinee musical; 4, magazine hour; 5:30, children's hour, 6, children's hour, Mrs. Robert J. Cargill; 8, Stat. Historical society; 8:15, "What a Cop Thinks About," 8:30, musical program, Disabled American Veterans of the world wide; 10, dance program, Arnold Frank's Casino orchestra.

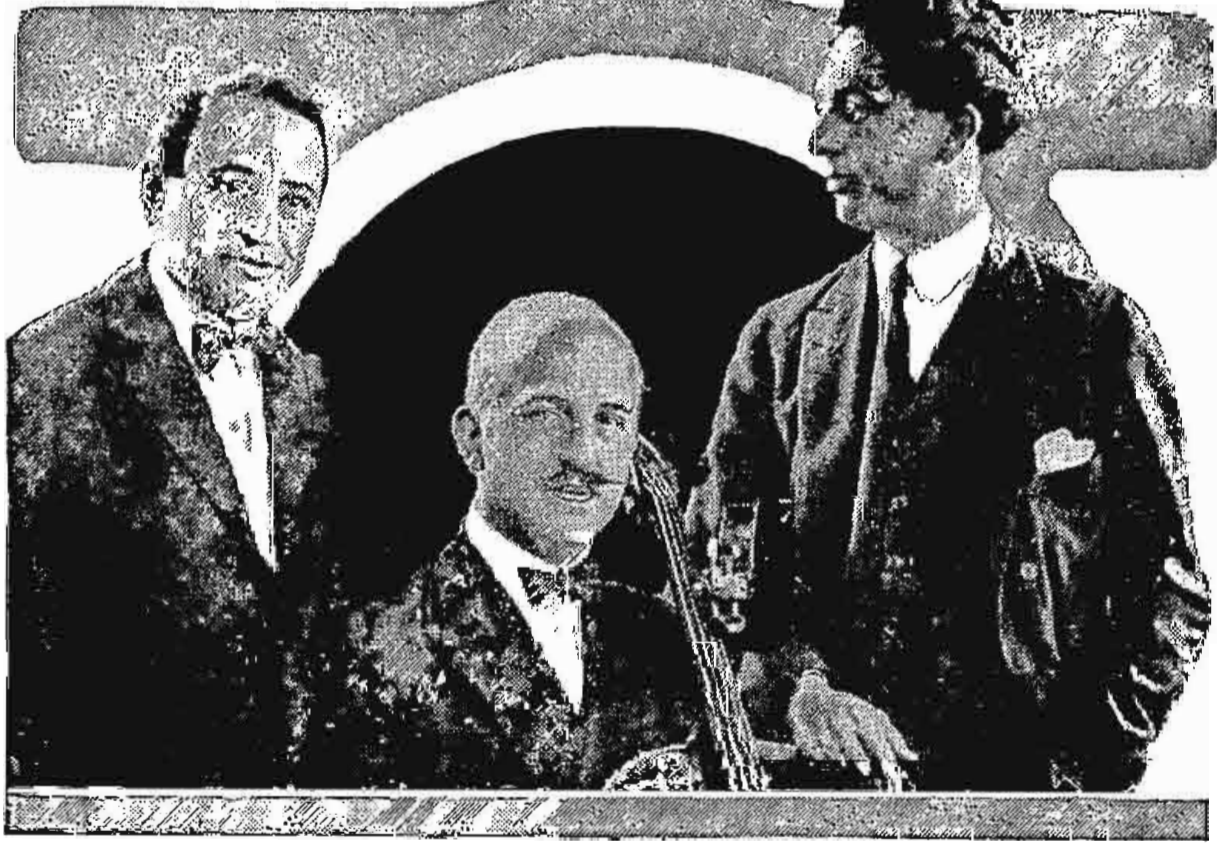
WCX, Detroit, Mich. (Eastern, 513), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program.

WOAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p. m., program from Newman and Royal theaters; 5-5:30, weekly Boy Scout program; 6-7, school of the air, piano tuning number on the Duo-Art; address, C. H. Cheney; tenth of a series of talks on banking, the Tell-Me-a-Story lady; music, Hotel Muehlebach Arlon ensemble; 8-9:15, "Around the Town with WDAF," 11:45-1 a. m., nighthawk frolic, the "Merry Old Chief" and the Plantation players.

WOAR, Philadelphia, Pa. (Eastern, 395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 7:30, Dream Daddy's bedtime stories; 9:25, Stanley theater symphony orchestra; features from Stanley theater; 10:05, Arcadia cafe dance orchestra; features from Pay's vaudeville theater.

WEAF, New York, N. Y. (Eastern, 492), 4-4:20 p. m., Furia trio; 4:20-5, children's stories; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:15, Gustav Langenus, clarinetist; 7:15-8:30, Strand theater program; 8:30-8:45, Premier male quartet; 8:45-9, David Berend, baritone; 9-10, A. and P. Gynales; 10-10:15, Florence Wickham, soprano; 10:15-11:30, Midnight Sons orchestra.

WEAR, Cleveland, Ohio (Eastern, 390), 7 p. m., Loev's State theater, organ recital, vocal and instrumental soloists.



The New York trio is a WNYC favorite. Clarence Adler (left) is the pianist, Cornelius Van Vliet, cellist, and Louis Edlin (right), violinist.

Rev. Cassius J. Miller; 3:35 p. m., program, WGY Symphony orchestra, Leo Kilwen, conductor; Edward E. St. Louis, baritone; instrumental selections, "Occasional," orchestra; Edward E. St. Louis, singing "The Gypsy Trail," "Menuetto" from the "Twelfth Symphony," orchestra; "Onaway, Awake, Beloved," Edward E. St. Louis; "Prize Songs" from the "Melstersinger," orchestra; "In Canterbury Square," Edward E. St. Louis; "Italian Divertimento," "A Day in Naples," WGY Symphony orchestra; 5, Dr. Frank Hill Rogers, organist, playing "Romance," "Chanson Pathetique," "Song Without Words," "Grand March" from "Aida"; 7:30, services, Albany Street Methodist Episcopal church, Rev. Cassius J. Miller, pastor; 9, Symphony orchestra, Waldorf-Astoria; 10, selections, Hampton Institute quartet.

WHAS, Louisville, Ky. (Central, 400), 9:57 a. m., organ music; 10, church service, auspices First Christian church; 4-5 p. m., vesper song service, First Unitarian church, Dr. Lon R. Call, pastor; Velda Grant Kelleher soprano; Reginald Billin, baritone.

WHB, Kansas City, Mo. (Central, 411), 9:45-11 a. m., services, Linwood Boulevard Christian church, Dr. Burrill Jenkins, pastor; 8 to 9:30 p. m., services of a representative church of Kansas City.

WHN, New York, N. Y. (Eastern, 360), 3-4 p. m., Queens County Christian Endeavor program; 5-5:30, Roseland dance orchestra; 5:30-6, Oleott Vail and his string trio; 10-10:45, Gem Razor entertainers; 11-11:30, Vanity club revue; 11:30-12, Connie's Inn revue with Leroy Smith's orchestra; 12-12:30 a. m., Harry Richman and his entertainers with Eddio Elkins and his orchestra.

WHO, Des Moines Iowa (Central, 522.3), 11 a. m., church service, University Church of Christ, sermon, Dr. C. S. Medhurst.

WIP, Philadelphia, Pa. (Eastern, 509), 10:45 a. m., services, Holy Trinity church; 4, "Sunday Talk" meeting, auspices Germantown Y. M. C. A.

WJJD, Moosehead, Ill. (Central, 278), 7:45-8:40 p. m., Roman Catholic services; 8:45-9:30, Albert F. Brown, organist; 9:40-11, Protestant services; 3-4 p. m., regular Sunday concert.

trio; Jack Gormley, character reader; Mrs. E. Commerford Walter, contralto.

CKAC, Montreal, Can. (Eastern, 437), 1:45 p. m., Windsor hotel trio; 4:30, ilo lessons.

KOKA, E. Pittsburgh, Pa. (Eastern, 309.1), 7 a. m., morning exercises, O. Shannon; 12:15 p. m., Daugherty's orchestra; 6:15, KDKA Little Symphony orchestra, Victor Saudek, conductor; 7:30, children's period; 8, Boy Scout meeting; 8:15, address, University of Pittsburgh studio; 8:30, concert.

KFAE, Pullman, Wash. (Pacific, 330), 7:30-9 p. m., women's glee club, Mrs. LaVerna Kimbrough; talk, Dr. C. W. Stone; "Nutrition School Program"; Mary Sutherland; "Important Points in Poultry Raising," J. S. Carver; "Opportunities in Electrical Engineering," Prof. H. D. Sloan.

KFAU, Boise, Idaho (Mountain, 275), 8 p. m., concert program, Mrs. R. J. Beeson, director.

KFI, Los Angeles, Calif. (Pacific, 469), 8-9 p. m., Evening Herald Itadollins dance orchestra; 9-10, program, Walter M. Murphy Motors company, Hudson Six orchestra; 10-11, Examiner, dance orchestra.

KFKB, Milford, Kans. (Central, 273), 6-7 p. m., lecture, music; 10-11, lecture, music.

KFKU, Lawrence, Kans. (Central, 275), 6:50 p. m., piano tuning-in number; 7, music, Elva McMullen, soprano; Stewart Dickson, pianist; 7:15, "Individual Offense," Dr. F. C. Allen, one of a series of talks on basketball coaching; 7:30, "Analysing the Question and Preparing Speeches," Prof. B. A. Gilkinson; 7:45, elementary Spanish, lesson III.

KFNF, Shenandoah, Ia. (Central, 266), 6:30 p. m., concert, Lennox, Iowa, W. R. Monroe, director.

KFOA, Seattle, Wash. (Pacific, 405), 4-5:15 p. m., studio music, educational talk; today's recite; 6:45-8:15, Sherman Clay & company program; 8:30-10, Seattle Times studio program.

KGO, Oakland, Calif. (Pacific, 312), 9 a. m., music and lectures, California State Department of Education; 11:30-1 p. m., luncheon concert, Pacific States Electric company; 3, studio musical program; 4-5:30, Henry

(Continued on page 15)

SURPRISE PROGRAM AT WCCO FRIDAY

Monday, January 19

(Continued from page 14)

WEEI, Boston, Mass. (Eastern, 303), 6:30 p. m., Boston Edison Big Brother club; 7, Dok-Eisenbourg and his Sinfonians; 7:30, service talk, Radio Equipment company; 7:40, Dok-Eisenbourg and his Sinfonians; 8, musicale; 8:45, 'Buddy's Bostonians'; 9:30, musicale.

WEMC, Berrien Springs, Mich. (Central, 286), 8:15-8:45 p. m., Radio Lighthouse Music makers; 8:45-9, 'Birds of Winter in Michigan,' Mary Lamson; 9-9:30, Radio Lighthouse Music makers.

WFAA, Dallas, Texas (Central, 472.9), 12:30-1 p. m., address, Dr. A. D. Lougenour; 8:30-9:30, old fiddlers from Rockwall, W. H. Dawson, director.

WFI, Philadelphia, Pa. (Eastern, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3:05, Marle Conklin, 12-year-old soprano; Silver Bell brass quartet; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, the kiddies' pal.

WGBS, New York, N. Y. (Eastern, 316), 1:30 p. m., Evan Evans, bass baritone; 3, interview with Peter J. Brady, Terese Rose Nagel; 3:15, Frances Kirsch, soprano; Princess Aloha and Ray Perkins; 3:45, Carol Edwin, darkey dialect stories; 3:50, Frances Kirsch, soprano; 6, Uncle Gebebe.

WGN, Chicago, Ill. (Central, 370), 1:40 p. m., Luncheon concert, Drake concert ensemble, Blackstone quintet; 2:30, artist series, Lyon & Healy; 3, rocking chair time; 5:30, skeezix time; 6, organ recital, Lyon & Healy; 6:30, dinner concert, Drake concert ensemble, Blackstone quintet.

WGR, Buffalo, N. Y. (Eastern, 319), 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Buffalo Courier and Enquirer musical program; 6:30-7:30, dinner music, Vincent Lopez Hotel Statler dance orchestra, Harold Gieser, director; 8-8:15, address, 'What's Right with the Schools,' by Supt. of Schools Ernest C. Hartwell of Buffalo; 9-10:30, Orchard Park high school orchestra; 10:30-11, William S. C. Wall, tenor, with violin and piano accompaniment; 11:30, supper-dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Gieser, director.

cert, Selinsky Instrumental quintet; 8-10, Times-Star program; Times-Star orchestra; Hans Meuser, bass; Rene Corne, oboe soloist; Herman Goehlich, pianist; Howard Hafford, tenor.

WMAQ, Chicago, Ill. (Central, 447.5), 4 p. m., mothers in council, Mrs. Frances M. Ford; 4:30, talk on English, Mrs. Elliott Jenkins; 6, Chicago theater organ recital; 6:30, Hotel LaSalle orchestra.

WMC, Memphis, Tenn. (Central, 503.9), 12 m., musical program, O. K. Houck Plano company; 8 p. m., bedtime story, Uncle Jerry; 8:30, concert, Hotel Gayoso orchestra.

WOAW, Omaha, Nebr. (Central, 522.3), 6 p. m., organ music, World theater, Arthur Hays, organist; 6:30, to be announced; 9, concert program, 17th U. S. Infantry band, Herman Webel, director.

WOC, Davenport, Iowa (Central, 498), 10:05 a. m., household hints; 12 m., chimes; 7 p. m., sandman's visit; 7:20, 'Care of Infants,' J. H. Craven; 8, program, German music, singing section of the Davenport Turners' society; 10, dance music, Greer's orchestra.

WOI, Ames, Iowa (Central, 360), 12:30 p. m., 'Feeding Dalry Gattle,' Prof. Earl Weaver; 10, program, popular music.

WOO, Philadelphia, Pa. (Eastern, 509.9), 11- a. m., organ recital, Mary E. Vogt; 12:02 p. m., Wanamaker crystal tea room orchestra, Robert E. Golden, director; 4:45, organ recital, Mary E. Vogt; 7:30, A. Candelori and his ensemble; 8:30, recital, Harriette G. Ridley;

'Emmet's Lullaby,' David Rosebrook, cornetist; 'The American Service Club Movement,' Carlos G. White; 'Trelude in C Sharp Minor,' Lloyd Kramer; 'Somehow,' 'Puss' Donahoo's orchestra; 'Viking Song,' 'In the Time of Roses,' Edwin Heinsohn; Hawaiian selections for steel guitars, Gladys Steele, Norman Deans; 'Bonnie, Sweet Bessie,' 'Ye Banks and Braes o' Bonnie,' 'Doon,' Ida Palmer Walker; musical novelty, Musical Coopers; 'The Old Home Poet,' 'Will R. Hill; 'Serenade,' 'Perfect Day,' David Rosebrook, cornetist; 'Puss Donahoo's orchestra; 10-1 a. m., Henry Halstead's orchestra.

KGW, Portland, Ore. (Pacific, 492), 12:30 p. m., concert; 5, children's program; story, Uncle Dave; 8, agricultural lecture, Oregon Agricultural college extension service; 8:30, concert, artist pupils, Dierke, Beltman and Fargo studios; 10, Multnomah hotel strollers.

KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:30 p. m., Tommy Tibbets and his Rendezvous ballroom orchestra; 2:30-3:30, program, Pacific States Electric company, Grace Currey, harpist; 6-6:30, Art Hickman's Biltmore hotel concert orchestra; 6:30-7:30, stories American history, Prof. Walter Sylvester Hertzog; weekly visit of the sandman and Queen Titania of Fairyland, Uncle John; 7:30-8, Occidental College Men's Glee club; 8-10, program, presented by William Hollinger; 10-11, Earl Burnett's Biltmore hotel dance orchestra.

WCCO, St. Paul-Minneapolis, Minn. (Central, 417), 10:45 a. m., home service, 'Recipe Exchange,' Betty Crocker; 2 p. m., 'The Minnesota Board of Control,' Mrs. Blanche Ladd; 2:15, 'How Minnesota Administers Problems of Public Welfare,' Esther Grandall; 4, magazine hour; 5:30, children's hour, Gold Medal lady; 6:30, dinner concert, Riley's concert orchestra.

WCX, Detroit, Mich. (Eastern, 513), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program; 10, the Red Apple club; dance music.

WOAF, Kansas City, Mo. (Central, 411), 8:30-4:30 p. m., the Star's string trio; 5-5:30, weekly child-talent program; 6-7, school of the air, piano tuning-in number on the Duo-Art; fifteenth of a series of Radio piano lessons, Maudie Littlefield; the 'The-Ale-a-Story lady; music, Hotel Muehlebach Trio ensemble; 11:45-1 a. m., nighthawk frolic, the 'Merry Old Chief' and the Plantation players.

WDAR, Philadelphia, Pa. (Eastern, 395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital, Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 2:30, Florence Hall Quimby, soprano; 7:30, Dream Daddy's bedtime stories; 7:50, 'Behind the Footlights,' Arnold Abbott.

WEAF, New York, N. Y. (Eastern, 492), 4-4:15 p. m., Judith Roth, soprano; 4:30-5, women's program; 6-7, dinner music, Waldorf-Astoria hotel; 7:30-8, health talk, N. Y. Health Speakers series; 8-8:15, talk, Bank of America; 8:30-9, Gold Dust twins; 9-10, Eveready hour; 10-11, Goodrich Rubber hour.

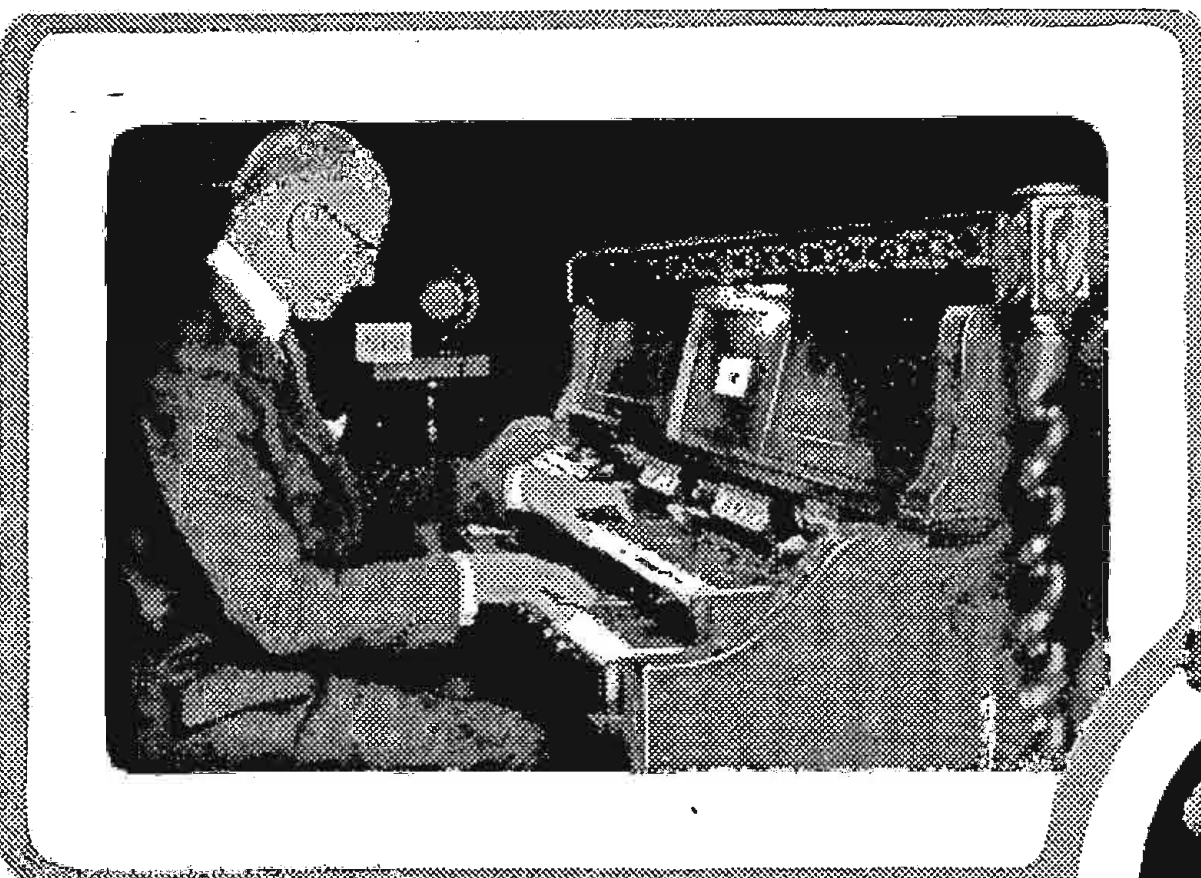
WEAR, Cleveland, Ohio (Eastern, 390), 7:30 p. m., program, arranged by the Cleveland News-Leader; E. C. Bacon, bedtime story; Don Palmer, Radio cartoon talk; Joe Smith-Martha Lee club orchestra; vocal and instrumental soloists.

WEBH, Chicago, Ill. (Central, 370), 7-8 p. m., Helen Smith, soprano; Oriole concert orchestra; musical bits; Riviera theater; 9-10, Oriole orchestra; Margaret Snook, pianist; Myron Muench, reader; Dennis sisters, songs; 11-12, Oriole orchestra; Loos brothers, songs; Riviera theater revue.

WEBJ, New York, N. Y. (Eastern, 233), 7-9 p. m., special two hour program, auspices of Knights of Columbus.

WEEI, Boston, Mass. (Eastern, 303), 2 p. m., Johnnie Bowles Napoli four; 6:30, Boston Edison Big Brother club; 6:30, Boston Edison Big Brother club; 7, Dok-Eisenbourg and his Sinfonians; 8, musicale; 9, Eveready hour; 10, Goodrich Silvertown Cord orchestra.

WFAA, Dallas, Texas (Central, 472.9), 12:30-1 p. m., address, Charles E. Osborne; 8:30-9:30, musical re-



9, WOO orchestra; 10:03, organ recital, Mary E. Vogt; 10:30, Vincent Rizzo and his Hotel Sylvania dance orchestra.

WOR, Newark, N. J. (Eastern, 405), 7-7:30 a. m., WOR gym class; 2:30-2:45 p. m., Lena Kievsky, pianist; 2:45-3, Mabel A. Miller, soprano; 3:15-3:30, Lena Kievsky, pianist; 3:30-3:45, Mabel A. Miller; 3:45-4, talk, Charm magazine; 6:15-7:15, 'Music While You Dine,' Dave Harman's Cinderella orchestra; 7:15-7:30, resume of the day's sports, Jolly Bill Steinke; 8-8:30, Albert Verchamp, violinist; 8:30-9:30, musical program, Banford theater; 9:30-9:45, Dr. Sigmund Spaeth and his fifth studio party; 10:45-11:15, Carolinians under Chas. M. Koch; 11:15-12, Perry and Russell, two-man singing orchestra.

WOS, Jefferson City, Mo. (Central, 440.9), 8 p. m., 'The Story of Joan of Arc,' Dr. Henry S. Curtis.

WSAI, Cincinnati, Ohio (Central, 325.9), 10 p. m., Roger Hill's Danceland orchestra.

WSB, Atlanta, Ga. (Central, 429), 12 m., entertainment; 5-8 p. m., bedtime story, Bonnie Barnhardt; 8-9, 'The Honeymoon Couple,' Dr. and Mrs. Tom Gibbs Fowler; 10:45, special concert, to be recorded on phonograph at F. R. White laboratories, Stamford, Conn.

WTAM, Cleveland, Ohio (Eastern, 390), 6 p. m., Philip Spittain's Music Box orchestra; 8, concert program.

WWJ, Detroit, Mich. (Eastern, 513), 3 p. m., the Detroit News orchestra; 7, the Detroit News orchestra.

Joseph Krecht (right), director of the Waldorf-Astoria concert orchestra, heard Sunday evenings through WJZ, New York, and WGY, Schenectady. Dan McFarland (above) is the organist who broadcasts at KFI each Tuesday and Friday evening at 6:45 p. m. Helen Freund, soprano, will be heard soon again at WGN, Chicago. Freund photo.

Tuesday, January 20

WGY, Schenectady, N. Y. (Eastern, 360), 2 p. m., 'Childhood's Part in Life Time Habits,' Elizabeth H. Morris; 6:30, sport talk, Harold Anson Bruce; 7:45, 'Saracen March,' WGY orchestra; 'Japanese Sketch,' WGY orchestra; 'Because,' Anne D. Hannan, soprano; 'Dance of the Bumble Bee,' WGY orchestra; dance from 'Jolster,' WGY orchestra; 'The Haunted Restaurant,' 'Until,' Anne D. Hannan, soprano; 'Spring Dance,' orchestra; 'Hallings,' orchestra; 'Caro Mio Ben,' Anne D. Hannan; 'Humoresque Dance,' WGY orchestra.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., selections, Alamo theater organ.

WHB, Kansas City, Mo. (Central, 411), 2-3 p. m., ladies' hour program, Sweeney Radio trio; 7-8, address, member of the faculty of the Sweeney school; music, Sweeney Radio trio.

WHN, New York, N. Y. (Eastern, 360), 6:30-7:10 p. m., Vincent Catanes and his Hotel Alamac orchestra; 7:10-7:25, fashion chats, Mme. Belle; 7:25-7:30, Hotel Carlton Terrace orchestra; 7:30-7:35, 'Spring Styles,' fashion expert of Haas Brothers Fabric corporation; 8-8:05, 'Storage Batteries,' H. B. Shontz; 8:05-8:30, Roseland dance orchestra; 8:50-9:20, Littman's Employees orchestra; 9:35-10:05, Dan Gregory and his Crystal Palace orchestra; 10:05-11:05, Jack Shack broadcasting direct from Radio Shack.

WHO, Des Moines, Iowa (Central, 522.3), 7:30-9 p. m., Thelma Morrow, xylophonist; Mrs. Kate Miller, whistler; Mrs. Maud Hughes, soprano; classical program, Dean Holmes Cowper, director; 11:15-12, L. Carlos Meier, organist.

WIP, Philadelphia, Pa. (Eastern, 509), 1 p. m., Gimbel tea room orchestra, Ray Steen, director; 6:05, Hotel St. James dinner dance orchestra; 7, Uncle Wip's bedtime stories; dancing lessons, Miller Conservatory of dancing.

WJJO, Mooseheart, Ill. (Central, 278), 3:30-4:30 p. m., music, Mooseheart children, Mooseheart assembly; talks, members of faculty; 6:45-7:15, Albert F. Brown, organist; 7:15-8:15, Mooseheart Novelty orchestra; talk, Ben Oswald; 11:30-12:30 a. m., request program, Albert F. Brown.

WJZ, New York, N. Y. (Eastern, 455), 10-10:20 a. m., housewives league menu, Mrs. Julian Heath; 10:20-10:30, 'Your Money's Worth in Textiles,' Mrs. J. Heath; 10:30-10:40, 'Home Beautiful,' Dorothy Ethel Walsh; 10:40-10:50, 'Short Ribs Are Becoming Popular,' John C. Cutting, Meat Council of New York; 1-2 p. m., Henry Vander Zanden's Hotel Ambassador trio; 4:30-5:30, 'Bernard Levittov's Hotel Comodoro orchestra; 8-8:10, Wall Street Journal review; 8:10-8:20, 'American History,' N. Y. U. Air college, Dean M. S. Brown; 8:40-8:41, 'Learn a Word a Day,' 8:41-9:15, Piedmont trio; 9:15-10, 'Philosophy of Nutrition,' Alfred W. McCann; 10-10:15, 'Can Thrift Be Painless,' National Bank day; 10:45-11:45, Jacques Green and his Club Deauville orchestra with Clark's Hawaiian.

WLS, Chicago, Ill. (Central, 345), 12-1 p. m., Nuba Allan, contralto; 2:45-4:45, 'Lectelation Illinois Women Are Working For,' William E. Lewie; 'Your Health Examination,' Mrs. Samuel MacClintock.

WLW, Cincinnati, Ohio (Central, 423), 8 a. m., setting up exercises, Y. M. C. A.; 6 p. m., dinner hour con-

CKAC, Montreal, Can. (Eastern, 437), 7 p. m., kiddie stories in French and English; 7:30, Windsor hotel dinner concert; 8:30, studio concert; 10:30, Windsor hotel dance orchestra; 12 midnight, special frolic, Frontenac Breweries studio.

CNRA, Moncton, (Eastern, 313), 8:30 p. m., 'I Sent You a Song,' 'The Melody of Home,' Mrs. A. T. McLean, soprano; trio selections, violin selections, Ceceli Babineau; 'Selections from Drummond,' Mrs. F. S. Wilkins; 'Sextette from Lucia di Lammermoor,' Mrs. R. L. Algie; 'Love Sends a Little Gift of Roses,' 'Little Holes in Heaven,' Mrs. A. T. McLean; trio selections, violin selections, Ceceli Babineau, director; 'Selections from Drummond,' Mrs. F. S. Wilkins, reader; mandolin solo, 'Traumerel,' Mrs. R. L. Algie; dance music, Joe Mazzone and his Rainbow Melody boys.

CNRR, Regina, Can. (Mountain, 420), 8:10 p. m., bedtime travel tale, Winter's concert orchestra.

KOKA, E. Pittsburgh, Pa. (Eastern, 309.1), 12:20 p. m., Institute, Trinity church; 6:15, dinner concert; 7:30, children's period; 8:30, concert; 11, concert, Pittsburgh Post studio.

KFDM, Beaumont, Texas (Central, 315.6), 8 p. m., musical concert.

KFI, Los Angeles, Calif. (Pacific, 469), 5-5:30 p. m., Evening Herald, table talk and news; 5:30-6, Examiner, musical half hour; 6:45-8, Dan McFarland, organist; 8-9, vocal and instrumental program; 9-10, Examiner community program; 10-11, Packard ballad hour.

KFKB, Milford, Kans. (Central, 273), 6-7 p. m., lecture and music; 10-11, lecture, music.

KFKK, Hastings, Nebr. (Central, 288.3), 8-10 p. m., reception program, annual convention of Nebraska State Volunteer Firemen's association.

KFOA, Seattle, Wash. (Pacific, 405), 4-5:15 p. m., Olympic hotel concert orchestra; today's recipe; 6:45-8:15, Rhodes' Department store program; 8:30-10, Seattle Times dance music; 10:05-11, Olympic hotel dance music.

KFSG, Los Angeles, Calif. (Pacific, 278), 10:30-11:30 a. m., singing hour program; 3:30-4:30, afternoon organ recital, Esther Fricke Green; 6:30-7:30, children's hour, presenting Cousin Jim and associates.

KGO, Oakland, Calif. (Pacific, 312), 11:30-1 p. m., luncheon concert, Pacific States Electric company; 4-5:30, concert orchestra of Hotel St. Francis; 8, 'Pretty as a Picture,' 'Puss' Donahoo's orchestra; 'When You and I Were Young, Maggie,' 'In the Gloaming,' Tda Palmer Walker, soprano; 'Rigioletto Paraphrase,' 'Music Box,' Mildred Berg; 'The Garland,' 'On Wings of Music,' Edwin Heinsohn; 'The Secret,'

KJS, Los Angeles, Calif. (Pacific, 360), 8-9:30 p. m., instrumental and vocal concert, direction of C. M. Brooks, Alfred Butler, pianist; Oscar Walton, organist.

KXK, Hollywood, Calif. (Pacific, 337), 8 a. m., morning prayer; 9, State Board of education's program for primary schools; 10, Hired Hand's morning message; 10:30, Mrs. Kate Brew Vaughn, talk on home economics; 5:30, Town Crier and Village Urchins; 6-7:30, dinner hour music sponsored by R. C. 'Cliff' Durant; 8-9, program, Peerless Products company; 9-10, program, Debequo Shale Lands company; 10-11, Abo Lyman's Cocanout Grove dance orchestra, Ambassador hotel; 11-12, June Purcell singer of popular songs.

KPO, San Francisco, Calif. (Pacific, 423), 7 a. m., setting up exercises, Bernard Drury; 1-2 p. m., Rudy Seiger's Fairmont hotel orchestra; 4:30-5:30, Rudy Seiger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories, Big Brother; 7-7:30, Rudy Seiger's Fairmont hotel orchestra; 8-9, program, auspices, Villa More Music Publishers; 9-10, program, Victor Vogel, bass; 10-11, E. Max Bradford's Versatile band.

KSAC, Manhattan, Kans. (Central, 341), 12:30 p. m., Osella Hall Burr, reader; 'Spring Pig Litters,' C. G. Ehling; 'Feeding Equipment,' R. W. Kiser; 7:20, college ball and opening exercises; 7:30, 'Liming Land for Alfalfa,' E. B. Walls; 7:40, Radio college trio; 7:45, 'Methods of Packing and Shipping Hatching Eggs,' L. F. Payne.

KSO, St. Louis, Mo. (Central, 549.1), 6 p. m., concert, Benjamin Rader's orchestra; 8:15, special program, St. Louis Symphony orchestra; Joseph Schwartz, baritone.

KSND, Seattle, Wash. (Pacific, 238), 7:15-8 p. m., bedtime story, Aunt Vilven; 8-9, Earl Gray and his Hotel Butler orchestra; 9-10, concert hour; 10-11, Earl Gray and his Hotel Butler orchestra.

KTHS, Hot Springs National Park, Ark. (Central, 375), 8:30-10 p. m., concert, 50 voice choral club of Hot Springs, Arthur Platz, director.

KYW, Chicago, Ill. (Central, 535.4), 6:30 a. m., morning exercises, Y. M. C. A.; 11:35, table talk, Mrs. Anna J. Peterson; 2:35-4 p. m., afternoon frolic; 6:35-7, children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 8-8:20, musical program, Chicago Musical college; 8:20-8:45, speeches, auspices American Farm Bureau federation; 'What the Illinois Farm Bureau Are Doing,' H. C. Butcher; 'In the Grain Markets,' J. W. Coradate; 8:45-9:30, musical program; 10-11:30, evening at home, Coopers Original Nighthawks.

WBAP, Fort Worth, Texas (Central, 472.9), 7:30-8:30 p. m., program, John Tarleton Agricultural college; 9:30-10:45, musical program, Montgomery Ward's entertainers.

WBZ, Springfield, Mass. (Eastern, 337), 6-7 p. m., dinner concert; 7:10, kiddies' bedtime story; 7:15-7:30, lecture, address; 8:30-10:30, concert; 11:30-12, organ concert.

WCAL, Northfield, Minn. (Central, 360), 9:45 a. m., St. Olaf college chapel services.

WCAU, Philadelphia, Pa. (Eastern, 278), 6 p. m., Meyer Davis Hotel Pennsylvania dance orchestra, Louis Baer, director; 7:30, series of household and electrical talks; 8, recital.

cial, Mrs. D. A. Little, Mrs. Sam Harwell; 11-12, organ recital, Dwight Brown.

WFI, Philadelphia, Pa. (Eastern, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3:05, Irene Guest Loog, violinist; Mrs. Anna March Jenkins, contralto; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, the kiddies' pal; 8, women's concert, auspices Philadelphia Rotary club; 9, Eveready hour from WEAF; 10, Goodrich Silvertown Cord orchestra.

WGBS, New York, N. Y. (Eastern, 316), 3 p. m., interview with Sigmund Romberg, composer, Terese Rose Nagel; 3-10, Ernest Edwards, baritone; Charles Le Maire, costume designer; 3:30, Ernest Edwards, baritone; 3:45, piano lessons, Alfred H. Robyn; 3:50, Ernest Edwards, baritone; 6, Uncle Beebe; 9, Ada Gudnov, pianist; 9:30, Herald-Tribune; 9:45, Ernest Edwards, baritone; 10:30, Paoli Del Pino, tenor; 11, Vincent Rose orchestra.

WGN, Chicago, Ill. (Central, 370), 1:40 p. m., luncheon concert, Drake concert ensemble, Blackstone quintet; 2:30, artist series, Lyon & Healy; 3, rocking chair time; 5:30, Skeezix time; 6, organ recital, Lyon & Healy; 6:30, dinner concert, Drake concert ensemble, Blackstone quintet; 8-9, classical concert; 10-11, Don Bestor's Drake dance orchestra.

WGR, Buffalo, N. Y. (Eastern, 319), 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Buffalo Courier and Enquirer musical program; 6:30-7:30, dinner music, Vincent Lopez Hotel Statler dance orchestra; 7-8, Eveready Hour; 10-11, Goodrich Silvertown Cord orchestra.

WGY, Schenectady, N. Y. (Eastern, 360), 2 p. m., 'Rainy Day Amusements for Children,' National Conservation commission; 6:30, dinner music, Hotel Ten Eyck trio; 7:45, 'Income Tax Talk,' J. F. Zoller; 'My Dreams,' A. O. Coggeshall, tenor; 8, 'The Criminal and the Napanoch Plan,' Walter N. Thayer, Jr.; 8:15, program, U. S. Army band.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., selections, Alamo theater organ; 7:30-9, concert, Carl Zoeller's melodist; chapters XVII and XVIII of the 'Billy and Jane' stories, James Speed, author.

WHB, Kansas City, Mo. (Central, 411), 2-3 p. m., ladies' hour program, Sweeney Radio trio; 8-9:30, varied musical program.

WHN, New York, N. Y. (Eastern, 360), 12:30-1 p. m., Chas. Strickland and his Palais D'Or orchestra; 2:15-3:15, overture and vaudeville, Loow's State theater, N. Y.; 6:30-7, Strand roof orchestra; 7-7:10, 'Personal Chats of the Stage and Screen,' E. S. Colling, movie critic; 7:10-7:30, WVEN Employment broadcasting; 10-10:30, Loow's vaudeville headliners, including, Austin and Arnold with Al Garry; 10:30-11, the New Rockwell Terrace revue; 11-11:30, Club Rose revue; 11:30-12, Sam Wooding and his Club Alabama orchestra; 12-12:30 a. m., Ted Lewis and his Symphonie Clowns with the revue Intimo, direct from Parody club.

WIP, Philadelphia, Pa. (Eastern, 509), 1 p. m., Karl Bonawitz, organist; 3:15, Irving Wilson, pianist; George Cole, tenor; Minella T. Resser, contralto; Belle Pollock, pianist; 6:05, Harvey Marburger's dance orchestra; 7, Uncle Wip's bedtime stories; 8, 'The Theater,' Elliott Lester; 9, 'Taming of the Shrew';

(Continued on page 16)

FRANKLIN'S BIRTHDAY REMEMBERED

Where to Hear Concerts

Central Standard Time

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.

Saturday, January 17: 6, KFKB, KGO, WGN, WMAQ, WOAI, WRC; 6:30, KFNF, WFAF, WGN, WOAI; 6:45, WTAY; 7, KYW, WFAF, WEBH, WFI, WOR; 7:15, WJJD; 7:20, WLS; 7:30, KDKA, KFI, PVX, WBZ, WCAE, WHAS; 7:45, WRC; 8, KHJ, KNX, KSD, KYW, WGBS, WGN, WHN, WSB; 8:30, KTHS, WCCO, WMC; 8:45, KFOA, WGBS, WHN; 9, WEBH, WMAQ, WOAI, WTAY; 9:30, KFAE, KTHS, WFAF, WGBS, WOAI; 9:35, KYW; 9:45, WHN; 10, KFI, KFKB, KGO, KHJ, WIP; 10:15, WRC; 10:45, WSB; 11, KFI, KFQB, WEBH; 11:30, WOAI; 12, WCAL; 1, KNX.

Sunday, January 18: 6:15, WFAF; 6:20, WEEL; 6:30, WLS; 7, KYW, WEBH, WLS; 7:30, WBZ; 8, WCB, WGY; 8:10, WBBR; 8:15, WEMC; 8:20, WFAF; 8:30, KHJ, WCAL; 8:40, WEMC; 9, KFI, KFSG, KGW, KHJ, KTHS, WFAA, WGN, WGY, WOAI; 9:10, WBBR; 9:15, KJS, WCCO; 9:30, WFAA, WOC; 10, KFI, KHJ, KNX; 10:30, KFI; 11, KNX.

Monday, January 19: 6, KFKB, WFAF, WGN, WMAQ, WOAI, WTAM, WWJ; 6:15, WFAF; 6:30, KFNF, WGN, WMAQ, WOO; 6:45, WGY, WJJD; 7, KFBU, WAHG, WBBR, WBZ, WEEL, WOR, WTAM; 7:30, CHNC, KDKA, WAHG, WCX, WFAF, WHO, WOO, WOR; 7:40, WBBR; 8, WCB, WHO, WSB; 8:15, WEMC; 8:30, KOB, KTHS, WAHG, WCCO, WEEL, WFAA, WMC, WOS; 8:45, KFOA, WOR; 9, KOA, WAHG, WBBR, WFAF, WEMC, WOAI; 9:30, WGR; 10, KFAU, KFQB, KGO, KGW, KNX, WOI; 10:30, KFOA, KPO, WJJD; 10:45, WSB; 11, KFI, KFQB; 11:15, WHO.

Tuesday, January 20: 6, KFKB, KGO, WEBJ, WGN, WMAQ, WWJ; 6:30, WCCO, WGN, WLS, WMAQ, WTAM; 6:45, WJJD, WTAY; 7, KYW, WBAV, WCAU, WEBH, WEEL, WFI; 7:15, WGY, WJJD, WJY, WLS; 7:30, CKAC, KDKA, KFI, WBAP, WBZ, WCX, WFAF, WHAS, WJZ; 7:45, WLS; 8, KFDM, KHJ, KNX, KSND, KYW, WFAF, WEEL, WFI, WGBS, WGN, WGR, WHB, WKAQ, WLBL, WLS; 8:30, KTHS, WFAA, WMC, WOAI; 8:45, CFAC, KFI, KFOA, KYW, WGBS; 9, CNRR, WFAF, WHN, WLS, WOAI; 9:15, WMAQ; 9:30, KHJ, WBAP, WGBS; 10, CNRR, KDKA, KFI, KFQB, KHJ, KJS, KNX, KPO, KYW, WLS; 10:20, WGY; 10:30, KGW, WBZ; 11, CKAC, KFI, KFQB, KNX, KPO, WFAA, WLS; 12, KFI, WLS; 1, KNX.

Wednesday, January 21: 6, KFKB, KGO, WEEL, WGBS, WGN, WHN, WMAQ, WWJ; 6:30, KFNF, WAHG, WFAF, WGN, WLS, WOO; 6:45, WDAR, WJJD, WTAY; 7, KYW, WBBR, WCAU, WEBH, WEBJ, WKAQ; 7:15, WHB, WJJD, WLS; 7:30, KFI, PVX, WBAP, WBZ, WCX, WGR, WHAS; 7:40, WBBR, WLS; 7:45, WEBJ; 8, KHJ, KNX, KSND, KYW, WDAF, WDAR, WFAF, WGN, WJZ, WLS, WOC, WOO; 8:15, WEMC; 8:30, KTHS, WGR, WMAQ; 8:45, CFAC, KFI, KFOA; 9, KYW, WCCO, WEBH, WHO, WLS, WMAQ, WTAY; 9:03, WOO; 9:30, KFAE, KFI, KHJ, WLS; 9:45, KYW; 10, KFQB, KGW, KNX, KPO, WEEL, WWJ; 10:30, KFOA, KYW; 10:45, WSB; 11, KFI, KFQB, KHJ, KPO, KYW, WEBH; 12, KYW; 1, KYW.

Thursday, January 22: 6, KFKB, KGO, WEAR, WGN, WMAQ, WWJ; 6:30, WCCO, WGBS, WGN, WLS, WMAQ; 6:45, WFAA, WTAY; 6:50, WLS; 7, KDKA, KYW, WBBF, WEAQ, WEBH, WEEL, WIP; 7:20, WLS; 7:26, WJZ; 7:30, CNRM, KDKA, KFI, WBAP, WCX, WFAF, WEEL, WGY, WHAS, WJY, WKAQ; 8, KHJ, KNX, WCB, WCCO, WEEL, WGN, WSB; 8:10, WBBR; 8:15, WOI; 8:20, KYW; 8:30, KTHS, WFAA, WJY, WMAQ, WMC; 8:50, WBBR; 9, WCAL, WEBH, WOAI; 9:15, WMAQ; 9:30, KFSG, WBAP; 10, CFAC, CNRC, KDKA, KFI, KFQB, KGO, KHJ, KJS, KNX, KPO, KYW; 10:10, WLS; 10:30, WGY, WHN; 10:45, WSB; 11, KNX, KPO; 11:15, KFSG; 11:30, WEBH; 12, KFI, KFSG.

Friday, January 23: 6, KGO, WEAR, WEEL, WGN, WMAQ, WOR, WWJ; 6:30, KFNF, WCCO, WLS, WMAQ, WOO; 6:45, WJJD, WTAY; 6:50, WLS; 7, KYW, WAHG, WBAV, WCAU, WFAF, WEBH, WEEL; 7:15, WGY, WJJD, WLS; 7:25, WOO; 7:30, CNRT, KDKA, KFI, WCX, WEEL, WHAS, WHO; 7:45, WAHG; 8, CFAC, KFDM, KFQB, KHJ, WDAF, WFAF, WEEL, WLS, WOC, WOR, WSB; 8:15, WAHG, WCCO, WJZ; 8:30, KNX, KTHS, WAHG, WFAA, WMAQ; 8:45, KFI, KFOA; 9, KOA, KYW, WBZ, WCCO, WFAF, WEBH, WEMC, WGR, WLS, WOAI; 9:10, WHN; 9:15, WMAQ; 9:30, KFAE, WBAP, WGY, WLS; 9:45, WEMC; 10, KFAU, KHJ, WLS, WJY; 10:10, WLS; 10:30, KFOA; 10:45, WSB; 11, KFI, KFQB, KNX, KYW, WEBH; 11:15, KFSG; 11:30, WJJD; 12, KFI, KFSG, KNX, KYW; 1, KYW.



Creator (left), known through directing the orchestra of KFI is broadcasting these youthful Lullaby players as "Jack and the Beanstalk," Glenn's Woodshed theater. Warner (right) will play at 20, at WMC, Memphis. This



WSAI, Cincinnati, Ohio (Central, 325.9), 7 p. m., Hotel Gibson orchestra, Robert M. Visconti, director; 7:30, chimes; 7:45, children's story, Ethel Knapp Behman; 8, Hotel Gibson orchestra; 9, Sam Pusateri, baritone; Marie Houston, soprano; Temple Brothers Male quartet; Florence LeDee, pianist.

WSB, Atlanta, Ga. (Central, 429), 12 m., entertainment; 5:30 p. m., bedtime stories, Bonnie Barnhardt; 8-9, Vlek Myer Melody orchestra; 10:45, Radlowl entertainment.

WTAM, Cleveland, Ohio (Eastern, 390), 6 p. m., Guy Lombardo's Royal Canadian orchestra.

WTAY, Oak Park, Ill. (Central, 250), 8:45-7:45 p. m., Sandy Meek, baritone; Harry Sosnik, pianist; Raynor Dalhelm & company orchestra.

WWJ, Detroit, Mich. (Eastern, 513), 3 p. m., the Detroit News orchestra; 7 p. m., the Detroit News orchestra.

Wednesday, January 21

Wednesday, silent night for: CHNC, CKAC, KFAE, KFAU, KFOM, KFBU, KGO, KJS, WAAW, WBAV, WBBF, WCBQ, WEAO, WFAA, WGY, WJY, WKBF, WLBL, WMC, WOAI, WOAW, WOI, WRC.

CKAC, Montreal, Can. (Eastern, 437), 1:45 p. m., Windsor, trio; 4:30, dance music.

CNRO, Ottawa, Can. (Eastern, 435), 7:30 p. m., half hour talk for boys and girls, Uncle Dick; program, Salvation Army band, playing "The Warmouth," "My Fortress," "Songs of England," "One by One," "Aberystwyth," address, "Gloria," "The Liberator," "Welsh Melodies," "Memories of Peace," "An Appeal," "O Canada," Salvation Army band; Chateau Laurier hotel orchestra.

KDKA, Pittsburgh, Pa. (Eastern, 309.1), 7 a. m., morning exercises, O. Shannon; 8, morning exercises; 12:20 p. m., Institute Trinity church; 6:15, dinner concert, Pittsburgh Athletic association, Gregorio Scalzo, conductor; 7:30, children's period; 8:15, address, University of Pittsburgh; 8:30, concert.

KFAE, Pullman, Wash. (Pacific, 330), 7:30-9 p. m., banjo duets, Erlo Hannum, Ingwald Henneberg; E. V. Thorpe, bass; Phyllis Benehel, pianist; "How to Read a Newspaper," Joe Ashlock; "Pointers on Dairy Farming," Prof. E. V. Ellington; "Fruits for the Home Orchard," M. D. Armstrong; "Condensers," Dean H. V. Carpenter.

KFI, Los Angeles, Calif. (Pacific, 469), 5:50-7 p. m., Evening Herald, table talk and news; 5:50-6, Examiner, musical half hour; 6:45-7:30, detective stories, Nick Herzig; 7:30-8, whistling quartet; 8-9, Evening Herald, dance orchestra; 9-10, Examiner varied program; 10-11, dance orchestra.

KFKB, Milford, Kans. (Central, 273), 6-7 p. m., lecture, music; 10-11, lecture and music.

KFKX, Hastings, Nebr. (Central, 288.3), 8-11 p. m., entertainment program, state firemen.

KFNF, Shenandoah, Ia. (Central, 266), 6:30 p. m., concert, Pego County band, Major George W. Lenders, director.

KFOA, Seattle, Wash. (Pacific, 405), 4:55-5:15 p. m., Olympic hotel concert orchestra; today's recipe; 6:45-8:15, Hopper-Kelly company studio program; 8:30-10, Seattle Times studio program.

KFSG, Los Angeles, Calif. (Pacific, 278), 10:30-11:30 p. m., sunshine hour program; 2:30-4:30 p. m., euditorium service on Divine Healing; special music and sermon, Almee Sempie McPherson, pastor; 6:30-7:30, children's hour, presenting Helen Edwina and Mary Elizabeth Houghes.

KGO, Oakland, Calif. (Pacific, 312), 10:40 a. m., classroom instruction, Oakland Public schools; 11:30-1 p. m., luncheon concert, Pacific States Electric company; 4-5:30, concert orchestra, Hotel St. Francis.

KGW, Portland, Ore. (Pacific, 492), 12:30 p. m., concert; 5, children's program; 7, Aunt Nell; 8, concert; 10, Multnomah hotel trotters.

KHJ, Los Angeles Calif. (Pacific, 395), 12:30-1:30 p. m., Abe Perluss and his Rose room orchestra; 2:30-3:30, program, Pacific States Electric company, Eleanor Woodford, soprano; Grace Currey, harpist; 6-6:30, Art Hickman's Biltmore hotel concert orchestra; 6:30-7:30, stories American history, Prof. Walter Sylvester Hertzog; Dick Winslow, juvenile reporter; Baby Muriel McCormack, screen juvenile; Uncle John; 7:30-8:30, University of Southern California Men's Glee club; 8:30-9, Dr. Mars Bumgarder, scientific lecturer; 9-10, Piggly Wiggly Girls trio; 10-11, Earl Burnett's Biltmore hotel dance orchestra.

KNX, Hollywood, Calif. (Pacific, 337), 8 a. m., morning message; 9, Hired Hand, news; 10, Hired Hand's morning message; 10:30, talk on home economics, Mrs. Kate Brew Vaughn; 5:30, Town Crier and Village Urchins; 6-7:30, dinner hour music; 8-10, program, Carson-Baruch baking company; 10-12, Hollywoodland dance orchestra.

KOA, Denver, Colo. (Mountain, 323), 8-10:30 p. m., KOA and Rainbow-Lane orchestra.

KOB, State College, N. M. (Mountain, 360), 7:30-8:30 p. m., lesson 9, international code course.

KPO, San Francisco, Calif. (Pacific, 423), 7 a. m., setting up exercises, Bernard Drury; 1-2 p. m., Rudy Selger's Fairmont hotel orchestra; 2:30-3:30, Johnnie

Bulck's Amphions, Cabiria cafe; 4:30-5:30, Rudy Selger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories, Big Brother; 7-7:30, Rudy Selger's Fairmont hotel orchestra; 8-11, E. Max Bradford's Ver-settle band.

KSAC, Manhattan, Kans. (Central, 341), 12:30 p. m., reading, "The Market Situation," E. A. Stockdyk; "Time to Apply Lime," E. B. Wells; 7:20, college ball and opening exercises; 7:30, "Advantages of a State System," L. E. Conrod; 7:40, solo, Harold Flamm; 7:45, "The Small Home for the City," Paul Weigel.

KSD, St. Louis, Mo. (Central, 459.1), 6:45 p. m., Abergh's concert ensemble; Arne Arnesen, violinist; 11, dance program, Varsity Club orchestra.

KSNO, Seattle, Wash. (Pacific, 238), 7:15-8 p. m., bedtime story, Aunt Vivian; 8-9, Earl Gray and his orchestra; 9-10, concert hour; 10-11, Earl Gray and his Hotel Butler orchestra.

KTHS, Hot Springs National Park, Ark. (Central, 375), 8:30-10 p. m., concert, Mrs. George Fletcher, director; 10:30-11:30, dance frolic, Eastman hotel orchestra.

KYW, Chicago, Ill. (Central, 534.4), 6:30 a. m., morning exercises, Y. M. C. A.; 11:35, table talk, Mrs. Anne J. Peterson; 6:35-7 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 8-8:30, Mrs. Arthur R. Slebens, soprano; George D. Horn, baritone; Ruth Schley, reader; 8:30-8:45, around the town with KFYW in Chicago; 8:45-9, musical program; 9:05, "Entertaining Plans," Yvette Gorman; 9:45-2:30, midnight revue.

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

WAHG, Richmond Hill, L. I. (Eastern, 316), 7:30-11 p. m., Brooklyn Daily Eagle with special program.

WBAP, Fort Worth, Texas (Central, 472.9), 7:30-8:30 p. m., semi-monthly program, Harmony club; 9:30-10:45, popular dance music, Jimmy Riley's Texas hotel orchestra.

WBZ, Staten Island, N. Y. (Eastern, 273), 8 p. m., violin duets, George Twaroshck, Carl Park; 8:10, George Twaroshck violinist; 8:20, "How We May Know We Have the Truth," E. J. Coward; 8:40, Carl Park, violinist; 8:50, violin duets, George Twaroshck, Carl Park.

WBZ, Springfield, Mass. (Eastern, 337), 6-7 p. m., dinner concert; 7:10, kiddies' bedtime story; 7:15-7:30, lecture, address; 8:30-10:30, concert; 11-12, dance program, Leo F. Reisman and his Hotel Brunswick orchestra.

WCAL, Northfield, Minn. (Central, 360), 9:45 a. m., St. Olaf college chapel services.

WCAU, Philadelphia, Pa. (Eastern, 278), 6 p. m., Meyer Davis Hotel Pennsylvania dance orchestra, Louis Baer, director; 7:30, fashion talk, Mile. Medelaine; 8, concert, Breyer Ice Cream quartet; 8:30, WCCO, St. Paul-Minneapolis, Minn. (Central, 417), 10:45 a. m., "Household Management," Bernice Bolt; 2 p. m., woman's hour; 2:30, matinee musicale; 4, Maude Moore's Players; 5:30, children's hour, Alpha Steleon; 7, midweek church service; 9, musical program; 10, Original George Osborn's Nicolet hotel orchestra.

WCX, Detroit, Mich. (Eastern, 513), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, Kansas City.

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, auspices Health Conservation association; address, speaker, auspices Meat Council of Greater Kansas City; the Tell-Me-a-Story lady; music, Hotel Muehlebach Trio ensemble; 8-8:15, classical program, the Trienon ensemble and soloists; 11:45-1 a. m., night-hawk frolic, the "Merry Old Chief" end the Plantation players.

WOAR, Philadelphia, Pa. (Eastern, 395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital, Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 4:30, Merceda North pianist; 7:30, Dream Daddy's bedtime stories; 7:45, Pierce school commencement exercises; 9, Philharmonic concert; Fire-side quartet; talk, Postmaster New; 10:05, Arcadia cafe dance orchestra.

WOF, New York, N. Y. (Eastern, 492), 11-11:30 a. m., Minnie Weil, pianist; 4:10-5 p. m., children's stories;

Tuesday, January 20

(Continued from page 15)

Shakespeare Literary club, West Philadelphia High school for boys; 10:05, "Emo's Weekly Broadcast," E. M. Orowitz; 10:30, Harvey Marburger end his vaudeville orchestra.

WJJO, Mooseheart, Ill. (Central, 278), 3:30-4:30 p. m., music, Mooseheart children; talks, members of faculty; 6:45-7:15, Alfred F. Brown, organist; talk, Bon Osvall; 7:15-8:15, Mooseheart concert band; "Child Care," M. P. Adams.

WJY, New York, N. Y. (Eastern, 405), 8:15-10 p. m., Pan American night; U. S. Army band, direct from WRC, Washington; address, Secretary Hughes, South American music; 10-10:30, "Protect Your Heroine," National Insurance day, Vice-President of Metropolitan Life Insurance company.

WJZ, New York, N. Y. (Eastern, 455), 10-10:20 a. m., housewives league menu, Mrs. J. Heath; 10:20-10:30, "Etiquette," Vogue; 10:30-10:40, "Art for a Dime," Grace P. Noxon; 10:40-10:50, "Tribune Institute," Bertha Baldwin; 10:50-11, fashion talk, Eleanor Gunn; 1-2 p. m., Nathan Abas' Hotel Pennsylvania orchestra; 4:30-5:30, Bernhard Levitov's Hotel Commodore tea orchestra; 7-7:15, "Welsh Terrier," Frank Dole; 7:15-8, Joseph Strissof's Hotel Vanderbilt orchestra; 8:10-8:30, "Mineral Wealth of the U. S. A.," N. Y. U. Air college, E. H. Lilly; 8:30-9:30, St. Cecilia Choral club, Waldorf-Astoria main ballroom; Frank Cuthbert, baritone.

WKAQ, San Juan, P. R. (Intercolonial, 360), 9-10:30 p. m., selections, WKAQ orchestra, Jesus Figueroa, director, playing "Czar and Zimmermann," grand selections from Verdi's opera, "Un Ballo in Maschera," "The World in Arms," short talk about Esperanto, Santiago Ros; violin solo, Jaime Figueroa; orchestra playing "Tell You Love Me," "I Iney Padre," "Be-cause They All Love You," "In Shadowland Waltz," "Put Away a Little Ray of Golden Sunshine."

WKBF, Providence, R. I. (Eastern, 286), 8:30 p. m., Vincent Lopez Arcadia orchestra.

WLBL, Stevens Point, Wis. (Central, 278), 8 p. m., musicale.

WLS, Chicago, Ill. (Central, 345), 12-1 p. m., Otto A. Moore, baritone; "The Value of the Better Puredred Sire," H. H. Kildee; 3:15-4:45, "Club Institute end What It Means to Club Women," Mrs. T. P. Casey; "Thrill for Children," Mrs. Wilbur E. Fribley; "One Dish Means," Agnes Olson; 6:30, Ralph Emerson, organist; 6:50, specialties, Senate Theater studios; 7, lullaby time, "Big" Ford and "Little" Glenn; 7:15, Israelite House of David Ladies' quartet; 7:45, drama, version of Robert Louis Stevenson; 8-9, Isham Jones and his College Inn orchestra; Kenneth Clark, Hawaiian guitarist; "The Value of the Better Puredred Sire," H. H. Kildee; 9, Grace Wilson, contralto; 9:10, "Merry Wives of Windsor," Anthony Wons; 9:30, Florence K. White, soprano; 9:42, Art Kahn and his Senate Theater Synchorators; 10, Israelite House of David Male quartet; 10:30, Isham Jones and his College Inn orchestra; 10:40, Ford and Glenn time; 11, special review, Senate Theater studio; 12, Midnight Mabel Grass, Ralph Emerson, organist; Isham Jones

and his College Inn orchestra; Ford and Glenn.

WLW, Cincinnati, Ohio (Central, 423), 8 a. m., setting up exercises, Y. M. C. A.; 12:15 p. m., program, Delta Omicron sorority; Woody Meyer's dance orchestra; 4, pupils of William Kyle in recital; program, Cincinnati Federation of Mother clubs; "Mah Jongg," Lucy Blackburn; Laura Edith French, pianist; 6, Selinsky Instrumental quintet; 10, concert, Radio Division of the Ohio Rubber end Textile company, Ohio Rubber Male quartet and Textile company; accordion solos, Lawrence Springer; Keefer-Koeker orchestra.

WMAQ, Chicago, Ill. (Central, 447.5), 12 m., weekly program, auspices of the Illinois Manufacturers' association; 4, American Red Cross talk, Estelle Weltman; 4:30, pupils, Maurice Rosenfeld; 5, the lullaby lady, Mrs. Gene Davenport; 6, Chicago theater organ; 6:30, Hotel LaSalle orchestra; 8, book review, Harry Hansen; 8:20, travel talk, Clara E. Laughlin; 8:40, Association of commerce weekly talk; 8:50, University of Chicago lecture; 9:15, musical program.

WMC, Memphis, Tenn. (Central, 503.9), 12 m., musical program, O. K. Houck Piano company; 8 p. m., bedtime story, Uncle Joe; 8:30, Harp concert, Clemence Warner; 11, midnight frolic, Reinhardt's orchestra.

WNJ, Newark, N. J. (Eastern, 233), 10:30-11 p. m., Frank Dally and his Meadowbrook orchestra from Paradise Palace; 11-11:30, Jimmy Clarke and his Broadway entertainers; 11:30-12, original Dixieland jazz band; 12-12:30 a. m., Frank Dally and his Meadowbrook orchestra.

WOAI, San Antonio, Texas (Central, 385), 8:30 p. m., selections from Russian composers, WOAI entertainers; instrumental music, WOAI trio; 9:30, Jimmy's Joy dance orchestra.

WOAW, Omaha, Nebr. (Central, 526), 6 p. m., "Adviso to Lovell" period, Cynthia Grey; 6:25, dinner program, WOAW's remote control studio in the May Seed & Nursery company building; 8, artist pupils of Eleanor Rentz, pianist; Laura Goetz, soprano; 10:30, Frank Hodek's orchestra.

WOC, Oavenport, Iowa (Central, 498), 10:05 a. m., household hints; 12 m., chimes; 5:45 p. m., chimes.

WOI, Ames, Iowa (Central, 360), 12:30 p. m., college chimes; "Winter Feeding and Management of the Beef Herd," Prof. R. S. Stephenson.

WOO, Philadelphia, Pa. (Eastern, 509.9), 11 a. m., organ recital, Mary E. Vogt; 12:02 p. m., Wenamaker crystal tea room orchestra; Robert E. Golden, director; 4:45, organ recital, Mary E. Vogt.

WOR, Newark, N. J. (Eastern, 405), 7-7:30 a. m., WOR gym class; 3:15-3:30 p. m., Mae Jacobue Fleming, Bamberger's book reviewer; 6:15-6:30, "Music While You Dine," Harry Lafferty's orchestra; 6:30-7, man in the moon stories, Josephine Lawrence and Wm. F. B. McNeary, Newark Sunday Call; 7-7:15, Harry Lafferty's orchestra; 7:15-7:30, resume of day's sports, Jolly Bill Steinke.

WOS, Jefferson City, Mo. (Central, 440.9), 7:15 p. m., Missouri Farmers' week program; feature numbers, University Department of music; 7:45, "Rural Education," Charles A. Lee; 8:30, "The Health of the Farm Family," Dr. Caroline Hedger.

WRC, Washington, O. C. (Eastern, 469), 6:45 p. m., children's hour; Peggy Abblon; 7, dinner music, Meyer Dally orchestra; 7:30, "Pan American Night," Pan American Relations, Charles Evans Hughes; Pan American music, Army band; Fred East, baritone; Leo Alvarado, violinist; Marimba selections, Arsenid Raion; Madame Mertzago Hanenselt, pianist; song recital, Madame Maria Pedroll de Rodriguez, soprano; 10:15, dance music, Meyer Davis Le Paradis band.

AT KGO, BOBBY BURNS' AT WEAO

Europe and America, is at present Metropolitan theater, Los Angeles, every Sunday. Here are the look Thursday night presenting Ford's and Little Chicago. Tuesday, January 14, radio debut.



Where to Hear Talks

Central Standard Time

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

Saturday, January 17: 6, KFKB, WDAF; 6:15, WBZ, WEA; 6:45, WCAE; 7, KFI, WCAE, WFI, WJZ, WRC; 7:10, WJZ; 7:15, WBBR; 7:30, WJZ, WOC; 8, WCCO; 8:30, KHJ, WGBS, WMAQ; 9:05, KYW; 9:30, KFSG; 9:45, KFI; 10, KFKB, KNX.

Sunday, January 18: 8:30, WBBR; 8:45, KFI; 9, WJY; 9:30, KFKB.

Monday, January 19: 6, KFKB, WCCO, WDAF; 6:10, WHN; 6:15, WGB; 6:30, WEEL, WHN; 7, KDKA, WGR, WHB, WHN, WJZ; 7:15, KDKA, WGR, WHB, WHN, WJZ; 7:15, KDKA, KFBU; 7:20, WBBR, WOC; 7:30, KFBU, KSAC, WBZ; 7:40, WJZ; 7:45, KFBU; 8, WCCO, WDAF, WOC; 8:15, WCCO, WJZ; 8:30, WOR; 8:45, WEMC; 9, WJZ; 10, KFAE, KFBU, KGO.

Tuesday, January 20: 6, KFKB, WDAF, WHN, WJZ, WOAI; 6:10, WHN; 6:15, WBZ; 6:30, WCAU, WEA; 6:45, WGY; 6:50, WDA; 7, KFI, WEA, WGY, WIP, WJZ; 7:15, WOS; 7:30, KSAC, WOS; 7:45, WOS; 8, WLS, WMAQ; 8:20, KHJ, WKAQ; 8:40, WMAQ; 9, WJY; 9:05, WIP; 10, KFBU, KGW.

Wednesday, January 21: 6, KFKB, WCCO, WDAF; 6:15, WBZ; 6:30, WCAU, WHN; 7, KFI, WEEL, WGR, WHB, WJZ; 7:15, KDKA, WOR; 7:20, WBBR; 7:30, KDKA, KSAC, WEBJ, WOR; 7:45, WOR; 8, WLS, WMAQ, WOR; 8:30, KHJ, KOB, KYW, WJZ; 9:05, KYW; 10, KFBU; 10:30, KFAE, KHJ.

Thursday, January 22: 6, KFKB, WDAF; 6:10, WHN; 6:15, WBZ; 6:30, WCAU; 6:45, WGY; 6:55, WJZ; 7, KFBU, KFI, WEA, WFI, WKBF; 7:15, KDKA, KFBU, WJY, WOR; 7:30, KFBU, KSAC, WCCO, WGBS; 7:45, WCCO, WOR; 8, KYW, WMAQ; 8:10, WBBR; 8:15, WMAQ; 8:30, KHJ; 8:45, KFI; 9, WMAQ; 9:15, KYW; 9:45, KHJ; 10, KFBU.

Friday, January 23: 6, WCCO, WDAF; 6:15, WBZ; 6:30, WCAU; 6:45, WGY; 7, KFI, KFBU, WDA, WGR, WHB, WJZ; 7:10, WJZ; 7:20, WOC; 7:30, KGO, KSAC, WBZ, WCCO; 7:40, KOA; 8, CNRT, KYW, WLS, WMAQ; 8:30, KHJ, KOB, WCAL, WJY; 9:10, WHN; 9:25, WHN; 9:35, WEMC; 9:45, KNX; 10, KGO, KGW.

Thursday, January 22

Thursday, silent night for: CHNC, KFAE, KFAU, KFQA, KFQX, KGW, KDA, KKB, KSD, PWX, WAHG, WBAV, WBBG, WBZ, WCAU, WEBJ, WEMC, WHO, WJJD, WLBL, WNJ, WDO.

CKAC, Montreal, Can. (Eastern, 437): 8:30 p. m., Canadian National Railways using CNRM.

CNRC, Calgary, Can. (Mountain, 430): 9-11 p. m., bedtime travel tale; Aeolian quartet; David Morgan, Welsh tenor.

CNRM, Montreal, Can. (Eastern, 425): 8:30 p. m., trio, Mrs. Robert Boronov, pianist; Audrey Cook, cellist; Edwina Higginson, cellist; "Lorlie," Valse Espagnole, Mrs. R. Boronov, pianist; "Invictus," "Requiem," Gordon T. Brand, baritone; "Welgeleit," "Serenade Espagnole," Audrey Cook, violinist; "Serenade," "Cradle Song," Mrs. Jarvis Arnold, soprano; address; "Etude en Form de Valse," Mrs. R. Boronov, pianist; "Fortunio," "Bols Epair," Gordon T. Brand, baritone; "Sonata D Major," Audrey Cook, violinist; "Elsa's Dream Lohngryn," Mrs. Jarvis Arnold, soprano; trio phantasia.

CNRW, Winnipeg, Can. (Central, 450): 8-11 p. m., bedtime travel tale; The Melody three, Taras Hubicki, violinist; Frank Redlich, cellist; Ronald W. Gibson, pianist; Oregan Hogan, soprano; Helen Huggard, contralto; Margaret Fletcher, accompanist; Frank Wright's Country club orchestra.

KDKA, E. Pittsburgh, Pa. (Eastern, 309.1): 12:20 p. m., Institute, Trinity church; 6:15, dinner concert, KDKA Little Symphony orchestra, Victor Saudek, conductor; 7:30, children's period; 8, program, National Stockman and Farmer studio; 8:30, concert; 11, concert, Pittsburgh Post studio.

KFI, Los Angeles, Calif. (Pacific, 469): 5-5:30 p. m., Evening Herald table talk and news; 5:30-6, Examiner, musical half hour; 6:45-7, Y. M. C. A. speaker; 7-8, dance orchestra; 8-9, program, Standard Oil company of California; 9-10, Examiner, dance orchestra; 10-11, Manual Arts Glee club, presenting a minstrel show.

KFKB, Milford, Kans. (Central, 273): 6-7 p. m., lecture, music; 10-11, lecture, music.

KFKU, Lawrence, Kans. (Central, 275): 6:50 p. m., piano tuning-in number; 7, music, Prof. Carl Preyer, pianist; Agnes Husband, voice; 7:15, "The Race Problem," Prof. F. W. Blackmar; 7:30, "The Story of Radium," Dr. H. M. Elsey; 7:45, Educational Psychology, Lesson III, Dean R. A. Schweger.

KFN, Shenandoah, Ia. (Central, 260): 6:30 p. m., concert, Bedford Municipal band, W. W. Mitchell, director.

KFOA, Seattle, Wash. (Pacific, 405): 4-5:15 p. m., Olympic hotel concert.

KFSG, Los Angeles, Calif. (Pacific, 278): 10:30-11:30 a. m., sunrise hour program; 7:30-9:15 p. m., auditorium service, Temple choir and Silver band; sermon, Aimee Semple McPherson, broadcast from pulpit; 9:15-10, studio program presenting the Silver band; G. N. Nichols, director; "Radiology," N. E. Brown; 10-11, organ recital, Roy Reid Brignall.

KGD, Oakland, Calif. (Pacific, 312): 10:40 a. m., classroom instruction, Oakland Public schools; 11:30-1 p. m., luncheon concert, Pacific States Electric company; 4-5:30, concert orchestra, Hotel St. Francis; 8, part one, Young Women's Christian association; "I Want to Be Ready," "Swing Low, Sweet Chariot," "Negro Dance," Arion trio; "San Francisco's Women in Action," general secretary of Y. W. C. A.; "Lo, Now the Dawn is Breaking," "Falls Upon the World a Calm," Y. W. C. A. Glee club; Mme. Louise Kurth, violinist; Mansie Chew, pianist; "San Francisco's Younger Women," executive secretary of the Girl Reserve department; "Pleading," Arion trio; Girl Reserve songs; Mansie Chew, pianist; "When Twilight Weaves," "The Lord is My Shepherd," Y. W. C. A. Glee club; part two; Josephine Holub, violinist, playing "Hymn to the Sun," "Think It Over," Colman Cox; soprano solos, "Heartsease," "Pleasantly Blues," Edith Gilman; "Drumadon," "Sweet Little Woman o' Mine," Robert W. Lovgren, baritone; piano solo, "Rustle of Spring," Joyce Holloway Barbelson; "Flirtation," "Philosophy," Edith Gilman, soprano; "Venticlan Song," "Invictus," Robert W. Lovgren, baritone; "Neapolitan Airs," Arion trio; 10-11 a. m., dance music, Henry Halstead's orchestra.

KGW, Portland, Ore. (Pacific, 492): 12:30 p. m., concert, Civic Music club; 5, children's program.

KHJ, Los Angeles, Calif. (Pacific, 395): 12:30-1:30 p. m., news and music; 2:30-3:30, program, Pacific States Electric company, arranged by Grace Currey; 6-6:30, Art Hickman's Biltmore hotel concert orchestra; 6:30-7:30, Prof. Walter Sylvester Hertzog, stories, American history; bedtime story, Uncle John; 7:45, "Art," Harold Schwitz; 8-10, program, Globe Ice Cream company; 10-11, Earl Burnett's Biltmore hotel dance orchestra.

KJS, Los Angeles, Calif. (Pacific, 360): 8-9:30 p. m., musical program consisting of piano, vocal and instrumental numbers arranged by C. M. Brooks; Mrs. Klara Kaynor, contralto; Wm. Pilcher, tenor.

KNX, Hollywood, Calif. (Pacific, 337): 8 a. m., morning prayer; 9, Hired Hand, news; 10, Hired Hand's morning message; 10:30, Mrs. Kato Hrow Vaughn, talk, home economies; 11, talk on care of domestic pets.

WIP, Philadelphia, Pa. (Eastern, 509): 1 p. m., Glimbel tea room orchestra, Ray Steen, director; 3, recital, students Temple University School of music; Edna M. Watson, pianist; Florence Wien, vocalist; Grace Stewart, pianist; Ruth Baker, vocalist; Ed B. Mitchell, cornetist; 5:05, Art Coogan and his Club Madrid orchestra; 7, Uncle Wip's bedtime stories.

WJJD, Mooseheart, Ill. (Central, 278): 3:30-4:30 p. m., music, Mooseheart children; talks, members of faculty; 6:45-7:15, Albert F. Brown, organist; 7:15-8:15, Philharmonic orchestra; Junior band.

WJZ, New York, N. Y. (Eastern, 455): 10:20-10:30 a. m., National Health council; 10:30-10:40, "The Right Job for Your Daughter," Helen Hoerle; 10:40-10:50, "Be Your Own Decorator," Amy Mail Hicks; 10:50-11, fashion talk, Eleanor Gunn; 4:30-5:30 p. m., Hotel Belmont tea music; 7-8, Cafe Boulevard orchestra; 8-8:10, Wall Street Journal review; 8:10-8:20, N. Y. U. Air college; 9-9:30, "How to Have a Home," Geo. L. Martin, National Own Your Home day; 9:30-10, "50 Questions," Time Weekly News magazine.

WKAQ, San Juan, P. R. (Intercolonial, 360): 8-9:30 p. m., musical concert, Municipal band.

WLS, Chicago, Ill. (Central, 345): 12-12:30 p. m., Kenneth Clark with his Hawaiian guitar; 3:45-4:45, "The Mother's Responsibility Concerning the Literature in the Home," Mrs. John Bohm; "A General Budget," Clara Ingram Judson; recipe, Edith Shearer; 6:30, Ralph Emerson, organist; 6:50, specialties, Senate Theater studio; 7, lullaby time, Ford and Glenn; 7:15, program, WLS Tribe of Lone Scouts; 7:40, Otto A. Moore, baritone; 8-9, B. E. D. program; Ralph Emerson, organist; Ford and Glenn; "The Local Livestock Shipping Association and its Relation to the National Producers," Charles A. Stewart; "Farm Flickerers," E. B. Heaton; "Feeding and Care of Dogs," Dr. Harry Caldwell; 9, James Whelan, Irish tenor; 9:10, "The Barrack Room Ballads," Wallace Bruce Ambery; 9:30, "4 Aces of Harmony," 10:02, Senate Theater Symphony orchestra; 10:30, Rudolph Bryant and his band; 10:30, Isham Jones and his College Inn orchestra; 10:40, Ford and Glenn time.

WLW, Cincinnati, Ohio (Central, 423): 8 a. m., setting up exercises, Y. M. C. A.; 12:15 p. m., Mu Phi Epsilon sorority; Ahaus Brunswick shop orchestra; 4, program for the "Shut Ins," 6, Selinsky Instrumental quartet; 8, harp solos, Geraldine Vito; Milnor Electric Instrumental trio; choir, Latonia Christian church; Clifford Lang, pianist; 9, Lornica orchestra; Emma George Head, danseuse.

WMAQ, Chicago, Ill. (Central, 447.5): 1 p. m., speeches, weekly luncheon of the Association of commerce; 4, stories from Child Life; 4:30, musical program; 6, Chicago theater organ recital; 6:30, stories for the children, Georgene Faulkner, the story lady; 8, weekly lecture, Northwestern university; 8:30, piano concerto; 9, WMAQ players.

WNJ, Newark, N. J. (Eastern, 233): 10:30-11 p. m., Frank Daily and his Meadowbrook orchestra; 11-11:15, Victor Wilbur, baritone; 11:15-12, Original Dixieland jazz band; 12-12:30 a. m., dance music, Frank Daily and his Meadowbrook orchestra.

WDC, Davenport, Iowa (Central, 498): 10:05 a. m., household hints; 12 m., chimes; 7 p. m., sandman's visit; 8, Mrs. Frank W. Elliott, organist; Charles Kerns, tenor.

WOL, Ames, Iowa (Central, 360): 12:30 p. m., college chimes.

WDO, Philadelphia, Pa. (Eastern, 509.9): 11 a. m., organ recital, Mary E. Vogt; 12:02 p. m., Wanamaker crystal tea room orchestra; Robert E. Golden, director; 4:45, organ recital, Mary E. Vogt; 7:30, A. Candelori and his French room orchestra; 9, J. W. C. I. band concert; 10:03, organ recital, Harriett G. Ridley; 10:30, Vincent Rizzo and his Hotel Sylvania dance orchestra.

WOR, Newark, N. J. (Eastern, 405): 7-7:30 a. m., WOR gym class; 2:30-2:45 p. m., Reber Johnson, violinist; 3:15-3:30, Lena M. Dunlap, reader; 3:30-3:45, Reber Johnson; 3:45-4, Lena M. Dunlap; 6:15-6:55, "Music While You Dine," Harry Cox's Robert Treat orchestra; 6:55-7, resume of day's sports, Jolly Bill Steinko; 8-8:30, Gene Ingraham's Great Notch Inn orchestra; 8:30-8:45, "Behind the Scenes of a Circus," Wells Hawks; 9-9:15, "Topics of the Day," Literary Digest.

WDS, Jefferson City, Mo. (Central, 440.9): 7:15 p. m., Missouri Farmers' week program, special selections, University department of music; 7:45, popular address, ret-Governor Charles H. Brough.

WRC, Washington, O. C. (Eastern, 469): 4 p. m., fashion developments of the moment, Eleanor Gunn; 4:10-4:15, George E. Ross, pianist; 4:20, talk, prepared by the Outlook; 4:30, tea music, Meyer Davis' New Willard hotel trio; 6, children's hour, Peggy Ablon.

WSB, Atlanta, Ga. (Central, 429): 12 m., entertainment; 5-8 p. m., bedtime story, Bonnie Barnhardt; 10:45, Dr. Charles A. Sheldon, organist.

WTAM, Cleveland, Ohio (Eastern, 390): 6 p. m., Guy Lombardo's Royal Canadianians orchestra; 8, concert program arranged by Cleveland Plain Dealer.

WTAY, Oak Park, Ill. (Central, 250): 6:45-7:45 p. m., Hugh B. Marshall, tenor; Helen Ruth, pianist; 9-10, ten minute technical talk, member of the Staff of Radio Ago; Mich Novy and his orchestra.

WWJ, Detroit, Mich. (Eastern, 513): 3 p. m., the Detroit news orchestra; 7, the Detroit News orchestra.

WEAR, Cleveland Ohio (Eastern, 390): 7 p. m., Hotel Cleveland orchestra, Ivan Francis, director.

WEBH, Chicago, Ill. (Central, 370): 7-8 p. m., Frankie D. Hertling, pianist; Oriole orchestra; Cora Brinckley Lochner, mezzo-soprano; musical bits, Riviera theater; 9-10, Langdon brothers, Hawaiian guitarists; Marie Kelly, readings; Oriole orchestra; Frederick Agard, tenor; 11-12, Langdon brothers, Hawaiian guitarists; Edna Solomon, songs; Marie Kelly, readings.

WEEI, New York, N. Y. (Eastern, 233): 7-7:45 p. m., "Nat Martins orchestra from 'I'll Say She Is,'" 8:15, Gedney and Magee, banjoists; 8:15-8:30, Eddythe Traub, operatic arias; 8:30-8:45, "Railroad Talk," Garrow Geer; 8:45-9, Judith Roth and Peter De Rose.

WEEI, Boston, Mass. (Eastern, 303): 2 p. m., Joe Ryan's Portsmouth High school orchestra; 8, Tufta Boston club, Pres. Cousins; 8:45, Harry Elstein, "The Bad Boy from the Good Home," 9, Joe Ryan's internationals; 11, Lloyd G. Del Castillo.

WEMC, Berrien Springs, Mich. (Central, 286): 8:15-9:45 p. m., concert recital, Dr. and Mrs. Birt Summers.

WFAA, Dallas, Texas (Central, 472.9): 12:30-1 p. m., musical and feature program, Dallas theater.

WFI, Philadelphia, Pa. (Eastern, 395): 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3, Mrs. E. T. Adams, soprano; Harry Cox, tenor; Hiram instrumental trio, Frances C. Campbell, violinist; Kathryn Crouch, cellist; Hilda Radey, pianist, assisted by Laura Spaeter Barker, contralto; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, the Kiddies' pal.

WGBS, New York, N. Y. (Eastern, 316): 3 p. m., interview with Dorothea Herzog; Terese Rose Nagel; 3:15, Mrs. Bleeker Strirling, soprano; Betty Ross in close up chats with celebrities; 3:45, Mrs. Bleeker Strirling, soprano; "Great Women of the Bible," Catherine H. B. Mullaly; 6, Uncle Geebee; 7, Norman Anthony and George Mitchell.

WGN, Chicago, Ill. (Central, 370): 1:40 p. m., luncheon concert, Drake concert ensemble, Blackstone quintet; 2:30, artist series, Lyon & Healy; 3, rocking chair time; 5:30, Skeezix time; 6, organ recital, Lyon & Healy; 6:30, dinner concert, Drake concert ensemble, Blackstone quintet; 8-9, classical concert; 10-11, Don Bestor's Drake dance orchestra.

WGR, Buffalo, N. Y. (Eastern, 319): 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Buffalo Courier and Enquirer musical program; 6:30-7:30, music, Vincent Lopez Hotel Statler dance orchestra, Harold Gieser, director; 8-8:15, lecture, "Adventures of a Naturalist in Florida," William L. Bryant of the Buffalo Society of Natural Sciences; 8:30-9:30, concert, Arthur Stecker Supply company, Dunkirk, N. Y., directed by Sidney Carlson; 9:30-11, concert, Jos. Straus & company, directed by J. P. Quinn; 11:30, super dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Gieser, director.

WGY, Schenectady, N. Y. (Eastern, 380): 6:30 p. m., adventure story, Youth's Companion; 11:20, organ recital, Stephen E. Boisclair.

WHAS, Louisville, Ky. (Central, 400): 4-5 p. m., selections, Alamo theater organ; 7:30-9, concert, Keith Kannaard and his Kentucky ramblers; chapters XIX and XX of the "Billy and Jane" stories, James Speed.

WHB, Kansas City Mo. (Central, 411): 2-3 p. m., ladies' hour program, Sweeney Radio trio; 7-8, address, musical recital.

WHN, New York, N. Y. (Eastern, 360): 5-6 p. m., Johnny DeLoriot and his Balconades orchestra; 6:30-7, Vincent Cantance and his Hotel Alamo orchestra; 7-7:30, Harry Richman and his entertainers with Eddie Elkins and his orchestra; 7:30-7:35, "Spring Styles," Haas Brothers Fabric corporation; 10-11, Clover Gardens dance orchestra; 12-12:30 a. m., Strand roof orchestra.

WHD, Des Moines, Iowa (Central, 522.3): 6:30-9:45 p. m., Repso-Hughes orchestra; Bankers Life Radio orchestra, Wm. L. Marsh, director; J. H. Lyman, pianist; Des Moines theater symphony orchestra, Prof. Leon A. Dushoff, director.

Dr. Richard M. Scott, veterinarian; 5:30, Town Critic and Village Urchins; 6-7:30, dinner hour music; 8-9, feature program; 9-10, program, Paul G. Hoffman, Inc.; 10-11, Abe Lyman's Coconut Grove dance orchestra.

KPD, San Francisco, Calif. (Pacific, 423): 7 a. m., setting up exercises, Bernard Drury; 1-2 p. m., Rudy Seliger's Fairmont hotel orchestra; 4:30-5:30, Rudy Seliger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories, Big Brother; 7-7:30, Rudy Seliger's Fairmont hotel orchestra; 8-9, Theodore J. Irwin, organist; 9-10, program, Wiley B. Allen Music company; 10-11, E. Max Bradford's Versatile band.

KSAC, Manhattan, Kans. (Central, 341): 12:30 p. m., tuning in piano selections; reading, "Pushing Pigs for Profit," C. Nitcher; Radio question box; "Gunning for Jack-Rabbits and Crows," A. E. Oman; 7:20, college bell and opening exercises; 7:30, "Equipment for the Sick Room," W. Pearl Martin; 7:40, Radio college trio; 7:45, "An Apple a Day," Katherine Hudson.

KSD, St. Louis, Mo. (Central, 549.1): 4 p. m., home hour, Omaha Ahar.

KTHS, Hot Springs, Ark. (Central, 375): 8:30-10 p. m., concert, Fisher's Exposition orchestra.

KYW, Chicago, Ill. (Central, 534.4): 6:30 a. m., morning exercises, Y. M. C. A.; 11:35, table talk, Mrs. Anna J. Peterson; 2:35-4 p. m., afternoon frolic; 6:35-7, children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 8-8:20, "Twenty Minutes of Good Reading," C. J. Pernin; 8:20-9:05, Ethel Jordan, soprano; A. W. "Sen" Kaney; Sallie Menkes, pianist; A. R. Johnson, tenor; Jane Johnson; 9:15, "Good Roads," Bert Manderwarf; 10-11:30, evening at home; "Sen" Kaney, Herbie Mints, Polle Wills, Umha Bob.

WAAW, Omaha, Neb. (Central, 278): 8-9 p. m., educational program; bridge talk, Mrs. Purdy.

WBAP, Fort Worth, Tex. (Central, 472.9): 7:30-8:30 p. m., male quartet of Bridgeport, Rev. E. L. Moody, pastor; 9:30-10:45, program, artists, Texas Christian university, Prof. H. D. Guelick, director.

WBBF, Atlanta, Ga. (Central, 270): 7-8 p. m., musical program, Solon Drukenmilch and other artists; "Synthetic Gold," N. C. Beardley.

WBBR, Staten Island, N. Y. (Eastern, 273): 9:10 p. m., Malcolm Carment, clarinetist; 9:20, Fred Twaroski, tenor; 9:30, Sunday school lesson, Malcolm Slipka; 9:50, Fred Twaroski, tenor; 10:10, Malcolm Carment, clarinetist.

WCAL, Northfield, Minn. (Central, 360): 9:45 a. m., St. Olaf college chapel services.

WCBD, Zion, Ill. (Central, 345): 8 p. m., Zion orchestra; mixed quartet; Mrs. P. M. LaRose, contralto; M. P. Barton, tenor; R. F. Reid, baritone; Edith Teeple, reader.

WCCO, St. Paul-Minneapolis, Minn. (Central, 417): 10:45 a. m., "Emergency Meals," Betty Crocker; 2 p. m., "The Popular Concert," Agnes Fyrbarger; 4, magazine hour; 5:30, children's hour, Gold Medal Lady; 6:30, dinner concert, Original George Osborn's Nicollel hotel orchestra; 7:45, health talk, auspices, Minnesota State Medical association; 8, musical program; 10, Original George Osborn's Nicollel hotel orchestra.

WCX, Detroit, Mich. (Eastern, 513): 4:15 p. m., musical program; 6 p. m., dinner concert, Book-Cadillac hotel; 8:30, musical program.

WDAF, Kansas City, Mo. (Central, 411): 3:30-4:30, St. Sta's string trio; 6-7, school of the air, piano tuning-in number on the Duo-Art; Cecile Burton, reader; the Tell-Me-a-Story Lady, music, Hotel Muhlebach Trianon ensemble; 11:45-1 a. m., nighthawk frolic, the "Merry Old Chief" and the Plantation players.

WDAR, Philadelphia, Pa. (Eastern, 395): 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 2, playlet, National school of Elocution and Oratory; 5:15, Mayflower orchestra; Jules Lande, violinist to late President Harding; 7:30, Dream Daddy's bedtime stories.

WEAF, New York, N. Y. (Eastern, 492): 4-4:15 p. m., "The Bonnie House," Mrs. Clarence R. Hyde; 4:30-5, Jascha Fishberg string quartet; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:30, services, Federation of Greater churches of New York; 8-8:15, lecture, Columbia university; 8:30-9, Packard Motor company.

WEAD, Columbus, Ohio (Eastern, 294): 8 p. m., all Scotch program, presented by group of Scotch residents of Columbus; bagpipes; Scotch songs; Scotch speeches; Scotch jokes; in honor of Bobby Burns' birthday anniversary.

WEBH, Chicago, Ill. (Central, 370): 7-8 p. m., Oriole orchestra; Hazel O'Neill, soprano; musical bits, Riviera theater; 9-10, Oriole orchestra; Belle F. Cutter, soprano; John Stamford, tenor; 11-12, Oriole orchestra; Banks Kennedy, pianologues; Loos Brothers, songs; John Stamford, tenor.

WEEL, Boston, Mass. (Eastern, 303): 6:30 p. m., Boston Edison Big Brother club; 7, Dok-Edenbourg and his Sinfonians; 8, program, Greater Boston Federation of churches; 8:30, musical; 9, Giotto Safety Razor Opera company.

WFAA, Dallas, Texas (Central, 472.9): 12:30-1 p. m., Edmund F. Root, tenor; William H. McRaven, pianist; DeWitt McMurray, philosopher; 6:45-7, Boy Scout weekly program, H. W. Wester; 8:30-9:30, North Dallas High school band; 11-12, Adolphus hotel orchestra.

WFI, Philadelphia, Pa. (Eastern, 395): 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3:05,

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Thursday, January 22

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Housewives' Radio exchange, Mabel Swint Ewer; 6:30, Meyer Davls Bellevue Stratford concert orchestra; 7, Sunny Jim, the kiddies' pal; 8, Boy Scouts Radio meeting.
WGBS, New York, N. Y. (Eastern, 316), 3 p. m., interview with Anita Loos, Terese Rose Nagel; Bert Dixon and Elmo Russ; Louise Rice, graphologist; 3:30, Bert Dixon and Elmo Russ; 3:45, Carlyle F. Straub, reader; 3:50, Bert Dixon, Elmo Russ; 6, Uncle Geebee; 7:30, Armand Vescey and his concert orchestra; 8:30, Oliver Saylor, footlight and lamplight review of plays and books; 9:30-11:30, program, Pleadly theater; 11:30, Russian Eagle orchestra.
WGN, Chicago, Ill. (Central, 370), 1:40 p. m., luncheon concert, Drake concert ensemble, Blackstone quintet; 2:30, artist solos, Lyon & Healy; 3, rocking chair tune; 5:30, Skeezix time; 6, organ recital, Lyon & Healy; 6:30, dinner concert, Drake concert ensemble, Blackstone quintet; 8-9, classical concert; 10-11, Don Bestor's Drake dance orchestra.
WGR, Buffalo, N. Y. (Eastern, 319), 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Buffalo Courier and Enquirer musical program; 6-7:30, dinner music, Hanky string quartet.
WGY, Schenectady, N. Y. (Eastern, 380), 2 p. m., "Early Problems with Little Children," Elizabeth H. Morris; 6:30, dinner music, Hotel Ten Eyck orchestra; 7:45, "A Few Moments with New Books," William F. Jacob; "Intermezzo," WGY orchestra; "Just Boy," American Boy magazine; 8:25, "Invincible America," WGY orchestra; "Billy," WGY players; 11:30, organ recital, Stephen E. Bolschlar.
WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., selections, Alhuro theater organ; 7:30-9, concert, auspices Helen I. Mitchell.
WHB, Kansas City, Mo. (Central, 411), 2-3 p. m., ladies hour program, Sweney Radio trio; 8-9:30, popular dance music.
WHN, New York, N. Y. (Eastern, 360), 12:30-1 p. m., Chas. Strickland and Palais D'Or orchestra; 6:30-7:10, Vincent Catanese and his Hotel Alamac orchestra; 7:10-7:30, WHN employment broadcasting; 9:30-10, O'Meare Gardens ballroom; 11-11:30, Connie's revue, featuring Leroy Smith and his orchestra; 11:30-12, musical program; 12-12:30 a. m., Ted Lewis and his orchestra from Parody club.
WIP, Philadelphia, Pa. (Eastern, 509), 1 p. m., Gimbels tea room orchestra, Ray Steiner, director; 3, concert, Sternberg School of Music; 6:05, Art Coogan and his Club Madrid orchestra; 7, "Uncle Wip's bedtime stories"; 8, Opera, "Carmen"; 11, Harvey Marburger and his vaudeville dance orchestra.
WJY, New York, N. Y. (Eastern, 405), 8:15-8:30 p. m., "How the Boston Airport was Established," Prof. Edward P. Warner; 8:30-9:30, Robert Emandt, violin recital; 9:30-10:30, Raymond Otis Hunter, baritone, Anita G. Glaenzler, mezzo soprano.
WJZ, New York, N. Y. (Eastern, 455), 11-11:30 a. m., "Planning to Spend," Mrs. Francis Seaver, Budget day, National Thrift week; 1-2 p. m., Nathan Abas' Hotel Pennsylvania orchestra; 4:30-5:30, Bernhard Levitov's Hotel Commodore orchestra; 7-7:55, Bernhard Levitov's Hotel Commodore orchestra; 7:55-8:25, "Menace of Money," John B. Kennedy, of Colliers; 8:26-10, "Billy," comedy by WGY players; 10:30-11:30, Waldorf-Astoria hotel orchestra.
WKAQ, San Juan, P. R. (Intercolonial, 360), 8:30-10 p. m., musical concert, Restaurant "La Cafetera."
WKBF, Providence, R. I. (Eastern, 286), 8 p. m., educational talks, faculty of Brown university.
WLS, Chicago, Ill. (Central, 345), 12-1 p. m., music numbers, Harmony Girls; "Selecting Fruit Trees," C. E. Durst; 3:15-4:45, "Hints about Clothes," Ellen Rose Diekey; "The Importance of Co-operation," Mrs. Jean C. Weiss; 6:30, Ralph Emerson, organist; 6:50, Senate Theater studio specialties; 7, "Jack and the

Beanstalk," Lullaby players; 7:20, "His Royal Highness," Radio opera.
WLW, Cincinnati, Ohio (Central, 423), 8 a. m., setting up exercises; 1 p. m., piano recital, Adelaide Apfel; French lesson, Madame Ida Telupidis; 6, Sellinsky Instrumental quintet; 10, three minute message, United States Civil Service department; 10:05, concert program, Cooper corporation; quartet; orchestra; music, Eta Chapter; Doherty Melody Boys.
WMAQ, Chicago, Ill. (Central, 447.5), 4 p. m., household hour, Mrs. Elizabeth O. Hiller, director; 4:30, Illinois Federation of Women's clubs; 6, Chicago theater organ; 6:30, Hotel LaSalle orchestra; 8, talk, auspices Western Railways committee; 8:15, boy scout talk; 8:30, program; 9, lecture, University of Chicago; 9:15, musical program.
WMC, Memphis, Tenn. (Central, 503.9), 12 m., musical program, O. K. Houck Piano company; 8, p. m., bedtime story, Uncle Percy; 8:30, WMC's second anniversary program.
WOAI, San Antonio, Tex. (Central, 394.5), 9:30 p. m., dance program, Jimmy Joy's orchestra.
WOAW, Omaha, Nebr. (Central, 326), 6 p. m., Every Child's restful hour, conducted by Grace Sorenson; 6:45, Randall's Royal orchestra, Hotel Fontenelle; 9, program, Howells' concert band, Howells, Nebr., J. E. Sindelar, director.
WOC, Davenport, Ia. (Central, 498), 10:05 a. m., household hints; 12 m., chimes; 7 p. m., sandman's visit, Val McLaughlin; 8, program, Bernie Schulz and his orchestra; 11, Louis Connor and his LeClairo hotel orchestra; song and novelty numbers, Peter MacArthur.
WOL, Ames, Ia. (Central, 360), 12:30 p. m., college chimes; "Winter Feeding and Management of the Brood Sow," Prof. J. M. Evvard; 8:15, musical program.
WOO, Philadelphia, Pa. (Eastern, 509.9), 11 a. m., organ recital, Mary E. Vogt; 12:02 p. m., Wanamaker crystal tea room orchestra, Robert E. Golden, director; 4:45, organ recital, Mary E. Vogt.
WOR, Newark, N. J. (Eastern, 405), 7-7:30 a. m., WOR gym class; 6:15-6:30 p. m., "Radio for the Layman," Albert E. Sonn; 6:30-7:15, "Music While You Dine," Jimmy Lent's Society orchestra; 7:15-7:30, radio sports, Jolly Bill Stelzke.
WOS, Jefferson City, Mo. (Central, 440.9), 7:15 p. m., Missouri Farmers week program; music, State University Department of music; 7:45, special address, Governor Sam A. Baker of Missouri; probable lecture, Howard M. Gore, secretary of agriculture.
WRC, Washington, D. C. (Eastern, 469), 6:45 p. m., children's hour, Peggy Albion; 7, dinner music, Bernhard Levitov's Hotel Commodore orchestra; 8, "Show Shopping," Leonard Hall; 8:10, music; 8:25, "Billy," WGY players; 10:30, dance music, Waldorf-Astoria orchestra.
WSAI, Cincinnati, Ohio (Central, 325.9), 10 p. m., Homer Bernhard, tenor; Grace Chatfield Bernhard, soprano; Otto Speidel, pianist; John Drury, baritone; Margaret Baker, contralto.
WSB, Atlanta, Ga. (Central, 429), 12 m., organ concert; 5-6 p. m., bedtime story, Bonnie Barnhardt; 8-9, brief recital, Lynwood Farnum; 10:45, Radiovl entertainment.
WTAM, Cleveland, Ohio (Eastern, 390), 6 p. m., Guy Lombardo's Royal Canadians orchestra.
WTAY, Oak Park, Ill. (Central, 250), 6:45-7:45 p. m., Franklin Earl Hathaway, baritone; Adymae Hathaway, violinist; Evelyn Lloyd, pianist; Earl Bundy, tenor.
WVJ, Detroit, Mich. (Eastern, 513), 3 p. m., the Detroit News orchestra; 7, the Detroit News orchestra; 10, Jean Goldkette's dance orchestra.

Friday, January 23

Friday, silent night for: CHNC, CKAC, KFKU, KSND, KJS, KPO, KWX, WAAW, WBBF, WGBD, WEOA, WEBB, WKAQ, WKBF, WLBB, WJAI, WOI, WRC.
CKAC, Montreal, Can. (Eastern, 437), 1:45 p. m., Windsor hotel trio; 4:30, dance program.

CNRA, Moncton, Can. (Eastern, 313), 7:30 p. m., Uncle Alf bedtime stories; 8:30, Venetian Gardens' orchestra; address, Walter U. Appleton; popular dance music, Joe Bazzico and his Rainbow Melody boys.
CNRE, Edmonton, Can. (Mountain, 450), 7:30-8 p. m., children's half hour; 8:30-10:30, Elk's Hawaiian orchestra.
CNRT, Toronto, Can. (Eastern, 400), 6:30-8 p. m., Luigi Romanelli and his King Edward hotel concert orchestra; 8:30-10, choral program, Russell Marshall, director; chorus, "Praise Ye the Lord"; violin solo, Elanr Raeman; quartet, "Miller's Wooling"; chorus, "Cherubim Song"; quartet, "Sweet and Low"; "Traumerel"; "Valse," Dr. Russell Marshall, pianist; chorus, "Come Let Us Worship," "King All Glorious"; song cycle, "Frou a Sufi's Tent," Mrs. C. Johnson, soprano; M. Moffat, contralto; Caldwell, tenor; C. Johnson, baritone; 8, address; 10:30-12, Luigi Romanelli and his King Edward hotel dance orchestra.
DKA, E. Pittsburgh, Pa. (Eastern, 309.1), 7 a. m., morning exercises, O. Shannon; 8, morning exercises; 12:20 p. m., Sunday school lesson, James C. Mace; 6:15, concert; 7:30, children's period; 8:15, address, University of Pittsburgh; 8:30, concert.
KFAE, Pullman, Wash. (Pacific, 330), 7:30-9 p. m., Hawaiian songs and music, Hawaiian guitars and ukuleles, Hula harmonizers; Washington 4-H clubs at Chicago, Elmira White; "Essentials of Successful Farm Management," George Severance; book reviews, Alice L. Webb; reading in preparation for travel in Europe, Prof. Carl M. Brewster.
KFAU, Boise, Idaho (Mountain, 275), 8 p. m., program, St. Margaret's academy of Boise.
KFDM, Beaumont, Tex. (Central, 315.6), 8 p. m., Bedtime band.
KFI, Los Angeles, Calif. (Pacific, 469), 5-5:30 p. m., Evening Herald, table talk and news; 5:30-6, Examiner's musical half hour; 6:45-8, Aeolian residence pipe organ recital, Dan McFarland, organist; 8-9, Evening Herald, dance orchestra; 9-10, Examiner, classical program; 10-11, Myra Bell Vickers, soprano and assisting artists.
KFKB, Milford, Kans. (Central, 273), 6-7 p. m., lecture, J. R. Brinkley, M. D.; 8-11 p. m., old-fashioned music, accordion, mouth organ, and fiddle.
KFNH, Shenandoah, Ia. (Central, 266), 6:30 p. m., concert from Anderson, Ia., Rev. H. A. Butler, director.
KFOA, Seattle, Wash. (Pacific, 405), 4-5:15 p. m., Olympic hotel concert orchestra; 6:45-8:15, Sherman Clay & company program; 8:30-10, Seattle Times program; 10:05-11, Olympic hotel dance music.
KFSG, Los Angeles, Calif. (Pacific, 278), 10:30-11:30 a. m., sunshine hour program; 3:30-4:30 p. m., organ recital, Roy Reid Brignall; 7:30-9:15, auditorium service and sermon, Aimee Semple McPherson; 9:15-10, studio program of instrumental and vocal numbers; luncheon concert, Pacific States Electric company; 3, studio musical program and speaker; 4-5:30, concert orchestra, Hotel St. Francis; 5:30-6, Girls' half hour, Esther Wood Schneider; 8, lecture, Richard J. Davis.
KGW, Portland, Ore. (Pacific, 492), 12:30 p. m., concert; 5, children's program, Aunt Nell; 8, lecture, University of Oregon Extension division; 10:30, Hoot Owls.
KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:30 p. m., proceedings of Rotary Club luncheon; 2:30-3:30, program, Pacific States Electric company, Grace Curry, harpist; 6-6:30, Art Hickman's Biltmore Hotel

concert orchestra; 8:30-7:30, Prof. Walter Sylvester Herzog, stories of American history; Richard Headrick, screen starlet; Uncle John; 8-10, program, Sandman of Fairyland; the Gaylord Trio; 10-11, Earl Burnett's Biltmore hotel dance orchestra.
KNX, Hollywood, Calif. (Pacific, 337), 8 a. m., morning prayer; 9, Hired Hand, news; 10, Hired Hand's morning message; 10:30, Estelle Lawton Lindsey, personal problems; 5 p. m., closing markets; 5:30, Town Crier and Village Urchins; 6:30-7:30, dinner hour program, Nicholls Grain and Milling company; 7:45, motorogue for tourists; 8-9, program, Columbia Outfitting company; 9-10, program, Eastern Outfitting company; 10-11, amateur try-out hour; 11-12, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel.
KOA, Denver, Colo. (Mountain, 323), 6:40 p. m., Book of Knowledge; 8-10, Lomont School of Music.
KOB, State College, N. M. (Mountain, 360), 7:30-8:30, lesson No. 1, popular science course, members of engineering faculty.
KPO, San Francisco, Calif. (Pacific, 423), 7 a. m., setting up exercises, Bernard Drury; 11, "Home Making," Prudence Penny; 12:45 p. m., talk, Commonwealth Club luncheon; 1-2, Rudy Selger's Fairmont hotel orchestra; 4:30-5:30, Rudy Selger's Fairmont hotel orchestra.
KSAC, Manhattan, Kans. (Central, 341), 12:30 p. m., reading; "Caring for Early Lambs," C. G. Eiling; Radio question box; "T. B. Cattle," J. W. Lumb; 7:20, opening exercises; 7:30, preparation of speech, Howard T. Hill; 7:40, Radio college quartet; 7:45, readings and stories, Howard T. Hill; 8, livestock improvement meeting.
KSD, St. Louis, Mo. (Central, 549.1), 8 p. m., program, Dr. E. H. Schwartz; address, Dr. L. D. LeGear, David E. Darrah.
KSND, Seattle, Wash. (Pacific, 238), 7:15-8 p. m., bedtime story, Aunt Vivien; 8-9, Earl Gray and his Hotel Butler orchestra; 9-10, concert hour; 10-11, Earl Gray and his Hotel Butler orchestra.
KTHS, Hot Springs, Ark. (Central, 375), 8:30-10 p. m., concert, musical coterie of Pine Bluff.
KYW, Chicago, Ill. (Central, 534.4), 6:30 a. m., morning exercises, Y. M. C. A.; 11:35, table talk, Mrs. Jane J. Peterson; 6:35-7 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 8, speeches, auspices American Farm Bureau federation; "The Beef Cattle Situation in the Corn Belt," D. C. Waterman; "Boys and Girls Club Work," Walter B. Remley; 9-10, midnight revue; 11-2:30, midnight revue, Coon-Sanders Original Night-hawks; W. Remington Welsh, organist.
WAHG, Richmond Hill, L. I. (Eastern, 316), 8-8:45 p. m., Adolph Hollander, violinist; 8:45-9, Joseph Wohl; pianist; 9:15-9:30, Pauline Spivak, soprano; 9:30-10:30, musical features.
WBAP, Fort Worth, Tex. (Central, 472.9), 7:30-8:30 p. m., "Dinner Music," Jimmy Riley's Texas Hotel orchestra; 9:30-10:45, musical program, artists of the College of Industrial Arts of Denton.
WBAV, Columbus, Ohio (Eastern, 293.9), 8 p. m., miscellaneous program, talent from Ohio Wesleyan university, Delaware, Ohio, direction Dr. H. E. LeBaron.

(Continued on page 30)

WOAW, CENTER OF U. S.

(Continued from page 5)

of "GR"—who is Gene Rouse, erstwhile playwright, news reporter, barnstorming actor, and press representative. His low-pitched voice is one of the most agreeable in Radio.
There are more than 160,000 "WOWL" fans who listen in three times a week to the Roseland Gardens remote control program played by Frank Hodek's Omaha Nightingales. These are announced by "GR" and the WOWL roost issues membership cards, giving initiations after the style of Leo Fitzpatrick's, Kansas City Night Hawks. W. A. Fraser is the grand generator, the official sovereign antenna of WOWL'S which of course stands for "Woodmen of the World Listeners." And its howling slogan is "Dog On Good Music" in "action."
"LP," the co-announcer, the "Jonathan" to Rouse's "David," is Lester Palmer, trained through college oratory in debating to clarity of tone in broadcasting. Studying to be a lawyer and being a trained musician as well, LP has received flattering offers for stage accompanying as well as vaudeville. His varied talents are given wide scope in WOAW activities. He often plays the simple Mr. William Wahoo or "Mr. Jones," or some other equally unusual (?) name!

Orson Styles, officially chief clerk to sovereign commander and director of WOAW station, is the tactful brunt of criticism to unwitting staff personnel. His labor is social emphasis—the balm which cases needless wounds. He meets visitors and gives out the same friendly handclasp of WOAW, which is seen in its entire staff.
Two bedtime story tellers are featured—Miss Grace Sorenson, is a Thursday night feature, and Miss Doris Secord, the sixteen-year old daughter of Uncle Ross (of the World-Herald's Sunday children's page of features), tells her father's outdoor tales each Friday evening. Fridays, Ivan Gaddis, sports editor of the Omaha News, tells sports items and Cynthia Grey also of the News, advises the lovelorn each Tuesday.
Mr. May was the instigator of the World's Radio camp, the only fraternal lodge in the world actually carrying on programs, rituals and business of the organization by Radio. This camp was begun in January, 1924, as a special benefit to traveling men and those away from their local lodge, and at a recent Radio meeting, Mr. May and his camp officiated in Woodman uniform regalia.
WOAW has everything on its programs from Radio church to lilted jazz orchestra—from dignity it steps to frivolity—yet always friendly, always happy.

Herald MODEL B

NOW \$12



The Big, Clear Voice of Radio!

THE same speaker that won nationwide popularity at \$18, in competition with the most expensive speakers built. At the new price of \$12, the Herald-B is the greatest value ever offered in Radio. The only speaker in its class with full-sized, gooseneck fibre horn, 25 inches high over all, 12 inch bell, art metal base. Clear, loud and delightfully mellow! Hear the Herald before you buy!

Herald Electric Co., Inc., 113 Fourth Ave., New York

Advertisement for Magnatron vacuum tubes. It features three different models of tubes: Magnatron DC-201A, Magnatron DC-199, and Magnatron DC-199 (large base). The text describes their benefits for clearer reproduction and greater volume. Each tube is priced at \$4. The advertisement is for Connevey Electric Laboratories, located at 309 Fifth Avenue, New York City.

OPERATING AND TROUBLE SHOOTING

For the Owner of a Fada Neutrodyne Receiver

THESE instructions cover the use of the following receivers when storage battery tubes are used: Neutroceiver, Neutrola, Neutroceiver Grand and Neutrola Grand. These four sets contain the same neutrodyne receiver panel unit, which is a five tube unit containing two Radio frequency amplifying tubes, a detector and two audio frequency amplifying tubes. These tubes and their accessory tuning circuits have been mounted compactly on a slanting bakelite panel which can be readily fitted into the cabinets of any of the receivers listed above. That pictured is Neutrola.

Connections

Connect 6 volt storage battery and 22½ and 90 volts of B batteries to the proper terminals as indicated on the tags on the leads. The leads for the C battery are short circuited when the receiver leaves the factory. The C battery if used (3 to 4.5 volts) will not necessarily improve the quality, but will lengthen the life of the B batteries. B batteries are made in both 22½ and 45-volt units. If 22½-volt units are used, it is necessary to use four units instead of two. The negative (—) and positive (+) terminals of the B batteries will be found marked in the insulating wax on the top of the batteries.

To make the proper battery connections, connect a wire from the positive terminal of one battery to the negative of the second, continuing the same series connections if four 22½-volt batteries are used. This will leave a positive and a negative B battery terminal unconnected. These are connected to the receiver as follows: The lead tagged —B from the set is to be attached to this —B terminal of the batteries while the +B90 lead on the set is to be connected to the +B terminal left on the battery.

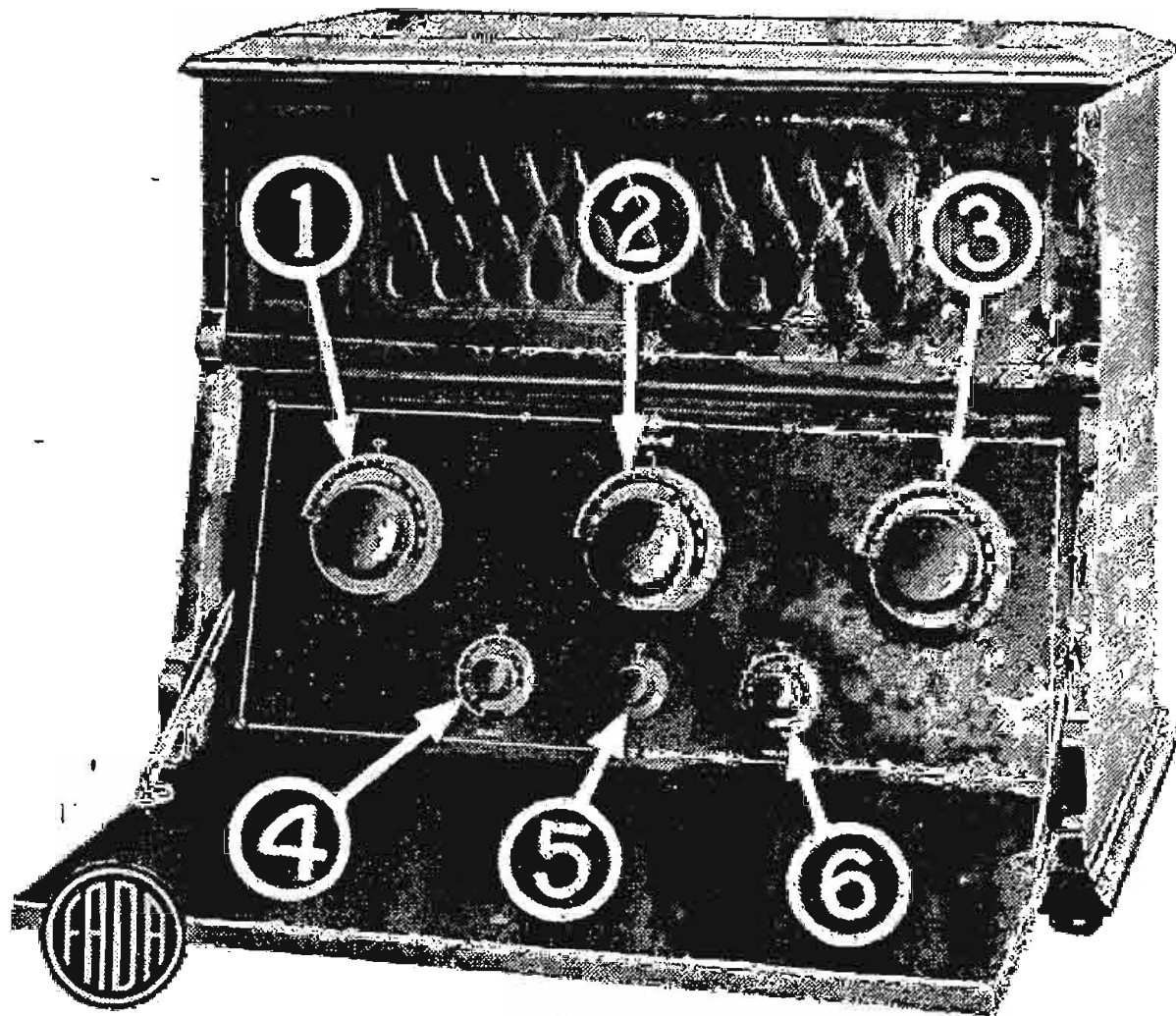


Figure 1

The last wire to be connected is the detector plate wire. The first B battery figured from the negative end has a positive 22½-volt terminal connected to the negative of the next battery. The lead from the set tagged +B22 is to be connected to this, in addition to the wire leading to the next battery.

In order to get at the connections within the set, it is necessary for the user to remove the battery shelf. This is done by removing the two small blocks on each side of the receiver cabinet wall

which hold this battery shelf in position. (A single nail holds each in position.) These two blocks are used to hold the shelf in place and prevent its knocking around inside in shipment.

Antenna, ground and loud speaker connections should be made before the shelf is put back into position. If one desires to place B batteries within the receiver the connecting leads should be pulled back through the holes in the cabinet, so that they are entirely within the receiver. Then replace the B battery shelf

and make connections to the B batteries when in position. In the Neutrola it is important to keep the B batteries toward the antenna end of the receiver, and away from the center of the shelf. Use the vertical types or place horizontal types vertical.

Antenna should be a single wire from 60 to 125 feet long, either inside or outdoor, outdoor preferred. Ground connection should be preferably made to cold water pipe, and to "GND" binding post only; not to any other part of receiver or batteries. If external loud speaker is to be used connect to "HORN" binding posts. Keep the antenna and ground wires away from the set; do not bring them back along the length of the receiver.

Operation

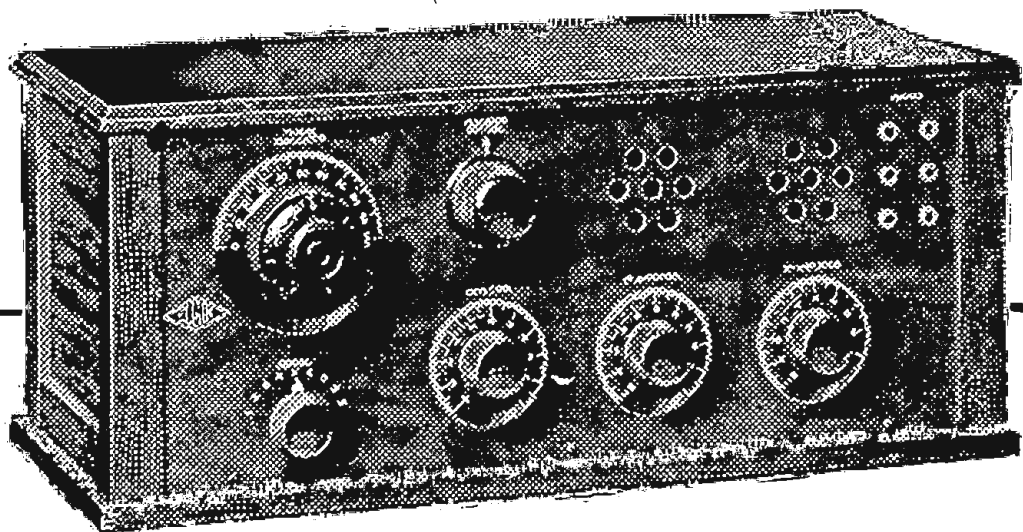
Insert five "hard" amplifier tubes (type UV 201-A's or C301-A's) in the five tube sockets of the set. The two tubes on the front sub panel are the Radio frequency tubes and the three in the rear, detector and two audio frequency amplifying tubes. The tube to the extreme right is the detector.

Turn "QUALITY" No. 4 and "VOLUME" No. 6 adjustments to right to about "7" each. The No. 4 control adjusts the intensity of the two Radio frequency amplifying tubes and the No. 6 control adjusts the intensity of the detector and two audio frequency amplifying tubes. Light the tubes by turning Selector Switch No. 5 around to "LOUD" position. In the "OFF" position the receiver is absolutely dead. In the "MED" position, the filaments of four tubes are lit, and the receiver functions as a two Radio, detector and one audio, or four tube receiver. In the "LOUD" position the second audio amplifying tube is put into circuit, its filament lit, and the loud speaker or phones transferred to its output circuit.

Tuning

Let us assume that it is desired to receive Station WEAJ, New York, N. Y., which transmits on a wave length of 492 meters. On examining the dial calibrated in station call letters and wave lengths,

(Continued on page 22)



You Can Build This Set Without Soldering. Save Fifty-Dollars!

Don't pay the other fellow for doing what you can do yourself. Build your own Radio set—and have the fun of building it! The Elgin Super-Reinartz is supplied "knocked down." But it is different from the average so-called knocked down set.

Every thing is drilled, the panel is engraved—and there is absolutely nothing to solder. The parts assemble just like building blocks, all wires "clip" into place and the panel slides in the grooved cabinet and fits! Nothing to do but drive a few screws!

If you can use a screw driver you can build this highly efficient receiving set in an hour or so. Then call in your friends and show them the set you built yourself! Show them how easy it is to tune in the stations they have been unable to get with ordinary sets.

The Elgin Super-Reinartz is the set that has repeatedly tuned in 2LO, the hard-to-get London station. This same set has logged every worthwhile station in the United States, Canada, Mexico and Cuba.

FREE!

We want you to learn more about this amazing set—mail the coupon with your name and address and we will send you the complete working drawings of the Elgin Super-Reinartz—absolutely FREE!

The parts supplied you are exact duplicates of the parts we used in the original model, the hook-up is the same and an exact simplified working drawing is supplied. You can't go wrong!

We guarantee every part in the Elgin Super-Reinartz to be the utmost in efficiency. We guarantee the drawings furnished you to be duplicates of the same set that heard London. We guarantee reception that is only possible on other sets twice the size and price, providing our drawings are followed, and the set is properly constructed as we direct! Read our FREE offer to you.

ELGIN Super-Reinartz "The Ford of Radio"

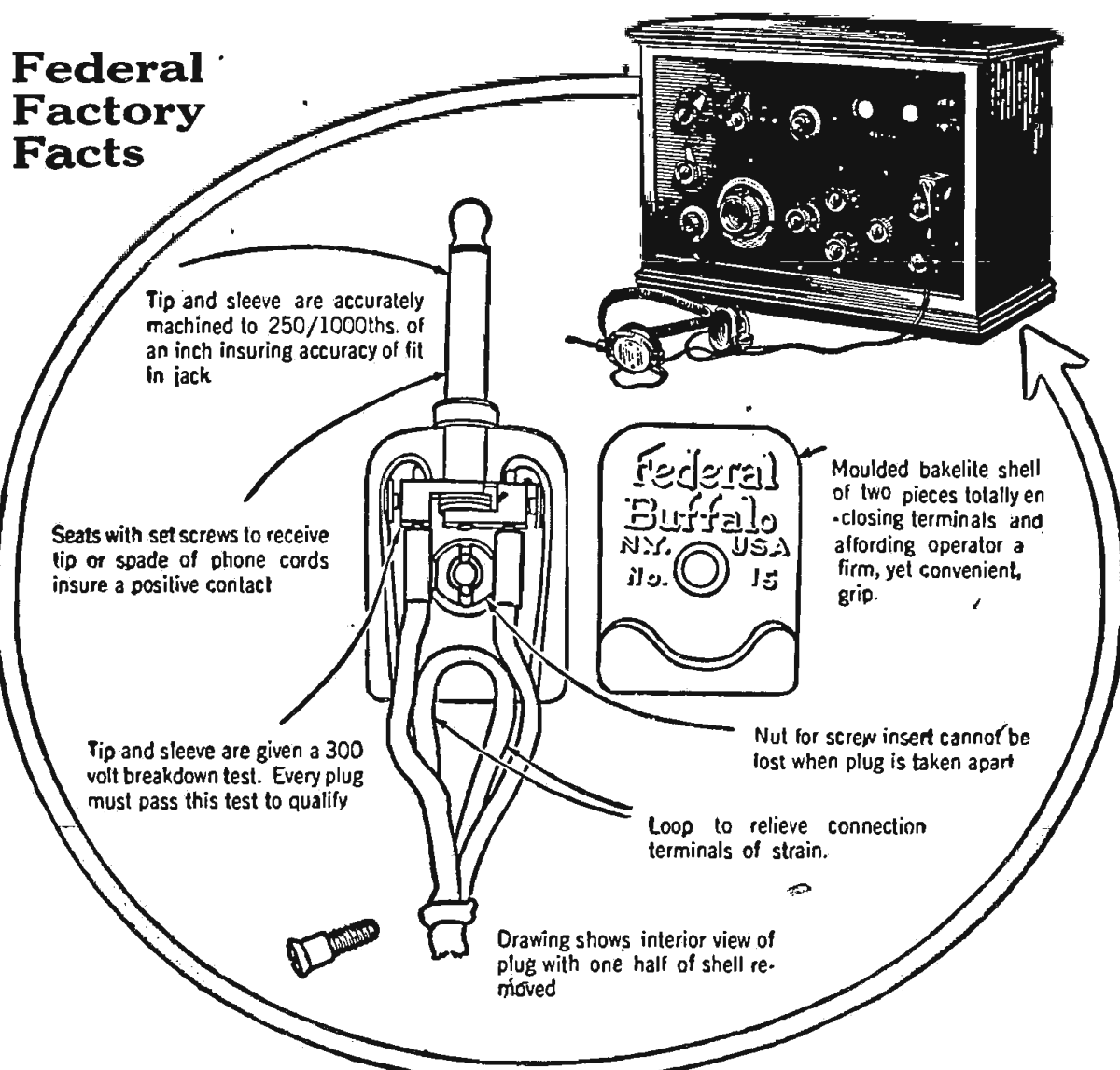


Elgin Radio Supply Company, Suite A, 207 E. Chicago St., ELGIN, ILL.

I want to know all about the set that heard London. Send the working drawings of the Elgin Super-Reinartz set by return mail—Free! I am enclosing a stamp to cover postage.

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

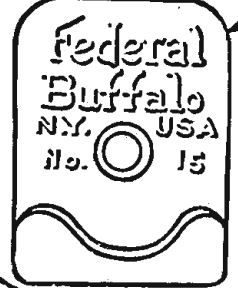
Federal Factory Facts



Tip and sleeve are accurately machined to 250/1000ths. of an inch insuring accuracy of fit in jack

Seats with set screws to receive tip or spade of phone cords insure a positive contact

Tip and sleeve are given a 300 volt breakdown test. Every plug must pass this test to qualify



Moulded bakelite shell of two pieces totally enclosing terminals and affording operator a firm, yet convenient, grip.

Nut for screw insert cannot be lost when plug is taken apart

Loop to relieve connection terminals of strain.

Drawing shows interior view of plug with one half of shell removed

The plug is the KEY that unlocks the full possibilities of your receiver. No matter what you are getting off the air, you HEAR only what the plug lets through.

Buy a No. 15 Federal Plug for your radio phones or loud speaker if you want to know what your radio set can give you.

Buy a Federal Plug today—also take advantage of the other 130 standard radio parts sold under the same Federal iron-clad performance guarantee.

FEDERAL TELEPHONE MANUFACTURING CORP. Buffalo, N. Y.



Federal Standard RADIO Products

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Radio Digest

PROGRAMS
Illustrated

Published by the Radio Digest Publishing Company, Inc.
510 North Dearborn Street
Telephone: State 4372, 4373, 4374, 4375
Chicago, Illinois

E. C. RAYNER, Publisher

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. XII Chicago, Saturday, January 17, 1925 No. 2

Radiation Interference

Why Be the Nuisance of the Neighborhood

ALMOST every person who frequents the motion picture theater has experienced sitting in back of some person or persons who get up and begin leisurely to arrange their wraps before moving out, just at the time when the climax of the play was reached, and all you see is the words "The End." It is impossible to know if he got the girl or who shot the villain.

We wonder just what might be passing through the mind of a person who exhibits such absolute indifference regarding the feelings or pleasure of others. Here is an example: The broadcast listener who will allow his tubes to oscillate while tuning in, thereby blanketing the concert with squeals and howls for all the other listeners nearby.

Radiation interference has become such a general nuisance that it has aroused a correspondingly general desire to get rid of it. General education on this subject will probably bring effective remedy. It is inconceivable that anyone that has had his evening's entertainment spoiled—and who has not—by the radiation from some other fellow's receiver should himself deliberately offend. Few people care to be known in their particular community as a nuisance.

Disturbing the Elements

Radio to Blame for Droughts and Floods?

THERE is always some person that bobs up who has a fear that any new thing or science will so disturb the elements that they will slip out of gear with the general machinery of the universe. Quite a few people see where drought and floods are direct results from Radio. It seems as if some bright star among these gloom getters has figured from the attempted trials of electrified sands dropped from aeroplanes at great altitudes will cause the clouds to release the raindrops, that the excess amount of energy radiated from broadcasting stations, which is a positive nature, will prevent rain.

For many years every conceivable means has been employed to either make it rain or cause a drought. Now we must try Radio. The energy that makes Radio possible has always been here from the beginning of time. We have only found a use for it. Then why blame it on this new science when there are radical changes in the precipitation from year to year. We have had plenty of rain for the year just closing and the positive action had no effect on it.

Ideal in Simplicity

Massive Units no Longer Popular

SIMPLICITY seems to be the keynote in the march of Radio progress. Simplicity in construction, fewer parts, ease of tuning and a much better grade of goods are the things to be considered. The old outfits of massive units and tangled wires served their purpose and was a means to the definite end of undreamed proportions. As time went on the units began to decrease in size, the number entering into the composition of a set fewer and the results much improved. The greatest step in the advancement was the audion tube.

It is no longer necessary to think of Radio as a deep mystery, for any school boy can absorb sufficient knowledge with the amount of literature that can be had on the subject to construct for himself a very creditable, workable set and understand the why and wherefore of its working.

Were it not for the simplicity of those working parts, the ease of manipulation, this would not be possible and many a home would be deprived of one of the greatest blessings ever bestowed upon it.

March of Church Radio

Scottish Churches Abroad Refuses to Broadcast

THE Church of Scotland refuses to permit broadcasting from its churches. They claim that it keeps people from church services. It may keep some people away, but it reaches a large number that never went to church and we believe an equal number to that which are kept away have been added to the church services by once hearing them broadcast. Then, too, a great many who listen in would never go to church.

RADIO INDI-GEST

DASTARDLY DEED STIRS WRATH OF REVOLVER, WHO ISSUES ANATHEMA

ZION, Ill.—A gang of rough neck rollers, said to be from a town in the vicinity, broke into Station WCBD last night and after overpowering Overseer Revolver gained control of the station and put on a program of their own. This is what greeted the ears of devout listeners:

Organ Solo—I Can't Get the Girl I want, by Charlie Chaplin.

Song—My California, by the Tokio Four.

Another Song—The Holy City, by the Cicero Six.

Lecture—Easy Way to Wealth, by Associated Speed Cops of Zion.

Song—Beautiful Isle of Somewhere, by the Bahama Boozers.

Lecture—Value of Well Paved Roads, by Cyanite.

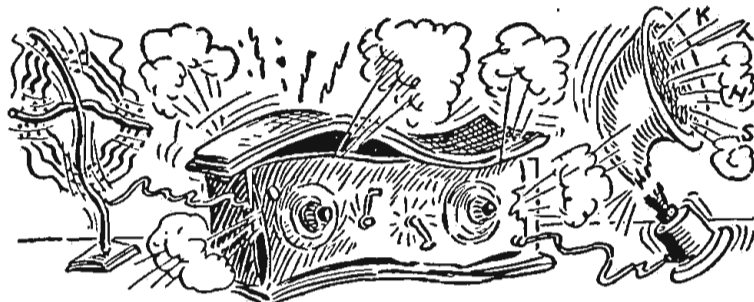
Radio Advertisement—Smoke and Chew Toxido, It Grows Cats Whiskers on Your Radio. For Sale in the Tabernacle Lobby, by the Zion Co-operative Smoke Shop.

Sermon—One a Minute, by the Overseer.

At this point the tubes blew and the dastards fled. The Overseer swore he would pursue them to the four corners of the earth if necessary. All agree that this crude attempt at humor deserves the most severe punishment—boiling in oil or something.

THE THIRD TROMBONE PLAYER.

Bet You Thought That You Were in a Ford!



Dear Indi: Because of the table shaking so, I couldn't get a better picture of my receiver, but this will give you an idea of how KTHS came in here at St. Louis, Mo., the first time. HI AMPER.

Spell of the Radio

In the great backwoods a trapper is fast
Closed in by the wintry storm,
Yet he nods his encore and begs for some more;
'Tis the spell of the R-a-d-i-o.

Far 'in the south seas, there's a yacht drifting by,
Everything is quiet and peace reigns there;
Someone sings to those people, from Canada or
the states.

Again 'tis the R-a-d-i-o.

While fiddling around with Radio
We oft wonder awhile, what people of long
ago thought—
Fairies and Magic they knew galore,
But they knew not R-a-d-i-o.

CAPARYCO JOE.

Mrs. Partington Speaks Out

Dear Indi: Mizz Partington says that Santa Claus sent out a lot of good broadcasting Christmas week and she heard a lot of good programs. On Friday night CFCF at Montreal was celebrating their 5th Radio anniversary, so if KDKA is the "Original" Station, why then she reckons CFCF must be the "Aboriginal" Station.

Anyway, they send out enough power to massacre a lot of the settlers in U. S. A. KFDL had their aerial blown down, but they blowed it right up again and got out better than ever.

The Scotch folks needn't to have bothered about crossing the ocean on Friday night; all they had to do was to tune in KPNE and KOA. Henry Field had Scotch music, songs, bagpipes, n'everything, while KOA was right up to General Electric Specifications and out-Scotched the Scotch.

She heard seven Chicago stations Friday night, all good programs, but complains that KYW does not come in as well as last winter. WBZ comes in regularly and the output is highest grade in every particular, as it should be, as they are a missionary from the Puritans.

KTHS is young, but healthy, and fits right in with the old-timers. KGO called in once during the week and their power works, like a telescope, reducing distance about 20 diameters.

"Ed and Mamma" McConnel entertained at WSB Saturday night, nigger sermon and all, which couldn't come from no place but Jawjuh, Suh. A good tenor was heard at PWX also.

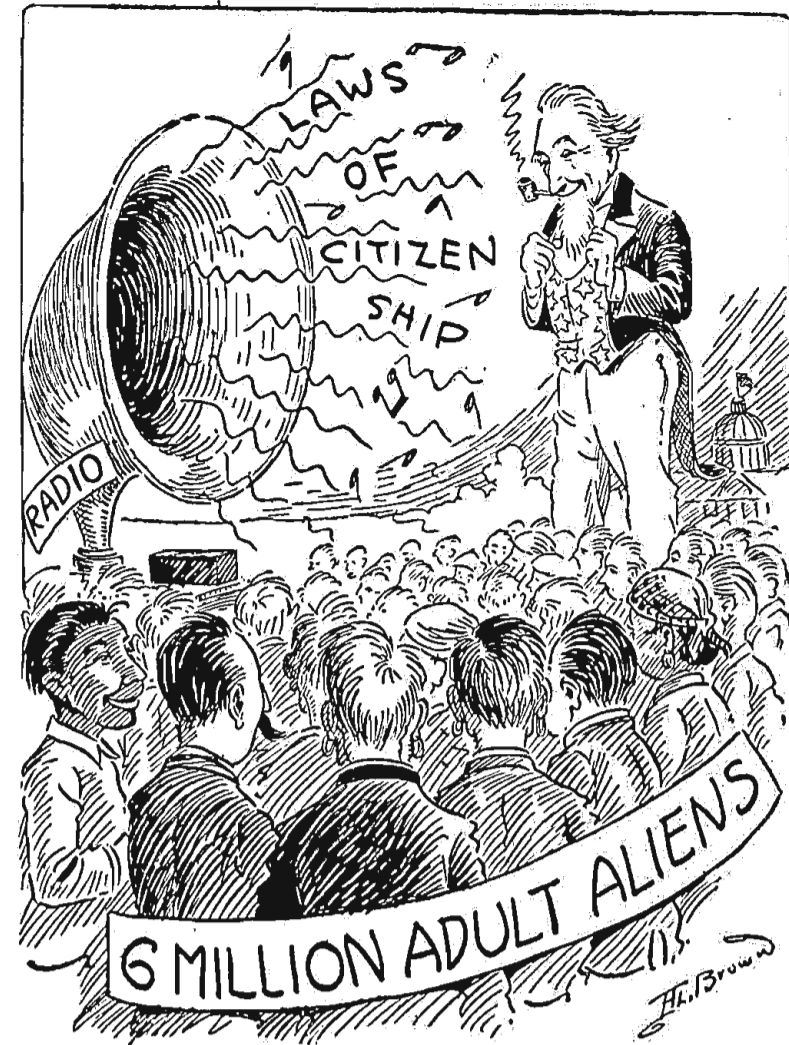
SIGNING OFF.

Famous Calls Heard

Station WOW. Well known because of the volume of sound transmitted. Operating hours are very early in the morning.



Making Good Citizens



Condensed

Difficult as it seems to be for some of the stations to run off their programs with dispatch, there is reason to hope that some day waiting periods will be eliminated entirely. So free from this complaint is WEBH that I congratulate them once more on the smoothness with which the station operates.

Although the inmates of our penal institutions may not have free access to the outside world, they may hear news of it by Radio and listen to the applause of happy dancers between numbers in some gay ball-room. They are more at liberty to greet those without prison walls through Mike, as was done recently from Station WIP, when music from the Eastern penitentiary was Radiocast to many listeners.

You can almost always count on WSB to revive the old songs and keep them on tap for those who enjoy these melodies. One of the best renditions of Old Black Joe was given from the station not long ago, when it was sung as though the song were the latest hit of the season. It is not easy to impart freshness to such a number.

There were many readings of Dickens' Christmas carol and more or less realistic impersonations of the famous character Scrooge. None of these surpassed in dramatic effect the reading of the story in front of the mike at WSAI. Each mental picture of the old miser framed as you read of him years ago was intensified as you listened now.

The Sweeney school offered a program of numbers that must have pleased a variety of tastes, for it presented features of widely differing style, and had it contained anything classic would have left no one unsatisfied. There was no excuse for the long waits during the program, however, and better management is looked for in the future.

That station out in Columbus, Ohio, WBAV, provides entertainment of merit. I heard an orchestra that represented real musical talent from the station and the modulation of the transmission was very good indeed.

With unpaid bills before you, it isn't too late yet to recall certain features Radiocast at Christmas. KYW had a mixed quartet to sing the seasonal songs and their work was excellent; singing with expression and careful balance of voices. Let's have more of it.

Hot Springs, Arkansas, has seemed a long way off to many who make their trips via Radio. but now—it's just next door! KTHS has an announcer who makes you feel the best room in the house is none too good for you. The program director has decided that we listeners must have the best orchestra obtainable, while the men in the control room mean to give them every chance to "get across" to us.

It takes only a few seconds to step out of the Arlington hotel and into the studio of WFAA—providing you have a set handy. I like the material Dallas has to offer, but would like it better if some way could be found to get a peep at the charmers who entertain us, for judging solely by the voice I think there have been some stunners.

WEAF has the Happiness Boys drop in to hand us some jokes and some not. That one about baseball in Japan, where they have so many Japanese fans, may be classed as the third striking example of saccharine wit. Still speaking of the diamond, there's happiness in every box.

Construction of the Six Tube Hetduogen

Part IV—Wiring the Base Panel

By C. E. Brush

NOW that the special coils have been made up, and the other parts purchased after referring to the accompanying list of parts, we are ready to go on to the assembly of the baseboard. The photograph of the front view was printed in part I and the dimensioned baseboard layout accompanied part II, so the reader should by this time have a fairly clear idea of how the set will look when finished.

In purchasing parts for this set, the

LIST OF PARTS	
1 Panel, 7x26x3/16	\$ 4.50
1 Panel, 9x25x3/16	5.75
1 Variable condenser .0005 mfd.	5.50
1 Variable condenser .00015 mfd.	4.00
1 Variable condenser, 3 plate.....	2.00
1 Rheostat, 20-25 ohm.....	1.10
1 Rheostat, 6-10 ohm.....	1.10
1 Battery switch	1.00
1 Double circuit jack.....	.85
1 Single circuit, filament control, jack85
1 Antenna coupler, to be made....	2.50
1 Oscillator coil, to be made.....	2.50
1 Filter coupler, to be made.....	3.50
2 Variable grid leaks.....	3.70
1 Grid condenser, .00025 mfd.....	.35
3 Audio transformers, low ratio, shielded	21.00
8 Binding posts80
2 Dials, 4" (if not with condensers)	1.50
1 Dial, 3" (if not with condenser)50
Wire, spangetti, screws, etc.....	2.00
1 Cabinet 7x26x10	10.00
Total cost	\$75.00

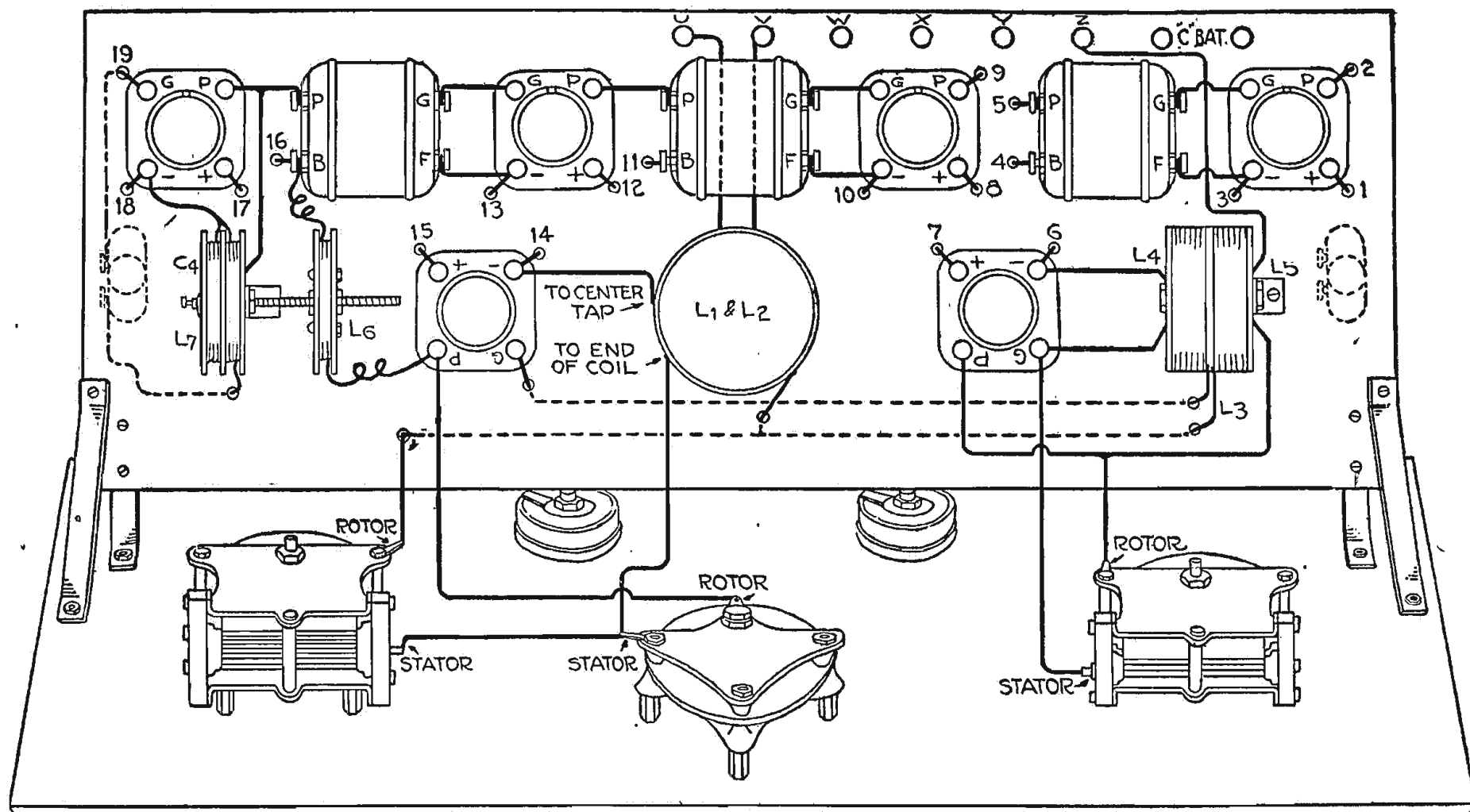


Figure 10

old rule of "the best is none too good," should be followed, as the success of Hetduogen lies in the low resistance (both positive and effective) of its circuits and the excellence of its audio frequency transformers. One point is absolutely certain—these transformers must be of a comparatively low ratio and well shielded. All parts, both purchased and constructed, should be placed on the base

panel and centered by the layout shown in part II. Marks for mounting bolts can then be made through the mounting holes of the sockets, transformers, inductance brackets and resistances. The grid leak and condenser mounting to be used on the second detector (first tube at left in rear row) may be either the continuously variable type or clips for cartridge leaks and condensers. For accurate, convenient adjustment of this unit, the variable type is somewhat better. One other continuously variable high

resistance unit is seen to be mounted at the right side of the sub panel, near to the last tube in the rear line on the base panel. The use of this resistance will be taken up in connection with the operating and adjusting chapter to follow. **Mounting Antenna Coil**
The mounting of the oscillator coil and the filter coil needs no further detailed explanation, the fixed coupler unit being the only one which requires individual consideration. This coil, as is shown, should be mounted end down, open end

up, with the primary winding (the 12-turn coil) end down against the sub panel. It should be so arranged that the two anchored ends of the primary winding are brought from the inside of the tubing, to the outside, through notches filed at the bottom edge of the tube directly under the anchoring holes, and the tube turned so that these two leads are toward the rear edge of the sub panel, for connection with the first two binding posts. These are the aerial and ground leads and it is
(Continued on page 26)

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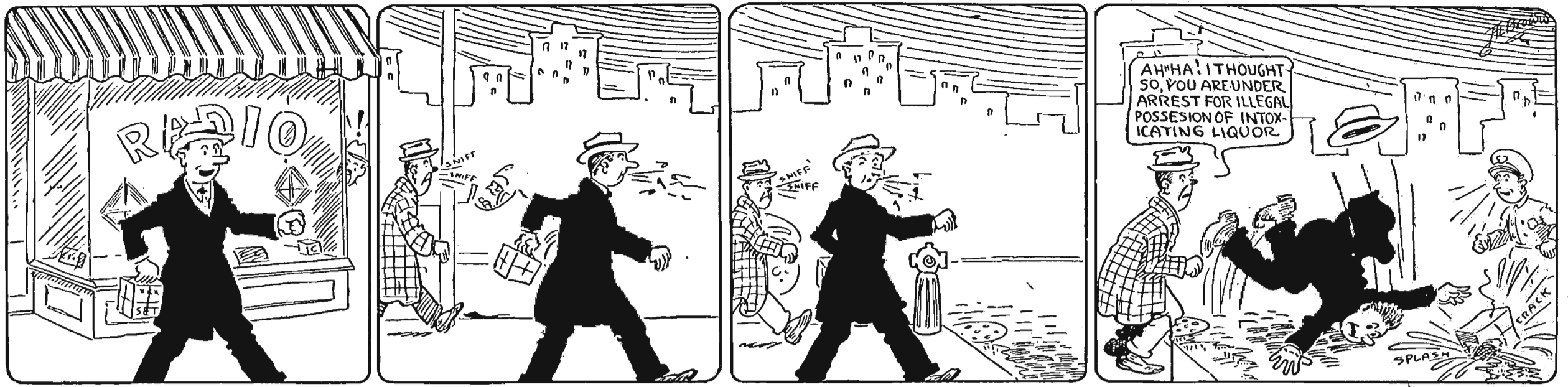
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HOW TO OPERATE SET

(Continued from page 19)

shown in figure 2, it is seen that this station corresponds to a dial setting of 67 degrees. Set dials 2 and 3 of the receiver at this setting and rotate dial 1

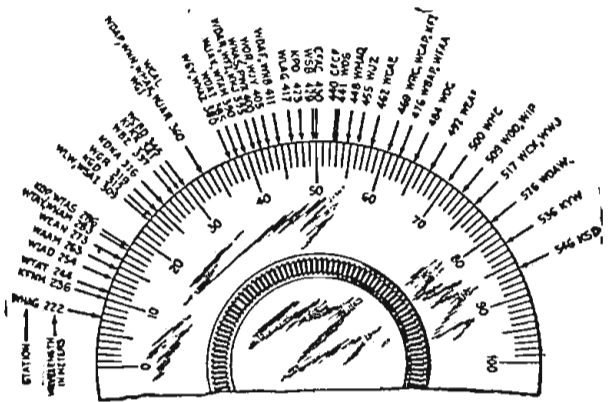


Figure 2

very slowly from 45 to 80. Signals will be obtained either at a setting identical with dials 2 and 3, or more probably a few degrees lower. Then rotate dials 2 and 3 independently very slowly until the maximum signal is obtained. In any particular neutrodyne receiver, dials 2 and 3 may read identically, but in no cases will they differ by more than a degree or two. The first or antenna dial may also read identically with 2 and 3, but in general it is several degrees lower than the other two. A record should now be made of the settings for this station on a log sheet.

WEAF 492 meters 63 66 67

After adjusting the dials for maximum signal strength, turn the No. 6 control until the maximum volume is obtained. Then adjust No. 4 control for clarity and quality of the program desired. At no time turn these controls beyond the point at which the maximum signals are obtained, as this will cause the filaments of the tubes to burn too brightly and reduce the lives of the tubes considerably. If it is desired to receive any station

located at a wave length not listed in figure 2 the procedure is as follows. If you desire to locate a station transmitting at a wave length of 259 meters, note that the arrows show a station at 254 meters at 13 degrees, and one at 263 meters at about 14 1/2 degrees, therefore the station broadcasting at 259 meters will be approximately half way between these.

Calibration Curves

As a further aid in locating stations, the wave lengths of which are not listed in figure 2, the calibration curve shown in figure 3 can be used. These two tuning aids were determined from representative receivers, but in practice, due to commercial variation, the specific receiver calibration may vary a degree or so from those indicated.

In all cases when tuning a neutrodyne receiver it is best to keep dials 2 and 3 always within one or two degrees of each other and to move them at a slow rate, about a degree a second. Very often a weak broadcasting station is passed over

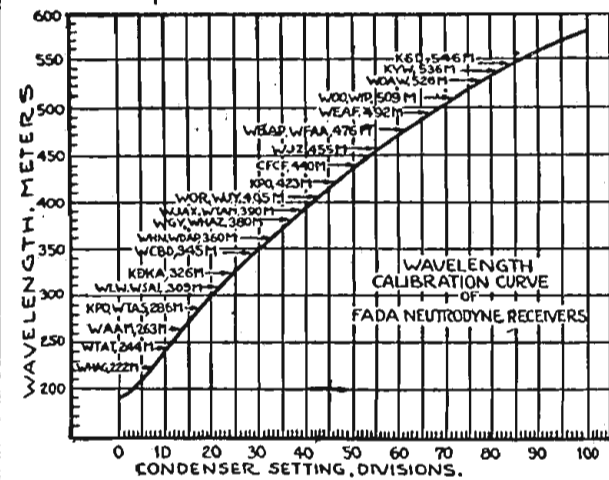


Figure 3

by moving the dials too fast. One can tell if the receiver is "tuned-in" when the broadcasting station cannot be heard by listening to the intensity of the static noises that are usually present. Varia-

tions in the size of the antenna used only affects the tuning position of the first dial on a neutrodyne. Dials 2 and 3 are not affected by the type, length and kind of antenna. When a short antenna under 75 feet is used, dial 1 will read almost identical with dial 1 for any particular wave length. As the length of the antenna is increased the reading of dial 1 will gradually draw away from dials 2 and 3, reading, in the case of the longer antennas, several degrees below the other two dials. At the short wave lengths, with the long antenna, it may be necessary to insert in series with it a fixed condenser of .00025 mfd. capacity in order that tuning can be accomplished on dial 1.

Tubes

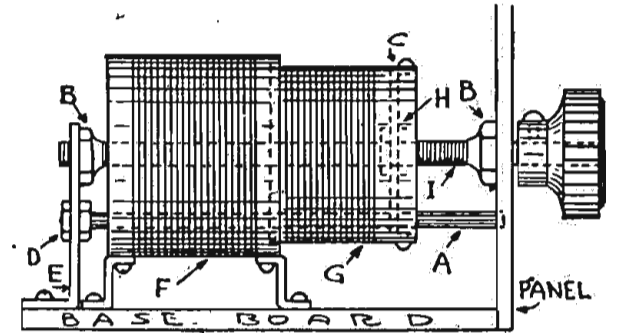
For the five tube receivers of the Neutrola and Neutroceiver type, the use of a "soft" tube is to be discouraged. In all cases a hard tube should be used as a detector. Superior results will always be obtained with hard tubes. At times the five tube receiver will suddenly howl with an intense note, irrespective whether the receiver is tuned to a particular station or not. It can be remedied by substituting a new tube in place of the one which is defective or by interchanging the tubes among themselves. Generally the detector tube will be found faulty.

If no spare amplifier tubes are available for the determination of a possible defective tube, the user of one of the sets under discussion can, by turning the Selector Switch No. 5 to "MED," release his second audio amplifier tube for substitution with the two Radio frequency amplifier tubes. Interchanging tubes will usually enable the broadcast listener to find a defective tube.

Vernier Coupling

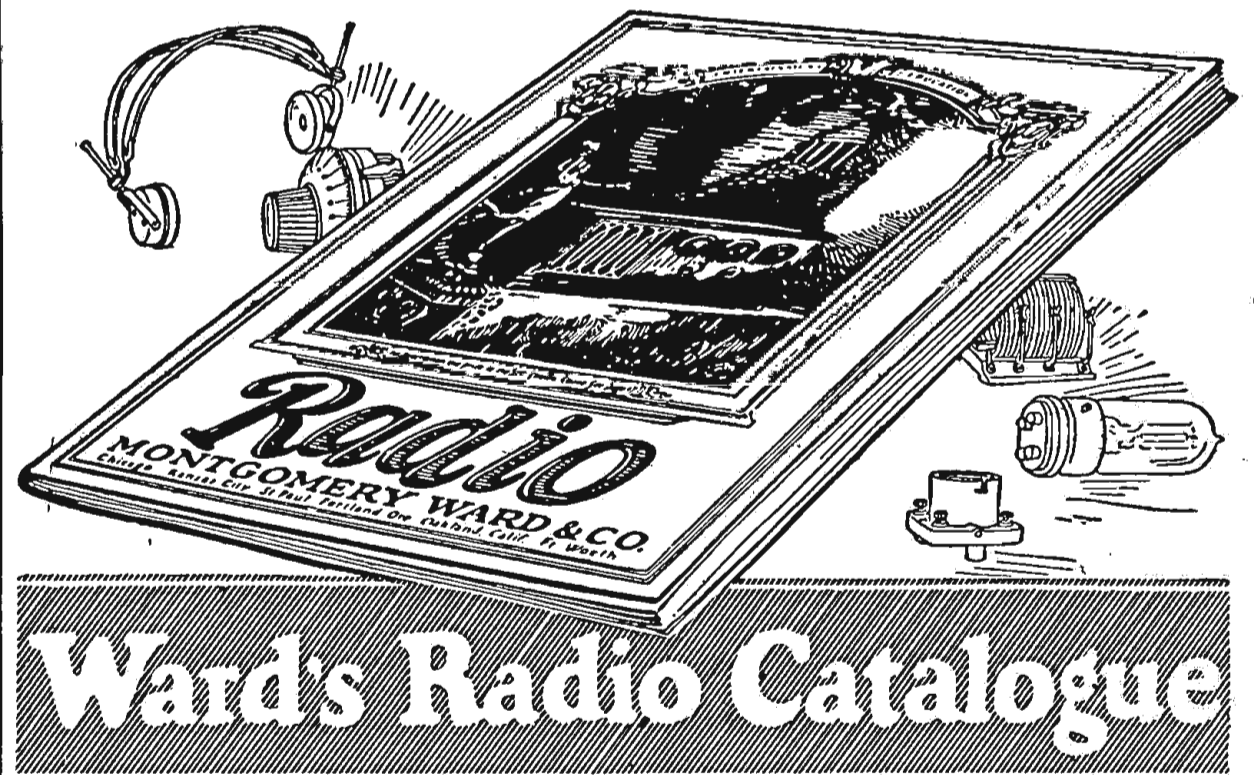
The principle used in the illustration can be used to make tuned Radio frequency transformers or practically any kind of a coupler. I have been using it for some time in a set of mine, and I have found it very efficient.

The illustration shows how the coupler



is constructed. I represents a threaded brass rod to which nuts B are soldered after placing it through nut H, which is soldered to a brass strip C. Strip C has a hole drilled through it which the unthreaded rod A can pass. C is fastened to the secondary G coil at each end of brass strip or ribbon. Coil F is the primary and having no other connection to the device except two brass legs or supports on the baseboard. E is a brass support holding the threaded rod in position. It also has a hole drilled for the rod A, which is fastened by nuts. Willard C. Thomas, Alliance, Ohio.

In arranging the aerial and ground binding posts on the panel of a set do not place them too close together. Get them at least 3 inches apart if possible.



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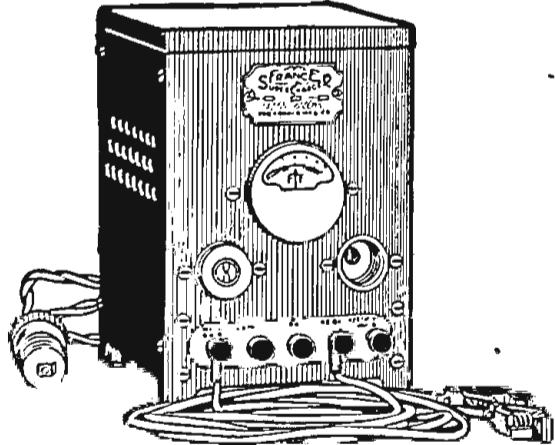
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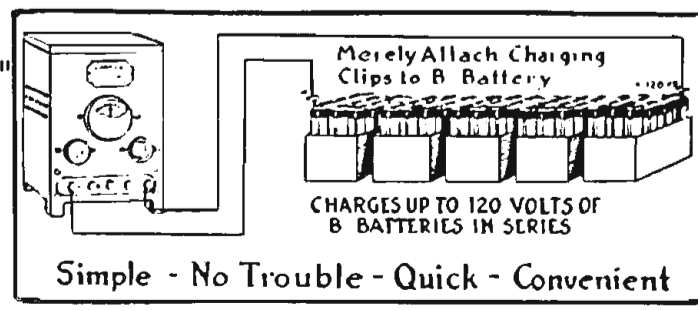
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The illustration to the left shows the simplicity of charging B batteries with the France Supercharger. No fuss or trouble in series charging.

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Demonstrating Radio Principles at Home

Chapter VI—The Experimenter Junior

By J. E. Owen

RADIOPHANS inclined to experiment will find in this series of articles, directions for illustrating to their own satisfaction the underlying principles of Radio. They will be told how to set up the experimental apparatus, which will be simple and not so complicated as to require the equipment of a large laboratory, using odds and ends probably already at hand. Few new parts will be needed. The chapters to follow will be:

Chapter VII—Presenting the Experimenter Supreme.
Chapter VIII—Experimenting with Push Pull Amplifiers.

cover amateur and broadcasting wave lengths. For higher wave lengths, coils with larger numbers of turns are required. The circuit diagram with two stages of audio frequency amplification (which may be omitted if desired) is given in figure 1.

Honeycomb Coils vs. Low Loss
The advisability of using honeycomb coils will be questioned since the tendency at present is to get away from them

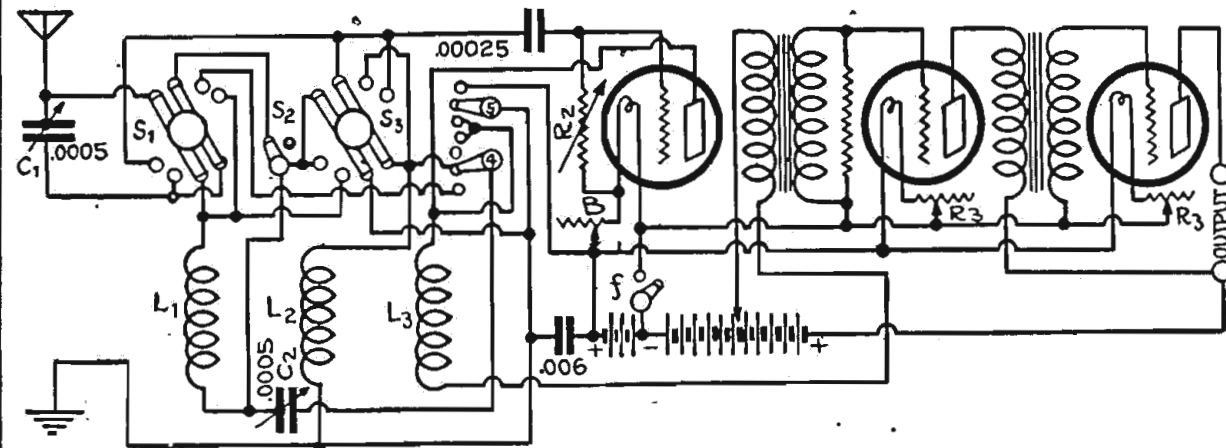


Figure 1

and use "low loss" coils, usually of the basket or lattice weave types. However, there are certain advantages (such as mechanical strength and ease of handling) that go with the use of honeycomb coils and, moreover, the efficiencies of properly made honeycomb coils approach very nearly that of the usual run of "low loss" coils. It is necessary to use in this set coils that are readily interchangeable and the positions of which are easily varied. It is not the intention of the writer to infer that the latest types of "low loss" coils cannot be obtained with proper or satisfactory facilities for mounting, but it is certainly true that apparatus of this description is not on sale at the average Radio stores. If the experimenter has acquired the skill necessary for winding "low loss" coils such that will insure a satisfactory quality output, he can in all probability adapt coils of his own pro-

duction to suitable mountings. A suggested panel and corresponding baseboard layout is given in figure 2. There is also given in this illustration a view from the left end of the set showing the recommended positions of the condensers and coils. Notice that the condensers are placed at the back of the baseboard on a second panel and extensions of the shaft arc made of rubber or bakelite tubing. These extend to the dials

on the main panel. The purpose of this arrangement is to eliminate body capacity and to separate the coils and condensers a satisfactory distance. This set should not be shielded, due to tricky actions of some of the super-regenerative circuits.

Possible Combinations
To illustrate some of the possible combinations with this set, it is necessary to adopt some arbitrary system of "logging" the switches. Notice the two series parallel switches have three possible positions, namely, with the top to the left, the blades vertical, and with the top to the right. The inductance switches have two, four and three positions in the order named from the left. Considering the position to the left as position 1, the next

as position 2, and so on over as far as each switch will turn, using a combination 1-1-1-2-3, the circuit obtained is that

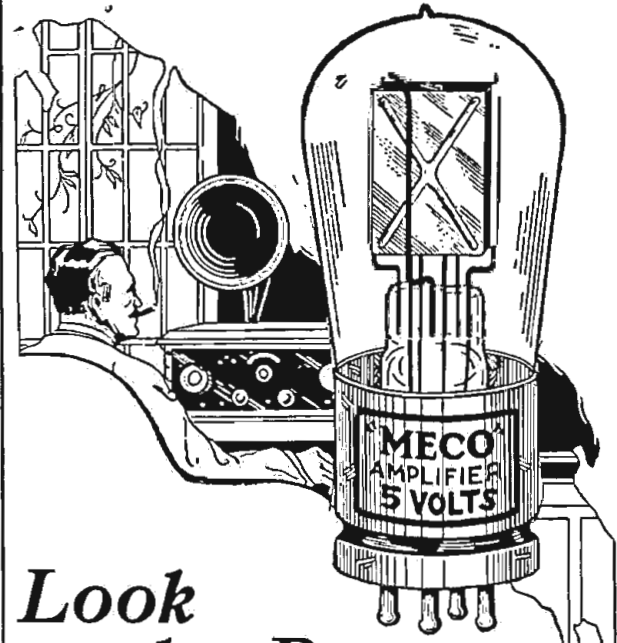
LIST OF PARTS	
2 Panels 3"x 8"	\$ 1.30
1 Panel 9"x 18"	4.20
1 Cabinet (to match)	5.00
1 Baseboard 7"x 17"	.90
2 Variable cond. low loss vernier .0005 mfd.	11.00
2 Honeycomb coils 50 turns	2.20
1 Honeycomb coil 25 turns	1.00
1 Honeycomb coil 35 turns	1.10
1 Honeycomb coil 75 turns	1.25
1 Honeycomb coil 100 turns	1.40
1 Triple coil mounting	5.00
1 Variable grid leak	1.00
1 Universal rheostat	1.85
1 1/4 megohm resistance with mounting	.70
1 Grid cond., .00025 mfd.	.35
1 Fixed cond., .006 mfd.	.75
3 Sockets	3.00
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12" Rubber or bakelite tubing 1/4" diameter	1.00
2 3" dials	1.00
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25 Switch points	.75
10 Switch lever stops	.30
9 Binding posts	.50
1 Audio fr. trans. 6-1 ratio	5.00
1 Audio fr. trans. 3-1 ratio	5.00
2 10-ohm rheostats	2.00
Bus bar, spaghetti, screws, etc.	1.00
Total	\$61.55

of figure 3, a standard three circuit receiver. Another combination, 2-1-3-1-2, (Continued on page 24)

AS WAS promised you last week, there is presented herein the Experimenter Junior—not a circuit, but an assemblage of circuits. Two series parallel switches and three regular inductance switches are so connected that a great many standard sets, modifications of standard sets, and even "freak" or experimental sets may be obtained. Among these are the three circuit regenerative, the single circuit with a wave trap in the aerial circuit, capacity and inductance feedback, inductances and capacities in parallel, super-regenerative sets, such as the standard and modifications of the Flewelling, and many others, the total possible combinations being over 200. Approximately half of these will give satisfactory and even superior results in distance work. A portion, however, are suitable for local work only.

The writer's experience indicates that on the average an experimenter is not satisfied with one set. The initial investment necessary prevents his buying a large number of sets. Consequently, he is forever building and rebuilding, trying some circuit different from preceding ones.

The Experimenter Junior is designed primarily for such Radio experimenters. It will receive on any of the wave lengths used in either amateur, broadcasting, or commercial fields. The coils given in the list of parts when used in this set will



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NO DOPE OR VARNISH TO REDUCE SIGNAL STRENGTH.

THIS COIL IS EXACTLY ADJUSTABLE TO SUIT YOUR ANTENNA AND GROUND. NOT A COMPROMISE.

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EXPERIMENTER JR. BASE LAYOUT

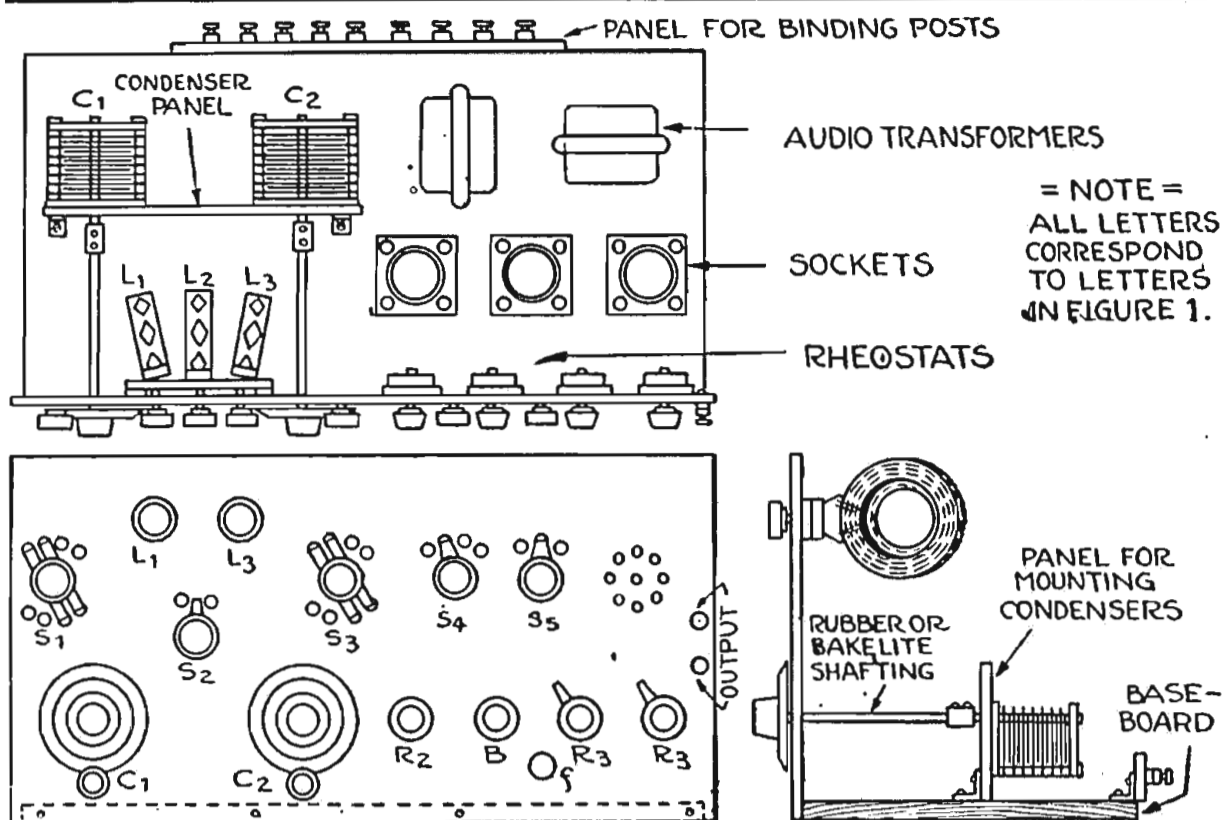


Figure 2

DEMONSTRATING RADIO

(Continued from page 23)

gives a standard single circuit with a wave trap in the aerial circuit. This is given in figure 4. In figure 5 is a combination inductance and capacity feedback with the first two coils connected variometer fashion in a single circuit scheme. The combination for this is 2-2-3-4-3. With 3-2-3-3-3 the capacity feedback is eliminated.

This set presents some difficulties of

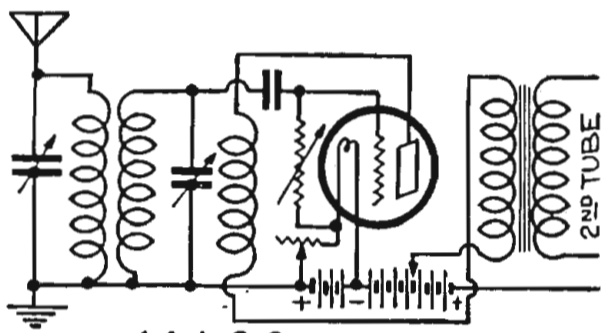


Figure 3

construction not found in the Experimenter Senior, which was described in the preceding chapter. As a final caution or bit of advice, remember that stray capacity, such as that between wiring leads, is the bugaboo of homemade receivers. Make all leads as short as possible, but do not crowd or bunch them.

In order to prevent spending several hours in rechecking or rebuilding, exercise care and caution in placing and connecting the parts when assembling for the first time. When the set is completed

and in working order, do not expect from any of the standard circuits involved, results superior to those that can be obtained with each set built separately.

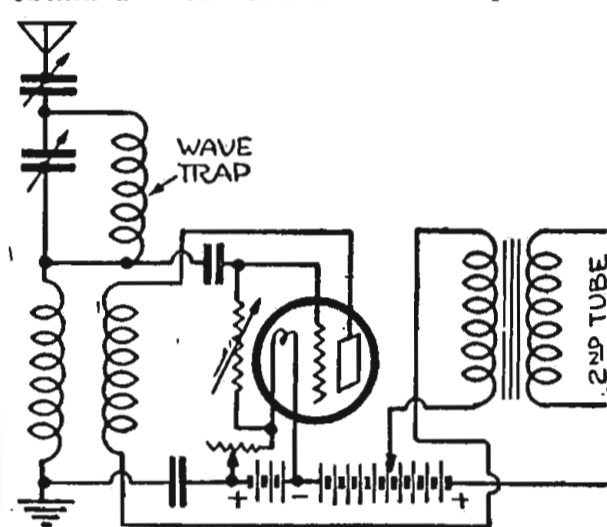


Figure 4

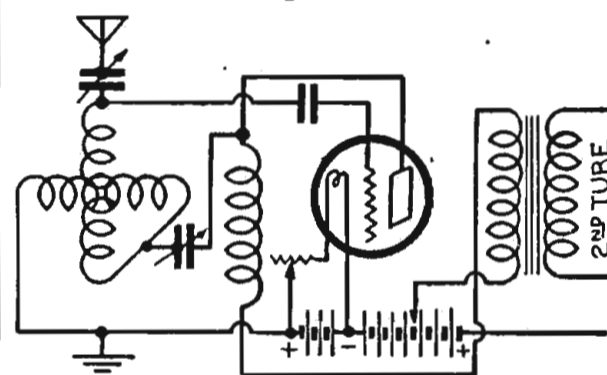


Figure 5

It is a pleasure, however, to produce at will an almost endless variety of circuits, to be able to receive on any wave length desired, and produce some unusual results with the "freak" circuits obtainable. There are a number of circuits involved

LIST OF ACCESSORIES

150 ft. aerial wire.....	\$ 1.25
3 Insulators75
1 Storage battery, 6 volts.....	20.00
2 B batteries, 45 and 22½ volts....	6.00
1 Vacuum tube, detector type.....	4.00
2 Vacuum tubes, amplifier type....	8.00
Total	\$40.00
Any type loud speaker or phones.	

in this set that have never been successfully handled outside an experimenter's laboratory.

(Following the Experimenter Sr. and the Experimenter Jr., comes the Experimenter Supreme. This is a regenerative set employing two detectors arranged in push and pull fashion. Only one set of batteries are used.—Editor's Note.)

Controlling Regeneration

There are probably more single-circuit receiving sets in operation than any other kind. Many of them are not worked at their full efficiency.

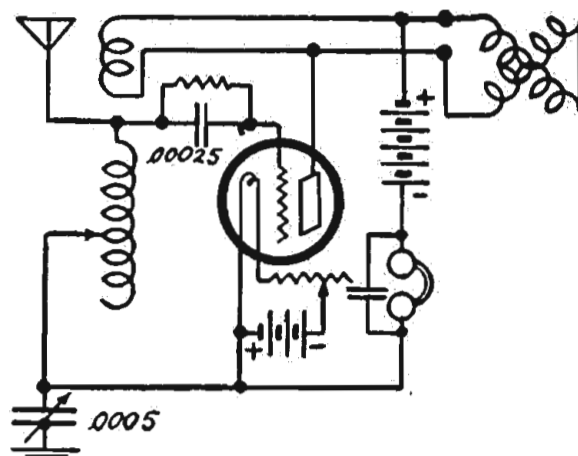
Most sets assembled with the usual variocoupler cannot be brought to the most sensitive regenerative point, because of the insufficient wire on the rotor, especially when used with a small aerial.

If properly constructed the accompanying circuit will be found sensitive and capable of picking up distant stations and holding them.

With a little care a good coupler may be constructed easily. The stator should be wound with about 50 turns of number 20 dcc. wire. A few sizes larger or smaller will work as well. Taps should be brought out about every five turns. The rotor should have sixty to eighty turns of number 24 dcc. wound firmly on a suitable rotor ball which can be purchased reasonably at most dealers. A good variometer must be procured, one with pigtail or braided wire connections preferable, for if these connections fail, even momentarily, it will convert the set into a transmitter and become a nuisance to the neighborhood. It would be better to place this variometer at least 1 foot away from the variocoupler.

In operation the tickler is placed with the windings almost parallel with the tuner.

Ordinarily this would cause strong oscillations, but the variometer will have a stabilizing effect, and will be the adjustment that can be depended upon to control regeneration. Maximum regeneration will be obtained without any danger of losing the station due to set oscillating suddenly.



The variable condenser is placed with the movable plates connected in the ground lead which eliminates body capacity.

Anyone who has constructed the excellent Flewelling circuit can easily try this idea out by placing two binding posts around the tickler and attaching a variometer in shunt with the tickler. Of course, the super effect must be discontinued by throwing the switch provided for that purpose.—L. J. Bourgeois, New Orleans, La.

Rubber tape is better than friction tape for aerial work.

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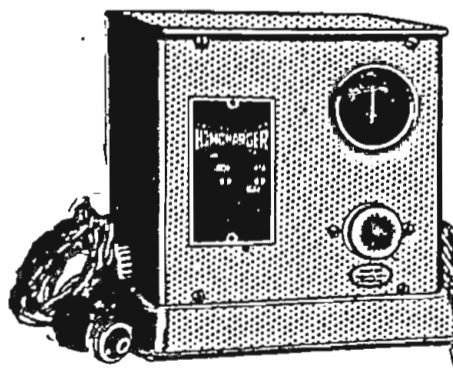
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By Frederic M. Delano

AMPLIFICATION of a billion times or more with only one vacuum tube would seem a foolish dream to the majority of Radio listeners. Indeed it would be entirely too much amplification for general Radio use.

Yet if the experiments of two French scientists, Messieurs L. Dunoyer and P. Toulon, prove to be applicable practically, such amplification becomes not only a possibility, but an almost inevitable result of the rapid progress of Radio science.

The new amplifier is a development of the familiar mercury arc rectifier. It is surprisingly simple, as simple as was De Forest's famous invention of the grid inside of the ordinary vacuum tube. It has just been described by M. Dunoyer and M. Toulon before the Paris Academy of Sciences.

Similar to Mercury Arc

The new apparatus differs from the usual mercury arc rectifier in the introduction of a supplementary electrode which takes the form of a metal cylinder surrounding the glowing column of the arc itself. This metal cylinder may be placed either near the positive end of the mercury arc or near its negative end. The cylinder serves as the control electrode, analogous to the grid of the ordinary tube.

The mercury arc rectifier consists, as everyone knows, of a vacuum tube containing at least two electrodes and a quantity of metallic mercury (quicksilver). Some of the mercury evaporates into the vacuum so that the tube is filled, in reality, with mercury vapor.

Under the influence of the electric potential across the tube some of the atoms of the mercury vapor become ionized; that is, they lose one electron each and become charged, thereby, with positive electricity. These positively charged particles of mercury serve as the carriers of current through the tube, just as the positive ions of sodium vapor serve to carry the current in the familiar sodium detector tubes.

Instead of a stream of negative electrons, as in the ordinary Radio detector and amplifier tubes, the mercury arc tubes (and the sodium tube) employ a stream of positive particles (ions) moving in the reverse direction to that of the electron movement.

In mercury vapor, this stream of positive ions is luminous. That is what causes the glow of the mercury arc. The rectifying properties of the arc are due

(just as in ordinary detector tubes) to the fact that the current carrying particles can move across the tube only in one direction.

First Application to Radio

Although this theory of the mercury arc has long been known, the new invention of Messieurs Dunoyer and Toulon is the first attempt to apply it to devices that may be useful in Radio.

The new tubes may be of almost any shape and design. It is necessary only to have some procedure for maintaining the mercury arc. This may be done (as in phase with the anode potential) by providing a supplementary electrode which maintains a small constant arc, or it may be done by providing two or more anodes, each connected to one of the phases of a polyphase supply.

Before the Academy of Sciences Messieurs Dunoyer and Toulon discussed merely the simplest form of their invention; a two-electrode mercury tube, the arc of positive ions passing between these two electrodes. When an alternating current is applied to these two electrodes the current is in one direction; not when it is in the other direction. It passes, that is, during one half of each cycle of the alternating current supply.

Sheath in Tube

Into this tube is introduced the cylindrical, metallic sheath surrounding the mercury arc. Between this sheath and the cathode of the tube there is established an alternating potential of the same frequency as the current supplied to the anode-cathode circuit. This potential on the sheath electrode may be varied in phase relative to the main current, through any position from completely in phase to completely out of phase.

If this sheath electrode is placed near the anode end of the mercury arc and if the potential on the sheath is in phase with the potential on the anode, the presence of the sheath facilitates the passage of the mercury arc, even when the pressure of mercury vapor or the voltage across the tube are too slight to permit the arc to strike spontaneously.

But if the potential in the sheath electrode is opposite in phase to the input current, the effect is reversed. The mercury arc is extinguished.

When the sheath electrode is placed near the cathode, instead of near the

anode these effects are reversed. When the sheath is in phase with the cathode potential the arc is facilitated; when it is in phase with the anode potential the arc is extinguished.

The limits of vapor pressure of mercury adequate for proper operation are closer together when the sheath is near the cathode than when it is near the anode. The latter position is preferable, therefore, for practical operation.

The amount of energy that needs to be supplied to the sheath electrode in order to produce these effects is remarkably small; as is evident from an experiment performed by Messieurs Dunoyer and Toulon.

With a current of 30 or 40 amperes flowing through the arc, the sheath electrode is replaced by the hand, encircling the anode tube on the outside. The other hand is then touched to the anode terminal. The arc immediately flashes.

If the hand that operates as the sheath electrode is slid toward the cathode, the arc is extinguished; yet if the other hand is touched to the cathode terminal, the arc is established at once.

The small amount of energy that passes through the body is ample to produce the effect of the sheath electrode on the arc.

Acts As a Throttle

It is apparent that the sheath electrode behaves as a throttle or control valve on the mercury arc, much as does the grid toward the electrode stream of a vacuum tube. It is not at all necessary that the maximum value of the sheath electrode voltage be equal to the maximum voltage of the supply current. Thus, Dunoyer and Toulon were able to get the variations of the arc up to input voltages of 16,000 volts, using only 110 volts for the potential on the sheath electrode.

This is not true, however, unless the density of the mercury vapor in the tube is neither too high nor too low. If this density is wrong the variation of current due to the sheath cannot be produced. The result is that the conditions under

which the control by the sheath electrode are assured are limited fairly narrowly when the bulb operates in the air and is allowed to become heated.

Cooling Bulb with Oil

When, however, the bulb is properly cooled by oil, the limits of operation of the sheath are more widely separated. Variations in the sheath current of the order of a tenth of a microampere are sufficient to control in the tube circuit a rectified current equal to several hundred kilowatts of useful power.

The tube functions, it is apparent, then like a relay of extreme sensitivity and enormous controlling power. It duplicates, in part, the properties of the ordinary triode tubes emitting electrons; only but while the amplifying power of a good triode tube is between 6 and 10 times, that of the Dunoyer-Toulon arc relay is stated to be nearly, if not quite, 1,000,000,000 times. Furthermore, the efficiency of the tube is much higher, for the voltage drop in the mercury arc is some tens of volts, while that in a triode tube is much greater.

Further experiments on the new tubes are actively under way and are attracting much attention among the French Radio experimenters. It is considered quite possible that the new tube, or some special modification of it, may altogether revolutionize the present methods of Radio amplification, especially at audio frequencies.

Right Number of Tubes

Never use more tubes than are sufficient for the results desired. It frequently happens that inexperienced operators will have more tubes burning than are necessary, and then detune to lessen the volume of sound. For local stations, for instance, the first audio stage is amply sufficient.

The proper way to use solder is to first make the joint as tight as possible, and then use a minimum of solder to hold the joint together.

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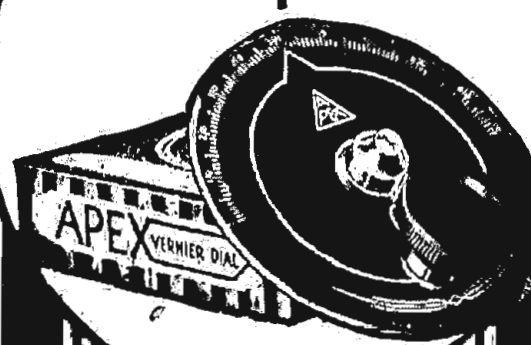
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It's as easy as pointing your pencil point on a town on the map with this tuning in with Apex Vernier Dials.

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Le Ton d'argent

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GUARANTEED SATISFACTORY


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The "Goode" Two-o-One A Tube amplifies or detects. It is a quarter ampere, five volts, standard base silvered tube.
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WIRING THE UNDERSIDE OF HETDUOGEN BASE-PANEL

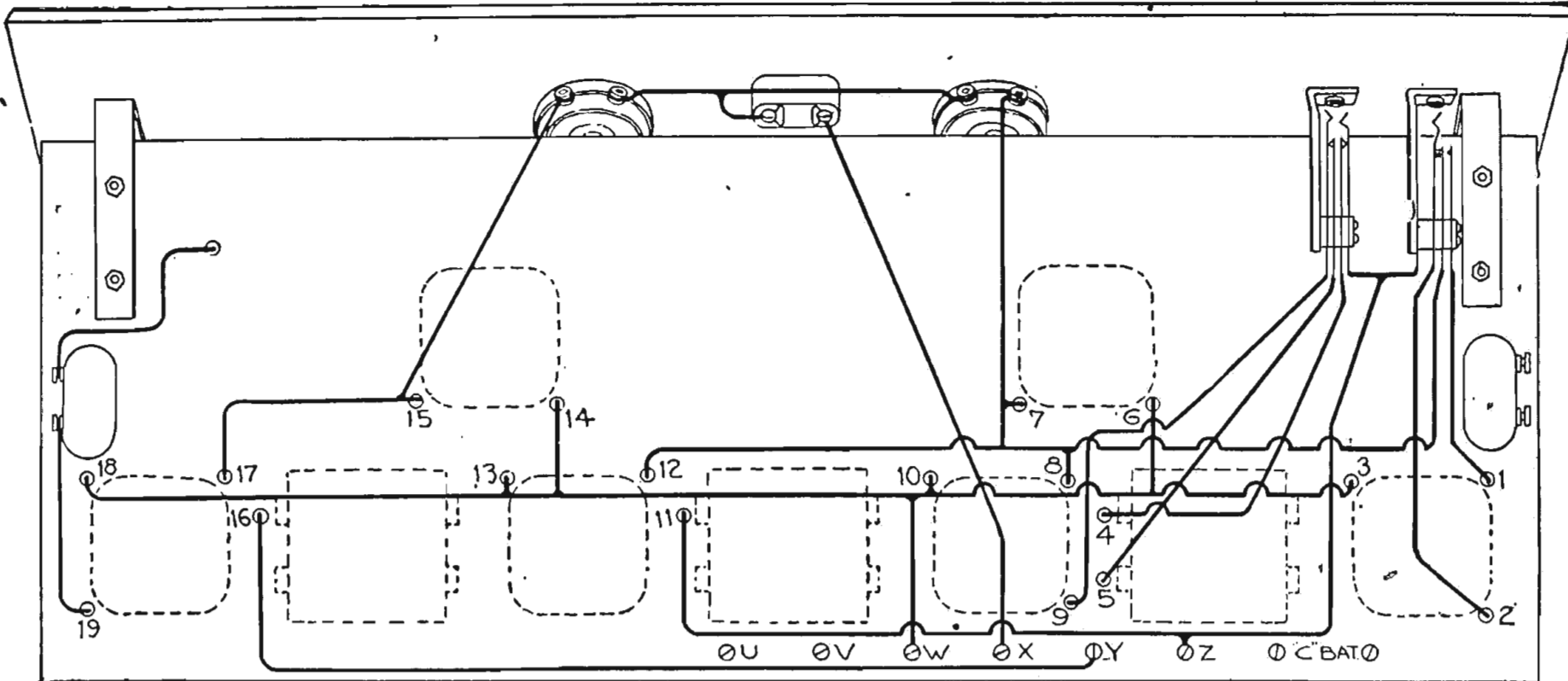


Figure 11

the different leads are in their correct respective notches.

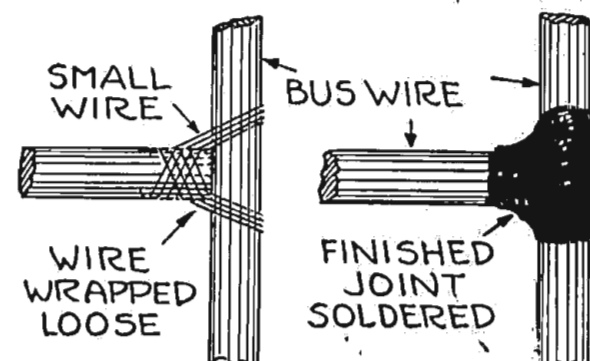
Reference to figure 10 and 11 will make clear the wiring between units both above the panel and below. These diagrams should be carefully saved after the wiring of the base panel is completed, since they show the connections to the front panel, details of which will be given in the next article, to appear next week.

(The drilling layout for the front panel is in the next article and should be followed carefully for the symmetry that makes Hetduogen unusually good looking.—Editor's Note.)

Soldering Butt Joints

A set wired with bus or other heavy wire will have a few butt joints. These joints look nice and hold well when they are first soldered, but with only the solder holding the joints are apt to come loose at any time.

By wrapping a small copper wire around the three or four parts of the butt joint it can be reinforced so that it will not work loose. The idea is similar to rein-



forcing in modern steel and concrete structural building. A few steel rods will give great strength to brittle concrete so a few copper wires will strengthen weak soldered joints.

If the reinforcing is carefully done it will look just as neat as any other joint.—C. L. Smith, Jackson, Miss.

SIX TUBE HETDUOGEN

(Continued from page 21)

immaterial which of the two wires are used for either.

Notches should also be made in the same manner for bringing the two secondary winding terminals through to the front side of the tube. These leads must be arranged so that the terminal nearest the primary winding (or lower end of the tube) is brought out through the notch at the right and the other through the notch, which is the left one of the two.

Soldering Mid-Tap

Also, before fastening this coil down in position a lead must be soldered to the center, or 22nd turn of the secondary winding at a point about the center of the left half of the circumference of the

tube. The insulation should be scraped from about 1/4 inch of the wire and the lead soldered on. With a sharp pointed knife or other instrument lift the bared wire slightly above the other wires and tin the bared surface carefully with solder. Then tin the end of the wire to be soldered on and, after placing the two tinned surfaces together, a slight touch of the hot soldering iron is all that is required to complete the operation. If carefully done, there will be no shorting of the adjoining turns.

Any one of several methods may be used in fastening this coil unit into the set. Possibly the simplest is to take a piece of flat brass, say 1/2 inch by 1/8 inch, long enough to reach across the diameter

of the tube, and simply drill a single hole at the center of it and drop a bolt through it and the panel itself and screw on a nut, at the end protruding through the sub panel. Another way is to buy (or make) two small right angle brackets, and fasten them to the tube first, and then to the sub panel with small machine bolts. For those who can procure a disc of rubber, bakelite or other material large enough to cover the open end of the tube, simply drilling one hole at the center of the disc and bolting through to the sub panel, will give a finished appearance to this coil.

Whichever method is used, be sure that

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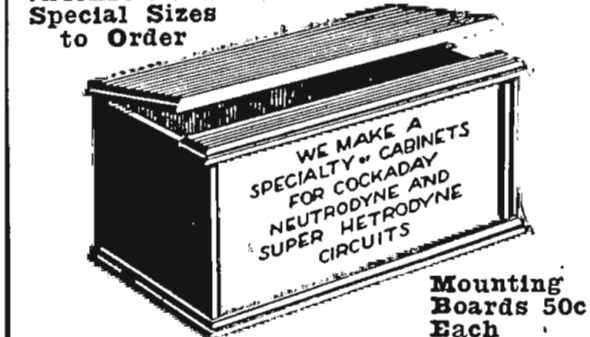
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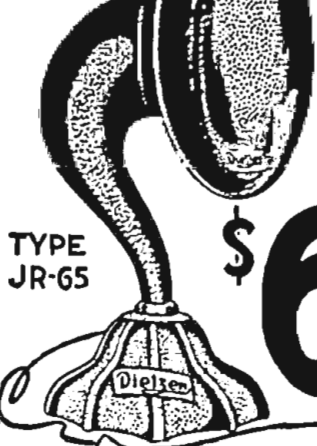
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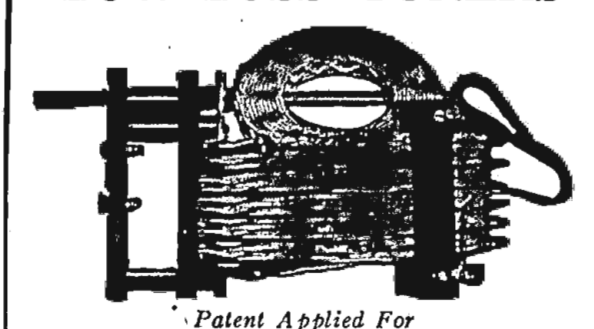
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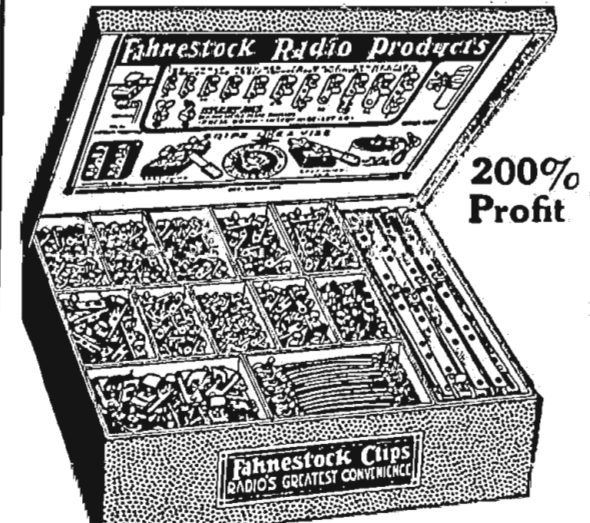


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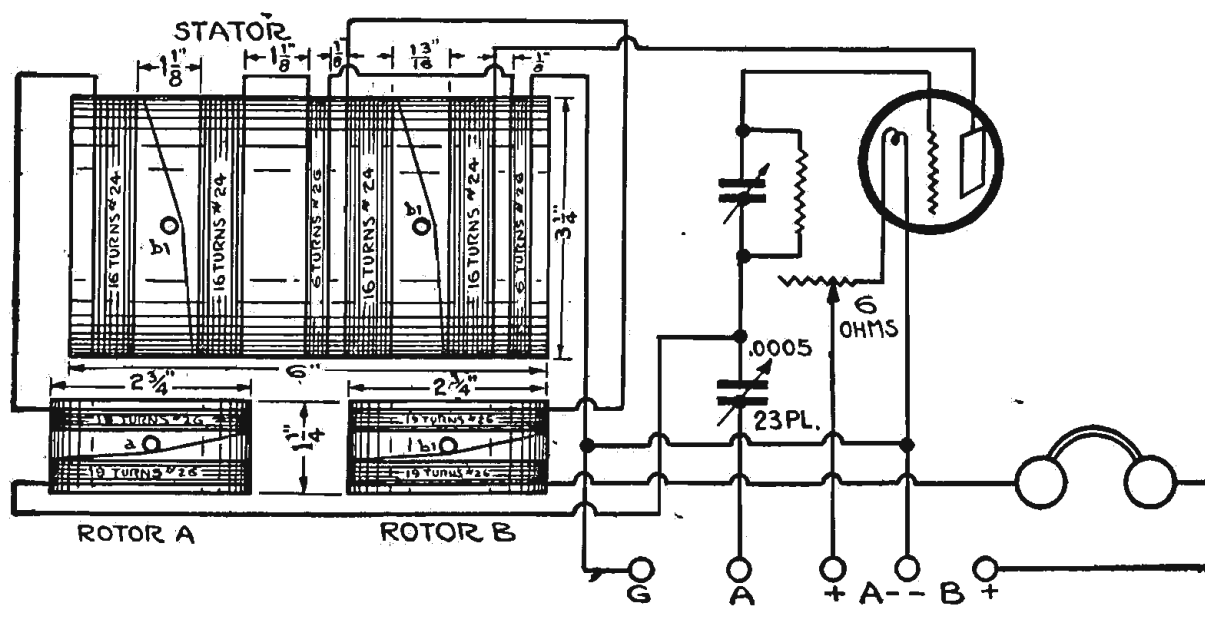
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SELECTIVE AND DISTANT HOOK-UP



WORKSHOP KINKS EARN A DOLLAR—

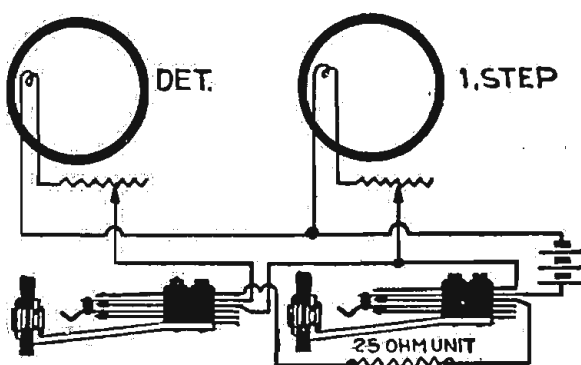
THERE are many little kinks worked out at home that would aid your fellow Radio worker if only he knew about them. There are new hook-ups, new ways of making parts and various unique ways of operating sets that are discovered every day. Radio Digest is very much interested in obtaining such material. 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

trolled by the rotor B. A 6-ohm rheostat controls the current supply to the tube. A small C battery of 4½ volts is sufficiently strong to last four or five months. In the diagram the coils are plainly marked so that the ordinary home set builder can construct one for his receiver. The lines above the coil are internal connections on stator and to rotors.—George A. Eckles, Jr., Pittsburgh, Pa.

Filament Control Jack

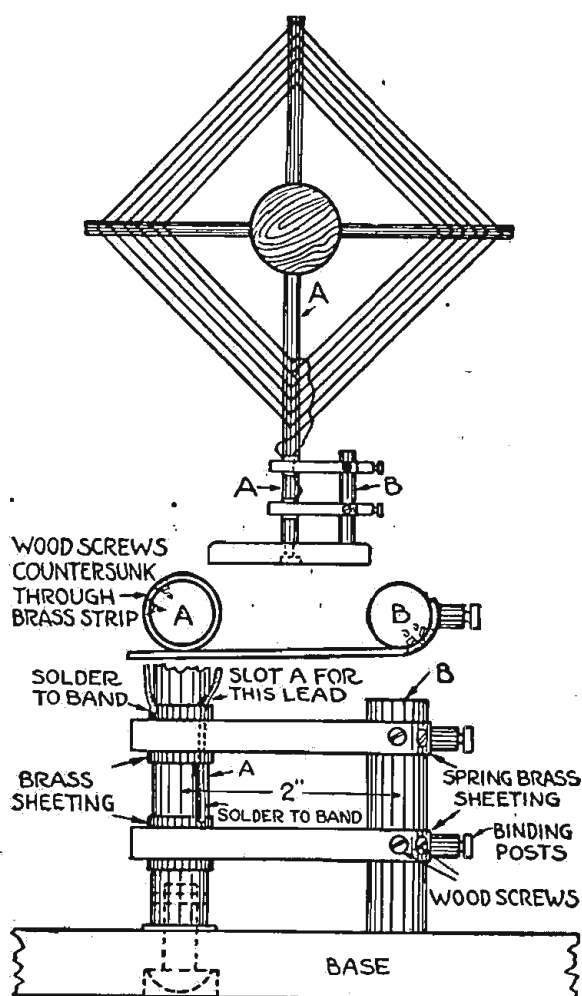
The illustration shows a filament control jack for two tubes. I experienced a blown tube when turning out the second tube. To guard against any further trouble of the same kind I devised the control arrangement with a resistance as shown. To balance the resistance, first turn on both tubes and adjust the maximum volume then plug in the first tube



only and adjust the resistance for the best volume, but do not touch the rheostats. With this arrangement no tube will be overloaded with either plug in use.—H. S. Dolecki, St. Louis, Mo.

Revolving Loop

In order to have a loop that would turn all the way around as many times as necessary and to eliminate the wires at-



tached directly to the loop that interfered with the turning I devised the apparatus shown in the illustration. Two

pieces of thin brass 1 inch wide were placed around the center post A and fastened with wood screws. The holes were countersunk so that the screw heads came level with the surface. Two contact springs were made of brass ¼ inch wide and 3½ inches long and fastened on the post B with wood screws. The leads from the loop were soldered to the brass spring strips. In this way much trouble is eliminated and also it gave a good appearance.—Frank Morrell, Los Angeles, Calif.

Loud Speaker Battery

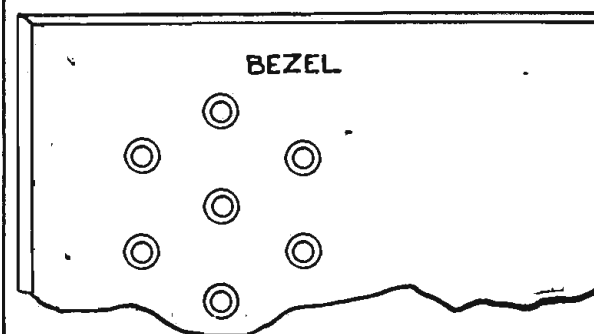
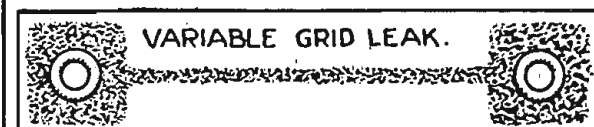
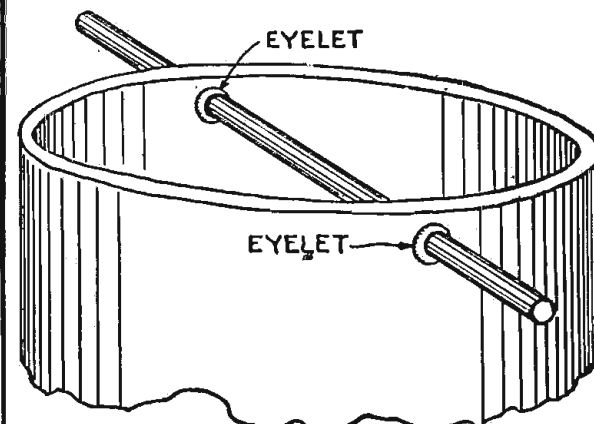
Many good sets fail to deliver sufficient volume on the loud speaker because they are not supplied with the necessary power to do so. Forty-five volts on the plates of the amplifiers will not deliver enough current to the magnets of the loud speaker to produce loud signals. Ninety volts will give much better results, and is certainly worth the additional cost. An extra grid bias is sometimes necessary with higher voltage, and this is supplied with a four and one-half volt C battery, which is connected between the post of the transformer post F and the filament. The negative terminal of the battery connects to F and the positive terminal to the filament.

Effects of Location

A Radio set located in a frame dwelling will in many cases receive greater distances and will receive with more volume than a set located in an apartment house, which, as a rule, has a superstructure of steel. The steel structure, being a conductor of electro-magnetic waves, has the effect of absorbing Radio waves, therefore taking away some of the energy that ordinarily would reach the antenna.

Shoe Eyelets Are Good Rotor Shaft Bearings

Shoe eyelets come in handy in Radio work where a person builds his own sets. They make good bearings for shafts in variocoupler and variometer tubes. Two of them will make end connectors on a

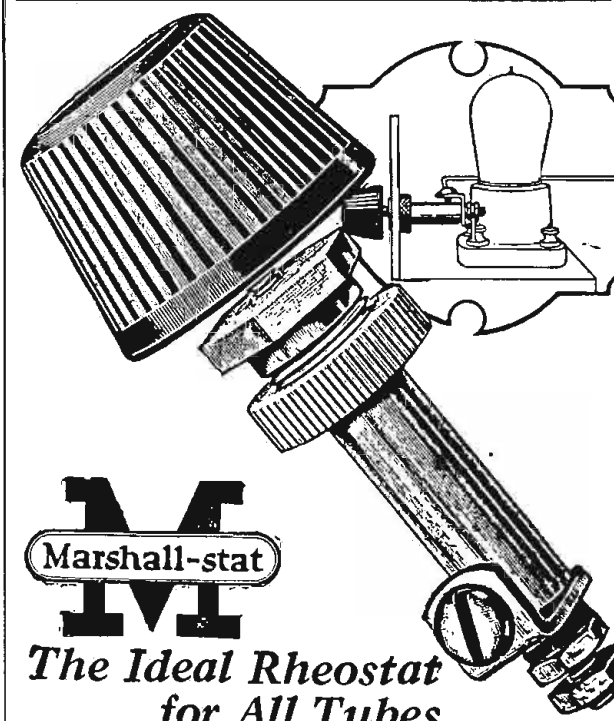


piece of cardboard for a grid leak. Holes drilled in panels for showing the light from the tubes may be embellished with the use of eyelets.—Wm. Treadwell, Glace Bay, Canada.

Battery Drain Great

In a Radio set that uses four, five or more tubes, remember that the drain on B batteries is very great and it is necessary to replace with a fresh supply more often than it is with the ordinary three tube set.

Wire for the antenna should be a good conductor of electricity. Some good conductors are copper, phosphor bronze and aluminium.



The Marshall-stat provides a means of obtaining any desired tube adjustment with absolute precision. The Marshall-stat varies the resistance, not step by step, but smoothly, continuously, and uninterruptedly from zero to maximum.

The Marshall-stat provides vernier precision throughout its entire range. Yet there is only one knob to manipulate—no double adjustment to make.

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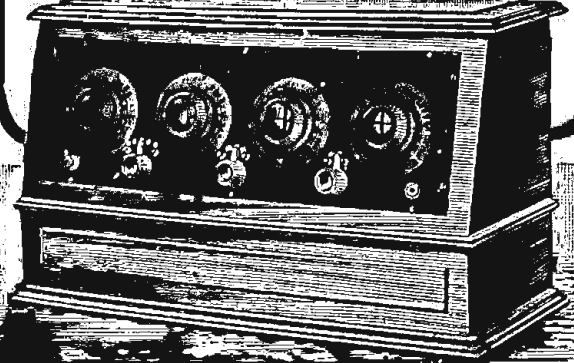
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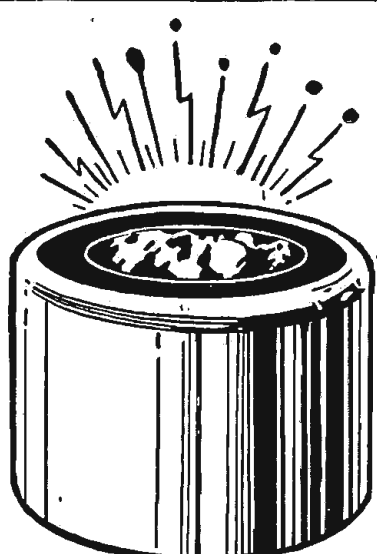
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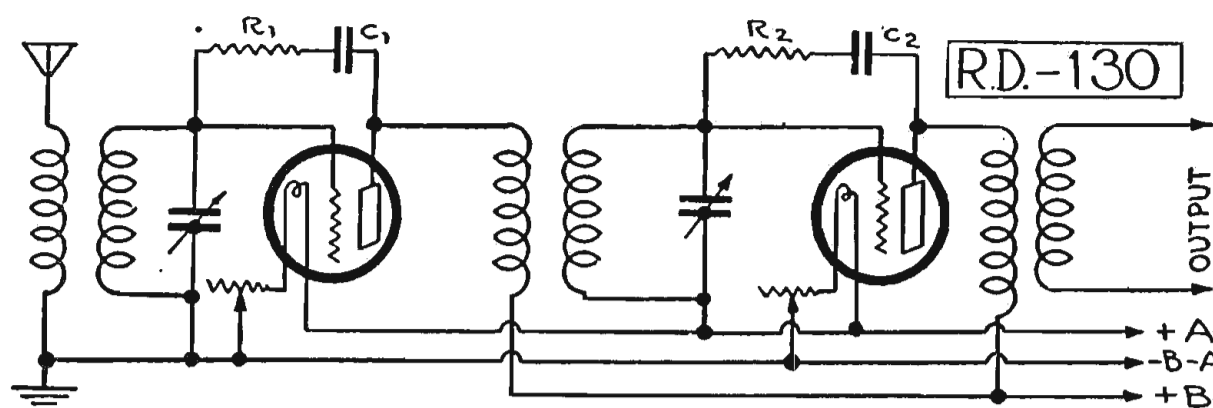
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FARRAND'S SUPER - PLIODYNE CIRCUIT



CIRCUIT R. D. 130 shows two stages of amplification at Radio frequencies, transformer coupled. It has been standard practice to bring the leads from the secondaries of each Radio frequency transformer to the center terminal of a potentiometer which is connected across the A battery leads. This enabled the operator to keep the grids of the Radio frequency tubes at such a potential in relation to the filaments that oscillations did not occur. The potentiometer is, for many reasons, undesirable, and it was while searching for another method of preventing oscillation that Mr. Farrand devised this system which is known as the super-pliodyne.

This should not be confused with the neutrodyne as the action in no way resembles it and, in the neutrodyne, the grids are connected by small condensers. In super-pliodyne, it is the resistance connected between plate and grid that accomplishes the desired result; the condenser in series with it, C1 or C2 is merely to keep the B battery potential off the grid. The coupling transformers may be neutroformers or the new "tuned Radio frequency coils" that have recently come on the market.

When used with storage battery tubes, the resistances may be from 90,000 to 120,000 ohms; this is not critical. Resistance units of 20,000 to 30,000 ohms are used if dry cell tubes are in the set. The capacities in this grid-to-plate circuit are even less critical and, according

to Farrand, may be anything from .0001 to 1.0 mfd. It is suggested that .0005 mica fixed condensers be inserted.

As first brought out, super-pliodyne consisted of six stages of Radio frequency amplification, the variable condensers being controlled by a single dial and so adjusted that all grid circuits were brought simultaneously to the same wavelength. So many stages and single control seem hardly necessary and the system should apply effectively to but two or three stages with individual stage control.

Kinds of Minerals Used for Crystal Detectors

There are a great number of natural minerals taken out of mines as well as substances obtained from electrical furnaces that have the peculiar property of acting as rectifiers or detectors of Radio frequency currents. Among the natural minerals which make good detectors are galena, iron pyrites, zincite, calco pyrites and molybdenum. Galena is sensitive to Radio current and makes good detector, but has the bad habit of going out of adjustment very easily. Zincite in combination with bornite or calco pyrites makes a two-mineral detector which retains adjustment and is very sensitive.

Iron pyrites gives excellent signal strength and will stay in adjustment over long periods of time.

Trade Names for Minerals

These minerals are often given such trade names as magnite, amplicite, million-point galena, feusite and pyratek. They are more sensitive than the products of the electrical furnace, which consist of carborundum and silicon. For a long time carborundum was considered the best material to use for a detector as it can be clamped down between two brass springs and will retain its sensitive adjustment for considerable periods of time. Silicon, on the other hand, is more sensitive, but needs considerable adjustment. A good piece of silicon is almost as sensitive as a piece of natural galena.

All of these products, with the exception of carborundum require a light contact point as a feeder resting on the crystal. This contact point is called the "cat-whisker," due to its resemblance to a fine hair. The whisker is nothing more than a short piece of wire. This wire is sometimes phosphor bronze, brass, copper, silver or gold-plated wire. A needle or a pin is sometimes soldered to the end of a short piece of spring wire to make a sharp contact point. One wire works about as good as another, but each must be clipped off at the end from time to time to insure a new metallic contact point. The point gets dirty and bent from use and must be trimmed.

Keep Crystal Surface Clean

The surface of the crystal must be kept clean. Dust or grease must not be allowed to collect on its surface. It is best to provide your set with a crystal detector holder having a glass housing around it to keep off the dust.

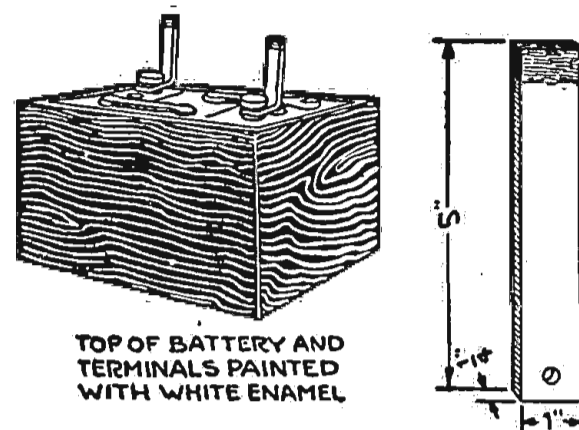
A crystal set is good for about fifteen or possibly twenty-five miles under good conditions. Reception beyond this range is freakish and may be often attributed to the fact that a nearby receiving set, radiating on the same wave length as a distant station is transmitting on, will repeat the station for the benefit of the crystal set. Some crystal sets located

out in the country, where the conditions are ideal and the aerial is long, will receive 100 miles or more.

Crystals are coming into use in connection with reflex circuits. This type of crystal must be capable of withstanding considerable current without burning out. Iron pyrites work very well in such circuits and retains its adjustment remarkably well under adverse conditions. The crystal detector wires clear reproduction and when amplified with one or two steps of audio-amplification will work a loud speaker.

Battery Connection

In the operation of my set I have used the well-known battery clips, but discovered that the corrosion caused much of the so-called static. To overcome this I washed the terminals clean, then I made



extensions of lead as shown. These were made from old lead pipe which had been flattened to make them 1/2-inch thick, 1 inch wide and 5 inches long. A hole was drilled in one end of each large enough to slip on the bolt terminal. After fastening both pieces securely in place I applied two coats of white enamel on all the lead connectors, on the top of the battery, as well as the part extending up to about 1 inch from the end.—John Bryden, Albion, Mich.

SOLVED!

—The "B" Battery Problem

Throw away your "B" Batteries and install a Kellogg Trans-B-former. It gives you "B" Battery current direct from your electric light socket at the trifling cost of one-fifth of a cent per hour. Gives better reception—no interferences. Write for details.

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Trans-B-Former
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Micadons

Standard fixed condensers of radio. With permanent capacity. Easily installed. Used in 9 out of every 10 sets made.

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CONDENSER AND RADIO CORPORATION

Your Crystal Set

will work 400 to 1,000 miles if made by my plans. No tubes or batteries. Copyrighted plans \$1.00; or furnished FREE with complete parts for building set, including special coil and panel correctly drilled for only \$5.00. Satisfaction guaranteed or money refunded. Satisfied customers everywhere. Particulars free.

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PRICE \$2.50

The Ideal Reflex Detector but equally suitable for crystal sets. The Crystalstat embodies the following features: A super-sensitive crystal in an air tight enclosure. A brush cat whisker of gold tinsel strands. A micrometer adjustment by means of which the most delicate adjustment may be had. The multiple contacts of fine gold filaments prevent howling and gives tight but sure contact. The crystal is our wonderful Star-ite, the pick of the Earth's best crystals. The Crystalstat attaches through one 5/16" hole in the panel so that only the control knob shows on the face of the panel. Packed in one dozen lots for dealers. Ask your dealer to supply you or you may send for one C. O. D. with your money back if not completely satisfied. DEALERS and JOBBERS please get our catalog of crystals and detectors and our liberal distributing proposition.

Star Crystal Co.
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Radio Tubes

Distinctly New AND EFFICIENT, satisfying every radio fan's wish in performance and price. Our direct sales plan enables us to sell at this low figure. "Bluebird" assures increased range and undistorted volume.

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Type 412—1 1/2 Volts, .25 Ampere Platinum Filament Amplifier and Detector.

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TYPE 402 5 WATT TRANSMITTERS.....\$3.00

EVERY TUBE GUARANTEED to work in Radio Frequency. Especially adapted for Neutrodyne, Reflex and Super-Heterodyne Sets.

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Our Stock is one of the most complete in the country. We carry supplies for all the latest circuits.

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Naald	Precise	Univernier
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(12 CELLS—24 VOLTS)

To ten million homes with Radio Sets—and to countless millions of prospective buyers—this WORLD Storage "B" Battery brings a new era of battery economy and performance. Here is a battery that pays for itself in a few weeks—will last for years and can be recharged at a negligible cost. And you save \$2.00 by ordering now.

A Superior Battery Equipped With Solid Rubber Case
Has heavy duty 2 1/8 in. x 1 in. x 1-4 in. plates and plenty of acid circulation. Extra heavy glass jars allow ready observation of charge and prevent leakage and seepage of current. It holds its charge, while idle, at constant voltage. You will find this battery a boon to long distance reception. It does away with a great many noises so often blamed on "static." Mail your order today.

SEND NO MONEY
Just state number of batteries wanted and we will ship day order is received. EXTRA OFFER: 4 batteries in sizes 196 volts, \$13.00. Pay Expressman after examining batteries, 5 per cent away with a great many noises so often blamed on "static." Mail your order today.

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Speakers and musicians deserve and appreciate applause for radio programs just the same as from the stage. Their entertainment makes your radio possible. Encourage them. Help bring the best talent to radio. Send YOUR "Thank You" card of appreciation. They cost so very little.

Save Stationery and 2c Letter Postage
Cards have post card backs and require only 10 stamp. So convenient. A pleasure to use. ALL THE RANGE. Be up-to-date. Get this additional pleasure from your radio.

FREE Log Record for YOUR Stations.
Places for Stations, Cities, Dial Settings, Remarks, etc., Rippled Cover.

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Good quality cards. High grade printing. Attractive special radio design. The kind that gets results. 100 only \$1.00; 200—\$1.60; 300—\$2.00; 500—\$3.00; 1000—\$5.00 (only 1/2c each). Prepaid if you prefer to pay with order. Don't send one cent. Just pay postman after cards arrive. We GUARANTEE Satisfaction.

Money Returned If Not DELIGHTED
Send order today—NOW. A postcard will do.
Radio Printers, Dept. 7411, Mendota, Ill.

Questions and Answers

Batteryless Circuits

(10641) BG, Chicago, Ill.
I would like to ask a few questions about the solodyne receiving sets and principals:

Will an indoor aerial receive enough energy to operate the solodyne set?

Do you think that a one tube solodyne set, as a reflex or super-regenerative will receive broadcasting sufficiently loud to operate a loud speaker on local stations (about five miles away)?

What is your own personal opinion of the solodyne tube and receivers, and how does it compare with the three element tube and receivers?

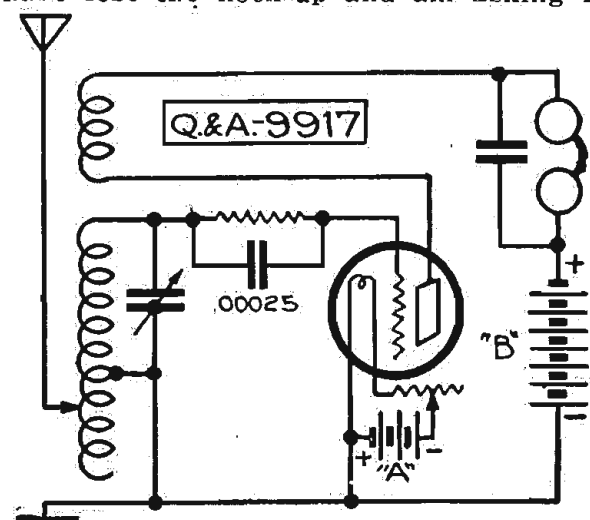
Is the new two element tube better than the three element tube?

A.—We are not prepared at this early stage of its development to make authoritative statement of what can or cannot be expected from the solodyne principle of reception. It offers possibilities of advantage, but is still more or less in its laboratory stage. It is an interesting subject from the experimenter's viewpoint, but hardly practicable as yet for general popularity.

Our advisement is just now for the standard three element tube to best meet the requirements of the layman from a reception angle.

Haynes Circuit

(9917) LRS, Peoria, Ill.
I am building the Haynes circuit (single tube), using bank wound coupler, but have lost the hook-up and am asking if



you could supply me with one or could tell where I could obtain it?

A.—The diagram of the Haynes circuit is shown herewith, as requested.

A good three-tube Radio set will reproduce clear music if it is not forced to deliver too much volume. A large loud speaker will make it give a beautiful tone and almost perfect reproduction if the tubes are not burned too brightly.

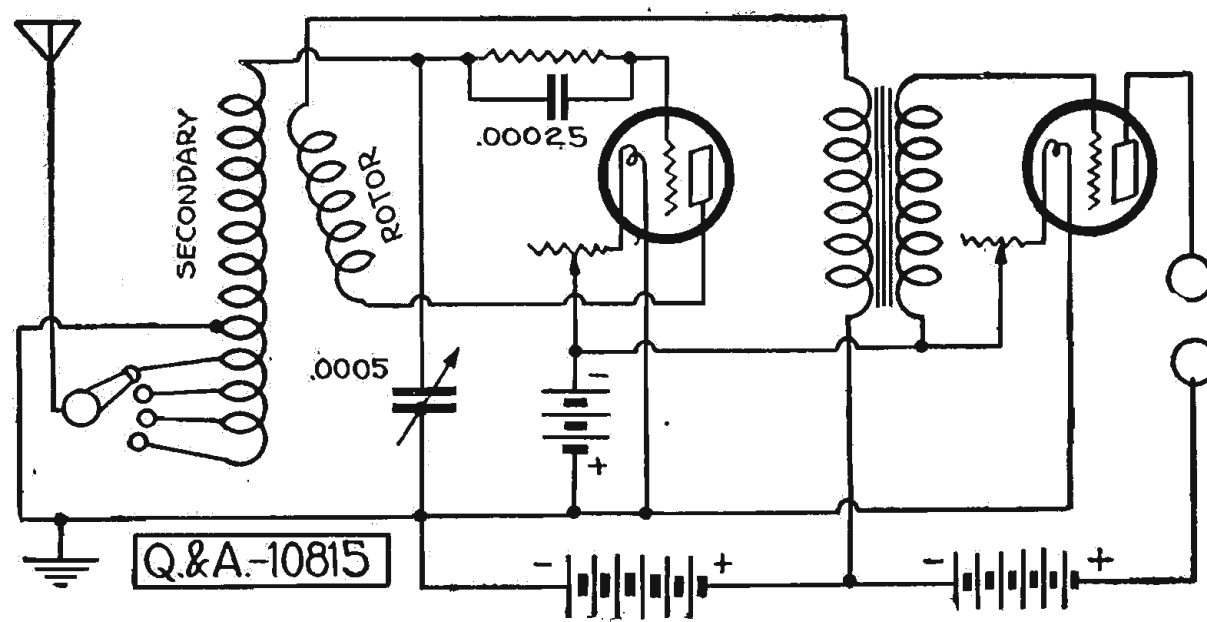
REBUILD YOUR RADIO

Make **SUPER-HETERODYNE** that will not repeat
Get Aberdeen, Madrid, Havana, Mexico City, Los Angeles on loud speaker, with indoor loop. Tune out local stations at will. Enjoy 100% reception. Pinkerton has simplified Superheterodyne so that a twelve year old boy can build it. His matched and balanced transformers and oscillator coupler are called "the heart of Superheterodyne." They make a set that is unbeatable—think of it—one that is without harmonics—no station comes in twice on the dials.

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If you accept this offer, and find the life-size plans, photos, and complete directions as represented, you will be entitled to purchase the Pinkerton Heart of Superheterodyne, four matched and balanced transformers and oscillator coupler, regularly selling at \$32.50, for only \$23.00 additional.

Send name, address and \$2 bill today
THOMAS N. PINKERTON, President
PINKERTON RADIO CORPORATION
Superheterodyne Exclusively 1834 BROADWAY, NEW YORK
Cut out this offer. Free booklet



Haynes Circuit Amplified

(10815) WM, St. Paul, Minn.

Will you kindly show a diagram for the Haynes circuit in which I can use two WD-11 tubes and one transformer?

I have an old variocoupler with 39 turns of wire on the rotor and 100 turns of wire on the stator which I wish to rewind for it.

Some time ago I saw a diagram of this circuit and it impressed me as quite an interesting one to experiment with but I cannot remember the details as to condenser, grid leak, number of turns in the coils, etc., and I ask your assistance.

A.—The illustration shows the Haynes circuit with one stage of audio frequency amplification.

A 180-degree coupler form is required. The primary and secondary are bank wound. Using number 18 dcc. wire begin winding at the lower end of the tube making a total of 61 turns in the coil with four taps. Rotor is wound with 35 turns of the largest wire the winding space will accommodate, preferably number 18 dcc. The usual .00025 mfd. grid condenser and 2 megohm grid leak and an 11-plate condenser are indicated as correct values for the circuit in question.

Charger Interference

(10647) FWF, Leavenworth, Kansas.

My neighbor has a battery charger and when he is charging a storage battery its interference is very great in my receiver, which is a reflex set with three stage Radio frequency. It is the loudest on about 400 meters and can be heard on other wave lengths when I get the dials in resonance. The distance of the charger is about seventy-five feet from my receiver. Is there any way to ground the charger so it will not interfere so much?

ALL SHOT

That's the common expression of dry cell "B" batteries. Purchase the economy way and enjoy freedom from hissing and frying, clearer reception, and greater volume. Put together an everlasting "HAWLEY" rechargeable "B" storage battery. Nickel-iron alkaline type. No former experience or soldering necessary. Put up in both assembled and knock-down types. The knock-down units contain all actual material for building battery and are put up in 90 volts @ \$8.95; 100 volts, \$9.95; 120 volts, \$11.60; 135 volts, \$12.75; 150 volts, \$13.90; 200 volts, \$17.50. Guaranteed for 2 years with a 30 day trial offer of complete satisfaction or return of your money without any ifs nor ands. Complete sample cell 35c prepaid. 8-page illustrated folder of instructions showing simple putting together, making charger and charging free with all orders. Complete manufactured "B" battery charger \$2.75. Order direct or write for my literature, guarantee, and testimonials. Same day shipments.

B. D. SMITH

31 Washington Ave. Danbury, Conn.

When I turn on the loud speaker the racket is louder than in the same room with the charger. Shall I buy the neighbor a different type of charger or shall I throw away my set, as the charger is on two times a week from 9:30 p. m. until 8 p. m. the next night.

A.—The vibrator type of charger should be completely shielded and grounded to eliminate interference in your receiver during its operation.

It would seem that charging periods need not be so long and arranged with greater frequency and for shorter periods at times which would not create the condition encountered. However, the above is your solution unless, perchance, some other types of charger, such as an electrolytic or tungar bulb is used.

WD-11 Tubes

(10632) JJH, Vicksburg, Miss.

I am writing for information with reference to the "Inexpensive Three Tube Set," which you described in two articles, first one in September 27 issue and second one in October 4 issue of Radio Digest.

To me this seems to be a very good hook-up and simple to construct, but before making any attempt to build this set, I would like to know if it will give good results on the loud speaker, using WD-11 tubes, also will it be necessary to shield any part of the panel from body capacity?

A.—The three tube circuit of your interest, if properly assembled with high

potential leads well back from the panel and all variable units toward the ground circuits, will not have body capacity to necessitate shielding panel. The suggested measures eliminate body capacity at its source and dispense with the current thief "shielding."

Very fair results can be expected with the WD-12 tubes in consideration of their current consumption, although not comparable with those of the 6-volt tubes.

Battery Eliminator

(10677) GM, Passaic, N. J.

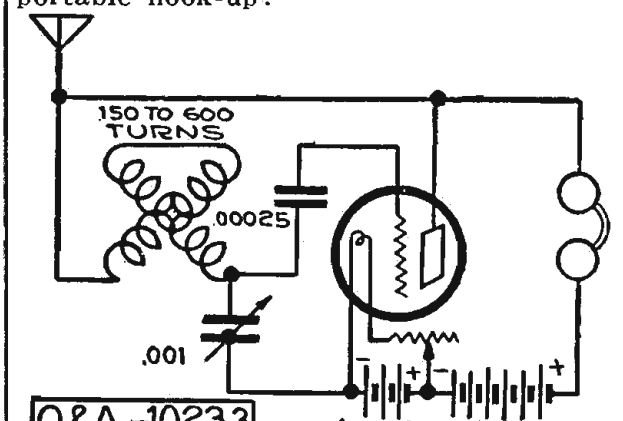
I am a reader of the Radio Digest and ask if you can give me some information how to eliminate the A and B batteries for a Radio set. I have an Ambassador three bulb set and I would like to add two more bulbs and transformer so that I will be able to use it on the electric light socket. I want it for experimental purposes only. If possible, give drawing or blue print.

A.—In consideration of the admitted difficulties and somewhat prohibitive expense, in comparison with batteries, of utilizing commercial current from an alternating current source for tube supply in a receiver, we have not as yet offered a discussion of the method. The subject has been given considerable attention and is perfected in some patented devices, but not yet available to the layman on a constructional basis. It will have our attention for publication as merited by results.

Portable Set

(10233) JBS, Danville, Va.

Can you publish a diagram of a good portable hook-up?



A.—We are presenting the diagram of circuit of your interest,

Friday, January 23

(Continued from page 18)

WBZ, Springfield, Mass. (Eastern, 337), 6-7 p. m., dinner concert; 7:10, kiddies' bedtime story; 7:15-7:30, lecture, address; 7:30-8, University Extension course; 10-11:30, concert; 11:30-12, dance program, McEnelly's Singing orchestra.

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

Send me your burned-out or broken Power tubes—50 watts or over. Will pay liberally. W. Baker, 36 West 20th Street, New York City.

PATENTS

Write for my free Guide Books "How to Obtain a Patent" and "Invention and Industry" and "Record of Invention" blank before disclosing inventions. Send model or sketch of your invention for instructions. Promptness assured.

Send for this Money-Saving Radio and Electrical Catalog today. Wholesale Only. GERSHON ELECTRIC COMPANY, Walnut St., Kansas City, Mo.

Mailing Lists. Will help you increase sales. Send for FREE catalog giving counts and prices on thousands of classified names of your best prospective customers. 99% Guaranteed 5¢ each.

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time; 5:30, Skeeze time; 6, organ recital, Lyon & Healy; 8-9, Aryan Grotto band; 10-11, Don Bestor Drake dance orchestra, jazz artists.

Books! Radio Log! Auto Expenses! Family Budget. 25c each postpaid. Roy Stacy, Rockford, Ill.

"Receive the World"—For sale—Model C7 E. I. S. Super-Heterodyne; used for test only—mag. cabinet, volt and ammeter, \$120.00. Bechaud Radio Lab., 457 W. 11th St., Fond du Lac, Wisconsin.

RADIO CLUB PINS

Pins shown designed especially for RADIO CLUBS. Words "Radio Club" cannot be changed. Other lettering can, only name must not exceed 8 letters. Silver plate, 25¢ ea., \$2.50 doz. Sterling silver, 40¢ ea., \$4.00 doz. SEND FOR FREE CATALOG. BASTIAN BROS. CO., 603 Bastian Bldg., Rochester, N. Y.

KEYSTONE KEYSERERS. Good radio reception depends on a good antenna. Fix yours up. Install a Keystone Lightning Arrestor. Genuine Bakelite. \$1.50 at dealers. Approved by Underwriters. Electric Service Supplies Co., Philadelphia, Pa.

Matched Transformers

For the Ultradyne Circuit. 1 Input Transformer and 3 Intermediate Transformers \$20.00. Low Loss Tuning and Oscillating Coils \$ 4.00 per pair. Full instructions and Blue Prints furnished with each kit. Absolutely guaranteed. These transformers are suitable for any Super-Heterodyne circuit. Put up in handsome kit display box. Special discount to dealers. Prompt delivery. Write for special circular. SYPPER MFG. CO., 1524 Fernwood, Toledo, O.

3 TUBE LOUD SPEAKING. Fully Guaranteed LONG DISTANCE RADIO. Users everywhere report Miraco Tuned Radio Frequency sets get programs coast to coast; outperform sets 3 times as costly. Send for proof they are radio's most amazing values. One tube guaranteed completely assembled, long distance outfit, only \$14.35. Three tube (above), \$29.50. Five tube \$75. SEND POSTAL TODAY for latest bulletins and special offer will be sent. MIDWEST RADIO CORP., Pioneer Builders of Sets, 437-G E. 8th St., Cincinnati, Ohio

WRC, Washington, D. C. (Eastern, 469), 4 p. m., fashion developments of the moment, Eleanor Gunn; 4:10, Eleanor Glynn, pianist; 4:20, "Beauty and Personality," Elsie Pierce; 4:30, tea music, Meyer Davis; New Willard hotel trio; 6, children's hour, Peggy Albion.

Let Me Build Your SUPER HETERODYNE. Results Guaranteed. ALSO ANY OTHER CIRCUITS. C. PALMER, 1021 Harris Trust Bldg., CHICAGO

Astounding Discovery of NEW UNIT FOR CRYSTAL. Improves any set 100%. ELIMINATES CATWHISKER NUISANCE—LASTS FOREVER—FIRST EXPENSE THE LAST. \$1.00 brings it, prepaid, with iron-clad refund guarantee. R. BROWN, 2035 E. 96th St., Cleveland, O.

For Sure Results, Solder Up Your Set with SOLOX. The scientific soldering solution that makes sound metallic joints a certainty, with freedom from acid, messy grease or resin. Easy and clean in use and cannot corrode. Most effective and economical of all preparations. Of your dealer or mailed for 50¢ by the inventors and manufacturers, The D. X. Radio Research Laboratories, Crugers-on-Hudson, N. Y. Money back guarantee. Dealers: Write for attractive proposition to our national distributors. THE CHARLES RADIO CO., 154 Nassau St., N. Y. C.

A REAL FIXED DETECTOR. For Crystal and Reflex Sets or Can Be Operated. As a crystal set in itself. Stands battery current, lasts indefinitely and does away with bothersome catwhisker and hunting for Hot Spot. You can depend on it being always "Hot." Can be mounted in any position or connected without mounting. Save A and B battery and Tube life, get better detection than Vacuum Tubes. Get a RADETEC and know the joy of real reception. Packed in box with Brackets and Instructions for \$1.00. TOWNER RADIO MFG. CO., 2620 Victor St., Kansas City, Mo.

Now Ready—The Best Radio Maps

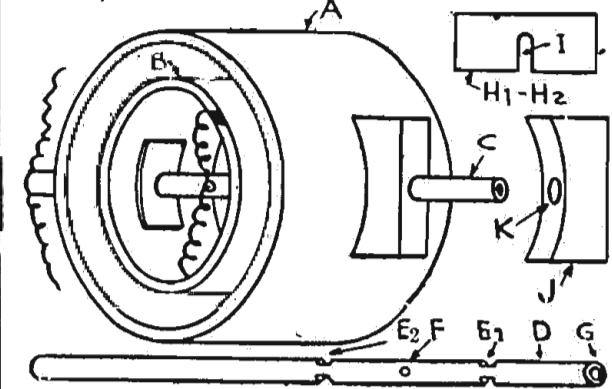
(CRAM'S) With Special Long Distance Feature Map. Complete in one list all U. S., Canada, Commercial and Broadcasting stations, also U. S. Government, Cuba, Mexico, etc. Special Map on exact scale, including Hawaii, Cuba, Mexico, Panama, all of Canada. In fact: The best Map, latest lists—most complete lists. Lists also by states, cities, call numbers. Also Time Divisions, Wave Lengths, Call Signals, Ownership, Kilocycles. Easy scale, 100 miles to an inch. Everything you need in lists and maps. Size of sheet 28x34". Pocket form 35c—Flat in tube 50c—on cloth wall form \$2.00. A log of 16 pages with each style—Postpaid. THE GEORGE F. CRAM CO., 111 N. Market St., CHICAGO, ILL.

AMBASSADOR Low Loss Products. Master Tuning Coil. Perfectly Balanced Head Phones. Low Loss Condenser. High grade, standard radio products that will increase the efficiency of any set and add to the satisfaction of the user. Ambassador Low Loss Products have long been the choice of particular fans. See them—compare them, and you will choose them too. At all good dealers. Write for diagrams of circuits in which Ambassador products can be used. AMBASSADOR SALES COMPANY, 108 Greenwich St., New York, 326 W. Madison St., Chicago

WTAY, Oak Park, Ill. (Central, 250), 6:45-7:45 p. m., Harry Sosnik, pianist; Black Cat orchestra. WWJ, Detroit, Mich. (Eastern, 513), 3 p. m., the Detroit News orchestra; 7, the Detroit News orchestra; Anne Campbell, the Detroit News poet.

Homemade Variometer

The illustration shows a variometer I made with wire wound on an empty oatmeal box, A, and the rotor tube from an empty cleaning compound box. The shaft C was made from a 1/4-inch staff of a small flag. A 1/8-inch hole was bored half way through at F and one bored from the end G to meet it. Small notches were cut at E1 and E2 to receive the cards H1 and H2. The block J is made of hard pine and it is shaped to fit around



the large tube with a hole bored at K to receive it. Glue the block J to the large tube so that the hole K will come in the center then place the small tube in the center of the large one and slip the shaft through the holes and attach the cards H1 and H2 in the slots of the shaft. This will hold the tube firmly in place.—A. R. Colburn, Jennings, Okla.

WOC, Davenport, Ia. (Central, 498), 10:05 a. m., household hints; 12 m., chimes; 7 p. m., sandman's visit. Val McLaughlin; 7:20, "Educational Opportunities for the Farm Boy," M. H. Hoffman; 8, Dorothy Schreber-Webb, pianist; Percy Roeder, pianist; Margareta Knick, soprano; Alice Einfeldt, reader.

PATENT ATTORNEYS. PATENTS. Booklet free. Highest reference. Best results. WATSON E. COLEMAN, Patent lawyer, 644 G Street, Washington, D. C.

FREE "TUBE CONTROL" BOOKLET. On "Tube Control" tells how to bring in distant stations clear and loud. Just drop a post card to UNITY MFG. CO., 232 North Halsted Street, CHICAGO, U. S. A.

"HERCULES" Aerial Mast. All steel construction. Complete with galvanized steel guy wires and pulley. Simple diagram shows how to erect quick. 20 ft., \$10; 40 ft., \$25; 60 ft., \$45. No pay freight. Install this mast for greater range and better results. Write now for literature and FREE BLUEPRINT. S. W. HULL & CO., Dept. H-2, 2048 E. 79th St., CLEVELAND, O.

CARTER "HOLD-TITE" Jacks. 70c. Carter Jacks are known everywhere for their originality of design and preferred for their quality and fine workmanship. Users always repeat—this is the true test. Made in ten different spring combinations, a style for every circuit. Any dealer can supply you. In Canada—Carter Radio Co., Limited, Toronto, Can. Carter Radio Co., 205 E. STATE STREET, CHICAGO

AMBASSADOR Low Loss Products. Master Tuning Coil. Perfectly Balanced Head Phones. Low Loss Condenser. High grade, standard radio products that will increase the efficiency of any set and add to the satisfaction of the user. Ambassador Low Loss Products have long been the choice of particular fans. See them—compare them, and you will choose them too. At all good dealers. Write for diagrams of circuits in which Ambassador products can be used. AMBASSADOR SALES COMPANY, 108 Greenwich St., New York, 326 W. Madison St., Chicago

Radiophone Broadcasting Stations

Corrected Every Week—Part IV

FIND MISTAKES AND YOU'LL GET DOLLAR

ONE DOLLAR will be paid to the Radiophone reader of Radio Digest submitting the most errors in any one station's listing in the Directory of Radiophone Stations, which appears in five parts, serially continuously on the next to last page. Letters must reach Radio Digest's office not later than one week from date of issue corrected. Readers are not limited to correcting one station, but such corrections must be verified by the stations themselves, and NOT by comparison to other so-called accurate Radio directories or lists. Turn in corrections for as many stations as you can find—if you can find errors! Use separate sheet of paper for each station submitted and place name and address on each sheet. In case of tie, duplicate awards will be made.

(Owing to the temporary adjustments in reallocation wave lengths of many stations errors in wave lengths will not be considered eligible for the dollar offer until further notice. Once the changes are made permanent this ban will be removed.)

United States (Cont'd)

NOTE.—The fourth part of the schedule list appears below. Part five appears next week.

WOAI, San Antonio, Tex. 385 meters. 500 watts. Southern Equip. Co. (Evening News-Express). Announcer, J. G. Cummings. Slogan, "The Winter Playground of America, Where the Sunshine Spends the Winter." Daily ex Sun, 10:30 am, 12:15 pm, 3, markets; 6:15, sports, markets, Tues, 8:30-10:30 pm; Thurs, 9:30-10:30 pm, music; Sun, 11 am, church service; 7:30 pm, church services; 9:30-10:30, music. Central.

WOAN, Lawrenceburg, Tenn. 360 meters. 500 watts. James D. Vaughan.

WOAP, Kalamazoo, Mich. 283 meters. 50 watts. Kalamazoo College. Announcer, Leonard J. Ashby. Slogan, "The Oldest College in Michigan." Mon, 7:30-8:30 pm, music, talks. Central.

WOAR, Kenosha, Wis. 229 meters. 50 watts. Henry P. Lundskov. Wed, 7 pm. Sun, 5 pm. Central.

WOAV, Erie, Pa. 242 meters. 50 watts. Pennsylvania National Guard. Announcer, Corp. Al. McDannel. Slogan, "Wayne Rangers Club. Neversleep Club." Tues, 8:30 pm. Thurs, 8 pm. Sun, 9:30 pm, music. Sun, 1-4 am, Milkman's matinee. Sun, 10:30 am, 7:45 pm, church services. Eastern.

WOAW, Omaha, Neb. 526 meters. 500 watts. Woodmen of the World. Announcer, G. B. Gene Rouse. Slogan, "The City Surrounded by the United States." Mon, Tues, Thurs, Fri, Sat, 6-7:30 pm, 9-11, concert. Tues, Thurs, 10:30-11 pm. Sat, 11:15-12 midnight. WOVN dance frolic. Sun, 9-11 am, Radio chapel; 2:15-4 pm, 6-7, Bible hour; 9-11, Central.

WOAX, Trenton, N. J. 240 meters. 500 watts. F. J. Wolff. Slogan, "The Voice from Trenton." Tues, 9:15-11 pm, orchestra. Fri, 9-11 pm, classic music. Daily, 11:15 am, 12:15 pm, weather, mid-weekly crop report. Eastern.

WOC, Davenport, Ia. 484 meters. 500 watts. Palmer School of Chiropractic. Announcer, Stanley W. Barnett. Slogan, "Where the West Begins and in the State Where the Tail Corn Grows." Daily ex Sun, 10:30 am, market, weather reports; 12:30 pm, market, weather, educational talks; 9:30, weather. Mon, 10:30-11:15 am, chimes. Central.

WOD, Philadelphia, Pa. 509 meters. 500 watts. John Wansmaker. Announcer, Jos. N. Nassau. Daily ex Sun, 11 am, organ recital; weather; 11:55, time; 12-1 pm, concert; 5:15 pm, organ recital; 7:30, sports, police reports; 9:55, time; 10:02, weather. Mon, Wed, Fri, 7:30-11 pm, music, concert. Sun, 2:30 pm, Sunday school; 6, organ; alternate am and pm services. Eastern.

WOO, Kansas City, Mo. 275 meters. 500 watts. Unity School of Christianity. Announcer, Sam Adair.

WOR, Newark, N. J. 405 meters. 500 watts. L. Bamberg & Co. Announcer, J. M. Barnett. Daily ex Sun, 7 am, 2:30-4 pm, 6:15-7:30. Mon, Wed, Sat, 7:30-12 midnight. Eastern.

WORD, Bismarck, Ill. 278 meters. 500 watts. Peoples Pulpit association. Mon, Tues, Thurs, 8-9 pm. Sun, 7-9 pm. Central.

WOS, Jefferson City, Mo. 441 meters. 500 watts. Missouri State Marketing Bureau. Announcer, J. M. Witten. Slogan, "Watch Our State." Daily ex Sun, first 15 min. of every hour from 9 am-2 pm, markets. Daily ex Sat, Sun, 5 pm, markets. Mon, Wed, Fri, 8-10 pm, concert. Sun, 7:30-8:30 pm, church service. Central.

WPAB, State College, Pa. 261 meters. 500 watts. Pa. State College. Slogan, "The Voice of the Nittany Lion."

WPAC, Okmulgee, Okla. 252 meters. 200 watts. Donaldson Radio Co. Announcer, William K. Donaldson. Slogan, "Where the Oil Flows and the Gas Blows."

WPAI, New Haven, Conn. 268 meters. 100 watts. Doolittle Radio Corp. Mon, Thurs, 8 pm. Sun, 11 am. Eastern.

WPAK, Fargo, N. D. 275 meters. 50 watts. N. D. Agricultural College. Announcer, Gordon Laing. Daily 1 pm, weather. Mon, Wed, Fri, 7:30 pm, talks. Central.

WPAU, Moorhead, Minn. 286 meters. 10 watts. Concordia College. Announcer, G. Braatin.

WPAX, Charleston, W. Va. 273 meters. 20 watts. West Virginia Radio Sales Corp. Mon, Wed, Fri, 8-9 pm. Eastern.

WPG, Atlantic City, N. J. 296 meters. 500 watts. Municipality of Atlantic City.

WQAA, Parkersburg, Pa. 220 meters. 500 watts. Horace A. Beale, Jr. Temporarily discontinued.

WQAC, Amarillo, Tex. 234 meters. 100 watts. E. B. Gish. Irregular schedule.

WQAE, Springfield, Vt. 275 meters. 50 watts. Moore Radio News Station. Announcer, Ernest S. Newell. Slogan, "Among the Green Hills of Vermont." Sat, 7:30-8 pm, 11-1 am. Sun, 8:40-9:30 pm, address. Eastern.

WQAM, Miami, Fla. 268 meters. 100 watts. Electrical Equip. Co. Announcer, Frederick W. Mizer. Slogan, "It is Always June in Miami." The Most Southern Radiocasting Station in U. S. Daily ex Sun, 12 m, weather, news, music. Mon, 7:30-9 pm, band. Wed, 9-11 pm, orchestra. Sun, 9-11 pm, music. First Sun of each month, 7:30-8:30 pm, sacred concert. Eastern.

WQAN, Scranton, Pa. 250 meters. 100 watts. Scranton Times. Announcer, T. V. Nealon. Slogan, "The Voice of the Anthracite." Daily ex Sun, 12:30-1 pm, 4-4:30, 7:30-8, news, reports, music. Tues, Fri, 8 pm, entertainment. Eastern.

WQAO, New York City, N. Y. 360 meters. 100 watts. Calvary Baptist Church. Announcer, R. E. Bogardus. Slogan, "The First Church Owned and Operated Broadcasting Station in the World." Sun, 11:30 am, 7:30 pm, church services. Eastern.

WQAS, Lowell, Mass. 266 meters. 100 watts. Prince-Walter Co. Daily ex Sun, 10:45-11 am, 2:30-3 pm, music. Mon, Wed, Fri, 6-7 pm, news, concert. Thurs, silent. Eastern.

WQJ, Chicago, Ill. 448 meters. 500 watts. Calumet Baking Powder Company—Rainbow Gardens. Announcer, Jerry Sullivan. Daily ex Sun, 11-12 m, 3-4 pm, woman's hour. Daily ex Sun, Mon, 7-8 pm, 10-2 am, music. Sun, 10:30 am, church service; 8-10 pm, music. Central.

WRAA, Houston, Tex. 256 meters. 100 watts. The Rice Institute.

WRAF, La Porte, Ind. 224 meters. 10 watts. Radio Club, Inc. Announcer, Charles Middleton. Slogan, "The Voice of the Maple City." Mon, Thurs, Sun, 8:30 pm. Central.

WRAL, St. Croix Falls, Wis. 248 meters. 100 watts. Northern States Power Co. Announcer, D. H. Hieb. Slogan, "On the Dells of the St. Croix."

WRAM, Galesburg, Ill. 244 meters. 100 watts. Lombard College. Wed, 7:30-8:30 pm. Central.

WRAN, Waterloo, Ia. 236 meters. 100 watts. Black Hawk Electrical Co. Announcer, Hart Bowder. Slogan, "We Radiate All News." Temporarily off the air.

WRAO, St. Louis, Mo. 227 meters. 10 watts. St. Louis Radio Service Co. Mon, 7:30-9 pm, dance music. Sun, 3:30-5 pm, music. Central.

WRAV, Yellow Springs, O. 263 meters. 100 watts. Antioch College. Announcer, Paul Niswonger. Wed, 8 pm. Sun, 7 pm. Central.

WRAW, Reading, Pa. 238 meters. 40 watts. Avenue Radio & Elec Shop. Slogan, "The Schuylkill Valley Echo." Announcer, C. M. Chafey. Thurs, 9:30-11 pm. Eastern.

WRAX, Gloucester City, N. J. 268 meters. 100 watts. Flexon's Garage. Announcer, Anna D. Flexon. Mon, Wed, Fri, evenings, program. Eastern.

WRBC, Valparaiso, Ind. 278 meters. 500 watts. Immanuel Lutheran church. Announcer, Forrest Jones. Slogan, "World Redeemed by Christ." Mon, 7:30 pm. Sun, 7:30, church service. Central.

WRC, Washington, D. C. 469 meters. 500 watts. Radio Corp'n of America. Announcer, Feland Gannon. Slogan, "The Voice of the Capitol." Mon, Wed, Fri, 4-6:30 pm. Tues, Thurs, Sat, 7-11:30 pm. Eastern.

WREO, Lansing, Mich. 288.3 meters. 500 watts. Reo Motor Car Co. Announcer, Roy E. Davis. Slogan, "Watch Reo." Daily ex Sun, 10 pm, weather. Tues, Thurs, 8:15 pm, music. Sat, 9-12 mid, orchestra. Sun, 10 am, 7 pm, services. Eastern.

WRHF, Washington, D. C. 256 meters, 50 watts Washington Radio Hospital.

WRK, Hamilton, O. 275 meters. 200 watts. Doron Bros. Elec. Co. Slogan, "The Oldest Station in Existence." Fri, 8:15 pm, music, lecture. Sun, 10:15 am, 7:30 pm, church services. Central.

WRM, Urbana, Ill. 273 meters. 500 watts. Univ. of Ill. Irregular schedule.

WRR, Dallas, Tex. 261 meters. 200 watts. City of Dallas. Announcer, C. H. Garrett. Daily ex Sun, 11:30-12:30 pm, weather, music; 2:45-3:30, sports, markets, news; music; 8-8:30 pm, music. Mon, Thurs, 9:30-10:30 pm, dance music. Sat, 12-2 am, organ. Sun, 11 am, 7:30 pm, church service. Central.

WRW, Tarrytown, N. Y. 273 meters. 500 watts. Tarrytown Radio Research Laboratory. Announcer, Frederick Koenig. Slogan, "Everything in Radio." Daily ex Sun, 9 pm, police reports; 10:30-11:30 pm. Mon, Tues, Wed, Fri, Sat, 9-10:30 pm. Mon, 7-8 pm. Thurs, Sun, 8-9 pm. Sun, 8-9 pm, 10:30-11:30, 9-11:30. Eastern.

WSAB, Cape Girardeau, Mo. 275 meters. 100 watts. Southeast Mo. State Teachers College. Mon, Wed, 3:30 pm, lecture; 9, concerts. Central.

WSAC, Clemson College, S. C. 360 meters. 500 watts. Clemson Agri. College. Announcer, H. E. Gaffney. Wed, 8 pm. Eastern.

WSAD, Providence, R. I. 261 meters. 100 watts. Fosters-Jewellers. Daily ex Sun, 2:30-4 pm. Mon, Tues, Wed, Fri, Sat, 6-7 pm. Tues, 6-6:30 pm. Thurs, 8:30-11 pm. Eastern.

WSAI, Cincinnati, O. 309 meters. 500 watts. United States Playing Card Co. Announcer, P. A. Green. Mon, 10-12 m. Tues, 7-10 pm. Thurs, 10-12 m. Sat, 8-10; 12-1:45 am. Sun, 3-4 pm. Central.

WSAJ, Grove City, Pa. 229 meters. 250 watts. Grove City College. Announcer, H. W. Harmon. College activities. Wed, 7:30-9 pm, music. Sat, football. Eastern.

WSAN, Allentown, Pa. 229 meters. 100 watts. Allentown Call Pub. Co. Announcer, R. J. D. Hawes. Tues, Thurs, 8 pm. Eastern.

WSAP, New York, N. Y. 263 meters. 250 watts. City Temple. Announcer, L. K. Dickson. Thurs, 8-9:30 pm. Sat, 10:45-12 m. Sun, 7:30-9:30 pm. Eastern.

WSAR, Fall River, Mass. 254 meters. 100 watts. Doughty & Welch Elec. Co. Inc. Announcer, Charles McCarthy. Daily ex Sun, 12-1 pm. Wed, 8-10 pm. Sun, 10:30-12 m, 4:30-6 pm. Eastern.

WSAJ, Chesham, N. H. 229 meters. 10 watts. Camp Martineau.

WSAZ, Pomeroy, Ohio. 244 meters. 50 watts. Chase Elec. Shop. Announcer, Glenn E. Chase. Daily ex Sun, 5:30 pm, weather. Tues, Thurs, Sat, 5 pm, music. Central.

WSB, Atlanta, Ga. 429 meters. 500 watts. Atlanta Journal. Announcer, Lambdin Kay. Slogan, "The Voice of the South." Daily ex Sun, 12-1 pm, music, weather; 2:30, reports; 5, orchestra, time story; 8-9, concert (ex Wed) 10:45-12, concert. Sun, 5-6, 7:30-9:15, church services. Central.

WSL, Utica, N. Y. 273 meters. 100 watts. J. & M. Elec. Co. Daily ex Sat, Sun, 11-11:30 am, 5-6 pm, music, news. Mon, Wed, Sat, 8-9 pm. Sun, 10:30-12 m, 7:30-9 pm, church services. Eastern.

WSOE, Milwaukee, Wis. 246 meters. 100 watts. School of Engineering of Milwaukee. Announcer, O. W. Meissner. Slogan, "In the Land of the Sky-blue Waters." Daily ex Sat, Sun, 9-10 am, lecture, 5:30-6:30 pm, concert. Mon, Fri, 9-12 mid, music. Tues, Thurs, Sat, 7:30-9 pm, music. Sun, 12:30-1:30 pm, concert; 7:30-8:30, services. Central.

WSY, Auburn, Ala. 250 meters. 500 watts. Alabama Polytechnic Institute.

WTAB, Fall River, Mass. 266 meters. 100 watts. Fall River Daily Herald. Tues, Thurs, 8-10 pm. Eastern.

WTAC, Johnstown, Pa. 275 meters. 150 watts. Penn. Traffic Co. Announcer, D. B. Cole. Tues, Thurs, 7:30 pm. Eastern.

WTAF, New Orleans, La. 268 meters. 10 watts. Louis J. Gallo. Slogan, "The Bayou Station." Daily, 6:45-7 pm, police, baseball, weather. Tues, Sat, 9-10:30 pm; Thurs, 10:30-11:30 pm; Sun, 10-12 midnight, revue. Central.

WTAL, Toledo, Ohio. 252 meters. 100 watts. Toledo Radio & Elec. Co. Announcer, E. R. Frank. Slogan, "The Gateway to the Sea." Mon, 8 pm. Tues, Thurs, Sat, 8:30 pm. Eastern.

WTAM, Cleveland, Ohio. 390 meters. 1500 watts. Willard Storage Battery Co. Announcer, A. E. Herske. Slogan, "The Voice from the Storage Battery." Daily ex Sun, 6-7 pm, dinner program. Mon, Wed, 8-10 pm, concert. Mon, 10:30-1 am, dance music. Sat, 9-12 midnight, dance. Eastern.

WTAP, Cambridge, Ill. 242 meters. 100 watts. Cambridge Radio & Elec. Co. Announcer, A. McIntosh. Tues, Sat, 12:15-1:15 pm, 9:30-10:15. Central.

WTAQ, Osseo, Wis. 254 meters. 100 watts. S. H. Van Gorden & Son. Announcer, Mrs. C. S. Van Gorden. Slogan, "The Voice of the Wilderness." Daily ex Sun, 10:30 am, 12:15 pm, 6:15, weather, markets. Fri, Sun, 8 pm. Central.

WTAR, Norfolk, Va. 261 meters. 100 watts. Reliance Electric Co. Announcer, J. K. Bohannon. Slogan, "Down in Old Virginia." Daily ex Sun, 12:30-1:30

pm. 5-6. Tues, 7:30-12 midnight. Fri, 9:30-12 midnight. Eastern.

WTAS, Elgin, Ill. 286 meters. 500 watts. Chas. E. Erbstein. Announcer, Charles E. Erbstein. Slogan, "Willie, Tommie, Annie and Sammie." 6-12 mid, music. Thurs, 12:30-1:30 pm, Kimball frolics. Fri, 12:30-1:30 pm, organ. Sun, 2:30-5 pm, music. Central.

WTAT, Boston, Mass. 244 meters. 100 watts. Edison Elec. Illuminating Co. Announcer, E. Lewis Dunham.

WTAU, Tecumseh, Neb. 242 meters. 10 watts. Ruegg Battery & Elec. Co. Tues, 8:30 pm. Central.

WTAW, College Station, Tex. 270 meters. 250 watts. Agricultural and Mechanical College of Texas. Announcer, J. F. Longley. Wed, Fri, 8 pm. Sun, 11 am, special basketball games. Central.

WTAX, Streator, Ill. 231 meters. 50 watts. Williams Hardware Co., Radio Division. Announcer, N. B. Williams. Slogan, "Tappa Kegga Nails." Mon, 9-11 pm. Thurs, 12-1 am. Central.

WTAY, Oak Park, Ill. 283 meters. 500 watts. Oak Leaves. Announcer, H. B. Marshall. Slogan, "Something for Everybody." Daily ex Sun, Mon, 6:45-7:45 pm. Wed, Fri, Sat, 9-10 pm, music. Central.

WTAZ, Lamberville, N. J. 261 meters. 15 watts. Thomas J. McGuire. Mon, 8-10 pm, music. Eastern.

WTG, Manhattan, Kan. 273 meters. 50 watts. Kan. State Agri. College. Daily, 9:55 am, 4 pm, weather. Central.

WTIC, Hartford, Conn. 500 watts. The Travelers Insurance Company.

WWAD, Philadelphia, Pa. 250 meters. 100 watts. Wright & Wright, Inc. Announcer, H. W. Feyhl. Slogan, "Penn City Station." Mon, 7:45 pm. Thurs, 7:45 pm. Eastern.

WWAE, Joliet, Ill. Lawrence J. Crowley (Alamo Ball Hall). 242 meters. 500 watts. Announcer, Harry B. Ohlhafer.

WWAD, Houghton, Mich. 244 meters. 250 watts. Michigan College of Mines. Announcer, M. G. Sateren. Daily ex Sun, 12-12:45 pm, music, news, weather, markets. Tues, Thurs, 8-10 pm, concert. Central.

WWI, Dearborn, Mich. 265.5 meters. 250 watts. Ford Motor Co. Wed, 8-10 pm, music, lectures. Eastern.

WWJ, Detroit, Mich. 513 meters. 500 watts. The Detroit News. Announcers, E. L. Tyson, C. W. Kirby. Daily ex Sun, 8-8:30 am, setting-up exercises; 9:30-9:45, household hints; 9:45-10:25, health talks; 10:25-10:30, weather; 11:55-12, time; 12:05-12:45 pm, music; 3:30-3:50, music; 3:50-4:15, markets; 5-6, sports. Dec. 14, and every other week, 8:30-10 pm, concert. Sat, 7-8:30 pm, concert. Thurs, 10-12 pm, "midnight special." Sun, 11 am, 7:30 pm, church services; 2-3 pm, concert. Eastern.

WWL, New Orleans, La. 263 meters. 100 watts. Loyola Univ. Announcer, O. L. Abell. Sat, 8-9 pm. Central.

Argentina

B-1, Buenos Aires, Argentina. Francisco J. Brusa.

LOR, Buenos Aires, Argentina. 350-410 meters. 500 watts. Cia Radio Argentina.

LOV, Buenos Aires, Argentina. Francisco J. Brusa.

LOW, Buenos Aires, Argentina. Grand Splendid Theater.

LOX, Buenos Aires, Argentina. 375 meters. Radio Cultura.

LOY, Buenos Aires, Argentina. Radio Nacional.

LOZ, Buenos Aires, Argentina. 375-384 meters. 500 watts. Radio Sud America.

TCR, Buenos Aires, Argentina. 325-300 meters. 100 watts. Francisco J. Brusa.

Australia

2FC, Sydney, Australia. 1,100 meters. 5,000 watts. Farmer & Co. Ltd.

2AB, Melbourne, Australia. 480 meters. 250 watts. Associated Radio Co. Ltd.

2BL, Sydney, Australia. 380 meters. 500 watts. Broadcasters Limited.

6WF, Perth, Australia. 1,250 meters. 500 watts. West Australian Farmers. Ltd.

Adelaide, Australia. 480 meters. South Australia Broadcasters Limited.

Austria

OHV, Vienna, Austria. 600 meters. Radio Hekaphon.

Vienna, Austria. 700 meters. 100 watts. "Radio Wien." Technologische Gewerbemuseum.

Vienna, Austria. 530 meters. Ravag.

Brazil

Bahia, Brazil. Radio Sociedade do Bahia.

Belle Horizantes, Brazil. 500 watts. National Telegraph Service.

Rio de Janeiro, Brazil. 500 watts. Praia Vermelha.

Rio de Janeiro, Brazil. 6,000 watts. Marconi (Radio Sociedade do Rio de Janeiro).

Sao Paulo, Brazil. 10,000 watts. Radio Bodeirantes.

British West Indies

Curacao, British West Indies. Department of Finance.

Canada

(The power ratings of the following Canadian stations are given in "input" watts, rather than watts output—the method in which American stations are rated. A 2000-watt Canadian station is thus approximately equivalent to a 500-watt American station.)

CFAC, Calgary, Alta., Can. 430 meters. 2,000 watts. Calgary Herald. Announcer, Fred Carleton. Daily ex Sun, 1 pm, news, markets, music. Daily ex Sat, Sun, 3:30-4:30 pm, music. Mon, 10-12 midnight dance. Tues, 7:45-8:45 pm, songs. Wed, 7:45-8:45 pm, music. Thurs, 9-11 pm, music. (CNRR). Fri, 7-8 pm, organ; 11-12, test. Sun, 11 am, 7:30 pm, church services. Mountain.

CFCA, Toronto, Ont., Can. 400 meters. 2,000 watts. Toronto Star. Announcer, E. J. Bowers. Daily ex Sun, 12 m, weather, news, stocks; 5:30-6 pm, news, bedtime story. Daily ex Sun, Fri, 8-9 pm. Thurs, 10-11:30 pm, popular program. Fri, 8-9 pm, (CNRT) E. J. Jackson, announcer. Sun, 11 am, 7 pm, church services. Eastern.

CFCE, Montreal, P. Q., Can. 440 meters. 2,000 watts. Marconi Wireless Telg. Co. Ltd. Announcer, C. Walter Darling. Daily ex Sun, 1-1:30 pm, stocks, music. Mon, Fri, 7:30-8 pm, 8-9, reports, music. Eastern.

CFCH, Ironopolis Falls, Ont., Can. 400 meters. 250 watts. Adifib Paper & Paper Co., Ltd. Slogan, "The Call of the North." Experimental station for forest protection.

CFCK, Edmonton, Alta., Can. 410 meters. 520 watts. Radio Supply Co. Ltd. Daily ex Sun, 8-8:30 pm, music. Sun, 3:30-4:30 pm, Concert. Mountain.

CFPL, Victoria, B. C., Can. 400 meters. 500 watts. Centennial Methodist church.

CFCN, Calgary, Alta., Can. 440 meters. 1,000 watts. W. W. Grant. Slogan, "Voice of the Prairies." Thurs, 8 pm. Sat, 10-12 pm, dance music. Sun, 11 am, church service. Test program, Sat after midnight. Mountain.

CFQ, Vancouver, B. C., Can. 450 meters. 40 watts. Radio Specialties, Ltd. Daily 4:30-5:30 pm. Music. Pacific.

CFGR, Sudbury, Ont., Can. 410 meters. 200 watts. Laurentide Air Service, Ltd. Daily ex Sun, 1 pm, 6 pm, stocks, financial news. Wed, 8:30 pm. Eastern.

CFCT, Victoria, B. C., Can. 410 meters. 500 watts. Victoria City Temple. Slogan, "Where Religion Cheers." Tues, Thurs, 7-8 pm, music. Wed, Fri, 8-9:30 pm, concert. Sun, 11 am, 7:30 pm, Church services. Pacific.

CFCU, Hamilton, Ont., Can. 410 meters. 20 watts. Jack V. Elliott.

CFCW, London, Ont., Can. 420 meters. 600 watts. London Radio Co. Irregular schedule.

CFDC, Nanaimo, B. C., Can. 450 meters. 50 watts. Sparks Co. Announcer, Stanley M. Goard. Mon, Wed, Fri, 7:30-8:30; Sun, 4-5 pm. Pacific.

CFHC, Calgary, Alta., Can. 410 meters. 1,000 watts. Henry Birks & Sons, Ltd.

CFK, Thorold, Ont., Can. 295 meters. 150 watts. D. J. Fenell.

CFLC, London, Ont., Can. 430 meters. 100 watts. Charles Guy Hunter.

CFQC, Saskatoon, Sask., Can. 400 meters. 200 watts. The Electric Shop, Ltd. Announcer, D. F. Streb. Slogan, "The Hub City of the West Where No. 1 Northern Hard Wheat Grows." Daily ex Sun, 1:15-2 pm, markets, reports, music. Thurs, 7:45-9 pm, address, music. Fri, 9-11:30 pm, dance program. Sun 11 am, church service. Mountain.

CFRG, Kingston, Ont., Can. 450 meters. 1,500 watts. Queen's University. Discontinued temporarily.

CFXC, New Westminster, B. C. 400 meters. 50 watts. Westminster Trust Co. and Hume & Rumble, Ltd. Announcer, F. Sterling. Slogan, "Voice of the Fraser River." Mon, Wed, Fri, 7:30-8:30 pm. Pacific.

CFYC, Vancouver, B. C. 400 meters. 20 watts. Victor W. Odium.

CHAC, Halifax, N. S., Can. 400 meters. 200 watts. Radio Research club. Announcer, H. B. Clarke.

CHBC, Calgary, Alta., Can. 410 meters. 500 watts. The Calgary Alberta. Daily ex Thurs, Sat, Sun, Sat, 8:45-9 pm, news, stock quotations, music. Thurs, 7:45 pm, Mountain.

CHCE, Victoria, B. C., Can. 310 and 400 meters. Western Canadian Radio Supply, Ltd. Slogan, "The Voice of the Island." Mon, Wed, Fri, 7-8 pm, music, stock reports, entertainment. Sun, 9-10 pm, music entertainment. Pacific.

CHCL, Vancouver, B. C., Can. 440 meters. 2,000 watts. The Vancouver Merchants Exchange, Ltd.

CHCM, Calgary, Alta., Can. 440 meters. 750 watts. W. W. Grant, (Riley & McCormick, Ltd.) Slogan, "Western Canada's Leading Leather Goods Store." Thurs-8-9 pm. Mountain.

CHCS, Hamilton, Ont., Can. 410 meters. 2,000 watts. Hamilton Spectator Bldg. Announcer, H. Earnshaw. Daily ex Sun, 6:45 pm, news, markets, baseball. Sat, 10-12 midnight, dance. Sun, 11 am, 7 pm. Eastern.

CHNC, Toronto, Can. 350 meters. 500 watts. Toronto Radio Research society. Announcer, R. H. Toronto. Mon, 8:30 pm, concert. Eastern.

CHUC, Saskatoon, Sask., Can. 400 meters. 200 watts. International Bible Students' association.

CHXC, Ottawa, Ont., Can. 435 meters. 1,200 watts. J. R. Booth, Jr.

CHYC, Montreal, Que., Can. 341 meters. 2,000 watts. Northern Elec. Co. Announcer, N. S. Richards. Wed, 8:30 pm. Sun, 7 pm. CNRM programs occasionally. Eastern.

CIBC, Toronto, Ont., Can. 312 meters. 4,000 watts. Jarvis Street Baptist church.

CJCA, Edmonton, Alta., Can. 450 meters. 500 watts. Edmonton Journal, Ltd. Announcer, R. A. Rice. Slogan, "The Sunniest Spot in Sunny Alberta." Club, "Igloo Hut." Daily ex Sun, 12:30 pm, weather, markets. Mon, Tues, Fri, Sat, 7:30-8 pm, children's half hour, news. Mon, 8:30-9:30 pm, organ. Wed, 8:30-9 pm, news, reports. Thurs, 9:30-11 pm, Igloo Hut meetings. Fri, 8:30-10:30 pm, CNRE program. Sat, 9-11 pm, orchestra. Sun, 7:30 pm, services. Mountain.

CJCB, Toronto, Ont., Canada. 410 meters. 100 watts. T. Eaton Co. 3pm, Wed, Fri, 4-4:30 pm, music. Eastern.

CJCE, Vancouver, B. C., Can. 400 meters. 150 watts. Sprott-Shaw Radio Co. Daily ex Sun, 12:30-1:30 pm, 3:30-5, 8-10, music, news. Pacific.

CJCF, Kitchener, Ont., Can. 295 meters. 300 watts. The News Record.

CJCK, Calgary, Alta., Can. 316 meters. 500 watts. Radio Corporation of Calgary.

CJCM, Mont Joli, P. Q., Can. 410 meters. 2,000 watts. Dr. J. L. P. Landry (Chief Announcer). Slogan, "Three weeks below Quebec where civilization nearly ends." Daily, 5-6 pm, news; 11:30-12:30 am, Radio vaudeville. Mon, Wed, Sat, 8:30-9:30 pm, music. Eastern.

CJCN, Toronto, Ont., Can. 410 meters. 2,000 watts. Simon Agnew & Co., Signals.

CJCO, London, Ont., Can. 430 meters. 200 watts. London Free Press. Daily ex Sun, 7:15-8:15 pm, news, market, weather, music, entertainment. Eastern.

CJSC, Toronto, Ont., Can. 430 meters. 500 watts. The Evening Telegram.

CKAC, Montreal, Que., Can. 437 meters. 7,500 watts. La Presse. Announcer, Jacques Cartier. Mon, Wed, Fri, Mon, 1:45 pm, orchestra. Daily ex Sat, Sun, 4 pm, music; 4:30, weather, markets, stocks. Tues, Thurs, Sat, 7 pm, children's hour; 7:30, concert; 8:30 pm, studio concert; 10:30, dance. Sun, 4:30 pm, sacred concert. Midnight frolics first and third Wednesdays of month. CNRM programs occasionally. Eastern.

CKCD, Vancouver, B. C., Can. 410 meters. 2,000 watts. Vancouver Daily Province. Announcer, William Rose. Slogan, "Canada's Western Gateway." Daily ex Sun, 8:30-9:30 pm, music, news, entertainment. Pacific.

CKCE, Toronto, Ont., Can. 450 meters. 2,000 watts. Can. Ind. Telephone Co. Occasional programs.

CKG, Quebec, Can. 295 meters. 200 watts. Daily "Le Soleil." Announcer, J. N. Thivierge. Thurs, 8:30 pm, dance music. Sun, 8:30 pm, concert. Eastern.

CKKC, Regina, Sask., Can. 240 meters. 2,000 watts. Leader Pub. Co. Announcer, A. W. Hooper. "The Queen City of the West." Daily ex Sat, Sun, Tues, 9:45-10:30 am; 1-2 pm; 7:30-8:15, music, news, markets. Tues, 9:45-10:30 am; 1-2 pm; 8-10. Sat, 9:45-10:30 am; 1-2 pm. Sun, 9-10 pm, church services. Mountain.

CKCO, Ottawa, Ont., Can. 400 meters. 200 watts. Dr. G. M. Geldert (Ottawa Radio Assn.) Announcer, Dr. O. K. Gibson. Slogans, "Ottawa's Radio Voice." "The Community Voice of Canada's Capital." Tues, 7:30-10 pm. Sun, 7 pm, services; 9, sacred concert. Eastern.

CKCX, Calgary, Alberta, Can. 440 meters. 1,000 watts. P. Burns & Co., Ltd. Tues, 9-10 pm, music, lectures. Mountain.

CKFC, Vancouver, B. C., Can. 385 meters. 200 watts. First Congregational church.

CKLC, Calgary, Alta., Can. 400 meters. 200 watts. Wilkinson Electric Co.

CKOC, Hamilton, Ont., Can. 410 meters. 100 watts. Wentworth Radio Supply Co., Ltd. Announcer, H. Slack. Slogan, "In the Garden of Canada." Mon, Wed, Fri, 8-9 pm, music entertainment. Sun, 7-8 pm, church services. Eastern.

CKY, Winnipeg, Man., Can. 450 meters. 2,000 watts. Manitoba Tel. System. Announcer, D. R. P. Coats. Slogan, "Manitoba's Own Station." Daily ex Sun, 12:30-1:30 pm, music, lectures, etc.; 2:15 pm, markets, weather; 4-5, concert. Tues, Fri, 8:15-10 pm, concert. Thurs, 8:30 pm, markets; 9, Canadian Nat. Railways concert (CNRRV). Announcer, R. H. Roberts. Sun, 7 pm, church services. Central.

CNRA, Moncton, N. B., Can. 435 meters. 500 watts. Canadian National Railways. Tues, Fri, 8 pm. Eastern.

CNRC, Calgary, Alta., Can. 440 meters. 1,000 watts. Canadian National Railways.

CNRE, Edmonton, Alta., Can. 450 meters. 500 watts. Canadian National Railways.

CNRM, Montreal, Que., Can. 341 meters. 2,000 watts. Canadian National Railways.

CNRO, Ottawa, Can. 435 meters. 2,000 watts. Canadian National Railways. Announcer, G. A. Wright. Wed, Sat, 7:30 pm, markets, bedtime story; 8. Eastern.

CNRR, Regina, Sask., Can. 420 meters. 2,000 watts. Canadian National Railways.

CNRS, Saskatoon, Sask., Can. 400 meters. 500 watts. Canadian National Railways.

CNRT, Toronto, Ont., Can. 400 meters. 2,000 watts. Canadian National Railways.

CNRW, Winnipeg, Man., Can. 450 meters. 2,000 watts. Canadian National Railways.

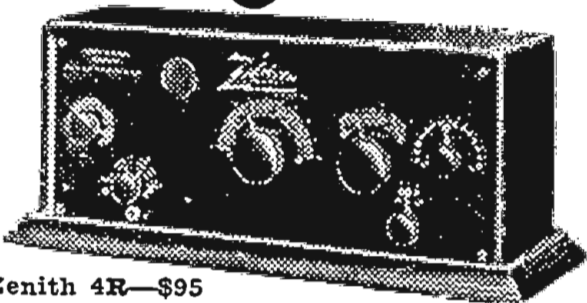
(The above listings complete the stations in the United States and part of the foreign broadcasters. Part V consists of a complete location index of stations and the remainder of the foreign list. This appears next week.)

ZENITH RADIO

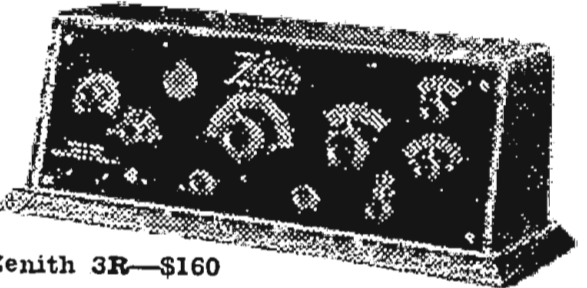
TRADE MARK

LONG DISTANCE

They Cost More—But, They Do More!



Zenith 4R—\$95



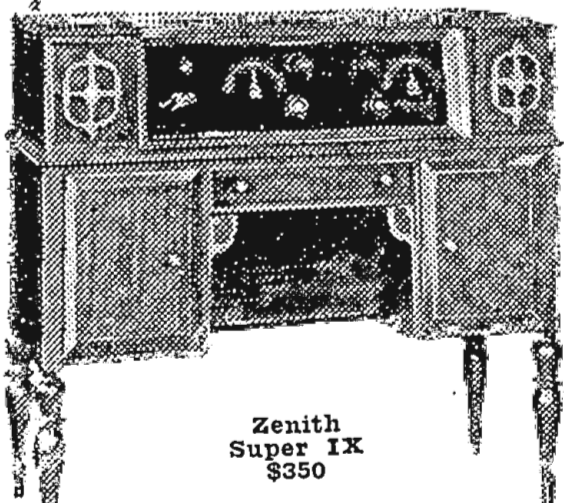
Zenith 3R—\$160



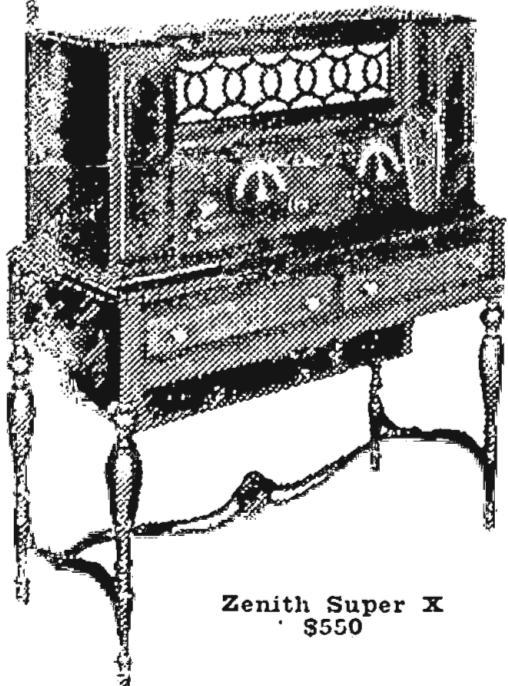
Zenith Super VII—\$230



Zenith Super VIII \$250



Zenith Super IX \$350



Zenith Super X \$550

THE discriminating buyer of Radio—that man who wants results and wants radio entertainment free of excuses and apologies—that man who hasn't the time nor the inclination to study out and decipher the intricacies of radio technicalities, who is not satisfied with anything but maximum results in Radio Reception—no Radio Receiving set can appeal to him if incapable of tuning by the simplest method possible—that cannot tune out local stations consistently and at will when distance is desired—that is lacking in real resonant tone quality and satisfactory volume.

Zenith design and construction "*costs more but does more.*" Zenith receiving apparatus is built to satisfy and to render continued satisfaction to the most discriminating buyer, and we welcome just that type of buyer—who wants performance—dependable and consistent performance.

Zenith Receivers have actually been discussed by the most inexperienced users as "simply uncanny in their action"—the greatest surprise has been evidenced by thousands of Zenith users and only because the mechanical and electrical precision that goes to make up Zenith sets have "licked" the problems of intricate detail and made of Zenith a sturdy substantial piece of standard merchandise—built to meet the requirements of a public that seeks the charm in entertainment rather than the thrill of a mechanical puzzle.

To know and to understand the excellence of Zenith Receivers—their performance and quiet dignity in beauty—can only be justly felt by seeing the sets and witnessing a demonstration yourself. Comparison of claims can never be a sound basis for a decision. "*Seeing is believing*"—and we, through our dealers, invite the closets comparison—at their stores—or in your home.

If you want distant stations consistently—to turn to and receive stations at will and know you are going to get them. If you want volume, clarity and real living value in tone reproduction—if you want dependable construction that will minimize the usual inconvenience of servicing—and if you want elegance that will fit into and lend to your home a feature of added beauty and refinement—be fair to your desires and consult your nearest Zenith dealer—"Zenith Sets cost more—but they do more"—and that is exactly what you want—when you invest in Radio. You are not looking for an experiment. You can best judge real value by actual personal contact. We invite your inspection before finally deciding on your radio set.

Call on your nearest Zenith dealer or write us direct. Fill in this coupon and mail today.

Zenith Radio Corporation
332 SO. MICHIGAN AVE.
CHICAGO

Zenith Radio Corporation
 Dept. 10B
 322 S. Michigan Ave., Chicago, Ill.

Gentlemen: Please send me illustrated literature giving full details covering your receivers.

Name.....

Address.....