

'BIG BEN' IN LONDON REBROADCAST HERE

WGY AND WJZ TEST FEASIBILITY OF 2LO RELAY

Hear Hotel Savoy Orchestra and Westminster Chimes but Not Plain—Tests Continue

NEW YORK.—Those who failed to hear WJZ's and WGY's broadcasting of the chimes of Westminster and the midnight pealing of Big Ben in London, recently, had another opportunity. The eastern station of the General Electric company in Schenectady and Radio corporation Station WJZ in New York will continue to cooperate with the engineers of the British Broadcasting company and if the signals are clear enough to warrant successful rebroadcasting, you may hear them most any evening from six to nine o'clock.

How Rebroadcasting Is Done
Saturday evening, March 14, British Radio signals were rebroadcast successfully in the United States for the first time. 2LO, the London station of the British Broadcasting company, was connected to the Hotel Savoy by wire and picked up the strains of American jazz as played by the hotel orchestra.

From 2LO the signals were carried by wire to 5XX, the Cheshamford experimental station of the B.B.C., from which point

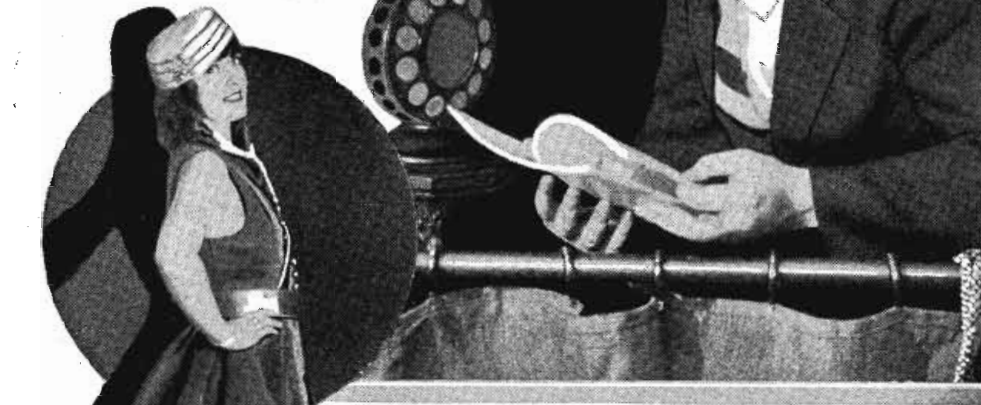
BROADCAST SONG OF KGO MEADOW LARK

OKLAND, Calif.—During recent tests in the KGO studio, when a window was left open, a sensitive condenser microphone picked up the song of a meadow lark observed to be in a field about 300 yards away from the studio building. The bird's song came through clear and sweet, and possessed life-like qualities.

PARLIAMENT TALKS OF OPENING STATION

LONDON, England.—Members of parliament here are seriously considering broadcasting the proceedings in the house of commons. A special station would have to be erected at a cost of about \$250,000. The house of lords may install microphones on the speaker's table and connect them with headsets at certain of the benches.

HOW WGN BROADCASTS PLAYS



Above, Quinn A. Ryan, chief announcer at Station WGN, is shown describing one of Gilbert and Sullivan's operettas, "The Mikado," during the broadcasting of the play from the stage of the Great Northern theater in Chicago. Left, Drusilla Faggart, sensational young Broadway dancer, who recently did a military buck dance over the air from Station WEAR, Seaside hotel, Atlantic City. © Atlantic Photo Service.



STATION GLEANINGS AND NEWSY BRIEFS

STATION WAHG DISPLACES JAZZ ON LATE PROGRAM

Refuse to Let Vincent Lopez Give Music Lessons on the Air—Flyer Hears WGBS

Prof. Edward J. Goodspeed, famous translator of the New Testament into modern speech, gave an informal talk recently through Station KYW. His subject was "The Four-hundredth Birthday of the English Bible."

WAHG, A. H. Grebe station at Richmond Hills, has engaged the Adamo Symphonic Concert orchestra to broadcast every Monday night on the late program. This orchestra knows no jazz. It will displace the usual jazz on the late program, and will be rebroadcast from WOC, Davenport, Iowa.

Vincent Lopez, who was to teach music via Radio weekly from Station WOR, Newark, N. J., was restrained from so doing by E. F. Albee, head of the Keith Vaudeville circuit, in a last minute ultimatum.

The combined musical clubs of Amherst college, making their annual Easter vacation tour, broadcast recently from WIP, Philadelphia. John Coolidge, son of the President of the United States, sang first bass with the club.

The tenth and last of a series of educational concerts for students was given April 1 through WEAJ, New York; WJAR, Providence, R. I.; WOO, Philadelphia; WTAM, Cleveland; and WCAP, Washington.

"La Traviata" was recently broadcast in condensed form through WEAJ and

four other stations. The entire performance was under the direction of Cesare Sodero, composer-conductor, well known for his association with the Edison company as musical director of its laboratories.

While flying over New York city, an aviator heard the program being broadcast by WGBS, New York, at an altitude of 10,000 feet. This was the only station picked up at this altitude.

"The Man on the Box," a breezy comedy, will be heard from KGO, Oakland, Calif., Thursday evening, April 16. It will be produced under the direction of Wilda Wilson Church.

"Household Management and Equipment" will be the topic of a series of lectures, given twice a week by Station WGY, Schenectady, N. Y. They will be broadcast every Monday and Thursday afternoon at 2 p. m.

Joe Novak, professional golf player and teacher, is now giving a series of lessons from KGO, Oakland, Calif., every Thursday evening at 7:15. Listeners have been requested to send in for charts showing correct positions of clubs and body. These charts will be used in the course of his talks.

Capt. Donald B. MacMillan, noted explorer, recently broadcast from Station WOC, Davenport, Iowa, during a visit to that city. He is now touring the country giving lectures on his recent trip.

Rensselaer Polytech Retains 500-Watt Distance Record

TROY, N. Y.—WHAZ, Rensselaer Polytechnic institute at Troy, N. Y., with its 500-watt station, still holds the long distance record for broadcasters of that power. Although not breaking its 10,000-mile record made when WHAZ was heard two years ago at Invercargill, New Zealand, it was recently picked up near the Tuamotu Islands, in the southern Pacific ocean, 4,350 miles from Troy.

NO ROOM LEFT FOR NEW BROADCASTERS

AIR CONGESTION BECOMES ACUTE FOR LISTENER

Trouble in New York When WMCA Takes Air—Other Locations Have Difficulty Too

By Eric H. Palmer
NEW YORK.—Opening of two new Radio stations which are nearly 2,500 miles apart has demonstrated the dangers of air congestion. These stations are WMCA, in New York, and KFWB, in Hollywood, the one operating with 500 watts and the other with 1,500 watts power, respectively.

WMCA speedily found it was out of place with its 428-meter wave length. On many sets it could not be heard when WJZ and WEAJ were on the air. The California station is reported to blanket distance reception among fans in its vicinity.

The night WMCA officially opened it fought for supremacy with the carrier wave from WSB, away down in Atlanta. WMCA will test again, this time on a wave length of 341 meters. Even that proposal has aroused apprehension—and from fans out in Cleveland, who claim that "WMCA will clash with KSCA in Manhattan, Kansas. Other stations on about the same wave lengths are WBZ, Springfield, using 1,500 watts; WCBD, Zion, which has just installed a super-power transmitter; WTIC, Hartford, and WLS, Chicago.

Fans Know Crowded Condition
Every fan with a Radio receiver capable of picking up stations at long distance knows that the ether is crowded—that not only two but sometimes three or four stations, at the same or approximately the same wave lengths, are causing heterodyning whistles, with resultant unsatisfactory reception.

Listeners in the New York metropolitan district know that WJZ, away out in Jefferson City, Mo., tends to mar reception of CHKO, Ottawa, Canada, and vice versa; WGY, Schenectady, and WMBF, down in Miami Beach, Florida, used to conflict until there was a change in their time schedule of operation.

On the lower wave lengths the situation is even worse for those who operate sensitive receivers. There are so many stations on waves of 240 to 300 meters that it is difficult to separate them, particularly as some low-powered stations recently have appeared to come in with finer volume than ever before.

Arthur Bateheller, United States Supervisor of Radio for the second district, admits that "the saturation point in broadcasting has absolutely been reached" and that "there can be no more broadcasting stations simply because there is no place to put them." All available wave bands are being used.

KHJ Will Broadcast on Catalina Island

Entire Studio Staff Will Journey to Wrigley Estate

LOS ANGELES.—An unusual broadcast will be made by KHJ, Los Angeles Times station, when on April 11 the studio staff, announcers and artists will journey to St. Catalina island, off the southern California coast, and broadcast an entire program from the Wrigley estate on the island by wire telephony to the studio.

The next morning the Easter sunrise services, for many years a ritual where thousands flock to the mountain overlooking Avalon bay at sunrise on Easter morning, will be broadcast in the same manner.

Catalina island and Avalon bay are known to many thousands of people who visit there annually and because of the purchase of the island several years ago by William Wrigley, famous Chicago chewing gum millionaire. It is also one of the world's most favored spots for Radio reception, and one of the few points that kept in communication with Capt. Donald B. MacMillan's last expedition while in the Arctic.

WHO Holds Large Banquet at Anniversary Celebration

DES MOINES, Iowa.—WHO, Bankers' Life station here, celebrated its first anniversary here recently with a huge banquet at the Hotel Fort Des Moines. Over 800 guests were present.

The program from the banquet, including the speeches and music, were broadcast.

A special novelty was staged when various local and national firms donated gifts to be given to every Radiophan sending in a telegram or communication during the program. Everyone received something. Telegrams flooded in by the thousands.

the electrical impulses took to the air on 1,600-meter waves.

On this side of the Atlantic, at the Radio corporation of America station at Belfast, Maine, these signals were intercepted, amplified and rebroadcast on 115 meters wave length. Special Radio receivers picked up the short waves and WJZ and WGY then placed the signals on the air so that those tuned to 455 or 350 meters were able to receive them. WRC, Washington, was also linked in on the tests.

Because of the uncertainty of the atmospheric conditions it is impossible to fortell the date of retransmission of English broadcasting. On previous tests static has almost completely blotted out the English broadcast.

Want Naval Quiet Period

ASTORIA, Ore.—A campaign for the establishment of a "quiet period" between 8 and 10 p. m. at three nearby naval stations is being conducted here by the Lower Columbia Radio club. Spark signals from the government stations completely blanket broadcast reception here. The organization is made up of most of the Radiophans of this district.

ASK FITTING WORDS FOR PATRIOTIC SONG

WESTINGHOUSE STATIONS IN UNIQUE CONTEST

Robert Saudek Writes Melody—Author of Winning Verses to Receive Share of Royalties

PITTSBURGH.—One of the most remarkable instances of creative musical talent recorded in the United States is the writing of a patriotic melody by a 13-year-old Pittsburgh boy, which has received such high praise by musicians that KDKA, Pittsburgh Westinghouse station, and its sister stations—KYW, Chicago; WBZ, Springfield, and KFKX, Hastings, Neb.—operated by the Westinghouse company, will conduct a national contest to obtain appropriate words, and thus obtain a new patriotic song.

The melody written by 13-year-old Robert Saudek has been the first to qualify as a "song of the people" in many years. Musicians state that the folk song is the hardest of compositions to write. The more experienced and talented a musician becomes the more difficult it is for him to produce a melody that has the required simplicity. It has remained for young Saudek in the freshness of his youth to produce a clean, wholesome melody unhampered by technical difficulties which might suggest themselves to accomplished musicians, but which if included would undoubtedly make the work unsuitable for its purpose.

Author Will Share in Royalties

KDKA began the contest for words to this melody Sunday, March 29, when the melody was broadcast for the first time. During the following week the melody was played periodically.

Three verses are required for the melody, and these must be of a patriotic nature. To those writing to Station KDKA a copy of the music will be sent in order that those who desire to compete in the contest may be able to fit their verses to the music. Details of the contest, which will close April 20, will accompany the music sheet.

The author of the verses which are chosen by the judging committee as being the most adequate will share in the royalties which may accrue from the sale of the song after it has been published in its complete form. Arrangements have already been made to make phonograph records of the song by one of the leading phonograph music companies of America. It will be published by one of the largest music publishing houses in the world.

"A Song of America," is the title given to the melody.

Because of Radio, daily weather bulletins, which have been mailed by the weather bureau since 1881, have been discontinued.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

of Radio Digest Illustrated, published weekly at Chicago, Illinois, for April 1, 1925.

State of Illinois, County of Cook, SS.—Before me, a notary public in and for the State and county aforesaid, personally appeared E. C. Rayner, who, having been duly sworn according to law, deposes and says that he is the publisher of the Radio Digest Illustrated, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 413, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, E. C. Rayner, 745 Junior Terrace, Chicago, Ill.; Editor, Chas. F. Sutor, 4757 Lake Park Ave., Chicago, Ill.; Managing Editor, Evans E. Plummer, 923 Lawrence Ave., Chicago, Ill.; Business Manager, V. E. Burt, 3923 Ellis Ave., Chicago, Ill.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)
E. C. Rayner, 745 Junior Terrace, Chicago, Ill.; F. T. Ayer, 219 N. Dearborn St., Chicago, Ill.; A. R. White, 7015 Elmwood Ave., Chicago, Ill.; Joseph Seaman, 290 Fifth Ave., New York, N. Y.; George Seaman, 49 Parkway, West Chicago, Ill.; D. E. Seaman, 49 Cedar Ave., Chicago, Ill.; Charles S. Peterson, 1170 Lake Shore Drive, Chicago.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the names of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as owners, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is..... (This information is required from daily publications only.)

E. C. RAYNER, Publisher.

Sworn to and subscribed before me this 30th day of March, 1925.
(SEAL) A. C. MCKITRICK.
(My commission expires October 1, 1928.)

Blackstone Theater Now Is Radio Studio

WTAS and WCEE Will Open with New Feature

CHICAGO.—Beginning Sunday, April 5, Stations WTAS and WCEE began broadcasting from the Blackstone theater, Chicago, by remote control through Kimball hall and operating plant at Elgin, Ill., a distance of nearly forty miles.

With the leasing of the Blackstone theater by WTAS, Radio has at last been brought to the theater, despite the objections recorded by those who guide the destinies of the theatrical world.

WTAS artists and the WTAS orchestra will broadcast nightly from the Blackstone stage. Nearly 1,500 people will have an opportunity of watching the interesting programs, a minimum admission being charged in order to defray expenses. Stars of the vaudeville, theatrical and concert world will also appear from time to time on the Elgin program.

BASEBALL GOES ON AIR

(Continued from page 1)

J. Andrew White, pioneer sports announcer.

On April 22, Graham McNamee, speaking through WEAF, New York, and possibly WEEL, Boston, and other stations, will report play-by-play the contest between the New York Giants and the Boston Braves at the Polo grounds, New York, thus opening the National league season.

Not alone will the New York ball games go on the air, but games in other cities as well. Stations all over the country are making plans to broadcast final, play-by-play, or inning results of the games in their respective territories.

WDAF, Kansas City, is one of the latter. The Kansas City Star station announces that results from the major leagues, the American association and the Western league will be broadcast on half-hour schedules, beginning at 3:30 and ending at 6 p. m., Central time. April 14 will see the opening of this WDAF schedule. Play-by-play results for most of the Kansas City team's games will be furnished by WDAF.

In Chicago, Westinghouse Station KYW has made plans to report games of the White Sox and Cubs teams. Some of these will be broadcast play-by-play. Others will be by innings.

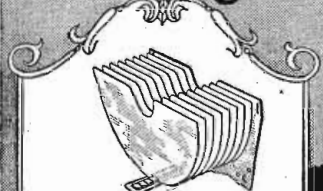
WLW will start the season April 14 with a play-by-play account of the Cincinnati Reds vs. St. Louis Cardinals game at Redland field, Cincinnati. Robert F. Stayman and Alvin R. Plough will handle the microphone.

Among the leagues and associations whose games will be broadcast from various stations are the International, Western, Southern, Texas, Eastern and Pacific coast leagues, and the Southern, Western and Texas associations.

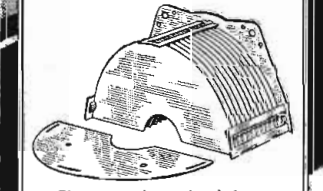
Moliere's Work at CKAC

MONTREAL, Que. — Moliere's "Le Medecin Malgre Lui" was recently played before the microphone of La Presse Station CKAC here, when the comedy section of the Longueuil Concert society made its Radio debut. The artistry was greeted with great acclaim, and the society hopes soon to broadcast other of Moliere's works.

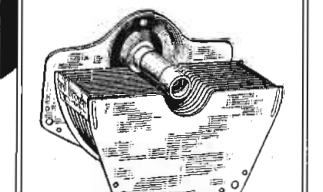
Making the New Bradleydenser



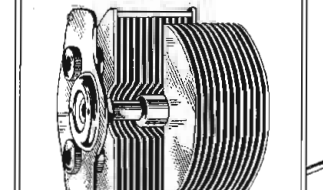
The brass stator plates are soldered to notched spacer bars that maintain perfect alignment.



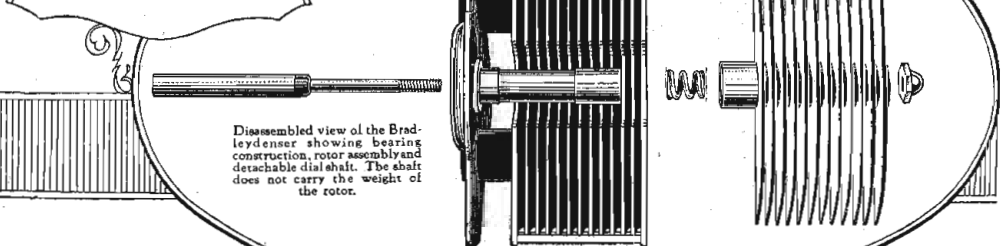
Plates, spacer bars and end plates are all soldered into a solid unit.



The bearing stud, attached to the stator mounting plate, supports the rotor. See illustration at bottom of this page.



Rotor revolves on a double bearing that is independent of the dial shaft.



Disassembled view of the Bradleydenser showing bearing construction, rotor assembly and detachable dial shaft. The shaft does not carry the weight of the rotor.

Brass Plates
Low Loss
Low Minimum

NEW and distinctive features are embodied in the design of the Bradleydenser. For instance, the rotor revolves on a long double bearing that preserves rigid alignment and yet eliminates the extra outer end-plate. This reduces the amount of di-electric material and increases the efficiency.

Every joint is soldered. This, combined with the use of brass plates, further increases the operating efficiency. Another feature is the dust cap over the stator plates; it is removable without tools.

The Bradleydenser is made in four sizes: 0.00025 M-f. at \$4.50; 0.00035 M-f. at \$4.75; 0.0005 M-f. at \$5.00; and 0.001 M-f. at \$6.00. Leading radio dealers are showing them, now.

Allen-Bradley Co.

Electric Controlling Apparatus

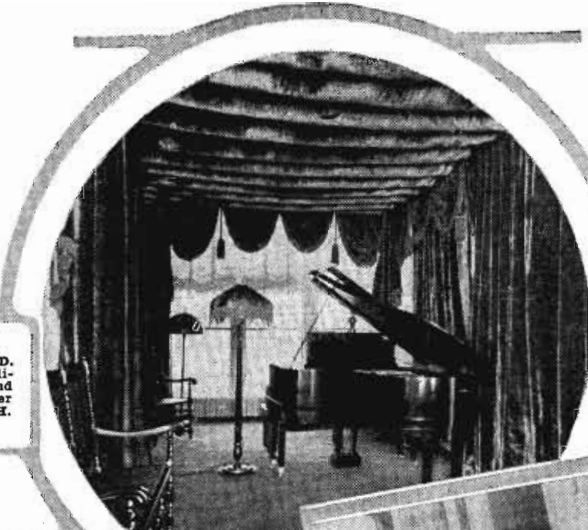
290 Greenfield Avenue MILWAUKEE, WIS.

Manufacturers of Electric Controlling Apparatus for Over Twenty Years

WEBH—"The Voice of the Great Lakes"



Robert D. Boniel, director and announcer of WEBH.



Interior view of the Crystal studio, showing piano and heavy wall drapes used to better acoustic quality.



Leroy M. E. Clausing, chief engineer of Station WEBH.

ONE of the oldest, yet one of the best broadcasting stations in the Middle West, is the claim made for WEBH—formerly known as WJAZ—by thousands of enthusiastic supporters. After listening to their programs, the reason so many people are enthusiastic about the station is obvious.

It is at WEBH that jazz, classical and semi-classical music blend to win the hearts of the music lovers of all classes. Just enough of each is given to keep the invisible audience interested, so that many write in and say how well they like the program. And who could ask for more than that?

The studio is located in the Edgewater Beach hotel, Chicago, and programs broadcast from here have been heard in practically every corner of the world. This station while using the call letters WJAZ broadcast special programs to MacMillan while frozen in above the Arctic Circle. Its voice has also been heard above the tom-tom's in the Australian bush, far up in the interior.

Robert D. Boniel, station director and announcer, was formerly connected with Station KYW. It is to Mr. Boniel that most of the credit is due for inaugurating many of the novel features broadcast from WEBH. So that the fans may have the best of talent perform for them, Mr. Boniel brings many stars of the theatrical firmament—who are performing in the city at the time—to the studio to sing for WEBH's audience.

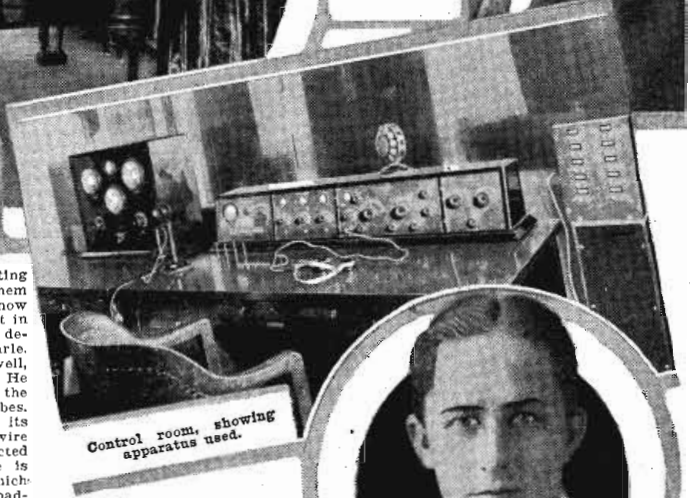
Assisting Mr. Boniel is Miss Helen Searle, program editor of WEBH. She

handles all the correspondence relating to the various artists and enters them on the schedule so that they will know the exact time they are to be present in the studio. This, and a lot of other details are taken care of by Miss Searle.

And when it comes to engineers—well, take a look at Leroy M. E. Clausing. He is the man who can tell who wins the battles among the electrons in the tubes. He has been with the station since its beginning, and knows every piece of wire by its first name. Formerly connected with the bureau of standards, he is capable of handling any problems which may arise—and many do—in a broadcasting station.

No station would be complete without a studio manager. So, the honor of being studio manager fell to a young man by the name of Dean Remick. Capable, thorough and versatile, while descriptive of some of his qualifications, do not do justice to Mr. Remick, for he is every place at the same time doing everything. This may seem impossible, but, watch him in action and you will agree that he is more than that. He is noted for being an excellent accompanist at the piano.

Among the attractions at WEBH, is the Edgewater Beach Oriole orchestra.



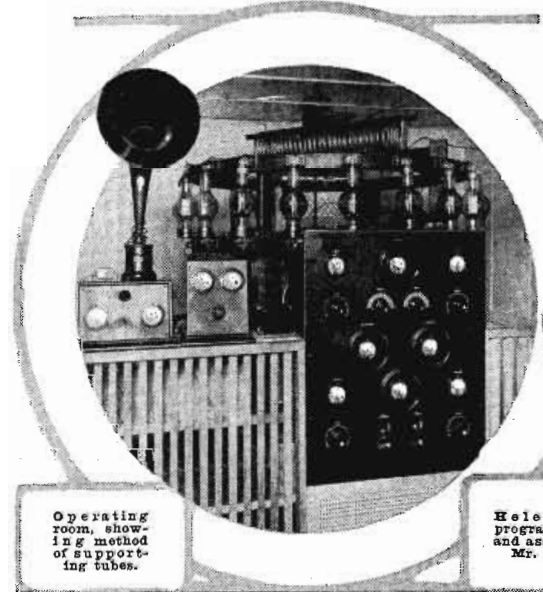
Control room, showing apparatus used.



Dean Remick, studio manager and accompanist, who is well liked for his ability at the piano.

Directing the destiny of this orchestra are Dan Russo and Ted Florito. They and their orchestra, as well as many of its members, are known throughout the country as accomplished musicians and the makers of hundreds of talking machine records.

On Sunday afternoon a special program is broadcast to devotees of the classical and semi-class- (Continued on page 6)



Operating room, showing method of supporting tubes.



Helen Searle, program editor and assistant to Mr. Boniel.



The Dennis sisters, regular performers at WEBH.



Dan Russo and Ted Florito, proprietors of the Oriole.

NOMINATION CERTIFICATE

Announcers' Contest

Radio Digest Second Annual GOLD CUP AWARD

GOLD CUP AWARD Editor, Radio Digest,
510 N. Dearborn St., Chicago, Ill.

Dear Sir:

I nominate.....

Station

Broadcasting Station

Signed

Address

Town.....

State.....

Popular Announcers Annex New Titles at Kansas City

ATLANTA, Ga.—The title of "The Little Colonel" was bestowed upon Lambdin Kay, director-announcer of WSB, "The Voice of the South," by his contemporary Radio spokesmen at the recent Kansas City Radio exposition, including Leo Fitzpatrick, "The Merry Old Chief," George Hay, "The Solomon Old Judge," and Harold Hough, "The Hired Hand." The quartet was invited to make a personal appearance at the St. Louis exposition next October. W. G. "Bill" Hay was dubbed the "Chesterfield of Radio."

VOICE OF GREAT LAKES

(Continued from page 5)

ical music. This concert draws hundreds to the studio to hear the artists and see them broadcast.

The renowned "Crystal Studio" is used when broadcasting individual stars. This studio is surrounded by a sea of wonderful ferns and tropical plants, adding charm to the already pleasing surroundings of the studio itself. On the edge of plants is the Marine dining room, where, at midnight, the strains of "The Midnight Waltz" are broadcast to thousands of ardent WEBH fans.

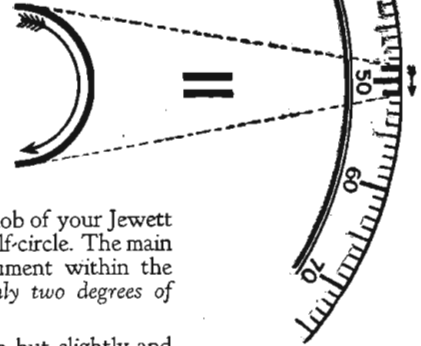
Rendezvous Cafe Studio of WJJD Is Formally Opened

CHICAGO.—The Back Stage Studio at the Rendezvous Cafe, Broadway and Diversey parkway here, was recently officially opened by Jack Nelson, director of WJJD, the Loyal Order of Moose station at Mooseheart, Ill., now broadcasting from the Garrod studio in the Palmer House, Chicago.

Increase British Program Money

LONDON, Eng.—According to a statement it has just issued, the British Broadcasting company is now providing 50,000 hours of program material a year. An analysis of the company's expenditures for 1924 shows that between 50 and 60 per cent was devoted to programs. Of the revenue for 1925 probably between 60 and 70 per cent will be devoted to programs.

When



TURN the inner knob of your Jewett Micro-Dial a full half-circle. The main dial—and the instrument within the set—would move only two degrees of calibration.

Move the inner knob but slightly and you cannot even see the movement of the main dial.

But what a difference in reception!

Stations you would otherwise pass over, without hearing at all, come in clearly and with surprising strength.

"Fuzzy" reception ceases to be a problem.

On high powered, selective sets, marvels of tuning can be accomplished with Micro-Dials. Less modern sets prove selective ability their owners never suspected.

Make these benefits yours! You simply can't afford to be without them.

Needs only a screw driver to install—no butchering of shaft or instrument. At your dealer's or, if he is not supplied, send us direct, enclosing list price, \$3.50. We will prepay carrying charges.



JEWETT RADIO & PHONOGRAPH CO.

5670 Telegraph Road

Pontiac, Michigan

CIR-KIT

More Power per Tube brings Greater Radio Most Economically

Triple power is the basis of Erla Supereflex records. Tubes, as used in Supereflex, simultaneously amplify received radio frequency currents, reflexed radio and reflexed audio frequency currents. So 1-tube Supereflex rivals the power of conventional 3-tube circuits. And 3-tube Supereflex readily outclasses the ordinary five!

Only such power can give you the thrill of Supereflex distance and volume; always with Erla crystal-pure tone—and with uncanny selectivity that gets what you want when you want it.

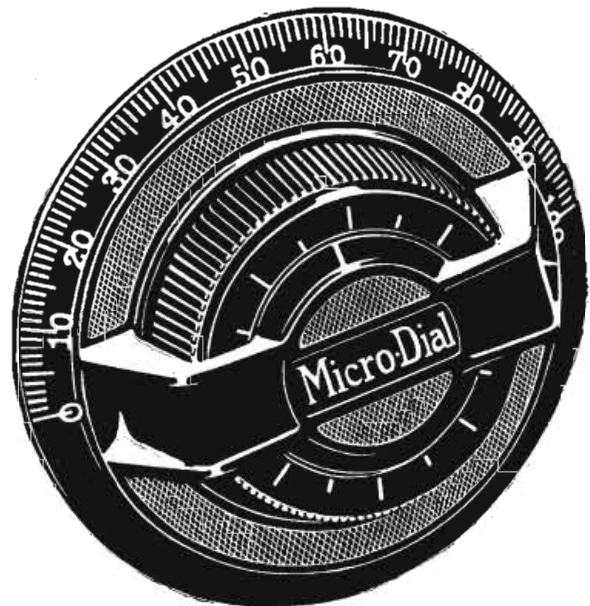
This finer radio is brought within the reach of all by Erla Supereflex CIR-KIT, the factory-sealed carton of genuine Erla apparatus for building Supereflex yourself. Anyone can follow the CIR-KIT assembly plan perfectly, using only screwdriver and pliers, without the risk of drilling or soldering.

SEE ERLA RECEIVERS

Inherent Erla advantages in power, tone and selectivity are now available in beautiful, complete Erla receivers. Retail prices range from \$67.50 to \$225. Both performance and price place Erla receivers among the sensations of radio history.

Pride of workmanship, extreme economy, priceless radio performance, are yours in Erla Supereflex CIR-KIT. Select your model at the Erla store. 1 to 5 tubes, antenna and loop types.

Electrical Research Laboratories
Dept. A, 2500 Cottage Grove Ave., CHICAGO



The Jewett
Micro-Dial
Trademark Registered

FUTURE STAGE WILL BE AT FANS' HOMES

COSMO HAMILTON, NOTED PLAYWRIGHT, PREDICTS

Tells of Menace to Theater, Tuning in on Spooks and Revolutionary Device

NEW YORK.—Cosmo Hamilton, author and playwright, recently told a large audience at the National Democratic club that Radio is a growing menace to the theater and that the future of the stage is in the home.

He predicted that in the near future plays, as well as books, would be written especially for Radio, and that families would listen in on their favorite play while lounging comfortably.

To meet this demand and development of Radio, he asserted that the technique of the stage as well as that of playwriting would have to be revised, and actors educated to speak for Radio audiences alone, so that each word will receive full value.

With the playwright it will be a process of elimination, he said, plays being boiled down to one act, with one strong moment, and all unnecessary characters, like lawyers and mothers-in-law, left out. The programs of entertainment now offered, he said, were infantile.

Talks of Spooks and Future

He prophesied that within five years listeners could tune in on what he termed the fourth dominion, and listen in not only to Caruso, but to Mozart, and perhaps hear a new opera by Puccini—"these so-called dead men."

Radio is going to solve the problem of life after death, and the fear of death will go, he predicted.

During the course of his talk on the progress of Radio, Mr. Hamilton intimated that he had just learned of a newly invented Radio, the secret of which he said was locked up in a safe and he could not divulge, that would bring the entire world to the Radiophans in New York.

UNIFORMITY VITAL IN TRANSFORMERS

Experienced set-builders agree that the trouble with most makes of transformers is lack of uniformity. Thordarson are the exception—they run absolutely alike, absolutely uniform; always "match up" perfectly, always amplify evenly over the entire musical scale. That is one of the big reasons why leading makers use more Thordarson than all competitive transformers combined. Partial list below:

- KENNEDY**
- Radiodyne**
- THERMODYNE**
- ULTRADYNE**
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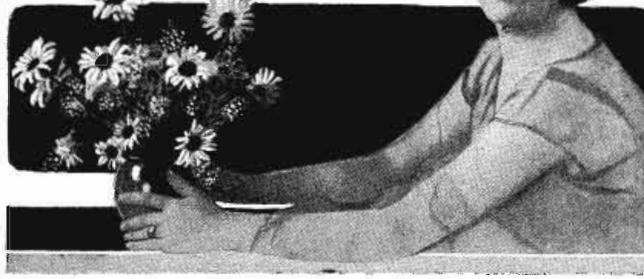


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LEAD OF KOA PLAYERS "MASHED"

Study of Iris Ruth Favey, popular director of KOA dramatic players at Denver, who is the recipient of many mash notes from the latest broadcast pests, the "Radio Johnnies."



York. The invention was so amazing, he stated, that a person at the South Pole would be heard as distinctly as Premier Mussolini speaking in Rome.

A new Toronto, Canada, station is CKCL, operated by the Dominion Battery company. Its wave length is 356.9 meters and its power 500 watts.

First Commencement KSAC "Air College"

Thousands Expected to Attend "Last Day" Exercises

MANHATTAN, Kan.—Eighteen hundred "Aggies of the Air" students enrolled in the courses conducted by Radio during the last seven months by the extension division of the Kansas State Agricultural college will receive invitations this week to attend the first Radio commencement in history. April 17 is the date set for the event.

"College of the Air" students will themselves participate in the "last day" exercises presented from Station KSAC for those members granted certificates in absentia. The program will be given during the afternoon in order that rural schools may tune in.

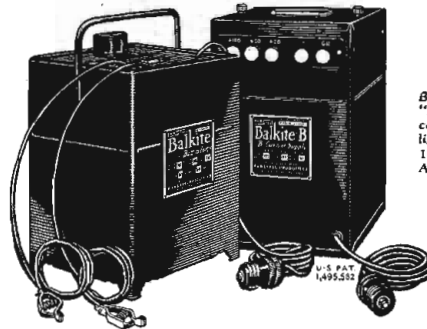
The College of the Air, an innovation in educational work, has been popular. Enrollments in the various courses in general science, agriculture, engineering and home economics total almost 20,000. Printed lectures are sent students the day they are broadcast and examinations given at the end of each eight weeks' period.

Station WOCL Heard in England

JAMESTOWN, N. Y.—Station WOCL, operating on but 15 watts, is being heard in thirty-eight of the United States and has a report of reception in England.

Balkite Battery Charger, Charges 6 volt "A" storage batteries.

Price \$19.50
West of Rockies \$20
In Canada \$27.50



Balkite "B"—replaces "B" batteries and dry cells. Operates from light socket, 60 cycle 110-120 A. C. current. Also 50 cycle model.

Price \$55
In Canada \$75

A uniform, constant power supply for both "A" and "B" circuits

Here at last is a convenient and unailing power supply for your radio set. Balkite Radio Power Units furnish constant uniform voltage to both circuits, and will give your radio set greater clarity, power and range. The Balkite Battery Charger keeps your "A" storage battery charged. Balkite "B" replaces "B" batteries entirely and supplies plate current from the light socket.

Based on the same principle, both the Balkite Battery Charger and Balkite "B" are entirely noiseless. They have no bulbs or moving parts, and nothing to break, adjust or get out of order. They have a very low current consumption, are simple and efficient in operation, and can be put in use at any time by merely connecting to a light socket. Both are guaranteed to give satisfaction.

Sold by leading radio dealers everywhere

FANSTEEL Radio
Balkite Power Units

BALKITE BATTERY CHARGER — BALKITE "B" PLATE CURRENT SUPPLY

Manufactured by FANSTEEL PRODUCTS COMPANY, Inc., North Chicago, Illinois

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

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

The Set With the Air Telephone Directory



With every automatic telephone comes a directory in which is printed a number for every subscriber. You simply ring the number by turning the dial, take off the receiver and listen in.

With every Day-Fan set comes an air telephone directory in which is printed a number for every broadcasting station. Simply set the dials on this number, pull the switch, and listen in.

CAN YOU imagine a telephone without a Directory or an Information Operator? Just think what hopeless confusion would result.

Yet this is exactly the condition which existed in the radio field until Day-Fan was developed. Then the public was given a radio set with a complete air directory.

The Day-Fan Instruction Book carries a list of the dial settings for every important station in the county—every time—everywhere—regardless of what antenna you use.

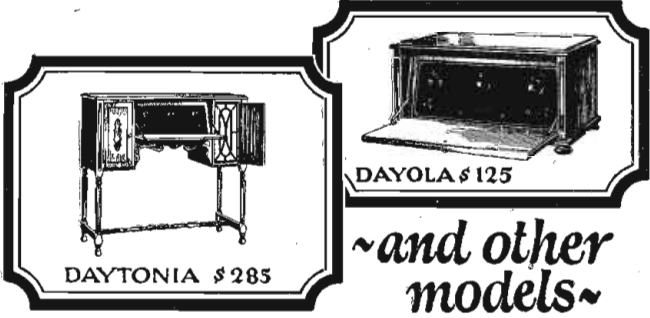
It is just as easy as using a telephone. And Selectivity!

The Day-Fan Selector is another point your customer will appreciate. It can be varied at will from broad tuning to extreme sharpness.

Even a superficial examination will convince you that Day-Fan is a year ahead in radio.

THE DAYTON FAN & MOTOR COMPANY Dayton, Ohio

For 36 Years Manufacturers of High-Grade Electrical Apparatus



~and other models~

Instructions for Use—All the hours above are given in Eastern Standard Time. If your city uses Central Time, subtract one hour from each of the periods stated; if your city uses Mountain Time, subtract two hours; if your city uses Pacific Time, subtract three hours. This table includes only the evening and, on Sunday, the late afternoon programs.

RADIO ARTISTS MEET TO DISCUSS PROBLEMS

Association to Investigate Various Stations' Standards

NEW YORK.—At a meeting of Radio entertainers held recently under the auspices of the Radio Artists' association of America, a resolution was adopted requesting that the various broadcasting stations give the association the standards which they use in obtaining entertainers for broadcasting.

The resolution said that the association wished to cooperate with the stations in arranging standards which Radio enter-

tainers must live up to before they are permitted to go on the air.

At the meeting it developed that one of the principal purposes of the association, which has branches in Chicago, Boston and Cleveland, is to secure payment for Radio artists.

Establish New Grade License WASHINGTON, D. C. — The government has established a new class of license, the "Broadcasting Station Operator's License," which will be valid only for the operation of broadcasting stations. The authorities announce that operators now holding Commercial Extra, First Class, First Class or Second Class licenses, will be permitted to operate broadcasting stations as at present.

Day-Fan RADIO A YEAR AHEAD

MERRY OLD CHIEF AT WLS SATURDAY

Saturday, April 11

Eastern Time Stations

The following schedules of programs are given in Eastern time. To change to Central time, subtract one hour; Mountain time, subtract two hours; Pacific time, subtract three hours.

Saturday, silent night for: AT9, CFAC, CFCA, CHIC, KFAB, KFAE, KFDK, KFKU, KFKX, KFRK, KJR, KKL, KOB, WBAF, WBAV, WCAU, WCBQ, WDFW, WDAQ, WEAR, WEI, WERW, WEI, WEMC, WGST, WHAD, WHAZ, WHB, WHO, WJY, WKAB, WMAK, WDAI, WOI, WOO, WORO, WGS, WSAC, WWJ.

CHNC, Toronto, Can. (356.9), 9-11 p. m., Charles E. Doolley and his orchestra; Bert Patch, reader.

CKAC, Montreal, Can. (419.7), 7-30 p. m., Windsor hotel dinner concert; 8-30, Easter program; 10-30, Windsor hotel dance orchestra.

CNRD, Ottawa, Can. (434.3), 8 p. m., James McLaurie and his Chateau Laurier concert orchestra; Ottawa male quartet; Helen Lamont, contralto; Hawaiian selections; Al Nani, Howard Olmsted, bass; Alan Carr, tenor; Graham Brown, bass.

KDKA, Pittsburgh, Pa. (304.1), 6 p. m., Westinghouse band; 7-55, last minute helps to Bible school teacher, Carman Cover Johnson; 8, Senior meeting of the Pittsburgh Sun Radio Society club; 8-55, Westinghouse employee band; Rhenaida W. Burnett, contralto.

PWX, Havana, Cuba (400), 8-30 p. m., concert; Faustos Torres, tenor.

WABG, Richmond Hill, N. Y. (315.6), 12-2 a. m., special program. Glen C. Smith's Paramount orchestra.

WBSS, New York, N. Y. (272.6), 8 p. m., Dr. Hans Haag, violinist; 8-15, Bible questions and answers; 8-45, Dr. Hans Haag, violinist.

WCAE, Pittsburgh, Pa. (461.5), 6-30 p. m., dinner concert.

Vladimir Rassooukhine, pianist, will play Tuesday, April 14, at WGO, the General Electric station at Oakland, Calif.

WJZ, New York, N. Y. (454.3), 7-8 p. m., Freddie Rich and Hotel Astor orchestra; 8-8-30, Savate and horn ensemble; 8-30-8-40, "Winter Festivals of Songs," Mr. A. B. Skinner; 8-45-9, William Orton Bell, tenor; 9-9-15, Maria Carreras, pianist; 10-30-11-30, Joseph Kismet's Waldorf-Astoria dance orchestra.

WLIT, Philadelphia, Pa. (304.5), 4-30 p. m., dance orchestra; 7-30, Arcadia cafe concert orchestra.

WOO, Philadelphia, Pa. (508.2), 4:45 p. m., organ recital, Mary E. Vogt.

WOR, Newark, N. J. (405.2), 8-8-10 p. m., travel talk, "Bermuda," J. A. Wales; 8-15-8-30, Madlen Hauff, soprano; 8-45-9, Madlen Hauff; 9-9-10, Kathleen Norris, writer; 9-15-10, Thomas Jefferson memorial program; 10-11, state program; 11-12, Ciro's orchestra.

Falconer; 9, Maria Carreras, pianist; 9-30, "Interfering Waves and What They Mean," M. S. Strook; 10, Vincent Lopez Hotel Mayflower orchestra; 10-30, Crandall's Saturday Nighters, Metropolitan symphony orchestra; 12, Sidney Seidenman's Colonial room orchestra.

WREO, Lansing, Mich. (285.5), Frank Logan and his Arcadia ballroom orchestra.

WTAM, Cleveland, Ohio (389.4), 5-7 p. m., concert; 8-9, Carl Rupp entertainers; 9-12, Ev Jones WTAM dance orchestra; 12-1, Sunday dedication of new studio, nine cars on Lake Erie.

WWJ, Detroit, Mich. (352.7), 3 p. m., Detroit News orchestra.

Central Time Stations

The following schedules of programs are given in Central time. To change to Eastern time, add one hour; Mountain time, subtract one hour; Pacific time, subtract two hours.

KFNF, Shenandoah, Iowa (268), 6-30 p. m., Day's old time orchestra; 8-30, concert from Howe.

KFRU, Bristol, Okla. (384.5), 7-30-8 p. m., Sunday school lesson, Dr. Thomas Murray; 9-12, East Central Teachers' college.

KSO, St. Louis, Mo. (545.1), 7 p. m., dance music. City club; 10-30, Elva Magnus, soprano.

KTHS, Hot Springs National Park, Ark. (374.8), 8-30-9-15 p. m., Charles McGill, Louis Davis, Lillian Ross.

KYW, Chicago, Ill. (535.4), 7-7-30 p. m., Congress hotel; 8-8-58, Merle Walker, soprano; Luther Carter, tenor; E. Richardson Smith, reader; Stephen B. Heather; Mae & Gross Jubilee Gospel singers; 9-45-11-30, Congress classic; 12-1 a. m., Congress carnival; 1-2, Congress club.

WQAL, Burnfield, Minn. (336.8), 12 midnight, musicale.

WGO, Minneapolis, St. Paul, Minn. (416.4), 6 p. m., dinner concert. Community Amusement association; 8-10, "China," C. A. Bauer; 8-30, Swedish male chorus; 10, Joe Peters St. Paul Athletic club orchestra.



Stuart Paton, well-known author and director of motion pictures, gives weekly talks at KHX, Hollywood, on how the screen drama is made from type-writer to projector. The young scenario writer will find these talks very profitable, indeed.

concert, William Penn hotel; 8, current motor topics; 8-30, Chiffon family quartet.

WXC, Detroit, Mich. (516.9), 6 p. m., dinner concert, Book-Cordell house.

WEAF, New York, N. Y. (491.5), 6-7 p. m., dinner music, Waldorf-Astoria hotel; 7-7-30, services, United Synagogue of Conservative Jews; 8-15, Bayard Rustin, soprano; 7-45-7-50, "Trips and Adventures," Fred J. Turner; 7-50-7-55, Fausto L. Todd, baritone; 7-55-8-15, Richard Franklin, pianist; 8-15-8-45, Bayard Rustin, soprano; 8-45-9, Vanston Lee, baritone; 9-45-10, concert, Waldorf-Astoria orchestra; 9-45-10-30, Carter program, Michel Corcuera, soprano; Georgia Chiles, contralto; Thomas McDaniel, tenor; Walter Kieselbach, baritone; 10-11-11, Pan-American trio; 11-12, Vincent Lopez and his orchestra.

WEAR, Cleveland, Ohio (389.4), 2:15-3 p. m., Allen theater orchestra; 3-30-5, Van Franckel and his Hotel Cleveland orchestra; 8-9, Boys choir, Church of Ascension, Lenox Phillips Wood, baritone; 8-10, radio house, Earth King.

WFI, Philadelphia, Pa. (384.5), 6 p. m., Ray Elzac and his dance orchestra; 8-30, Missor Davis Bellevue Stradford concert orchestra; 7, medicine stories.

WGBS, New York, N. Y. (315.6), 10-10-10-40 a. m., Eleanor Scherer's Kiddie Klub program; 10-40-10-50, Mmc. George, French fashion expert; 1-20-1-35 p. m., Scripture reading; 1-35-2-30, The Amphibians; 3-3-10, interview with Rose Peacock, motion picture editor of the Evening Journal; Teresa Rose, singer; 3-10-3-20, Jan Dunbar, tenor, accompanied by Ralph Phillips, pianist; 3-20-3-30, Spanish lessons, Professor Rene de Vazgar; 3-30-4-30, Jan Dunbar; 4-40-5-30, talk, Mrs. John Clapperton Kerr, president of Women's League for Protection of Livable Drive; 5-30-6, Jan Dunbar; 6-4-8, Uncle Cosmo; 7-30-7-30, Piccadilly Four, with Misses Hauser and Edwards; 7-30-8-15, Armand Vecey and his orchestra; 8-15-9, Music Week Borough Winery; 9-30-9, Samuel Shankman, pianist; 9-30-9-35, "Inside Movie Chats," Sam Costo; 9-45-10, Leona Oliver, contralto; 10-10-30, comedy, Paul Roberts; 10-30-11, Frances Hallyday and Fessie Allen, Canadian comedians; 11-12, popular Radio concert.

WGR, Buffalo, N. Y. (519), 2-30-4-30 p. m., Radio Deities, musical program, J. P. Quinn, director; 6-7-30, Hollywood string trio.

WHN, New York, N. Y. (361.2), 4:45-5-30 p. m., Broadway Melody Boys; 6-30-7, violin solo, Orest Velt; 7-7-30, Ballet Allegro orchestra; 7-30-7-35, health talk, Dr. Leland T. Jones; Hotel Carlton Terrace orchestra; 8-30-9, Strand Roof orchestra; 9-30, Northminster church service.

WIP, Philadelphia, Pa. (508.2), 3 p. m., Charles Maloy and his Collegians dance orchestra; 8-05, comedy, Charles Higgins and Billy McKee; 8-15, Charles Seneca's concert orchestra; 1, Duke Wip's bedtime stories; 8, Leland Meditations, E. A. E. Palmiter; 8-15, Tenfold male quartet; 9, Lenten program, Central Methodist Episcopal church; Caroline Hill, soprano; Paul Volkmann, tenor; Noble Hill, baritone; 10-05, Howard Leland's dance orchestra; 11-05, Earl Bonawitz, organist.

WIAR, Providence, R. I. (305.9), 1:05 p. m., studio program.

Headliners of the Week

WLS PLANS to be up late Saturday night and early Sunday morning celebrating its first anniversary. The real frolics will not begin until midnight and when they do the "Merry Old Chief" of WDAF will help the "Solemn Old Judge" entertain.

The Lost Angels of KHJ will find a paradise Sunday night when they take refuge on the Catalina Island. They will begin their broadcasting from this beautiful island of the Pacific at 11 p. m., via KHJ.

A novelty program put on by the Rensselaer High School students will be one of the features Monday at WHAZ, Troy. At 10 p. m., an original patriotic pageant will be staged by the Fort Crallo Post of the American Legion.

Tuesday night the opera "Carmen" will be broadcast through WEAF and the link stations WEEL, WFI, WCAE, WEAR, WGR and WWJ. Three stars well known in the opera world, Devora Nadworny, contralto; Giuseppe di Benedetto, tenor, and William Tucker, baritone, will sing the leading roles. The American Orchestral society will accompany. WLW presents this same evening Jean Frances Small, a talented young artist of 18.

She will play a Saint-Saens concerto. The Radio baseball season opens this week. Tuesday WDAF will begin by broadcasting all the baseball scores. The Cincinnati Reds and St. Louis Cardinals game will be given by WLW.

The Claremore Chamber of Commerce will take charge of the Wednesday program of KFRU. A military band will fill the ether with martial strains and Charles Alton will give some of his most popular readings. R. L. Rookoski and H. Clay Fisk will sing.

The Thursday program of WGST will be interesting to the musical and literary fans. Dr. J. B. Crenshaw will lecture on French and Italian music and as he is an authority on musical appreciation this should be very fine. S. W. Liverman will discuss "Fiction Writers of the South."

LeRoy H. Kelsey, who is often called the "Edgar A. Guest of Missouri," will read his own poems Friday at WOS. The Brunswick trio will visit WEAR tonight. Gertrude Lane, pianist, and Michael Burk, juvenile tenor, will also be guest artists on the program.

Mrs. Alice McLeod is a favorite with the little folks. She conducts the kiddies' hour on Sundays at WSUI, Iowa City.

WCEE, Elgin, Ill. (275), 7-8 p. m., WTAS orchestra; Morris; 9-30-12, WTAS orchestra, Frank Morris, Fanny and Eddie Cavanaugh.

WDAF, Kansas City, Mo. (385.6), 3-30-4-30 p. m., Radio orchestra; 6-7, address, Roger W. Babson; Trison ensemble; 11-45-1 a. m., Plantation players; Eddie Kuhn's Kansas City Athletic club orchestra; Johnnie Gunn, Kansas City club orchestra.

WEHN, Chicago, Ill. (370.2), 7-8 p. m., Oriole orchestra; Radio Sunday school lesson, Dr. Herbert W. Virgini; Dan Rustin, Ted Flottau; 9-10, Oriole orchestra; Marie Kelly, reader; Eleanor Gilmour, soprano; Pat Bannay; 11-15, Oriole orchestra; Louis Brothers; Marie Kelly, reader; Frank Sotirano, Kay Rosamby, Banks Kennedy, Ned and Charles, Ralph Snyder.

WFAA, Dallas, Tex. (475.9), 6-7 p. m., musical recital; 6-7, Henry Alder's orchestra; 8-30-9-30, Evelyn Finley, soprano; Mrs. Fred B. Ingram, pianist; 11-12, Adolphus hotel orchestra.

WGN, Chicago, Ill. (370.2), 6 p. m., organ recital, Wade & Hasler; 6-30-7, Drake concert ensemble, Brakstone string quintet; 8-9, Jazz hour; 10-11, Drake concert orchestra.

WNAS, Louisville, Ky. (399.8), 7-30-9 p. m., Sylvian trio; WHAS Stock company, Floyd Crutchfield, director.

WVAD, Waco, Texas (352.7), 10-30 p. m., special music.

WJID, Moneahart, Ill. (302.8), 6-30-7-15 p. m., Albert F. Brown, organist; 7-15-8, Moneahart theater orchestra; 10-30-1 a. m., concert, Gard and Leo; Charley Straight and his orchestra.

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

WLS, Chicago, Ill. (344.6), 7-30 p. m., barn dance, Our Harmony Girls; Glenn's Cornhuskers; 11-15, Senate theater review.

WLW, Cincinnati, Ohio (422.3), 8 p. m., dinner hour WLW courtesy of Cincinnati Post; E. D. Leonard, Lafayette.

WMAE, Chicago, Ill. (447.5), 6 p. m., program; 8, Russell Pratt, Fred Daw; 9-30, "The Holy Land," Dr. Burton M. Van Dornert; 9, Chicago theater.

WMC, Memphis, Tenn. (468.2), 8-30 p. m., Community food program.

WQAW, Omaha, Neb. (526), 6 p. m., dramatic hour, Doris Starke; 6-30-7, program, Walter B. Graham; 9-45, Stana Orson society; 11, Frank W. Hodes, r., and his Nightingale orchestra; 11-30, Arthur Hays organist.

WCC, Davenport, Iowa (483.6), 9 p. m., program, Davenport Lozozova vocalists; 11, Louis Connor and his LeClair hotel orchestra; Feta MacArthur, baritone.

WQJ, Chicago, Ill. (447.5), 3-4 p. m., coffee klatch; 7-8, Rainie Gordon orchestra; Alford Burdick, baritone; Margaret Snook, accompanist; Agatha Karlen, reader; Florence Orbein, pianist; 10-3 a. m., Harboe Skjalar; Henry Thermen, Joe Vargas, "The New Orleans Boys," Melodians, Laurie, Eddie and Benjie; Alfred Tweed, harmonica soloist; Clarence Thunders, tenor; Jerry Sullivan, writer; Harry Geiler; Betsy and Johnson.

WSB, Atlanta, Ga. (423.3), 6 p. m., Sunday school lesson, Dr. Marion McCall Hall; 8-9, concert from "Grassy Bover," Margaret Bailes Clark; 10-15, Journal hired boy program.

WTAS, Elgin, Ill. (302.8), 8-10-30 p. m., WTAS orchestra.

Mountain Time Stations

The following schedules of programs are given in Mountain time. To change to Eastern time, add two hours; Central time, add one hour.

WMBF, Miami Beach, Fla. (384.4), 10-2 a. m., Nautique Lucky Seven orchestra; Fleetwood hotel orchestra.

WNYC, New York, N. Y. (520), 8-30-7 p. m., Sam Wooding's Club Alabam orchestra; 7-45-8, Chateau Four; 8-8-10, talk by public officials; 8-15-8-30, comedy recital; 8-30-9, Police quartet; 9-15-10, orchestral feature; 10-10-10-20, travel talk, Board of Education.

WFS, Atlanta, City, N. J. (299.8), 9 p. m., Hotel Ambassador Kentucky serenaders; 10, Hotel Krieger-becker dance orchestra; 11, Hotel Traymore Paul Williams' dance orchestra.

WRC, Washington, D. C. (468.5), 7 p. m., dinner music, Irving Eisenberg's Hotel Washington orchestra; 8, hard ensemble, Scania, soloist; 8-30, talk on Bach; Dr. Otto Simon; 8-45, dialect stories, W. Alfred

(Continued on page 10)

NOVELTY PROGRAM AT WHAZ, TROY

Monday, April 13

(Continued from page 10)

WHB, Kansas City, Mo. (365.6), 7-8 p. m., "Cellar the Haces Together," Jacob L. Lorie; music, Young Men's Hebrew association, Young Women's Hebrew association.

WHO, Des Moines, Ia. (526), 7:30-8 p. m., Stewart Wilson, baritone; Helen Birmingham, accompanist; Leola Schaefer, whistler; Flossie McMurry, accompanist; 8-9, program, Dean Holmes Cooper, director; 11-12, L. Charles Malier, organist.

WIAD, Waco, Tex. (352.7), 8:30-10 p. m., Mart Baptist church choir.

WJLD, Meeseheart, Ill. (302.8), 8:30-7:15 p. m., Albert F. Brown, organist; 7:15-8, Mooncheater Novelty orchestra; "Child Care," M. P. Adams; 10:30-11 a. m., Grand studio; Charley Straight and his orchestra.

WLW, Cincinnati, Ohio (422.3), 4 p. m., recital, pupils of Helen Abernethy; 6, WLW dinner hour concert; 10, program, Oxford college glee club; Ethel Jobbins, director; 11, special dance program, Alvin Roebor's Music makers.

WMC, Memphis, Tenn. (409.7), 7:30 p. m., farm talk, W. W. Watson; 8:30, Hotel Gayoso orchestra.

WOAW, Omaha, Neb. (528), 6 p. m., Arthur Hays, organist; 6:30, music; 6:45, Gus Lucky Strike orchestra; 9, monthly father and son program; 9:30, Lambert's orchestra.

WOL, Ames, Ia. (272), 10 p. m., popular music.

WORD, Chicago, Ill. (275), 7-8 p. m., boys' and girls' hour with Uncle Sam; 8:10, Watchtower choral singing; Bible lecture, Calvin H. Swingle; Mrs. Roy Corlison, organist.

WOS, Jefferson City, Mo. (440.9), 8 p. m., "Training for Efficient Home Making," Ella Moore.

WRBC, Valparaiso, Ind. (312.3), 9 p. m., Easter cantata, Immanuel Lutheran choir.

WSAI, Cincinnati, Ohio (325.9), 10 p. m., Cliff Perkins and his orchestra.

WSB, Atlanta, Ga. (428.3), 5-6 p. m., Georgians orchestra; 8-9, Roy L. Matthews, soprano; 10:45, National entertainment.

WSU, Iowa City, Ia. (483.6), 7:30-7:45 p. m., "Modern Koolah," Fred Thompson, Knox Drug company; "Current Social and Economic Problems," Dale Yoder; 8, concert, music faculty.

WTAS, Elgin, Ill. (302.8), 8-10:30 p. m., Villa Otisla night program.

Mountain Time Stations

KOA, Denver, Colo. (322.4), 8 p. m., Fred Schmitt and his Rialto theater orchestra; 10 Shorter choir; Mr. and Mrs. Robert D. Kenworthy.

Tuesday, April 14

Tuesday, silent night for: **ATF, CECA, CHNC, CHIC, KFAC, KFBU, KFCK, KFNF, KJH, KKLX, KOA, KOD, WABC, WAGY, WAGL, WCAI, WED, WEAO, WEMC, WGST, WHAD, WHAZ, WHO, WJAO, WMAK, WOJ, WOO, WOS, WSAC, WSUI.**

Eastern Time Stations

CKAC, Montreal, Can. (410.9), 7:30 p. m., Wintono radio trio; 8:30, Frontiers Brovates entertainers; 10:30, Windsor hotel dance program; 11:45, Iroquois, Montreal radio club oriental room.

CRNA, Montreal, Can. (512.3), 7:30 p. m., musical program, students, Maritime universities; 8, Robert J. McCharles, Hawaiian guitarist; 9:30, CRNA orchestra.

Movie Broadcast: 10:30, Harvey Marburger's dance orchestra.

WJAR, Providence, R. I. (305.9), 8 p. m., studio program; 9, Ezeredy hour; 10, Goodrich Silvertown Cord orchestra.

WJY, New York, N. Y. (403.2), 8:30-8:45 p. m., W. James Work, baritone; 9-9:30, Trinity cathedral quartet; 10-10:10, "Basketball," George T. Hubbard.

WJZ, New York, N. Y. (454.3), 7-7:15 p. m., dog talk; Frank Dole; 7:15-8, Joseph Strisoff's Hotel Vanderbilt orchestra; 8:10-8:20, N. Y. U. Air college; 9-10, Brunswick hotel; 10-10:15, Over the Seven Seas—"Indie."

WKAQ, San Juan, P. R. (340.7), 8-9:30 p. m., WKAO orchestra.

WLIT, Philadelphia, Pa. (394.5), 4:30 p. m., Edna Schaeffer, soprano; Andrew M. Szang, violinist; Marcia North, accompanist; 7-8, Dream Dancer's bedtime stories.

WMBF, Miami Beach, Fla. (384.4), 10-2 a. m., Nautilus Light Seven orchestra; Fleetwood hotel orchestra.

WCCO, Minneapolis-St. Paul, Minn. (416.6), 6:15 p. m., Diley's St. Paul hotel concert orchestra; Philman Posters' quartet; 7:30, lecture; 8-10, program from New York.

WCEE, Elgin, Ill. (275), 7-8 p. m., WTAS orchestra; 10:30-12, WTAS orchestra; Frank Morris; Fanny and Boodle Carnahan.

WCAF, Kansas City, Mo. (365.6), 6-7 p. m., Tell-Me-A-Story Lady; Radio piano lesson, Meudellen Littlefield; Trilone ensemble; 11:45-1, Nighthawk night.

WEH, Chicago, Ill. (370.2), 7-8 p. m., Oriole orchestra; Dean Remick, pianist; Bifera theater; 9-10, Oriole orchestra; Dennis Sanders; Victor Young, violinist; songs, Frank Magini; Frank Finkle, accordionist; 11-12 Oriole orchestra; Dennis Sanders; Ted Florio, pianist; songs, Frank Magini; Jack Pennessel, guitarist; songs, Banks Knowles; feature, Biviera theater.

WESW, Berlin, Wis. (288), 8-9:30 p. m., Marlins, Morse band concert.

WFAA, Dallas, Tex. (475.9), 6:30-7:30 p. m., vesper recital; 8:30-9:30, recital, auspices Federation of Music clubs; 11-12, Dwight Brown, organist.

WGM, Chicago, Ill. (370.2), 8 p. m., organ recital, Lyon & Healy; 8:30-7, Drake concert ensemble, Blackstone string quartet; 8-9, special program; 10-11, Drake dance orchestra.

WHAS, Louisville, Ky. (399.8), 4-5 p. m., Louisville Conservatory of Music; Alamo organ; 7:30-9, Eddie Ross and his orchestra.

WHB, Kansas City, Mo. (365.6), 8-10:30 p. m., Kansas City Dental college orchestra.

WHO, Des Moines, Ia. (526), 7:30-8 p. m., musical program; 11-12, dance program.

WJLD, Meeseheart, Ill. (302.8), 6:30-7:15 p. m., Albert F. Brown, organist; 7:15-8, Mooncheater concert band; "Child Care," M. P. Adams; 10:30-11 a. m., Grand studio; Charley Straight and his orchestra.

WLBL, Stevens Point, Wis. (278), 8 p. m., Stevens Point Chamber of Commerce.

WLW, Cincinnati, Ohio (422.3), 4 p. m., piano recital, pupils of Leo Stroffgen and Wm. Lyric; 6, state museum concert; 8, the famous Lyric male quartet;



See Lawhnert, a brilliant and popular young pianist, is a member of Roxy's gang and may be heard on Sundays through the many stations linked up with WFAF, New York. Elizabeth Moore (above) is a soprano who has sung several times at WHAS, Louisville. She will appear again Wednesday, April 15.

Louis Oulp is the concert pianist of the Meyer-Davis orchestra. He will appear as the chief artist on the Tuesday, April 14, program of KFHS, Hot Springs National Park. Jean Weiner (above), organist, plays favorite selections for the fans who dial for WFG, Atlantic City.



KOB, State College, N. M. (348.6), 7:30-8:30 p. m., "The Medicine of the Old World," Dr. R. E. McBride.

Pacific Time Stations

KFAE, Pullman, Wash. (348.6), 7:30 p. m., Ruth Farnham, pianist; Kathie Aucutt, soloist; Ida Louise Anderson, pianologist; humorous readings, Ida Anderson; "The Summer School," Dean A. A. Cleveland; "Farming and Weekly Newspaper," Lincoln Lombardy; "The New Course in Agricultural Business," Dean E. C. Johnson.

KFF, Los Angeles, Calif. (469.3), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, radiotele talk; 7-8, Evening Herald Radiolians dance orchestra; Charlie Nathan, tenor; 8-9, program, Red Drug company; 9-10, program, Walter A. Murphy Motors company; Los Angeles string quartet, Virginia Fibbit, soprano; 10-11, Roy Nevin and his symphonies.

KFOA, Seattle, Wash. (454.3), 6-6:45 p. m., Olympic hotel concert orchestra; 6:45-8:15, Sherman, Clay & company program; 8:30-10, Seattle Times dance music.

KFWB, Hollywood, Calif. (232), 7:45-9 p. m., program, John A. Evans corporation, Bourn's orchestra and Central male quartet; 9:15, Check-Nal Coffee company program, Maxwell House coffee string quartet, Emoryette trio, Bill Moulton and his Hollywood players; 10-11, Varney Brothers studio hour under direction of Harry Seymour; 11-11 a. m., Brandstater's Hollywood Montecarlo cafe dance orchestra; Mel Potosky, leader.

KGO, Oakland, Calif. (581), 4-5:30 p. m., Henry Hasted's dance orchestra; 8, Arion trio; "Soul Classification and Mapping," C. F. Shaw; "A Lesson in English," Wilda Wilson Church; "Secrets of Personality," Albertine Richards Nash; "Chats about New Books," Joseph Henry Jackson; 10-11, Henry Hasted's orchestra.

KGW, Portland, Ore. (491.5), 5 p. m., children's program; 6, dinner concert, William Robinson Boone, organist.

KJH, Los Angeles, Calif. (405.7), 8-9:30 p. m., a special party on the Sandman, "An Evening of Fantasy."

KJR, Seattle, Wash. (384.4), 6-6:50 p. m., "What's Doing at the Theaters," 8:30-9, Gordon Kilbourne and his orchestra; 10-11, Post-Intelligencer studio program.

KLX, Oakland, Calif. (509.2), 8-9:30 p. m., educational program; 9:30-10, American theater orchestra; 10, Lake Alletta Duchs.

KNX, Hollywood, Calif. (336.9), 5:45-6:15 p. m., Warner Bros. radio studio, spots talk by Sid Ziff; 6:15-7, dinner hour music; 8-10, program, Western Auto Supply company; 10-11, Goodrich Silvertown Cord orchestra; Lilyan May Challenger, contra-contralto; 11-12, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel.

KPD, San Francisco, Calif. (426.5), 6:30-7 p. m., Sixtes Restaurant orchestra; 7-7:30, Rudy Selzer's Palmport hotel orchestra; 8-8:30, Harry Marburger's dance orchestra; 8-9, Theodore J. Irwin, organist; 9-10, program, John Hartigan, manager; 10-11, Johnny Buick's Amphibians.

KOKA, Pittsburgh, Pa. (309.1), 6:15 p. m., Pittsburgh Athletic association orchestra; 7:30, Lady Mather Gnosse Village; 8:30, Pittsburgh Advertising club; 9, Brunswick hour of music; 11, Pittsburgh Post studio; 11:30, Grand theater.

WCAE, Pittsburgh, Pa. (461.6), 6:30 p. m., dinner concert, William Penn hotel; 8, program from New York; 8:30, Gold Dust Twins; 9, Ezeredy hour; 10, Goodrich Silvertown Cord orchestra.

WDAU, Philadelphia, Pa. (278), 8 p. m., Meyer Davis WDAU Pennsylvania dance orchestra; 7:30 recital, N. Shellenberg and company, building and loan talk; 10:30, Charles Verma's dance orchestra.

WCK, Detroit, Mich. (518.5), 6 p. m., dinner concert, Book-Cadillac hotel; 10, The Red Apple club.

WDFW, Providence, R. I. (440.9), 8-9:30 p. m., Vincent Lopez Arcadia dance orchestra.

WEAF, New York, N. Y. (491.5), 6-7 p. m., dinner music from Waldorf concert orchestra; 7-7:15, Mary Mayo, soprano; 7:15-7:25, art talk, American Federation of Art; 7:30-8, Eagle Neurotome trio; 8-8:10, talk, Bank of America; 8:30-9, Gold Dust Twins; 9-10, Ezeredy hour; 10-11, grand opera, "Carmen," Devora Nadworny, contralto; Giuseppe Di Benedetto, tenor; William Tucker, baritone.

WEAR, Cleveland, Ohio (389.4), 7-8 p. m., Vincent B. Percy organist; 8-11, program WEAF.

WEEI, Boston, Mass. (475.9), 6:30 p. m., Big Brother club; 7:15, historical talk; 8, music from New York; 8:30, Gold Dust Twins; 9, Ezeredy hour; 10, Goodrich Silvertown Cord orchestra.

WFI, Philadelphia, Pa. (394.5), 6:30 p. m., Meyer Davis Bellevue Stratford concert orchestra; 7, bedtime stories; 8, concert from WEAF; 8:30, Gold Dust Twins; 9, Ezeredy hour; 10, dance music.

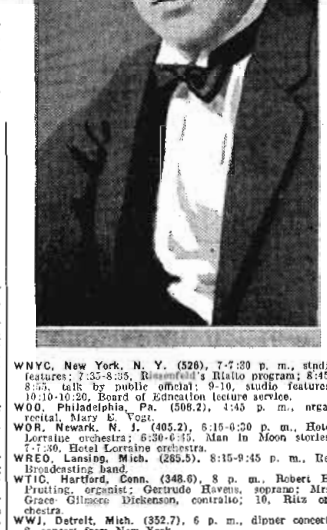
WGES, New York, N. Y. (315.5), 6-6:30 p. m., Uncle Gusbee; 6:30-7, Jersey collegians; 7-7:10, "Don'ts to Drivers," William J. Carroll; 7:30-8, "Rise of the Motor or Nervousness," Washington Square Players; 8-8:30, recital, Edwin Beechin; 8:30-8:45, world peace talk, Das Gupta; 9-9:30, Belle Baetz talk at Town Hall; 9:30-9:45, program, Gerald Finkens; 9:45-10:15, vocal duets, Barr Shivers with Evelyn Smith; 10:15-10:30, original composition, Kenneth Burdick.

WGR, Buffalo, N. Y. (319), 6-7:30 p. m., Elliptical string trio; 8-11, musical programs jointly with WBEA, including Gold Dust Twins and Lady May.

WGV, Schenectady, N. Y. (378.5), 6:30 p. m., dinner music; New Kenmore hotel orchestra; 7:30, "Working Day," the thousand College, Esther Ely; 7:40, Bessie Tom orchestra; 9, Brunswick hour of music; 10, music, Holy Cross dance; 12, Stephen E. Belcher, organist.

WHN, New York, N. Y. (351.2), 8:30-7 p. m., Strand Roof orchestra; 7-7:30, Wigwag club orchestra; 7:30-7:35, double talk, Dr. Landis; 7:35-8:35, Will Oakland's Chalkline Shanties; 10-10:30, Mel Craig's Hotel St. George orchestra; 11-10:12, Club Alabam orchestra; 11:25-12:30 a. m., Parade club revue.

WIP, Philadelphia, Pa. (508.2), 4:30 p. m., talk, auspices Board of Education; 6:45, baseball talk, Monte Cow; 6:55, Harvey Marburger's dance orchestra; 7, Uncle Vija's bedtime stories; 8, Philadelphia Police band; 9, Arion male quartet; 10:05, "Smo's Weekly



WNVC, New York, N. Y. (526), 7-7:30 p. m., studio feature; 7:35-8:35, Rosamond's Rialto program; 8:45-8:55, talk by public official; 9-10, studio features; 10-10:20, Board of Education lecture service.

WOO, Philadelphia, Pa. (508.2), 1:45 p. m., organ recital, Mary E. Vogt.

WOR, Newark, N. J. (405.2), 6:15-6:30 p. m., Hotel Lorraine orchestra; 6:30-6:45, Man in Moon stories; 7-7:30, Hotel Lorraine orchestra.

WROE, Lansing, Mich. (285.5), 8:15-9:45 p. m., Ito Broadcasting band.

WTD, Hartford, Conn. (348.6), 8 p. m., Robert H. White, organist; Gertrude Haven, soprano; Mrs. Grace Gilmanne Dickenson, contralto; 10, Rita orchestra.

WWJ, Detroit, Mich. (352.7), 6 p. m., dinner concert; 8, concert from New York.

8:15, special feature; Jean Frances Small, pianist; 9, program, the Fortin concert orchestra; songs, Louise Meyer; Mark Kahle, Josephine Stentzel, piano; 10:30, WMAB, Chicago, Ill. (407.5), 6 p. m., Chicago theater organ; 6:35, Hotel Labelle orchestra; 6:50, daddo; 8, Hagan Hagan, literary society; 8:30, Chris E. Langhille, travel talk; 8:30, lecture; 8:50, Association of Commerce talk; 9:15, musical program, American Legion.

WMC, Memphis, Tenn. (409.7), 8 p. m., health talk, Dr. E. E. Francis; 8:30, Hull-Dobbs company; 11, midnight frolic, Musicians union.

WMA, Omaha, Neb. (526), 9:30 p. m., to be announced; 6:15, Randall's Royal Pontenille orchestra; 9, May Seed and Nursery company; 10:30, Frank W. Hodes, Jr., and his Nighthawk orchestra.

WDC, Davenport, Iowa (483.6), 8-10 p. m., sandman's talk; 7:30, music from New York.

WORD, Chicago, Ill. (275), 8-10 p. m., world news items; G. L. Pylo; musical program, Hammond Musical college.

WQJ, Chicago, Ill. (447.3), 7-8 p. m., Ralston Garden orchestra; Isabelle Freeman, soprano; Loretta Streak, contralto; Ellen Doolittle, pianist; Marie Lenters, reader; 10-11, Rainbo Sixtars; Tommy Jackson, harmonica player; Ned and Gene, harmony singers; Will Rossler; Marie Sisters; 1, Hussy Topsy hour.

WSAI, Cincinnati, Ohio (325.9), 7 p. m., Hotel Gibson orchestra; 8, program from New York.

WSB, Atlanta, Ga. (428.3), 8 p. m., Guzmanston Mariaba band; 10:30, sacred Heart church choir.

WTAS, Elgin, Ill. (302.8), 8-10:30 p. m., WTAS orchestra; 10:30, musical features.

Mountain Time Stations

KNRR, Regina, Can. (312.3), 8 p. m., Ted Franklin concert party.

KOB, Denver, Colo. (322.4), 6-6:30 p. m., dinner music; 8:12, Joe Mann and his Rainbow-Lane orchestra; George Roy's Lakeside orchestra.

Pacific Time Stations

KFI, Los Angeles, Calif. (469.3), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, Radiolians talk; 7-8, program, Hilly Bros. with Hilly Bros. dinner dance orchestra; 8:00, Kammann's Ray and Gene Alex and Alexina's dance orchestra; 9-9:30, Frederick Heranson, basso-cantante, Carl Lubertski, colt; 9:30-10, one set play by Bohm Players, and Gene Ernest White; 10-11, Don Many night presenting many famous personalities of stage and screen.

KFOA, Seattle, Wash. (454.3), 6-6:45 p. m., Olympic hotel concert orchestra; 6:45-8:15, Sherman's Department store program; 8:30-10, Seattle Times studio program; 10:30-11:30, Eddie Harlow and his orchestra.

KFWB, Hollywood, Calif. (232), 7:45-9, program, L. M. Bell, vocal company; Lily Lovis, tenor; Emoryette trio; 8, original Hollywood Californians dance orchestra; 10-11, Hilly Bros. dinner dance orchestra; 11-12 a. m., Brandstater's Hollywood Montecarlo cafe dance orchestra, Mel Potosky, leader.

KGO, Oakland, Calif. (581), 4-5:30 p. m., concert orchestra, Hotel St. Francis; S. Dominick college; Feather River Inn orchestra; Albert Groegren, baritone.

(Continued on page 12)

"CARMEL" BROADCAST TUESDAY B

Index to Popular Concerts

TABULATED below is a time table of the stations giving popular concerts this week. Stations are divided into the four different standard times in use. The hours are given in the kind of time in use at each listed station. By using this table as an index and referring to the complete programs below, full information will be obtained.

Popular

Eastern Time Stations

Saturday, April 11: 6:30, WGBS; 7:30, CKAC; 8:30, WKAC; 9:30, WBBZ; 10:30, WGBS; 10:45, WBZ; 10:55, WEAF; 11, WGBS; 12, WAHG.

Sunday, April 12: 7:20, WBAF; WEEL; WWJ; 8, WOR; 10, WHN; 12, WAHG.

Monday, April 13: 6:30, WGY; 7:30, WEEL; Jennings; Foxes; tenor; 8:30, WOR; 9, WAHG; WEAF; WEEL; 9:30, WAHG; 10, WEAF; WJZ; 10:05, WAHG; 11:30, WMAK; 12, WAHG.

Tuesday, April 14: 6:30, WGBS; 7:30, WEAF; WGBS; 8:30, CKAC; WEAF; WEEL; 9, WEAF; WEEL; WEEL; WFPI; 10, WGR; 11:45, CKAC.

Wednesday, April 15: 6, WCAU; 7, WEAF; 7:30, WAHG; 9:30, WAHG; 11, WAHG.

Thursday, April 16: 7:15, WEEL; 8:30, CKAC; 9, KDKA; 9:30, WHN; 10:30, WMAK.

Friday, April 17: 8, WEAF; 8:30, WAHG; 8:40, WGY; WJZ; 9, WEAF; 10, WEAF.

Central Time Stations

Saturday, April 11: 7:20, WLS; 8, WGN; WMAQ; WSB; 9, WEBB; 9:45, WOAW; 10, WEBB; WQJ; 10:45, WEBB; 11, WEBB; WQJ; 11:15, WSB; 11:45, WDAF; 12, KYW; WEBB; WBLB; WQJ; 1, KYW, WQJ.

Sunday, April 12: 8, WBBM; 11, WBAP; 12, WJJD; 1, WJJD.

Monday, April 13: 6:45, WOAW; 7:30, KFAB; 8:30, KFAB; 9:30, FBAP; 10, KFAC; WQJ; 10:45, WSB; 11:45, WQJ; 11:45, WDAF.

Tuesday, April 14: 6, WLW; 7:30, WBAF; WHO; 9, WEBB; WOAW; 10, WEBB; WGN; WQJ; 11, WEBB; WQJ; 11:30, WJJD; WMC; 11:45, WDAF; 12, WQJ; 1, WQJ.

Wednesday, April 15: 6, WCCO; 7:30, KFAB; WEAF; 8, WGN; 8:30, KFAB; KTHS; 9, WEBB; 10, WEBB; WGN; WQJ; 11, WEBB; WQJ; WSAI; 11:30, WJJD; 11:45, WDAF; 12, WQJ; 1, WQJ.

Thursday, April 16: 6, WCCO; 8, WHS; 9, WEBB; WHB; 10, WQJ; 11, WEBB; WQJ; 11:45, WDAF; 12, WQJ; 1, WQJ.

Friday, April 17: 7, WHB; 8, WDAF; 8:30, KTHS; WHB; 9, KFAB; WCCO; WEBB; 10, WEBB; WQJ; 11, KFUR; WEBB; WMC; WQJ; 11:30, WJJD; 11:45, WDAF; 12, WQJ; 12:30, KFUR; 1, WQJ.

Mountain Time Stations

Monday, April 13: 8, CFAC, KOA.

Tuesday, April 14: 6, KOA.

Wednesday, April 15: 8, KOA.

Friday, April 17: 8, KOA; 8:30, CNRE.

Pacific Time Stations

Saturday, April 11: 8, KHJ; 9, KFWB; 10, KFI, KFWE; 11, KHJ; KNX; 11:30, KHJ; 12, KHJ; 1, KHJ.

Sunday, April 12: 7, KFI; 7:45, KFWE; 9, KFWE, KNX.

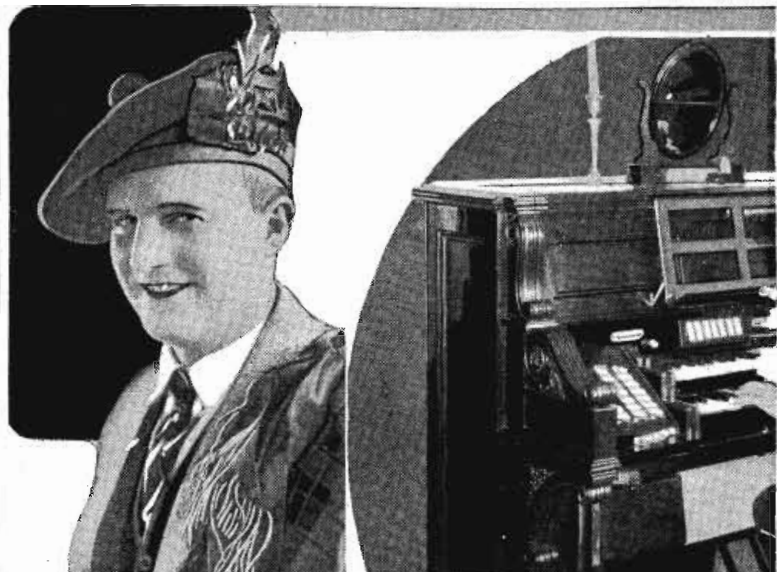
Monday, April 13: 7:30, KPO; 7:45, KFWE; 8, KNX; 9, KFI, KFWE; 10, KFWE, KNX.

Tuesday, April 14: 7:30, KHJ; 7:45, KFWE; 8, KFI, KHJ, KNX; 9, KFWE, KNX; 10, KFWE, KNX; 11, KFI.

Wednesday, April 15: 7:45, KFWE; 8:30, KPOA; 9, KFI, KFWE, KPO; 9:30, KHJ; 10, KFI, KFWE.

Thursday, April 16: 7, KFWE; 8, KFI, KFWE; 9, KFI, KFWE, KNX; 10:30, KJR; 11, KNX; 11:30, KJR.

Friday, April 17: 7:45, KFWE; 9, KFWE, KNX; 10, KFWE; 10:30, KGW.



7-7:30, Congress hotel dinner concert; 7:45, "Entertaining Plans"; Vivette Gorman; 8-8:30, musical, Sapphire Ladies' quartet; 8:30, stage review; 8:45-9, musical program; 9:45-11 a. m., midnight jazz.

Here is Hook Kennedy (left), a popular character comedian of Washington, D. C., in the role of bright young Scotch lad of 20. Mr. Kennedy is a favorite artist at WCCO, Erwin P. Swindell, musical director of WOC, Davenport, Iowa, also plays the pipe organ several evenings during the week. He often plays his own compositions. Florence Flintfield, although a very young artist of only 12 years, has distinguished herself as a dramatic reader. Her next appearance is scheduled for April 15 at WQJ, Chicago.

Tuesday, April 14

(Continued from page 11)

W. J. Los Angeles, Calif. (422.5), 8 p. m., States Restaurant orchestra; 7:30, Rudy Selzer's Fairmont hotel orchestra; 8:10, Wiley B. Allen company; 10:11, Johnny Dinck's Amphitans.

Traveler Shoe orchestra; 8:30, M. B. Cohan's half hour musical; 9, Gillette Safety Razor Co. orchestra; 10, Dok-Eisenberg and his Sinfonians.

Wednesday, April 15

W. J. Los Angeles, Calif. (422.5), 8 p. m., States Restaurant orchestra; 7:30, Rudy Selzer's Fairmont hotel orchestra; 8:10, Wiley B. Allen company; 10:11, Johnny Dinck's Amphitans.

W. J. Los Angeles, Calif. (422.5), 8 p. m., States Restaurant orchestra; 7:30, Rudy Selzer's Fairmont hotel orchestra; 8:10, Wiley B. Allen company; 10:11, Johnny Dinck's Amphitans.

W. J. Los Angeles, Calif. (422.5), 8 p. m., States Restaurant orchestra; 7:30, Rudy Selzer's Fairmont hotel orchestra; 8:10, Wiley B. Allen company; 10:11, Johnny Dinck's Amphitans.

W. J. Los Angeles, Calif. (422.5), 8 p. m., States Restaurant orchestra; 7:30, Rudy Selzer's Fairmont hotel orchestra; 8:10, Wiley B. Allen company; 10:11, Johnny Dinck's Amphitans.

Thursday, April 16

W. J. Los Angeles, Calif. (422.5), 8 p. m., States Restaurant orchestra; 7:30, Rudy Selzer's Fairmont hotel orchestra; 8:10, Wiley B. Allen company; 10:11, Johnny Dinck's Amphitans.

Y WEAFF THROUGH LINK STATIONS



selections. A. Leslie Garside; R. Paul; Frank Wright's Country club dance orchestra.

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Time)
April 11: 8.
Wb. Wbaf.
Jan. Wof.
9:30. Wf.
Kfwb. 10.
Waf. Wg.
Wof. Wro.
11. Waf.
Wb. Wf.
Woc. Wof.
Wd. 12.
Kf. Kf.
Wbl. 13.
April 13: 8.
8:30. Wb.
10. Wf.
Wb. Waf.
Wof. 9:45.
Wf. Wg.
11. Wf.
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WEAF, New York, N. Y. (481.5), 6-7 p. m., dinner music; Waldorf-Astoria hotel; 7:30, services, New York Federation of churches; 7:30-10, William L. Gungor, baritone, accompanied by William T. Barry; 7:30-8, Columbia University lecture course; 8-8:30, Cushman's seminar; 8:30-9, "Touring in a Packard Eight"; George Elliott Colver; 9:10, Atwater Kent Radio artists; 10-11, Silvertown Cord orchestra; 11-12, Vincent Lewis and his orchestra.
WEAR, Cleveland, Ohio (38.4), 7-8 p. m., Vincent H. Percy, organist; 8:10, program from WEAF; 10-11, Crystal Slipper dance orchestra.
WEET, Boston, Mass. (48.9), 8:30 p. m., Big Brother club; 7:15, Little orchestra; 8, program from New York; 8:30, musical; 9, Atwater Kent artists; 10, Goodrich Silvertown Cord orchestra.
WFL, Philadelphia, Pa. (384.5), 8:30 p. m., Meyer Davis Bellows Stratford concert orchestra; 7, bedtime stories; concert from WEAF; 9, Atwater Kent artists; 10, Goodrich Silvertown Cord orchestra.
WGBS, New York, N. Y. (315.6), 6-8:30 p. m., Uncle Odoce; 9-9:30, duets, Helen and Blanche Bodnot; 11:15-12, "Salome," Triangle players.
WGR, Buffalo, N. Y. (319), 6-7:30 p. m., Halcyon strings trio; 8-11, musical program jointly with WEAF, including Atwater Kent program, and Goodrich Silvertown Cord orchestra.
WGY, Schenectady, N. Y. (379.5), 6:30 p. m., Hotel Ten Eyck trio; 7:30, "A Few Moments with New Books"; William F. Jacob; 7:45, Ernest Davis, tenor; Isabel Austin, soprano; Olive G. Yetts, accompanist; 11:30, Stephen B. Bolstead, organist.
WHN, New York, N. Y. (381.2), 6:30-7 p. m., violin solo, Cleofa Vail; 7:30, Silver Slipper revue, with Jim Carr's orchestra; 7:30-7:45, health talk, Dr. Landis; 8-8:30, Will Oakland's Chateau Shamley; 9:30-10, Leonard's Club; 11-12, 11:30-12, Viewman club revue; 12-12:30 a. m., Parody club revue; 12:30-1, Club Moritz orchestra.
WIP, Philadelphia, Pa. (568.2), 6:05 p. m., Benjamin Flindler concert orchestra; 7, Uncle Wip's bedtime stories; 8, talk, auspices University of Pennsylvania; 8:15, U of Penn. club; 10-10:45, fashion talk; 11, Hersey Maiburger's dance orchestra.
WJL, New York, N. Y. (305.2), 8 p. m., program from New York; 8:10, Victor presentation; 10, Goodrich Silvertown Cord orchestra.
WJZ, New York, N. Y. (454.3), 8:30-9:45 p. m., special feature program from WBC, Washington; 9:45-10, Benjamin Flindler, violinist.
WNYC, New York, N. Y. (484.3), 7-8 p. m., Roundhart Hotel Commodore orchestra; 8:30-8:59, NYU Air college; 9:30-10:30, L. S. Army; 10:31, 10:30-11, Waldorf-Astoria dance orchestra; 12:30-1, Viewman club; 8-8:10, talk by public address; 8:15-8:25, concert program; 9-9:30, Municipal Instrument trio; 9:30-10:30, orchestral feature.
WOO, Philadelphia, Pa. (508.2), 4:45 p. m., organ recital, Mary B. Vogt.
WVR, Newark, N. J. (405.2), 8-10 p. m., garden talk, Lester C. Lovett; 8:30-9:45, Loretta Whittemore; Bloom and his Club Tonic orchestra; 12:30-1, Viewman club; 8-8:10, talk by public address; 8:15-8:25, concert program; 9-9:30, Municipal Instrument trio; 9:30-10:30, orchestral feature.
WRE, Lansing, Mich. (283.5), 8:15-9:45 p. m., Roo Broadcasting Orchestra; 9, radio concert; Louis Emmert, comedian; Thomas H. Metzger, fute.
WTAS, Cleveland, Ohio (384.4), 8-7 p. m., Hotel Statler dinner concert.
WVI, Detroit, Mich. (352.7), 6 p. m., dinner concert; 8, concert from New York.
Central Time Stations
CNRW, Wainwright, Can. (384.4), 8:30 p. m., Imperial Veterans' band; vocal selections; Mrs. J. Reer vocal

selections. A. Leslie Garside; R. Paul; Frank Wright's Country club dance orchestra.
KFAB, Lincoln, Neb. (240), 3 p. m., Biolo Symphony orchestra.
KFBU, Lawrence, Kans. (275), 6:30 p. m., piano orchestra number; 7, music; 7:15, "Ventilation and Lighting"; Prof. M. Louis; 8:30, Music as a Profession Tuesday, Today and Tomorrow; Dean Roy M. Swarthout; 7:45, educational psychology, Dean R. A. Schweiler.
KFXX, Hastings, Neb. (288.3), 9:30-11:30 p. m., "Kivans".
KFMJ, Fayetteville, Ark. (299.8), 7:30 p. m., "The Exquisite Menzies"; H. S. Warner, "Pastorale of Peace"; Products; W. W. Wilbards; "Local State for Everybody"; A. W. Jamison.
KFMF, Shenandoah, Iowa (265), 6:30 p. m., Pickering farm club, Delora Mudgett, director; 8:30, home talent chautauqua; M. E. Ladner, Aid society.
KFRU, Britton, Okla. (384.9), 10:30-11:30 p. m., Paul Craker, organist.
KSAC, Manhattan, Kans. (340.7), 7:30 p. m., music; 8:15-10, Lawson Bond quartet; 10-10:30, Meyer Davis-New Arlington hotel orchestra.
KVCW, Chicago, Ill. (536), 8:30 p. m., Uncle Bob; 7:30, Congress hotel dinner concert; 7:30-7:55, speakers; 8, "Tenor Minutes of Good Reading"; Rev. C. J. Parlin; 8:50-9, Baby Buntington, soprano; Arthur Hovess, tenor; Patsy Forsythe, pianist; Katie White; soprano; 9:05, "Safety First"; Bert Vanderwort; 10-11:00, singing, songs.
WBAP, Fort Worth, Texas (475.9), 7:30-8:30 p. m., concert, College of Industrial arts; 9:30-10:15, European club; 10:15-11, music.
WCAL, Northfield, Minn. (336.9), 9 p. m., music.
WCBD, Zion, Ill. (344.6), 8 p. m., mixed quartet, Carinet quartet, celestial belt; Mrs. Thomas, soprano; Mrs. LaRose, contralto; J. D. Thomas, baritone; Mrs. Mabel Gustafson, reader; Edwin Sack, pianist.
WCOO, Minneapolis-St. Paul, Minn. (416.8), 8 p. m., song contest program, Original George Osborn's Nocturnal program from New York.
WDAF, Kansas City, Mo. (365.6), 6-7 p. m., book club; 7:30, National Festival; Tell-Me-a-Story later; Trianon ensemble; 11:45-12, Harry Howard, Chorus; 8:15-9:30, KFRU, WMAQ, WOAW, WOC; 9:35, KYW; 10, WOR; 10:30, KSD; KYW, WJAD, WJJD; 11, KFRU; 11:15, WYAO; 12, WCAL.
Sunday, April 12: 7, KYW, WEBB; 7:30, WHO, WORD; 8, WCBD, WQJ; 8:15, WEMC; 8:30, WCAL, WLW; 9, KTHS, WGN, WBB, WJ, WSUI; 9:15, WYAO, WYAO, WYAO, WYAO; 11:15, WBB; 12, WBB.
Monday, April 13: 6, WGN, WLW, WOAW; 6:30, KPNF, WFAA, WGN, WJJD; 7, KSD; 7:15, WJJD; 7:30, WFAA, WGN, WJJD; 7:45, WJJD; 8, KPNF, WGN, WHO; 8:15, WJJD; 8:30, WFAA, WJAD, WMC; 8:45, WJJD; 9, KTHS, WEMC; 9:15, WYAO, WYAO; 9:30, WBB; 10, KSD; 10:30, WJJD; 10:45, WBB; 11, WFAA.
Tuesday, April 14: 6, WCCO, WGN; 6:30, KPNF, WCCO, WGN, WJJD; 7, KSD, WEBB, WOAW, WQJ; 7:15, WJJD; 7:30, WHAS, WHO; 7:45, WJJD; 8, KPNF, WGN, WHO; 8:15, WJJD; 8:30, WFAA, WJAD, WMC; 8:45, WJJD; 9, KTHS, WEMC; 9:15, WYAO, WYAO; 9:30, WBB; 10, KSD; 10:30, WJJD; 10:45, WBB; 11, WFAA.
Wednesday, April 15: 6, WCCO, WGN; 6:30, KPNF, WCCO, WGN, WJJD; 7, KSD, WEBB, WOAW, WQJ; 7:15, WJJD; 7:30, WHAS, WHO; 7:45, WJJD; 8, KPNF, WGN, WHO; 8:15, WJJD; 8:30, WFAA, WJAD, WMC; 8:45, WJJD; 9, KTHS, WEMC; 9:15, WYAO, WYAO; 9:30, WBB; 10, KSD; 10:30, WJJD; 10:45, WBB; 11, WFAA.
Thursday, April 16: 6, WCCO, WGN; 6:30, KPNF, WCCO, WGN, WJJD; 7, KSD, WEBB, WOAW, WQJ; 7:15, WJJD; 7:30, WHAS, WHO; 7:45, WJJD; 8, KPNF, WGN, WHO; 8:15, WJJD; 8:30, WFAA, WJAD, WMC; 8:45, WJJD; 9, KTHS, WEMC; 9:15, WYAO, WYAO; 9:30, WBB; 10, KSD; 10:30, WJJD; 10:45, WBB; 11, WFAA.
Friday, April 17: 6, WCCO, WGN; 6:30, KPNF, WCCO, WGN, WJJD; 7, KSD, WEBB, WOAW, WQJ; 7:15, WJJD; 7:30, WHAS, WHO; 7:45, WJJD; 8, KPNF, WGN, WHO; 8:15, WJJD; 8:30, WFAA, WJAD, WMC; 8:45, WJJD; 9, KTHS, WEMC; 9:15, WYAO, WYAO; 9:30, WBB; 10, KSD; 10:30, WJJD; 10:45, WBB; 11, WFAA.
Saturday, April 18: 6, WCCO, WGN; 6:30, KPNF, WCCO, WGN, WJJD; 7, KSD, WEBB, WOAW, WQJ; 7:15, WJJD; 7:30, WHAS, WHO; 7:45, WJJD; 8, KPNF, WGN, WHO; 8:15, WJJD; 8:30, WFAA, WJAD, WMC; 8:45, WJJD; 9, KTHS, WEMC; 9:15, WYAO, WYAO; 9:30, WBB; 10, KSD; 10:30, WJJD; 10:45, WBB; 11, WFAA.
Sunday, April 19: 6, WCCO, WGN; 6:30, KPNF, WCCO, WGN, WJJD; 7, KSD, WEBB, WOAW, WQJ; 7:15, WJJD; 7:30, WHAS, WHO; 7:45, WJJD; 8, KPNF, WGN, WHO; 8:15, WJJD; 8:30, WFAA, WJAD, WMC; 8:45, WJJD; 9, KTHS, WEMC; 9:15, WYAO, WYAO; 9:30, WBB; 10, KSD; 10:30, WJJD; 10:45, WBB; 11, WFAA.

Index to Classical Concerts

TABULATED below is a time table of the stations giving classical concerts this week. Stations are divided into the four different standard times in use. The hours are given in the kind of time in use at each listed station. By using this table as an index and referring to the complete programs below, full information will be obtained.

Classical
Eastern Time Stations
Saturday, April 11: 6, WBZ, WGR; 6:15, WIP; 6:30, WFI, WHN; 7:30, WBZ, WEAF, WGBS, WLIT; 7:55, WEAF; 8, CNRO, WBR, WBZ, WJZ; 8:15, WIP, WOR; 8:30, CNRO, KDKA; 8:45, WBBR, WJZ; 9, WBZ, WEAF, WGBS; 9:15, WOR; 9:45, WEAF, WGBS; 10, WOR; 10:30, WBZ, WGBS; 11, WIP.
Sunday, April 12: 6, WCAU, WOO; 6:30, KDKA; 8, WEAR; 8:15, WJZ; 8:30, WAHG; 8:45, WGY; 9, CHIC, WBR, WEAR; 9:15, WEAF, WEBE; WJZ; 9:25, WBBR; 9:30, WIP; 10, CHIC, WJZ; 10:05, WBBR; 10:20, WBBR.
Monday, April 13: 6, WEAF; 6:05, WIP; 6:30, KDKA, WFI, WGR, WHN; 7, WEAR, WJZ, WOO; 7:15, WEAF; 7:30, WGY, WOR; 8, CHNC, WBBR, WMAK, WOO; 8:30, KDKA, WAHG, WGBS, WFI, WGR, WJZ; 8:45, WJZ; 9, KDKA, WGR, WHAZ, WJZ; 9:30, WLIT; 10, WEEL, WGR, WHAZ; 10:10, KDKA; 11, KDKA.
Tuesday, April 14: 6, WCAU, WEAF, WGR, WJZ; 6:30, WFI, WGY; 7, WEAF, WEAR, WEBE; 7:30, CKAC, WCAU; 7:40, WGY; 7:45, WEBE; 8, KDKA, WEAR, WEBE, WEBE; WGBS, WFI, WGR, WJZ; 8:15, WJZ; 8:30, KDKA, WJY; 9, KDKA, WGY, WIP, WJY, WJZ; 9:30, WGBS; 10, CHIC, KDKA, WEAF, WGY; 10:15, WGBE; 11, KDKA; 11:30, KDKA; 12, WGY.
Wednesday, April 15: 6, WEAF, WJZ; 6:05, WIP; 6:30, KDKA, WFI, WGR, WHN; 6:45, WEAR; 7, WGY, WCAU, WEAF, WMAQ; 7:45, WGY; 8, AT9, KDKA, WBBR, WEAR, WEBE, WFI, WGR, WJZ; 8:15, WIP; 8:30, CNRO, KDKA, WJY; 8:40, WBBR; 9, KDKA, WEAF, WEBE, WJZ; 9:30, WJZ; 9:45, WJZ; 11, KDKA; 11:15, WGBS; 11:30, WGY.
Friday, April 17: 6, WCAU, WEAF, WJZ; 6:30, CNRT, KDKA, WFI, WGR, WHN; 6:45, WEAR; 7, WGY, WCAU, WEAF, WMAQ; 7:45, WGY; 8, AT9, KDKA, WBBR, WEAR, WEBE, WFI, WGR, WJZ; 8:15, WIP; 8:30, CNRO, KDKA, WJY; 8:40, WBBR; 9, KDKA, WEAF, WEBE, WJZ; 9:30, WJZ; 9:45, WJZ; 11, KDKA; 11:15, WGBS; 11:30, WGY.
Central Time Stations
Saturday, April 11: 6, WCCO, WFAA, WGN, WLW, WMAQ; 6:30, KPNF, WGN, WJJD; 7, KYW, WEBB, WQJ; 7:15, WJJD, WJR; 7:30, WHAS, WSUI; 8, KFYW; 8:30, KPNF, WCCO, WFAA, WMAQ; 9, KFRU, WMAQ, WOAW, WOC; 9:35, KYW; 10, WOR; 10:30, KSD; KYW, WJAD, WJJD; 11, KFRU; 11:15, WYAO; 12, WCAL.
Sunday, April 12: 7, KYW, WEBB; 7:30, WHO, WORD; 8, WCBD, WQJ; 8:15, WEMC; 8:30, WCAL, WLW; 9, KTHS, WGN, WBB, WJ, WSUI; 9:15, WYAO, WYAO, WYAO, WYAO; 11:15, WBB; 12, WBB.
Monday, April 13: 6, WGN, WLW, WOAW; 6:30, KPNF, WFAA, WGN, WJJD; 7, KSD; 7:15, WJJD; 7:30, WFAA, WGN, WLW, WMAQ; 6:30, KPNF, WGN, WJJD; 7, KYW, WEBB, WQJ; 7:15, WJJD, WJR; 7:30, WHAS, WSUI; 8, KFYW; 8:30, KPNF, WCCO, WFAA, WMAQ; 9, KFRU, WMAQ, WOAW, WOC; 9:35, KYW; 10, WOR; 10:30, KSD; KYW, WJAD, WJJD; 11, KFRU; 11:15, WYAO; 12, WCAL.
Pacific Time Stations
Saturday, April 11: 6, KHJ; 6:15, KNX; 6:45, KFOA; 7:30, KNX; 8, KGO; 9, KFI; 12:30, KGW.
Sunday, April 12: 6:30, KHJ; 7, KGW, KHJ, KNX; 7:30, KHJ, KFI; 8:15, KFI; 8:15, KHJ; 8:30, KPO; 9, KFI.
Monday, April 13: 6, KGW, KIX; 6:15, KNX; 6:30, KPO; 6:45, KFOA; 7:30, KPAE; 8, KFI, KHJ, KPO; 9, KJR, KPO.
Tuesday, April 14: 6, KILJ; 6:15, KNX; 6:45, KFOA; 7, KFI, KPO; 8, KGO, KPO; 8:30, KFOA, KGO; 9, KFI; 9:30, KFI.
Wednesday, April 15: 6, KGW, KHJ, KIX; 6:15, KNX; 6:45, KFOA; 7, KNX; 7:30, KPAE, KFI, KPO; 8, KGW, KJR, KIX, KNX, KPO; 8:30, KHJ.
Thursday, April 16: 6, KFOA, KHJ; 6:30, KNX; 7:30, KFI; 8, KGW, KNX, KPO; 9, KFO; 9:30, KHJ.
Friday, April 17: 6, KHJ, KIX; 6:15, KNX; 6:45, KFOA; 7:15, KIX; 7:30, KNX; 8, KHJ, KNX, KPO; 8:30, KFOA, KJR; 9, KFI; 9:30, KJR; 10, KFI.
Mountain Time Stations
Monday, April 13: 8, CFAC; 8:10, KFI.
Tuesday, April 14: 7:45, CFAC; 10, CFAC.
Wednesday, April 15: 7:45, CFAC; 8:10, KFOA.
Thursday, April 16: 8, CFAC, CNRC.
Friday, April 17: 8, CFAC; 8:10, KOA.
Pacific Time Stations
Saturday, April 11: 6, KHJ; 6:15, KNX; 6:45, KFOA; 7:30, KNX; 8, KGO; 9, KFI; 12:30, KGW.
Sunday, April 12: 6:30, KHJ; 7, KGW, KHJ, KNX; 7:30, KHJ, KFI; 8:15, KFI; 8:15, KHJ; 8:30, KPO; 9, KFI.
Monday, April 13: 6, KGW, KIX; 6:15, KNX; 6:30, KPO; 6:45, KFOA; 7:30, KPAE; 8, KFI, KHJ, KPO; 9, KJR, KPO.
Tuesday, April 14: 6, KILJ; 6:15, KNX; 6:45, KFOA; 7, KFI, KPO; 8, KGO, KPO; 8:30, KFOA, KGO; 9, KFI; 9:30, KFI.
Wednesday, April 15: 6, KGW, KHJ, KIX; 6:15, KNX; 6:45, KFOA; 7, KNX; 7:30, KPAE, KFI, KPO; 8, KGW, KJR, KIX, KNX, KPO; 8:30, KHJ.
Thursday, April 16: 6, KFOA, KHJ; 6:30, KNX; 7:30, KFI; 8, KGW, KNX, KPO; 9, KFO; 9:30, KHJ.
Friday, April 17: 6, KHJ, KIX; 6:15, KNX; 6:45, KFOA; 7:15, KIX; 7:30, KNX; 8, KHJ, KNX, KPO; 8:30, KFOA, KJR; 9, KFI; 9:30, KJR; 10, KFI.
Veres, "New Orleans Boys"; Ike Shannback, organ; Lew Butler; Neil and Ches; Marie Wright, soprano; 2, Hotel Toney hour.
WSAI, Cincinnati, Ohio (325.9), 6:30 p. m., Haeli Simon orchestra; 7, WEAF program.
WSE, Atlanta, Ga. (428.3), 8-9 p. m., Guanzuallan Atlanta band; 10:45, Dr. Charles A. Siedon, organist.
WTAS, Elgin, Ill. (362.8), 7-12 midnight, WTAS dance orchestra.
Mountain Time Stations
CNRC, Calgary, Can. (434.3), 9 p. m., Excelsior concertists.
Pacific Time Stations
KFI, Los Angeles Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:47, Radiator talk; 7-7:30, Ernie Outcrop and his Polar Bear dance orchestra; 7:30-8, De Ma De Hays, female quartet; Ed Russer, baritone; Florence Rogers, pianist; 8-9, program, Standard Oil company of California presenting orchestra; 9, talk, headed by Mrs. John J. Cuddy; 9-10, Columbia Novelty trio instrumentalists of Republic of Argentina, South America; 10-11, Examiner dance program.
KFOA, Seattle, Wash. (454.3), 6-7 p. m., Mironia school program.
KFSB, Hollywood, Calif. (252), 7:45-9 p. m., Broadway concertists, Variety and Charlie Wellman, tenor; 9-10, Edward Stinson, organist and alto; Anne male quartet; program, Billie Hunkle Shop of Hollywood; 11-11:30, Frank Fisher's Hollywood Montmartre cafe dance orchestra; 11:30-12, talk, headed by Mrs. John J. Cuddy.
KGO, Oakland, Calif. (361), 4-5:30 p. m., concert orchestra, Hotel St. Francis; 7:15, golf lesson; Joe Koray's 7:30-8, Ma de Hays, female quartet; Ed Russer, baritone; Florence Rogers, pianist; 8-9, program, Standard Oil company of California presenting orchestra; 9, talk, headed by Mrs. John J. Cuddy; 9-10, Columbia Novelty trio instrumentalists of Republic of Argentina, South America; 10-11, Examiner dance program.
KJW, Portland, Ore. (491.5), 8-9 p. m., concert; 10-11, a. m., Henry Hunsaker's orchestra.
KLV, Los Angeles, Calif. (465.2), 6-8:30 p. m., Art Hickman's Hillmore orchestra; 8:30-9, Little stories American history; Prof. Walter Sylvester Herzog; Dickie Branford and some members screen favorite with Prof.
Join; 7:30-8, "Immance of the Santa Fe Trail"; Gladys De Witt; 8-9:30, program, Verless Laundry company arranged by J. Howard Johnson; 9:30-10:30, program, Fitzgerald Music company; 10:30-11:30, Art Hickman's Hillmore hotel dance orchestra, Earl Burnett, leader.
KJ, Seattle, Wash. (384.8), 6:30-10 p. m., "What's Doing at the Theaters"; 10-10:12, "Keep Joy Radiating Order of the Bulls in Their Belief"; 10:12-11:30, program, Fitzgerald Music company; 10:30-11:30, Art Hickman's Hillmore hotel dance orchestra, Earl Burnett, leader.
KPO, San Francisco, Calif. (428.5), 6:30-7 p. m., San Francisco restaurant orchestra; 7:30-8, Rudy's Palmont hotel orchestra; 8-9, Theodore A. Irvine, organist; Velma Gudwin, soprano; 9-10, Hazel Johnson, soprano; 10-11, Johnny Butick's Amphians.
Friday, April 17
Friday, silent night for: ATE, CHNC, CHIC, CKAC, KFBU, KFXX, KFMJ, KGO, WBBR, WGBZ, WOC, WEAF, WFI, WGBS, WGT, WHAZ, WJAD, WKB, WLW, WMAK, WOAI, WOI, WSUI.
Eastern Time Stations
CNPA, Moncton, Can. (312.3), 7:20 p. m., French Acadian; Moncton Acadian music; 6:45, Missi Melen, KTHS, contralto; L'Assommoir; 7:30-8, Maxine French; pianist; Wilfrid Lavoie, baritone; Blaise Ma Raymond; organist; Desiree Desrosiers, baritone; Albrecht; 8:30-9, Maxine French; pianist; CNRA of
CNTR, Toronto, Can. (359.9), 6:30 p. m., Luigi Ronzelli and his King Edward hotel concert orchestra;
(Continued on page 14)

Friday, April 17

(Continued from page 13)

8:30, Aeolian male quartet, 9:00, Luigi Bonaventuri and his orchestra, Hotel dance orchestra. KOKA, Pittsburgh, Pa. (308.1), 6:15 p. m., dinner concert; 7:45, Pittsburgh band club; 8:15, address, University of Pittsburgh, 8:30, concert. WAHO, Richmond Hill, N. Y. (315.6), 8-8:15 p. m., Irving Pincusberg, pianist; 8:15-9:30, Florence Guzman, concert; 9:30-9:50, Brownie's quartette string quartet; 9:50-9:55, Evan Davies, entertainers; 9:55-9:58, M. Lambert, cellist; 9:58-9:59, Jamaica Dutch quartet; 9:59-9:59, Evan Davies, 10:00-10:20, The Radio Question Box, William F. Dietl; 10:30-11:30, Ascleto and Brothers orchestra; 12-2 a. m., special program, Glenn C. Smith's Sacrament orchestra. WCAE, Pittsburgh, Pa. (461.5), 6:30 p. m., William Penn hotel; 8:30, concert, Viola Bulker-Leonard, director. WCAU, Philadelphia, Pa. (278), 6 p. m., Meyer David Hotel, Philadelphia, concert orchestra; 10:30, Paul Speedy's melodians; 11:30, Gale Pandus revue. WCX, Detroit, Mich. (518.9), 8 p. m., dinner concert. Book-Cadillac hotel; 7, musical program; 10, dance music. Arcadia. WDFW, Providence, R. I. (440.9), 8 p. m., lecture, Faculty of Brown university. WFAY, New York, N. Y. (461.5), 4:40-5 p. m., "Indian Legends," American Museum of Natural History; 6-7, dinner, Metropolitan Opera House; 7:20, Gustave Langens, clarinet soloist; 7:30-7:45, children's play, Blanche Elizabeth Wade; 7:45-8, Cecile M. Barons, pianist; 8-8:15, 10:00-10:20, The Radio Question Box, William F. Dietl; 10:30-11:30, Ascleto and Brothers orchestra; 12-2 a. m., special program, Glenn C. Smith's Sacrament orchestra. WEAR, Cleveland, Ohio (389.4), 7-11 p. m., Ed Day's Bedford Glenn dance orchestra; Continental dance, pianist, Brunswick Hotel, Fred Hastings, Albert Brestky, E. H. Ward; Master Michael Brouse, juvenile tenor. WEAL, New York, N. Y. (233), 7-11 p. m., Glenn Miller's orchestra; 10:10-11:30, The Radio Question Box, William F. Dietl; 10:30-11:30, Ascleto and Brothers orchestra; 12-2 a. m., special program, Glenn C. Smith's Sacrament orchestra. WEEI, Boston, Mass. (475.9), 7:15 p. m., historical talk; 7:30, program, Whiting Milk company; 8, Neapolitan male quartet; 8:30, Hirsch variety club; 9, organ recital, Army band; 9:30, Howes Valetta; 10, organ recital. WFI, Philadelphia, Pa. (384.5), 3 p. m., Hosieryworld Radio orchestra; 8-9, Meyer David Hotel, Philadelphia, concert orchestra; 7, bedtime stories. WFP, Buffalo, N. Y. (319), 8:30-9:30 p. m., Buffalo Trust hour; 8-9, "Madam Butterfly," an educational opera entertainment, Eleanor D. Baker, director; 9:10, Woodside male chorus, George H. Grob, director; 9:15-11, supper-dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Statler, director. WGV, Schenectady, N. Y. (375.5), 6:30 p. m., international Sunday school lesson; 7, Albany Strand theatre orchestra; 7:10-8, Walter, organist; 8, Winterset's dance orchestra; 8-10, Rip Van Winkle; 10:15-11:15, WGY players; 10:30, Albany Police Protective association; 10:45, Tenby Industry; 10:45, Sunday's singing orchestra; solo, Ruth Jones George W. Decker. WHN, New York, N. Y. (361.2), 6:30-7 p. m., violin solos, Olga; 7-7:15, The Cantone, Albert Brestky, clarinet; 7:20-7:25, health talk, Dr. Landis; 7:35-8, Chas. Meritz orchestra; 8:30-10, Dan Gregory and his Crystal Palace orchestra; 10-10:15, Dr. Landis, health talk; 10:15-10:30, "Starzoxo Ballets," B. B. Shonis; 10:30-11, Roseland dance orchestra; 11:30-12, Club Alhambra orchestra; 12-30 p. m., Patrol club orchestra. WIP, Philadelphia, Pa. (308.2), 4 p. m., talk, questions answered; 7-7:15, Harvey Abnerburger's dance orchestra; 7, Uncle Wip's bedtime stories. WIAR, Providence, R. I. (385.9), 8 p. m., musical program; 9, Astor Coffee orchestra; 11, Providence Biltmore hotel orchestra. WIJY, New York, N. Y. (465.2), 8:15-8:45 p. m., Baltimore and Ohio Glee club; 9-9:30, Strangers quartet; 9:45-10, Isabel Small, soprano; Kevin McLeod, accompanist. WIJZ, New York, N. Y. (464.3), 4:45-5 p. m., Richard Franklin, pianist; 4:55-5, Savarin ensemble; 5:10-8:20, N. Y. U. Air corps; 8:30, Faith and the Boys; WGY players; 10:30-11:30, The Radio Question Box, William F. Dietl; 10:30-11:30, Ascleto and Brothers orchestra; 12-2 a. m., special program, Glenn C. Smith's Sacrament orchestra. WILT, Philadelphia, Pa. (384.5), 4:30 p. m., Marcella North, pianist; 7:30, Arcadia cafe dance orchestra; 8, Elks' concert; 10, Arcadia cafe dance orchestra; 10:15-11:15, Morning Glory choir concert; 11, Lemel Heights Minstrels, direction Frank J. Gaudin. WMBF, Miami Beach, Fla. (384.4), 10-2 a. m., Nautique boys' orchestra; 8:00-8:15, Belmont hotel orchestra. WNYC, New York, N. Y. (529), 8:30 p. m., WNYC program; 7:35-8, resume of meeting of Board of Estimates; 8-9, 9:10-9:15, hour of German music; 10:10-11:30, "Books That Everyone Should Know," Professor Carter Trapp. WOD, Philadelphia, Pa. (308.2), 4:45 p. m., organ recital; 7:30, A. Vogt; 7:50, A. Vandenberg's concert orchestra; 8:30, WOD concert orchestra; 9:30, comedy, Horvitz G. Rivkin, pianist; 10:30, organ recital; 10:45, Mary E. Vogt; 11, Vincent Rizzo's orchestra. WOR, Newark, N. J. (465.2), 6:15-8:30 p. m., Hotel Lorraine orchestra; 8:30-9, Son in Moon studies; 7:30, Hotel Lorraine orchestra. WSAC, Clemson College, S. C. (339.9), 7 p. m., music lecture, Prof. Bourgeois. WTAM, Cleveland, Ohio (389.4), 6-7 p. m., dinner concert; 8:30, concert. WTIC, Hartford, Conn. (348.6), 8 p. m., Laura Gould, pianist; college glee club; 10, Emil Heimbeuers Hotel Band orchestra. WWJ, Detroit, Mich. (352.7), 6 p. m., dinner concert; 8, concert from New York.

Central Time Stations

KFAB, Lincoln, Neb. (240), 7:30-8:30 p. m., Doane College School of music, symphony orchestra. KFNB, Sheboygan, Wis. (286), 6:30 p. m., concert from Clearmont, Charissa Borch, director. KFRU, Bristolow, Okla. (354.5), 11-1:30 a. m., Brown Derby club. KIAF, Sibley, Minn. (421), 9-10 p. m., school of music. KSAC, Manhattan, Kans. (340.7), 7:20 p. m., Radio college quartet; 7:30, "Soft Bacteria and Plant Food," P. L. Gaines; 7:40, Radio college quartet; 7:50, "Dicks and Their Value to Agriculture," J. E. Acker. KSD, St. Louis, Mo. (345.1), 7 p. m., Grant McDonald, pianist; 10, Mrs. Armin Mollerer, contralto; Grace McGowan, soprano; Beatrice Kretzner, pianist. KTHS, Hot Springs National Park, Ark. (374.8), 8:30-9 p. m., ballad numbers, Fischer and his orchestra; Davis-New Arlington hotel orchestra; 10-11, Ray Milton Jack O'Leary orchestra. KYWA, Chicago, Ill. (339), 8:30-7 p. m., Congress hotel dinner concert; 9-1 a. m., midnight revue. WEAP, Fort Worth, Tex. (475.9), 7:30-8:30 p. m., Chas. Dress; 9:30-10:30, Fort Worth police band. WCAL, Northfield, Minn. (336.9), 8:30 p. m., book talk, Dr. George Weitz. WCCO, Minneapolis-St. Paul, Minn. (416.6), 6 p. m., dinner concert; Original George Osborn's Nicollet hotel orchestra; 8:30, lecture, E. Kimball, baritone; Grace Hake, pianist; 7:30 lecture; 7:45, lecture; 8, "Enoch Arden," John De O. Briggs, reader; Marjorie Winchell, pianist; 8:15, lecture; 8:30, lecture; 8:45, lecture; 9, Bussell Murphy, baritone; Ruth McKibben, accompanist; Don Harris, pianist. WCEE, Elgin, Ill. (275), 7-8 p. m., WTAS orchestra; 10:30-12, WTAS orchestra; Frank Morris, Eddie and Fanny Caravanagh. WDAF, Kansas City, Mo. (365.6), 6-7 p. m., Tell-Me-a-Story Lady; Trianon ensemble; 8-10, popular program; 11:45-1, Merry Old Chief, Plantation players. WFBM, Chicago, Ill. (370.2), 7-8 p. m., Orin orchestra; Cambridge Sisters; violin trio; Riviera theater; 9-10, Orin orchestra; Frederick Agard, tenor; Rita McPaw, soprano; 11-12, Orin orchestra; Sylvia Mees, tenor; Frank Pappe, accompanist; Frederick Agard, tenor. WEMC, Berrien Springs, Mich. (285.5), 9 p. m., old hymns, Radio Lighthouse choir; Cecil Woods, baritone; Harry Lammog, reader; Martha Hutchinson, soprano; Bible chat, Orville Dunn. WFAX, Dallas, Tex. (475.8), 4:30-5 p. m., woman's hour; 8:30-9:30, Southern Methodist university glee club. WGN, Chicago, Ill. (370.2), 6 p. m., organ recital, Lyon B. Healy; 6:30-7, Drake concert ensemble; Blackstone string quintet; 8-9, feature; 10-11, Drake dance orchestra.

WHA, Madison, Wis. (535.4), 7:45 p. m., "Control of Orchard and Garden Pests," Prof. J. C. Moore; address, J. G. Fuller. WHAD, Milwaukee, Wis. (275), 8:30 p. m., Wisconsin theater revue. WHAS, Louisville, Ky. (399.8), 4-5 p. m., Louisville Conservatory of music; 7:30-9, Original Kentucky Night Girls; William Kinshel, organist. WHB, Kansas City, Mo. (305.6), 7-8 p. m., men and boys' quartet. WHD, Des Moines, Iowa (526), 7:30-9 p. m., Danae Grotto quartet; Veda Phillips, pianist; 11-12, dance program. WIAW, Waco, Texas (337), 8:30-10 p. m., McLennan County Working Boys club. WJJD, Meosheart, Ill. (302.8), 8:30-7:15 p. m., Albert Brownie, organist; 7:15-11:30, Meosheart club; 10:30-11 a. m., Garrod studio, Charley Straight and his orchestra. WJNN, Cincinnati, Ohio (422.3), 12:15 a. m., dance selections, Ahaus Brunswick orchestra. WMAD, Chicago, Ill. (447.5), 8 p. m., Chicago theater organ recital; 8:30, Hotel LeSalle orchestra; 6:50, family altar league; 8, Wide-Awake club program; France Ford; 8:30, musical geography, M. and Mrs. Mary S. Oberlander; 9, singing, Edward G. Taylor; 9:15, program Mae Graves Ailing, director. WMC, Memphis, Tenn. (498.7), 7:30 p. m., Radio talk; Olga, Britton's Novelty orchestra; 11, midnight frolic. WOAW, Omaha, Neb. (526), 6:30 p. m., Harry Brader, violinist; Frank Strawn, pianist; 7, 8, 9, 10, 11, 12, program Chicago, Burlington and Quincy company; "Seeing by Radio Territory" covered by the Burlington Route, Dr. G. E. Condra; 19:30, Willard Robinson and his orchestra. WOC, Davenport, Iowa (483.6), 6:30 p. m., sandman's visit; 8, 9, 10, 11, 12, Harry Brader, violinist; 9, Kaaba Temple Shrine band. WORO, Chicago, Ill. (275), 8-10 p. m., "Safety," J. W. Oliver; Esther Friend Kennedy, soprano; Helen Homan, contralto; Lucile Banderstar, pianist. WOS, Jefferson City, Mo. (440.9), 8 p. m., "Homage to France," E. Homan; "The Growth of Missouri," Samuel M. Jordan; original poems, LeRoy Kelly; music, Mrs. J. E. Bachtel, director. WQIA, Chicago, Ill. (447.5), 7-8 p. m., Rainbo Garden orchestra; Henrietta Nolan, violinist; Otis Pike, cello; "The Radio Question Box," William F. Dietl; 10-11 a. m., Rainbo Skirlarks; Larry Brandner, Harry Krammer; West Brothers; Zelig Stites; Nate Calorel, pianist; Lourencia Giles, soprano; 8, 9, 10, 11, 12, program WSB, Atlanta, Ga. (428.3), 8-9 p. m., Griffin program; 10:45, Grace Methodist church. WSA, Elgin, Ill. (302.8), 8-10:30 p. m., WPAS orchestra.

Mountain Time Stations

CMAE, Edmonton, Can. (516.9), 8:30 p. m., Moonlight serenaders, orchestra. KM, Denver, Colo. (322.4), 8 p. m., Fred Schmitt and his Radio theater; 8:10, studio program, Francis Brown Lowry post, No. 501, talk, Gustave J. Ormser; Rev. Leonard Grob, pianist. KOB, State College, N. M. (348.5), 7:30-8:30 p. m., Mrs. J. E. Christie, soprano; Mrs. Herman Nesch, pianist.

Pacific Time Stations

KFI, Los Angeles, Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:47-7, Radioorial talk; 7-8, Examiner; literary program; 8-9, Evening Herald hour of dance music; 9:10, Loren Robinson and the Apollo male quartet; 10-11, Tilda Rohr, contralto, songs of Italy, France and Germany. KFOA, Seattle, Wash. (454.3), 5:45-8:15 p. m., Sherman, Clay & company program; 8:30-10, Times program; 10:05-11:30, Eddie Harkness and his orchestra. KFNB, Hollywood, Calif. (282), 7:45-9 p. m., Jon Altvell Butler, soprano; McVintors and Fox, vaudeville banjoists; Holly sisters, blues singers; 9-10, Merryland ballroom and organists; 10-11, Harry Seymour's hour of popular numbers, short talks by movie people; 11-1 a. m., Brandstetter's Hollywood Montmartre cafe dance orchestra, Mel Persey, leader. KGO, Oakland, Calif. (361), 4:52-5 p. m., concert orchestra, Hotel St. Francis. KGW, Portland, Ore. (491.5), 6 p. m., dinner concert; 8, letters, University of Oregon extension division; 10:30, Rose Ovis. KHJ, Los Angeles, Calif. (405.2), 6-6:30 p. m., Art Hickman's Hillmore hotel concert orchestra, Edward Fitzgerald, director; 8:30-9:30, Little Orbits American history, Prof. Walter Sylvester Heston; Richard Headrick, screen starlet; Ross' sextet of San Fernando high school; 8-9, program, Western air company, company, arranged by Howard Johnson; 10-11, Art Hickman's Biltmore hotel dance orchestra, Earl Burnett, leader. KJR, Seattle, Wash. (384.8), 6-6:30 p. m., "What's Doing at the Theaters," 8:30-9:30, Post-Intelligencer studio radio; 9:30-10, Chamber of Commerce program. KKL, Oakland, Calif. (508.2), 6-7 p. m., organ; 7:45-9:30, studio program; 9:45-10:30, Sweet's ballroom. KKK, Hollywood, Calif. (284.8), 6-6:30 p. m., Warlitzer piano organ studio; 6:15-7:30, program Beverly Ridge company; 7:30-8, program, Eastern Outfitters company; 8-9, program, Western Coast Brokers Inc. by remote control; 9-11, KXX feature program; 11-12, Abe Lerman's Coronado Grove dinner orchestra from Annapolis hotel; 12-2 a. m., Warlitzer Nightclub orchestra. KPO, San Francisco, Calif. (429.5), 8-10 p. m., Warlitzer night.

The Reader's View

New Wave Plan
I do not know that it will do any good to write this letter, but I am going to do so anyway.
I am heartily in sympathy with the new wave plan outlined in Radio Digest of March 14.
As a dealer in Radio apparatus, I am naturally interested in some kind of a plan that will give us satisfactory Radio program the year 'round. From the first of April until the first of October Radio will be no good to fans through this section of the country, due to the fact that no station is sufficiently strong to come in satisfactorily above the static. This condition is true in every section of the country located farther than twenty-five or fifty miles from a broadcasting station.
It appears to me that there is but one way to overcome this condition, and that is by increasing the power of the broadcasting stations sufficiently to enable them to come in above the static. I understand there are those who were anxious to do this, and that they would have done so had it not been that they were out-voted at the Radio conference by those whose broadcasting stations would have suffered a loss of prestige by comparison with such giants of the air. From now until next fall these smaller stations (even 1,500-watt stations) will serve but a small territory, and it seems to me that it is unfair for them not to want us to have any program at all simply because we cannot hear their stations.
Mr. Kinter's plan seems to me to offer a way for this increase in the power of broadcasting stations, which we so much need at this season of the year, and I am for it, or any other plan that will give us satisfactory program through the summer months.—J. W. Dooly, Chatsworth, Ga.

Satisfaction Reliability Economy

You need three things in radio "B" Batteries—satisfaction, reliability and economy. You get them all in Eveready "B" Batteries. Satisfaction, because they produce all the current needed by your tubes, giving you the maximum results of which your set is capable. Reliability, because you can depend on them to work at full power. Economy, because they long maintain their strength, and because they are low in price.

Advances in the art-of battery manufacture make Evereadys last longer than ever. You actually get much longer service for your money.

There is an Eveready Radio Battery for every radio use.

Buy Eveready Batteries.

Manufactured and guaranteed by NATIONAL CARBON CO., Inc. New York San Francisco Canadian National Carbon Co., Limited Toronto, Ontario

EVEREADY Radio Batteries
they last longer

EVEREADY HOUR EVERY TUESDAY AT 9 P. M., E. S. T. For real radio enjoyment, tune in the "Eveready Group," Broadcast through stations

WEAF New York
WJAR Providence
WEEI Boston
WPIA Philadelphia
WCAE Pittsburgh
WGR Buffalo

Dry "B" Batteries are an economical, dependable and convenient source of plate current!

EVEREADY Columbia Ignitor Dry Cell "A" Battery for all Dry Cell Tubes 1 1/2 volt

No. 172 45-volt Large Vertical Price \$3.75

No. 166 2 1/2-volt Large Horizontal Price \$3.00

No. 171 4 1/2-volt "C" Battery improves quality, saves space Batteries Price 60c

Operating and Trouble Shooting

For the Owner of a Crosley Trirdyn

IN THE belief that more satisfactory operation of receivers will result, Radio Digest is going to present some of the most popular receivers on the market and tell not only how to turn the dials to get certain results, but also why the dials should be adjusted as described.

The Crosley Trirdyn is one of the most widely distributed, popular priced receivers now on the market, so it has been taken up first for discussion. A front view of this set is shown in figure 1, and it will be noted that there are two large dials and three knobs which appear on the face of the panel. The tuning from station to station is done by means of the two dials, while the center knob is the sensitivity control. The other two knobs are rheostats, which control the brilliancy of the filaments of the three vacuum tubes employed and they do not enter into the tuning.

Crosley Trirdyne is unique in the fact that it employs Radio frequency amplification, a regenerative detector, reflexing and audio frequency amplification. To make these terms clearer it might be explained that Radio frequency amplification means strengthening of the very feeble current received, while they are still changing their direction at the very high rate of 500,000 to 1,500,000 times per second, which frequencies are known as Radio frequencies. A regenerative detector is one in which part of the current which has passed through the vacuum tube is returned to the input circuit of the tube and sent through the tube a second time for further strengthening. By reflexing, the Radio man means that one of the tubes is used to amplify or strengthen the energy both at the high Radio frequencies and at the lower audio frequencies of 16,000 to 20,000 per second.

Figure 2 shows the path of the current through the three tubes utilized in this receiver. From the antenna and ground the current enters tube I and is strengthened at Radio frequencies. You will note that the Radio frequency current leaving this tube is shaded, denoting that it has been amplified in passing through the tube. The energy then enters tube II, which is the regenerative detector, leaving it as an audio frequency current. This

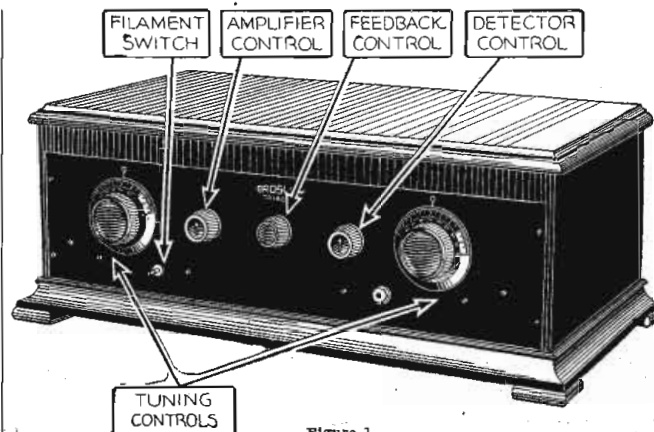


Figure 1

current doubles back and passes again through tube II to be amplified by regeneration. The upper path between tube I and tube II shows the current going back into tube I, which gives the reflex action and in tube I it is amplified or strengthened at audible frequencies. From tube I it goes by the upper, heavily shaded path to tube III, and it is further amplified at audible frequencies in tube III.

Figure 3 shows the top view of this receiver, and tube socket 13 is to take the tube which has been referred to above as tube I, socket 14 takes the tube referred to as tube II, while socket 15 is to receive the tube referred to as tube III. Figure 5 shows a simplex wiring diagram for those who are accustomed to following the wiring in sets by pictures, while figure 4 shows the usual schematic diagram to which the more experienced Radio man is accustomed. The numbers by which the various pieces of apparatus are keyed, are the same in figures 3, 4 and 5. The directions which accompany this receiver are

very clear as to the antenna, ground, battery and loud speaker connections, so they will not be taken up here.

Let us presume that we wish to receive a station using a wave length of 375 meters. The frequency of alternation of the incoming current is determined by dividing 300,000,000 by the known wave length and, if this figure is divided by 375, the frequency is 800,000. Referring to either figure 4 or figure 5, the signals are

entering the antenna-ground circuit which includes part of the coil 8, known as the primary, at a frequency of 800,000. We wish the tuned circuit which is composed of the rest of the coil 8 and the variable condenser number 1, to absorb signals from this antenna circuit and, in order that it will do so, this circuit must be adjusted or tuned so that it responds to, and will absorb, signals alternating at 800,000 per second. Turning the left hand dial on the front panel, which controls condenser 1, will accomplish this purpose. This circuit is connected at one end to the grid of the tube in socket 13 and signals which this tuned circuit absorbs will be passed into that tube.

Having been amplified, we wish them to go to the detector in tube socket 14. The flat disc of wire, which is really a coil of inductance, and which has been labeled 3A in the drawings, includes two separate windings, one of which, known as the primary, is connected to the output or plate of the first tube, and signals which have passed through tube 13 must go into part of this coil 3A. The rest of this coil, and variable condenser 2, form another tuned circuit, which must be adjusted to absorb frequencies of 800,000. This is done by turning the right hand dial, and signals which this tuned circuit absorbs will pass to the grid of the detector tube.

In the output or plate circuit of this detector tube is the coil which has been labeled 3, and which is controlled in its relation to 3A by the center knob on the panel. If this coil is too close to 3A a condition known as oscillation will be produced which prevents signals from

(Continued on page 18)

The Finer Side of Radio




A Song That Reached Home

A great baritone sang with uncommon fervor to his enraptured listeners. The melody seemed to string a golden chain of words for some responsive heart. It reached ten times a million hearts. For as the music faded into silence the singer said GOOD NIGHT MOTHER!

And then we knew that song had gone straight and true to someone somewhere in that vast invisible audience. Someone whose tear-dimmed eye saw not the wonderful singer but a little boy whose tousled head lay on her breast. And in that spell of mother love which makes millions kin. All those listening hearts "tuned in" to one heart. A heart that must have felt the magic of ten million prayers unified in one "God bless her!"

Our Bristol Loud Speaker had given us all the rich tonal quality of the singer's voice, its natural sweetness, its pathos. It had been a wonderful evening.

5 MODELS

The Cabinet shown here is of beautifully finished mahogany, 17 x 10 x 10 1/2. It has a full sounding wooden horn with long expansion chamber and a high grade electro-magnetic tone reproducer. Price \$29.00. Horn types from \$12.50 to \$25.00.

Send for Bulletin AY-3022

Ask your dealer to demonstrate them on the Bristol Comparison.

THE BRISTOL COMPANY
Waterbury, Conn.



BRISTOL'S RECORDING INSTRUMENTS

BRISTOL AUDIOPHONE Loud Speaker




This is the new Model "S" Acmeflex Kitset

In the above wiring diagram special attention is called to the U-coil radio frequency tuning unit and the vacuum tube detector, giving the famous Acme Reflex (trade mark) still greater distance, greater selectivity and better reception.

We can save you about \$60.00 on this \$150.00 radio

IF YOU bought this set completely assembled it would cost you \$150. But by putting it together yourself you can buy it for only \$80, plus cabinet, saving about \$80. We could make it for less, but it wouldn't give results.

Acme Engineers have done all the engineering for you and have written clear, simple directions which show you, step by step, how to put the set together. Many have done it in three hours, and found it fascinating fun. Even if you know nothing about radio you can put it together. All the parts are in the kitset, even the loop. No antenna to erect. Even a screwdriver and pair of pliers, the only tools you need, are included. No soldering to do. The panel is all drilled for you. The only accessories to buy are tubes, batteries, loud speaker and cabinet. If you don't want to put it together yourself, there are amateurs and dealers glad to do it for you.

And your finished set is the famous Acme Reflex (trade mark) now wonderfully improved in distance, selectivity and reception. It will pull in more stations, louder and clearer, than any other set using the same number of tubes (five). Only one tuning dial—easy to tune. Send coupon today for complete information.

Note these features of Model "S" Acmeflex Kitset

Complete directions given for putting set together.	Only one tuning dial.
No antenna to erect.	Excellent reproduction.
No technical knowledge or workshop required.	Greater distance, sensitivity and selectivity.
Only two tools and they are in the Kit.	Non-radiating—won't bother your neighbor.
No soldering to do.	Saves you about \$60.00

ACME APPARATUS CO.
Dept. N-4, Cambridge, Mass.

Pioneer Radio and Transformer Engineers and Manufacturers

ACME APPARATUS CO., Dept. N4,
Cambridge, Mass.

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Radio Digest

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We Want Less Big Stations!

IN A recent editorial we stated that less stations, with better programs, would make for better Radio. We stand squarely on that policy. We demand that remedial legislation be passed by Congress so that the department of commerce and its efficient but underpaid and underfinanced Radio section will be able to handle the chaotic situation that is already unbearable. The crowded air will soon be so bad that we will do our best to drive new broadcasters out of business before they start.

When the old broadcasting pioneers fail to provide sufficient entertainment of good quality for the country as a whole, then we will ask a few of the over-ambitious new broadcasters to step up and take the ether roadways, or channels, left vacant by the older stations that have fallen down in their mission.

Radio broadcasting is a public service. As such it is entitled to treatment as a public utility. Let us have a federal Radio public service commission that will be empowered and sufficiently funded to keep Radio at its highest efficiency for the public.

S. M. Kintner, in his plan described in the March 14 issue of Radio Digest, has the germ of a real idea. His plan would form the basis of an excellent system for the administration of Radio broadcasting, were it adopted and made a part of this nation's laws. If it failed to solve the problem, it could be amended.

What would the streets of New York or Chicago—or any town with a population of twenty thousand or more—be if there were no traffic laws? If the policemen had no laws to back up their good judgment? If the police department, besides having no, or very little, authority, did not have sufficient funds to supply their policemen with motorcycles equipped with speedometers, what then? How would speeders and other traffic law violators be apprehended if such a ridiculous state of affairs existed?

You think the picture has been exaggerated, that we have over developed our analogy after having imbibed too freely in pink tea? Dead wrong! We have underdeveloped the parallel.

The traffic law-policeman picture is a living thing, while not actually the bluecoats, city streets and country roads are involved, the analogy is being enacted to perfection by the Radio supervisors and inspectors, and the streets they attempt to police—the Radio wave bands.

W. D. Terrell, chief of the Radio police, and his department of Radio supervisors and inspectors are an efficient body. A recent editorial seemed to be directed at their ability. It was not meant to do so. They are doing the best they can without Radio legislation, and sufficient funds to buy wave meters and precision instruments—their motorcycles to apprehend the other traffic law violators.

A few years ago we laughed at the broadcasting system installed in England where one company, the British Broadcasting company, was given a franchise to do all the broadcasting on the British Isles. Again we laughed when Captain P. P. Eckersley, their chief technical director, visited this country and criticised the American broadcasting chaos.

That was a mistake. We should not have laughed. We should have saved our laughs until today. Then we could have had a merry time poking fun at ourselves. Our system is the grandest joke of all.

We don't wish to endorse the British system as the best obtainable, but we do maintain that it is so much better than the American broadcasting methods of today, and that we would be foolish to even attempt to effect a comparison. We will wait until the Kintner plan, or some similar one, is made a part of the laws of the United States.

We will wait until Chief Supervisor Terrell is given an appropriation of several million dollars with which to police the situation. We will wait—and in the meantime we are going to tell every firm and person planning to start a broadcasting station, that they had better wait also. Else we will conduct a campaign to drive them off the air.

If we can't have laws, we can always have public opinion.

RADIO INDI-GEST

Shaka Little's Picture Arrives



WALLA WALLA. (Via Radio, of course.) Shaka Little, the dancing daughter of the Chief of Walla Walla, sends her picture, the only one of its kind, to the ardent readers of Radio Indi-Gest with her compliments. Witness the great feat which has been accomplished:

The picture was filed in the imaginary R. C. A. branch office on the imaginary isle of Walla Walla at 11:61 p. m. on the night of February 30, was sent by Radio and was received here, intact, without a bit lost in the imaginary process. It will also be noticed, that the reproduction has left but little to the imagination. Imagine that!

Station BLAH is still awaiting its license from the International Piano Tuners' Union. It also has been delayed by the terrible heat melting the copper wires of the antenna. Indi has sent an order to H— for some special heat resistant wire, the same as used by Station STATIC (which is never bothered by the heat), and expects to have the opening soon maybe.

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The Magic of the Night

Day's curtain falls and sounds reveal
Deep secrets of the night;
Where mystic powers predominate
Deep'ning in the twilight.
Resonant tones on the ether bring
Harmony to my ears;
Darkness drops 'neath magic wands
My day dream disappears.

I dream not alone in the darkness
The light of worlds is mine;
As I tune in on my Radio
And hear such tunes divine.
O mysteries of the ether
The lights are all around;
Night's magic wafting to my ears
Such heavenly rhythmic sound.

RHEA SHELDON.

WUXTRY!! INDI-GEST ANNOUNCES FIRST ANNUAL TIN CUP AWARD!

Not to be outdone by other jealous interests, Radio Indi-Gest announces with this issue its first annual tin cup award, to be given to the world's worst announcer. Cash copper prizes aggregating the magnificent total of \$000,000,000.03 will be given the three next worst announcers, each one receiving the unbelievable cash copper sum of \$000,000,000.01.

Most all announcers are eligible for the Tin Cup Award. Very few will be good enough to be declared ineligible. To vote in the Indi-Gest Tin Cup Award, simply send in the number of votes you think your candidate ought to receive, and fifteen, more or less, words telling how pink he, she or it (the announcer) is. All votes Mr. Indi receives will be studied by the crew of the Kanoofis and inhabitants of Walla Walla, and the worst votes will be published.

Gosh ding it all, we'll show 'em how to run a contest!

Lament

Oh Man Static, dang his hide,
Climbs on th' waves an' takes a ride;
He shakes an' quivers, rattles an' cracks—
He's Hi, Lo, Game an' a coupla Jacks.
He spoils all the Radio with his grime,
Yuh can't even ketch th' Arlington time.
Six-letter word, begins with S,
Shakes a mean shimmy, give yuh one guess.
Oh Man Static, dang his soul,
Ain't they no way gettin' him back to his hole?

E. G. KYTE

That Is, Figuratively Speaking

Dear Indi: Old Man Figgers, who can give you more useless information than any man living, says it would take 160,000 years for one lone Radiophon to listen to all the jazz turned loose in a year by all the broadcasters of the U. S. Mr. Figgers neglects to give us the pulling power of WEAF advertising or the thrust of the harmonica player of WHN or the wattage of the Paprika announcer at WOR, who kept saying, "One moment, please," during the recent Spanish program.

THE BISHOP.

Entry Number One—Who's Next?

Dear Indi: I suggest that your department start a contest for the best homemade set that won't work and give a valuable prize for the best description of said set. Said prize to consist of a couple of good second-hand toothpicks. I give you herewith a description of my set. I got a homemade set—It's a Heckofadyne, bale of hay and a sweet potato vine, four thousand turns barb wire—number eight—grounded on the brewery gate. The aerial's tied to the kitchen sink, and tubes have all gone on the blink. For condensers use two cans of milk and she don't tune in as fine as silk. Now help us hope, and help us pray, that the gold darn thing will work some day.

OLD KING TUT.

We See by the Papers



Condensed

By DIELECTRIC

Europe has frequent opportunity of listening to Radio concerts from this side of the big pond, but until recently there had been very little rebroadcasting here of European stations. Undoubtedly, as time goes by, we shall have more of foreign programs presented to us with the aid of local transmitters. It really is an impressive experience to hear the deep, rich tones of Big Ben in an American hamlet. More fans could enjoy the experience if they were notified in advance.

I have no doubt that Station WTAM, Williard Battery, Cleveland, has a large regular audience tuned to hear their broadcasting of the symphonic ensemble concerts, which are indeed excellent. However, it may be asserted with equal assurance that reading telegrams by the score tends to disrupt an otherwise well-balanced program and starts "dialing." This station is not the sole offender—by no means—but it is marked for the reason of its being so interesting in all other respects.

When the Happy Hoosier Harmonists, entertaining through Station WHAS at Louisville, came with their melodies it was apparent that one comment could pass without contradiction: "happy" indeed. If a suggestion might be made, it would carry the idea of more variety in features.

You have seen comments in these columns in times past decrying haphazard selection of orchestral entertainers. Such procedure is based on the well-defined demand of listeners in for trained talent. No one listening to the Vincent Rosc orchestra playing before Mike at WLS, Chicago, would thereafter be content to listen to discordant sounds from broadcasters at other stations. Select with care.

This is the season when Radio motorists consider getting behind the wheel for out-of-door entertainment, consequently the season when broadcasting of road conditions is much appreciated. Full description of auto routes leading from Atlanta, Ga., are presented through the courtesy of the Atlanta motor club from WSB. A purely entertaining feature from the same station, the Honolulu Maids, deserves mention.

WWJ, Detroit, Mich., has provided better orchestral entertainment than Goldkette's orchestra. Of course, no station should be judged by a single feature, hence let me add that other portions of programs from this station are pleasing and of a high order, so when you travel around the low wave stations drop in on the Detroit News.

Anyone in search of scientific data pertaining to agricultural pursuits would do well to avail themselves of the services presented by the Michigan Agricultural college, the station call being WKAR. Here you may listen to experts in their line discuss varied phases of farming.

It would seem surprising that so few cantatas are given over the air in view of the success attending KDKA's broadcast of the "Bride of Dunkairn." We have had almost all forms of vocal compositions presented by Radio assuring the devotees of each a chance to enjoy them. There has been a dearth of cantata music broadcast and it's a pity.

Four Filter Eight Tube Super-Heterodyne

Part VI—Adjusting and Wiring With Two Audio Stages

By Jacques Fournier

IN PART V, given last issue, the writer presented the picture wiring diagram when a single stage of push pull audio amplification is used for the second detector, which hook-up is suitable for 201A tubes. With this issue, two more diagrams are presented, figure 18 and figure 19 which show the wiring when two stages of audio follow the second detector. The sockets shown are for 201A tubes but the reader should have little difficulty in altering this wiring for sockets which take the 199 tubes. When these latter tubes are used the G and P terminals of the sockets are at diagonally opposite corners instead of side by side and the plus filament bus will have to be moved back the width of the socket and pass under the rear edge of all sockets instead of beside the negative filament bus as shown. The wires connecting P2, P3 and P4 on the filter cover with their respective P terminals on the intermediate amplifiers will have to be a little longer to reach the P terminals, which, if 199 sockets are used, will be where the plus filament terminals are shown in figure 18.

The schematic diagram for use with two stages of audio instead of the push pull is formed by combining figure 14 with figure 2. Assuming now that the wiring has been complete either with figures 15 and 16 or figures 18 and 19, we are ready to put the set into operation.

Connections

The rheostat should be turned to the "off" position, and the filament switch also. Connect the A battery to the terminals indicated in either figure 16 or figure 19 and insert a tube in any socket. Turn the filament switch to the "on" position and then turn the rheostat gradually. The tube inserted should light up, in which case insert the remaining 7 tubes to be sure that the filament circuit is complete to all tubes. Now turn the rheostat to the "off" position and remove 7 of the tubes. Disconnect the minus A lead and connect it to the plus B 90 binding post. Now turn the rheostat on again and the tube should not light; if it does it indicates that an error has been made in the wiring and a B plus wire is in contact with the filament wiring some-

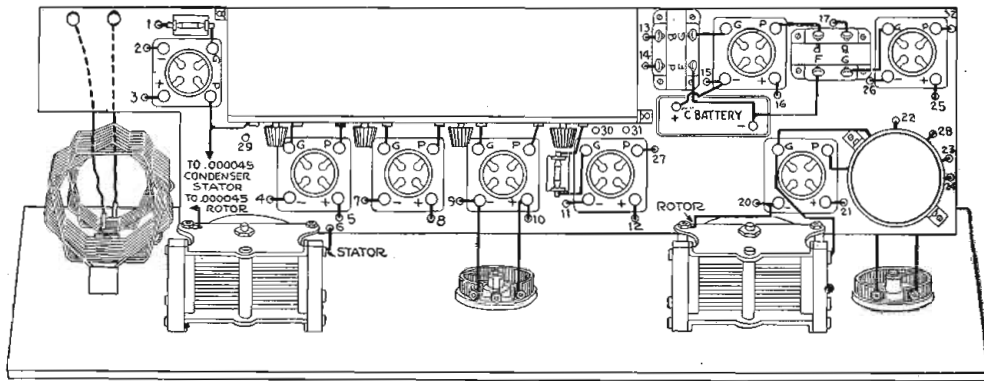


Figure 18

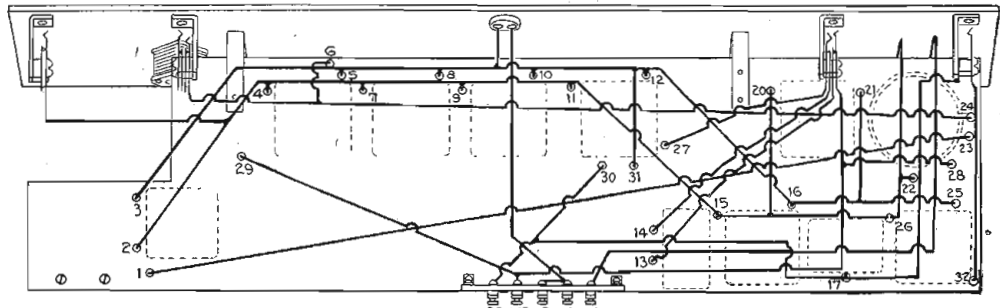
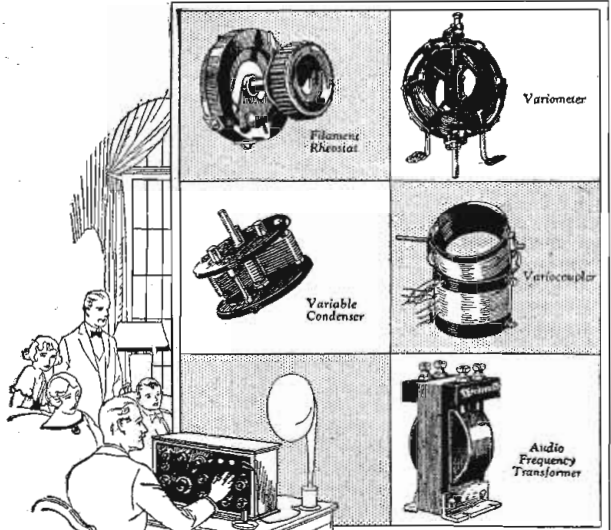


Figure 19

where. Assuming that the tube does not light, disconnect the minus A from the B plus 90 binding post and connect it to the B plus 45 binding post. This con-

(Continued on page 20)



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HOW TO OPERATE SET

(Continued from page 15)

being heard, while if this coil is too far away from 3A the valuable benefits of regeneration are not gained. It is desirable, therefore, to so adjust the rela-

knob should, therefore, be pulled out until this point is reached and then pushed back slightly so that the volume is still present, but the distortion is not noticed.

One end of coil 3 is connected to what is known as an audio transformer and labeled 6 in the diagrams. In figure 3

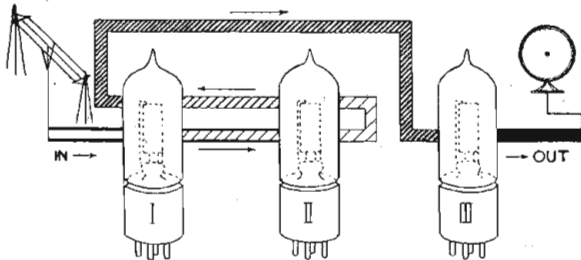


CHART OF CURRENT IN TRIRDYN

RADIO FREQUENCY AUDIO FREQUENCY AMPLIFICATION IS DENOTED BY HEAVINESS OF SHADING

Figure 2

relationship between these coils that regeneration will be increased to a point just before the point of oscillation is reached.

it will be found at the left end of the panel. This transformer contains a large iron core and many thousand turns of

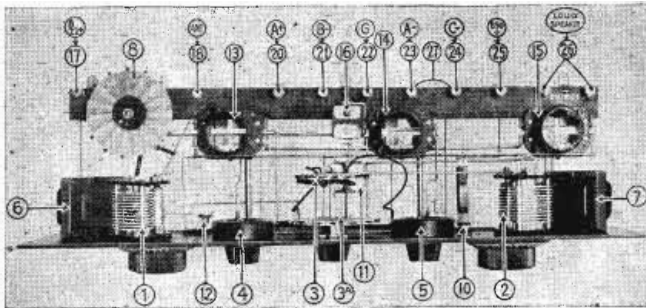


Figure 3

This point can be recognized if the two dials are correctly adjusted, as the signals will increase in volume as the center knob is pulled out and will suddenly begin to be distorted or "mushy." This

wire, which are the features that distinguish it as an audio frequency transformer. It contains two windings, one of which is known as the primary and is

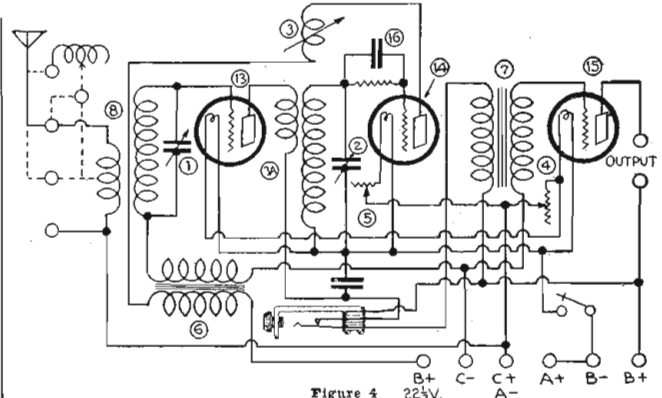


Figure 4 22.5V. C- C+ A+ B- B+

connected to coil 3 at one end, and, at the other end, to the binding post 17, to which is also connected the 22½-volt plus lead from the B battery. The secondary winding of this transformer, while it does not need to be tuned, as was the case with Radio Frequency transformers, will absorb energy from the primary. The secondary of this transformer is connected to the grid circuit of the first tube by being connected to one end of the secondary in coil 3 as shown in figure 4 and figure 5. The current passes through tube 13 a second time, but now at audible frequencies and passes to the jack which is shown in figure 4, below the coil 3A and, in figure 5, to the left of the rheostat 5. A pair of head receivers can be plugged into this jack and signals heard. If the receivers are not plugged in, the energy goes to audio transformer 7, shown at the right end of the panel in figure 3, and into the primary, as shown in figures 4 and 5. The secondary of this transformer absorbs energy from this primary and passes it to the grid of the tube in socket 15, which is shown in figure 2 at the right end, in figure 4 in the upper right corner and in figure 5 just below variable condenser 2. Tube 15, which was tube III in the original explanation, amplifies or strengthens the energy, and from this tube it goes to the two binding posts

(Continued on page 20)

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A. B. C. Course in Radio Fundamentals

Chapter III—Magnetism, Electromagnetism and Induction

By David Penn Moreton

APIECE of iron or steel which has the ability of attracting to it other pieces of iron and steel is called a magnet, and the property of the material causing it to produce the force of attraction is called magnetism. Certain iron cores possess this magnetic property as found in nature, and they are called natural magnets. A piece of material which possesses magnetic properties after some special treatment, such as placing it in contact with or under the influence of another magnet or under the magnetizing influence of an electric current, is called an artificial magnet.

Poles of a Magnet

When a magnet is suspended, as shown in figure 9, so that it is free to turn in a horizontal plane, it will assume an approximately north and south position. The end of the magnet which points approximately north is called the north pole of the magnet, and the end of the magnet which points approximately south is called the south pole of the magnet.

If the like magnetic poles of two magnets be presented to each other, no matter whether they are both north or south poles, there will be a force of repulsion acting between them. On the other hand, if two unlike magnetic poles be presented to each other there will be a force of attraction between them.

A magnetic field is any region in which a magnetic substance will be acted upon by a magnetic force. Every magnetic field has two properties, both of which must be known in order to completely define the field. These two properties are the strength and the direction of the magnetic field. A magnetic field is said to have a strength of one, when there is a force of one dyne exerted on a unit magnetic pole placed in the field at the point in question. This unit of force of one dyne is a very small force, as there are approximately 485,000 dynes in one pound. A unit magnetic pole is a magnetic pole of such strength that it will repel a pole of like sign and strength with a force of one dyne when they are separated a distance of one centimeter in air.

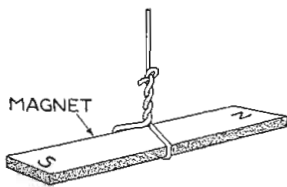


Figure 9

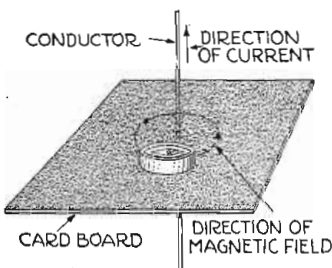


Figure 11

Magnetic Field Produced by Current

There is a magnetic field produced by an electric current in a conductor. Place a conductor over a compass needle as shown in figure 10. Now establish a current in this conductor and note the action of the compass needle. Reduce the value of the current and at the same time note the action of the compass needle. Now reverse the direction of the current in the conductor and repeat the above suggestions and note the action of the compass needle. The results of the above simple experiments will establish the following facts: First, there is a magnetic field produced in the region surrounding a conductor in which there is an electric

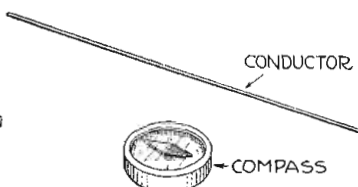


Figure 10

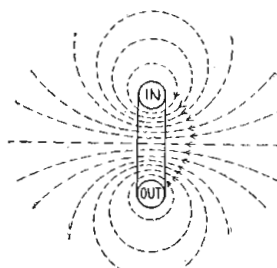


Figure 12

If a conductor be placed in a vertical position as shown in figure 11, and a current established in this conductor, the direction of the field at various points surrounding the conductor may be investigated by a compass needle. It will be found that the compass needle always points around the conductor in the same direction as long as there is no change in the direction of the current in the conductor; but if the direction of the current be reversed the compass needle will point around the conductor in the opposite direction. Remembering that the north pole of the compass needle points in the direction of the magnetic field, you will find that the magnetic field surrounds the conductor in a clockwise direction as you look along the conductor in the direction in which the current flows through the conductor. A simple rule for determining the relation between the direction of a magnetic field surrounding a conductor and the direction of the current in the conductor, is to grasp the conductor with the right hand, placing the thumb along the conductor in the direction of the current, then the fingers will reach around the conductor in the direction of the magnetic field.

Increasing Magnetic Effect

The magnetic effect of an electric current may be increased by bending the conductor carrying the current into the form of a loop. The cross-section through a single turn of wire carrying a current and the magnetic field surrounding the wire are shown in figure 12. The current is toward the paper in the upper part of the wire and away from the sheet of paper in the lower part of the wire. It will be observed that the lines with the

(Continued on page 20)

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This is just one evening. I don't know what it will do in the future.

Of course, all the Coast and Mountain Region stations came in so loud that the speaker had to be water cooled.

Every one of these stations came in as the loud speaker loud enough to be heard all over the house. I am using a three-tube set . . . and at 7 o'clock I counted 11 stations on the dial at once from KFI down to KFN.

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HOW TO OPERATE SET

(Continued from page 18)
 labeled "output," to which a loud speaker 4 and 5 will not be found particularly critical, but once signals have been brought in, as outlined above, these rheostats should be adjusted for maximum volume and clearness. The piece of ap-

while the center tap is to be connected to another phone jack, and it must be connected to the binding post in the jack which gives connection to the ball point of the plug so that it will make contact with the spring in the closed circuit jack at the left end of the panel. The phone plug to which the center tap is connected is inserted in the jack at the left end of the panel and the phone plug with the ends of the loop is inserted in the

10 then shift the loop dial to 50 and revolve the oscillator dial from 20 to 80. The high pitched whistle indicating that a station is tuned in should be heard at some setting of the oscillator dial and, when it is, turn the potentiometer very slowly until the whistle is just eliminated. This is the point of maximum sensitivity of the intermediate amplifiers as there is some slight regeneration at this point but not enough to throw the tubes into oscillation. The two large dials should now be adjusted so that the station is heard clearly and should be left at that point while adjustment is made of the intermediate amplifier condensers.

Intermediate Amplifiers
 Starting with TC1 swing it slowly back and forth through its semi-circle of rotation and note carefully the point at which the incoming program is strongest; naturally it should be left at that point. Do the same with condenser TC2 and also with TC3 and TC4. It will probably be found that the final settings of these four condensers is somewhat different as there are bound to be slight differences in the intermediate transformers, the leads connecting them to the small condensers, and in the condensers themselves.

The proper way to tune a super-heterodyne might be described as follows: The loop tuning dial which is that at the left is turned very slowly from zero toward 100 using the vernier provided, either on the condenser itself or in the dial used. At the same time, the oscillator dial is "jockeyed" back and forth through a short arc of about 20 degrees using the coarse control and not the vernier. This arc will be, of course, between zero and 20 when the loop dial is near the lower end of its scale and its range is to extend between higher numbers as the loop dial is brought toward the upper end of its scale. For example, if the loop dial is at 50, the oscillator dial is jockeyed rapidly back and forth between 20 and 40, if the loop dial is turned up to about 50 you should be jockeying the oscillator dial between 40 and 60, and so on up the scale. With a station tuned in which is 75 to 300 miles away, turn the potentiometer away from the point at which a hissing sound is heard so that the signals are made very faint. Readjustment of the intermediate amplifier condensers on this faint signal will enable you to get the very best settings possible for them. Now turn the small condenser which controls loop regeneration and which is located on the panel to the left, and it will be noted that the signal strength increases to the point where the voice or music suddenly tops. This sudden cessation of the incoming program indicates that the loop circuit has gone into oscillator and the small condenser should be reduced in capacity to a point where signals are strong but just below the point of oscillation.

It is impossible to state just what value the grid leaks should be for best results and what it may seem an unnecessary expense the builder will find it well worth while to have several values of grid leak cartridges available between 2 megohms and 7 megohms to try in the grid leak clips. One of these will be found, in each case, to give considerably better results than the others. The rheostat setting will not be found critical but there is one point at which signals are somewhat clearer than others and the signal strength falls off slightly above or below it.

(In the next issue Mr. Fournier will take up trouble shooting and show how to test the various circuits for possible breaks so that the reader may check over his set should it fail to test out as stated above in Part VI.—Editor's note.)

A. B. C. RADIO COURSE

(Continued from page 19)
 arrows on them, which represent the magnetic field, encircle the upper cross-section of the wire in a clockwise or right direction and the lower cross-section of

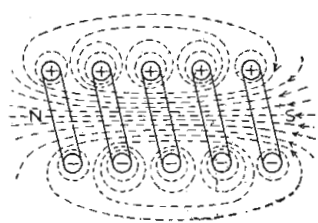


Figure 13

the wire in a counter clockwise or left direction. The magnetic effect of each part of the wire produces a magnetic field through the wire from the right side to the left side, and the magnetic field is made stronger within the turn than it is outside, which is indicated in the figure by drawing more lines per unit area. If the number of turns forming the coil be increased and the current remains the same there will be an increase in the strength of the magnetic field within the coil, as the greater part of the lines of force produced by each turn seem to pass around the entire winding rather than

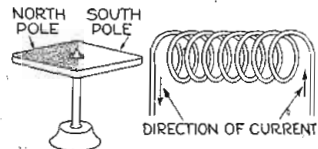


Figure 14

around the individual turns. A cross-section of a coil of several turns is shown in figure 13, and this is called a solenoid.

The Solenoid
 The solenoid with a current in its winding possesses all of the properties of a permanent magnet. The imaginary lines representing the magnetic field pass through the solenoid from its south

(Continued on page 22)

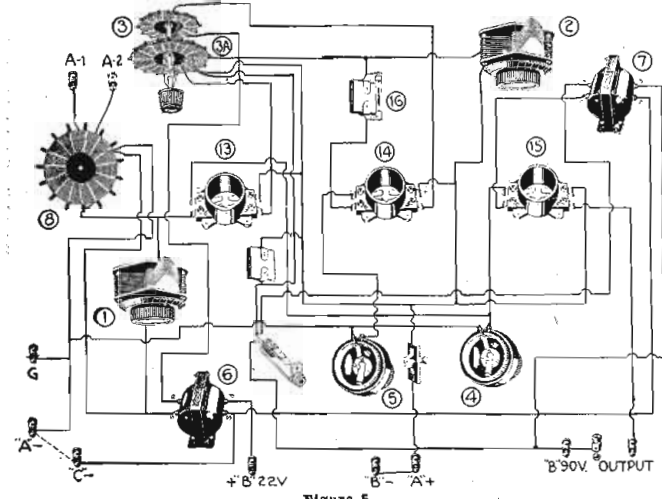


Figure 5

paratus which has been labeled 16 in figures 2, 4 and 5, comprises two units, one of which is known as the grid condenser and the other as the grid leak. The grid condenser is permanently connected in place and there would be no advantage in changing it to any other capacity than that supplied in the set. The grid leak, however, which is the small glass tube held in two clips, will be found worthy of some attention in the way of changing it. Grid leak cartridges, as they are called, come in various values, such as 2 megohms, 3 megohms, etc., up to 7 megohms. Since the tubes on the market vary considerably in their characteristics, no definite value can be given for this unit and it would be a good idea to purchase one of each value from 3 to 7 megohms. One of these will be found to give considerably better results, both in volume and clearness, than any of the others, and it should be left in the clips.

(The Technical Department will appreciate it if readers of the above article will write in and express their views on it. Favorable or unfavorable comments will be equally appreciated, as this publication is published to suit the readers and not the ideas of the technical staff.—Editor's Note.)

FOUR FILTER SUPER

(Continued from page 17)
 The above procedure is desirable since if an error has been made, and a careful checking fails to bring it to light, only one tube will be blown instead of eight. Now disconnect the minus A battery wire from the B plus 45 binding post and connect it to its proper post. The B batteries can be connected to the proper terminals and we are ready to try the set.

Antennas

If it is intended to use the set with a loop aerial the two outer ends of the loop should be connected to one phone jack

double circuit jack next to it. On the other hand if an outside antenna and a ground are to be used they are connected to the binding posts provided at the rear edge of the sub base directly behind the antenna coupler. The loud speaker can be plugged in at the last jack to the right or a pair of phones can be plugged into the jack which is 4 1/2 inches in from the right end of the panel. All tubes should be in their sockets, the filament switch should be turned to the "on" position and the rheostat turned on about three quarters of its possible rotation.

Tuning
 The 4 small condensers known as TC1, TC2, TC3 and TC4 should all be turned so that their plates are half in. Assuming that the winding of the filter transformers was very carefully done, the four secondary circuits of the filter should now be at approximately the same wave length. The potentiometer in the center of the panel should now be turned until a point is reached at which a steady rushing or hissing sound is heard. This steady hissing sound indicates that the intermediate amplifiers have gone into a state of oscillation. The two large dials should now be slowly turned through their arc of rotation keeping the dial reading approximately the same. If the intermediate amplifiers are in a state of oscillation a loud whistle will be heard when the dials approach the proper setting for a station. The small condenser just below and to the left of the left hand tuning dial should be at minimum capacity during this adjusting. If revolving the dials together does not produce the whistle mentioned set the loop dial at 40 and slowly revolve the oscillator dial which is that at the right, through an arc from 10 to

STAR DETECTORS SATISFY

Dear Sirs: Received your detector O. K. It's all you say and then some. On a simple crystal I received the following stations: WGY, WHA, WJLA, WDKA, WOR and WTAM.

Respectfully yours,
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 9 Spring Street.

The above letter is typical of hundreds received during the past two years on our type O Flat Crystal Detector, which has been much improved this year and sells at \$1.00. Formerly \$1.25.

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Static Eliminator in Crystal Set

Selectivity with Tapped Primary and Secondary

While experimenting with a crystal during the static season I discovered a crystal hook-up which I believe is new. It is selective and is at the same time

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

something of a static eliminator. The crystal used was galena while the inductance was an ordinary loose coupler with both the primary and secondary tapped. The variable condenser is of the 23-plate type while the phone condenser was somewhat smaller than the ordinary phone shunt. It had a value of .00015 mfd. The tuning of the variable condenser is very fine, making the circuit much more selective than the average crystal set.—Loren L. Hurd, Northfield, Minn.

Homemade B Battery Unit

It has been some time since I graduated from a crystal to a one tube set. I had several months of good reception then the set began to produce strange noises, straining and working like an old jug of home brew that is working through a dark and still night. Upon dissecting the battery I found some of the cells were eaten through, thus short circuiting other cells.

I saw that I could beat this scheme and did so. Now I have an efficient B battery, one that is always variable and it is much cheaper than the manufactured one. I bought some three cell flashlight batteries. Just now I am using a 4½-volt tube to which makers recommend 40 volts on the plate. As a matter of fact I get the best results with an estimated voltage on the plate of 18 to 20.

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NOISELESS

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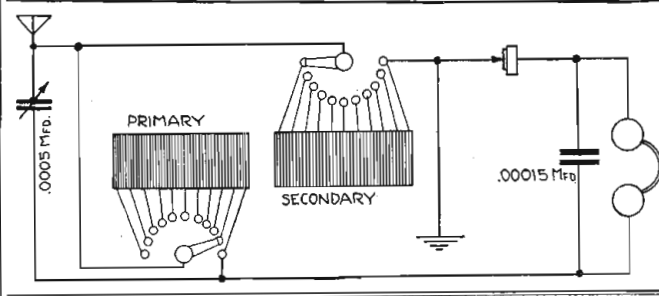
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Lasts Indefinitely—Pays for Itself

32 Cells
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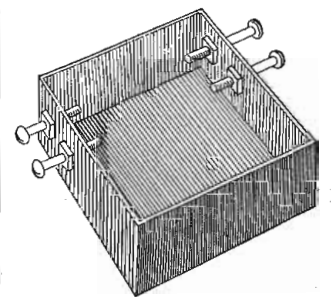
World Radio Storage Batteries

1219 So. Wabash Ave., Dept. 76, Chicago, Ill.

TUNING FINE WITH CONDENSER



I made a tray 8 inches wide by 8 inches long. A slight variation in the length will be of no consequence, for if it is too long a small block can be put in to keep the units from being displaced. These three cell units are 7 inches long by 1½ inch in diameter. Place them side by side in the tray and mark the sides for holes, which, of course, should center at the positive connection for each cell. Mark both sides.



Drill holes and insert some 1¼-inch machine screws, placing a nut on the inside and another on the outside of the tray. It is much better to use brass screws to prevent corrosion, but iron stove bolts will do in a pinch only keep the

ends bright to make good connections on the battery terminals. Rusty connections are a source of annoyance.

This makes a tray with six bolts, through each side, thus forming connectors for the separate units, as well as being binding posts on the outside of the box. Lay in the three cell units, first positive to the right then negative to the right and gently turn up the screws until a firm, though not too hard, connection is made. Of course you will have a wire across each pair of screws at each end to properly connect the units in series.

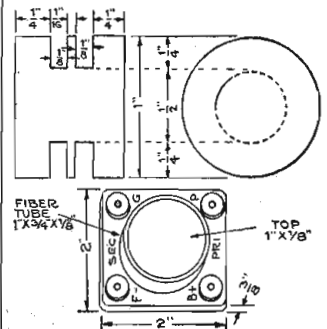
This makes a convenient tray, full of batteries and red hot for 27 volts. Cost about \$1.60. In fact the cells are really larger than those usually found in an ordinary dry B battery.

The only objection to this form is that there are a dozen connections to get loose. But if you find you have an open circuit on the B, just put on your head set, connect one end to the battery terminal and begin to test. You will soon find the screw that is not making contact. The advantage of this unit is that if one cell or unit becomes bad it is quickly detected for the corroded cell stains the paper wrapper. Moreover as each screw connector at each end may be tested with the telephone tips and each unit can be quickly tested for strength.—John P. Robinson, Jacksonville, Fla.

If the size is sufficient to cut a piece to fit the cabinet, a glass panel can be made from any old broken windshield.

Candle Makes Core for Transformer Coils

The materials necessary for constructing the homemade transformer are one fiber or rubber tube 1 inch in diameter and ¾ inch long, one cover to fit on one end of the tube 1 inch by ¾ inch thick, one base 2 inches square and ¾ inch thick, four small binding posts and one wax candle 1 inch in diameter. A piece of the candle is cut as shown and 200 turns of number 36 enameled wire is wound in one of the grooves, the starting end being attached to one binding post which should be marked P, the other end is attached to the adjoining post which is marked B+. Wind 250 turns of number 36 enameled wire in the second groove, the starting end connected to the binding



post marked F—, and the finishing end of the wire on the post G. The candle with the coils is placed inside of the tube and the cover put on top. This is centered on the base which looks very much like the tube socket.—E. J. Antotte, Montreal, Canada.

Poor insulation is often the cause of poor signal strength.

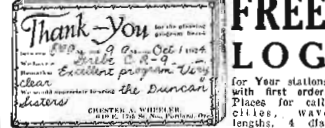
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Questions and Answers

Value of Honeycomb Coils
(12901) C.T.Y. Port Huron, Mich.

I have made up several sets which worked well from hook-ups in your paper including Reinartz, Flewelling, Milonick, Light House Keeper's set, but the farthest I could get on the detector was Dallas, Texas. In looking over some of the back issues the other day, I noticed an article in the January 27, 1923 issue by C. C. Diefenbacher of Memphis, Tenn., on honeycomb coils in the Reinartz set where he states he could get the coast early in the evening while the big stations were

and I would like to know the inductance or turns of the different coils used in this set.

The article in a recent issue on inductance of coils with capacity of condenser and wave length known when wound on bakelite or hard rubber was good and I would like to see you publish one on finding inductance of low loss coils, also how to figure proper inductance of low loss coils for the primary and tickler windings.

A.—The values of the coils used in the Reinartz circuit are as follows: Thirty-

five to forty-five turns for the primary and the secondary, and fifty turns for the tickler.

New Local Wave Lengths

I just want to write a few lines to say what I think of the new local adjustment. While it evidently was made for the best and greatest good, some one slipped a cog. Either all the Radio sets are on the bum, the stations broadcasting are as broad as a 12-inch plank, or else I have got the palsy. As the only thing that can get in this section of the county is "hetro-

dynes," only the strongest stations are able to drown out the weaker.

I have been a Radioman for four years, from a little crystal (homemade) to the big 5 and 8-tube sets. Up to a few short days ago we could pick up any station of note in the U. S. or Canada. WBZ and KGO were like locals.

While I have passed the DX stage, I enjoy listening to a good program and usually hunt one out and listen in as long as it is good, but the good programs are all gone "hetrodyned." What's wrong?—W. B. Townsend, Fort Arthur, Texas.

A. B. C. RADIO COURSE

(Continued from page 20)

pole to its north pole and outside from the north pole to the south pole.

The polarity of a solenoid may be tested by means of a compass needle just as in the case of a permanent magnet, as shown in figure 14. There is a very definite

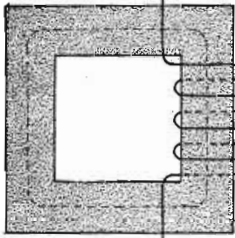


Figure 15

relation between the polarity of a solenoid and the direction of the current through its winding. Thus in figure 13 the right end would be the south pole and the left end would be the north pole. If you look at one end of the solenoid and the current is right around the winding the end nearest you will be the south pole and the other end, of course, will be a north pole.

If you grasp the solenoid with the right hand in such a manner that the fingers of the hand reach around the solenoid in the direction of the current, then the thumb will point toward the north pole of the solenoid.

The electric current in the solenoid sets up a force which produces the magnetic lines through it. These magnetic lines are called the magnetic flux and the path which they take is called the magnetic circuit. The force due to the current is called the magnetomotive force and its value depends upon the number of turns in the coil and the current in these turns.

Ampere Turns

The product of the number of turns in a coil and the current in the turns in amperes gives the value of the magnetomotive force in ampere turns. The magnetomotive force produced by the current overcomes the opposition offered by the magnetic circuit to the establishment of a magnetic flux, just as the electrical pressure overcomes the resistance of the electrical circuit. The opposition offered by the magnetic circuit to the establishment

of a magnetic flux is called the reluctance of the circuit and it is measured in a unit called the oersted. There is a law for the magnetic circuit, which expresses the relation between the magnetomotive force, the reluctance and the magnetic flux. This law is commonly called Ohm's law for the magnetic circuit because of its similarity to Ohm's law for the elec-

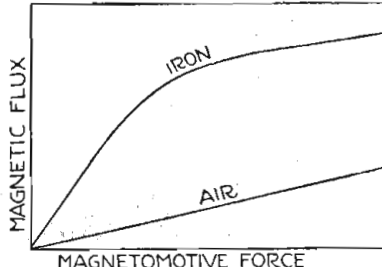


Figure 16

trical circuit. A statement of this law is as follows:

$$\text{Magnetic Flux} = \frac{\text{Magnetomotive force}}{\text{Reluctance}}$$

The reluctance of a magnetic circuit depends upon the length of the circuit, the area of the cross-section of the circuit, and the material comprising the circuit. Some materials are better conductors of magnetism than others and the ability of a material to conduct magnetism in comparison to air is called the permeability of the material.

For example, iron is a much better conductor of magnetism than air and its permeability may be several hundred, while the permeability for air is considered as being equal to one.

The longer the circuit the greater the reluctance, the larger the area of cross-section the less the reluctance, and the greater the permeability the less the reluctance.

A simple magnetic circuit is shown in figure 15. When a current is established in the winding there will be a flux produced in the iron. This magnetic flux will increase with an increase in the current, but there is not always a direct relation between the two quantities. A curve showing the general relation be-

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A magnetic circuit cannot be insulated as in the case of an electrical circuit as there is no insulator for magnetism. For this reason the reluctance of the path in which the magnetic flux is desired should be low in comparison to the reluctance of the other paths, which are called leakage paths.

If a conductor and a magnetic field be

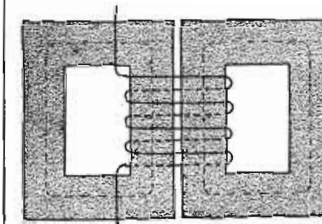


Figure 17a

said to become saturated as the magnetomotive force increases in value. After the material of a magnetic circuit has reached the condition of saturation there is a much smaller increase in magnetic flux for a certain increase in magnetomotive force than there is before saturation.

There are many forms of magnetic circuits, but they can all be considered as belonging to one of the following classes: Series magnetic circuit. Parallel magnetic circuit. Combination series and parallel circuit. A series magnetic circuit is shown in figure 15. You will note there is only one path for the magnetic flux.

A parallel magnetic circuit is shown in figure 17a. In this case there are two independent paths for the magnetic flux.

Series and Parallel Circuit
The magnetic circuit shown in figure 17b is a combination series and parallel circuit. There is only one path through the coil and this path divides into two paths outside the coil.

Raulf Radio Console, Raulf Manufacturing Co., 564 Vedder St., Chicago.

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

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Figure 17b

moved relative to each other in such a manner that the conductor cuts the imaginary lines composing the field there will be an electromotive force produced in the conductor. The process of producing an electromotive force in this way is known as electromagnetic induction.

(The operation of the generator and motor will be described in the next chapter.—Editor's Note.)

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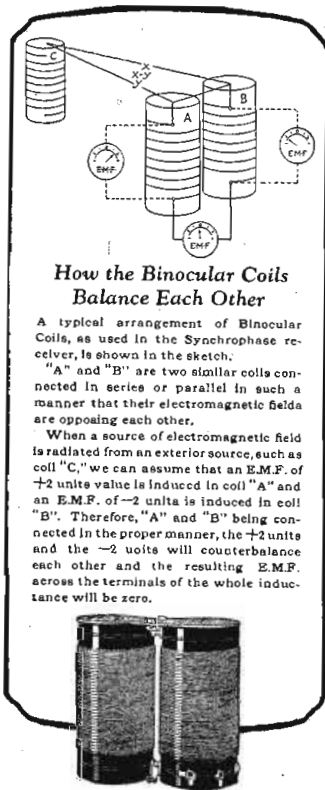
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Binocular Coils, with *S-L-F* (straight line frequency) *Condensers* and *Volume Control*, place the Synchrophase in the front rank of receivers.



How the Binocular Coils Balance Each Other

A typical arrangement of Binocular Coils, as used in the Synchrophase receiver, is shown in the sketch.

"A" and "B" are two similar coils connected in series or parallel in such a manner that their electromagnetic fields are opposing each other.

When a source of electromagnetic field is radiated from an exterior source, such as coil "C," we can assume that an E.M.F. of +2 units value is induced in coil "A" and an E.M.F. of -2 units is induced in coil "B". Therefore, "A" and "B" being connected in the proper manner, the +2 units and the -2 units will counterbalance each other and the resulting E.M.F. across the terminals of the whole inductance will be zero.



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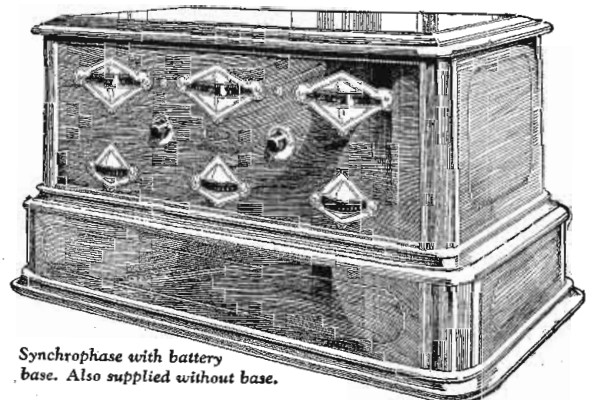
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Doctor *W.H.*



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