'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 Chelmsford experimental station of the B.B.C., from which point 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 380 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 forteil 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.

BROADCAST SONG OF KGO MEADOW LARK

OAKLAND, Calif.—During recent tests in the KGO studio, when a window was left open, a sensitive condenser microphone picked up the song of a weadow 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 operetta's, "The Mikado," during the broadcasting of the play from the stage of the Great Northern theater in Chicago. Left, Drusilla Taggart, sensational young Broadway dancer, who recently did a military buck dance over the air from Station WHAR, Seaside hotel, Atlantic City.

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 Euglish 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 WEAF, New York; WJAR, Providence, R. I.; WOO, Philadelphia; WTAM, Cleveland, and WCAP, Washington.

* *

"La Traviata" was recently broadcast in condensed form through WEAF 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, Schnectady, 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 coure 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 WEAF 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 KSAC 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 WOS, away out in Jefferson City, Mo., tends to mar reception of CNRO, Ottawa, Canada, and vice-versa; WGY, Schenectady, and WMBF, dowu 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 Batcheller, 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.

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, Nebr.—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 443, 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. Smisor, 4737 Lake Park Ave., Chicago, Ill.; Managing Editor, Evans E. Plummer, 934 Lawrence Ave., Chicago, Ill.; Business Manager, V. E. Hurtle, 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. Ryan, 510 N. Dearborn St., Chicago, Ill.; A. R. White, 7015 Elmwood Ave., Chicago, Ill.; Joseph Seaman, 290 Fifth Ave., New York, N. Y.; George Seaman, 2350 Parkway, West Chicago, Ill.; D. R. Seaman, 49 Cedar Ave., Chicago, Ill.; Charles S. Peterson, 1150 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 list 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 trustees, 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 WEEI, 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 mierophone.

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.

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.

Control room, showing apparatus used.

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

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.

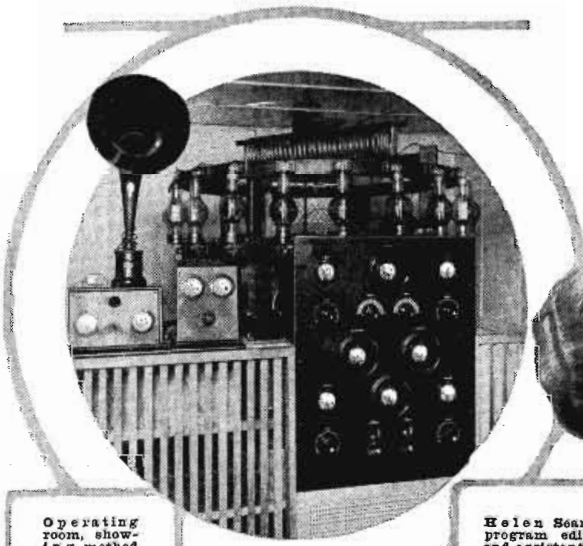
And when it comes to engineers—well, take a look at Leroy M. E. Clausing. He is the man who can tell who wins the battles among the electrons in the tubes. He has been with the station since its beginning, and knows every piece of wire by its first name. Formerly connected with the bureau of standards, 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. 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*)

The Dennis sisters, regular performers at WEBH.



Operating room, showing method of supporting tubes.

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

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 Solemn 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."

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 Garod studio in the Palmer House, Chicago.

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.

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.

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 be 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. 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.

LEAD OF KOA PLAYERS "MASHED"

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

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.

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

Met.	Station and City	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
226	WBBM, Chicago, Ill.	Silent	9:00-10:00	Silent	9:00-10:00	Silent	9:00-10:00	Silent
288	WEBJ, New York, N. Y.	Silent	Silent	Silent	7:00- 9:00	7:00- 9:00	Silent	7:00- 9:00
340	KFAB, Lincoln, Nebr.	Silent	5:00- 6:00	8:30-10:30	Silent	8:30- 9:30	Silent	8:30- 9:30
246	WDAX, Trenton, N. J.	Silent	Silent	Silent	9:15-11:00	Silent	Silent	9:00-11:00
244	WABN, La Crosse, Wis.	Silent	Silent	10:00- 1:00	Silent	Silent	10:00- 1:00	Silent
248	WBBG, Mattapoisett, Mass.	Silent	Silent	8:00-10:00	Silent	8:00- 9:00	Silent	7:00- 2:00
250	WTAY, Oak Park, Ill.	7:10-11:00	Silent	Silent	7:10- 8:30	7:30-11:00	7:10- 8:30	7:10- 8:30
261	KSL, Salt Lake City, Utah	10:00-12:00	11:00-12:00	10:00-11:00	10:00-11:00	10:00-11:00	10:00-11:00	11:00-12:00
265.5	WMAK, Lockport, N. Y.	Silent	Silent	8:00- 9:00	Silent	Silent	12:00- 1:00	Silent
266	KFNF, Shenandoah, Ia.	7:30-10:00	7:30- 9:00	7:30- 9:00	Silent	7:30-10:00	7:30-10:00	7:30-10:00
266	WBCN, Chicago, Ill.	7:00- 2:00	5:00- 1:00	Silent	7:00- 2:30	7:00-11:15	7:00- 2:00	7:00- 2:00
268	WEBW, Beloit, Wis.	Silent	5:30- 8:30	Silent	9:00-10:00	Silent	8:30- 9:30	Silent
270	WGST, Atlanta, Ga.	Silent	Silent	10:00-11:00	Silent	Silent	8:00- 9:00	Silent
270	WOI, Ames, Ia.	Silent	Silent	11:00-12:00	Silent	Silent	9:15-10:15	Silent
272.6	WBBR, Staten Island, N. Y.	8:00- 9:45	9:00-10:20	8:00- 8:50	Silent	Silent	8:00- 8:50	Silent
272.6	WFBH, New York, N. Y.	6:00- 8:45	6:00- 8:30	6:00- 1:15	6:00-11:30	6:15- 1:15	6:00-12:30	6:00- 1:30
273	KFKB, Milford, Kan.	7:00-12:00	9:00-11:00	7:00-12:00	7:00-12:00	7:00-12:00	7:00-12:00	7:00-12:00
273	WHK, Cleveland, Ohio	6:00- 1:00	7:30-11:00	6:00- 7:30	6:30- 7:30	6:00- 7:30	6:00-11:30	6:00-10:00
273	WRW, Tarrytown, N. Y.	9:00-11:00	8:00-11:30	9:00-11:30	9:00-11:30	9:00-11:30	9:00-11:30	9:00-11:30
275	KFAU, Boise, Idaho	Silent	Silent	10:00-11:00	Silent	Silent	Silent	10:00-11:00
275	KFKU, Lawrence, Kan.	Silent	Silent	7:50-10:45	Silent	Silent	7:50- 9:45	Silent
275	WABI, Bangor, Me.	Silent	Silent	7:00- 9:00	Silent	7:00- 9:00	Silent	7:00- 9:00
275	WHAD, Milwaukee, Wis.	Silent	Silent	8:30- 9:30	Silent	9:00-10:00	Silent	9:00-10:00
275	WORD, Batavia, Ill.	Silent	8:00- 8:50	9:00- 9:50	9:00- 9:55	Silent	8:00- 9:00	Silent
275.2	KQV, Pittsburgh, Pa.	Silent	Silent	9:00-10:00	Silent	9:00-10:00	Silent	8:00-10:00
275.2	WJAS, Pittsburgh, Pa.	Silent	Silent	8:30-11:00	8:30-11:00	7:30-11:00	8:30-10:00	7:30-10:00
278	WCAU, Philadelphia, Pa.	Silent	5:30- 9:30	Silent	7:30- 9:30	8:00-11:10	7:30-11:00	7:00-10:00
278	WLBL, Stevens Pt., Wis.	1:00- 2:00	Silent	Silent	9:00-10:00	Silent	Silent	Silent
278	WRBC, Valparaiso, Ind.	Silent	Silent	8:30- 9:00	Silent	Silent	Silent	Silent
280.2	WNAC, Boston, Mass.	10:00-11:00	8:30-10:30	7:00-11:00	9:00-11:00	7:00-11:00	9:00-11:00	7:00-11:00
285.5	WEMC, Berrien Spgs., Mich.	Silent	9:15-11:00	9:15-10:15	Silent	9:15-10:15	Silent	10:00-11:45
285.5	WKAR, Lansing, Mich.	12:30- 2:30	Silent	7:00- 8:00	Silent	8:00- 9:15	Silent	7:00- 8:00
285.5	WREO, Lansing, Mich.	Silent	7:00- 8:00	Silent	8:15- 9:45	Silent	8:15- 9:45	Silent
288.3	KFKX, Hastings, Nebr.	Silent	Silent	10:30-12:00	Silent	Silent	10:30-12:00	Silent
293.7	WBAV, Columbus, O.	Silent	Silent	8:00- 9:00	Silent	Silent	Silent	8:00- 9:00
293.9	KJS, Los Angeles, Calif.	Silent	10:15-12:30	Silent	11:00-12:00	Silent	11:00-12:00	Silent
293.9	WEAO, Columbus, Ohio	8:00- 9:00	Silent	Silent	Silent	9:00-10:20	Silent	Silent
299.8	KFMQ, Fayetteville, Ark.	10:00-11:00	Silent	10:00-11:00	10:00-11:00	Silent	8:30- 9:30	Silent
302.8	WPG, Atlantic City, N. J.	9:00-12:00	3:15-11:00	Silent	7:00-12:00	Silent	8:15-12:00	7:00-11:00
302.8	WJJD, Mooseheart, Ill.	8:15- 1:00	Silent	8:15- 9:15	8:15- 9:15	8:15- 9:15	Silent	8:15- 9:15
303.8	WTAS, Elgin, Ill.	7:00- 1:30	7:00- 1:30	7:00- 1:30	7:00- 1:30	7:00- 1:30	7:00- 2:30	7:00- 1:30
305.9	WIAR, Providence, R. I.	7:30- 8:10	7:20-10:15	8:00- 9:00	8:00- 9:00	8:00- 1:00	Silence	7:30-11:00
309.1	KDKA, E. Pittsburgh Pa.	7:30- 9:55	4:00- 8:45	6:15- 9:55	6:15-12:00	6:15- 9:55	6:15-12:00	6:15- 9:55
315.6	KFDM, Beaumont, Tex.	Silent	Silent	Silent	9:00-12:30	Silent	Silent	9:00-12:30
315.6	WAHG, Richmond, N. Y.	12:00- 2:00	Silent	8:00- 2:00	Silent	8:00-11:30	Silent	8:00-11:30
315.6	WBBS, New York, N. Y.	6:00-12:00	3:30- 3:45	6:30- 7:30	10:00- 2:00	Silent	6:00- 7:00	6:30- 7:30
319	WGR, Buffalo, N. Y.	6:00- 7:30	4:00- 8:30	8:15-11:30	6:00-11:30	8:00-11:00	6:00-11:00	6:30-11:00
322.4	KOA, Denver, Colo.	11:00- 2:00	6:00-11:45	10:00-11:00	Silent	10:00- 2:00	Silent	10:00-11:00
325.9	WSAI, Cincinnati, O.	9:00- 2:00	4:00- 5:00	7:00- 1:00	8:00-11:10	11:00- 1:00	8:00-10:00	Silent
336	CYX, Mexico City, Mex.	Silent	Silent	10:00- 1:00	Silent	Silent	Silent	9:00-11:00
333.3	WBZ, Springfield, Mass.	6:00-11:00	7:00-11:00	6:00-11:00	6:00- 9:55	6:00-11:00	6:00-12:45	7:05- 8:05
336.9	KFMX, Northfield, Minn.	Silent	8:00- 9:00	Silent	Silent	10:00-11:00	Silent	Silent
336.9	KNX, Hollywood, Calif.	9:15- 4:00	10:00- 2:00	9:25- 3:00	9:20- 3:00	9:15- 2:00	9:30- 2:00	9:30- 3:00
336.9	WCAL, Northfield, Minn.	1:00- 2:00	9:30-11:00	12:00- 1:00	Silent	Silent	10:00-11:00	9:30-10:30
336.9	WSAC, Clemson Coll., S. C.	Silent	Silent	Silent	Silent	8:00- 9:00	Silent	Silent
340.7	KSAC, Manhattan, Kan.	Silent	9:00-10:00	8:20- 9:00	8:20- 9:00	8:20- 9:00	8:20- 9:00	8:20- 9:00
340.7	WKAQ, San Juan, P. R.	Silent	Silent	Silent	8:30- 9:30	7:00- 9:00	7:00- 8:30	Silent
344.6	WGBD, Zion, Ill.	Silent	3:30-10:00	9:00-11:30	Silent	Silent	9:00-11:30	Silent
344.6	WLS, Chicago, Ill.	9:00- 1:00	7:30- 9:00	Silent	7:30- 2:00	7:30- 1:00	7:30- 9:00	7:30-12:00
348.6	KFAE, Pullman, Wash.	Silent	Silent	10:30-11:30	Silent	10:30-11:30	Silent	10:30-11:30
348.6	KOB, State College, N. M.	Silent	Silent	9:30-10:30	Silent	9:30-10:30	Silent	9:30-10:30
348.6	WTIC, Hartford, Conn.	Silent	Silent	Silent	8:00- 9:00	8:00-11:00	Silent	8:00- 9:00
352.7	WWJ, Detroit, Mich.	8:30- 9:30	7:20-10:00	6:00- 9:30	6:00- 9:30	6:00-11:00	6:00-12:30	6:00- 9:30
356.9	CFCA, Toronto, Ont.	Silent	7:00- 8:00	Silent	8:15- 9:15	8:15- 9:15	8:15- 9:15	Silent
356.9	CHNC, Toronto, Can.	Silent	Silent	8:30- 9:30	Silent	Silent	8:30- 9:30	Silent
361.2	KGO, Oakland, Calif.	11:00- 3:00	6:30-10:30	11:00- 3:00	11:00- 3:00	Silent	11:00- 3:00	Silent
361.2	WHN, New York, N. Y.	6:30-12:30	3:00-12:45	6:30- 1:00	6:30-12:30	6:30-12:30	6:30-12:30	6:30-12:30
365.6	WDAF, Kansas City, Mo.	7:00- 2:00	5:00- 6:30	7:00- 2:00	7:00- 2:00	7:00-10:15	7:00- 2:00	7:00- 2:00
365.6	WHB, Kansas City, Mo.	Silent	9:00- 2:00	8:00- 9:00	9:00-11:15	8:00- 9:00	8:00-11:00	8:00- 9:00
370	CYB, Mexico City, Mex.	9:30-10:00	Silent	Silent	9:30-10:00	Silent	10:00-12:30	Silent
370.2	WEBH, Chicago, Ill.	8:00- 1:00	8:00-10:00	Silent	8:00- 1:00	8:00- 1:00	8:00- 1:00	8:00- 1:00
374.8	WGN, Chicago, Ill.	7:30-12:00	3:00-11:00	Silent	7:00-12:00	7:00-12:00	7:00-12:00	7:00-12:00
374.8	KTHS, Hot Springs, Ark.	9:30-12:00	9:30-12:15	9:30- 2:15	9:30-11:00	9:30-12:00	9:30- 2:15	9:30-11:00
379.5	WGY, Schenectady, N. Y.	9:30-12:00	3:35-11:00	6:40- 9:00	6:30-12:30	Silent	6:30-11:30	7:00-11:30
379.5	WHAZ, Troy, N. Y.	Silent	Silent	9:00-11:30	Silent	Silent	Silent	Silent
384.4	CKY, Winnipeg, Man.	Silent	8:00- 9:00	Silent	8:30-10:15	Silent	8:30-10:15	8:30-10:15
384.4	KJR, Seattle, Wash.	Silent	3:30- 5:00	7:00-10:00	7:00-10:00	7:00-10:00	7:00-11:00	7:00-10:00
384.4	WMBF, Miami Beach, Fla.	8:00- 3:00	8:00- 3:00	8:00- 3:00	8:00- 3:00	8:00- 3:00	8:00- 3:00	8:00- 3:00
389.4	WEAR, Cleveland, O.	Silent	5:00- 8:00	7:00- 8:00	7:00- 8:00	7:00- 8:00	12:00- 1:00	7:00-10:00
389.4	WTAM, Cleveland, O.	6:00-12:00	Silent	6:00-12:00	6:00- 7:00	6:00- 1:00	6:00- 7:00	6:00- 7:00
394.5	KFRU, Bristow, Okla.	10:00- 1:00	6:00- 7:00	8:00-11:30	11:30- 1:00	9:00-11:30	11:30-12:30	12:00- 2:00
394.5	WFI, Philadelphia, Pa.	6:30- 9:00	4:30- 5:30	6:30- 8:00	6:30-11:00	6:30- 8:00	6:30-10:00	6:30- 8:00
394.5	WLIT, Philadelphia, Pa.	7:30- 8:30	2:00- 3:30	7:30-11:02	7:30- 8:50	7:30-11:03	7:30- 8:30	7:30-11:03
394.5	WOAI, San Antonio, Tex.	Silent	3:30-11:30	Silent	9:30-11:30	Silent	9:30-11:30	Silent
399.8	WHAS, Louisville, Ky.	8:30-10:00	5:00- 6:00	Silent	9:30-10:00	8:30-10:00	8:30-10:00	8:30-10:00
400	PWX, Havana, Cuba	8:30-11:00	Silent	Silent	Silent	8:30-11:00	Silent	Silent
405.2	KHJ, Los Angeles, Calif.	11:00- 3:00	11:00- 1:00	Silent	11:00- 2:00	11:00- 1:00	11:00- 2:00	10:45- 2:00
405.2	WJY, New York, N. Y.	Silent	Silent	Silent	8:15-11:00	Silent	7:30-10:00	8:30- 9:30
405.2	WOR, Newark, N. J.	6:15- 7:30	Silent	6:15-11:15	6:30- 6:45	6:15- 9:45	6:15- 7:15	6:15- 7:15
406	WBAR, Slaiht, Wis.	Silent	11:00-12:00	10:00-11:00	Silent	9:00-10:00	8:30- 9:30	Silent
410.7	CKAC, Montreal, Que.	7:30-11:00	4:30- 5:30	Silent	7:30-11:30	Silent	8:30- 9:30	Silent
416.4	WCCO, Minn. St. P. Minn.	9:00-12:00	5:10-10:15	9:00-12:00	7:30-11:00	8:00- 1:30	8:30-11:45	7:30- 1:00
421	KIAF, Shiltpok, Minn.	Silent	3:00- 4:00	8:00- 9:00	Silent	8:00- 9:00	Silent	8:00- 9:00
422.3	WLW, Cincinnati, O.	9:00-11:00	8:30-11:00	9:00-11:00	9:00-11:00	11:00- 1:00	12:00- 2:00	Silent
422.3	WMH, Cincinnati, O.	11:00- 1:00	7:00- 8:30	9:00-11:00	Silent	9:00-11:00	9:00-11:00	Silent
428.3	WSB, Atlanta, Ga.	9:00- 1:00	8:30- 9:15	9:00- 1:00	11:45- 1:00	11:45- 1:00	9:00- 1:00	9:00- 1:00
429.5	KPO, San Francisco, Cal.	11:00- 3:00	11:30- 1:00	10:00- 1:00	10:00- 2:00	9:30- 2:00	11:00- 2:00	11:00- 3:00
434.5	CFCN, Calgary, Alta.	11:00- 1:00	Silent	Silent	12:30- 1:30	Silent	Silent	Silent
434.5	CNRO, Ottawa, Ont.	7:30-12:00	Silent	Silent	Silent	7:30-12:30	Silent	Silent
434.5	WKAA, Radio, Va.	Silent	7:45- 8:00	7:15- 8:00	7:15- 8:00	7:15- 7:30	7:15- 8:00	7:15- 8:00
435	AT9, Fort Bragg, N. C.	8:00- 9:55	8:00- 9:00	Silent	8:00- 9:55	Silent	8:00- 9:55	Silent
440.9	WDWF, Providence, R. I.	Silent	5:00- 6:45	Silent	9:00-10:30	Silent	Silent	Silent
440.9	WOS, Jefferson City, Mo.	Silent	8:30- 9:30	9:00-10:00	Silent	9:00-10:00	Silent	9:00-10:00
447.5	WMAQ, Chicago, Ill.	7:00-11:00	Silent	Silent	7:00-11:00	7:00-11:00	7:00-11:00	7:00-11:00
447.5	WQJ, Chicago, Ill.	8:00- 4:00	9:00-11:00	Silent	8:00- 3:00	8:00- 3:00	8:00- 3:00	8:00- 9:00
454.3	KFOA, Seattle, Wash.	9:45- 2:00	Silent	9:45- 1:00	9:45- 2:00	9:45- 1:00	Silent	9:45- 2:00
454.3	WJZ, New York, N. Y.	7:00-11:30	4:00- 8:30	7:00-10:00	7:00-10:20	7:00-10:30	7:00-12:00	7:00-11:30
455	KTW, Seattle, Wash.	Silent	10:00-12:30	Silent	Silent	Silent	Silent	Silent
461.3	WCAE, Pittsburgh, Pa.	6:30- 9:30	4:00- 7:30	6:30-12:00	6:30-12:00	6:30-10:00	6:30-11:00	6:30-10:00
468.5	KFI, Los Angeles, Calif.	9:45- 2:00	7:00- 2:00	9:45- 2:00	9:45- 2:00	9:45- 3:00	9:45- 2:00	9:45- 3:00
468.5	WCAP, Washington, D. C.	Silent	6:20-10:15	7:00-11:30	Silent	6:00-12:00	Silent	7:30-12:00
468.5	WRC, Washington, D. C.	6:45-12:15	Silent	6:45-12:00	6:45-12:00	Silent	6:45-11:30	Silent
475.9	WBAP, Fort Worth, Tex.	8:00- 9:00	12:00- 1:00	8:30-11:45	8:30-11:45	8:30-11:45	8:30-11:45	8:30-11:45
475.9	WEEI, Boston, Mass.	Silent	3:45-10:15	6:30-10:00	8:30-11:00	6:30-12:00	6:30-11:00	6:30-10:30
475.9	WFAA, Dallas, Tex.	9:30- 1:00	7:00-12:00	7:30-10:30	7:30- 1:00	Silent	7:30- 1:00	7:30-10:30
480	CYL, Mexico City, Mex.	Silent	Silent	Silent	11:00-12:30	Silent	Silent	11:00-12:30
483.6	WOC, Davenport, Ia.	7:30- 1:00	9:00-12:30	Silent	7:30-10:00	7:30-11:00	7:30- 1:00	7:30-10:00
488.6	WSUI, Iowa City, Ia.	8:30-10:00	8:00-10:30	8:30-10:00	Silent	8:30-10:00	Silent	Silent
491.5	KGW, Portland, Ore.	1:00- 3:00	6:00-10:00	Silent	11:00- 3:00	11:00- 3:00	11:00- 3:00	11:00- 3:30
491.5	WEAF, New York, N. Y.	6:00-12:30	8:15-10:15	6:30-11:30	6:00-10:00	6:00-12:00	6:00-12:00	6:00-12:00
499.7	WMC, Memphis, Tenn.	9:30-10:30	Silent	9:30-10:30	9:00- 1:00	Silent	9:30-10:30	9:30- 1:00
508.2	KLX, Oakland, Calif.	Silent	Silent	9:00-10:00	9:00- 2:00	9:00- 2:00	Silent	9:00- 1:30
508.2	WIP, Philadelphia, Pa.	6:05-12:05	8:15- 9:30	6:05- 7:30	6:00-12:00	6:05- 7:05	6:05-12:00	6:05- 7:30
508.2	WOO, Philadelphia, Pa.	Silent	6:05- 8:30	7:30-11:00	Silent	7:30-11:30	Silent	7:30-11:00
516.9	WCX, Detroit, Mich.	6:00- 7:00	Silent	6:00- 9:30	6:00-11:00	6:00- 9:30	6:00- 7:00	6:00-11:00
536	WHO, Des Moines, Ia.	Silent	5:00- 9:30	8:30- 1:00	Silent	7:30-12:00	10:00- 1:00	8:30-10:00
526	WOAW, Omaha, Nebr.	7:00- 1:00	7:00-11:00	7:00-12:30	1:00-12:30	Silent	7:00-12:30	7:30-12:30
526	WNYC, New York, N. Y.	6:30-10:20	9:00-11:00	7:00-10:25	7:30-10:30	7:30-10:30	7:20- 9:30	7:30-10:30
535.4	KYW, Chicago, Ill.	8:00- 3:00	8:00-10:00	Silent	8:00- 3:30	8:00- 3:30	8:00- 3:30	8:00- 3:30
535.4	WHA, Madison, Wis.	Silent	Silent	8:45- 9:45	Silent	10:00-11:00	Silent	8:45- 9:45
545.1	KFUO, St. Louis Mo.	Silent	10:15-11:15	Silent	Silent	10:15-11:15	Silent	Silent
545.1	KSD, St. Louis, Mo.	8:00-11:00	Silent	9:00-12:00	7:00-12:00	7:00- 8:00	Silent	9:00-12:00

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 aud, 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 entertainers 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.

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, KFDM, KFKU, KFKX, KFMQ, KJR, KLX, KOB, WBAP, WBAV, WCAU, WCBD, WDWF, WEAO, WEAR, WEBJ, WEBW, WEEI, WEMC, WGST, WHAD, WHAZ, WHB, WHO, WJY, WKAQ, WMAK, WOAI, WOI, WOO, WORD, WOS, WSAC, WWJ.

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

CKAC, Montreal, Can. (410.7), 7:30 p. m., Windsor hotel dinner concert; 8:30, Easter program; 10:30, Windsor hotel dance orchestra.

CNRO, Ottawa, Can. (434.5), 8 p. m., James McIntyre and his Chateau Laurier concert orchestra; Ottawa male quartet; Helen Langdon, cellist; Hawaiian selections, Al Nani; Howard Olmsted, bass; Allan Carr, tenor; Graham Brown, bass.

KDKA, Pittsburgh, Pa. (309.1), 6 p. m., Westinghouse band; 7:45, last minute helps to Bible school teacher, Carman Cover Johnson; 8, Senior meeting of the Pittsburgh Sun Radio Sphinx club; 8:30, Westinghouse employes band; Rhenamae W. Burnett, contralto.

PWX, Havana, Cuba (400), 8:30 p. m., concert; Fausto Alvarez, tenor.

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

WBBR, 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, William Penn hotel; 8, current motor topics; 8:30, Chilcott family quartet.

WCX, Detroit, Mich. (516.9), 6 p. m., dinner concert, Book-Cadillac hotel.

WEAF, New York, N. Y. (491.5), 6-7 p. m., dinner music, Waldorf-Astoria hotel; 7-7:30, services, United Synagogue of America; 7:30-7:45, Fannie L. Todd, soprano; 7:45-7:50, "Trips and Adventures," Fred J. Turner; 7:50-7:55, Fannie L. Todd, soprano; 7:55-8:15, Richard Franklin, pianist; 8:15-8:45, Huyler's Foremost Four; 8:45-9, Vanstan Lee, baritone; 9-9:45, concert, Waldorf-Astoria orchestra; 9:45-10:35, Easter program, Mabel Corlew, soprano; Georgia Childe, contralto; Thomas McManahan, tenor and Walter Kieselbach, baritone; 10:35-11, 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, Ivan Francisci and his Hotel Cleveland orchestra; 8-9, Boys choir, Church of Ascension; Luson Phillips Wood, harpist; 8-10, fireside hour, Ruth King.

WFI, Philadelphia, Pa. (394.5), 6 p. m., Roy Elrae and his dance orchestra; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, bedtime stories.

WGBS, New York, N. Y. (315.6), 10:15-10:40 a. m., Elenor Schorer's Kiddie Klub program; 10:40-10:50, Mme. George, French fashion expert; 1:30-1:35 p. m., Scripture reading; 1:35-2:30, The Amphions; 3-3:10, interview with Rose Polswick, motion picture editor of the Evening Journal, Terese Rose Nagel; 3:10-3:20, Jan Dunbar, tenor, accompanied by Ralph Phillips, pianist; 3:20-3:30, Spanish lessons, Professor Perez de Vegas; 3:30-4:30, Jan Dunbar; 3:40-3:50, talk, Mrs. John Clapperton Kerr, president of Woman's League for Protection of Riverside Drive; 3:50-4, Jan Dunbar; 6-6:30, Uncle Geebee; 6:30-7:30, Piccadilly Four, with Misses Harper and Edwards; 7:30-8:15, Armand Vecsey and his concert orchestra; 8:15-9, Music Week Borough Winners; 9-9:30, Samuel Shankman, pianist; 9:30-9:45, "Inside Movie Chats," Sam Comly; 9:45-10, Leona Oliver, contralto; 10-10:30, songs, Paul Robeson; 10:30-11, Frances Halliday and Fraser Allen, Canadian composer; 11-12, popular Radio concert.

WGR, Buffalo, N. Y. (319), 2:30-4:30 p. m., Radio Dealers' musical program, J. P. Quinn, director; 6-7:30, Hallpryd string trio.

WHN, New York, N. Y. (361.2), 4:45-5:30 p. m., Broadway Melody Boys; 6:30-7, violin solos, Olcott Vail; 7-7:30, Hotel Alamac orchestra; 7:30-7:35, health talk, Dr. Landis; 7:35-8, Hotel Carlton Terrace orchestra; 8:30-9, Strand Roof orchestra; 9-10, Northminster church service.

WIP, Philadelphia, Pa. (508.2), 3 p. m., Charles Naley and his Collegians dance orchestra; 6:05, songs, Charles Higgins and Billy McKee; 6:15, Clarence Seaman's concert orchestra; 7, Uncle Wip's bedtime stories; 8, Lenten Meditations, E. A. E. Palmquist; 8:15, Temple male quartet; 9, Lenten program, Central Methodist Episcopal church Caroline Rolle, soprano; Paul Volkman, tenor; Noble Hirst, baritone; 10:05, Haward Lanin's dance orchestra; 11:05, Karl Bonawitz, organist.

WJAR, Providence, R. I. (305.9), 7:05 p. m., studio program.

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

WLIT, Philadelphia, Pa. (394.5), 4:30 p. m., dance orchestra; 7:30, Arcadia cafe concert orchestra.

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

WNYC, New York, N. Y. (526), 6:30-7 p. m., Sam Wooding's Club Alabam orchestra; 7:45-8, Chateau Four; 8-8:10, talk by public officials; 8:15-8:30, song recital; 8:30-9, Police quartet; 9:15-10, orchestral feature; 10:10-10:20, travel talk, Board of Education.

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, Timmns Jefferson memorial program; 10-11, state program; 11-12, Ciro's orchestra.

WPG, Atlantic City, N. J. (299.8), 9 p. m., Hotel Ambassador Kentucky serenaders; 10, Hotel Knickerbocker dance orchestra; 11, Hotel Traymore Paul Whiteman's dance orchestra.

WRC, Washington, D. C. (468.5), 7 p. m., dinner music, Irving Boernstein's Hotel Washington orchestra; 8, harp ensemble, Savasta, soloist; 8:30, talk on Bach, Dr. Otto Simon; 8:45, dialect stories. W. Alfred Falconer; 9, Maria Carreras, pianist; 9:30, "Interfering Waves and What They Mean," M. S. Strock; 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), 6-7 p. m., concert; 8-9, Carl Rupp entertainers; 9-12, Ev Jones WTAM dance orchestra; 12-4, Sunday dedication of new studio, nite caps on Lake Erie.

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

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

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

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

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 (266), 6:30 p. m., Day's old time orchestra; 8:30, concert from Howe.

KFRU, Bristow, Okla. (394.5), 7:30-8 p. m., Sunday school lesson, Dr. Thomas Murray; 9-12, East Central Teachers' college.

KSD, 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, Little Rock.

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; Stephenson & Heather; Mae & Gross Jubilee Gospel singers; 9:35-11:30, Congress classic; 12-1 a. m., Congress carnival; 1-2, Insomnia club.

WCAL, Northfield, Minn. (336.9), 12 midnight, musicale.

WCCO, Minneapolis-St. Paul, Minn. (416.4), 6 p. m., dinner concert, Community Amusement association; 8:15, "China," C. A. Bauers; 8:30, Swedish male chorus; 10, Joe Peyers St. Paul Athletic club orchestra.

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

WDAF, Kansas City, Mo. (365.6), 3:30-4:30 p. m., Star's Radio orchestra; 6-7, address, Roger W. Babson; Trianon ensemble; 11:45-1 a. m., Plantation players; Eddie Kuhn's Kansas City Athletic club orchestra; Johnnie Campbell's Kansas City club orchestra.

WEBH, Chicago, Ill. (370.2), 7-8 p. m., Oriole orchestra; Radio Sunday school lesson, Dr. Herbert W. Virgin; Dan Russo, Ted Fiorito; 9-10, Oriole orchestra; Marie Kelly, reader; Eleanor Gilmour, soprano; Pat Barnes; 11-12, Oriole orchestra; Loos Brothers; Marie Kelly, reader; Frank Sylvano, Kay Ronayne, Banks Kennedy, Ned and Ches, Ralph Snyder.

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

WGN, Chicago, Ill. (370.2), 6 p. m., organ recital, Lyon & Healy; 6:30-7, Drake concert ensemble, Blackstone string quintet; 8-9, jazz hour; 10-11, Drake dance orchestra.

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

WIAD, Waco, Texas (352.7), 10:30 p. m., special music.

WJJD, Mooseheart, Ill. (302.8), 6:30-7:15 p. m., Albert F. Brown, organist; 7:15-8, Mooseheart theater orchestra; 10:30-1 a. m., concert, Garod studio; Charley Straight and his orchestra.

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

WLS, Chicago, Ill. (344.6), 7:20 p. m., barn dance; Our Harmony girls; Glenn's Cornhuskers; 11:15, Senate theater review.

WLW, Cincinnati, Ohio (422.3), 6 p. m., dinner hour concert, courtesy of Cincinnati Post; E. D. Leonard, Lafafone.

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

WMC, Memphis, Tenn. (499.7), 8:30 p. m., Community fund program.

WOAW, Omaha, Neb. (526), 6 p. m. dramatic hour, Davis Studio of Expression; 9, program, Walter B. Graham; 9:45, Sigma Omicron society; 11, Frank W. Hodek, Jr., and his Nightingale orchestra; 11:30, Arthur Hays, organist.

WOC, Davenport, Iowa (483.6), 9 p. m., program, Davenport Locomotive works; 11, Louis Connor and his LeClaire hotel orchestra; Peter MacArthur, baritone.

WQJ, Chicago, Ill. (447.5), 3-4 p. m., koffee klatsch; 7-8, Rainbo Garden orchestra; Milford Burdsall, baritone; Margaret Snook, accompanist; Agatha Karlen, reader; Florence Opheim, pianist; 10-3 a. m., Rainbo Skylarks; Henri Therien, Joe Verges, "The New Orleans Boys;" Melodians, Laurie, Eddie and Bennie; Alfred Tweed, harmonica soloist; Clarence Theders, tenor; Jerry Sullivan, writer; Harry Geise; Hickey and Johnson.

WSB, Atlanta, Ga. (428.3), 6 p. m., Sunday school lesson, Dr. Marion McH. Hull; 8-9, songs from "Gypsy Rover," Margaret Battles Class; 10:45, Journal hired help 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

(Continued on page 10)

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 Crailo Post of the American Legion.

Tuesday night the opera "Carmen" will be broadcast through WEAF and the link stations WEEI, 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. Rockoski 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.

LOST ANGELS FIND PARADISE SUNDAY

Saturday, April 11

(Continued from page 9)

time, add one hour; Pacific time, subtract one hour.

KOA, Denver, Colo. (322.4), 9-12 midnight, Joe Mann and his Rainbow-Lane orchestra.

Pacific Time Stations

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

KFI, Los Angeles Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, raditorial talk; 7-7:45, Lake Arrowhead dance orchestra, Mel Lemon, leader; 7:45-8, Bookshelf, Miss Nancy; 8-9, Examiner community program; 9-10, Aeolian trio, Marie Whitmore, violin, Catherine Nelson, piano and Nellie Winslow, cello; 10-11, Packard Radio club, Starr Russell, blues singer, Dorothy Cleveland, Way Watts, Varsity trio, Polly and Billy Hall.

KFOA, Seattle, Wash. (454.3), 6-6:45 p. m., Olympic hotel concert orchestra; 6:45-8:15, Boys' program, Moran school; 8:30-10, Seattle Times dance music; 10:05-1:30, Eddie Harkness' orchestra.

KFWB, Hollywood, Calif. (252), 7:15 p. m., Ragpickers dance orchestra, Leonard Van Berg, tenor; Miss Vellier, pianist and Charlie Wellman, the Prince of Jazz; 9-10, Bradley Wright, popular songs, Belbrew Four, Cora Thorne Bird, soprano; 10-11, Harry Seymour's own hour of fun and jollity; 11-12, Brandstatter's Hollywood Montmarte cafe dance orchestra, Mel Pedesky, leader.

KGO, Oakland, Calif. (361), 4-5:30 p. m., concert orchestra, Hotel St. Francis; 8, "The Marriage of Figaro," George Von Hagel, director; 10-1 a. m., Henry Halstead's orchestra.

KHJ, Los Angeles, Calif. (405.2), 6-6:30 p. m., Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, little stories, American history, Prof. Walter Sylvester Hertzog, Helene Pirie and Henrietta Poland, readings, broadcast from Catalina Island; 8-10, the KHJ Caravan broadcasting from Ste. Catalina Island on the Pacific, Orpheus Four, Burkman Brothers Hawaiian trio, Uncle Remus, Sam Hinds, monologuist and Uncle John; 10-11, Art Hickman's Biltmore hotel dance orchestra, Earl Burtnett, leader; 11-2 a. m., The Lost Angels of KHJ from Catalina Island.

KNX, Hollywood, Calif. (336.9), 5:45-6:15 p. m., Wurlitzer pipe organ studio, sports talk by Sid Ziff; 6:15-7:30, dinner hour music; 7:30-8, program from Wurlitzer studio; 8-10, KNX feature program; 10-11, Abe Lyman's Cocoanut Grove dance orchestra from Ambassador hotel; 11-2 a. m., Hollywood night, introducing famous Hollywood people.

KPO, San Francisco, Calif. (429.5), 8-10 p. m., program, St. Michaels choir.

Sunday, April 12

Sunday, silent night for: AT9, CFAC, CFCA, CKAC, CHIC, KFAB, KFAE, KFDM, KFKU, KFKX, KFMQ, KFOA, KLX, KOB, KSO, WAHG, WBAV, WCAE, WCEE, WOAF, WDWF, WEAO, WEBJ, WEBW, WFI, WGBS, WGST, WHAO, WHAS, WHAZ, WIP, WJAD, WJY, WKAQ, WLBL, WLIT, WMAK, WMC, WOI, WOO, WSAC, WSAI.

Eastern Time Stations

CFCA, Toronto, Can. (356.9), 7 p. m., Timothy Eaton Memorial church, Dr. Trevor H. Davies.

KDKA, Pittsburgh, Pa. (309.1), 6:30 p. m., Pittsburgh Athletic association; 7:30, Point Breeze Presbyterian church.

WBBR, New York, N. Y. (272.6), 10 a. m., Watchtower orchestra; 10:20, Fred W. Franz, tenor; 10:30, "The Resurrection of the New Creation," Judge Rutherford; 11:10, I. B. S. A. vocal quartet; 11:20, Watchtower orchestra; 9 p. m., Watchtower string quartet; 9:15, Fred Twaroschk, tenor; 9:25, I. B. S. A. choral singers; 9:35, "Swallowing up Death in Victory," Fred W. Franz; 10:05, I. B. S. A. choral singers; 10:15, Watchtower string quartet; 10:20, I. B. S. A. choral singers.

WCAE, Pittsburgh, Pa. (461.5), 10:45 a. m., services, Rodef Shalom temple; 3 p. m., People's Radio church services; 4, Prof. Otto Kalteis, pianist; 6:30, William Penn hotel.

WCAU, Philadelphia, Pa. (278), 5:30 p. m., Undenominational church services, Rev. Dr. John Stockwell, pastor; 6, Hotel Pennsylvania concert orchestra; 8:30, Paul Specht's Melodians dance orchestra.

WCX, Detroit, Mich. (516.9), 7:15 p. m., services, Central Methodist Episcopal church.

WDWF, Providence, R. I. (440.9), 10 a. m., chimes; 5-6:45 p. m., Venetian serenaders, Philharmonic pipe organ.

WEAF, New York, N. Y. (491.5), 2-2:45 p. m., "Sunday Hymn Sing," Federation of churches; 2:45-3:45, Interdenominational services; 3:45-5:30, program, Bedford branch Y. M. C. A.; 7:20-9:15, Roxy and his gang, Capitol theater; 9:15-10:15, organ recital.

WEEI, Boston, Mass. (475.9), 7:20 p. m., Roxy and his gang; 9:15, organ, Columbia university chapel.

WFI, Philadelphia, Pa. (394.5), 4:30 p. m., studio chapel services; 7:30, services, Arch Street Presbyterian church.

WGBS, New York, N. Y. (315.6), 3:30-4:30 p. m., program, Piccadilly theater.

WGR, Buffalo, N. Y. (319), 3-4 p. m., vesper service; 4-5, "Bob" Demming, organist; 7:15, Central Presbyterian church service, William Wall Whiddit, organist, and Dr. Robert J. MacAlpine, speaker.

WGY, Schenectady, N. Y. (379.5), 10:30 a. m., First English Lutheran church; 3:35 p. m., WGY Symphony orchestra; Mrs. Donald Wood, soprano; 7:30, First English Lutheran church; 8:45, Waldorf-Astoria orchestra; 10, Godfrey Ludlow, violinist.

WHN, New York, N. Y. (361.2), 4:30-5 p. m., concert, Music Lovers association; 5-5:30, Roseland dance orchestra; 5:30-6, Olcott Vail and his string trio; 10-10:45, Gem Razor entertainers; 10:45-11:15, Jensen's Hofbrau Commanders orchestra.

WIP, Philadelphia, Pa. (508.2), 3:30 p. m., Easter concert, Helen Buchanan Hitner, soprano; Bernard Boland, tenor; George C. Ames, baritone; Helen Boothroyd Buckley, pianist; 7:15, services, Holy Trinity church; 9:30, Germantown theater orchestra; Karl Bonawitz, organist.

WJAR, Providence, R. I. (305.9), 7:20-9:15 p. m., Roxy and his gang; 9:15-10:15, organ recital from New York.

WJZ, New York, N. Y. (454.3), 4-5 p. m., vesper services, St. George's church; 7-8, Nathan Abas' Hotel Pennsylvania orchestra; 8-8:15, Ethel Rea, soprano; 8:15-8:30, Leon Kristel, tenor; 10-10:15, Godfrey Ludlow, violinist.

WMAK, Lockport, N. Y. (265.5), 10:25 a. m., First Presbyterian church.

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

WNYC, New York, N. Y. (526), 9-11 p. m., Brooklyn Mark Strand theater program, Edward L. Hyman, director.

WOO, Philadelphia, Pa. (508.2), 10:30 a. m., services, Bethany temple; 2:30, Sunday school exercises, Bethany temple; 6, recital of sacred hymns, Clarence K. Bawden, organist.

WREO, Lansing, Mich. (285.5), 10:30 a. m., Presbyterian church, Rev. Guy W. Simon, pastor; 7:30 p. m., services from Central Methodist church, Rev. Frank Kingdon, pastor.

WWJ, Detroit, Mich. (352.7), 11 a. m., St. Paul's Episcopal cathedral; 2 p. m., Detroit News orchestra; Charles A. Payne, speaker; 7:20, Roxy and his gang; 9:15, organ recital.

Central Time Stations

KFAB, Lincoln, Nebr. (240), 4 p. m., church service.

KFNF, Shenandoah, Iowa (266), 10:45 a. m., M. E. church; 2:30 p. m., Rev. and Mrs. Hanley, Radio chaplains; 3, Presbyterian church; 6:30, Golden Rule circle; 8, Christian church.

KFRU, Bristow, Okla. (394.5), 9:30-10:30 a. m., Bible school, W. S. Symonds; 11-12, sermon, Dr. Thomas Murray; 7-8, vesper services.

KFUO, St. Louis, Mo. (545.1), 9:15 p. m., Rev. F. Brand; Holy Cross Lutheran church choir.

KTHS, Hot Springs National Park, Ark. (374.8), 11 a. m., First Presbyterian church; 7:45-9, Knights Templar; 9-10, Meyer Davis-New Arlington hotel orchestra; 10-12, Phil Baxter's Singing orchestra.

KYW, Chicago, Ill. (535.4), 11 a. m., Central church service, Rev. Dr. Frederick F. Shannon, pastor; 4-5 p. m., studio concert; 7, Chicago Sunday evening club, Dean Charles R. Brown, Yale university.

WBAP, Fort Worth, Tex. (475.9), 11 a. m., church service; 4 p. m., Rialto theater; 11, Eddie Kerner's Radio orchestra.

WBBM, Chicago, Ill. (226), 8 p. m., Frank Gulsick orchestra; Nate Caldwell, Jerry Cromack, Larry Clarke, Maurice Silverman, Ned Santry, Court Banks, Edward Freeman.

WCAL, Northfield, Minn. (336.9), 6 a. m., Easter sunrise service; 8:30, sermon, Dr. Martin Hegland.

WCBD, Zion, Ill. (344.6), 8 p. m., semi-chorus; Mrs. Thomas, soprano; J. D. Thomas, tenor; Mrs. G. R. Sparrow, contralto; G. R. Sparrow, tenor; Mark Whiteside, baritone; Louise Burgess, reader; Mrs. L. J. Reid, pianist.

WCCO, Minneapolis-St. Paul, Minn. (416.6), 10:30 a. m., Plymouth Congregational church; 4:10, House of Hope Presbyterian church; 7:45, Hennepin Avenue M. E. church; 9:15, George Klass, violinist; Helen Smith, cellist; Adelaide Pierce, contralto; Mrs. Eleanor Freemantel, accompanist; Mrs. Lucia Miller Armstrong, soprano.

Fidelia Burgess, pianist, and Betty Brandebery, violinist, entertain the coast fans regularly over KFOA, Seattle. They take part in the Times program.

WDAF, Kansas City, Mo. (365.6), 4-5 p. m., University Methodist protestant church; 5-5:30, Sunday school lesson, Dr. Walter L. Wilson.

WEBH, Chicago, Ill. (370.2), 5-6 p. m., twilight musicale; 7-9, artists program.

WEMC, Berrien Springs, Mich. (285.5), 11 a. m., mixed quartet, Maitlant Alred, tenor; 11:40, sermon, Pastor W. R. French; 8:15 p. m., Radio Lighthouse mixed quartet; Charles Garber, clarinetist; Mrs. Gertrude Hanson, contralto; Mrs. H. B. Taylor, soprano; 8:55, Pastor John Knox.

WFAA, Dallas, Texas (475.9), 6-7 p. m., Radio Bible class, Dr. William M. Anderson, pastor; 7:30-8:30, evening service, City temple; 9:30-11, Alita Ladies' band.

WGN, Chicago, Ill. (370.2), 11:45 a. m., Chicago theater; 2 p. m., organ, Lyon & Healy; 2:30, Tribune master artist concert; 3:30, Chicago Musical college; 9-10, "An Evening with the Composers," Charles H. Gabriel, Jr.; Ethel Wakefield, soprano; Drury Lenington, tenor.

WHAS, Louisville, Ky. (399.8), 9:57 a. m., organ music; 10, Broadway Baptist church; 4-5 p. m., vesper song service, Fouth Avenue Seventh Day Adventist church.

WHB, Kansas City, Mo. (365.6), 9:45-10:45 a. m., Linwood Boulevard Christian church; 2-3 p. m., classical program; 8-9, Independence Boulevard Christian church; 9-10, Easter music, choir of Nazarene church; 11:15-12, organ recital; 12-1 a. m., music masters, Gilbert Jaffy.

WHO, Des Moines, Iowa (526), 11 a. m., University church of Christ, Dr. Charles S. Medbury; 4-6 p. m., Knight Templars; 7:30-8:30, Reese-Hughes church.

WJJD, Mooseheart, Ill. (302.8), 7:45-9 a. m., Catholic service; 9:40-10:15, Protestant services; 3-4, concert; 12-12:30 a. m., Rendezvous cafe.

WLS, Chicago, Ill. (344.6), 6:30 p. m., Ralph Emerson; 7, Easter Sunday program, Walther league.

WLW, Cincinnati, Ohio (422.3), 9:30 a. m., school, editorial staff of Sunday school publications, Methodist Book concern; 11, services, Church of Covenant, Dr. Frank Stevenson; 7:30 p. m., services, Emmaus Evangelical Lutheran church, E. P. Dannenfeldt, pastor; 8:30, Western and Southern orchestra, William Kopp, director.

WMC, Memphis, Tenn. (499.7), 10:30 a. m., Easter services, St. Peters Catholic church.

WOAI, San Antonio, Texas (394.5), 11 a. m., First Presbyterian church; 7:30 p. m., Central Christian church; 9:30, "The Seven Last Words of Christ," WOAI entertainers.

WOAW, Omaha, Neb. (526), 9 a. m., Radio chapel service, Rev. R. R. Brown; 1:30 p. m., May Seed and Nursery company; 2:30, Easter cantata; 6, Bible study period, Mrs. Carl R. Gray; 9, First Methodist Episcopal church.

WOC, Davenport, Iowa (483.6), 8 p. m., Easter service, Rev. Marmaduke Hare; 9:30, Palmer Little symphony.

WORD, Chicago, Ill. (275), 6:30-8 p. m., Bible questions and answers; sacred duets, Arthur and Harry Rouse; Bible lecture, D. J. Morehouse; Mrs. Carl Scheffier, contralto; Albert Windust, tenor; Sarah Windust, pianist.

WOS, Jefferson City, Mo. (440.9), 7:30 p. m., First Presbyterian church.

WQJ, Chicago, Ill. (447.5), 10:30 a. m., Dr. Preston Bradley's sermon; 8-10 p. m., Ralph Williams and his Rainbo Garden orchestra; Dr. C. B. Roe, baritone; Dr. Robert N. Price, tenor; Mrs. May Seavey, soprano; Dr. Carl Bertshinger, pianist.

WRBC, Valparaiso, Ind. (278), 7:30 p. m., Easter service.

WSAI, Cincinnati, Ohio (325.9), 3 p. m., sermonette; 3:10, chimes.

WSB, Atlanta, Ga. (428.3), 11 a. m., First Presbyterian church; 5-6 p. m., Bethel colored church choir; 7:30, Wesley memorial church service.

WSUI, Iowa City, Iowa (483.6), 7 p. m., children's hour, Mrs. Alice McLeod Mills; 9-9:30, familiar hymns, Methodist quartet.

WTAS, Elgin, Ill. (302.8), 7-12 midnight, WTAS orchestra, Husk O'Hara; Frank Morris, Fanny and Eddie Cavanaugh.

Mountain Time Stations

CFAC, Calgary, Can. (334.5), 11 a. m., St. Stephens church.

KOA, Denver, Colo. (322.4), 10:45 a. m., Easter Sunday service, St. John's Episcopal church; 4:30 p. m., Plymouth Congregational cathedral; 7:30, St. John's Episcopal cathedral.

Pacific Time Stations

KFI, Los Angeles, Calif. (468.5), 6 a. m. to 12 midnight, special Easter programs, continuous; 6:45-7 p. m., musical appreciation talk, H. Isbell; 7-8, specialties from Metropolitan theater, 45-piece concert orchestra under direction Adolph Tandler; 8-9, John Gayski's Jugo-Slav orchestra; 9-10, George Stunt, tenor; May Anne Howland, cellist, and Florence Hardy, pianist; 10-11, Thereon Bennett's Los Angelenos dance orchestra.

KFWB, Hollywood, Calif. (252), 7:45-9 p. m., Brandstatter's Crillon cafe orchestra, Russian Gypsy trio; 9-10, movie night with stars from the Warner Brothers lot, Syd Chaplin, Monte Blue, Vivian Rich, Marie Prevost, Kenneth Harlan and others; 10-11, Bradstatter's Hollywood Montmarte cafe dance orchestra, Mel Pedesky, leader.

KGO, Oakland, Calif. (361), 11 a. m., First Baptist church; 3:30 p. m., KGO Little Symphony orchestra; Arthur S. Garbett, musical interpretative writer; 7:30, First Baptist church.

KGW, Portland, Ore. (491.5), 10:30 a. m., First Presbyterian church; 6 p. m., church services, Portland Council of churches; 7, Colburn concert orchestra.

KHJ, Los Angeles, Calif. (405.2), 6:30-7 p. m., Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 7-7:30, organ recital, Arthur Blakely, organist; 7:30-8:15, program, International Bible Student's association; 8:15-10, program, Martin Music company, arranged by J. Howard Johnson.

KNX, Hollywood, Calif. (336.9), 5-6:15 p. m., Radio sunset service, theater of Ambassador hotel, Rev. Frank Dyer and Rev. Chas. F. Aked; 7-8, program, First Presbyterian church of Hollywood; 8-9, Ambassador hotel concert orchestra, Josef Rosenfeld, director; 9-11, program, R. C. "Cliff" Durant.

KPO, San Francisco, Calif. (429.5), 6-7:30 p. m., States Restaurant; 8:30-10, Rudy Seiger's Fairmont hotel orchestra.

Monday, April 13

Monday, silent night for: AT9, CHIC, CKAC, KFDM, KFMQ, KGW, KYW, WBAY, WBCN, WCAU, WDWF, WEAO, WEBH, WEBJ, WGN, WHAS, WJY, WKAQ, WLBL, WLS, WMAQ, WOC, WOAI, WQJ, WREO, WSAC.

Eastern Time Stations

CFCA, Toronto, Can. (356.9), 6:30-7:30 p. m., dinner music, Hippodrome theater.

CHIC, Toronto, Can. (356.9), 8:30-10 p. m., classical studio concert.

CHNC, Toronto, Can. (356.9), 8-9:30 p. m., CHNC Little Symphony orchestra.

KDKA, Pittsburgh, Pa. (309.1), 6:15 p. m., KDKA Little Symphony orchestra; 7:30, "The Childhood of the World," Dr. Wm. C. Poole; 8:15, address, University of Pittsburgh; 8:30, concert; 10:10, Rand Light opera hour.

WAHG, Richmond Hill, N. Y. (315.6), 8-8:15 p. m., Howard Forst, saxophonist; 8:15-8:30, James M. Savell, baritone; 8:30-8:50, piano version of Hansel and Gretel, Maude Mason; 8:50-9, Alfred Elliott, reader; 9-9:30, Synchrophase string trio; 9:30-9:40, Edna Endreson, whistler; 9:40-9:55, Mae Uersted, soprano; 9:55-10:05, Arlington time signals and weather reports; 10:05-10:30, Synchrophase string trio; 10:30-11:30, Glen C. Smith's Paramount orchestra; 12-2 a. m., special program.

WBAV, Columbus, Ohio (293.9), 8-10 p. m., WBAV orchestra.

WBBR, New York, N. Y. (272.6), 8 p. m., Mrs. Irene Kleinpeter, soprano; 8:10, vocal duets, Mrs. Irene Kleinpeter, Fred Twaroschk; 8:40, vocal duets; 8:50, Fred Twaroschk, tenor.

WCAE, Pittsburgh, Pa. (461.5), 6:30 p. m., dinner concert, William Penn hotel; 8:30, Mildred Murray-Gardner, soprano; 9, A. & P. Gypsy string ensemble; 11, Press-Kaybee, Blackstone theater orchestra.

WCX, Detroit, Mich. (516.9), 6 p. m., dinner concert, Book-Cadillac hotel; 7, variety entertainment.

WEAF, New York, N. Y. (491.5), 6-7 p. m., dinner music, Waldorf-Astoria hotel; 7-7:10, "Women Versus Politics," Edith Ellis, New York League of Women voters; 7:15-8:30, Strand theater program; 8:30-8:45, Hans Barth, pianist; 8:45-9, Metropolitan tower health talk; 9-10, A. & P. Gypsies; 10-10:30, Blue Ribbon quartet; 10:30-11:30, Ben Bernie and his Hotel Roosevelt orchestra.

WEAR, Cleveland, Ohio (389.4), 7-8 p. m., Loew's State theater.

WEEI, Boston, Mass. (475.9), 6:30 p. m., Big Brother club; 7:20, historical talk; 7:30, Francis Tanner, Doris Shack; 7:40 Abbott Worsted band; 8:45, health talk, Metropolitan Life Insurance company; 9, A. & P. Gypsies; 10, organ recital.

WFI, Philadelphia, Pa. (394.5), 3 p. m., Loretta Kerk, pianist; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, bedtime stories.

WGBS, New York, N. Y. (315.6), 3:50-4 p. m., Grace Snakenburg; 6-6:30, Uncle Geebee; 7-7:10, "How to Write Advertising," Herbert C. Lyon.

WGR, Buffalo, N. Y. (319), 6:30-7:30 p. m., dinner music, charge of M. A. Schmidt; 8-8:35, Jack Little and Paul Small in musical specialties; 8:35-8:55, Margaret B. Staples, soprano, and Henry Murtaugh, pianist, in recital; 9-10, Pass-over program, members of the Jewish Community House; 10-11, musical program, Buffalo Welsh Women's club; 11-1, supper-dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Gieser, director.

WGY, Schenectady, N. Y. (379.5), 6:30 p. m., dinner music, Hotel Ten Eyck trio; sports talk, Harold Anson Bruce; 7:05, "Ten Minutes in the Garden," Prof. Robert M. Adams; 7:15, "Spring Styles in Clothing," Beatrice Hunter; 7:30, WGY orchestra; Mrs. John E. Faulkner, soprano; "Be Kind to Animals," R. C. Craven.

WHAZ, Troy, N. Y. (379.5), 9 p. m., novelty program, Rensselaer high school students; "Smilin' Through the Income Tax," J. T. Taaffe; 10, "The Minute Man," Prof. Walter S. Clark; 11, Rensselaer Polytechnic institute students' dance orchestra.

WHN, New York, N. Y. (361.2), 6:30-7 p. m., violin solos, Olcott Vail, accompanied by Stephen Balogh; 7-7:30, Alamac dance orchestra; 7:30-7:35, health talk, Dr. Landis; 7:35-8, Hotel Carlton Terrace orchestra; 8-8:05, "Storage Batteries," H. B. Shontz; 8:05-8:35, Roseland dance orchestra; 8:50-9:30, Littmann's employes orchestra; 9:30-10, Dan Gregory and his Crystal Palace orchestra; 10-11, Jack Shack; 11:30-12, Silver Slipper revue with Jim Carr's orchestra.

WIP, Philadelphia, Pa. (508.2), 3 p. m., talk, "The Millenium," by G. J. Calhoon; recital, students Clarence Seamon's concert orchestra; 7, Uncle Win's bedtime stories.

WJAR, Providence, R. I. (305.9), 8 p. m., musical program; 9, A. & P. Gypsy string ensemble.

WJZ, New York, N. Y. (454.3), 4-5 p. m., Women's Press club program; 5-5:30, Fred Hall's Royal Terrace orchestra; 7-8, Bernhard Levitow's Hotel Comodore dinner concert; 8:10-8:20, N. Y. U. Air college; 8:40-8:55, Florence Leffert, soprano; 10-10:20, Piedmont, trio; 10:45-11:45, Jacques Green and his Club Deauville orchestra.

WLIT, Philadelphia, Pa. (394.5), 4:30 p. m., Ruth Barker Young, soprano; 7:30, Dream Daddy's bedtime stories; 9:30, Stanley theater concert orchestra; 10, Arcadia cafe dance orchestra; vaudeville features, Fay's Knickerbocker theater.

WMAK, Lockport, N. Y. (265.5), 8 p. m., musical program; 11:30, Loew's State theater program.

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

WNYC, New York, N. Y. (526), 7-7:30 p. m., dance program; 7:35-7:45, health talk; 7:45-8, dance program; 8:15-8:30, talk by public official; 8:30-9:30, studio program; 10:10-10:20, "Trend of the Times," Dr. Sydney Ussher; 10:35-11:35, the Carolinians.

WOO, Philadelphia, Pa. (508.2), 4:45 p. m., organ recital, Mary E. Vogt; 7:30, A. Candelori's concert orchestra; 8, concert from WEAF; 10:03, organ recital, Mary E. Vogt; 10:30, Vincent Rizzo's dance orchestra.

WOR, Newark, N. J. (405.2), 6:15-7:15 p. m., Cinderella orchestra; 7:30-8, Shrine band of Newark; 8-8:30, novelty program, Milt Hagan and associates; 8:30-9:15, Branford theater program; 9:45-10:45, Dr. Spaeth's studio party; 10:45-11:15, two-man singing orchestra, Perry and Russell; 11:30-12, Commanders orchestra.

WTAM, Cleveland, Ohio (389.4), 6-7 p. m., Royal Canadians concert program; 8-11, WTAM symphony; 11-12, William Metcalf, organist.

WWJ, Detroit, Mich. (352.7), 6 p. m., dinner concert; 8, Detroit News orchestra; 9, concert from New York.

Central Time Stations

KFAB, Lincoln, Nebr. (240), 7:30-9:30 p. m., Nebraskans orchestra.

KFKU, Lawrence, Kan. (275), 6:50 p. m., piano-tuning in number; 7, music; 7:15, "The Pole Vault, High Jump and Broad Jump," Karl Schlademan; 7:30, "The Question of Scenery," Prof. Allen Crafton; 7:45, elementary Spanish lesson.

KFKX, Hastings, Nebr. (288.3), 9:30-11:30 p. m., program, Deshler college.

KFMQ, Fayetteville, Ark. (299.8), 9 p. m., negro spirituals.

KFNF, Shenandoah, Ia. (266), 6:30 p. m., Henry Field Seed company; 8:30, Jubilee singers, Mrs. Joe Jones, director.

KFRU, Bristow, Okla. (394.5), 7-8 p. m., Oklahoma educational hour; "Oklahoma Facts," John A. Whitehurst; address, Cy Avery; 8-11, Tulsa, Oklahoma university.

KIAF, Sihtipok, Minn. (421), 9-10 p. m., musicale.

KSAC, Manhattan, Kans. (340.7), 7:20 p. m., request songs, Ethyl Robinson; 7:30, "Where Are the Sheep and Where Are They Consumed," H. E. Reed; 7:40, request songs, Ethyl Robinson; 7:50, "Making Soft Cheese on the Farm," N. E. Olson.

KSD, St. Louis, Mo. (545.1), 7 p. m., Grand Central theater; 9, program.

KTHS, Hot Springs National Park, Ark. (374.8), 8:30-9 p. m., Henderson-Brown college; 9-9:45, Meyer Davis-New Arlington hotel; 9:45-10:15, Henderson-Brown talent; 10:15-11:15, Charles L. Fischer Eastman hotel orchestra.

WBAP, Fort Worth, Tex. (475.9), 7:30-8:30 p. m., Helen Ewing, violinist; 9:30-10:45, Ward's "Trail Blazers."

WCAL, Northfield, Minn. (336.9), 11 p. m., Elnor Overland and Marc Hawkins from the Grand theater.

WCBD, Zion, Ill. (344.6), 8 p. m., mixed quartet; trombone quartet; Fred Faassen, organist; Arthur Rendall, clarinetist; Ida Peterson, soprano; Esther Naffziger, pianist; Mrs. Evangeline Rendall, reader.

WCCO, Minneapolis-St. Paul, Minn. (416.6), 6:15 p. m., annual twin city clean up week; 6:30, lecture; 8, "Saving Small Pigs," E. F. Ferrin; 8:15, "Minnesota a Natural Keystone State," F. G. Atkinson; 8:30, musicale; 10:30, Frank's St. Paul hotel orchestra; Curtis Twins.

WCEE, Elgin, Ill. (275), 10:30-12 midnight, Charline star Monday program; WTAS orchestra.

WDAF, Kansas City, Mo. (365.6), 5-7 p. m., Cecile Burton, reader; Trianon ensemble; 8-10, around the town with WDAF; 11:45-1, Nighthawk frolic, Plantation players.

WEBW, Beloit, Wis. (268), 8 p. m., Beloit college alumni.

WEMC, Berrien Springs, Mich. (285.5), 8:15 p. m., Radio Lighthouse Music Makers.

WFAA, Dallas, Tex. (475.9), 6:30-7:30 p.m., vesper recital, Buddy's Blue Melody Boys; 8:30-9:30, Mozart choral club.

WGN, Chicago, Ill. (370.2), 6 p. m., organ recital, Lyon & Healy; 6:30-7, Drake concert ensemble, Blackstone string quintet.

WGST, Atlanta, Ga. (270), 9-10 p. m., Georgia Tech. women's glee club orchestra.

WHA, Madison, Wis. (535.4), 7:45 p. m., "Our General Interest in Insects," Prof. H. F. Wilson; Wisconsin high school orchestra.

WHAD, Milwaukee, Wis. (275), 7:30 p. m., Wrangel School of Music.

WHAS, Louisville, Ky. (399.8), 4-5 p. m., Louisville Conservatory of Music.

(Continued on page 11)

NOVELTY PROGRAM AT WHAZ, TROY

Monday, April 13

(Continued from page 10)

WHB, Kansas City, Mo. (365.6), 7-8 p. m., "Getting the Races 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 Watson, baritone; Helen Birmingham, accompanist; Leota Schakel, whistler; Flossie McMurray, accompanist; 8-9, program, Dean Holmes Cowper, director; 11-12, L. Carlos Meier, organist.
WIAD, Waco, Tex. (352.7), 8:30-10 p. m., Mart Baptist church choir.
WJJD, Mooseheart, Ill. (302.8), 6:30-7:15 p. m., Albert F. Brown, organist; 7:15-8, Mooseheart Novelty orchestra; "Child Care," M. P. Adams; 10:30-1 a. m., Garod studio; Charley Straight and his orchestra.
WLW, Cincinnati, Ohio (422.3), 4 p. m., recital, pupils of Helen Aberscherle; 6, WLW dinner hour concert; 10, program, Oxford college glee club, Ethyl Lobban, director; 11, special dance program, Alvin Roehr's Music makers.
WMC, Memphis, Tenn. (499.7), 7:30 p. m., farm talk, C. W. Watson; 8:30, Hotel Gayoso orchestra.
WOAW, Omaha, Neb. (526), 6 p. m., Arthur Hays, organist; 6:30, music; 6:45, Gus Lucky Strike orchestra; 9, monthly father and son program; 9:30, Lanhart's orchestra.
WOI, Ames, Ia. (270), 10 p. m., popular music.
WORD, Chicago, Ill. (275), 7-8 p. m., boys' and girls' hour with Uncle Dan; 8-10, Watchtower choral singers; Bible lecture, Calvin H. Swingle; Mrs. Roy Corrigan, soprano.
WOS, Jefferson City, Mo. (440.9), 8 p. m., "Training for Efficient Home Making," Ella Moore.
WRBC, Valparaiso, Ind. (278), 7:30 p. m., Easter cantata, Immanuel Lutheran choir.
WSAI, Cincinnati, Ohio (325.9), 10 p. m., Cliff Perrine's Lakeside Park orchestra.
WSB, Atlanta, Ga. (428.3), 5-6 p. m., Georgians orchestra; 8-9, Rose L. Matthews, soprano; 10:45, Radiowl entertainment.
WSUI, Iowa City, Ia. (483.6), 7:30-7:45 p. m., "Modern English," Prof. Thoms A. Knott; 7:45-8, "Current Social and Economic Problems," Dale Yoder; 8, concert, music faculty.
WTAS, Elgin, Ill. (302.8), 8-10:30 p. m., Villa Olivia night program.

Mountain Time Stations

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

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

Pacific Time Stations

KFAE, Pullman, Wash. (348.6), 7:30-9 p. m., Ruth Farnham, pianist; Kathro Aucutt, soloist; Ida Louise Anderson, pianologuist; humorous readings, Ida Anderson; "The Meaning of Art," Prof. W. T. MacDermitt; "The Summer School," Dean A. A. Cleveland; "Farming and Weekly Newspaper," Lincoln Lounsbury; "The New Course in Agricultural Business," Dean E. C. Johnson.
KFI, Los Angeles, Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, Raditorial talk; 7-8, Evening Herald Radiolians dance orchestra, Charlie Melson, tenor; 8-9, program, Owl Drug company; 9-10, program, Walter M. Murphy Motors company, Los Angeles string quartet, Virginia Flohri, soprano; 10-11, Roy Nevin and his syncopators.
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. (252), 7:45-9 p. m., program, John A. Evans corporation, Brown's orchestra and Gamut male quartet; 9-10, Cheek-Neal Coffee company program, Maxwell House coffee string quartet, Humoresque trio, Hi Moulton and his Hollywood revelers; 10-11, Warner Brothers studio hour under direction of Harry Seymour; 11-1 a. m., Brandstatter's Hollywood Montemarte cafe dance orchestra, Mel Pedesky, leader.
KGO, Oakland, Calif. (361), 4-5:30 p. m., Henry Halstead's dance orchestra; 8, Arion trio; "Soil 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; 10-1, Henry Halstead's orchestra.
KGW, Portland, Ore. (491.5), 5 p. m., children's program; 6, dinner concert, William Robinson Boone, organist.
KHJ, Los Angeles, Calif. (405.2), 8-9:30 p. m., a surprise party on the Sandman, "An Evening of Fantasy."
KJR, Seattle, Wash. (384.4), 6-6:30 p. m., "What's Doing at the Theaters;" 8:30-9, Gordon Kilbourne and his orchestra; 9-10, Post-Intelligencer studio program.
KLX, Oakland, Calif. (508.2), 8-9:30 p. m., educational program; 9:30-10, American theater orchestra; 10, Lake Merritt Ducks.
KNX, Hollywood, Calif. (336.9), 5:45-6:15 p. m., Wurlitzer pipe organ studio, sports 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 Cocoanut Grove dance orchestra from Ambassador hotel.
KPO, San Francisco, Calif. (429.5), 6:30-7 p. m., States Restaurant orchestra; 7-7:30, Rudy Seiger's Fairmont hotel orchestra; 7:30-8, Johnny Buick's Amphians; 8-9, Theodore J. Irwin, organist; 9-10, program, John Hartigan, manager; 10-11, Johnny Buick's Amphians.

Tuesday, April 14

Tuesday, silent night for: AT9, CFCA, CHNC, CHIC, KFAE, KFKU, KFKX, KFNF, KJR, KLX, KOA, KOB, WAHG, WBAV, WBBR, WCAL, WCBD, WEAO, WEMC, WGST, WHAD, WHAZ, WHO, WJAO, WMAK, WOI, WOO, WOS, WSAC, WSUI.

Eastern Time Stations

CKAC, Montreal, Can. (410.9), 7:30 p.m., Windsor hotel trio; 8:30, Frontenac Breweries entertainers; 10:30, Windsor hotel dance program; 11:45, frolics, Montreal Press club oriental room.
CNRA, Moncton, Can. (312.3), 7:30 p. m., musical program, students, Maritime universities; 9, Robert J. McCharles, Hawaiian guitarist; 9:30, CNRA orchestra.

Vee Lawnhurst, 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 WEAF, New York. Elizabeth Moore (above) is a soprano who has sung several times at WHAS, Louieville. She will appear again Wednesday, April 15.

KDKA, Pittsburgh, Pa. (309.1), 6:15 p. m., Pittsburgh Athletic association orchestra; 7:30, Lady from Mother Goose Village; 8:30, Pittsburgh Advertising club; 9, Brunswick hour of music; 11, Pittsburgh Post studio; 11:30, Grand theater.
WCAE, Pittsburgh, Pa. (461.5), 6:30 p. m., dinner concert, William Penn hotel; 8, program from New York; 8:30, Gold Dust Twins; 9, Eveready hour; 10, Goodrich Silvertown Cord orchestra.
WCAU, Philadelphia, Pa. (278), 6 p. m., Meyer Davis Hotel Pennsylvania dance orchestra; 7:30, recital, N. Snellenburg and company, building and loan talk; 10:30, Charles Verna's dance orchestra.
WCX, Detroit, Mich. (516.9), 6 p. m., dinner concert, Book-Cadillac hotel; 10, The Red Apple club.
WDWF, 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-Astoria; 7-7:15, Mary Mayo, soprano; 7:15-7:25, art talk, American Federation of Art; 7:30-8, Eagle Neutrodyne trio; 8-8:10, talk, Bank of America; 8:30-9, Gold Dust Twins; 9-10, Eveready 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.
WEBJ, New York, N. Y. (233), 7-7:30 p. m., Ambassador Male quartet; 7:45-8, Alfred Dulin, pianist; 8-8:15, Jean Moresco accompanied by Norman Henneteld; 8:30-9, Johnny Basilone and his Harlem Tea Garden orchestra.
WEEI, Boston, Mass. (475.9), 6:30 p. m., Big Brother club; 7:15, historical talk; 8, musicale from New York; 8:30, Gold Dust Twins; 9, Eveready 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, Eveready hour; 10, dance music.
WGBS, New York, N. Y. (315.6), 6-6:30 p. m., Uncle Geebee; 6:30-7, Jersey collegians; 7-7:10, "Don'ts to Drivers," William J. Carroll; 7:30-8, "Rise of the Moon or Nevertheless," Washington Square players; 8-8:30, recital, Edwin Rechlin; 8:30-8:45, world peace talk, Das Gupta; 9-9:30, Belle Barth's talk at Town Hall; 9:30-9:45, program, Herald-Tribune; 9:45-10:15, vocal duets, Barr Sisters with Evelyn Smith; 10:15-10:30, original composition, Kenneth Burdick.
WGR, Buffalo, N. Y. (319), 6-7:30 p. m., Hallpryd string trio; 8-11, musical programs jointly with WEAF, including Gold Dust Twins, and Eveready hour.
WGY, Schenectady, N. Y. (379.5), 6:30 p. m., dinner music, New Kenmore hotel orchestra; 7:30, "Working Your Way through College," Esther Ely; 7:40, Bon Ton orchestra; 9, Brunswick hour of music; 10, music, Holy Cross dance; 12, Stephen E. Boisclair, organist.
WHN, New York, N. Y. (361.2), 6:30-7 p. m., Strand Roof orchestra; 7-7:30, Wigwam club orchestra; 7:30-7:35, health talk, Dr. Landis; 7:35-8:05, Will Oakland's Chateau Shanley; 10-10:30, Mel Craig's Hotel St. George orchestra; 11:30-12, Club Alabam orchestra; 12-12:30 a. m., Parody club revue.
WIP, Philadelphia, Pa. (508.2), 4:30 p. m., talk, auspices Board of Education; 6:05, baseball talk, Monte Cross; 6:15, Harvey Marburger's dance orchestra; 7, Uncle Wip's bedtime stories; 8, Philadelphia Police band; 9, Arion male quartet; 10:05, "Emo's Weekly Movie Broadcast;" 10:30, Harvey Marburger's dance orchestra.
WJAR, Providence, R. I. (305.9), 8 p. m., studio program; 9, Eveready hour; 10, Goodrich Silvertown Cord orchestra.
WJY, New York, N. Y. (405.2), 8:30-8:45 p. m., W. James Work, baritone; 9-9:30, Trinity cathedral quartet; 10-10:10, "Basketball," George T. Hepbron.
WJZ, New York, N. Y. (454.3), 7-7:15 p. m., dog talk, Frank Dole; 7:15-8, Joseph Strissof's Hotel Vanderbilt orchestra; 8:10-8:20, N. Y. U. Air college; 9-10, Brunswick hour; 10-10:15, Over the Seven Seas—"India."
WKAQ, San Juan, P. R. (340.7), 8-9:30 p. m., WKAQ orchestra.
WLIT, Philadelphia, Pa. (394.5), 4:30 p. m., Edna Hochstetter, soprano; Andrew M. Strang, violinist; Marcella North, accompanist; 7:30, Dream Daddy's bedtime stories.
WMBF, Miami Beach, Fla. (384.4), 10-2 a. m., Nautilus Lucky Seven orchestra; Fleetwood hotel orchestra.

WNYC, New York, N. Y. (526), 7-7:30 p. m., studio features; 7:35-8:35, Riesenfeld's Rialto program; 8:45-8:55, talk by public official; 9-10, studio features; 10:10-10:20, Board of Education lecture service.
WOO, Philadelphia, Pa. (508.2), 4:45 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.
WREO, Lansing, Mich. (285.5), 8:15-9:45 p. m., Reo Broadcasting band.
WTIC, Hartford, Conn. (348.6), 8 p. m., Robert H. Prutting, organist; Gertrude Havens, soprano; Mrs. Grace Gilmore Dickenson, contralto; 10, Ritz orchestra.
WWJ, Detroit, Mich. (352.7), 6 p. m., dinner concert; 8, concert from New York.

Central Time Stations

KFDM, Beaumont, Tex. (315.6), 8 p. m., musical program.
KFMQ, Fayetteville, Ark. (299.8), 9 p. m., students of H. E. Shultz.
KFRU, Bristow, Okla. (394.5), 10:30-12:30 a. m., Jimmie Wilson and his famous Catfish string band.
KSAC, Manhattan, Kans. (340.7), 7:20 p. m., Radio college quartet; 7:30, "Feeding Alfalfa Hay," C. W. McCampbell; 7:40, Radio college quartet; 7:50, "Brooder Houses," D. J. Taylor.
KSD, St. Louis, Mo. (545.1), 6 p. m., Benjamin Rader's orchestra.
KTHS, Hot Springs National Park, Ark. (374.8), 8:30-9:45 p. m., concert, Charles L. Fischer Eastman ensemble; 9:45-10:45, Meyer Davis-New Arlington hotel orchestra.
KYW, Chicago, Ill. (536), 6:35 p. m., Uncle Bob; 7-7:20, Congress hotel dinner concert; 7:33, "Organization," Frank Evans; "The First Step in Marketing," Prof. J. F. Cox; 8-9, Brunswick hour of music; 9-10, program, Chicago Musical college; 10-11:30, evening at home.
WBAP, Fort Worth, Tex. (475.9), 7:30-8:30 p. m., Panther City Eight orchestra; 9:30-10:45, Baptist Seminary.
WBBM, Chicago, Ill. (226), 8 p. m., Sturtevant orchestra, Nate Caldwell, Jimmie Wahl, Jack Perry, Court Banks, Maurice Silverman, Lindsay Coons, Our Jerry.
WCCO, Minneapolis-St. Paul, Minn. (416.6), 6:15 p. m., Riley's St. Paul hotel concert orchestra; Pullman Porters' 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 Eddie Cavanaugh.
WDAF, Kansas City, Mo. (365.6), 6-7 p. m., Tell-Me-a-Story Lady; Radio piano lesson, Maudellen Littlefield; Trianon ensemble; 11:45-1, Nighthawk night.
WEBH, Chicago, Ill. (370.2), 7-8 p. m., Oriole orchestra; Dean Remick, pianist; Riviera theater; 9-10, Oriole orchestra; Dennis Sisters; Victor Young, violinist; songs, Frank Magini; Frank Papile, accordionist; 11-12 Oriole orchestra; Dennis Sisters; Ted Fiorito, pianist; songs, Frank Magini; Jack Pennewell, guitarist; songs, Banks Kennedy; feature, Riviera theater.
WEBW, Beloit, Wis. (268), 8-9:30 p. m., Fairbanks, 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.
WGN, Chicago, Ill. (370.2), 6 p. m., organ recital, Lyon & Healy; 6:30-7, Drake concert ensemble, Blackstone string quintet; 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 Rosson and his orchestra.
WHB, Kansas City, Mo. (365.6), 8-10:30 p. m., Kansas City Dental college orchestra.
WHO, Des Moines, Ia. (526), 7:30-9 p. m., musical program; 11-12, dance program.
WJJD, Mooseheart, Ill. (302.8), 6:30-7:15 p. m., Albert F. Brown, organist; 7:15-8, Mooseheart concert band; "Child Care," M. P. Adams; 10:30-1 a. m., Garod 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 Stoffregen and Wm. Kyle; 6, state memory contest; 8, the famous Lyric male quartet; 8:15, special feature; Jean Frances Small, pianist; 9, program, the Formica concert orchestra; songs, Louise Butterfield Kahn; Josephine Butterfield, pianist.

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

WMAQ, Chicago, Ill. (447.5), 6 p. m., Chicago theater organ; 6:25, Hotel LaSalle orchestra; 5:50, daddy; 8, Harry Hansen, literary editor; 8:20, Clara E. Laughlin, travel talk; 8:30, lecture; 8:50, Association of Commerce talk; 9:15 musical program, American Legion.
WMC, Memphis, Tenn. (499.7), 7:30 p. m., health talk, Dr. E. E. Francis; 8:30, Hull-Dobbs company; 11, midnight frolic, Musicians union.
WOAI, San Antonio, Tex. (394.5), 8:30 p. m., light operas, WOAI entertainers; 9:30, Jimmie Joy's orchestra.
WOAW, Omaha, Nebr. (526), 6:25 p. m., to be announced; 6:45, Randall's Royal Fontenelle orchestra; 9, May Seed and Nursery company; 10:30, Frank W. Hodek Jr., and his Nightingale orchestra.
WOC, Davenport, Iowa (483.6), 6:30 p. m., sandman's visit; 7:30, music from New York.
WORD, Chicago, Ill. (275), 8-10 p. m., world news items, G. L. Pyle; musical program, Hammond Musical college.
WQJ, Chicago, Ill. (447.5), 7-8 p. m., Rainbo Garden orchestra; Isabelle Freeman, soprano; Loretta Streahl, contralto; Ellen Doolittle, pianist; Marie Lenters, reader; 10-1, Rainbo Skylarks; Tommy Jancosek, harmonica player; Ned and Ches, harmony singers; Will Rossiter; Mack Sisters; 1-2, Hotsy Totsy hour.
WSAI, Cincinnati, Ohio (325.9), 7 p. m., Hotel Gibson orchestra; 8, program from New York.
WSB, Atlanta, Ga. (428.3), 8-9 p. m., Guatemalian Marimba band; 10:45, Sacred Heart church choir.
WTAS, Elgin, Ill. (302.8), 8-10:30 p. m., WTAS orchestra, special features.

Mountain Time Stations

CNRR, Regina, Can. (312.3), 8 p. m., Ted Franklin concert party.
KOA, Denver, Colo. (322.4), 6-6:30 p. m., dinner music; 9-12, Joe Mann and his Rainbow-Lane orchestra; George Roy's Lakeside orchestra.

Pacific Time Stations

KFI, Los Angeles, Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, Raditorial talk; 7-8, program, Hills Bros. with Hills Bros. dinner dance orchestra; 8-9, Examiner; Ray West and his Alexandria hotel dance orchestra; 9-9:30, Frederick Hermann, basso-cantante, Carl Lubovitski, cellist; 9:30-10, one act play by Bohemian players, direction Earnest White; 10-11, Don Meany night presenting many famous personages of stage and screen.
KFOA, Seattle, Wash. (454.3), 6-6:45 p. m., Olympic hotel concert orchestra; 6:45-8:15, Rhodes' Department store program; 8:30-10, Seattle Times studio program; 10:05-11:30, Eddie Harkness and his orchestra.
KFWB, Hollywood, Calif. (252), 7:45-9, program, L. W. Stockwell company, Billy Loyd, tenor; Humoresque trio; De Luxe trio; 9-10, program, Merton Goddard; original Hollywood Californians dance orchestra; 10-11, Harry Seymour's hour of song and fun; 11-1 a. m., Brandstatter's Hollywood Montmarte cafe dance orchestra, Mel Pedesky, leader.
KGO, Oakland, Calif. (361), 4-5:30 p. m., concert orchestra, Hotel St. Francis; 8, Dominican college; Feather River Inn orchestra; Albert Gregersen, bari-

(Continued on page 12)

"CARMEN" 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, CKAC, WBZ; 10, WGBS; 10:15, WBZ; 10:35, WEAF; 11, WGBS; 12, WAHG.

Sunday, April 12: 7:20, WEAF, WEEI, WWJ; 8, WOR; 10, WHN; 12, WAHG.

Monday, April 13: 6:30, WGY; 7:30, WEEI; 8, WAHG, WGR, WWJ; 8:30, WOR; 9, WAHG, WEAF, WEEI; 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, WEEI, WFI; 9, WEAF, WEEI, WFI; 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, WEEI; 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, WEBH; 9:45, WOAW; 10, WEBH, WQJ; 10:45, WSB; 11, WEBH, WQJ; 11:15, WLS; 11:45, WDAF; 12, KYW, WEBH, WLBL, 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, WBAP; 10, KFKX, WOI; 10:45, WSB; 11:30, WJJD; 11:45, WDAF.

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

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

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

Friday, April 17: 7, WHB; 8, WDAF; 8:30, KTHS, WHAD; 9, KFAB, WCCO, WEBH; 10, WEBH, WQJ; 11, KFRU, WEBH, WMC, WQJ; 11:30, WJJD; 11:45, WDAF; 12, WQJ; 12:30, KFRU; 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, KFWB; 11, KHJ, KNX; 11:30, KHJ; 12, KHJ; 1, KHJ.

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

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

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

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

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

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

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 WRC. Erwin F. 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)

tone; Vladimir Rassnuchine, pianist; Jean A. Center, mezzo-soprano; Jennings Pierce, tenor; "A Toast to the Broncho," Donald Hayford; Ramon Oden Spanish and Hawaiian players; 10-1, Henry Halstead's orchestra.

KGW, Portland, Ore. (491.5), 8 p. m., Oregon Agricultural college extension service lecture; 8:30, Civic Music club; 10, Multnomah hotel strollers.

KHJ, Los Angeles, Calif. (405.2), 6-6:30 p. m., Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, little stories American history, Prof. Walter Sylvester Hertzog, weekly visit of the Sandman and Queen Titania, Louis F. Klein, autoharp and harmonica, Floryane Thompson, soprano; Chas. Hill, four-year-old reader; 7:30-8, Piggly Wiggly girls trio; 8-10, program by Henley and Scott, arranged by Uncle John; 10-11, Art Hickman's Biltmore hotel dance orchestra, Earl Burtnett, leader.

KNX, Hollywood, Calif. (336.9), 5:45-6:15 p. m., Wurlitzer pipe organ studio, sports talk by Sid Ziff; 6:15-7:30, program, Globe Ice Cream company; 7:30, "Styles," Myer Siegel, Jr., of Myer Siegel and company; 7:40, talk on health, Dr. Robert T. Williams; 8-9, program, First Securities company; 9-10, program, Independent Furniture Manufacturing company; 10-12, movie night, Ambassador with Town Crier introducing film stars over the microphone; Abe Lyman's Cocoanut Grove dance orchestra.

KPO, San Francisco, Calif. (429.5), 6:30-7 p. m., States Restaurant orchestra; 7-7:30, Rudy Seiger's Fairmont hotel orchestra; 8-10, Wiley B. Allen company; 10-11, Johnny Buick's Amphians.

Wednesday, April 15

Wednesday, silent night for: AT9, CFCA, CHNC, CHIC, CKAC, KFDM, KFKU, KFKX, KFMQ, KGO, WBAV, WBBR, WCAL, WCBD, WDWF, WEBJ, WEBW, WFAA, WGBS, WGST, WGY, WHAZ, WJAD, WJY, WLBL, WMAK, WMC, WOAI, WOAW, WOI, WORD, WREO, WSAC.

Eastern Time Stations

CNRO, Ottawa, Can. (434.5), 8 p. m., CNRO Little Symphony orchestra; James McIntyre and his Chateau Laurier dance orchestra.

KOKA, Pittsburgh, Pa. (309.1), 6:15 p. m., Pittsburgh Athletic association orchestra; 7:45, talk, representative Society for the Improvement of the Poor; 8:15, address, University of Pittsburgh; 9, Dry Slitz hour of music.

PWX, Havana, Cuba (400), 8:30 p. m., concert, Cuban Navy band; Lieut. Juan Iglesias, band leader.

WAHG, Richmond Hill, N. Y. (315.6), 7:30-12 p. m., program, Brooklyn Daily Eagle, including musical and dramatic stars.

WCAE, Pittsburgh, Pa. (461.5), 6:30 p. m., dinner concert, William Penn hotel; 8:30, Richard Gwilym, tenor; Charles Richards, baritone; Edwin Lewis, pianist; 10:30, Nixon restaurant orchestra.

WCAU, Philadelphia, Pa. (278), 6 p. m., Paul Specht's melodians; 8:30, the LaPalina boy; 8:45, N. B. T. boys concert; 9:10, Cinderella orchestra; 9:40, Bonwit Teller orchestra; 10:10, Radio talk.

WCX, Detroit, Mich. (516.9), 6 p. m., dinner concert, Book-Cadillac hotel; 7, musical program.

WEAF, New York, N. Y. (491.5), 6-7 p. m., dinner music, Waldorf-Astoria; 7-7:30, Merry Music Makers trio; 7:30-8:30, concert, United States Army school band; 8:30-8:45, Michael de Santes, harpist; 8:45-9, Ivan Baruda, pianist; 9-10, Ipana hour; 10-11, Royal Little Symphony orchestra; 11-12, Meyer Davis' Lido-Venice orchestra.

WEAO, Columbus, Ohio (283.9), 8 p. m., "Psychology of Industry," A. Lee Henderson; University Men's glee club.

WEAR, Cleveland, Ohio (389.4), 6:45-7:45 p. m., Ivan Francisco and his Hotel Cleveland orchestra.

WEEI, Boston, Mass. (475.9), 6 p. m., Argentine band; 6:30, Big Brother club; 7:15, St. Mary's choir; 8, Traveler Shoe orchestra; 8:30, M. B. Cohan's half hour musical; 9, Gillette Safety Razor Opera company; 10, Dok-Eisenbourgh and his Sinfonians.

WFI, Philadelphia, Pa. (394.5), 6:30 p. m., Meyer Davis Bellevue Stratford concert orchestra; 7, bedtime stories.

WGBS, New York, N. Y. (315.6), 3:30-3:40 p. m., Mary Pasquale; 3:40-3:50, book review, John Cutting; 3:50-4, Mary Pasquale; 6-6:30, Uncle Geebee.

WGR, Buffalo, N. Y. (319), 6-6:30 p. m., Jack Little and Paul Small in musical specialties; 6:30-7:30, Stewart's Lake Shore orchestra; 8-9, recital by Ethel McMullen, piano; 9-10, recital, Fred Phillips; 10-10:30, recital, Joe Latosinski; 10:30, address, Daniel Hurley, "The Southern Cruise of Lizzie Ford;" 11-1, supper-dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Gieser, director.

WGY, Schenectady, N. Y. (379.5), 7 p. m., Albany Strand theater orchestra; Floyd H. Walter, organist.

WHN, New York, N. Y. (361.2), 6:30-7 p. m., violin solos, Olcott Vail; 7-7:30, Hotel Alamac dance orchestra; 7:30-7:35, health talk, Dr. Landis; 9-10, Consolidated Dairy Products orchestra; 10-10:30, Roseland dance orchestra; 11:30-12, Silver Slipper revue with Jim Carr's orchestra; 12:12-30 a. m., Strand Roof orchestra.

WIP, Philadelphia, Pa. (508.2), 3 p. m., recital, students Temple university; 6:05, Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtime stories.

WJAR, Providence, R. I. (305.9), 7:30 p. m., program from New York.

WJZ, New York, N. Y. (454.3), 4-4:15 p. m., William Kenney, tenor; 4:30-5:30, Hotel Belmont tea music; 7-8, Cafe Boulevard orchestra; 8:10-8:20, N. Y. U. Air college; 8:30-9, New York Banks Glee club concert; 10:30-11:30, Billy Wynne's Greenwich Village Inn orchestra.

WKAQ, San Juan, P. R. (340.7), 7-9 p. m., municipal band.

WLIT, Philadelphia, Pa. (394.5), 4:30 p. m., Mirian Cohen, violinist; Esther M. Cohen, accompanist; magazine corner, Mrs. B. F. Maschal; 7:30, Dream Daddy's bedtime stories; 8:20, talk, "A Bit of the History of Salt," J. C. Dever; 10, Arcadia cafe dance orchestra.

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

WNYC, New York, N. Y. (526), 7-7:30 p. m., dance program; 7:35-8, dance program; 8-8:10, "Timely Topics," F. P. Bent; 8:30-9, course in appreciation of music; 9:45-10, song recital.

WOO, Philadelphia, Pa. (508.2), 4:45 p. m., organ recital, Mary E. Vogt; 7:30, A. Candelori's concert orchestra; 8:20, concert from WEAF; 10:03, dance orchestra from WEAF; 11, Vincent Rizzo's dance orchestra.

WOR, Newark, N. J. (405.2), 6:15-6:45 p. m., Harry Cox orchestra; 8-8:15, Leila Joel Hielse, soprano; 8:15-8:45, William Steckles, composer; 8:45-9, Leila Joel Hielse; 9-10:30, Newark A. C. dinner; 10:30-11:15, Yasha Gurewich Saxophone ensemble; 11:15-12, Ciro's orchestra.

WTAM, Cleveland, Ohio (389.4), 6-7 p. m., dinner concert; 8-9, program from WEAF; 9-10, studio program; 10-11, New York program; 11-1, dance program.

WWJ, Detroit, Mich. (352.7), 6 p. m., dinner concert; 8, Detroit News orchestra; Anne Campbell, Detroit News poet; Ice House quartet; 9, concert from New York; 10, Jean Goldkette's Victor Recording orchestra.

Central Time Stations

KFAB, Lincoln, Nebr. (240), 7:30-9:30 p. m., Woodward's Kandy Kids orchestra; Harriet Cruse, Mrs. Nohavec; Olive Fletcher, jazz pianist; De Luxe Serenaders orchestra.

KFNF, Shenandoah, Ia. (266), 6:30 p. m., concert, Henry Field Seed company; 8:30, community program, Athelstan.

KFRU, Bristow, Okla. (394.5), 8-10 p. m., Claremore Chamber of Commerce, band; Charles Alton, reader; R. L. Roskoski, baritone; H. Clay Fish, bass.

KIAF, Sihtipok, Minn. (421), 9-10 p. m., municipal band.

KSAC, Manhattan, Kans. (340.7), 7:20 p. m., instrumental trio; 7:30, "Oiled Road," C. H. Scholer; 7:40, instrumental trio; 7:50, "Profitable Drawbar Work," W. H. Sanders.

KSD, St. Louis, Mo. (545.1), 7 p. m., program, West End Lyric theater.

KTHS, Hot Springs National Park, Ark. (374.8), 8:30-9 p. m., Phil Wall, pianist; 9-10, variety concert, Meyer Davis-New Arlington hotel orchestra; 10-11, Charles L. Fischer Eastman hotel orchestra.

KYW, Chicago, Ill. (536), 6:35-7 p. m., Uncle Bob; 7-7:30, Congress hotel dinner concert; 7:45, "Entertaining Plans," Vivotte Gorman; 8-8:30, musical, Sapphire ladies' quartet; 8:30, stage review; 8:45-9, musical program; 9:45-1 a. m., midnight revue.

WBAP, Fort Worth, Texas (475.9), 7:30-8:30 p. m., program, Lampasas Chamber of Commerce; 9:30-10:45, Johnny Jackson's Texas Hotel orchestra.

WBBM, Chicago, Ill. (226), 8 p. m., Sturtevant orchestra, Nate Caldwell, Hooks and Dick, Dr. Lucile Long, Ralph Wayne, Our Jerry.

WCCO, Minneapolis-St. Paul, Minn. (416.6), 2:30 p. m., Mrs. Richard Ounsworth, soprano; Mrs. Theodosia Rice McClaren, soprano; 6, song contest program, Original George Osborn's Nicollet hotel orchestra; Gold Medal Radio quartet; 7, St. Paul's Episcopal church; 8, "Treating Soils for Alfalfa and Clover," F. J. Alway; 8:15, "Beautifying the Farmstead," Clarence Cary; 10:30, Original George Osborn's Nicollet hotel orchestra; Mrs. Theodosia Rice McClaren, soprano; 11:30, Eddie Dunstedter, organist.

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

WDAF, Kansas City, Mo. (365.6), 6-7 p. m., address, speaker, Meat Council of Greater Kansas City; Tell-Me-a-Story lady; Trianon ensemble; 8-9:15, Star's Radio orchestra; 11:45-1, Merry Old Chief; Carl Nordberg's plantation players.

WEBH, Chicago, Ill. (370.2), 7-8 p. m., Oriole orchestra; Lewellyn Jones; Riviera theater; 9-10, talk, M. S. Szymczak; Frederick Agard, tenor; brass quartet; 11-12, Loose Brothers; Ted Fiorito and Dan Russo, celeste and violin; Frederick Agard, tenor.

WEMC, Berrien Springs, Mich. (285.5), 8:15 p. m., Chameleon string trio; weekly bird chat, Mary Lamson.

WGN, Chicago, Ill. (370.2), 6 p. m., organ recital, Lyon & Healy; 6:30-7, Drake concert ensemble, Blackstone string quintet; 8-9, jazz hour; 10-11, Drake dance orchestra.

WHA, Madison, Wis. (535.4), 9 p. m., Prof. L. L. Iltis, pianist; vocalist, Mrs. L. L. Iltis.

WHAD, Milwaukee, Wis. (275), 8 p. m., dance music, Wisconsin roof.

WHAS, Louisville, Ky. (399.8), 4-5 p. m., Louisville Conservatory of music; 7:30-9, Keith Kanard and his Kentucky Ramblers.

WHB, Kansas City Mo. (365.6), 7-8 p. m., program, American Legion.

WHO, Des Moines, Iowa (526), 6:30-7:30 p. m., Reese-Hughes orchestra; 7:30-9, Maude Eldredge, soprano; R. C. McHose, pianist; Edgar Hearshman, tenor; Ivan Botsford, Doris Rostberg, pianists; 9-9:45, Des Moines theater symphonic orchestra; 9:45-11, Bankers Life Radio orchestra.

WJJD, Mooseheart, Ill. (302.8), 6:30-7:15 p. m., Albert F. Brown, organist; "Child Care," M. P. Adams; 10:30-1 a. m., Garod studio; Charley Straight and his orchestra.

WLW, Cincinnati, Ohio (422.3), 4 p. m., shut-in program; 6, WLW dinner hour concert; 10, concert program, Milnor Electric Instrumental trio; humorous monologue, William Phelon; the Crosley Hello boys; special dance program, Lloyd Sharp's collegians.

WMAQ, Chicago, Ill. (447.5), 6 p. m., Chicago theater organ recital; 6:30, Georgene Faulkner, the story lady; 8, lecture, Northwestern university; 8:25, Armour Jubilee singers; 9, WMAQ players.

WOC, Davenport, Iowa (483.6), 6:30 p. m., sandman's visit; 6:50, "Oral Hygiene," A. L. Willis; 9, Erwin F. Swindell, organist; John McGreevy, baritone.

WOS, Jefferson City, Mo. (440.9), 8 p. m., "Ditching with Explosives," A. J. McAdams; "For a Greater Missouri," George A. Pickens; Joe Bowers string band.

WQJ, Chicago, Ill. (447.5), 7-8 p. m., Rainbo Garden orchestra; Dorothy Davie Dillow, soprano; Edith Phillips Beller, pianist; Herman J. Techantine, baritone; 10-1 a. m., Rainbo Skylarks; Clyde Hager; Larry Brundage, Harry Kraemer; Clarence Theders, tenor; Fred Jacobson; Zeigler Sisters; 1-2, Hotsy Totsy hour.

WSAI, Cincinnati, Ohio (325.9), 7 p. m., Freda Sanker's Toadstool orchestra; 10, program, Alpha chapter, Delta Omicron sorority; 11, songs and readings, John Drury.

WSB, Atlanta Ga. (428.3), 10:45 p. m., entertainment.

WSUI, Iowa City, Iowa (483.6), 7:30 p. m., Cornell college orchestra.

WTAS, Elgin, Ill. (302.8), 8-10:30 p. m., WTAS dance program, Frank Morris, Fanny and Eddie Cavanaugh.

Mountain Time Stations

KOA, Denver, Colo. (322.4), 8 p. m., Fred Schmitt and his Rialto theater; 8:10, Denver Kiwanis club; Yeager male quartet; addresses by officers of the club; Mrs. Harry E. Bellamy, Mrs. Dye G. Liggitt, soprano; Mary Marzyck, pianist; Betty Paxon, harpist; Clarence C. Moore, baritone; KOA orchestra; 10-12, Joe Mann and his Rainbow-Lane orchestra.

KOB, State College, N. M. (348.6), 7:30-8:30 p. m., code course, Dean R. W. Goddard.

Pacific Time Stations

KFAE, Pullman, Wash. (348.6), 7:30-9 p. m., violin quartet; Barbara Posson, reader; Evelyn Sparlin, Marguerite MacLachlan, violinists; "Audio Frequency Amplifiers," Dean H. V. Carpenter; "Home Egg Laying Contest," R. N. Miller; "Needs and Benefits of Drainage," Prof. L. J. Smith; "Some of the New Books," Alice L. Webb.

KFI, Los Angeles, Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, Raditorial talk; 7-7:30, detective stories by Nick Harris; 7:30-8, program, Goodwin, Klinger and MacKay company; 8-9, Evening Herald dance hour; 9-10, Examiner's popular song night; 10-11, Patrick-Marsh dance orchestra, Betty Patrick, blues singer.

KFOA, Seattle, Wash. (454.3), 6-6:45 p. m., Olympia hotel concert orchestra; 6:45-8:15, Hopper-Kelly company; 8:30-10, Seattle Times studio program.

KFWB, Hollywood, Calif. (252), 7:45-9, p. m., program, Arrowhead Springs Hotel company, Sunshine trio and Arrowhead Springs dance orchestra; 9-10, popular vocal hour with Billy Lynn, Charlie Wellman, Billy Dunn and Harry Seymour; 10-11, Harry Seymour's hour, "Look What the Cat Dragged In;" 11-1 a. m., Brandstatter's Hollywood Montmarte cafe dance orchestra, Mel Pedesky, leader.

KGO, Oakland, Calif. (361), 4-5:30 p. m., concert orchestra, Hotel St. Francis.

KGW, Portland, Ore. (492.5), 6 p. m., Hotel Portland dinner concert; 8, concert, Western Auto Supply company.

KHJ, Los Angeles, Calif. (405.2), 6-6:30 p. m., Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, little stories American history, Prof. Walter Sylvester Hertzog; Dick Winslow, juvenile reporter; Baby Muriel MacCormac and Mickey McBan, screen starlets; 8, Dr. Mars Bumgardt, scientific lecturer; 8:30-9:30, program by Fillmore, Calif. Chamber of Commerce; 9:30-10, the Valvoline trio; 10-11, Art Hickman's Biltmore hotel dance orchestra, Earl Burtnett, leader.

KJR, Seattle, Wash. (384.8), 6-6:30 p. m., "What's Doing at the Theaters;" 8:30-9:30, Post-Intelligencer studio concert; 9:30-10, travelogue, Norman Pierce.

KLX, Oakland, Calif. (508.2), 8-10 p. m., American theater orchestra; 10-11:30, Sweet's ballroom.

KNX, Hollywood, Calif. (336.9), 5:45-6:15 p. m., Wurlitzer pipe organ studio, sports talk, Sid Ziff; 6:15-7, dinner hour music; 7-8, Ambassador hotel concert orchestra, Josef Rosenfeld, director; 8-10, program, Broadway department store; 10-12, Hollywoodland community dance orchestra.

KPO, San Francisco, Calif. (429.5), 6:30-7 p. m., States restaurant orchestra; 7-7:30, Rudy Seiger's Fairmont hotel orchestra; 7:30-8, Conn Band Instrument company; 8-9, Atwater Kent artists program; 9-10, instrumental and vocal selections, 10-11, Johnny Buick's Amphians.

Thursday, April 16

Thursday, silent night for: CHNC, KFAB, KFAE, KFDM, KFOA, KLX, KOA, KDB, KSD, WAHG, WBAV, WCEE, WDWF, WEAD, WEBJ, WEBW, WEMC, WHAD, WHAZ, WJAD, WJJD, WLBL, WOO, WOS, WSAC, WSUI.

Eastern Time Stations

AT9, Fort Bragg, N. C. (435), 8 p. m., "Citizen's Military Training Camps," Capt. Howard C. Brenizer.

CKAC, Montreal, Can. (410.9), 8:30 p. m., program, CNRM.

CNRM, Montreal, Can. (410.7), 8:30 p. m., Orpheus male quartet; J. Stewart, tenor; banjo trio; tenor and bass duets, John Harris, Lewis Gould; Bert Savage, baritone; J. T. Livingstone, Hawaiian guitarist; Kathleen Fox, soprano; John Harris, tenor.

KDKA, Pittsburgh, Pa. (309.1), 6:15 p. m., Broudy's orchestra; 8:30, concert; 9, hour Clark's Teaberry Gum entertainers; 11, Pittsburgh Post studio.

WBBR, New York, N. Y. (272.6), 8 p. m., Frank Wood, flutist; 8:10, vocal selections; 8:20, international Sunday school lesson for April 19, S. M. Van Sipma; 8:40, vocal selectons; 8:50, Frank wood, flutist.

WCAE, Pittsburgh, Pa. (461.5), 6:30 p. m., William Penn hotel; 8, Moores' cafeteria Radio review; 9, Atwater Kent Radio artists.

WCAU, Philadelphia, Pa. (278), 7:30 p. m., Snellenburg symphony orchestra; 10:30, Paul Specht's melodians.

WCX, Detroit, Mich. (516.9), 6 p. m., dinner concert, Book-Cadillac hotel; 7, musical program.

DANC

(Central

Saturday, A
Chnc, Wpg,
Wgy; 9, We
Wrc, Wreo, W
9:05, Wip;
Wrc; 9:45.
Koa, Wcco,
Wgn, Wpg.
10:30, Kfoa,
Wcco, We
Wmbf, Woaw,
Wtam; 11:45,
Kfoa, Kfi,
Knx, Kyw,
Kfwb, Kyw.

Monday, A
Weei, Wtas;
9, Kfi, W
Wmbf; 9:30,
Weaf, Wnaw,
Wjz; 10,
Wsai; 10:15, F
Wcco, Whn.
Wlw, Wmbf,
Wdaf; 12, Kfi,
Kpo; 1, Kfwb

Tuesday, A
Wtas; 9,
Webh, Weei,
Whn, Wmbf;
Wcau, Wip,
Kths; 10,
Wqj, Wtas; 1
Whn Woaw;
Wcco, Webh,
Wmc; 11:45,
Kfoa, Kgo,
Knx, Kpo.

Wednesday,
8, Whad,
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Whn, Wlit, W
9:03, Woo; 9
10, Kths, W
Wgr, Wqj; 1
10:30, Wcco,
11, Koa, W
Wmbf; 11:45,
Kfi, Khj, Klx,
1, Kfwb.

Thursday, A
Wtas; 9, E
Wear, Webh,
Wmbf; 9:30,
Wjz, Wmak,
Kths, Weaf,
Wqj, Wtas; 1
Wnaw; 11, W
Wmak, Wmb
Whn; 11:45,
Kfi, Kgo,
Kpo; 12:30,
Kfwb.

Friday, Ap
Wtas, Wwj;
Wlit, Wmbf,
Wcau, Wgy,
10, Kfi, K
Weaf, Wgn,
Wqj, Wtas; 10
11, Kfwb, W
Whn, Wmbf,
Klx, Wdaf;
Khj; 1, Kfwl
Knx.

Y WEAF THROUGH LINK STATIONS

ING

Time)

pril 11: 8, Wtaz; 8:30, bb, Wmbf, Main, Wpg; 9:30, Wjz, Erab; 10, eaf, Wgbs, Wqj, Wor; 11, Wahg, bb, Wfaa, Woc, Wre, Wdaf; 12, Kgo, Khj, Wibl; 1.

pril 13: 8, 8:30, Whn; in, Wlit, Kno, Wahg, Woo; 9:45, Kjr, Wgr, Ohs; 10:30, Wor; 11, 1 1; 4 5, Ksu, Knx, , Kox.

pril 14: 8, Kft, Kpo, Wfi, Wgv, 9:30, Clar, Spat; 9:45, ska, Wgn, 9:30, Wcsh, 11, Xoad), Wbu, Wmbf, Wdaf; 12, Kgw Khj,

April 15: Hm; 8:00, po, Weaf, mbf, Wwj; :30, Wbap; eaf, Wfaa, 9:15, Wor; Wlm, Wjz, cee, Wbu, Wdaf; 12, Knx, Koa;

pril 16: 8, il, Weaf, Weei, Wfi, Kpo, Weau, Wcat; 10, Wgn, Wlw, 9:30, Whn, ebh, Who, c; 11:30, Wdaf; 12, Wgr, Knx, Khj; 1.

ril 17: 8, 9, Webh, Wwj; 9:30, Whn, Wjz; hs, Wcco, Wgr, Woo, :30, Wbaw; cee, Webh, Wmc; 11:45, 12, Kfoa, , Knx; 2,

WEAF, New York, N. Y. (491.5), 6-7 p. m., dinner music, Waldorf-Astoria hotel; 7-7:30, services, New York Federation of churches; 7:30-7:40, William L. Gagnoix, baritone, accompanied by Winifred T. Barr; 7:40-8, Columbia university lecture course; 8-8:30, Cushman's serenaders; 8:30-9, "Touring in a Packard Eight," George Elliott Cooley; 9-10, Atwater Kent Radio artists; 10-11, Silvertown Cord orchestra; 11-12, Vincent Lopez and his orchestra.

WEAR, Cleveland, Ohio (389.4), 7-8 p. m., Vincent H. Percy, organist; 8-10, program from WEAF; 10-11, Crystal Slipper dance orchestra.

WEEI, Boston, Mass. (475.9), 6:30 p. m., Big Brother club; 7:15, Cliffe entertainers; 8, program from New York; 8:30, musicale; 9, Atwater Kent artists; 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; 9, Atwater Kent artists; 10, Goodrich Silvertown cord orchestra.

WGBS, New York, N. Y. (315.6), 6-6:30 p. m., Uncle Geebee; 9-9:30 duets, Helen and Blanche Bodnoff; 11:15-12, "Salome," Triangle players.

WGR, Buffalo, N. Y. (319), 6-7:30 p. m., Hallgarth string 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; Mabel Austin, soprano; Ollie G. Yetiru, accompanist; 11:30, Stephen E. Boleslaf, organist.

WHN, New York, N. Y. (361.2), 6:30-7 p. m., violin solos, Olcott Vail; 7-7:30, Silver Slipper revue, with Jim Carr's orchestra; 7:30-7:35, health talk, Dr. Landis; 8-8:30, Will Oakland's Chateau Shanley; 9:30-10, Loew's vaudeville headliner; 11:30-12, Wigwam club revue; 12-12:30 a. m., Parody club revue; 12:30-1, Club Moritz orchestra.

WIP, Philadelphia, Pa. (508.2), 6:05, p. m., Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtime stories; 8, talk, auspices University of Pennsylvania; 8:15, U of Penna. glee club; 10:05, fashion talk; 11, Harrey Marburger's dance orchestra.

WJAR, Providence, R. I. (305.9), 5 p. m., program from New York; 9, Victor presentation; 10, Goodrich Silvertown Cord orchestra.

WJY, New York, N. Y. (405.2), 8:30-9:45 p. m., special feature program from WRC, Washington; 9:45-10, Benjamin Listengart, violinist.

WJZ, New York, N. Y. (454.3), 7-8 p. m., Bernhard Levitow's Hotel Commodore orchestra; 8:10-8:29, NYU Air college; 9:30-10:30, U. S. Army night; 10:30-11:30, Waldorf-Astoria dance orchestra.

WKAQ, San Juan, P. R. (340.7), 7:30-9 p. m., La Opinion.

WLIT, Philadelphia, Pa. (394.5), 4:30 p. m., Mabel H. Keech, pianist; 7:30, Dream Daddy's bedtime stories.

WMAK, Lockport, N. Y. (265.5), 10:30 p. m., orchestral program; 12, Murray Whitmans midnight serenaders.

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

WNYC, New York, N. Y. (526), 6:30-7 p. m., Irving Bibson and his Club Tokio orchestra; 7:30-8, song recital; 8-8:10, talk by public official; 8:15-8:35, 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 E. Vost.

WOR, Newark, N. J. (405.2), 3-3:10 p. m., garden talk, Lester C. Lovell; 3:30-3:45, Lazelle Whittemore; 8:15-7:15, Tom Cooper's Country club orchestra.

WREO Lansing, Mich. (285.9), 9:15-9:45 p. m., Reo Broadcasting orchestra; Reo male quartet; Lewis Emmons, comedist; Thomas Metzger, flutist.

WTAM, Cleveland, Ohio (389.4), 6-7 p. m., Hotel Statler dinner concert.

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

Central Time Stations

CNRW, Winnipeg, Can. (384.4), 8:30 p. m., Imperial Veterans band; vocal selections; Mrs. J. Bree, vocal selections, A. Leslie Garside; E. Paul; Frank Wright's Country club dance orchestra.

KFAB, Lincoln, Nebr. (240), 3 p. m., Rialto Symphony orchestra.

KFKU, Lawrence, Kans. (275), 6:50 p. m., piano twenty-in number; 7, music; 7:15, "Ventilation and Lighting," Prof. C. M. Young; 7:30, "Music as a Profession Yesterday, Today and Tomorrow," Dean D. M. Swarthout; 7:45, educational psychology, Dean R. A. Schweiger.

KFKX, Hastings, Nebr. (288.3), 9:30-11:30 p. m., Kiwanis club.

KFMQ, Fayetteville, Ark. (299.8), 7:30 p. m., "The Expansive Mosquito," H. S. Warren; "Pasteurization of Dairy Products," W. C. Wilbanks; "Real Estate for Everybody," A. W. Jamison.

KFNF, Shenandoah, Iowa (266), 6:30 p. m., Pickering farm club, Delora McClurg, director; 8:30, home talent chautauqua, M. E. Ladies' Aid society.

KFRU, Bristow, Okla. (394.5), 10:30-11:30 p. m., Paul Craker, organist.

KSAC, Manhattan, Kans. (340.7), 7:20 p. m., music L. R. Putnam; 7:30, "Selections of Pictures," Arminta Helman; 7:40, music, L. R. Putnam; 7:50, "Around the Clock for Malnourished Mary," Pearle E. Ruby; 8-9, farm bureau women's Radio meeting.

KTHS, Hot Springs National Park, Ark. (374.8), 8:30-9:15 p. m., Charles F. Fisher, Eastman hotel orchestra; 9:15-10 Lawson Reid organist; 10-10:30, Meyer Davis-New Arlington hotel orchestra.

KYW, Chicago, Ill. (536), 8:30 p. m., Uncle Bob; 7-7:30, Conrees hotel dinner concert; 7:33-7:53, speakers; 8, "Twenty Minutes of Good Reading," Rev. C. J. Perrin; 8:20-9, Ruby Henderson, soprano; Arthur Howes, tenor; Faye Forsythe, pianist; Marie Wright, soprano; 9:05, "Safety First," Bert Vanderwarf; 10-11:03, evening at home.

WBAP, Fort Worth, Texas (475.9), 7:30-8:30 p. m., concert, College of Industrial arts; 9:30-10:45, Eisteppean club.

WCAL, Northfield, Minn. (336.9), 9 p. m., music.

WCBD, Zion, Ill. (344.6), 8 p. m., mixed quartet, Clarinet quartet, celestial bells; Mrs. Thomas, soprano; Mrs. LaRose, contralto; J. D. Thomas, baritone; Mrs. Mabel Gustafson, reader; Edwin Sach, pianist.

WCCO, Minneapolis-St. Paul, Minn. (416.6), 6 p. m., song contest program, Original George Osborn's Nocollet hotel orchestra; Gold Medal Radio quartet; 7-10, national program from New York.

WDAF, Kansas City, Mo. (365.6), 6-7 p. m., book talk, Louis Wecker; Tell-Me-a-Story lady; Trianon ensemble; 11:45-1, Merry Old Chief and Plantation players; Eddie Kuhn's Kansas City Athletic club orchestra; Johnnie Campbell's Kansas City club orchestra.

WEBH, Chicago, Ill. (370.2), 7-8 p. m., Oriole orchestra; Robert York, tenor; Riviera theater, 9-10, Oriole orchestra; Belle Forbes Cutler, soprano; saxophone quintet; John Stanford, tenor; 11-12, Oriole orchestra; Belle Forbes Cutler, soprano; Kay Rouayne, personality girl; John Stanford, tenor.

WFAA, Dallas, Texas. (475.9), 8:30-9:30 p. m., Mrs. Leon Blum, Jr., contralto; 11-12, Edward Cramer, violinist.

WGN, Chicago, Ill. (370.2), 6 p. m., organ recital, Lyon & Healy; 6:30-7, Drake concert ensemble, Blackstone string quintet; 8-9, music; 10-11, Drake dance orchestra.

WGST, Atlanta, Ga. (270), 7-8 p. m., lecture on French and Italian music, Dr. J. B. Crenshaw; A. W. Browning, tenor; "Fiction Writers of the South," S. W. Livermore.

WHAS, Louisville, Ky. (399.8), 4-5 p. m., Louisville Conservatory of music; 7:30-9, Happy Hoosier Harmonists.

WIBO, Kansas City, Mo. (365.6), 8-9 p. m., novelty program, Rushville players; 9-10, string music, Alma Nash, director.

WHO, Des Moines, Iowa (526), 7:30-9 p. m., musical program; 11-12, dance program.

WLW, Cincinnati, Ohio (422.3), 4 p. m., French lesson, Madame Ida Templeis; recital, Adelaide Apfel; 6, WLW dinner hour concert; 10, three minute messages, United States Civil Service department; 10:03, concert program, Cooper corporation concert orchestra directed by Wm. Shea, and male quartet; George Conver, tenor; Henry Lurch, piano; Viola Dusing Shaberle, soprano; popular dance selections, Doherty Melody boys.

WMAQ, Chicago, Ill. (447.5), 6 p. m., Chicago theater organ recital; 6:25, Hotel LaSalle orchestra; 6:50, daddy; 8 garden talk, James H. Burdett; 8:15, Boy Scouts' hour; 8:30, speech, 8:50, lecture, University of Chicago; 9:15, Mme. Ella Spravka, pianist; Boza Oumiran, baritone.

WMC, Memphis, Tenn. (499.7), 7:30 p. m., science talk, Brother Joseph; 8:30, Scottish Rite cathedral, Harry O. Nichols.

WOAI, San Antonio, Texas (394.5), 9:30 p. m., Jimmie Joy's orchestra.

WOAW, Omaha, Nebr. (526), p. m., to be announced; 6:45, Randall's Royal Fontenelle orchestra; 9, Omaha university; 10:30, Frank W. Hodek, Jr., and his Nightingale orchestra.

WOC, Davenport, Iowa (483.6), 6:30 p. m., sandman's visit; 7, music from New York.

WOI, Ames, Iowa (270), 8:15 p. m., musical program.

WORD, Chicago, Ill. (275), 8-10 p. m., Sunday school lesson, B. F. Hollister; program of Easter music, choir Park Place Baptist church.

WQJ, Chicago, Ill. (447.5), 7-8 p. m., Rainbo Garden orchestra; Elsie Orr, soprano; Yvonne Rosenthal, pianist; 10-1 a. m., Rainbo Gardens; Henri Thorleri, Joe Verges, "New Orleans Boys;" Ila Shannabrook, soprano; Lew Butler, Ned and Ches; Marie Wright, soprano; 1-2, Hotsy Totsy hour.

WSAI, Cincinnati, Ohio (325.9), 6:30 p. m., Hotel Sinton orchestra; 7, WEAF program.

WSB, Atlanta, Ga. (428.3), 8-9 p. m., Guantanamilan Marimba band; 10:45, Dr. Charles A. Sheldon, organist.

WTAS, Elgin, Ill. (302.8), 7-12 midnight, WTAS dance orchestra, special features.

Mountain Time Stations

CNRC, Calgary, Can. (434.5), 9 p. m., Excelsior entertainers.

Pacific Time Stations

KFI, Los Angeles Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, Radiorial talk; 7-7:30, Emile Ostrum and the Polar Bear dance orchestra; 7:30-8, Erma De Haity, female baritone; Ed Rusner, baritone; Florence Rogers, pianist; 8-9, program, Standard Oil company of California presenting a play with music written by Wm. 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., Moran school program.

KFWB, Hollywood, Calif. (252), 7:45-9 p. m., Brownie's orchestra, Varsity and Charlie Wellman, tenor; 9-10, Howard Stevenson, songs and uke, Acme male quartet; 10-11, program, Elle Radio Shop of Hollywood; 11-1 a. m., Frank Ebner's Hollywood Montmarte cafe dance orchestra, Mel Jolson, leader.

KGO, Oakland, Calif. (361), 4-5:30 p. m., concert orchestra, Hotel St. Francis; 7:15, golf lesson, Joe Novak; 8, "The Man on the Box," KGO players; 10-1 a. m., Henry Halstead's orchestra.

KGW, Portland Ore. (491.5), 8 p. m., concert; 10, Multnomah hotel, strollers.

KHJ, Los Angeles, Calif. (405.2), 6-6:30 p. m., Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick director; 6:30-7:30, little stories American history, Prof. Walter Sylvester Hertzog; Dickie Brandon and dude ranches; screen juveniles with Dixie

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, WBBR, 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; 11:05, WIP.

Sunday, April 12: 6, WCAU, WOO; 6:30, KDKA; 8, WEAR; 8:15, WJZ; 8:30, WAHG; 8:45, WGY; 9, CHIC, WBBR, WEAR; 9:15, WEAF, WEEI, WWJ; 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, WEAF; 8:35, WGR; 8:40, WBBR, WJZ; 9, KDKA, WGR, WHAZ, WWJ; 9:30, WLIT; 10, WEEI, WGR, WHAZ; 10:10, KDKA; 11, KDKA.

Tuesday, April 14: 6, WCAU, WEAF, WGR, WWJ; 6:30, WFI, WGY; 7, WEAF, WEAR, WEBJ; 7:30, CKAC, WCAU; 7:40, WGY; 7:45, WEBJ, 8, KDKA, WEAR, WEBJ, WEEI, WGBS, WFI, WGR, WIP, WKAQ, WWJ; 8:30, KDKA, WJY; 9, KDKA, WGY, WIP, WJY, WJZ; 9:30, WGBS; 10, CHIC, KDKA, WEAF, WGY; 10:15, WGBS; 11, KDKA, 11:30, KDKA; 12, WGY.

Wednesday, April 15: 6, WEAF, WWJ; 6:05, WIP; 6:30, KDKA, WFI, WGR, WHN; 6:45, WEAR; 7, WGY, WKAQ; 7:15, WEEI; 7:30, WEAF, WOO; 8, CNRO, WGR, WOR, WWJ; 8:20, WOO; 8:30, KDKA, WCAU, WEAF, WEEI, WJZ; 8:45, WCAU, WOR; 9, KDKA, WEAF, WEEI, WWJ; 10:30, KDKA, WOR.

Thursday, April 16: 6, WEAF, WGR, WWJ; 6:05, WIP; 6:30, KDKA, WFI, WGY, WHN; 7, WEAR; 7:30, WCAU, WEAF, WKAQ; 7:45, WGY; 8, AT9, KDKA, WBBR, WEAR, WEEI, WFI, WGR, WWJ; 8:15, WIP; 8:30, CNRO, KDKA, WJY; 8:40, WEBR; 9, KDKA, WEAF, WEEI, WFI, WGBS; 9:30, WJZ; 9:45, WJY; 11, KDKA; 11:15, WGBS; 11:30, WGY.

Friday, April 17: 6, WCAU, WEAF, WWJ; 6:30, CNRT, KDKA, WFI, WHN; 7, WEAF, WEAR, WGY, WJZ, WSAC; 7:30, WEEI; 7:45, WEAF; 8, WAHG, WBAV, WEEI, WLIT; 8:15, WJY; 8:30, CNRT, KDKA, WOO; 8:45, WEAF; 8:50, WEEI, 9, WJZ; 9:05, WAHG; 9:30, WEEI, WGY, WOO; 9:45, WJY; 10, WEEI; 10:03, WOO; 11, WLIT.

Central Time Stations

Saturday, April 11: 6, WCCO, WFAA, WGN, WLW, WMAQ; 6:30, KFNF, WGN, WJJD; 7, KYW, WEBH, WQJ; 7:15, WJJD, WOR; 7:30, WHAS, WSUI; 8, KYW; 8:30, KFNF, KTHS, WCCO, WFAA, WMC; 9, KFRU, WMAQ, WOAW, WOC; 9:35, KYW; 10, WOR; 10:30, KSD, KYW, WJAD, WJJD; 11, KFRU; 11:30, WOAW; 12, WCAL.

Sunday, April 12: 7, KYW, WEBH; 7:30, WHO, WORD; 8, WCBD, WQJ; 8:15, WEMC; 8:30, WCAL, WLW; 9, KTHS, WGN, WHB, WQJ, WSUI; 9:15, WCCO; 9:30, WFAA, WOAI, WOC; 11:15, WHB; 12, WHB.

Monday, April 13: 6, WGN, WLW, WOAW; 6:30, KFNF, WFAA, WGN, WJJD; 7, KSD; 7:15, WJJD; 7:30, WBAP, WHAD, WHO, WRBC; 8, KFRU, KTHS, WCBD, WEBW, WHO, WORD, WSUI; 8:15, WEMC; 8:30, KFNF, WFAA, WJAD, WMC, WOS; 9, KSD, KTHS, WGST, WOAW; 9:30, KFKX; 9:45, KTHS; 10, WLW; 10:30, WJJD; 11, WCAL, WHO.

Tuesday, April 14: 6, KSD, WGN; 6:15, WCCO; 6:30, WFAA, WGN, WJJD; 6:45, WOAW; 7, KFDM, WEBH, WQJ; 7:15, WJJD; 7:30, WHAS, WOC; 8, WCCO, WGN, WHB, WLW, WORD, WSAI, WSB; 8:30, KTHS, WFAA, WMC, WOAI; 9, KFMQ, WLW; 9:30, WBAP, WEBW; 10:30, KFRU, WJJD; 10:45, WSB; 11, WFAA.

Wednesday, April 15: 6, WGN, WLW; 6:30, KFNF, WGN, WHO, WJJD; 7, KSD, WEBH, WHB, WQJ; 7:15, WJJD; 7:30, WHAS, WHO, WSUI; 7:40, KSAC; 8, KFRU, WDAF; 8:15, WEMC; 8:30, KFNF, WOS; 9, KTHS, WHA, WHO, WOC; 9:30, KFRU; 9:45, WHO; 10, WLW, WSAI; 10:30, WJJD; 10:45, WSB; 11:30, WCCO.

Thursday, April 16: 6, WGN, WLW; 6:30, KFNF, WGN; 6:45, WOAW; 7, WCCO, WEAF, WEBH, WOC, WQJ; 7:30, WBAP, WHAS, WHO; 7:40, KSAC; 8, WCBD, WSB; 8:15, WOI; 8:30, KFNF, KTHS, WFAA, WMC; 9, WCAL, WOAW, WORD; 9:15, KTHS; 9:30, KFKX, WBAP; 10:03, WLW; 10:30, KFKX, KFRU; 10:45, WSB; 11, WFAA.

Friday, April 17: 6, WCCO, WGN; 6:30, KFNF, WCCO, WGN, WJJD; 7, KSD, WEBH, WOAW, WQJ; 7:15, WJJD; 7:30, KFAB, WBAP, WHAS, WHO; 8, WCCO, WEBH, WGN, WOC, WSB; 8:30, WFAA, WJAD, WMC, WOS; 9, KTHS, WEMC, WOAW, WOC; 9:30, WBAP; 10, KSD; 10:30, WJJD; 10:45, WSB.

Mountain Time Stations

Monday, April 13: 8, CFAC; 8:10, KOA; 10, CFAC.

Tuesday, April 14: 7:45, CFAC; 10, CFAC.

Wednesday, April 15: 7:45, CFAC; 8:10, KOA.

Thursday, April 16: 9, CFAC, CNRC.

Friday, April 17: 7, 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; 8, KFI, KNX; 8:15, KHJ; 8:30, KPO; 9, KFI.

Monday, April 13: 6, KGW, KLX; 6:15, KNX; 6:30, KPO; 6:45, KFOA; 7:30, KFAE; 8, KFI, KHJ, KPO; 9, KJR, KPO.

Tuesday, April 14: 6, KHJ; 6:15, KNX; 6:45, KFOA; 7, KFI, KPO; 8, KGO, KPO; 8:30, KFOA, KGW; 9, KFI; 9:30, KFI.

Wednesday, April 15: 6, KGW, KHJ, KLX; 6:15, KNX; 6:45, KFOA; 7, KNX; 7:30, KFAE, KFI, KPO; 8, KWG, KJR, KLX, KNX, KPO; 8:30, KHJ.

Thursday, April 16: 6, KFOA, KHJ; 6:30, KNX; 7:30, KFI; 8, KGW, KNX, KPO; 9, KPO; 9:30, KHJ.

Friday, April 17: 6, KHJ, KLX; 6:15, KNX; 6:45, KFOA; 7:15, KLX; 7:30, KNX; 8, KHJ, KNX, KPO; 8:30, KFOA, KJR; 9, KFI; 9:30, KJR; 10, KFI.

WBAP, WHAD, WHO, WRBC; 8, KFRU, KTHS, WCBD, WEBW, WHO, WORD, WSUI; 8:15, WEMC; 8:30, KFNF, WFAA, WJAD, WMC, WOS; 9, KSD, KTHS, WGST, WOAW; 9:30, KFKX; 9:45, KTHS; 10, WLW; 10:30, WJJD; 11, WCAL, WHO.

Tuesday, April 14: 6, KSD, WGN; 6:15, WCCO; 6:30, WFAA, WGN, WJJD; 6:45, WOAW; 7, KFDM, WEBH, WQJ; 7:15, WJJD; 7:30, WHAS, WOC; 8, WCCO, WGN, WHB, WLW, WORD, WSAI, WSB; 8:30, KTHS, WFAA, WMC, WOAI; 9, KFMQ, WLW; 9:30, WBAP, WEBW; 10:30, KFRU, WJJD; 10:45, WSB; 11, WFAA.

Wednesday, April 15: 6, WGN, WLW; 6:30, KFNF, WGN, WHO, WJJD; 7, KSD, WEBH, WHB, WQJ; 7:15, WJJD; 7:30, WHAS, WHO, WSUI; 7:40, KSAC; 8, KFRU, WDAF; 8:15, WEMC; 8:30, KFNF, WOS; 9, KTHS, WHA, WHO, WOC; 9:30, KFRU; 9:45, WHO; 10, WLW, WSAI; 10:30, WJJD; 10:45, WSB; 11:30, WCCO.

Thursday, April 16: 6, WGN, WLW; 6:30, KFNF, WGN; 6:45, WOAW; 7, WCCO, WEAF, WEBH, WOC, WQJ; 7:30, WBAP, WHAS, WHO; 7:40, KSAC; 8, WCBD, WSB; 8:15, WOI; 8:30, KFNF, KTHS, WFAA, WMC; 9, WCAL, WOAW, WORD; 9:15, KTHS; 9:30, KFKX, WBAP; 10:03, WLW; 10:30, KFKX, KFRU; 10:45, WSB; 11, WFAA.

Friday, April 17: 6, WCCO, WGN; 6:30, KFNF, WCCO, WGN, WJJD; 7, KSD, WEBH, WOAW, WQJ; 7:15, WJJD; 7:30, KFAB, WBAP, WHAS, WHO; 8, WCCO, WEBH, WGN, WOC, WSB; 8:30, WFAA, WJAD, WMC, WOS; 9, KTHS, WEMC, WOAW, WOC; 9:30, WBAP; 10, KSD; 10:30, WJJD; 10:45, WSB.

Mountain Time Stations

Monday, April 13: 8, CFAC; 8:10, KOA; 10, CFAC.

Tuesday, April 14: 7:45, CFAC; 10, CFAC.

Wednesday, April 15: 7:45, CFAC; 8:10, KOA.

Thursday, April 16: 9, CFAC, CNRC.

Friday, April 17: 7, 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; 8, KFI, KNX; 8:15, KHJ; 8:30, KPO; 9, KFI.

Monday, April 13: 6, KGW, KLX; 6:15, KNX; 6:30, KPO; 6:45, KFOA; 7:30, KFAE; 8, KFI, KHJ, KPO; 9, KJR, KPO.

Tuesday, April 14: 6, KHJ; 6:15, KNX; 6:45, KFOA; 7, KFI, KPO; 8, KGO, KPO; 8:30, KFOA, KGW; 9, KFI; 9:30, KFI.

Wednesday, April 15: 6, KGW, KHJ, KLX; 6:15, KNX; 6:45, KFOA; 7, KNX; 7:30, KFAE, KFI, KPO; 8, KWG, KJR, KLX, KNX, KPO; 8:30, KHJ.

Thursday, April 16: 6, KFOA, KHJ; 6:30, KNX; 7:30, KFI; 8, KGW, KNX, KPO; 9, KPO; 9:30, KHJ.

Friday, April 17: 6, KHJ, KLX; 6:15, KNX; 6:45, KFOA; 7:15, KLX; 7:30, KNX; 8, KHJ, KNX, KPO; 8:30, KFOA, KJR; 9, KFI; 9:30, KJR; 10, KFI.

John; 7:30-8, "Romance of the Santa Fe Trail," Gladys De Witt; 8-9:30, program, Peerless Laundry company arranged by J. Howard Johnson; 9:30-10:30, program, Fitzgerald Music company; 10:30-11:30, Art Hickman's Biltmore hotel dance orchestra, Earl Burtnett, leader.

KJR, Seattle, Wash. (384.8), 6-6:30 p. m., "What's Doing at the Theaters;" 10:30-12, "Keep Joy Radiating," Order of the Buts in Their Welfare.

KNX, Hollywood, Calif. (336.9), 5:45-6:15 p. m., Wurlitzer pipe organ studio, sports talk, Sid Ziff; 6:30-7:30, dinner hour music; 7:30, business talk, J. R. Douglas; 8-10, program, Peerless Products company; 10-11, Abe Lyman's Coconanut Grove dance orchestra from Ambassador hotel; 11-12, campus night, students of University of California, Southern branch.

KPO, San Francisco, Calif. (429.5), 6:30-7 p. m., States restaurant orchestra; 7:30-8, Rudy Seiger's Fairmont hotel orchestra; 8-9, Theodore H. Irwin, organist; Velma Cudworth, soprano; 9-10, Hazel Johnson, soprano; 10-11, Johnny Buick's Amphians.

Friday, April 17

Friday, silent night for: AT9, CHNC, CHIC, CKAC, KFIU, KFKX, KFMQ, KGO, WBBR, WBZ, WCBD, WEAO, WEBW, WFI, WGBS, WGST, WHAZ, WIP, WKAQ, WLBL, WLW, WMAK, WOAI, WOI, WSAI.

Eastern Time Stations

CNRA, Moncton, Can. (312.3), 7:20 p. m., French Acadian; Moncton Acadian male quartet; Amedee Malenfant, contralto; L'Assumption band; Evangeline Frechet, pianist; Wilfrid Lavole, baritone; Gladys Raymond Leger, violinist; Desire J. Bourque, baritone; Alyre Bellaire, trombonist; J. Malenfant, bass; CNRA orchestra.

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

(Continued on page 44)

Friday, April 17

(Continued from page 13)

9:30, Aeolian male quartet; 9, address; 10:30, Luigi Romanelli and his King Edward hotel dance orchestra.

KOKA, Pittsburgh, Pa. (309.1), 6:15 p. m., dinner concert; 7:45, Pittsburgh band club; 8:15, address, University of Pittsburgh; 8:30, concert.

WAHG, Richmond Hill, N. Y. (315.6), 8-8:15 p. m., Irving Firstenberg, pianist; 8:15-8:30, Florence Guttman, soprano; 8:30-8:50, Morningside string quartet; 8:50-9:05, Evan Davies, entertainers; 9:05-9:30, M. Lanzberti, cellist; 9:30-9:45, Jamaica Dutch quartet; 9:45-9:55, Evan Davies; 10:05-10:20, The Radio Question Box, William F. Diehl; 10:20-11:30, Asclutto Brothers orchestra; 12-2 a. m., special program, Glen C. Smith's Paramount orchestra.

WCAE, Pittsburgh, Pa. (461.5), 6:30 p. m., William Penn hotel; 8:30, concert, Viola Bulsker-Leonard, director.

WCAU, Philadelphia, Pa. (278), 6 p. m., Meyer Davis Hotel Pennsylvania concert orchestra; 10:30, Paul Specht's melodians; 11:30, Cafe Pandora revue.

WCX, Detroit, Mich. (516.9), 5 p. m., dinner concert, Book-Cadillac hotel; 7, musical program; 10, dance music, Arcadia.

WDWF, Providence, R. I. (440.9), 3 p. m., lecture, faculty of Brown university.

WEAF, New York, N. Y. (491.5), 4:40-5 p. m., "Indian Legends," American Museum of Natural History; 6-7, dinner music from Waldorf-Astoria; 7-7:30, Gustave Langenus, clarinet sextet; 7:30-7:45, children's story, Blanche Elizabeth Wade; 7:45-8, Cecile M. Berens, pianist; 8-8:45, Happiness Candy boys; 8:45-9, Premier male quartet; 9-10, Spear and company entertainers; 10-11, Knickerbocker string trio; 11-12, Meyer Davis' Lido-Venice orchestra.

WEAR, Cleveland, Ohio (389.4), 7-11 p. m., Ed Day's Bedford Glens dance orchestra; Gertrude Lance, pianist; Brunswick trio, Fred Hastings, Albert Bressy, E. E. Ward; Master Michael Burke, juvenile tenor.

WEBJ, New York, N. Y. (233), 7-7:45 p. m., Blenheim theater ensemble, direction of Sol Klein; 7:45-8, Lillian Backman, accompanied by J. Gerard Hughes; 8:45-9, Cliff Crest Society orchestra.

WEEI, Boston, Mass. (475.9), 7:15 p. m., historical talk; 7:30, program, Whiting Milk company; 8, Neapolitan male quartet; 8:30, Breck's garden talk; 8:56, U. S. Army band; 9:30, Howes Valeteria; 10, organ recital.

WFI, Philadelphia, Pa. (394.5), 3 p. m., Housewives' Radio exchange, direction Mable Swint Ewer; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, bedtime stories.

WGR, Buffalo, N. Y. (319), 6:30-7:30 p. m., Buffalo Trust hour; 8-9, "Madam Butterfly," an educational opera entertainment, Eleanor D. Baker, director; 9-9, Woodside male chorus, George H. Grohs, director; 11-1, supper-dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Glesen, director.

WGY, Schenectady, N. Y. (379.5), 6:30 p. m., international Sunday school lesson; 7, Albany Strand theater orchestra; Floyd H. Walter, organist; 7:40, Wittstein's dance orchestra; 8:40, "Rip Van Winkle." WGY players; 10:30, Albany Police Protective association; Tenth Infantry band; Jimmie Smith's singing orchestra; solos, Ralph Jones George W. Decker.

WHN, New York, N. Y. (361.2), 6:26-7 p.m., violin solos, Oscott Vail; 7-7:30, Hotel Alamac dance orchestra; 7:30-7:35, health talk, Dr. Landis; 7:35-8, Club Moritz orchestra; 9:30-10, Dan Gregory and his Crystal Palace orchestra; 10-10:25, Jimmy Clark and his White Way entertainers; 10:25-10:30, "Storage Batteries," H. B. Shontz; 10:30-11, Roseland dance orchestra; 11:30-12, Club Alabam orchestra; 12-12:30 a. m., Parody club orchestra.

WIP, Philadelphia, Pa. (508.2), 4 p. m., talk, auspices University of Pennsylvania; 6:05, Harvey Marburger's dance orchestra; 7, Uncle Wip's bedtime stories.

WJAR, Providence, R. I. (305.9), 3 p. m., musical program; 9, Astor Coffee orchestra; 11, Providence Biltmore hotel orchestra.

WJY, New York, N. Y. (405.2), 8:15-8:45 p. m., Baltimore and Ohio Glee club; 9-9:30, Serenaders quartet; 9:45-10, Isabel Small, soprano; Keith McLeod, accompanist.

WJZ, New York, N. Y. (454.3), 4-4:15 p. m., Richard Franklin, pianist; 4:15-4:30, Corinne Cooper Mellroy, soprano; 7-7:30, Savarin ensemble; 8:10-8:20, N. Y. U. Air college; 8:30, "Father and the Boys," WGY players; 10:30-11:30, Duke Yellman and his Irene Castle orchestra.

WLIT, Philadelphia, Pa. (394.5), 4:30 p. m., Marcella North, pianist; 7:30, Dream Daddy's bedtime stories; 8, Elks' concert; 10, Arcadia cafe dance orchestra; Morning Glory club concert; 11, Lenni Heights Minstrels, direction Frank C. Schofield.

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

WNYC, New York, N. Y. (526), 7-7:30 p. m., dance program; 7:35-8, resume of meeting of Board of Estimate; 8-9, studio feature; 9-10, hour of German music; 10:10-10:30, "Books That Everyone Should Know," Professor Carter Troop.

WOO, Philadelphia, Pa. (508.2), 4:45 p. m., organ recital Mary E. Vogt; 7:30, A. Vandevort's concert orchestra; 8:30, WOO concert orchestra; 9:30, recital, Harriette G. Ridley, pianist; 10:03, organ recital, Mary E. Vogt; 11, Vincent Rizzo's orchestra.

WOR, Newark, N. J. (405.2), 6:17-6:30 p. m., Hotel Lorraine orchestra; 6:30-7, Man in Moon stories; 7-7:30, Hotel Lorraine orchestra.

WSAC, Clemson College, S. C. (336.9), 7 p. m., music memory contest, Prof. Bonsignel.

WTAM, Cleveland, Ohio (389.4), 6-7 p. m., dinner concert, Royal Canadians.

WTIC, Hartford, Conn. (348.6), 8 p. m., Laura Goudet, pianist; college glee club; 10, Emil Heimbergers Hotel Bond orchestra.

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

Central Time Stations

KFAB, Lincoln, Nebr. (240), 7:30-8:30 p. m., Doane College School of music; Serenaders orchestra.

KFNF, Shenandoah, Iowa (266), 6:30 p. m., concert from Clearmont, Clarissa Burch, director.

KFRU, Bristow, Okla. (394.5), 11-1:30 a. m., Brown Derby club.

KIAF, Siblipak, Minn. (421), 9-10 p. m., school of music.

KSAC, Manhattan, Kans. (340.7), 7:20 p. m., Radio college quartet; 7:30, "Soil Bacteria and Plant Food," P. L. Gaines; 7:40, Radio college quartet; 7:50, "Birds and Their Value to Agriculture," J. E. Ackert.

KSO, St. Louis, Mo. (545.1), 7 p. m., Grant McDonald, pianist; 10, Mrs. Armin Pfisterer, contralto; Grace McGowan, soprano; Beatrice Kretzner, pianist.

KTHS, Hot Spring National Park, Ark. (374.8), 8:30-9 p. m., ballad numbers, Fischer trio; 9-10, Meyer Davis-New Arlington hotel orchestra; 10-11, Ray Mullins Jack O'Lantern orchestra.

KYW, Chicago, Ill. (536), 6:35-7 p. m., Congress hotel dinner concert; 9-1 a. m., midnight revue.

WBAP, Fort Worth, Tex. (475.9), 7:30-8:30 p. m., Clare Drey; 9:30-10:45, Fort Worth police band.

WCAL, Northfield, Minn. (336.9), 8:30 p. m., book talk, Dr. George Weida Spohn.

WCCO, Minneapolis-St. Paul, Minn. (416.6), 6 p. m., dinner concert; Original George Osborn's Nicollet hotel orchestra; 6:30, Joseph Kimball, baritone; Grace Hake, pianist; 7:30 lecture; 7:45, lecture; 8, "Enoch Arden," John De Q. Briggs, reader; Marjorie Winslow, pianist; 10, Dick Long's Nankin cafe orchestra; Russell Murphy, baritone; Ruth McKibbon, accompanist; Don Harris, pianist.

WCEE, Elgin, Ill. (275), 7-8 p. m., WTAS orchestra; 10:26-12, WTAS orchestra; Frank Morris, Eddie and Fanny Cavanaugh.

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.

WEBH, Chicago, Ill. (370.2), 7-8 p. m., Oriole orchestra; Cambridge Sisters; violin trio; Riviera theater; 9-10, Oriole orchestra; Frederick Agard, tenor; Rita McPawn, soprano; 11-12, Oriole orchestra; Sandy Meek, tenor; Frank Papile, accordionist; Frederick Agard, tenor.

WEMC, Berrien Springs, Mich. (285.5), 9 p. m., old hymns, Radio Lighthouse choir; Cecil Woods, baritone; Mary Lamson, reader; Martha Hutchinson, soprano; Bible chat, Orville Dunn.

WFAA, Dallas, Tex. (475.9), 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 & 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 Owls; William Rinehart, tenor.

WHB, Kansas City, Mo. (365.6), 7-8 p. m., men and boys' hour.

WHO, Des Moines, Iowa (526), 7:30-9 p. m., Hapae Grotto quartet; Verla Phillips, pianist; 11-12, dance program.

WJAD, Waco, Texas (352.7), 8:30-10 p. m., McLennan County Working Boys club.

WJJD, Mooseheart, Ill. (302.8), 6:30-7:15 p. m., Albert F. Brown, organist; 7:15-8, Mooseheart children; 10:30-1 a. m., Garod studio, Charley Straight and his orchestra.

WLW, Cincinnati, Ohio (422.3), 12:15 a. m., dance selections, Ahaus Brunswick orchestra.

WMAQ, Chicago, Ill. (447.5), 6 p. m., Chicago theater organ recital; 6:20, Hotel LaSalle orchestra; 6:50, family alter league; 8, Wide-Awake club program, Frances Ford; 8:30, musical geography, Mr. and Mrs. Marx E. Oberndorfer; 9, fishing, Edward G. Taylor; 9:15, program Mae Graves Atkins, director.

WMC, Memphis, Tenn. (499.7), 7:20 p. m., Radio talk; 8:30, Britling's Novelty orchestra; 11, midnight frolic.

WOAW, Omaha, Neb. (526), 6:30 p. m., Harry Brader, violinist; Frank Strawn, pianist; 7, to be announced; 9, program Chicago, Burlington & Quincy Railroad company; "Seeing by Radio Territory Covered by the Burlington Route," Dr. G. E. Condra; 10:30, Willard Robinson and his orchestra.

WOC, Davenport, Iowa (483.6), 6:30 p. m., sandman's visit; 8, boys' choir, Sacred Heart cathedral; 9, Kaaba Temple Shrine band.

WORD, Chicago, Ill. (275), 8-10 p. m., "Safety," J. W. Oliver; Esther Friend Kennedy, soprano; Helene Homan, contralto; Lucile Banderstarr, pianist.

WOS, Jefferson City, Mo. (440.9), 8 p. m., "Homing Pigeons," Frank B. Hollman; "Corn Growing in Missouri," Samuel M. Jordan; original poems, LeRoy H. Kelsey; music, Mrs. H. E. Bachtell, director.

WQJ, Chicago, Ill. (447.5), 7-8 p. m., Rainbo Garden orchestra; Henrietta Nolan, violinist; Otis Pike Jester, soprano; Mary Thrash House, pianist; 10-1 a. m., Rainbo Skylarks; Larry Brundage, Harry Kraemer; West Brothers; Zeigler Sisters; Nate Caldwell, pianist; Lauretta Giles, soprano; 1-2, Hotsy Totsy hour.

WSB, Atlanta, Ga. (428.3), 8-9 p. m., Griffin program; 10:45, Grace Methodist church.

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

Mountain Time Stations

CNRE, Edmonton, Can. (516.9), 8:30 p. m., Moonlight serenaders' orchestra.

KOA, Denver, Colo. (322.4), 8 p. m., Fred Schmitt and his Rialto theater; 8:10, studio program, Francis Brown Lowry post, No. 561; talk, Gustave J. Ornauer; Rev. Ignatius Grell, pianist.

KOB, State College N. M. (348.6), 7:30-8:30 p. m., Mrs. J. E. Christie, soprano; Mrs. Herman Nosch, pianist.

Pacific Time Stations

KFI, Los Angeles, Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, Radiotrial talk; 7-8, Examiner, literary program; 8-9, Evening Herald hour of dance music; 9-10, Loren Robinson and the Arcadia male quartet; 10-11, Tilda Rohr, contralto, songs of Italy, France and Germany.

KFOA, Seattle, Wash. (454.3), 6:45-8:15 p. m., Sherman, Clay & company program; 8:30-10, Times program; 10:05-11:30, Eddie Harkness and his orchestra.

KFWB, Hollywood, Calif. (252), 7:45-9 p. m., Ina Mitchell Butler, soprano; McWinters and Fox, vaudeville banjoists; Holly sisters, blues singers; 9-10, Merryland ballroom orchestra and entertainers; 10-11, Harry Seymoor's hour of popular numbers, short talks by movie people; 11-1 a. m., Brandstatter's Hollywood Montmartre cafe dance orchestra, Mel Pedesky, leader.

KGO, Oakland, Calif. (361), 4-5:30 p. m., concert orchestra, Hotel St. Francis.

KGW, Portland, Ore. (491.5), 6 p. m., dinner concert; 8, lecture, University of Oregon extension division; 10:30, Hoot Owls.

KHJ, Los Angeles, Calif. (405.2), 6-6:30 p. m., Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, Hills stories American history, Prof. Walter Sylvester Hertzog; Richard Headrick, screen starlet, Boys' sextet of San Fernando high school; 8-10, program, Western Auto Supply company, arranged by J. Howard Johnson; 10-11, Art Hickman's Biltmore hotel dance orchestra, Earl Burtnett, leader.

KJR, Seattle, Wash. (384.8), 6-6:30 p. m., "What's Doing at the Theaters;" 8:30-9:30, Post-Intelligencer studio recital; 9:30-10, Chamber of Commerce program.

KLX, Oakland, Calif. (508.2), 6-7 p. m., organ; 7:45-9:45, studio program; 9:45-10:30, Sweet's ballroom.

KNX, Hollywood, Calif. (336.9), 5:45-6:15 p. m., Wurlitzer pipe organ studio; 6:15-7:30, program Decerly Ridge company; 7:30-8, program, Eastern Outfitting company; 8-9, program, West Coast theaters, Inc., by remote control; 9-11, KNX feature program; 11-12, Abe Lyman's Cocoanut Grove dance orchestra from Ambassador hotel; 12-2 a. m., Wurlitzer Nighthawks orchestra.

KPO, San Francisco, Calif. (429.5), 8-10 p. m., Wurlitzer 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.

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 strengtheniug. 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 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.

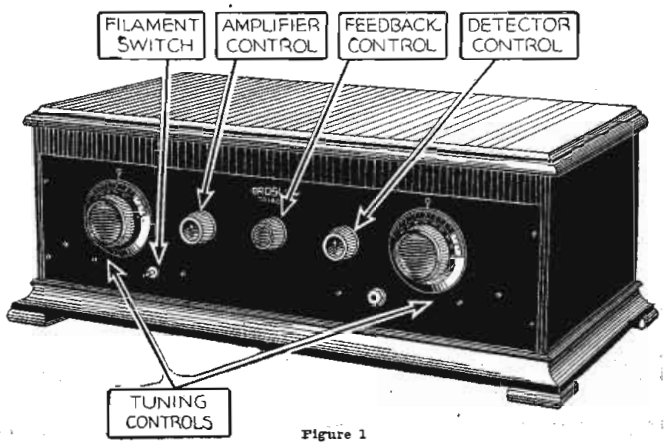

Figure 1

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 heen amplified, we wish them to go to the detector in tube socket 14. The flat disc of wire, which is really a coil or 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 frequeneies 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 relatiou 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)

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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——l for some special heat resistent wire, the same as used by Station STATIC (which is never bothered by the heat), and expects to have the opening soon maybe.

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 rythmic 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 munificient 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 punk 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

Ol' Man Statie, 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.
Ol' 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 Radiophan 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 assuranee 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 haphazzard 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 Rose orchestra playing before Mike at WLS, Chicago, wonld thereafter be content to listen to diseordant sonnds 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 Irom the same station, the Honolulu Maids, deserves mention.

WWJ, Detroit, Mich., has provided better orchestral entertainment that 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.

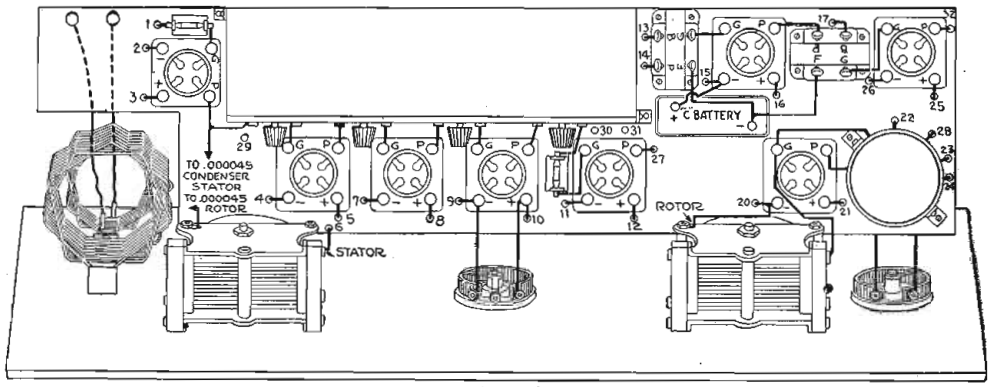


Figure 18

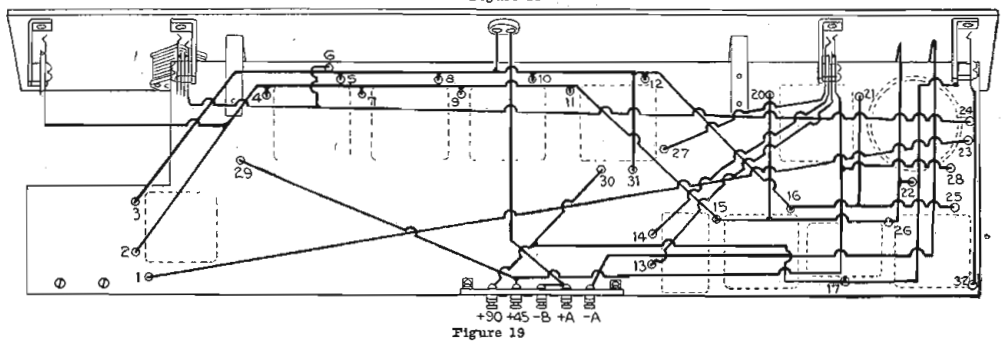


Figure 19

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 tight; 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 somewhere. 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 connection, also, should not blow the tube.

(Continued on page 20)

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

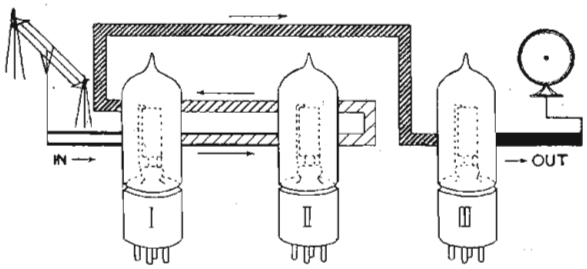


CHART OF CURRENT IN TRIRDYN

RADIO FREQUENCY AUDIO FREQUENCY

AMPLIFICATION IS DENOTED BY HEAVINESS OF SHADING

Figure 2

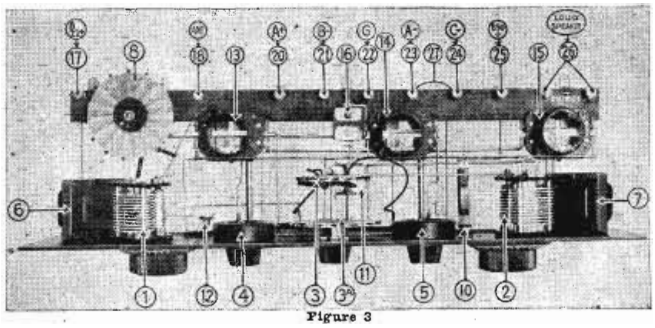


Figure 3

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 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 it will be found at the left end of the panel. This transformer contains a large iron core and many thousand turns of 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 connected to coil 3 at one end, and, at the other end, to the binding post 17, to which is also conected 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 8 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 3 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)

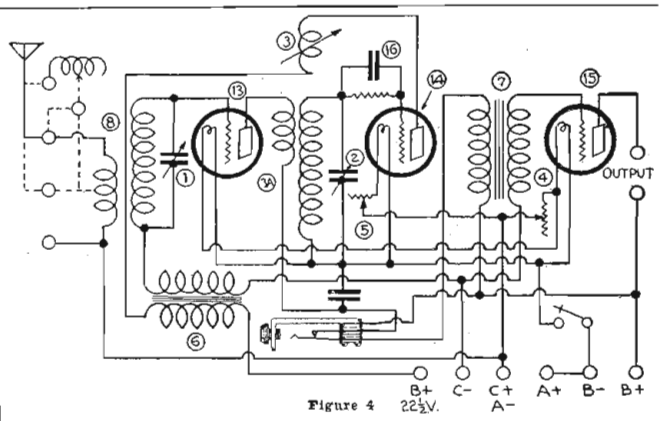


Figure 4

A. B. C. Course in Radio Fundamentals

Chapter III—Magnetism, Electromagnetism and Induction

By David Penn Moreton

A PIECE 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 piece of 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 place, 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 445,000 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.

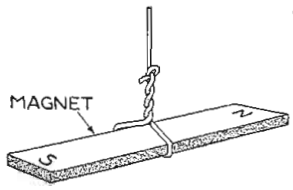


Figure 9

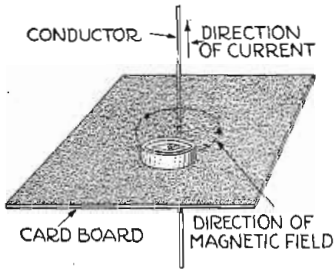


Figure 11

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 current. Second, the strength of this magnetic field depends upon the strength of the current in the conductor and the distance of the point in the field from the conductor. Third, the direction of the magnetic field produced by an electric current depends upon the direction of the current in the conductor.

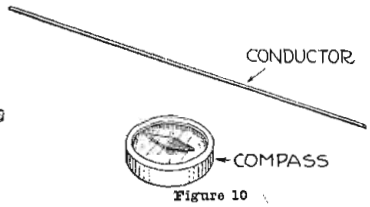


Figure 10

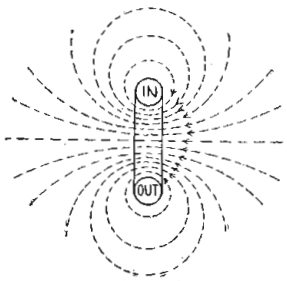


Figure 12

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)

HOW TO OPERATE SET

(Continued from page 18)

labeled "output," to which a loud speaker is to be connected.

The adjustment of the two rheostats 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 apparatus which has been labeled 16 in figures 3, 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.)

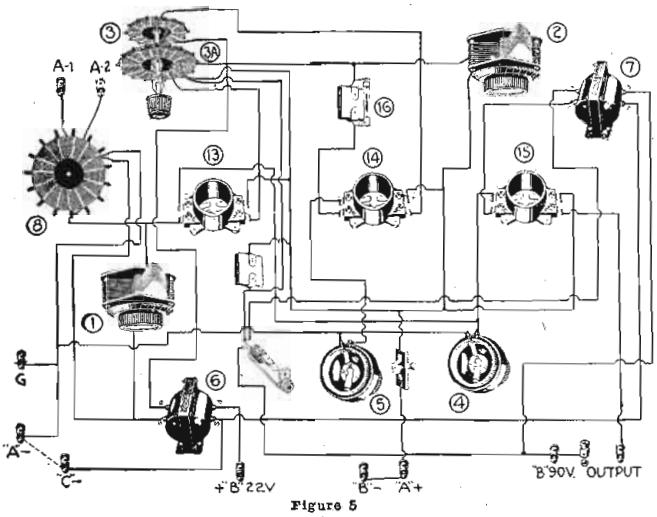


Figure 5

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 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 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 4¾ 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 70 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 30, 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 stops. 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 while 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

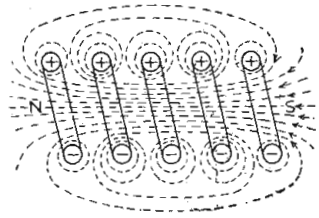


Figure 13

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

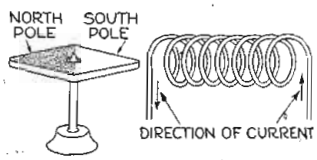


Figure 14

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

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)

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 somewhat 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.

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.

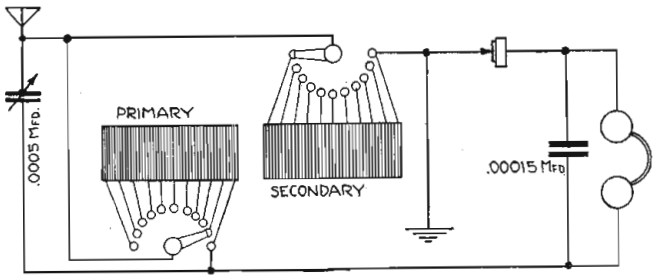
RADIO KINKS DEPARTMENT
Radio Digest,
510 North Dearborn St., Chicago

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.

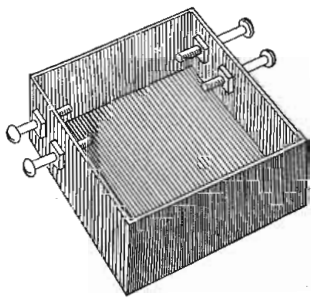
I saw that I could beat this scheme and did so. Now I have an efficient B battery, one that is always variable and it is much cheaper than the manufactured one. I bought some three cell flashlight batteries. Just now I am using a 4½-volt tube to which makers recommend 40 volts on the plate. As a matter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

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 1¼ 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 1½-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.

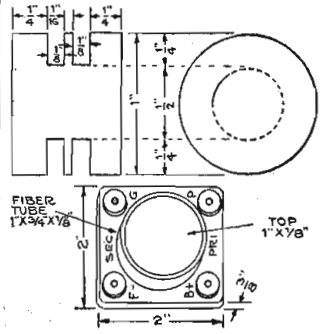
This makes a convenient tray, full of batteries and red hot for 27 volts. Cost about $1.60. In fact the cells are really larger than those usually found in an ordinary dry B battery.

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 ⅞ inch long, one cover to fit on one end of the tube 1 inch by ⅛ inch thick, one base 2 inches square and ⅝ 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.

Questions and Answers

Value of Honeycomb Coils

(12901) CTY, Port Huron, Mich.

I have made up several sets which worked well from hook-ups in your paper including Reinartz, Flewelling, Miloplex, 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. Diefenbacker 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 on 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 inductanee 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 broadcastiug are as broad as a 12-inch plank, or else I have got the palsy. As the only thing we can get in this section of the couuty is "hetrodynes," only the strongest stations are able to drown out the weaker.

I have been a Radiophan 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. E. Townsend, Port 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

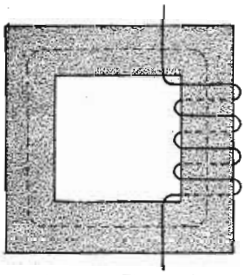


Figure 15

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 depeuds upon the number of turns in the coil and the current in these turns.

Ampere Turns

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

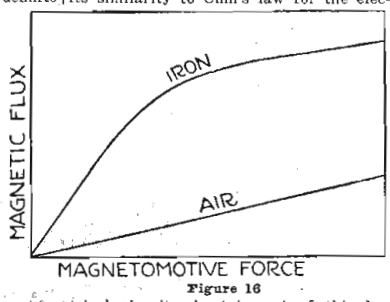


Figure 16

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 electrical 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 comprisiug 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 mueh 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 reluctanee, the larger the area of cross-section the less the reluctance, and the greater the permeability the less tho 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 finx will increase with an increase in the current, but there is not always a direct relation between the two qualities. A curve showing the general relation between magnetomotive force and flux for a magnetic circuit composed mostly of iron is shown in figure 16 and marked iron. Tho curve marked air shows the relation betweeu magnetomotivc force and flux for a magnetic circuit through air or other non-magnetic materials, such as wood, glass, rubber, paper, etc. In the case of magnetic materials the circuit is

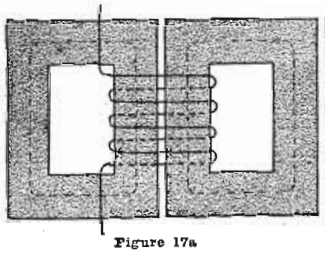


Figure 17a

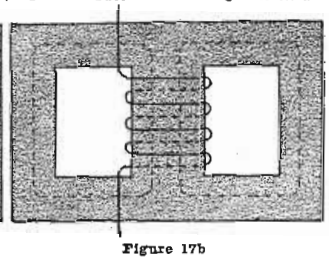


Figure 17b

said to becomc 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.

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 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.)

Radiophone Broadcasting Stations

Corrected Every Week—Part I

United States

AQE, Canton, O. 125 meters. Bdqts. 135th Field Artillery O. N. G.

ATS, Fort Bragg, N. C. 455 meters. 750 watts. U. S. Government. Announcer, Lieut. James Y. LeGette. Slogan, "The Pioneer Broadcasting Station of the Army." Tues. Thurs. Sat. 8-9:55 pm, dance music, talks, bands, fights. Sun. 8-9:55 pm, service. Eastern.

AV7, St. Paul, Minn. 400 meters. 6th Inf. Minn. Nat'l Guard, St. Paul Armory. Irregular schedule. Central.

AW5, Dayton, O. McCook Field, U. S. Army. Experimental work only.

KDKA, E. Pittsburgh, Pa. 309.1 meters. 1,000 watts. Westinghouse Elec. & Mfg. Co. Announcer, H. W. Arlin. Slogan, "The Pioneer Broadcasting Station of the World." Daily ex Sun, 9:45-10 am, 11:55, time, 12-1 pm, market reports, music; 6:15, music; 7:15-10, markets, news, features, concert; 9:55-10, time. Mon, Wed, Fri, 7 am, 8, exercises. Tues, Thurs, 11-12:30 am, late concert. Sun, 10:45 am, church services; 2:30 pm, concert; 4:45, vesper service; 6:30, dinner concert; 7:30, church service. Eastern.

KOLR, Dertle Lake, N. Dak. 231 meters. 5 watts. Radio Elec. Co.

KDPM, Cleveland, O. 256-1817 meters. 750 watts. Westinghouse Elec. & Mfg. Co. Announcer, H. W. Irving. Experimental station.

KDPT, San Diego, Calif. 244 meters. 50 watts. Southern Elec. Co. Announcer, William O. Heathcote. Slogan, "At the End of the Trail." Daily ex Sun, 1:30-2:30 pm, 7:30-9 pm. Thurs, Fri, Sat, 6:00-6:45 pm. Wed, 8:00-10:00 pm. Pacific.

KDYL, Salt Lake City, Utah. 333.1 meters. 500 watts. Newhouse Hotel. Announcer, Geney Rack. Slogan, "Better Radio." Daily ex Sun, 3-4 pm, 5:30-8, news, music, entertainment. Sun, 11-1 am. Mountain.

KDYM, San Diego, Calif. 280 meters. 100 watts. Savoy Theater.

KDZB, Bakersfield, Calif. 209.7 meters. 100 watts. Frank Siefert. Daily ex Sun, 8-9 pm, reports, music. Pacific.

KFAB, Lincoln, Nebr. 340 meters. 500 watts. Nebraska Buick Auto Co. Announcer, Gayle Grubb. Mon, Wed, Fri, 7:30-9:30 pm; Tues, Thurs, 11 pm; Thurs, 3 pm; Sun, 4 pm, church services. Central.

KFAD, Phoenix, Ariz. 299.8 meters. 500 watts. McArthur Brothers Mercantile Co. Announcer, Arthur C. Anderson. Slogan, "Where Summer Winters." Daily ex Sun, 7:30-8:30 pm, news, weather, stock reports, music. Mountain.

KFAE, Pullman, Wash. 348.6 meters. 500 watts. State College of Washington. Announcer, George Bayles. Slogan, "Your Service Station." Wed, Fri, Mon, 7:30 pm, talks, music. Pacific.

KFAF, Denver, Colo. 278 meters. 500 watts. Western Radio Corp.

KFAJ, Boulder, Colo. 261 meters. 100 watts. Univ. of Colo. Announcer, F. M. Reyburn. Tues, Sat, 9 pm, time, music, addresses by faculty. Thurs, 7:30 pm Sat, 2:30-5 pm, sports. Mountain.

KFAN, Moscow, Idaho. 231 meters. 50 watts. University of Idaho.

KFAU, Boise, Ida. 275 meters. 500 watts. Boise B. S. Announcer, David Taylor. Slogan, "Intermountain Station." Daily ex Sat, Sun, 3:30-4:15 pm, markets, weather, news. Sun, 11 am, concert. Mountain.

KFAW, Santa Anna, Calif. 214.2 meters. 50 watts. Radio Den. Slogan, "Where There Is Always a Friend from Your Old Home Town." Daily ex Sun, 4:30-5 pm, news, reports, music. Mon, Thurs, concert. Pacific.

KFBB, Havre, Mont. 275 meters. 50 watts F. A. Buttrey Co. Announcer, C. O. Boettger. Daily ex Sun, 12:45 pm, music, markets, weather, reports. Mountain.

KFBC, San Diego, Calif. 360 meters. 20 watts. W. K. Azbill. Thurs, Sun, 8-9 pm, Bible lesson, sermon. Pacific.

KFBE, San Luis Obispo, Calif. 215.7 meters. 50 watts. Horn & Wilson.

KFBG, Tacoma, Wash. 250 meters. 50 watts. First Presbyterian church. Announcer, Frank Tovey. Sun, 11-1 pm, 7:30-9. Pacific.

KFBL, Everett, Wash. 224 meters. 15 watts. Lesse Bros. Announcer, R. H. Lesse.

KFBU, Laramie, Wyo. 270 meters. 50 watts. The Cathedral.

KFCB, Phoenix, Ariz. 208 meters. 10 watts. Nielson Radio Supply Co. Announcer, E. A. Nielson. Slogan, "When It's Wintertime in Michigan, It's Summer Time Down Here." Daily 7-7:30 pm, bedtime stories. Mountain.

KFCC, Helena, Mont. 247.8 meters. 10 watts. The First Congregational church. Announcer, George C. Stocking. Sun, 11-12:15 pm, church service; 6:30, bedtime story; 7:30-9, service. Mountain.

KFCF, Walla Walla, Wash. 256 meters. 100 watts. Frank A. Moore. Slogan, "The Valley They Liked So Well They Named It Twice." Mon, 8-10 pm. Thurs, Fri, 8-12 midnight. Pacific.

KFCL, Los Angeles, Calif. 236 meters. 500 watts. Leslie E. Rice.

KFCP, Ogden Utah. 360 meters. 10 watts. Ralph W. Flygare.

KFCY, Le Mars, Ia. 252 meters. 50 watts. Western Union College.

KFDD, Boise, Idaho. 275 meters. 50 watts. St. Michael's Episcopal Cathedral. Announcer, E. Mark Branford. Sun, 11:15-12:30 pm, 7:30-9:15. Mountain.

KFDH, Tucson, Ariz. 238 meters. 50 watts. Univ. of Ariz. Announcer, Max Voss Kuehler. Irregular schedule.

KFDJ, Corvallis, Ore. 254 meters. 500 watts. Oregon Agricultural College.

KFDM, Beaumont, Tex. 315.6 meters. 500 watts. Magnolia Petroleum Co. Announcer, Magnolene Mike. Slogan, "Hall for Dependable Magnolene." Tues, Fri, 12:30-1 pm, band concert; 7-7:30, children's hour; 8, concerts. Every other Sun, 9 pm. Central.

KFDX, Shreveport, La. 250 meters. 100 watts. First Baptist church. Announcer, M. F. Dodd. Wed, 9-10 pm, music, talks. Sun, 11 am, 7:45 pm. Central.

KFDY, Brookings, S. D. 273 meters. 50 watts. S. D. State College. Announcer, G. A. Rietz. Daily ex Sun, 12:15 pm, livestock markets. Tues, 11 am, music, lecture. Thurs, 8-9 pm, music, lectures. Central.

KFDZ, Minneapolis, Minn. 231 meters. 10 watts. Harry O. Iverson.

KFEC, Portland, Ore. 248 meters. 50 watts. Meier & Frank Co., Inc. Daily ex Sun, 12 m, weather, reports; 4-5 pm, music; 6:30 pm, weather, crop, markets, reports. Thurs, 9-10 pm, concert. Sat, 11 am-12 m, children's hour. Pacific.

KFEL, Denver, Colo. 254 meters. 50 watts. The W. L. Wisner Radio Shop. Announcer, Carl W. L. Wisner. Daily ex Sun, 9 am, 10, 11, 2 pm, 3-4. Tues, 8-9 pm. Thurs 10-12 m. Fri, 8-9 pm. Sun, 9-10 am. Mountain.

KFEQ, Galt, Nebr. 268 meters. 100 watts. J. L. Scroggin. Announcer, Clarence Koch. Tues, 7-9 pm. Sun, 4-6 pm. Central.

KFER, Fort Dodge, Iowa. 231 meters. 10 watts. Auto Electric Service Co. Announcer, H. E. Gilmer.

KFEY, Kellogg, Ida. 233 meters. 10 watts. Bunker Hill & Sullivan Mining & Con. Co. Announcer, Walter C. Clark. Slogan: "Voice of the Coeur D'Alene." Mon, Wed, Sat, Sun, 7:30-8:30 pm. Pacific.

KFFP, Moberly, Mo. 266 meters. 50 watts. First Baptist Church. Announcer, Granville Ray Beeler. Slogan: "The Gospel Messenger of the Air." Sun, 9:45 am, 11, 7:30 pm. Central.

KFFR, Sparks, Nev. 226 meters. 10 watts. Nevada State Journal.

KFFV, Lamoni, Ia. 250 meters. 100 watts. Graceland College. Announcer, R. A. Cheville. Mon, 7:30 pm, musicale. Thurs, 7:30-8:30 pm, education program. Sun, 11 am, 2nd, 3rd, 4th Sundays; 7:45 pm, 1st Sunday each month.

KFFY, Alexandria, La. 275 meters. 50 watts. Louisiana College. Mon, Thurs, 7-8:30 pm. Central.

KFGC, Baton Rouge, La. 268 meters. 100 watts. Louisiana State University. Thurs, 8-9 pm. Central.

KFGD, Chickasha, Okla. 252 meters. 200 watts. Okla. College for Women. Tues, Thurs, 8 pm, music, lectures. Wed, 10 am, chapel service. 11 pm, special jazz programs. Central.

KFGH, Stamford Univ., Calif. 270 meters. 500 watts. Leland Stanford Junior University. No regular schedule.

KFGQ, Boone, Ia. 226 meters. 10 watts. Crary Hardware Co. Announcer, Harold E. Wilcox. Slogan: "Daniel Boone Station." Wed. 10-11 pm. Sun, 3-4 pm. Central.

KFGX, Orange, Tex. 250 meters. 500 watts. First Presbyterian Church. Announcer, C. A. Doane. Sun, 11 am, 7:30 pm, church services. Central.

KFHA, Gunnison, Colo. 252 meters. 50 watts. Western State College of Colorado. Announcer, E. Russel Wightman. "Where the Sun Shines Every Day." Tues, Fri, 6:30 pm, bedtime story; 8 pm, musicale; 10:30, orchestra. Mountain.

KFHJ, Santa Barbara, Calif. 360 meters. 100 watts. Fallon & Co.

KFHL, Oskaloosa, Iowa. 240 meters. 10 watts. Penn College.

KFHR, Seattle, Wash. 263 meters. 100 watts. Star Elec. & Radio Co. Announcer, R. Mattmueller. Slogan: "The Voice of the Charmed Land." Daily ex Sun, 4:30-5:30 pm; Mon, Wed, Fri, 6:30-7:30 pm; Tues, Thus. Sat, 7:30-10:30 pm. Sun, 1-3 pm; 4:30-7:15. Pacific.

KFI, Los Angeles, Calif. 468.5 meters. 1,500 watts. Earle C. Anthony, Inc. Announcer, Paul W. Reese. Slogan: "The Radio Central Super-Station." Daily ex Sun, 5-6 pm, 6:45-8, 8-11. Sun, 10-10:45 am; 4-5 pm, 6:45-8, 8-11. 11-13 m, first Sun of month, 11-12:30 pm, third Sun of month.

KFIF, Portland, Ore. 248 meters. 100 watts. Benson Tech. School.

KFIO, Spokane, Wash. 266 meters. 100 watts. Radio Club of North Central H. S.

KFIQ, Yakima, Wash. 258.3 meters. 100 watts. First Methodist Church. Announcer, Dr. I. M. Miller. Wed, 7:30 pm, organ. Sat, 7 pm. Sun, 11 am, 7:30 pm. Pacific.

KFIU, Juneau, Alaska. 226 meters. 10 watts. Alaska Elec. Light & Power Co. Announcer, O. E. Shoenbell. Mon, Wed, Fri, 7-8 pm. Alaskan.

KFIZ, Fond du Lac, Wis. 273 meters. 100 watts. Daily Commonwealth and Seyfert Radio Corp. Announcer, Albert Mayer. Daily ex Sun, 5 pm, music, news, markets, weather. Central.

KFJB, Marshalltown, Iowa. 248 metrs. 10 watts. Marshall Elec. Co. Announcer, E. N. Peak. Slogan: "Marshalltown, the Heart of Iowa." Daily ex Sun, 10 am, markets. Tues, Fri, 8:30 pm. Central.

KFJF, Oklahoma City, Okla. 261 meters. 225 watts. National Radio Mfg. Co. Announcer, Tired Hank. Slogan: "Radio Headquarters." Daily ex Sun, 9:30 am, 12:15 pm, market; 7 pm. Daily ex Sat, Sun, 3:15 pm, markets. Sat. 1:15 pm, markets. Tues, Fri, 8:30 pm, special concerts. Sun, First Baptist church. Central.

KFJI, Astoria, Ore. 252 meters. 10 watts. E. E. Marsh and Liberty Theater. Announcer, E. E. Marsh. Wed, Fri, 10-11 pm, organ. Sun, 10:30-11 pm. Pacific.

KFJM, Grand Forks, N. D. 278 meters. 100 watts. University of North Dakota. Slogan: "Grand Forks, the Educational Center of the State."

KFJR, Portland, Ore. 263 meters. 5 watts. Ashley C. Dixon & Son.

KFJX, Cedar Falls, Iowa. 258 meters. 50 watts. Iowa State Teachers' College. Educational programs.

KFJY, Fort Dodge, Iowa. 246 meters. 50 watts. Tunwall Radio Co. Announcer, Carl Tunwall. Daily 12 m, 5:45 pm, markets, news, weather. Wed, 9 pm, orchestra. Thurs, 6 pm, agriograms, weather bulletins, news. Sat, 12 mid, frolic. Sun, 11 am, Sun 3:30 pm, music. Central.

KFJZ, Fort Worth, Texas. 240 meters. 20 watts. Texas National Guard, 112th Cavalry. Wed, 8:30-9:30 pm. Sat. 8:30-10 pm, program. Central.

KFKA, Greeley, Colo. 273 meters. 50 watts. Colorado State Teachers' College. Announcer, Brewer Boardman.

KFKB, Milford, Kans. 275 meters. 500 watts. Brinkley-Rowe Hospital Assn. Announcer, J. R. Brinkley. Slogan, "The House of Good Transplantation." Daily ex Sun, 6-7 pm, lecture, music; 10-11. Sun, 8-10:30 pm, church services. Central.

KFKD, Conway, Ark. 250 meters. 100 watts. Conway Radio Electric Co.

KFKU, Lawrence, Kan. 375 meters. 500 watts. University of Kansas. Announcer, John F. Patt. Slogan, "Up at Lawrence on the Kan." Mon, Thurs, 6:50-8 pm. Central.

KFKV, Butte, Mont. 283 meters. 50 watts. F. F. Gray. Sun, Wed, Fri, 8:30-9:30 pm. Mountain.

KFKX, Hastings, Nebr. 288.3 meters. 1500 watts. Westinghouse Elec. & Mfg. Co. Announcer, Wm. G. Ray. Slogans, "The Pastimes of the Air," "The Pioneer Re-Broadcasting Station of the World." Mon, Thurs, 9:30-11 pm. Broadcasts own program. Re-broadcasts KDKA's programs. Central.

KFLA, Butte, Mont. 254.1 meters. 5 watts. Abner B. Wilson.

KFLE, Menominee, Mich. 248 meters. 50 watts. Signal Elec. Mfg. Co.

KFLE, Denver, Colo. 268 meters. 100 watts. National Educational Service. Daily ex Wed, 6-6:30 pm, Broadcasts for schools on request. Mountain.

KFLP, Cedar Rapids, Ia. 256 meters. 20 watts. Everett M. Foster.

KFLR, Albuquerque, N. M. 254 meters. 100 watts. U. & N. M. Announcer, Phillip S. Donnell. Slogan, "The Sunshine Center of America." Sat, 8 pm, music. Mountain.

KFLU, San Benito, Texas. 256 meters. 10 watts. Benito Radio club. Announcer, R. W. Thacker. Slogan, "Heart of the Magic Valley." Mon, Thurs, Sat, 8:30-10 pm, concert. Sat. 8:30 pm, Sunday school lesson. Central.

KFLV, Rockford, Ill. 229 meters. 200 watts. Swedish Evangelical Mission Church. Announcer, A. T. Frykman. Fri, 8:30 pm. Sun, 12:30 pm, service for shut-ins (Swedish); 5:30, service (English). Central.

KFLX, Galveston, Texas. 240 meters. 10 watts. George R. Clough.

KFLZ, Atlantic, Iowa. 273 meters. 100 watts. Atlantic Automobile Co. Slogan, "The Garden Spot of Iowa." Wed, 6-7:15 pm, dinner program; 9-11, music. Sat, 9-11:30 pm, dance music. Sun, 4 pm, church service. Central.

KFMB, Little Rock, Ark. 244 meters. Christian churches of Little Rock.

KFMQ, Fayetteville, Ark. 299.8 meters. 500 watts. U. of Arkansas. Announcer, C. V. Bullen. Tues, 9 pm. Thurs, 7:30 pm. Central.

KFMR, Sioux City, Ia. 261 meters. 100 watts. Morningside College. Announcer, Jesse C. Ducommun. Daily ex Sun, 9 am, Tues, Thurs, Sat, 12:30 pm. Wed, 10:15 pm. Sun, 10:30 am, 7:15 pm.

KFMT, Minneapolis, Minn. 263 meters. 100 watts. Dr. George W. Young. Announcer, Dr. George W. Young. Slogan: "Always Young." Mon, 7 pm, 8-9, 9:30-10:30. Friday, 8-9 pm, 10-11. Sat, 9-10 pm. Sun, 12:30-1:30 pm, 1:30-2:30, 2:30-3:30. Central.

KFMW, Houghton, Mich. 266 meters. 50 watts. M. G. Sateren (announcer). Sun, 2-4:30 pm.

KFMX, Northfield, Minn. 336.3 meters. 750 watts. Carleton College. Announcer, Merrill O. Bolen. Tues, 10 pm. Wed, 9 pm, Sun, 7 pm. Central.

KFNF, Shenandoah, Ia. 266 meters. 500 watts. Henry Field Seed Co. Announcer, Henry Field. Slogan, "Friendly Station in a Friendly Town." Daily ex Sun, 12:25-1:25 pm. Daily ex Sun, Tues, 6:30-9:30 pm, concert. Sun, 10:45 am, 2:30 pm, services; 6:30-8, Golden Rule. 8, church service. Central.

KFNG, Coldwater, Miss. 254 meters. 10 watts. Wooten's Radio & Elec. Co. Announcer, S. D. Woooten. Slogan, "The Most Powerful 10 Watt Station in the World." Sat, 9:30-10:30 pm. Sun. 4-5 pm. Central.

KFNJ, Warrensburgh, Mo. 234 meters. 50 watts. Central Missouri State Teachers' College. Announcer, John McNay.

KFNL, Paso Robles, Calif. 240 meters. 10 watts. Radio Broadcast Assn. Announcer, Early W. Moore. Slogan, "The Home of the Nut." Mon, 8-10 pm, music. Pacific.

KFNV, Santa Rosa, Calif. 227 meters. 5 watts. L. A. Drake. Daily 2-3 pm; 6-6:30, news, music. Pacific.

KFNY, Helena, Mont. 248 meters. 50 watts. V. Kemp Roberts. Experimental station.

KFOA, Seattle, Wash. 454.3 meters. 500 watts. Rhodes Dept. Store. Slogan, "The Gateway to the Orient." Daily ex Sat. Sun, 12:30-1:30 pm; 4-5:15, Times bulletins, concert. Daily ex Sun, Thurs, 6-6:45 pm, orchestra. Thurs, 6-7 pm, lecture. Mon, Tues, Wed, Fri, 6:45-8:15 pm. Sat, 6:45-8:15. Daily ex Sun, Thurs, 8:30-10 pm, Times program. Tues, Fri, Sat, 10:05-11:30 pm, orchestra. Pacific.

KFOC, Whittier, Calif. 236 meters. 100 watts. First Christian church.

KFOO, Wallace, Idaho. 224 meters. 10 watts. The Radio Shop.

KFOJ, Moberly, Mo. 240 meters. 10 watts. Moberly High school. Announcer, Herbert Settle.

KFOL, Mareuno, Ia. 234 meters. 10 watts. Leslie M. Schafbuch.

KFON, Long Beach, Calif. 234 meters. 100 watts. Echophone Radio Shop. Slogan, "Where Your Ship Comes In." Tues, Wed, Fri, 2:30-4 pm; 7:30-10. Mon, 8-10 pm. Sat, 2:30-3 pm; 7:30-10. Sun, 11:12 m., 8-9 pm. Pacific.

KFOO, Salt Lake City, Utah. 261 meters. 5 watts. Latter Day Saints University. Announcer, Don C. McRae.

KFOR, David City, Nebr. 226 meters. 20 watts. David City Tire & Elec. Co. Slogan, "The Voice of David City." Announcer, Howard A. Shopman.

KFOU, Wichita, Kans. 248 meters. 50 watts. College Hill Radio Club. Announcer, Leon Garnett. Slogan, "Radiocasting Church." Sun, 11-12:30 pm; 7:30-9, church services. Mon, 9-10:30 pm, music. Central.

KFOU, Richmond, Calif. 254 meters. 100 watts. Hommel Mfg. Co.

KFOX, Omaha, Nebr. 248 meters. 100 watts. Board of of Education. Technical High. Announcer, Juno Johnson.

KFOY, St. Paul, Minn. 252 meters. 50 watts. Beacon Radio Service. Sun. 3:30-4:30 pm. Central.

KFPG, Los Angeles, Calif. 238 meters. 100 watts. Garretson and Goodan.

KFPH, Salt Lake City, Utah. 242 meters. 50 watts. Harold Charles Mallander.

KFPL, Dublin, Tex. 252 meters. 15 watts. C. C. Baxter, announcer. Mon, Thurs, 8 pm; Sat, 10-11 pm; Sun, 7-8 am. Central.

KFPM, Greenville, Tex. 242 meters. 10 watts. The New Furniture Co. Announcer, Dave Ablowich, Jr. Slogan: "The New Furniture Co., the House of Good Furniture," Located at Greenville, Texas. Where You Find "The Blackest Land, the Whitest People." Daily ex Sun, 2 pm, music. Tues, Wed, Thurs, Fri, 8 pm. Sun, 11 am, services; 7:30 pm, irregularly. Central.

KFPR, Los Angeles, Calif. 231 meters. 500 watts. Los Angeles Co. Forestry Dept. Irregular schedule.

KFPY, San Francisco, Calif. 238 meters. 50 watts. Bonnie & Robinson, Inc. Announcer, Ralph H. Heintz. Slogan: "Ain't We Got Fun." Sun, 7-8:30 pm. Pacific.

KFPW, Carterville, Mo. 268 meters. 20 watts. St. John M. E. Church, S. Slogan: "Keeping Pace with Christ Means Progress." Wed, Fri, 8-10 pm, popular program. Sun, 1-3 pm, chapel service. Central.

KFPX, Pine Bluff, Ark. 242 meters. 50 watts. First Presbyterian Church. Announcer, Howell L. Westbrook. Sun, 11 am, 12 m, 7:30-8:30 pm, church services. Central.

KFPY, Spokane, Wash. 268 meters. 100 watts. Symons Investment Co. Announcer, E. B. Craney. Tues, Wed, Thurs, Fri, 6:45-7:20 pm. Tues, 9-11 pm, 1st and 3rd Fri, 10-12 mid. 2nd. and 4th Fri, 9:30-11:30. Pacific.

KFQA, St. Louis, Mo. 261 meters. 100 watts. The Principia. Sun, 8 pm, church service. Central.

KFQB, Fort Worth, Tex. 254 meters. 100 watts. The Searchlight Pub. Co. Announcer, Horace B. Greene. Sun, 11 am, 7:15 pm, church services. Tues, Wed, Thurs, Fri, 7 pm, music. Sat, 8 pm, concert, Bible lecture. Central.

KFQC, Taft, Calif. 231 meters. 100 watts. Kidd Bros. Radio Shop.

KFQG, Los Angeles, Calif. 229 meters. 50 watts. Southern Cal. Radio Assn.

KFQH, Huntington Park, Calif. 238 meters. 50 watts. Post Office Radio and Music Co. Wed, Fri, 8-10 pm. Pacific.

KFQM, Austin, Tex. 268 meters. 100 watts. Texas Highway Bulletin. Announcer, George M. Baker. Daily ex Sun, 7 pm, 9. Central.

KFQN, Portland, Ore. 283 meters. 5 watts. Third Baptist church. Wed, Fri, 8-9 pm. Sun, 9:45-10:30 am, 6-10 pm. Pacific.

KFQP, Iowa City, Iowa. 224 meters. 10 watts. George S. Carson, Jr. Wed, 8-9 pm. Sat, special programs. Central.

KFQR, Oklahoma City, Okla. 269.7 meters. 50 watts. Walter La Fayette Ellis.

KFQT, Denison, Tex. 252 meters. 10 watts. Texas National Guard. Announcer, Robert Cox.

KFQU, Holy City, Calif. 234 meters. 100 watts. W. Riker. Announcer, Arthur J. Landstrom. Daily ex Mon, 9-10 pm. Sun, 11-12 m, 9-10 pm. Pacific.

KFQW, North Yakima, Wash. 234.7 meters. 50 watts. The Photo Radio and Elec. Shop. Announcer, Carl F. Kulerin. Slogan: "At the Western Entrance of Snoqualmie Pass." Daily ex Sun, 7:30-8:30 pm. Pacific.

KFQX, Seattle, Wash. 365 meters. 1,500 watts. American Radio Telephone Co.

KFRA, Holden, Nebr. 273 meters. 10 watts. Farmers State Bank. Announcer, A. H. Ahls. Slogan: "Where Corn Is King."

KFQZ, Hollywood, Calif. 226 meters. 250 watts. Taft Radio company.

KFRB, Beeville, Tex. 248 meters. 250 watts. Hall Brothers. Daily ex Sun, 5 pm. Tues, 10 pm. Central.

KFRC, San Francisco, Calif. 270 meters. 50 watts. Radiovox Corp. Daily ex Tues, Thurs, 6:30-7:30 pm, Tues, Thurs, Sun, 8-10 pm. Wed, 8-1 am. Fri, 8-11 pm. Pacific.

KFRF, Alexandria, La. 242 meters. 10 watts. W. R. Brown.

KFRH, Grafton, N. D. 268 meters. 10 watts. The Radio Shop.

KFRJ, Conway, Ark. 250 meters. 10 watts. Guy Simmons, Jr.

KFRL, Grand Forks, N. Dak. 240 meters. 10 watts. Men's Club, First Presbyterian Church.

KFRM, Fort Sill, Okla. 263 meters. 50 watts. James P. Boland.

KFRO, Fort Worth, Tex. 246 meters. 50 watts. Curtis Printing Co. Announcer, James R. Curtis. Slogan: "Who Does Your Printing?" Tues, 8-10 pm, orchestra. Tues, 8:30-9:45 pm, lecture, Wed, 7-8 pm, code. Sat, 8-10 pm. Sun, 6-7 am. Central.

KFRP, Redlands, Calif. 211 meters. 10 watts. Trinity Episcopal Church. Sat, 7:30-8 pm, organ. Sun, 11-12:30 pm; 7:30-8:30, church service. Pacific.

KFRQ, Portland, Ore. 213 meters. 5 watts. Radio Market Service Co.

KFRU, Bristow, Okla. 394.5 meters. 500 watts. Electrical Radio Co. "The Voice of Oklahoma." Mon, 7 pm. Wed, 8 pm. Fri, 11 pm. Sat, 7:30-8 pm, 9-12 mid. Sun, 9:30-11 am, 5 pm. Central.

KFRV, Olympia, Wash. 250 meters. 100 watts. United Churches of Olympia. Slogan, "Make the World a Brotherhood." Thurs, 8:30-9:30 pm. Sun, 11-12 m., 7:30-8:30 pm. Pacific.

KFRX, Pullman, Wash. 217 meters. 10 watts. I. Gordon Klemgard. Announcer, Gordon Klemgard. Slogan: "The Only Farmers Radio Station in the World." Daily ex Sun, 9-10 pm; news, music. Pacific.

KFRY, State College, N. M. 256 meters. 50 watts. New Mexico College of Agriculture and Mechanic Arts.

KFRZ, Hartington, Nebr. 222 meters. 15 watts. The Electric Shop. Announcer, P. M. Thies. Daily ex Sun, 11:55 am, news, markets; 4:15-5:15 pm, entertainment. Sun, 12-1:30 pm, entertainment. Central.

KFSG, Los Angeles, Calif. 277.6 meters. 500 watts. Angelus Temple. Tues, Thurs, Fri, Sat, 3:30-4:30 pm. Tues, 6:30-7:30 pm. Wed, 2:30-4:30 pm, 6:30-7:30. Thurs, Fri, Sat, 7:30-11 pm. Sun, 10:30-12:30 pm, 2:30-4:30, 7-9:30. Mon silent. Pacific.

KFSV, Helena, Mont. 248 meters. 10 watts. The Van Rhicon company. Announcer, George C. Stocking. Wed, 7:30 pm, music, talks. Mountain.

KFSX, Brandbridge, Minn. 242 meters. 50 watts. Hoppert Plumbing & Heating Co. Announcer, F. H. Rettig. Slogan, "Where the Red River of the North Finds Its Source." Daily ex Sun, 10:30 am, 5:40 pm, weather. Daily ex Sun, 10:40 am, 1:30 pm, 5:45 pm, markets. Mon, Wed, 8-9 pm. Central.

KFUL, Galveston, Tex. 258 meters. 10 watts. Thomas Goggan & Bros.

KFUM, Colorado Springs, Colo. 242 meters. 100 watts. W. D. Corley, Jr. Slogan, "Known for Unsurpassed Mountain Scenery." Tues, Sat, 8:30-10:30 pm. Sun, 11 am, 7:30 pm. Mountain.

KFUO, St. Louis, Mo. 545.1 meters. 500 watts. Concordia Theological Seminary Gaithersburg. Announcer, Prof. Walter A. Maier. Sun, Wed, 9:15 pm. Central.

KFUP, Denver, Colo. 234 meters. 50 watts. Fitzsimons General Hospital.

KFUQ, San Francisco, Calif. 234 meters. 5 watts. Julius Brunton & Sons Co. Announcer, A. R. McCarney.

KFUR, Ogden, Utah. 324 meters. 50 watts. Perry's Egyptian theater and White City. Sat, Sun, Tues, Thurs, 9:30-11:30 pm. Mountain.

KFUS, Oakland, Calif. 234.2 meters. 50 watts. Louis Sherman.

KFUT, Salt Lake City, Utah. 261 meters. 100 watts. University of Utah. Tues, Thurs, 12:10 pm. Mountain.

KFUU, San Leandro, Calif. 321 meters. 50 watts. Colcord Radio Laboratories. Announcer, H. C. Colburn. Slogan, "Voice of the Cherry City." Daily ex Sun, 10-11 am. Wed, Fri, 8-9 pm. Sun, 2-3:30 pm. Pacific.

KFUY, Springfield, Mo. 252 meters. 10 watts. G. Pearson Ward.

KFUW, Moberly, Mo. 283 meters. 10 watts. Earl Wm. Lewis.

KFUZ, Butte, Mont. 254 meters. 5 watts. Irvine H. Bouchard.

KFUZ, Virginia, Minn. 248 meters. 10 watts. Y. M. C. A.

KFVC, Camden, Ark. 242 meters. 10 watts. Bensberg's Music Company.

KFVD, San Pedro, Calif. 265.4 meters. 50 watts. McWilmie Elec. Co.

KFVF, Hollywood, Calif. 208.2 meters. 10 watts. Clarence B. Juneau.

KFVH, Manhattan, Kan. 218.8 meters. 10 watts. Wham Radio Shop.

KFWA, Ogden, Utah. 314.2 meters. 500 watts. Browning Brothers Co.

KFWB, Hollywood, Calif. 252 meters. 500 watts. Warner Brothers.

KFWC, Upland, Calif. 211.1 meters. 10 watts. L. E. Wall & C. S. Myers.

KGB, Tacoma, Wash. 249.7 meters. 50 watts. Tacoma Daily Ledger. Announcer, Alvin Stenso. Slogan, "This is KGB in Tacoma, Washington, the Lumber Capital of America and the Gateway to Mount Tacoma." Mon, Wed, Fri, 7-9 pm. Pacific.

KGO, Oakland, Calif. 361.2 meters. 3,000 watts. Gen. Elec. Co. Announcer, Howard I. Mihholland. Daily ex Sat, Sun, 11:30 am, luncheon concert. Daily ex Sat, Sun, 1:30 pm; Sat, 12:30, markets, weather; Mon, Wed, Fri, 3 pm, music. Mon, 4-5:30 pm, dance orchestra. Daily ex Sun, Mon, 4-5:30 pm, concert orchestra. Daily ex Sat, Sun, 6:45 pm, reports, news. Mon, Tues, Thurs, Sat, 8 pm, lectures, music. Mon, Tues, Thurs, Sat, 10-1 am, dance music. Mon, 9 am, lectures; California State Dept. of Education; 5:30-6 pm, children's half hour. Fri, 5-5:30 pm, girls' half hour. Mon, Thurs, 10:45 am, class room instruction. Sun, 11-12 m, 7:45-9 pm, church services; 3:30-5 pm, concert. Pacific.

(Note—The second part of the station data list will appear next week.)

CHALLENGE!

ONE DOLLAR will be paid to the Radiophan submitting the most errors in any one station's listing. Letters must reach Radio Digest office not later than one week from date of issue corrected. Readers are not limited to correcting one station, but such corrections must be certified by the stations themselves, and NOT by comparison to other so-called accurate Radiocast directories and lists.

That's just how sure Radio Digest is that this Radiophone station directory is correct! To make the challenge fair for everyone, Radiocast stations and their employes are barred from this offer. Why? Because the Radiocasters are the source of all the data given herein. They are (or should be) interested enough to answer the inquiry sent them every time data on their station appears. This inquiry contains a proof of their last listing and must either be corrected or O K'd as correct and returned to the Digest. Nevertheless, sometimes the stations are careless and mistakes are made. But Radio Digest is so sure of the exactness of this directory that this challenge is made unconditionally.

With reference to the directory: It appears in five parts, serially continuously; the first four parts are station data listings, arranged alphabetically; the fifth part is a state, city index of stations. The information contained in each station data listing is given in the following order: Call letters, city, state, wave length used, watts antenna iupnt, owner's name, announcer's name, slogan used if any, name of listener in "club," schedule of operating hours, and kind of time used, as "Central," "Mountain," etc.

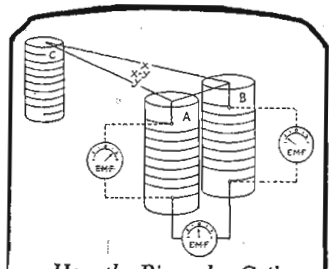
Five successive issues of Radio Digest will give one the most complete and accurate list of Radiocast stations obtainable. This service is original with this publication, and has been maintained from the start. Right of reproduction without permission of any or all of the data contained herein is denied.

Inherent Selectivity

THE inherent selectivity of each tuned stage in the Synchrophase is maintained even when the set is operated close to a powerful station.

The reason lies in the *Binocular Coils*—an exclusive Grebe feature. They have no external field to pick up interfering signals directly in the detector and intermediate stages. A tuning barrier is set up that prevents any but the desired station coming through.

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.

Ask your dealer for a demonstration or write us for full information

A. H. Grebe & Co., Inc.

Van Wyck Boulevard, Richmond Hill, N. Y.

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

This company owns and operates station WAHG

The GREBE SYNCHROPHASE

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That which has inherent worth never loses its value.

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TRADE MARK
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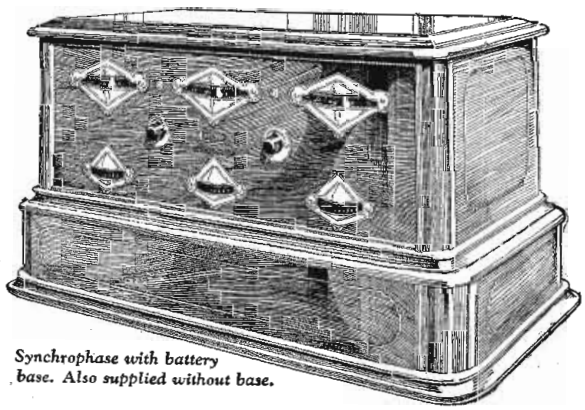
All Grebe apparatus is covered by patents granted and pending



Synchrophase with battery base. Also supplied without base.