New Station Time Table in Order of Wave Lengths; Radio for Beginners; Adjusting and Operating Four Filter Super-Het; WEBH Pictures and Story

EVERY TE

Vol. XIII

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SATURDAY, APRIL 11, 1925

No. 1

BASEBALL TO GO ON AIR



Adelyne Hood, pianist, who recently played for the invisible audience from Station WGN. She is well known to the Radio listeners for her rendition of old masterpieces.

Ford and Glenn Make Phonograph Records

WLS Lullaby Boys Announced by "Solemn Old Judge"

DEPT. OF COMMERCE GETS PATENT OFFICE

President Orders Transfer for Increase in Efficiency

WASHINGTON, D. C.—It is probable that now Radio inventions will be acted upon much more quickly than heretofore since the transference by the president, through executive order, of the patent office from the jurisdiction of the department of the interior to the department of commerce. Secretary of Commerce Hoover has stated that he intends to have all inventions acted upon as quickly as possible. CHICAGO.—"Ford and Glenn," announced by "The Solemn Old Judge," are found on the Columbia phonograph records just released. Ford Rush and Glenn Rowell, the WLS Lullaby Boys, and George D. Hay, "Judge" and WLS announcer, are known to hundreds of thousands of Radiophans.

The Columbia record just released contains their voices singing, "I'll See You in My Dreams," and "I Made a Hit with Kit Kit Kitty."

WLS, the Sears-Roebuck station, will celebrate its first anniversary on Saturday, April 11, with an all night program

WASHINGTON, D. C.—It is probable that now Radio inventions will be acted upon much more quickly than heretofore since the transference by the president, through executive order, of the patent office from the jurisdiction of the department of commerce. Secretary of Commerce Hoover has stated that he intends to have all inventions acted upon as quickly as possible.

BROADCASTS TO DESCRIBE **BALL GAMES**

Season Opens April 14

Yankee-Senators Contest First on Schedule—Stations Plan to Give Results

NEW YORK.—Baseball season opens Tuesday, April 14, and as the many horsehide spheres go bounding through the air over the various ball diamonds, the stories of the games, play-by-play, will also go through the air, broadcast by stations in all sections of the country. The Radio-baseball fan is soon to come into his own.

The official opening of the American



TETRAZZINI MAKES **RECORD FEE AT 2LO**

WORLD'S MOST FAMOUS SOPRANO GOES ON AIR

England Thrilled by Recital of Noted Songstress—She Expresses Fear of "Mike"

LONDON, England.—Mme. Tetrazzini, the world's most famous soprano, recently came specially from Italy to broadcast from 2LO here.

She has never previously broadcast from a British studio and had hitherto declined all invitations to visit this country for that purpose. The offer of the largest fee she has ever received for a single concert, however, overcame her resistance, and British listeners were privileged in hearing her first universal broadcast.

Afraid of Microphone

Afraid of Microphone

Afraid of Microphone

Prior to this concert her principal Radio achievements had been accomplished on the private transmitter installed in her villa in Itally. Using this set on a private wave length, she sang to the Pôpe and the King of Italy.

"I would rather sing to a thousand audiences than one microphone," said the famous songstress. "An audience has being and sense and feeling, but a microphone is a dead thing without a soul. I was terrified at the prospect, but all went well."

OFFICIAL BALLOT No. 3

Announcers' Contest

RADIO DIGEST SECOND ANNUAL GOLD CUP AWARD

Gold Cup Award Editor, Radio Digest, 510 North Dearborn St., Chicago, Ill.

Please credit this ballot as one vote for:

.....of Station..... (Announcer's name) (Call letters) Address

If you desire, tell below in five or less words what you most like about the announcer for whom you have east this ballot:

THIRTY NOMINEES IN 1925 GOLD CUP RACE

INTEREST BOOMS AS SEC-OND WEEK CLOSES

Fans Rally to Support of "Mike Tender"
Favorites—Contest's Success
Is Assured

Well, well. Here it is only the third week of the contest for the world's great-est announcer for 1925 and thirty an-nouncers have already been nominated

nouncers have already been nominated for the honor.

The candidates for the 1925 Radio Digest Gold Cup Award represent stations located everywhere; from California to New York, from Texas to Canada. And why wouldn't these announcers' friends be interested in seeing their choice be presented with a \$5,000 solid, 14-carat gold cup?

presented with a \$5,000 solid, 14-carat gold cup?

Fifteen announcers were nominated the first week after the second annual contest had been announced. Fifteen more were nominated during the second week. Among the last fifteen, some strange things are to be noted.

The first lady candidate enters the race. Mrs. W. D. Reynolds, Jr., of KLZ, Denver, is well known to thousands of listeners living in the Mountain time band. "Roxy" has been named. The famous WEAF Sunday night announcer is a great drawing card. He should undoubtedly have strong support.

Major J. Andrew White gets in the race. His friends probably realize that he will like the gold cup contest, for contests are his main business. He announces many of them, including prize fights, automobile races, football and baseball games.

And here is Henry Field (pardon the pun) entering the field! The "Sage of Shenandoah" is a most stable person and well liked.

List of Latest Nominees

List of Latest Nominees

The fifteen new candidates nominated for the Gold Cup Award during the past

CFCF	Walter Darling
CFCN	W. W. Grant
KFDM	Magnolene Mike
KFNF	
KLZ	Mrs. W. D. Reynolds, Jr.
KSL	
WEAF	Roxy (S. L.) Rothafel
	N. Dean Cole
	Karl Stefan
	Norman Brokenshire
	J. Andrew White
	Jerry (G. L.) Dearing
	A. R. Herske
	Bernard Strang
WWJ	E. W. Tyson

Is your favorite announcer's name in the list? Was it in the list last week? If not, you had better turn immediately to page six, remove the coupon at the top, fill it with the necessary information and send it to the GOLD CUP AWARD EDITOR, care of this paper. If friend wife disagrees, either of you can make a nomination without using the blank. Just give the information asked.

How to Win Cup for your Choice

How to Win Cup for your Choice

Don't miss a single ballot, for when these are turned in to Radio Digest in a group of CONSECUTIVE numbers, extra bonus votes are allowed the announcer for whom you are voting.

The ballots, top of page two, numbered consecutively, will appear in each issue of the Radio Digest until the close of the contest, with the August 22 number.

Each of these ballots will count for one vote when sent in separately. You can

WINNING ANNOUNCER

SOLID GOLD CUP FOR



The solid, 14-carat gold cup, a new one of which is awarded annually to the annuancer polling the highest total vote in Radio Digest's Gold Cup Award, is a work of art and valued at \$5,000. It is shaped like a microphone, symbolic of the gateway to the waiting world. Who will win the 1925 cup?

Shenandoah Mayorality Trio Debate for Votes at KFNF

SHENANDOAH, Iowa.—The three mayoralty candidates for election here have had their innings. They said it in a debate over KFNF, the Henry Field Seed company station here.

The contest waxed hot. Henry Field saw an opportunity to give everyone all sides of the question. He invited the candidate trio to debate at KFNF.

CONTENTS

Radio Digest, Illustrated, Volume XIII, Number 1, published Chicago, Illinois, April 11, 1925. Published weekly by Radio Digest Publishing Company, 519 N. Dearborn Street, Chicago, Illinois, Subscription rates, yearly, Five Dollars; Foreign Postage One Dollar additional; single copies Ten Cents, Entered as second class matter at the post office at Chicago, Illinois, under the Act of March 3, 1879.

Looking Ahead

hold these ballots until you have 4 that are consecutively numbered, and when they are sent in a bonus of 8 votes will be allowed for your favorite announcer.

For each 8 consecutively numbered ballots your candidate will receive a bonus of 20 votes. For each 12 consecutively numbered ballots, 30 votes. For each 16 consecutively numbered ballots, 40 votes. For each 20 consecutively numbered ballots, 50 votes, and for each 22 consecutively numbered ballots, 50 votes, and for each 22 consecutively numbered ballots, 60 votes bonus will be allowed.

Send nominations or ballots to the GOLD CUP AWARD EDITOR, Radio Digest, 510 N. Dearborn St., Chicago.

And Now the Competition Begins! As this issue was going to press another bunch of nominations came in for the second annual Radio Digest Gold Cup Award for the world's most popular Radio announcer. But these were too late for this week's story. Watch the progress of this highly interesting contest from week to week. May the best man win!

The A. B. C. Course by Professor Moreton will delve into the unseen action of motors and generators next week, which, while it may seem very foreign to Radio, is essential to understanding of magnetism and induction. This takes the reader, very naturally, into the subject of transformers.

This Week the "Evening at Home" Table is given in a new form. It is arranged according to the wave lengths used. The time periods are stated in Eastern standard time for the eastern readers of Radio Digest. Next week the form will remain the same, but the time periods will be translated to Central standard time for the middle western Radiophans.

Trouble Shooting in the Four Filter Super will be taken up by Mr. Fournier in the next article on this receiver. If assembly and wiring directions have been carefully followed there probably will be no trouble, but if difficulty is experienced, the tests are not at all hard to make.

KTHS, Which Means, "Kum to Hot Springs," will be the popular broadcaster described by word and picture in the next issue of Radio Digest. KTHS, while on the air but a short time, is known to many DX listeners.

Newsstands Don't Always Have One Left

WHEN YOU WANT

BE SURE OF YOUR WEEKLY COPY BY SUBSCRIBING NOW

SEND IN THE BLANK TODAY

Publisher Radio Digest, 510 N. Dearbern St., Chicago, Illnois. Please find enclosed check M. O. for Five Deliars (Six. Forcion) for One Year's Subscription to Radio Digest, Illustrated.

Announcing NOVICE PROOF RECEIVING SETS





London, Madrid Newcastle, Aberdeen--

that's just a few of them

AGAIN Elgin Super-Rein-artz leads all others! Every trans-Atlantic report investigated was found to be ABSOLUTELY authentic! Many happy owners of Elgin sets again tuned in the European stations.

Super-Reimartz The Ford of Radio

will give you the selectivity and distance it has given others. And you can save \$50.00. Let us tell you how—

FREE

Mail the coupon TODAY for the com-plete working drawings of the famous Elgin Super-Reinartz, the set that gets the distant stations. They are free—no obligations, just a stamp for postage, please!

tear out this

Elgin	N. RADIO SUPPLY CO., A, 207 E. Chicage St., Illinois. Send the FREE drawings of the Elgin Super-Reinartz at once. Also tell me Low I save \$50.00 on this set. I en- close a stamp for postage.
Nam	8
Add	(Please PRINT in pencil)

'BIG BEN' IN LONDON REBROADCAST HERE

WGY AND WJZ TEST FEAS-IBILITY OF 2LO RELAY

Hear Hotel Savoy Orchestra and West-minster Chimes but Not Plain— Tests Continue

BROADCAST SONG OF KGO MEADOW LARK

AKLAND, 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

ONDON, 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.

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

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 WSE, 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 superpower transmitter; WTIC, Hartford, and WLS, Chicago.

Pans 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 vicevers; WGY, Schenectady, and WMBF, down in Miami Beach, Florida, used to conflict until there was a change in their time schedule of operation.

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

Arthur Batc

KHJ Will Broadcast on Catalina Island

Entire Studio Staff Will Journey to Wrigley Estate

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 ban-quet at the Hotel Fort Des Moines. Over 800 guests were present.

The program from the banquet, includ-ing the speeches and music, were broad-

ing the specches and accest.

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.

HOW WGN BROADCASTS PLAYS



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 sub-ject was "The Four-hundredth Birthday of the English Bible."

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

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

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

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 doe 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

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

the electrical impulses took to the air on

the electrical impulses took to the air on 1,500-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 fortell the date of retransmission of English broadcasting. On previous tests static has almost completely blotted out the English broadcast.

Want Naval Quiet Period

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

ASK FITTING WORDS

WESTINGHOUSE STATIONS IN UNIQUE CONTEST

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

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

Author Will Share in Royalties

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

in the world.
"Acsong of America," is the title given to the melody.

Because of Radio, daily weather bulle-ns, which have been mailed by the eather bureau since 1881, have been

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

(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 programa 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.

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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.

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 Longueull 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"



NOMINATION CERTIFICATE

Announcers' Contest

Radio Digest Second Annual GOLD CUP AWARD

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

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

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

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.

Hondon, 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.

More Power per Tube brings Greater Radio Most Economically

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

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

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

the risk of drilling or soldering.

SEE ERLA RECEIVERS

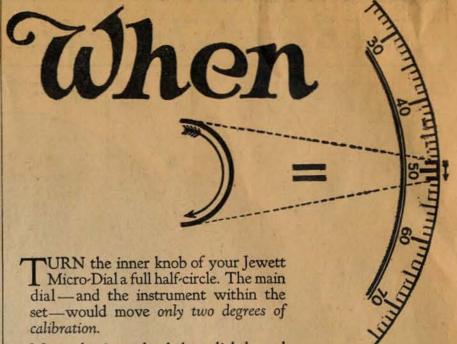
RECEIVERS

herent Erla advaniges in power, tone
nd selectivity are now
vailable in beauteous,
omplete Erla receivse. Retail prices range
out \$67.50 to \$225,
oth performance and
rice place Erla reeivers among the senations of radio history.

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

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





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

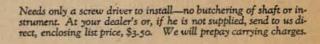
But what a difference in reception!

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

"Fuzzy" reception ceases to be a problem.

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

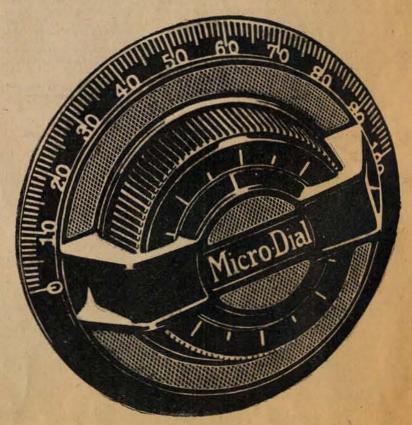
Make these benefits yours! You simply can't afford to be without them.



IEWETT RADIO & PHONOGRAPH CO.

5670 Telegraph Road

Pontiac, Michigan





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 audi-ence at the National Democratic club that Radio is a growing menace to the theater o is a growing menace to the theater 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.

educated to speak 10. Induced 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 Puture

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

Radio is going to solve the problem.

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 divuige, that would bring the entire world to the Radiophans in New

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



ROYAL HARTMAN AUDIOLA EAGLE

Super-Het Builders!

for the "Best"
45,000 Cycle Su-per - Heterodyne
"RADIO" and
other leading
publications rec-ommend in high-est terms the
Thordarson 2:

finest sets

LEAD OF KOA PLAYERS "MASHED"



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

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

First Commencement KSAC "Air College"

Thousands Expected to Attend
"Last Day" Exercises

"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 come encement in history. April 17 is the date set for the event.

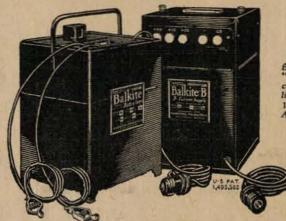
"College of the Air" students will themselves participate in the "last day" exercises presented from Station KSAC for those members granted certificates in absentis. The program will be given during the afternoon in order that rural schools may tune in.

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.

Charger. Charges 6 volt "A" storage batteries. Price \$19.50 West of Rockies \$20 In Canada \$27.50



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

Price \$55 In Canada \$75

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

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

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

Sold by leading radio dealers everywhere

FANSTEEL

BALKITE BATTERY CHARGER - BALKITE "B" PLATE CURRENT SUPPLY

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

AN EVENING AT HOME WITH THE LISTENER IN IN EASTERN TIME

(SEE INSTRUCTIONS FOR USE BELOW)

=								==
Met.	Station and City	Saturday	Sunday	Monday	Tuesday	Wednesday	9:00-10:00	Friday
233	WEBJ, New York, N. Y. KFAB, Lincoln, Nebr WOAX, Trenton, N. J	Silent Silent	9:00-10:00 Silent 5:00- 6:00	Silent Silent 8:30-10:30	9:00-10:00 7:00- 9:00 Silent	Silent 7:00- 9:00 8:30- 9:30	Silent Silent	Silent 7:00- 9:00 8:30- 9:30
240 240 244	WOAX, Trenton, N. J	Silent Silent	Silent Silent	Silent 10:00- 1:00	9:15-11:00 Silent	Silent	Silent 10:00- 1:00	9:00-11:00 Silent
248 250	WABN, La Crosse, Wis WBBG, Mattapoisett, Mass. WTAY, Oak Park, Ill	Silent 7:10-11:00	Silent Silent	8:00-10:00 Silent	Silent 7:10- 8:30	8:00- 9:00 7:30-11:00	Silent 7:10- 8:30	7:00- 2:00 7:10- 8:30
261 265.5	WBBG, Mattapoisett, Mass. WTAY, Oak Park, III KSL, Salt Lake City, Utah WMAK, Lockport, N. Y KFNF, Shenandoah, Ia WBCN, Chicago, III	10:00-12:00 Silent T:30-10:00	11:00-12:00 Silent 7:30- 9:00	10:00-11:00 8:00- 9:00 7:30- 9:00	10:00-11:00 Silent	Silent	10:00-11:00 12:00- 1:00	11:00-12:00 Silent
266	WBCN, Chicago, Ill	7:00- 2:00	5:00-1:00	Silent	7:00- 2:30	7:30-10:00	7:30-10:00	7:30-10:00
268 270 270	WBCN, Chicago, III WEBW, Beloit, Wis WGST, Atlanta, Ga WOI, Ames, Is	Silent Silent Silent	5:30- 6:30 Silent Silent	Silent 10:00-11:00 11:00-12:00	9:00-10:00 Silent Silent	Silent Silent Silent	8:30- 9:30 8:00- 9:00 9:15-10:15	Silent Silent Silent
272.6	WBBR, Staten Island, N. Y. WFBH, New York, N. Y.	8:00- 9:45 6:00- 8:45 7:00-12:00	9:00-10:20 6:00- 8:30	8:00- 8:50 6:00- 1:15	Silent 6:00-11:30	Silent	8:00- 8:50	Stlent
273,6 273 273	WFBH, New York, N. Y. KFKB, Milford, Kan WHK, Cleveland, Ohio WHW, Tarrytown, N. Y KFAU, Bolse, Idaho	7:00-12:00 6:00-1:00 9:00-11:00	6:00-8:30 9:00-11:00 7:30-11:00	7:00-12:00 6:00- 7:30	7:00-12:00 6:30- 7:30	6:15- 1:15 7:00-12:00 6:00- 7:30	7:00-12:00 6:00-11:30	6:00-1:30 7:00-12:00 6:00-10:00
273	KFAU, Bolse, Idaho	Silent	Silent	9:00-11:30 10:00-11:00	9:00-11:30 Silent	9:00-11:30 Silent	9:00-11:30 Silent	10:00-11:00
275 275 275 275 275	WABL, Storrs, Conn	Silent Silent Silent	Silent Silent Silent	7:50-10:45 7:00- 9:00 8:30- 9:30	Silent Silent	Silent 7:00- 9:00 9:00-10:00	7:50- 9:45 Silent	Silent 7:00- 9:00 9:00-10:00
275 275,2	WORD, Batavia, Ill KQV, Pittsburgh, Pa WJAS, Pittsburgh, Pa	Silent Silent	8:00- 8:50 Silent	9:00- 9:50	9:00- 9:55	Silent 8:00:10:00	Silent 8:00- 9:00 Silent	Silent 8:00:10:00
275.3 278 278	WCAU, Philadelphia, Pa.	Silent	Silent 5:30- 9:30	8:00:10:00 8:30-11:00 Silent	7:30- 9:30	7:30-11:00 8:00-11:10	8:39-10:00 7:30-11:00	7:30-10:00 7:00-10:00
278	WLBL, Stevens Pt., Wis WRBC, Valparaiso, Ind WNAC, Beston, Mass	1:00- 2:00 Silent 10:00-11:00	Silent 8:30- 9:00 8:30-10:30	Silent 8:30-9:00 7:00-11:09	9:00-10:00 Silent 9:00-11:00	Silent Silent 7:00-11:00	Silent Silent 9:00-11:00	Silent Silent 7:00-11:00
280.2	WEMC, Berrien Spgs., Mch.	Silent 12:30- 2:30	9:15-11:00	9:15-10:15	Silent	9:15-10:15	Silent	10:00-11:45
285,5 285,5 288,3	WKAR, Lansing, Mich	Silent Silent	Silent 7:00- 8:00 Silent	7:00- 8:00 Silent 10:30-12:00	Silent 8:15- 9:45 Silent	8:00- 9:15 Silent Silent	Silent 8:15- 9:45 10:30-12:00	7:00- 8:00 Silent Silent
293,7	WBAV, Columbus, O	Silent	Silent 10:15-12:30	8:00- 9:00 Silent	Silent 11:00-12:00	Silent Silent	Silent 11:00-12:00	8:00- 9:00 Silent
293,9 299.8	WEAO, Columbus, Ohio KFMQ, Fayetteville, Ark WPG, Atlantic City, N. J WJJD, Mooseheart, Ill	8:00-9:00 10:00-11:00 9:00-12:00	Silent Silent 3:15-11:00	10:00-11:00	Silent 10:00-11:00 7:00-12:00	9:00-10:20 Silent	Silent 8:30- 9:30	Silent Silent
299.8	WJID, Mooseheart, Ill	8:15- 1:00	Silent	Silent 8:15- 9:15	7:00-12:00 8:15- 9:15 7:00- 1:30	Silent 8:15- 9:15 7:00- 1:30	8:15-12:00 Silent	7:00-11:00 8:15- 9:15
302.8 305.9 309.1	WIAS, Eigin. III	7:00- 1:30 7:10- 8:10 7:30- 9:55	7:00- 1:30 7:20-10:15 4:00- 8:45	7:00- 1:30 8:00- 9:00 6:15- 9:55	8:00- 9:00 6:15-12:00	8:00- 1:00 6:15- 9:55	7:00- 2:30 Silent 6:15-12:00	7:30-1:30 7:30-11:00 6:15-9:55
315.6 315.6	KFDM, Beaumont, Tex	Silent 12:00- 2:00	Silent	Silent 8:00- 2:00 6:30- 7:30	9:00-12:30 Silent	Silent 8:00-11:30	Silent	9:00-12:30 8:00-11:30
315.6	WAHG, Richmond, N. Y. WGBS, New York, N. Y WGR, Buffalo, N. Y KOA, Denver, Colo WSAI, Cincinnati, O CYX, Mexico City, Mex	6:00-12:00 6:00-7:30 11:00-2:00 9:00-2:00	3:30- 3:45 4:00- 8:30 6:00-11:45	8:15-11:00	6:00-10:00 6:00-11:30	Silent 8:00-11:00	6:00-11:00 6:00-11:00	6:30-11:00
322.4 325.9 330	WSAI, Cincinnati, O	9:00- 2:00 Silent	4:09- 5:00 Silent	10:00-11:00 7:00- 1:00 10:00- 1:00	8:00-11:10 Silent	10:00- 2:00 11:00- 1:00 Silent	Silent 8:00-10:00 Silent	10:00-11:00 Silent 9:00-11:00
333.3	WBZ, Springfield, Mass	6:00-11:00 Silent	7:00-11:00	6:00-11:00 Silent	6:00- 9:55 Silent	6:00-11:00 10:00-11:00	6:00-12:45 Silent	7:05- 8:05 Silent
336.9 336.9	WBZ, Springfield, Mass KFMX, Northfield, Minn KNX, Hollywood, Callf WCAL, Northfield, Minn WSAC, Clemson Coll., S.C., KSAC, Manhattan, Kan	9:15- 4:00	8:00- 9:00 10:00- 2:00 9:30-11:00	9:15- 3:00	9:30- 3:00 Silent	9:15- 3:00 Stient	9:30- 2:00	9:30-3:00 9:30-10:30
998 0	WSAC, Clemson Coll., S.C. KSAC, Manhattan, Kan	Silent	Silent 9:00-10:00	Silent 8:20- 9:00	Silent 8:20- 9:00 8:00- 9:30	8:00- 9:00 8:20- 9:00	Silent 8:20- 9:00	Silent 8:20- 9:00
344.6 344.6	KSAC, Manhattan, Kan. WKAQ, San Juan, P. R. WCBD, Zion, Ill. WLS, Chicago, Ill. KFAE, Pullman, Wash	Silent Silent 9:00- 1:00	Silent 3:30-10:00 7:30- 9:00	Silent 9:00-11:30 Silent	8:00- 9:30 Silent 7:30- 2:00	7:00- 9:00 Silent 7:30- 1:00	7:00- 8:30 9:00-11:30 7:30- 9:00	Silent Silent 7:30-12:00
348.6	KFAE, Pullman, Wash KOB, State College, N. M	Silent	Silent	9:30-11:30	Silent	9:30-10:30	Silent	9:30-10:30
348.6	WTIC. Hartford, Conn	Silent 8:30- 9:30 Silent	Silent	Silent 6:00- 9:30	8:00- 9:00 6:00- 9:30 8:15- 9:15	8:00-11:00 6:00-11:00	Silent	8:00- 9:00 6:00- 9:30
356.9 356.9	CFCA. Toronto, Ont	Silent	7:20-10:00 7:00- 8:00 Silent	Silent 8-30- 9-30	Stient	8:15- 9:15 Silent	6:00-12:30 8:15- 9:15 Silent	Silent
361.2 361.2 365.6	WHN, New York, N. Y	11:00- 3:00 6:30-12:30 7:00- 2:00	6:30-10:30 3:00-12:45 5:00-6:30 9:00-2:00	11:00- 3:00 6:30- 1:00 7:00- 2:00	11:00- 3:00 6:30-12:30 7:00- 2:00	Silent 6:30-12:30 7:00-10:15	11:00- 3:00 6:30-12:30 7:00- 2:00	8ilent 6:30-12:30 7:00- 2:00
365.6 370	CFCA, Toronto, Ont	Silent 9:30-10:00	9:00- 2:00 Silent	8:00- 9:00 Silent	9:00-11:15 9:30-10:00	8:00- 9:00 Silent	7:00- 2:00 8:00-11:00 10:00-12:00	8:00- 9:00 Silent
		8:00-1:00 7:30-12:00	8:00-10:00 3:00-11:00	Silent Silent	8:00-1:00 7:00-12:00	8:00-1:00 7:00-12:00	8:00-1:00 7:00-12:00	8:00-1:00 7:00-12:00
374.8 379.5	WGN, Chicago, III	7:30-12:00 9:30-12:00 9:30-12:00	3:00-11:00 9:30-12:15 3:35-11:00	9:30- 2:15 6:40- 9:00	7:00-12:00 9:30-11:00 6:30-12:30	9:30-12:00 Silent	7:00-12:00 9:30- 2:15 6:30-11:30	9:30*11:00 7:00-11:30
379.5 384.4 384.4	CKY, Winnipeg, Man	Silent Silent Silent	8:00- 9:00 3:30- 5:00	9:00-11:30 Silent 7:00-10:00	Silent 8:30-10:15 7:00-10:00	Silent Silent 7:00-10:00	8:30-10:15 7:00-11:00	Silent 8:30-10:15 7:00-10:00
384.4	WMBF, Miami Beach, Fla WEAR, Cleveland, O	8:00- 3:00 Silent	8:00- 3:00 3:30- 5:00 Silent	8:00- 3:00 7:00- 8:00 6:00-12:00	8:00- 3:00 7:30-10:00	8:00- 3:00 7:00- 8:00 6:00- 1:00	8:00- 3:00 7:00-10:00	7:00-10:00
389.4	WIAM, Cleveland, O	6:00-12:00 10:00- 1:00 6:30- 9:00	6:00- 7:00	8:00-11:30	6:00- 7:00 11:30- 1:00	9:00-11:20	6:00- 7:00	6:00- 7:00 12:00- 2:00
394.5 394.5 394.5	WEI, Philadelphia, Pa WLIT, Philadelphia, Pa	7:30- 8:30	4:30- 5:30 2:00- 3:30 8:30-11:30	6:30- 8:00 7:30-11:02	6:30-11:00 7:30- 8:50 9:30-11:30	6:30- 8:00 7:30-11:03	6:30-10:00 7:30-8:30 10:30-11:30	6:30- 8:00 7:30-11:03
399.8 400	WHAS, Louisville, Ky PWX. Havana, Cuba	8:30-10:00 8:30-11:00	5:00- 6:00 Silent	Silent Silent Silent	8:30-10:00 Silent	Silent 8:30-10:00 8:30-11:00	8:30-10:00 Silent	Silent 8:30-10:00 Silent
405.2 405.2	KHJ, Los Angeles, Calif WJY, New York, N. Y	Silent	11:00- 1:00 Silent	Silent	11:00- 2:00 8:15-11:00	8:30-11:00 11:00- 1:00 Silent	7:30-10:00	10:45- 2:00 8:30- 9:30
405.2 406	KFRU, Bristow, Okla	6:15- 7:30 Silent	Silent 11:00-12:00	6:15-11:15 10:00-11:00	6:30- 6:45 Silent	6:15- 9:45 9:00-10:00	6:15- 7:15 8:30- 9:30	6:15- 7:15 Silent
410.7 416.4 421	CKAC, Montreal, Que WCCO, MinnSt. P., Minn. KIAF, Sihtipok, Minn.	7:30-11:00 9:00-12:00 Silent	4:30-5:30 5:10-10:15 3:00-4:00	Silent 9:00-12:00 8:06- 9:00	7:30-11:39 7:30-11:00 Silent	Silent 8:00- 1:30 8:00- 9:00	8:30- 9:30 8:00-11:00 Silent	Silent 7:30- 1:00 8:00- 9:00
422.3 422.3	WLW, Cincinnati, O	9:00-11:00	8:30-11:00	9:00-11:00 9:00-11:00	9:00-11:00 Silent	9:00-11:00	12:00- 2:00 9:00-11:00	Silent Silent
428.3		11:00- 1:00 9:00- 1:00 11:00- 3:00	7:00- 8:30 8:30-10:15 11:30- 1:00	9:00- 1:00 10:00- 1:00	9:00- 1:00 10:00- 2:00	9:30- 2:00	9:00- 1:00 11:00- 2:00	9:00- 1:00 11:00- 3:00
434.5 434.5 434.5	CFCN, Calgary, Alta CNRO, Ottawa, Ont NAA, Radio, Va	11:00- 1:00 7:30-12:00 Silent	Silent Silent Silent	Silent Silent 7:45- 8:00	12:30- 1:30 Silent 7:45- 8:00	Silent 7:30-12:30 7:25- 7:40	Silent Silent 7:45- 8:00	Silent Silent 7:45- 8:00
435	ATS, Fort Bragg, N. C	8:00- 9:55 Silent	8:00- 9:00 5:00- 6:45	Silent Silent	8:00-9:55 9:00-10:30	Silent	8:00- 9:55 Silent	Silent
440.9 440.9 447.5 447.5 454.3 454.3	WOS, Jefferson City, Mo	Silent	8:30- 9:30	9:00-10:00 Silent	Silent	Silent 9:00-10:00 7:00-11:00	Silent	Silent 9:00-10:00 7:00-11:00
447.5 454.3	WQJ, Chicago, Ill	7:00-11:00 8:00- 4:00 9:45- 2:00	Silent 9:00-11:00 Silent	Silent 9:45; 1:00 7:00-10:00	7:00-11:00 8:00- 3:00 9:45- 2:00	8:00- 3:00 9:45- 1:00	7:00-11:00 8:00- 3:00 Silent	7:00-11:00 8:00- 3:00 9:45- 2:00
454.3 455 461.3	ATS, Fort Bragg, N. C., WDWF, Providence, R. I. WOS, Jefferson City, Mo. WMAQ. Chicago, III. WQJ. Chicago, III. KFOA, Seattle, Wash. WJZ, New York, N. Y. KTW. Seattle, Wash. WCAE, Plitsburgh, Pa.	7:00-11:30 Silent 6:30- 9:30	4:00- 8:30 10:00-12:30 4:00- 7:30 7:00- 2:00	7:00-10:00 Silent 6:30-12:00	7:00-10:20 Silent	7:00-10:30 Silent 6:30-10:00	7:00-12:00 Silent 6:38-11:00	7:00-11:30 Silent 6:30-10:00
468.5	KFI, Los Angeles, Calif	9:45- 2:00 Silent	7:00- 2:00 6:20-10:15	9:45- 2:00 7:00-11:30	6:39-12:00 9:45- 2:00 Stlent	9:45- 3:66 6:00-12:00	9:45- 2:00 Silent	9:45- 3:00 7:30-12:00
468.5 468.5 475.9	WCAP, Washington, D. C., WRC, Washington, D. C., WBAP, Fort Worth, Tex.,	2-45-19-15	Ciliant	Silent 8:30-11:45	Silent 6:45-12:00 8:30-11:45	Silent	6:45-11:30 8:30-11:45	Silent 8:30-11:45
475.9 475.9 475.9	WBAP, Fort Worth, Ter WEEI, Boston, Mass WFAA, Dallas, Ter CYL, Mexico City, Mex WOO, Davenport, Ia	Silent 9:30- 1:00	12:00- 1:00 3:45-10:15 7:00-12:00	6:30-10:00 7:30-10:30	6:30-11:00 7:30-1:00 11:00-12:30	8:30-11:45 6:30-12:00 Silent	6:30-11:00 7:30-1:00	6:30-10:30 7:30-10:30
480 483.6 483.6	WOC, Davenport, Ia	Silent 7:30- 1:00 8:30-10:00	Silent 9:00-12:30 8:00-10:30	Silent Silent 8:30-10:00	11:00-12:30 7:30-10:00 Silent	Silent 7:30-11:00 8:30-10:00	Silent 7:30- 1:00 Silent	11:00-12:30 7:39-10:00 Silent
483.6 491.5 491.5	WSUI, Iowa City, Ia KGW, Portland, Ore WEAF, New York, N. Y.	1:00-3:00 6:00-12:30	6:00-10:00 8:15-10:15	Silent 6:00-11:30	11:00- 3:00 6:00-10:00	11:00- 3:00 6:00-12:00	11:00- 3:00 6:00-12:00	11:00- 3:30 6:00-12:00
499.7 508.2	WMC, Memphis, Tenn KLX, Oakiand, Calif WIP, Philadelphia, Pa	9:30-10:30 Silent	Silent Silent	0-20-10-20	9:00- 1:00 9:00-10:00	Silent	9:30-10:30 Silent	9:39- 1:00
508.2 508.2 516.9	WIP, Philadelphia, Pa W00, Philadelphia, Pa	6:05-12:05 Silent	3:15- 9:39 6:05- 8:30	9:00-2:00 6:05-7:30 7:30-11:00 6:00-9:30 8:30-1:90	6:00-12:00 Silent	9:00- 2:30 6:05- 7:05 7:30-11:00	6:05-12:00 Silent	9:00- 1:30 6:05- 7:30 7:30-11:00
516.9 526	WOO. Philadelphia, Pa- WCX, Detroit, Mich. WHO, Des Molnes, Ia. WOAW, Omaha, Nebr. WNYC, New York, N. Y.	6:00- 7:00 Silent	Silent 5:00- 9:30	6:00- 9:30 8:30- 1:00	6:00-11:00 Silent	6:00- 9:30 7:30-12:00	6:00- 7:00 12:00- 1:00	6:00-11:00 8:30-10:00
526 526 535.4	WNYC, New York, N. Y. KYW, Chicago, Ill.	7:00-1:00 6:30-10:20 8:00-3:00	7:00-11:00 9:00-11:00 8:00-10:00	7:00-12:30 7:00-10:25 Silent	7:00-12:30 7:20-10:20 8:00- 3:30	Silent 7:30-10:30 8:00- 3:30	7:00-12:30 7:20- 9:30 8:00- 3:30	7:30-12:30 7:30-10:20 8:00- 3:30
535.4	KFUO, St. Louis Mo	Silent Silent	Silent 10:15-11:15	8:45- 9:45 Silent	Silent	10:00-11:00 10:15-11:15 7:00- 8:00	Silent Silent	8:45- 9:45 Silent
100000000000000000000000000000000000000	Company of the Compan	8:00-11:00	Silent	9:00-12:00			Silent	9:00-12:00
11	structions for Use-	THE LINE !	nours and	ve are g	ven in E	astern St	L DIBLULE	me. II

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

RADIO ARTISTS MEET TO DISCUSS PROBLEMS

Association to Investigate Various Stations' Standards

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

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

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 mished to cooperate with the stations in arranging standards which Radio enter-

The Set With the Air Telephone Directory



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

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

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

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

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

It is just as easy as using a telephone.

And Selectivity!

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

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

THE DAYTON FAN & MOTOR COMPANY Dayton, Ohio

For 36 Years Manufacturers of High-Grade Electrical Apparatus



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.

time, subtract three hours.

Saturday, silent night for: AT9, CFAC, CFCA, CHIC, KFAB, KFAE, KFDM, KFKU, KFKX, KFMQ, KIR, KLX, KOB, WBAP, WBAV, WCAU, WCBD, WDWF, WEAO, WEAR, WEBJ, WEBW, WEIL, WEMC, WGST, WHAD, WHAZ, WHB, WHO, WIY, 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, hotel dinner concert; 8:30, Easter program; 10:30, windsor hotel dance orchestra.

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

KDKA, Pittsburgh, Pa. (309.1), 6 p. m., Westinghause.

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; Rhemamae W. Burnett, contralto.

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

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

WBBR. New York, N. Y. (272.6), S. p. m., Dr. Hans Hang, violinist; S:15, Bible questions and answers; S:45, Dr. Hans Hang, violinist, WCAE, Pittsburgh, Pa. (461.5), 6:30 p. m., dinner

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



W00, Philadelphia, Pa. (508.2), 5:45 p. m., organ recital, Mary E. Vogt.
W0R, Newark, N. J. (405.2), 8-8:10 p. m., travel talk, "Bermuda," J. A. Wales; 8:15-8:30, Madlen Hauff, soprano; 8:45-5, Madlen Hauff, 9-9:10, Kathleen Norris, writer; 9:15-10, Thomas Jefferson memorial program; 10-11, state program; 11-12, Ciro's orchestra.

Falconer; 9, Maria Carreras, planist; 2:30, "In fering Waves and What They Mean," M. S. Str 10, Vincent Lopez Hotel Mayflower orthestra; 10 Crandail's Saturday Nighter, Metropolitan symple erchestra; 12, Sidney Seldenman's Colonial room chestra.

chestra. WREO, Lansing, Mich. (285.5), Frank Logan and his

Arcadia ballroom orchestra.

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 Krie.

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

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

Central Time Stations

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

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

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

KBD, St. Louis, Mc. (545.1), 7 p. m., dance music. City olub; 10:30, Elva Magnus, soprano.

KTHS, Hot Springs National Park, Ark. (374.8), 8:30-9:13 p. m., Charles McGill, Louis Davis, Little Rock.

KYW, Chicago, Ill. (535.4), 7-7:30 p. m., Congress hotel; 8:358, Morle Walker, soprano; Luther Carter, tenor; E. Richardson Smith, reader; Stophenson & Heather; Mae & Gross Jubice Gospel sharers; 9:35-11:2, Insumnia cinh.

WCAL, Northfield, Minn. (336.9), 12 midnight, musicales wCCO, Minneapoli-St. Paul, Minn. (416.4), 6 p. in., dinner concert, Community Amusement association; 10, Jee Peyers St. Paul Athletic club orchestra.



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

WCEE, Elgin, III. (275), 7-8 p.m., WTAS orchestra;
Frank Morris; 10:30-12, WTAS orchestra, Frank
Morris, Fanny and Eddie Cavanaugh,
WDAF, Kansas City, Me. (355.6), 3:30-4:30 p. m.,
Star's Radilo orchestra; 6-7, eddress, Roger W. Babson; Trianon ensemble; 11:35-1 s. m. Plantation
players; Eddie Kuim's Kansas City Athletic club orchestra; Johnnie Campbell's Kansas City Athletic club orchestra; Johnnie Campbell's Kansas City athletic club orchestra; Radilo Sunday school lesson, Dr. Herbert W.
Virgin; Dan Russo, Ted Florito; 9-10, Orlole orchestra; Marle Kelly, reader; Eleanor Glimour, soprano; Pat Barnes; 11-12, Oriole orchestra; Loos
Brothers; Marle Kelly, reader; Eleanor Glimour, soprano; Pat Barnes; 11-12, Oriole orchestra; Loos
Brothers; Marle Kelly, reader; Frank Sylvano, Kay
Ronanyne, Banks Kennedy, Ned and Ches, Ralph
Snydor.

Snyder.

WFAA, Dailas, Tex. (475.9), 6-7 p. m., musical rectial: 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 crebestra.

dance orchestra.

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

Total Waco, Texas (352.7), 10:30 p. m., special music.
WIAD, Waco, Texas (352.7), 10:30 p. m., special music.
WIAD, Mooseheart, III, (302.8), 6:30-7:15 p. m., Albert
P. Brown, organist; 7:15-8. Mooseheart theater orchestra; 10:30-1 a. m., concert, Gard studio; Charley
Straight and his orchestra.
WLBL, Stevens Point, Wis. (278), 12 midnight, Enemies
of steen

of sleep.

WLS, Chicago, III. (344.0).

WLS, Chicago, III. (344.0).

Our Harmony girls; Glenn's Cornhunces.

Senate theater review.

WLW, Cincinnati, Ohio (422.3), 6 p. m., dinner hour

NUW, Cincinnati, Ohio (422.3), 6 p. m., dinner hour

soncert, courtesy of Cincinnati Post; E. D. Leonard,

soncert, courtesy of Cinc

Concert, Courtesy of Chemnat Fort, E. D. Leenard, Lafafore, WMAQ, Chicago, Ill. (447.5), 6 p. m., program; 8, Russell Pratt, Fred Daw; 8:30, "The Holy Land," Dr. Burton M. Van Dervoort, 9, Chicago theater, WMC, Memphis, Tenn. (498.7), 8:50 p. m., Community

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

WOAW, Omaha, Neh, (526), 6 p. m. dramatie hour, Davis Studio of Expression; 9, Program, Waiter R. Graham; 9:45, Sigma Onicron society; 11, Frank W. Hodek, Jr., and his Nightingale orchestra; 11:30, Arthur Hays, organist.

WOC, Davenport, Iowa (483.5), 9 p. m., program, Davenport Locamotive works; 11, Lonis Common and his LeClaire hotel orchestra; Peter MacArthur, burtloom, WOJ, Chicago, III. (447.5), 3-4 p. m., koffee hotel orchestra; Peter MacArthur, burtloom, WOJ, Chicago, III. (447.5), 3-4 p. m., koffee hatchelter, for the second partial control of the second p

and Johnson.

WSB, Atlanta. Ga. (428.3), 6 p. m., Sunday school lesson. Dr. Marton MeH. Hall; 8-9, songs from "Gypsy Rover," Marganot Battles Class; 10:45, Journal hired help program.

WTAS, Elgin, III. (302.8), 8-10:30 p. m., WTAS cr-

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

concert, William Penn hotel; S, current motor toples; S:30. Chilcott family quartet.

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

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, Famile L. Todd, soprano; 7:45-7:59, "Trips and Adventures." Fred J, Turner; 7:50-7:55, Famile L. Todd, soprano; 7:45-7:59, "Trips and Adventures." Fred J, Turner; 7:50-7:55, Famile L. Todd, soprano; 7:58-7:58, Famile L. Todd, soprano; 7:58-7:59, "Trips and Adventures." Fred J, Turner; 7:50-7:55, Famile L. Todd, soprano; 7:50-7:55, Famile L. Todd, soprano;

ilde hour, Ruth King. FI, Philadelphia, Pa. (394.5), 6 p. m., Rey Elrae and its dance orchestra; 6:30, Meyer Davis Bellevue Strat-

his dance orchestra; 6:30, Meyer ford concert orchestra; 7, bedlime stories, VGBS, New York, N. Y. (315-56), 10:10-10:40 s. m., Eleanor Schorer's Kiddle Klub program; 10:40-10:50, Mme. George. French fashion expert; 1:30-1:35 p. m., Scripture reading; 1:35-2:35, The Amplitons; 3:31, Scripture reading; 1:35-2:35, The Amplitons; 3:31, 3:320, 3:3

Deslers' musical program, J. P. Quinn, director; 6-7-30, Hallpryd string trio. HN. New York, N. Y. (384:2), 4:35-5:30 p. m., Broadway Meiody Boys; 6:30-7, violin salos, Olcatt Vail; 7-7:30, Hotel Alamac orchestra; 7:30-7:255, health talk. Dr. Landia; 7:35-8, Hotel Carlion Terrace or-chestra; 8:30-9, Strand Roof orchestra; 9-10, North-

chestra; 8:30-9, Strand Roof orchestra; 9-10, North-minster church service.

19. Philadelsphia, Pa. (508.2), 3 p. m., Charles Maloy and his Collegians dance orchestra; 6:06, songs, Charles Higgins and Billy McKee; 6:15, Clarence Seamon'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 Methodiat Episcopal church Caroline Rolle, soprano; Paul Volkman, tenor; Noble Hirst, barttone; 10:05, Haward Lanin's dance orchestra; 11:05, Karl Bona-witz, organist.

WJAR, Providence, R. 1. (305.9), 7:05 p. m., studio

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.

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.

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." will discuss South."

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.

WMBF, Miami Beach, Fia. (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 quariet; 9:15-10, orchestral feature; 10:10-10:20, travel talk, Board of Education.

WPG, Atlantic City, N. J. (299.8), 9 p. m., Hotel Ambassador Kenbucky serenaders; 10. Hotel Traymore Paul Wieman's dance orchestra; 11. Hotel Traymore Paul WRC, Washington, D. C. (468.5), 7 p. m., dinner music, Irving Boerstein's Hotel Washington orchestral, In the part of the paul of th

LOST ANGELS FIND PARADISE SUNDAY

Saturday, April 11

(Continued from page 9)

time, add one hour; Pacific time, subtract

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

Pacific Time Stations

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 Cailf. (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, Acolian trio, Marie Whitmore, violin, Catherine Nelson, plane 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), 7:45 p. m., Ragpickers dance orchestra, Leonard Van Berg, tenor; Miss Veller, planist and Charlie Wellman, the Prince of Jazz; 0-10, Bradley Wright, popular sonus, Belbrew Four, Cora Thorne Bird, soprano; 10-11, Harry Seynour's own hour of fun and joility; 11-12, Brandstatter's Hollywood Montmarte cafe dance orchestra, Mel Pedesky, leader.

leader.

KGO, Oakland, Calif. (361), 4-5;30 p. m., concert or chestra, Hotel St. Francis; 8, "The Marriage of Figure," George Von Hagel, director; 10-1 a. m., Henr

garo, George Von Hagel, director; 10-1 a. m., Henry Halstead's orchestra. H.J. Los Angeles, Calif. (405.2), 6-6:30 p. m., Art Hickman's Bilimore 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 Hawalian trio, Unele Remus, Sam Hinds, monologuist and Uncle John; 10-11, Art Hickman's Billmore hotel dance orchestra, Earl Burtnett, leader; 11-2 a. m., The Lost Angels of KHJ from Catalina Island.

Catalina Island.

IX. Hollywood, Calif. (336.9), 5:45-6:15 p, m., WurLizer pipe organ studio, sports talk by Sid Ziff; 6:1530, dinner hour music; 7:30-8, program from WurLizer studio; 8-10, KNX feature program; 10-11. Abe
Lyman's Coccanut Grove dance orchestra from Ambasador hotel; 11-2 a, m., Hollywood night, introducing
amous Hollywood people.

Sunday, April 12

unday, silent night for: AT9, CFAC, CFCA, CKAC, CHIC, KFAB, KFAE, KFDM, KFKU, KFKX, KFMQ, KFOA, KLX, KOB, KSD, WAHG, WBAV, WCAE, WCEE, WDAF, WDWF, WEAO, WEBJ, WHAZ, WF, WJAD, WJY, WKAQ, WLBL, WHAS, WMAK, WMC, WOI, WOO, WSAC, WSAI.

Eastern Time Stations

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

Pittsburgh, Pa. (309.1), 6:30 p. m., PittsAthletic association; 7:30, Point Breeze Pres-

byterian 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

choral singers.

WCAE, Pittsburgh, Pa. (461.5), 10:45 a. m., services, Roder Shalom temple; 3 p. m., People's Radio church services; 4, Prof. Otto Kaltels, planist; 6:30, William

Penn hotel. CAU, Philadelphia, Pa. (278), 5:30 p. m., Undenom-inational church services, Rev. Dr. John Stockwell, paster 6, Hefel Pennsylvania concert orchestra; 8:30,

inational church services, Rev. Dr. John Stockweii, 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. 1. (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, Baston, 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.

chapel services; 7:30, services, Arm Street Freshystams, 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 Whiddlt, organist, and Dr. Robert J. MacAbjine, 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; 3:45, Waldorf-Astoria orchestra; 10, Godfrey Ludlow, violinist.

English Littleran churett; 5:35, Wataut and thestra; 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 Vall and his string trio; 10:10:45, Gem Razor entertainers; 10:45-11:15, Jenssen'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, barltone; Helen Boothroyd Buckley, planist; 7:15, services, Holy Trinity church; 9:30, Germaniown theater orchestra; Karl Bonawitz, organist.

biso, Germanowi these coranists.

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

Ludlow, violinist.

WMAK, Leckport, 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., Brocklay,
Mark Strand theater program, Edward L. Hyman,
director.

organist.

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

services from Central Methodist church, Rev. Frank Kingdon, pastor. WJ, Detroit, Mich. (352.7), 11 a. m., St. Paul's Episcopal cathedral; 2 p. m., Detroit News orchestra: Charles A. Payno, 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, town (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. S. Christian church

chrole; S. Christian church. KFRU, Bristow, Okla. (394,5), 9:30-10:30 a. m., Bibl school, W. S. Symonds; 11-12, sermon, Dr. Thoma

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; Holv Cross Lutheran church choir. (74.8), 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, Ya'e university. WBAP, Fort Worth, Tex. (475.9), 11 a. m., church service; 4 p. m., Rialto theater; 11, Eddie Kerner's Radio orchestra.

Radio orchestra.

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

Mairice Silverman, Ned Santry, Court Banks, Edward Freeman.

WCAL, Northfield, Minn. (336.9), 6 a. m., Easter suntiae 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, tenor; Mark Whiteside, baritone; Louise Burgess, reader; Mrs. L. J. Reid, planist.

WCCO, Minneapolis-St. Paul, Minn. (416.6), 10:20
a. m., Plymouth Congregational church; 3:10, 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.

Dr. Robert N. Price, tenor; Mrs. May Seavey, soprano; Dr. Carl Bertshinger, planist, WBEC, Valparaiso, Ind. (278), 7:30 p. m., Easter serv-

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

3:10, chlmes,

SB, Atlanta, Ga. (428.3), 11 a. m., First Presbyterian
church; 5:6 p. m., Bethel colored church choir; 7:30,

Wesley memorial church service church choir; 7:30,

Wesley memorial church service.

WSU, lewa City, lowa (483.6), 7. p. m., children's
hown MA Acce altered Mills; 9-9:30, familiar

WTAS, Elson clist querich (302.8), 7-12 midnight, WTAS orchestra, Husik O'Hara; Frank Morris, Fanny and Eddie
Cavannuck.

Mountain Time Stations
CFAC, Calgary, Can. (334.5), 11 a. m., St. Stephen church.

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

FI. Los Angeles, Calif. (468.5). 6 a. m. to 12 mid-night, special Easter programs, continuous; 6:43-7 p. m., musical appreciation talk, H. Ishell; 7-8 speciatios from Metropolitan theater, 45-piece concer-orehestra under direction Adolph Tandler; 8-9. John Gayaki's Jugo-Slav orchestra; 9-10, George Stunt, tenor May Anne Howland, cellist, and Florence Hardy planist; 10-11, Thereon Bennett's Los Angelenos dance orchestra.

orchestra.

KFWB, Hollywood, Calif. (252), 7:45-9 p. m., Brandstatter's Crillon eafe orchestra, Russian Gypsy trio.

9-10, move night with stars from the Warner Brothers lot, Syd Chaplin, Monte Blue, Vivian Rich, Marie Prevost, Kenneth Harlam and others; 19-11.

P. Gypsies; 10, organ rectal.

WFI, Philadelphia, Pa. (394.5), 3 p. m., Loretta Kerk, misnist: 6:30, Meyer Davis Bellevue Stratford concert wei, Finiadelpita, Fa. (594.5), 5, 9, m., Loretta Kerk, planist; 6-30, Mever Davis Bellevue Stratford concert orchestra; 7, beddine 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," Herbort C. Lyon.

WGR, Buffalo, N. Y. (319), 6:30-7:30 p. m., dinner music, charge of M. A. Scimilli; 8-8:35, Jack Little and Faul Small in musical specialties; 8:33-8:53, Margaret B. Staples, soprano, and Henry Murtaugh, planist. In rectual; 9-10, Pass-over program, members of the Jewish Community House; 10-11, musical program, Buffalo Weish Women's club; 11-1, supperdance music, Vincent Lopez Hotel Statler dance orchested of the Jewish Community House; 10-11, musical program, Buffalo Weish Women's club; 11-1, supperdance music, Vincent Lopez Hotel Statler dance orchestence of the Jewish Community House; 10-11, musical program, Buffalo Weish Women's club; 11-1, supperdance music, Vincent Lopez Hotel Statler dance orchestence of the Jewish Community House; 10-11, musical program, March 10-11, musical program, Medical Program, WhAZ, Tray, N. Y. (379.5), 9 n. m. payelly program, Pacific Time Stations

WCX Detreit, Mich. (516.9), 6 p. m., dinner concert, Book-Cadillae 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, planist; 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 Rosevelt orchestra.

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

Faulkner, soprano; "Be Kind to Animals," R. C. Chaten
WHAZ, Troy, N. Y. (379.5), 9 p. m., novelty program,
Rensselaer high school students; "Smillin' 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. (351.2), 6:30-7 p. m., violin
solos, Olcott Vali, accompanied by Stephen Balogh;
7-7:30, Alapmac dance orchestra; 7:30-7:35, health talk,
Dr. Landis; 7:33-8, Hotel Carlton Terrace orchestra;
8-8:05, "Storage Batteries," H. B. Shontz; 8:05-8:35, Roscland dance orchestra; 8:50-9:20, Littmann's
employes orchestra; 9:30-10, Dan Gregory and his
Crystal Palaec orchestra; 10-11, Jack Shack; 11:3012, Silver Slipper revue with Jim Carr's orchestra.
WIP, Philadelphia, Pac, (508.2), 3 p. m., talk, "The
Millenium," by G. J. Calhoon; recital, students Clarence Seamon's concert orchestra; 7, Uncle Wip's bedtime stories.
WIAR, Previdence, R. I. (305.9), 8 p. m., musical pro-

Millenium," by G. J. Cathoon; recital, students Clarence Seamon's concert orchestra; 7, Uncle Wlp'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; 5-5:39, Fred Hall's Royal Terrace orchestra; 7-8, Bernhard Devitow's Hotel Compoter dinner concert; 8:10-8:20, N. Y. U. Air college, 8:40-8:55, Forence Leffert, soprano; 10-10:20, Pledmont, trlo; 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, Locw'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. (265), 7-7:39 p. m., dance program; 7:35-7:45, health talk; 7:45-8, 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 Carollnians.

WOO, Philadelphia, Pa. (308.2), 4:45 p. m., organ recital, Mary E. Vogt; 7:30, A. Candelori's concert orchestra; 8, concert from WEAF; 10:93, 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, Mill 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. Petry and Russell; 11:30-12, Commanders orchestra.

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

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

Central lime Stations

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

KFKU, Lawrence, Kan. (275), 6:50 p. m., plano-tuning in number; 7, muslc; 7:15, "The Pole Vault, High Jump and Broad Jump," Karl Schlademan; 7:30, "The Question of Scenery," Prof. Allen Craftor; 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.

director.
KFRU, Bristow, Okla. (394.5), 7-8 p. m., Oklahoma educational hour; 'Oklahoma Facts,' John A. White-hurst; address, Cy Avery; 8-11, Tulsa, Oklahoma uni-

Nurst; address, Cy Avery; 8-41; 108a, Oktanoma 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 DavisNew Arlington hotel; 9:35-10:15, Henderson-Brown
talent; 10:15-11:15, Charles L. Pischer Eastman hotel
orrhestra.

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

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, Zlon, Ill. (344.6), 8 p. m., mixed quartet; trombone quartet; Fred Faassen, organist; Arthur Rendall, clarinetist; Ida Peterson, soprano; Esther Naffziger, planist; 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, mustcale; 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), 6-7 p. m., Cecile Burton, reader; Trianon ensemble; 8-10, around the town with WDAF; 11:45-1, Nighthawk frolic, Plantation players.

Burton, reader, Trianon, town with WDAF; 11:45-1, Nighthawk Irone, tation players.

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

webw, Beleff, Wis. Mich. (285.5), 8:15 p. m., 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; 8:30-8:30, Mozart

recttal, Buddy's Blue Melody Boys; 8:30-9:39, Mozart choral club.

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

WGST, Atlanta, Ga. (270), 9-10 p. mf, Georgia Tech. women's alee 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)



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

VDAF, Kansas City, Mo. (365.6), 4-5 p. m., University Methodist protestant church; 5-5:30, Sunday school

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 Aired, tenor; 11:49, sermon, Pastor W. R. French; 8:15 p. m., Radio Lighthouse mixed quartet; Charles Garber, charinetist; Mrs. Gertrude Hanson, contraito; Mrs. H. B. Taylor, soprano; 8:55, Pastor John Knox.

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

band.

ya M. Chicago, Hl. (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.

song service, Found Avenue service, the church, S-10, Easter music, choir of Nazarene church, 11:15-12, organ recitai; 12-1 a. m., music masters, Gilbert Jaffy.

11:16-12, organ recitat, 12-1 a. m., University Gilbert Jaffy, Gilbert Jaffy, Gilbert Jaffy, Lova (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. WIJD. 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, Chicage, Ill. (344.6), 6:30 p. m., Ralph Emerson; 7. Easter Sunday roorsum, 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. Danmenfeldt, pastor; 8:30, Western and Southern orchestra, William Kopp, director.

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 entertained.

9:39. "The Seven Last Words of Christ," WOAI entertainers.

WOAW, Omaha, Neb. (526), 9 a. m., Radio chapel service, Rev. R. R. Brown; 1:39 p. m., May Seed and Nursery company; 2:39, Easter cantata; 6, Bible study period, Mrs. Carl R. Gray; 9, First Methodist Episcopal church.

WGC, Davenport, lowa (483.6), 8 p. m., Easter service, Rev. Marmaduke Hare; 9:39, Palmer Little symphony.

WGRD, Chicago, III. (275), 6:30-8 p. m., Bible questions and answers; sacred duets, Arthur and Harry Rouse; Bible lecture, D. J. Morehouse; Mrs. Carl Windust, planist.

WGS, Jefferson City, Mo. (440.9), 7:30 p. m., First Preshyterian church.

WGJ, Chicago, III. (447.5), 10:30 a. m., Dr. Preston Bradley's sermon; 8:10 n. m., Ralph Williams and his Rainbo Garden orchestra; Dr. C. B. Roe, barltone;

Bradstatter's Hollywood Montmarte cafe dance or-chestra, Mel Pedesky, leader. KGO, Oakland, Calif. (361), 11 a. m., First Baptis church; 3:30 p. m., KGO Little Symphony orchestra Arthur S. Garbett, musical interpretative writer; 7:30

Arthur S. Garbett, musical interpretative writer; 7:30, First Baptist church.

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

(KH.), Los Angeles, Calif. (405.2), 6:30-7 p. m., Art Hickman's Biltunce hotel concert orchestra, Edward Filzpatrick, 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 hotfel concert orchestra, Josef Rosenfeld, director; 9-11, program, R. C. "Cilft" 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, WRSC.

Toronto, Can. (356.9), 6:30-7:30 p. m., dinner c. Hippodrome theater. Toronto, Can. (356.9), 8:30-10 p. m., classical

music, Hippodrome theater, and the control of the c

Light opera hour.

WAHG, Richmond Hill, N. Y. (315.6), 8-8:15 p. m.
Heward Forst, saxophonist; 8:15-8:30, James M.
Savell, baritone; 8:30-8:50, plano version of Hansel
and Gretel, Maude Mason; 8:50-9, Affred Elliott,
reader; 9-9:30, Synchrophase string trio; 9:30-9:40,
tedna Endreson, whistler; 9:40-9:55, Mac Utersted, soprano; 9:55-10.05, Arlington time signals and weather
reports; 10:95-10:30, Synchrophase string trio; 10:3011:30, Glen C, Smith's Paramount orchestra; 12-2 a.
m. special program.

ms, 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.

NOVELTY PROGRAM AT WHAZ, TROY

Monday, April 13

(Continued from page 10)

HB, Kansas City, Me. (365.6), 7-8 p. m., "Getting the Races Together," Jacob L. Lorie; music, Young Men's Hebrew association, Young Women's Hebrew

Men's Hebrew association, Young Women's Hebrew association.

WHO, Des Moines, Is. (\$255), 7.30-8 p. m., Stewart Watson, baritone; Helen Birmingham, accompanist; Leota Schakel, whitsiler; Flossie McMurray, accompanist; 8-9, program, Dean Holmes Comper, director; 11-12, L. Carlos Meler, orpanist.

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

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

WJD, Mosceheart, Ill. (302.8), 8:30-7115 p. m., Albert P. Brown, organist; 7:15-8, Mosceheart Novelty orthestra; "Child Care," M. P. Adams; 10:30-1 s. m., Garod studic; Charley Straight and his orthestra.

WLW, Cincinnati, Ohie (422.3), 4 p. m., recital, pupils of Helen Aberscherle; S. WLW dinner hour concert; 19, program, Oxford college giec club, Ethyl Lobban, director; 11, special dance program, Alvin Rochr's Music makers.

of Helen Abererand College give 19, program, Oxford college give 19, program, Oxford college give 19, program, Alvin Romandirector; 11, special dance program, Alvin Romandirector; 11, special dance program, Alvin Romandirector, 12, program, 13, program, 14, program

Chemart's orchestra.

Wol. Ames, is. (270), 10 p. m., popular music.

WORD, Chicage, ill. (275), T-8 p. m., boys' and girts'
hour with Uncle Dan; 8-10, Watchtower choral singers; Bible lecture, Calvin H. Swingle; Mrs. Roy Cor-

rigan, soprano, City, Mo. (440.9), 8 p. m., "Training for Emicinet Home Making," Ella Moore. RBC, Vafgaraito, Ind. (278), 7.39 p. m., Easter cantara, Immanuel Lutheran choir, training for Lakeride Park orrhestra. (VSAI, Cincinnati, Ohio (325.9), 10 p. m., Cliff Perrines Lakeride Park orrhestra. VSB, Atlanta, Ga. (428.3), 5-6 p. m., Georgians orchestra; 8-9, Rose L. Matthews, soprano; 19:45, Radiowi entertainment.

Radiowi entertainment.
WSUI, towa City, ta. (483.6), 7:39-7:45 p. m., "Modern English," Prof. Thomas A. Knott; 7:45-8, "Current Social and Economic Problems," Date Yoder; 8, concert, music faculty, Dale Yoder; 8, con-WTAS, Elgin, III. (302.8), 8-10:30 p. m., Villa Olivia night program.

Mountain Time Stations
Denver, Colo. (322.4). S p. m., Fred Schmitt
his Riaito theater orchestra; 8:10 Shorter choir;
and Mrs. Robert D. Kenworthy.

Tuesday, April 14

'uesday, 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, WJAD, WMAK, WOI, WOO, WOS, WSAC, WSUI.

Eastern Time Stations

KAC, Mentreal, Can. (410.9), 7.30 p.m., Windsor hetei trio; 8:30, Frontenae Breweries entertainers; 10:30, Windsor hotel dance program; 11:45, froller, Montreal Press club oriental room, m., musical program, students, Maritime universities; 9, Robert J. McCharles, Hawaiian guitarist; 9:30, CNRA orchestra.

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

orchestra.

WIY, 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.

WIZ, New York, N. Y. (454.3), 7-7:15 p. m., dog talk, Frank Dole; 7:15-8, Joseph Strissof's Hotel Yanderbill crehestra; 8:10-8:20, N. Y. U. Air college; 9-10, Brunawick hour; 10-10:15, Over the Seven Seas-

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

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

chestra, Nate Caldwell, Jimmle Wahl, Jack Perry, Court Banks, Maurice Silverman, Lindsay Coons, Our

Jerry.

WCCO, Minneapelis-St. Paul, Minn. (416.6), 5:15 p. m.,
Billey's St. Paul hotel concert orchestra; Pullman
Porters' quartet; 7:30, lecture; 8-10, program from

Porters' quarter; 1.00, New York, New York, WCEE, Eigin, Ill. (275), 7-8 p. m., WTAS orchestra; Prank Morris; Fanny and



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

WNYC, New York, N. Y. (526), 7-7:30 p. m., studio features; 7:33-8:35, Riesenfeid's Risito program; 8:45-8:55, talk by public efficial; 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. Vost.
WOR, Newark, N. J. (405.2), 6:15-6:30 p. m., Hotel Lorraine orchestra.
WREO, Lansing, Mich. (285.5), 8:15-9:45 p. m., Reo Broadcasting band.
WTIC, Hartford, Conn. (348.5), 5 p. m., Robert H. Prutting, erranist; Gertrude Havens, soprams; Mrs. Grace Glimere Dickenson, contraito; 10, Ritz orchestra.
WWI, Datrait, Mich. (352.2), 6 p. m., dinner concept.

chestra.

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

8, concert from New York.

Central Time Stations

KFDM, Beaument, Tex. (315.6), 8 p. m., musical pro
firam.

KFMQ, Fayetteville, Ark. (299.8), 9 p. m., students of

H. E. Shuitz.

KFMU, Bristow, Okla. (394.5), 10:30-12:30 a. m., Jim
mie Wilson and his famous Catrish 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.

orchestra. KTHS, Hot Springs National Park, Ark. (374.8), 8:30-9:45 p. m., concert, Charles L. Fischer Eastman en-semble; 9:45-10:45, Meyer Davis-New Arlington hotel

semble; 9:43-10:30, aleyer barriers encourage. KYW, Chicago. III. (536), 6:35 p. m., Uncle Beb; 7-7:20, Congress hotel dinner cencert; 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, III. (226), 8 p. m., Sturtevant or-

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.

8:15. special feature; Jean Frances Small, pinnist; 9, program, the Formica concert orchestra; songs, Louise Butterfield Kahn; Josephine Butterfield, pinnist, WMAQ, Chienge, III. (447.5), 6 p. m., Chiesgo theater organ; 6:25. Hotel LaSalie orchestra; 6:50, dady; 8. Harry Hansen, Itterary editor; 8:20, Chars E. Laughtin, travel talk; 8:20, lecture; 8:50, Association of Commerce talk; 0:15 muiscal program, American Legion. WMG, Memphis, Tenn. (499.7), 7:30 p. m., health talk, Dr. E. E. Franceis, 8:20, Hull-Dobbs company; 11. midnight frolic, Musicians union. WOAI, San Astenia, Tex. (394.5), 8:50 p. m., light operas, WOAI entertainers; 9:30, Jimmile Joy's orchestra.

Hems, G. L. Pyle; musical program, Hammond Musical college,
WQJ, Chicago, Ill. (447.5), 7-8 p. m., Rainbo Garden orchestra; Isabelic Freeman, soprano; Loretta Streahl, contraito; Ellen Deolittle, planist; Marie Lenters, reader; 10-1, Rainbo Skylarks; Tommy Janossek, harmonica player; Ned and Ches, harmony singers; Will Rossiter; Mack Sieters; 1-2, Hotsy Totsy hour.
WSA1, Cincinnati, Ohie (325.9), 7 p. m., Hotel Gibson orchestra; 8, program from New York.
WSB, Atlanta, Ga. (428.3), 8-9 p. m., Guantemalian 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.

9-12. Joe Mann and his Rainbow-Lane orchestra; George Roy's Lakeside orchestra.

Pacific Time Stations

KFI, Les Angeles, Calif. (463.5), 5-20-6 p. m., Examiner's musical half hour: 6-45-7. Raditorial talk; 7-8, program, Hills Bros. with Hills Bros. dilmer dance orchestra; 8-9. Examiner: Ray West and his Alexandria hotel dance orchestra; 9-9-30, Frederick Hermann, basso-cantante, Carl Luboviski, cellist; 9-39-10, one act play by Bohemian players, direction Earnest White; 10-11, Don Meany night presenting many famous personages of stage and screen.

KFOA, Scattle, Wash. (454.3), 6-6-45 p. m., Olympic hotel concert orchestra; 6-43-8-15. Rhodes' Department store program; 8-39-10, Scattle Times studio program; 10-05-11-30, Eddile Harkness and his orchestra.

KFWB, Hollywood, Calif. (252), 7-35-9, program, L. W. Stockwell company, Billy Layd, tener; Humoresque trio; De Luxe trio; 9-10, program, Metton Goddard; original Hollywood Californians dance orchestera; (0-11), Harry Beymour's hour of song and fun; 11-1 a. m., Brandstater's Hellywood Montmaric cafe dance orchestra, Mel Pedesky, leader.

KGO, Oakland, Calif. (361), 4-5-30 p. m., concert orchestra, Hotel St. Francis; S. Dominican college; Feather River Inn orchestra; Albert Gregorsen, barl-

(Continued on page 12)



Pacific Time Stations
ullman, Wash. (348.6). 7:30-9 p. m., Ruth
a, planist; Kathro Aucutt, soloist; Ida Louise
n, planoisguist; humorous readings, Ida An'The Meaning of Art,' Prof. W. T. Mac; 'The Summer School,'' Dear A. A. Clere'Farming and Weekly Newspaper,'' Lincoln
try; 'The New Course in Agricultural BusiDean E. C. Jebason.

Angeles string quartet, virgima Fourn, soprano, 19-11, Roy Nevin and his syncopators.

KFOA, Scattle, Wash. (454.3), 6-6-15 p. m., Olympic hotel concert orchestra; 6:45-8-15, Sherman, Clay & company program; 8:39-10, Seattle Times dance music.

KFWB, Hellywood, 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.

Portland, Ore. (491.5), 5 p. m., children's pro-

gunist.

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;" S:30-9, Gordon Kilbourne
and his orchestra; 9-10, Post-Intelligencer studio pro-

gram. KLX, Oakland, Calif. (508.2), 8-9:30 p. m., educational program: 9:30-10, American theater orchestra; 10,

"CARMEN" BROADCAST TUESDAY BY WEAF THROUGH LINK STATIONS

Index to Popular Concerts

T ABULATED 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.

Eastern Time Stations

aturday, April 11: 6:30, WGBS; 0, CKAC; 8:30, CKAC, WBZ; 10, BS; 10:15, WBZ; 10:35, WEAF; WGBS; 12, WAHG.

Tuesday, April 14: 6:30, WGBS; 30, WEAF, WGBS: 8:30, CKAC, YEAF, WEEI, WFI; 9, WEAF, YEEI, WFI; 10, WGR; 11:45, CKAC.

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

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

Pacific Time Stations

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

Wednesday, April 15



Thursday, April 16

Eastern Time Stations

DANCING

urday, April II: Wing, Wtas: S

Index to Classical Concerts

T ABULATED 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.

Mountain Time Stations Monday, April 13: 8, CFAC; 8:10, OA; 10, CFAC.

Wednesday, April 15: 7:45, CFAC;

Thursday, April 16: 9, CFAC, CNRC. Priday, April 17: 7, CFAC; 8:10,

Saturday, April 11: 6, KHJ; 6:15, INX; 6:45, KFOA; 7:30, KNX; 8, GO; 9, KFI; 12:30, KGW.
Sunday, April 12: 6:30, KHJ; 7, GW, KHJ, KNX; 8:15, KHJ; 8:30, KPO; KFI, KNX; 8:15, KHJ; 8:30, KPO; KFI

Friday, April 17

EVEREADY HOUR EVERY TUESDAY AT 9 P. M., E. S. T.

For real, radio enjoyment; une in the "Eveready Group." Broadcast through

Dry B' Batteries

are an economical

dependable and

convenient source

of plate

current!

Friday, April 17

(Continued from page 13)

8:30, Acelian male quartet; 9, address; 10:30, Luigi Romanelli and his King Edward hotel dance orchestra. KDKA, Pittsburgh, Pa. (309.1), 6:15 p. m., dinner con-cert; 7:45, Pittsburgh band club; 8:15, address, Uni-

cert; 7:45, Pittsburgh; 8:30, concert, verdity of Pittsburgh; 8:30, concert, WAHG, Richmond Hill, N. Y. (315.6), 8-8:15 p. m.

C. Smith's Paramount orchestra.

WCAE, Pittsburgh, Pa. (461.5), 6:39 p. m., William
Penn hotel; 8:39, concert, Viola Buisker-Leonard,

director.

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

WCX, Detroit, Mich. (516:9), 6 p. m., dinner concert,
Book-Cadillac hotel; 7, musical program; 10, dance

Book-Cadillac hotel; 7, musical program; 10, dance music, Arcadia.

WDWF, Providence, R. I. (440.9), 8 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 His-tury; 5-7, 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, Cocile M. Berens, planist; 8-8:45, Happiness Candy boys; 8:45-9, Premier male quariet; 9-10, Spear and company entertainers; 10-11, Knitckerbocker string trio; 11-12, Meyer Davis' Lido-Venice orchestra.

Bucknam, accompanies of a Cliff Crest Society orchestra.

WEEI, Besten, Mass. (475,9), 7:15 p. m., historical talk; 7:30, program, Whiting Milk company; 8, Neapolitan male quariet; 8:30, Breek's garden talk; 8:50, U. S. Army band; 9:30, Howes Valeteria; 10, organ recital.

WFI, Priladelphia, Pa. (394,5), 3 p. m., Housewives' Radio exchange, direction Mable Swint Ewer; 6:30, Vance, Pavis Relievue Stratford concert orchestra; 7, Pavis Relievue Stratford concert orchestra; 7,

Meyet Davis Bellevue Stratford concert orchestra; 7, beddine stories.

WGR, Buffale, N. Y. (319), 6:20-7:20 p. m. Buffalo Trust hour; 8-9, 'Madam Butterfly,' an educational opera entertainment, Eleanor D. Baker, director; 9-19, Woodside male chorus, George H. Grobs, director; 11-1, supper-dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Gleser, director, WGY, Schenectady, N. Y. (379-5), 6:30 p. m., international Sunday school lesson; 7, Albany Strand theater erchestra; Floyd H. Walter, organist; 7:40, Wittstein's dance orchestra; 8:40, 'Rip Van Winkle,' WGY players; 10:30, Albany Folice Protective association; Tenth Infantry band; Jimmle Smith's singing orchestra; sios, Raiph Jones George W. Decker.

WHN, New York, N. Y. (361.2), 6:30-7 p.m., violin soles, Glott Vall; 7-7:30, Hotel Alamac dance orchestra; 7:30-7:35, health talk, Dr. Landla; 7:35-8, Club Morfiz orchestra; 9:30-10, Dan Gregory and his White Way entertainers; 10:35-130, "Storage Batterles," H. B. Shontz; 10:30-11, Roseland dance orchestra; 11:30-12, Club Alabam orchestra; 12:230 a. m., Parody club orchestra.

WHP, Philadelphia, Pa. (508.2), 4 p. m., talk, auspices University of Pennsylvania; 6:05, Harvey Marburger's dance orchestra; 7, Uncle Wilp's beddime Worles.

stories, Workers, R. I. (305.9), 8 p. m., musical program; 9, Astor Ceffee orchestra; 11, Providence Biltmore hotel orchestra.
WIY. New York, N. Y. (405.2), 8:15-8:45 p. m., Baltimore and Ohic Glee club; 9-9:30, Serenders quartet, 9:45-10, Isabel Small, soprano; Keith McLeod, ac-

wiz, New York, N. Y. (454.3), 4-4:15 p. m., Richard Franklin, planist; 4:15-4:39, Corline Cooper Mellroy, soprano; 7-7:39, Savarin ensemble; 8:10-8:29, N. Y. U. Air college; 8:40, "Father and the Boys," WGY players; 10:39-11:30, Duke Yellman and his Irene Coule corbodies.

Diayers; 10:30-11:30, Duke Yellman and ms arease Castle orchestra.

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

WMBF, Miami Beach, Fla. (384.4), 10-2 a. m., Nauti-lus Lucky Seven orchestra. Fleetwood hotel orchestra. WNVC, 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 features; 9-10, hour of German music: 10:10-10:20, "Books That Everyone Should Know,"

10:10-10:20, "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. Candelori's concert orchestra; 8:30, WOO concert orchestra; 8:30, realial, Harriette G. Ridley, planist; 18:35, organ recital, Mary E. Vogt; 11, Vincent Rizzo Corchestra.

WOR, Newark, N. J. (405.2), 6:15-6:30 p. m. Hotel Lorraine orchestra 8:30-7, Man in Moon stories; 7-7:30, Hotel Lorraine orchestra.

WAGC, Glemson College, S. C. (336.9), 7 p. m., music memory contest. Prof. Banrand.

WAM, Glewland, Ohie (389.4), 6-7 p. m., dinner concert. Royal Canadians.

WTIC, Martierd, Cenn. (348.6), 8 p. m., Laura Gaudet, planist; college glee club; 10, Emil Helmberger Hotel Bond orrhestra.

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

Central Time Stations

KFAB, Lincoln. Nebr. (240), 7:30-9:30 p. m., Doane College School of music; Sevenaders orchestra. KFNF, Shenandeah, Iowa (265), 6:30 p. m., concert from Clearmont, Clarisas Burch, director. KFRU, Bristow, Okla. (394.5), 11-1:30 s. m., Brown Derby, city

Derty club. KIAF, Sihtipok, Minn. (421), 9-10 p. m., school of

KIAF, Shitigok, Minn. (340.7), 7:20 p. m., Badio music.
KSAC, Manhattan, Kans. (340.7), 7:20 p. m., Badio college quartet; 7:20, "Soil Bacteria and Plant Food," P. L. Gaines; 7:40, Radio college quartet; 7:50, "Rirds and Their Value to Agriculture," J. E. Ackert.
KSD, St. Louis, Mo. (345.1), 7 p. m., Grant McDonald, planist; 10, Mrs. Armin Phisterer, contralto; Grace McGowan, soprano; Beatrice Knetzger, planist.
KTHS, Het Spring National Park, Ark. (374.8), 8:30-9 p. m., balled numbers, Fischer trio; 9-10, Meyer Davis-New Arlington botel orchestra; 10-11, Ray Mulling Jack O'Lantern orchestra.

9 p. m., ballad numbers. Fischer trio; 3-10. MeyerDavis-New Arlington hotel orchestra; 10-11. Ray Mullins Jack O'Lantern orchestra; 10-12. p. m., Congress hotel
dinner concert; 9-1 a. m., midnish revue.

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

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

WCO, Minneapolis-St. Paul, Minn. (416.6), 6 p. m.,
dinner concert; Original George Osborn's Nicollet
hotel orchestra; 6:30, Joseph Kimball, barltone; Grace
Hake, planist; 7:30 lecture; 7:45, lecture; 8. "Enoch
Arden," John De Q. Brings, reader; Marjorie Winslow, planist; 10. Dick Long's Nankin cafe orchestra;
Russell Murphy, barltone; Ruth McKibbon, accompanist; Don Harris, planist;
WCEE, Elgin, Ill. (275), 7-8 p. m., WTAS orchestra;
19:30-12, WTAS orchestra; Frank Morris, Eddie and
Fanny Cavanaugh.

WHA, Madison, Wis. (535.4), 7:45 p. m., "Control of Orchard and Garden Pests," Prof. J. C. Moore; ad-dress, 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, lowa (526), 7:30-9 p. m., Hapac Grotto quartet; Veda Phillips, pianist; 11-12, dance

program.

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

WIJD, 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.

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 reclait; 6:30, 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), 7:30 p. m., Hadlo talk; 8:30, Britling's Novelty orchestra; 11, midnight frolic. WOAW, Omaha, Neb. (526), 6:30 p. m., Harry Brader, violinist; Frank Strawn, planist; 7, to be announced; 9, program Chicago, Burlington & Quincy Rallroad company; "Seeing by Radio Territory Covered by the Burlington Route," Dr. G. E. Condra; 10:30, Willard Robinson and his orchestra.

WOC, Davenpert, lewa (483.6), 6:30 p. m., sandmar's visit; 8, boys' choir, Sacred Heart cathedrai; 9, Kaaba Temple Shrine band.

WORD, Chicago, Ill. (275), 8:10 p. m., "Safety," J. W. Oliver; Esther Friend Kennedy, soprano; Helene Homan, contraito; Lucile Banderstarr, planist; 10-10, Kaba Temple Shrine band.

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

WQL, Chicago, Ill. (447.5), 7-8 p. m., Rainbo Garden orchestra; Henrictta Nolan, violinist; Otis Pike Jester, soprano; Mary Thrash House, planist; 10-1 a. m., Rainbo Shylarks; Larry Brundage, Harry Kraemer; West Brothers; Zeigler Sisters; Nate Caldwell, planist; Louris Gesses, Sorano; 1-2, Hotsy Totsy hour.

WSB, Atlanta, Ga. (428.3), 8-9 p. m., Griffin program; its; Lauretta Giles, soprano; 1-2, Hotsy Totsy hour.

WSB, Atlanta, Ga. (428.3), 8-9 p. m., Griffin program; its; Lauretta Giles, soprano; 1-2, Hotsy Totsy hour.

Mountain Time Stations

KORE, 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; S:10, studio program, Francis Brown
Lowry post, No. 501; talk, Gustave J. Ornauer; Rev.
Ignatius Groll, planist.

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

Pacific Time Stations

Pacific Time Stations

KF1, Les Angeles, Calif. (468.5), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, Raditorial talk; 7-8, Examiner, literary program; 8-9, Evening Herald hour of dance music; 9-10, Loren Robinson and the Apollo male quartet; 10-11, Tilda Rohr, contratto, 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, Eddle Harkness and his orchestra. KFWB, Hellywood, 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 Seymour's hour of popular numbers, short talks by movie people; 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. (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 Headrick, screen starlet, Boy's sexter Hertzorg; Richard Headrick, screen starlet, Boy's sexter 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 Doling at the Theaters;" 8:30-9:30, Post-Intelligencer stalio recital; 9:30-10, Chamber of Commerce program. KLX, Oakland, Calif. (308.2), 6-7 p. m., organ; 7:45-9:45, studio program; 8:45-1460, Sweet's ballroom. KNX, Hollywood, Calif. (308.9), 6:15-7:30, program Beverly Ridge company; 7:30-8, program, Eastern Outfitting company; 8-9, program, 4-8-10, program; 8:45-1460, program; 8:45-1460, program; 8:45-1460, program; 8:45-1460, program; 8:45-160, program; 8:45-160, program; Reverly Ridge company; 7:30-8, program, Eastern Outfitting company, 8-9, program, 4-8-40, program

orchestra. KPO, San Francisco, Calif. (429.5), 8-10 p. m., Wur-litzer night.

The Reader's View

I do not know that it will do any good to write this letter, but I am going to do so anyway.

I am heartly in sympathy with the new wave plan outlined in Radio Digest of March 14.

As a dealer in Paris

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

dinner concert; Original George Osborn's Nicollet hotel orchestra: \$2.09. Joseph Kimball, barlione; Grace Hake, planist; 7:20 lecture; 8. "Enoch Arden." John De Q. Brirgs, reader; Marlorie Winstow, planist; 10, Dick Long's Nankin cafe orchestra; Russell Murphy, baritone; Ruth McKibbon, accompanist; Don Harris, planist.

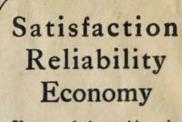
WCEE, Elgin, Ill. (275), 7-8 p. m., WTAS orchestra; 10:20-12, WTAS orchestra; Frank Morris, Eddle and Fanny Cavanaugh.

WDAF, Kansas City, Me. (365.6), 6-7 p. m., Tell-Mea-Story Lady; Trianon ensemble; 8-10, popular program; 11:45-1, Merry Old Chief, Plantation players.

WEBH, Chicage, Ill. (370.2), 7-8 p. m., Oriole orchestra; Sandy Meek, tenor; Erank Papile, accordionist; Frederick Agard, tenor; Frank Papile, accordionist; Frederick Agard, tenor; Frank Papile, accordionist; Frederick Agard, tenor; Radio Lighthouse chet; Cecil Woods, bartone; Mary Lamson, reader; Martha Hutchinson, soprano; Bible clat, Orville Dunn.

WFAA, Daflas, Tex. (475.9), 4:30-5 p. m., woman's hour; 8:30-9:30, Southern Methodist university glee club.

WGN, Chicage, 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.



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

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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.

Crealey Trindyna is unique in the fact.

crosley Trirdyne is unique in the fact that it employs Radio frequency amplification, a regenerative detector, reflexing and audo 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 as second time for further strengthening. By reflexing, the Radio man means that one of the tubes is used to amplify or strengthen the energy both at the high Radio frequencies and at the lower audio frequencies of 16,000 to 20,000 per second.

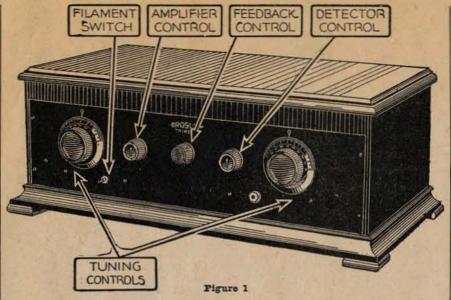
A Song

That

Reached Home

5 MODELS

Send for Bulletin AY-3022 Ask your dealer to demonstrate them on the Bristol Comparophon.



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

Figure 3 shows the top view of this

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 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

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.

will be passed into that tube.

Having been amplified, we wish them to go to the detector in tube socket 14. The flat disc of wire, which is really a coil 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 frequencies of \$00,000. This is done by turning the right hand dial, and signals which this tuned circuit absorbs will pass to the grid of the detector tube. In the output or plate circuit of this detector tube is the coil which has been labeled 3, and which is controlled in its relation to 3A by the center knob on the panel. If this coil is too close to 3A a condition known as oscillation will be produced which prevents signals from (Continued on page 18)

(Continued on page 18)



A great baritone sang with un-common fervor to his enraptured listeners.

The melody seemed to string a golden chain of words for some responsive heart.

It reached ten times a million

For as the music faded into silence the singer said GOOD NIGHT MOTHER!

And then we knew that song had gone straight and true to some-one somewhere in that vast in-visible audience.

saw not the wonderful singer but a little boy whose tousled head lay on her breast.

And in that spell of mother love which makes millions kin.

All those listening hearts "tuned to one heart.

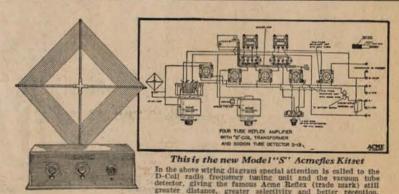
A heart that must have felt the magic of ten million prayers uni-fied in one "God bless her!"

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

THE BRISTOL COMPANY Waterbury, Conn.



AUDITIPHONE Loud Speaker





Directions given so simply that anyone can follow them



Only two tools re-uired—a screw driver and pliers—and they are included in the

Enthusiastic praise from Model "S" user

From Hartford, Conn.:
"Just finished it tonight. It's a wonder. Finest we ever
heard. Congratula-

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

IF YOU bought this set completely assembled it would cost you \$150. But by putting it together yourself you can buy it for only \$80, plus cabinet, saving about \$60. We could make it for less, but it wouldn't give results.

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

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

Note these features of Model "S" Acmeflex Kitset

Complete directions given for putting set together. No antenna to erect. No technical knowledge er workshop required. Only two tools, and they are in the Kit.

No soldering to do.

Non-radiating—your neighbor.

Saves you about

Only one tuning dial. Excellent reproduction Greater distance, sensitivity and selectivity.

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

Pioneer Radio and Transformer Engineers and Manufacturers



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Vol. XIII

Saturday, April 11, 1925

We Want Less Big Stations!

recent editorial we stated that less stations. with better programs, would make for better Radio.
e stand squarely on that policy. We demand that 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

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 Chicagoor 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 ment? 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.

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 hands 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 ether traffic law violators. traffic law violators.

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

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.

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 correlineate. With with her compliments. Witness the great feat which has been accomplished:

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 for the state of the imaginary process.

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—I 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.

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

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

heient total of \$000,000,000,000.03 will be given the three next worst announcers, each one receiving the unbelievable cash copper sum of \$000,000,000.00.01.

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.

and the worst votes will be published.

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

Lament

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

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.

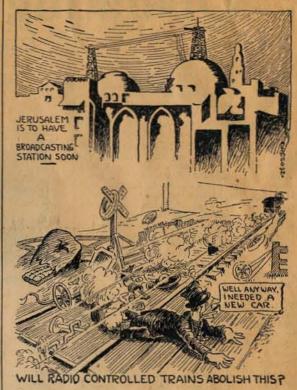
Entry Number One—Who's Next?

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 secondand 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.

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. in advance.

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

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

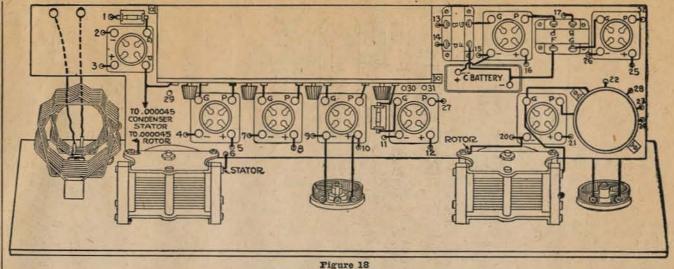
Four Filter Eight Tube Super-Heterodyne

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 2014 tubes. With this issue, two more diagrams are presented, figure 18 and figure 19 which show the wiring when two stages of audio follow the second detector. The sockets shown are for 201A tubes but the reader should have little difficulty in altering this wiring for sockets which take the 199 tubes. When these latter tubes are used the G and P terminals of the sockets are at diagonally opposite corners instead of side by side and the plus filament bus will have to be moved back the width of the socket and pass under the rear edge of all sockets instead of beside the negative filament bus as shown. The wires connecting P2, P3 and P4 on the filter cover with their respective P terminals on the intermediate amplifiers will have to be a little longer to reach the P terminals, which, if 199 sockets are used, will be where the plus filament terminals are shown in figure 18. The schematic diagram for use with two stages of audio instead of the push pull is formed by combining figure 14 with figure 2. Assuming now that the wiring has been complete either with figures 15 and 16 or figures 18 and 19, we are ready to put the set into operation.

Connections



The rheostat should be turned to the "off" position, and the filament switch also. Connect the A battery to the terminals indicated in either figure 16 or figure 19 and insert a tube in any socket. Turn the filament switch to the "on" position and then turn the rheostat gradually. The tube inserted should light up, in which case insert the remaining 7 tubes to be sure that the filament circuit is complete to all tubes. Now turn the rheostat to the "off" position and remove 7 of the tubes. Disconnect the minus A lead and connect it to the plus B 10 binding post. Now turn the rheostat on again and the tube should not light; if it does it indicates that an error has been made in the wiring and a B plus wire is in contact with the filament wiring some-light, disconnect the minus A from the B plus 45 binding post. This con- (Continued on page 20)

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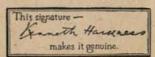
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Consistent udspeaker Receptions

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Buy only genuine Shamrock-Harkness Licensed parts

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minutes any time-even when receiving conditions are not most favorable. Above all, you'll be amazed at the way every sound comes in — clean-cut, life-like, clear as crystal! You can get clear, consistent loud speaker re-ception on this powerful little set within a radius of 1,000 milesand sometimes more!

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I enclose 10 cents (U. S. stamps or coin) for copy of "Shamrock Radio Bullder's Guide Book" containing diagrams and complete illustrations for building 10 sets at prices ranging from \$15 to \$50.

HOW TO OPERATE SET (Continued from page 15)

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

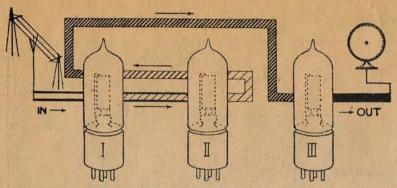
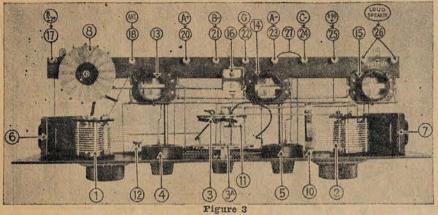


CHART OF CURRENT IN TRIRDYN RADIO FREQUENCY TYZZ AUDIO FREQUENCY TYZZ AMPLIFICATION IS DENOTED BY HEAVINESS OF SHADING Figure 2

tionship between these coils that regen-eration will be increased to a point just panel. This transformer contains a large before the point of oscillation is reached. Iron core and many thousand turns of



This point can be recognized if the two wire, which are the features that disdials are correctly adjusted, as the signals will increase in volume as the center former. It contains two windings, one knob is pulled out and will suddenly begin to be distorted or "mushy." This



The only loops of their kind sold at popular prices.

Built by radio engineers—electrically and mechanically correct—beautifully finished and sturdy. A touch and and a new station comes in—or one is cut out. Their selectivity is remarkable.

And remember that Lincoln Loops sell at moderate prices. No other loops of their kind or efficiency sell at these low prices.

Lincoln 4-point Tapped \$8.00 Loop

Built for any circuit where it is desired to vary the inductance of the loop. Ex-ceptionally fine for super-heterodynes.

Lincoln Center-Tapped \$6.50

For any set employing radio frequency amplification. For certain Superheterodynes requiring a center tap.

Write to Lincoln

If your dealer cannot supply you, order direct giving your dealer's name. Lincoln Loops are fully guaranteed. Send for literature. We welcome correspondence with legitimate dealers and jobbers.

Lincoln Radio Corporation 224 North Wells Street



Distance

on the phones—with certainty and regularity — on the Crosley one-tube 50. The radio which told the world that the MacMillan North Pole expedition was safe and sound. The radio that kept communication open to Leonard Weeks at Minot, N. D., when all other receivers failed.

There is nothing better than the Crosley 50 for the radio beginner.

There is nothing to excel it in value; unless it be the larger Crosley sets.

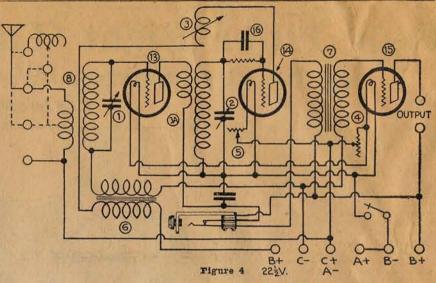
Stations always come in at the same place.

For sale by good dealers everywhere. Other models priced from the two tube 51, at \$18.50, to the Trirdyn Special with sloping panel, at \$65. All Crosley Radios are licensed under Armstrong Regenerative U. S. Patent 1,113,149. Prices quoted are without accessories.

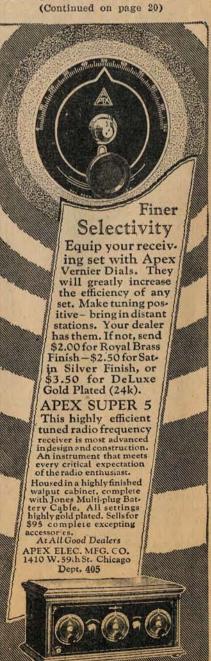
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The Crosley Radio Corporation

Powel Crosley, Jr., President
4491 Sassafras St. Cincinnati, Ohio
Crosley owns and operates Broadcasting Station WLW



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)





Become a Radio Expert

THIS is the time to get into Radio—the new, fast growing, uncrowded profession. Stop working long hours for small pay at work that is drudgery. Men from all walks of life are taking advantage of the unlimited opportunities now open in this wonderful new industry. Salaries were never so high. \$100 a week—and more—not at all uncommon!

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I am interested in Radio as a profession. You may send me, free and without obligation, your interesting book, "Rich Rewards in Radio," all information about your spare time, home-study plan and about your free employment service. Also, the details of your Special Offer.

Name	Age	
Street	 	

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

Poles of a Magnet

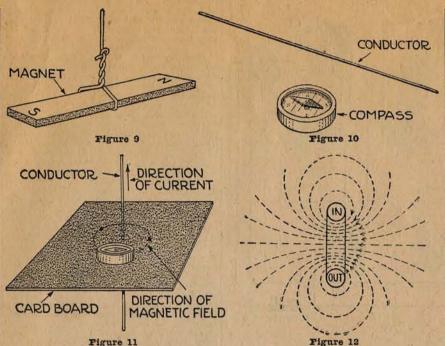
realled an artificial magnet.

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 like sign and strength with a force of one dyne when they are separated a distance of one centimeter in air.



Magnetic Field Produced by Current

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

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 cur-

Figure 12

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.

Here's a peculiar fact about radio insulation

MATERIAL that is satisfactory for general electrical use often gives poor results in radio-frequency service. Experience has shown that best results come with the use of material and apparatus designed especially for radio's peculiar demands. This is particularly true of insulating material.

Radion is a special material, developed to order by our engineers to meet the needs of radio. For radio frequency insulation its characteristics are highest, as shown by authoritative laboratory tests.

The use of the most efficient insulation material is important not only for panels, but also for dials, sockets, knobs, binding post panels, rotors, stators, spaghetti tubes, etc. In all these there is a Radion product of the right type and size for your set. Radion is also used by leading set manufacturers who appreciate the superiority of "the superiority of the superio



ADION DIALS match Radion mels perfectly and make the ideal ing for your set. Radion help to eliminate capacity



Surface leakage very low with Radion Panels

with Radion Panels

The high-polished, satin-like finish of Radion Panels prevents moisture from gathering to form leakage paths and cause leakage noise. Surface leakage and dielectric absorption are exceptionally low.

Radion Panels resist warping. They are easy to cut, drill and saw. They do not chip. No special tools needed. Eighteen stock sizes, two kinds, Black and Mahoganite.

AMERICAN HARD RUBBER COMPANY Dept. DE-4, 11 Mercer Street, New York City Chicago Office: Conway Building

Pacific Coast Agent Goodyear Rubber Co., San Francisco, Portland

Mail coupon for Booklet, "Building Your Own Set"

American Hard Rubber Company, Dept. DE-4, 11 Mercer St., New York City.

Please send me your new booklet, "Building Your Set." string wiring diagrams, front and rear vi showing a new set with slanting panel, sets with new Radion built-in horn, lists of parts and direct for building the most popular circuits. I enclose 10 ce

The Supreme Insulation

MADE TO ORDER FOR RADIO PURPOSES EXCLUSIVELY



rank of vacuum tubes.

good tubes

I didn't think that tubes made such a difference.... until I changed to MAGNATRONS." That's what one enthusiastic MAGNATRON user wrote us.

You, too, will be pleasantly surprised by the way that MAGNATRONS "pep" up a set and give it a new lease on life. The many improvements which have been made in MAGNATRONS have placed them in the very front rank of vacuum tubes.

The DC-201A, the DC-199, and the DC-199 with large base, now list for only \$3. Your dealer has them! 309 Fifth Avenue NEW YORK CITY

Gentlemen:

I think it a good idea to let you know how one of your aerials worked.

My location is a very bad one, as I am entirely surrounded by high-powered lines; but on

Jefore this installation I had but two stations that I could depend upon, namely, KFI and KGO.

The first night after installating a Kane, here is my list of long distance stations from 10:30 p. m.

until about 11:15 p. m. WGY and WSAI I received early in the evening. WGY, New York; WSAI,

Cincinnait; WEBH, WLS, WGN, Chicago; WMBF, Mami, Fla; KFRU, Bristow, Okla; WDAF,

Kansas City; KGW, Portland, Ore; WLW, Cincinnait; 9XG, Davenport, Iowa; WBAP, Fort Worth,

Texas; WCCO, Minneapolis; CFCN, Calgary, Canada.

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

Of course, all the Coast and Mountain Region stations came in so loud that the speaker had

to be water cooled.

Every one of these stations came in on the loud speaker loud enough to be heard all over the house.

I am using a three-tube set . . . and at 7 o'clock I counted 41 stations on the dial at

once from KFI down to KFON.

I can't say too much for your Antennae, as it surely does its stuff.

[Signed) Yours respectfully, Russell Dean, 313 Stillman Ave., Redlands, Calif.

Why Continue to Suffer from Power Interference?
You can get the same relief from power noises as Mr. Dean did with the Kane
Antennae, and for \$13 instead of \$20 under our new direct factory to user system
of selling.

THE SENSATION OF THE PACIFIC COAST
You see them everywhere from British Columbia to the Mexican Boundary.

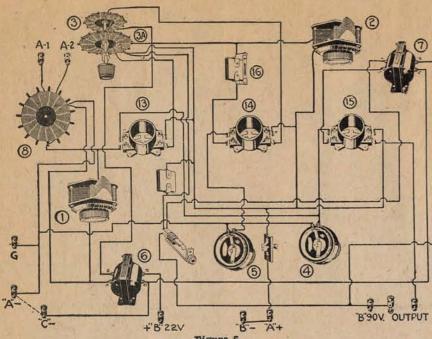
Full Workings of the Kane Antennae Price \$1 Stamps Not With Complete Instructions for Erecting Price \$1

The Kane Antennae has linked the Atlantic and Pacific Coasts together by eliminating all power noises from broadcast reception.

THE KANE ANTENNAE COMPANY

HOW TO OPERATE SET

(Continued from page 18)



paratus 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

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

FOUR FILTER SUPER

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

Antennas

If it is intended to use the set with a

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

STAR DETECTORS SATISFY



Type G. Now \$1.00

Type K, Now \$1.25



B-Metal Loud Talking Crystal

T received the following stations: WGY, WHAZ, WEAF, KDKA, WOB and WTAM. Respectfully yours, A. W. Gale, Gloversville, N. Y., 9 Spring Street.

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

THE TYPE K
STAR ADJUSTABLE
DETECTOR
Is a very satisfactory
crystal for Reflex and
Crystal sets.

STAR CRYSTAL CO.

DETROIT, MICH.

Figure 5

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 4¼ 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 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

Quiet NILES Battery Charger Takes Less Time

A for 6-volt batteries, \$19.00; Model AB for 6-volt and 24-volt batteries, \$21.00. West of Rockies, \$1 extra. Ask Any Radio Dealer NILES MANUFACTURING COMPANY Dept, 64, Ypsilanti, Mich.

Listen to them! You can make money if you buy right— here's the place to do it. Crosley Erla Standard lines—sets, parts. accessories—shipped new! Our fast service puts goods on your shelves when you want them. The scarce items, too, hard to get elsewhere, are waiting for you at Fuetterer's.

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low 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.)

Our

A. B. C. RADIO COURSE

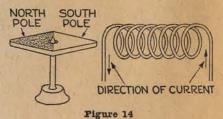
(Continued from page 19) arrows on them, which represent the mag-netic field, encircle the upper cross-sec-tion of the wire in a clockwise or right direction and the lower cross-section of



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



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

The Solenoid

The solenoid with a current in its winding possesses all of the properties of a permanent magnet. The imaginary lines representing the magnetic field pass through the solenoid from its south (Continued on page 22)



Send express or postal money order—New York draft—or personal check to— The Goode Tube Corporation (Dept. A)

(All postage prepaid) The "Goode" Two-o-One A Tube amplifies or detects. It is a quarter ampere, five volts, standard base silvered tube.

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5.00

THREE—"Goode" Detector-Amplifiers....

Static Eliminator in Crystal Set

Selectivity with Tapped Primary and Secondary

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

WORKSHOP KINKS EARN A DOLLAR-

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

RADIO KINKS DEPARTMENT Radio Digest,

Radio Digest, 510 North Dearborn St., Chicago

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.

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.

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 batterles, Just now I am using a 4½-volt tube to which makers recommend 40 volts on the plate. As a matter of fact I get the best results with an estimated voltage on the plate of 18 to 20.





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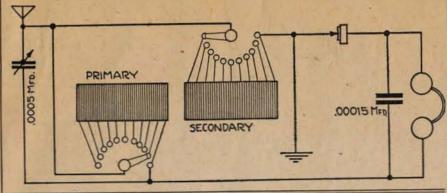
Prices: 6-volt., 700 Aup. \$12.60; 120 Aup., \$14.50; 140 Aup. \$16.00,

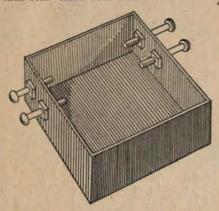
All control with Solid Rubber Bane.

World FOR RADIO STORAGE BATTERIES RADIO KEAF-WGN-WJS-KHU-KGO-KFAF-WJY-KOP



TUNING FINE WITH CONDENSER





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

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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.

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 price 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

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.

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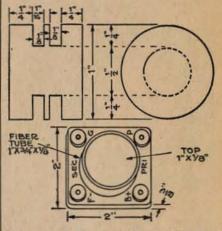
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on each eard. Be individual. Post Card back (requires Ic stamp), 100 only \$1.00; 200-\$1.00; 200-\$2.00; 500-\$3.00 plus few cents postane. Don't send one cent. Pay postman after cards arrive. If you prefer to pay with order, we prepay postage. Money RETURNED if not DELIGHTED, You to be judge. Order today-NOW. Postal will do. RADIO PRINTERS, Dept. \$414, MENDOTA, ILL.



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 % inch long, one cover to fit on one end of the tube 1 inch by ½ inch thick, one base 2 inches square and % 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. Canada.

Poor insulation is often the cause of poor signal strength.

ALL SHOT

That's the common expression of dry cell "B" batteries. Purchase the economy way and enjoy freedom from hissing and frying, clearer reception, and greater volume. Put together an everlasting "HAWLEY" rechargeable "B" storage battery. Nickel-iron alkaline type. No former experience or soldering necessary. Put up in both assembled and knock-down types. The knock-down units contain all actual material for building battery and are put up in 90 volts @ \$8.95; 100 volts, \$9.95; 120 volts, \$11.60; 135 volts, \$12.75; 150 volts, \$11.50. Guaranteed for 2 years with a 30-day trial offer of complete satisfaction or return of your money without any if a nor ands. Complete sample cell 35c prepaid. 8-page Illustrated folder of instructions showing simple putting together, making charger and charging, free with all orders. Complete manufactured. "B" battery charger \$2.75. Order direct or write for my literature, guarantee, and testimonials. Same day shipments.

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Ouestions nswers

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, 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 in the different coils used in the Reinartz circuit are as follows: Thirty
On and I would like to know the inductance of the different coils used in the different coils used in the secondary, and fifty turns for the primary and fifty turns for the secondary, and fifty turns for the primary and tickler.

The article in a recent issue on inductance of coils with capacity of condenser and wave lengths known when would like to see you publish on the detector was Dallas, as the other day, I noticed an article in the January 27, 1923 issue by C. C. Secondary and fifty turns for the primary and tickler.

The article in a recent issue on inductance of coils with capacity of condenser and wave lengths how when would like to see you publish on the detector was Dallas, as and a secondary, and fifty turns for the tickler.

The article in a recent issue on inductance of low loss coils with the secondary, and fifty turns for the primary and tickler.

The article in a recent issue on inductance of low loss coils and greatest good, some one slipped a cog. Either all the Radio sets are on the burn, the stations broadcasting are as broad as a 12-inch plank, or else I have been a Radiophan for four years, from a little crystal (homemade) to the big 5 and 8-tube ects. Up to a few short days ago we could pick up and the secondary, and f

A. B. C. RADIO COURSE

(Continued from page 20)

pole to its north pole to the south pole.

The polarity of a solenoid may be tested by means of a compass needle just as in the ease of a permanent magnet, as shown in figure 14. There is a very definite its similarity to Ohm's law for the elections of a magnetic flux is called the reluctance of the reluctance of the reluctance of the nagnetic circuit composed mostly of a magnetic circuit composed mostly of a magnetic circuit shown in figure 16 and marked iron is shown in

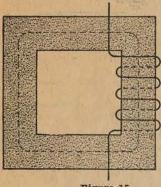


Figure 15

AIR

relation between the polarity of a sole-noid 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.

and the other end, of course, will be a north pole.

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

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

Ampere Turns

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

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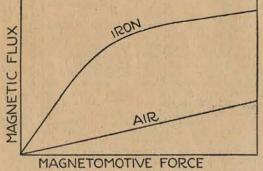
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trical circuit. A statement of this law is as follows:

Magnetomotive force

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

For example, iron is a productor of conductor of con

ity of the material.

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

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

A simple magnetic circuit is shown in

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

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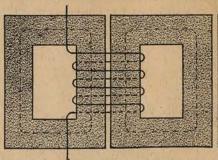


Figure 17a

rigure 17a
said to become saturated as the magnetomotive force increases in value. After the material of a magnetic circuit has reached the condition of saturation there is a much smaller increase in magnetic flux for a certain increase in magnetic flux for a certain increase in magnetic circuits, but they can all be considered as belonging to one of the following classes: Series magnetic circuit.

Combination series and parallel circuit.
A series magnetic circuit is shown in figure 15. You will note there is only one path for the magnetic flux.
A parallel magnetic circuit is shown in figure 17a. In this case there are two independent paths for the magnetic flux.

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

Raulf Radio Console. Raulf Manufactur-

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

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

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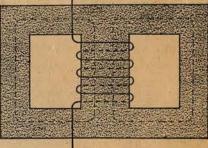
Pat. Applied

\$15 Compound Pentagon winding. Eliminates losses, gives greater signal strength, only 18" diameter. Takes up but small space.

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Carter Radio Co.



Pigure 17b

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

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

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Radiophone Broadcasting Stations

Corrected Every Week-Part I

United States
195 meters, Hdgts, 135th Field

Dayton, O. McCook Field, U. S. Army, Experi-

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 H. S. Announcer, David Taylor, Slogan, "Intermountain Station." Daily ex Sat. Sun, 3:30-4:15 pm, markets, weather, news. Mon, Fri, 8-9 pm, concert. Mountain, A.W. 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. P. A. Buttrey Co. Announcer, C. O. Roettger, Daily ex Sun, 12:45 pm, music, markets, weather, reports. Mountain, KFBC, San Diego, Calif. 278 meters. 20 watts. W. K. Azbill. Thurs, Sun, 8-9 pm, Bible lesson, sermon. Pacific.

San Luis Obispo, Calif. 215.7 meters. 50 watts. & Wilson.
Tacoma, Wash. 250 meters. 50 watts. First yterian church. Announcer, Frank Tovey. Sun, ppm, 7:30-90, Pacific.
Everest, Wash. 224 meters. 15 watts. Lesse Announcer, R. H. Lesse, Laramie, Wyo. 270 meters. 50 watts. The dral.

midnight. Pacific. Angeles, Calif. 236 meters. 500 watts. Leslie

orvallis. Ore. 254 meters. 500 watts. Oregon

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. Earlie C. Anthony, Inc. Announcer, Paul W. Reese. Slogan: "The Badio Central Super-Station." Daily er Sun. 6:45-8. 8-11. Sun. 10-10:45 am; 4-5 pm. 6:45-8. 8-11. Sun. 10-10:45 am; 4-5 pm. 6:45-8. 8-11. Sun. first Sun of month. 11-12:30 pm. third Sun of month.

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

(F10. Spokane, Wath. 266.

Little Rock, Ark. 254 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.

KFNI, Warrensburgh, Mo. 234 meters. 50 watts. Central Missouri State Teachers' College. Announcer, John McNay. KFNL, Paso Robles. Callf. 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. KFNV, Helena, Mont. 248 meters. 50 watts. V. Kemp Roberts. Experimental station.
KFOA, Seattle, Wash. 45-53 meters. 500 watts. Rhodes Dept. Store. Slogan, "The Gateway to the Orient," Daily ex Sat, Sun. 12:30-130 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.

CHALLENGE!

NE 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 input, 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.

grams. Central. Mont. 254.1 meters. 5 watts. Abner R.

Educational Service. Daily ex Wed, 6-6:30 pm. Hroadcasts for schools on request. Mountain.

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

M. Foster. Service Serv

logan, 'Radiocassas Mon, 9-19-20 30-9, church services. Mon, 9-19-20 entral. OU, Richmond, Calif. 254 meters. 100 watts. Hommel OU, Richmond, Calif. 254 meters. 100 watts. Board of Libra.

KFQA, St. Louis, Mo. 281 meters. 100 waits. The Principia. Sun, 8 pm. church service. Central. KFQB, Fort Worth, Tex. 254 meters. 100 waits. 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, Bibbe lecture. Central. KFQC. Tait, Calif. 231 meters. 100 waits. Kidd Bros. Radio Shop. KFQG, Los Angeles, Calif. 229 meters. 50 waits. Southern Calif. Radio Assn. KFQH, Burlingame, Calif. 226 meters. 50 waits. Post Office Radio and Music Co. Wed, Fri. 8-10 pm. Pacific.

Cartney.

KFUR, Ogden, Utah. 224 meters. 50 watts. Perry's

Expitian theater and White City. Sat. Sun. Tues.

Tues, 9:50-11:50 pm. Mountain.

KFUS, Oskland. Calif. 23:12 meters. 50 watts. Louis

C. A. KFVC, Camden, Ark. 242 meters. 10 watts. Ben Music Company.
KFVD, San Pedro, Calif. 205.4 meters. 50 McWhinnie Elec. Co.
KFVF, Hollywood, Calif. 208.2 meters. 10 Clarence B Juneau.
KFVH, Manhattan, Kan. 218.8 meters. 10 watts.

NFPM, Greenville, Tex. 242 meters. 10 waits. The New Furniture Co. Announcer, Dave Ablowich, Jr. Slogan: "The New Furniture Co. the Home 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, 3 pm. Sun, 11 am, services; 7:30 pm, irregularly. Central.

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

KFPW, Los Angeles, Calif. 232 meters. 500 waits. Los Angeles Co. Forestry Dept. Irregular schedule.

KFPW, San Francisco, Calif. 236 meters. 500 waits. Los Angeles Co. Forestry Dept. Irregular schedule.

KFPW, San Francisco, Calif. 236 meters. 500 waits. Los Angeles Co. Forestry Dept. Irregular schedule.

KFPW, Carterville, Mo. 268 meters. 500 waits. Stogan: "Ain't We Got Fun." Sun, 7-8:30 pm, Pacific.

KFPW, Carterville, Mo. 268 meters. 20 waits. St. John M. E. Church, S. Slogan: "Keeping Pace with Christ Means Provress." Wed, Fri, 8-10 pm, popular phrasmally sun, 13 pm, chapel service. Central.

KFPK, Pie Bidf. Ark. 242 meters. 500 waits. Erst Presbyterian Church. Announcer, Howell L. Westbrook. Sun, 11:30 pm; Sat, 12:30 pm, concert orbestra. Daily ex Sat, Sun, 6-45 pm, reports news. Mon. Tues, Thurs, Sat, 10-1 am, dance music. Mon. Tues, Wed, Thurs, Fri, 6:45-7:20 pm. Tues, 9-11 pm. ist and 37d Fri, 10-12 mid. 2nd. and 4th Fri, 9:30-11:30. Pacific.

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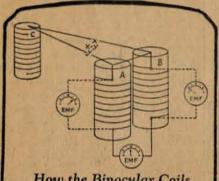
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