How to Stop the 'Birdies' from Neighbors' Sets; Week's Advance Programs; Details of Democratic Convention Broadcasting; Installing Hupmobile Set

Vol. IX

Copyright 1924 By Radio Digest Publishing Co.

SATURDAY, JUNE 21, 1924

No. 11

TELEPHONE OVER OCEAN

RADIO BABY-QUEEN TO STAR ON SCREEN

7-YEAR-OLD "TITANIA" GETS ANOTHER JOB

Great Popularity Among Child Radio Audiences Wins Little Girl Place in Films

By Strachan McMillan

LOS ANGELES.—For the first time in history, so far as is known, the motion picture world has found a new star through the medium of Radio broadcasting. To KHJ, Los Angeles Times station, goes the credit of having brought this wonder child of the silver-sheet into

Some nine months ago, KHJ on a Tuesday evening children's program, introduced to Radioland, what was entitled "The Sandman's Hour." This offering consisted of a visit to the broadcast studio from two members of the realm of Fairyland; one being "Queen Titania," ruler of the Fairies and the other being the "Sandman." The principal part of the forty-five-minute children's program centered around "Queen Titania." The continuity was entirely original.

> Queen Titania, 7-year-old mystery child, who appears on the Tuesday evening children's program at KHJ, Los Angeles, is now being featured in a series of movie comedies.



Francine Larrimore (left), comedienne and star of Nancy Ann, the Harvard prize comedy recently talked on "Women in the Theater" from Station WDAR, Lit Bros., Philadelphia. Lois Rogers (right) is a frequent entertainer at WLAG, The Twin City and St. Paul station. Miss Rogers, who is a pianist, has appeared as soloist with the Minneapolis Symphony orchestra.

Without missing a week since that time, on each Tuesday evening at 6:45 Pacific time, the fairylike voice of "Queen Titania" has floated out on the wings of the ether from Station KHJ, until now her followers in Radioland number thousands. Each week a new, original manuscript is written for this program.

One of the peculiarities of the program is the fact that the real names of the (Continued on page 6)

Sunday Symphony from WLW

CINCINNATI, O .- Arrangements have been completed to give the Western and Southern association's musical concerts every Sunday evening from Station WLW, Crosley Radio corporation here. This symphony orchestra is composed of musicians from the famous Cincinnati Symphony and is under the direction of William Koop.

BRITISH OKEH **PLAN LINKING** TWO POWERS

Will Mean American Phone Users Can Converse Direct with English Cousins

Plan Station at Rugby

NEW YORK.—Establishment of a powerful, 200-kilowatt Radiophone transmitting plant, capable of reaching across the Atlantic ocean at any time, has been recommended by the British post office, reports here say. The erection of such a station will mean the direct linking of land wire telephone users of this country with their English cousins on the British Isles.

Rugby, England has been chosen by the British post office as the location of the (Continued on page 6)



OFFICIAL BALLOT No. 5

Announcers' Contest

RADIO DIGEST FIRST ANNUAL GOLD CUP AWARD

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

of Station
of Station(Call letters)

State
Ulatemania

MORE NOMINATIONS IN GOLD CUP AWARD

announcer for wh I you have cast this ballot:

FANS ASK ANNOUNCERS TO GIVE IDENTITY CLEW

Fourteen New Nominees During Week -Voters Advised to Hold Ballots for Bonus Count

Tespite the fact that shrinking, blushing announcers are doing their best to prevent their identities from becoming known by Radiophans, fourteen more men behind the mikes" were nominated last week for the Radio Digest First Annual Gold Cup Award.

The extent to which modesty among announcers goes is illustrated well by the effort of one southern gentleman of Irish extraction to withdraw his name from the rate. He said he was too modest to be voted on, even if his Irish blood did like a good fight.

But we can't let him withdraw. Too - any Lominations have come in already icr him.

Pans Strong for Their Favorite

Liste ers in are taking to the nominatg and voting like a submarie does to B seaweed. Letters show how loyal they are to their own, hand-picked favorites. One of these, with personalities eliminated, follows:

Because he is a Radiophan himself and knows just what the Radiophans like and shows it by the good programs which he T has arranged, I want to nominate-

Permit me to state that-· is real man, one of those fellows that can s -hake your hand, and call you by your In His voice is loud and clear, nrst name. always of good cheer and with a kind Q ord here and there. Makes the sunstine for the children, the rich, poor, sick, rid a d old.

"We are proud of him."

Want Announcers to Give Names May I ask, writes another, "how we Padiophars are going to tell who our favorite announcers are? So many never give their names or the slightest clew to

To is letter is typical of many hundred recei ed complaining about the same tr. g

... u cers, establish your personality! our name, initials, wife's name, al. ... nickname or nom de plume. But are a name, always, when you begin your turn and when you finish your watch at the microphone. It'll mean a lot in the voting.

Modesty which cheats the invisible t t of information which it desires is false. Radiophans want same clew to who they may consider the world's most popular a nouncer.

Pourteen New Mominations Received The fourteen additional nominations received last week were:

Adair, Sam, WOQ, Kansas City. Arnoux, G. C., WBAP, Fort Worth, Bach, A. E. W., WBZ, Springfield. Coggesil, A. O., WGY, Schenectady. Hammond, Carl E., KFOA, Seattle. Harris, Credo, WHAS, Louisville. Hayner, Rutherford, WHAZ, Troy. Northrup, Robert, WLS, Chicago. Pierson, Wm. T., WCAP, Washington. Reese, Paul, KFI, Los Angeles. Rice, ---, CJCA, Edmonton, Canada. Schwartz, Phil, WQJ, Chicago. Willets, G. V., WOC, Davenport. Wilson, Walter, KYW, Chicago.

The complete list of nominations, including those given last issue, makes a total of seventy-six names.

Nominate Now; Vote Later The lists of nominees, given this issue and last, show what announcers have been r inated and have nothing to do with their standing so far as the actual bal- BE SURE OF YOUR WEEKLY COPY isting is concerned. If your favorite an-

nouncer's name has appeared, do not bother to renominate him. One nomination is enough.

Just save your votes for him! Remember that consecutive votes, saved in groups, and turned in together, count for more.

If your favorite announcer's name is not given this week, just turn to page five, fill the nomination certificate in and send it to Radio Digest, care of the Gold Cup Award Editor.

Remember to save your ballots appearing on page two each week. It is by means of the ballots that the award will be made. The man or woman polling the highest number of votes wins.

Rules and Regulations of Award

made either by the announcer or any lessons.

Radiophan. Nominations should be made by using the "Nomination Certificate" appearing on page five.

Beginning with the May 24 issue a ballot is printed on page 2 of each issue of this publication. These ballots are numbered consecutively from one to sixteen. The voting officially opened with the publication of ballot No. 1 in the May 24 issue. The contest closes with ballot No. 16 published in September 6 issue of Radio Digest, and the official closing date of this contest is midnight, September 8,

For sending in four consecutive ballots. there will be a ten vote bonus; eight consecutive ballots, twenty-five vote bonus; twelve consecutive ballots, fifty vote bonus; and sixteen consecutive ballots, seventy-five vote bonus.

Voting will consist of filling in the ballots with the name, initials or nickname of the announcer and the station and mailing to the Gold Cup Award Editor.

Highest Vote Wins Gold Cup

The broadcasting station announcer polling the largest number of votes in the contest will be awarded the Radio Digest gold cup. In the event of a tie for the gold cup award each tying contestant will receive the same identical award.

Anyone may vote for their favorite announcer with ballots clipped from Radio

All votes to be credited must be mailed on or before midnight, September 8, 1924. The Radio Digest First Annual Gold Cup Award will be made by a committee appointed by the publication.

Any question that may arise during the contest will be decided by the Gold Cup Award Editor. His decision will be

WGR Now Gives Series of Physical Culture Lessons

BUFFALO, N. Y. - WGR has gone on the air with a series of lessons in physical culture. The lessons are broadcast Monday, Wednesday and Friday mornings between 11:15 and 11:45 o'clock, Eastern daylight time. Henry T. Martin, assist-All broadcast station announcers are ant physical director of the Buffalo Atheligible to enter. Nominations can be letic club, has charge of the series of

CONTENTS

Radio Digest, Illustrated, Volume IV, Number II, published Chicago, Illinois, June 21, 1924. Published weekly by Radio Digest Publishing Company, 510 North Dearborn Street, Chicago, Illinois, Subscription rates, yearly, Five Dollars; Foreign Postage One Dollar additional; single copies Ten Cents. Entered as second-class matter at the postoffice at Chicago, Illinois, under the Act of March 3, 1879.

III THE DIVE NEWS OF EGUIO"	.0	
efore They Thought of "Mikes," an announcer puzzle	5	
perating and Trouble Shooting for Owners of the Deresnadyne Receiver	7	
n Evening at Home with the Listener In, a chart to show when to listen in for	,	
your favorite stations	8	
ompact Nine-Tube Super-Heterodyne Set, Part III—Assembling, Shielding and		
Cabinet Construction	.9	J
dvance Programs for the Week at the Larger Stations11 to	14	
hirty-Minute A-B-C Lessons for Beginners, Chapter XIV—What Tuning In Is;	{	
How to Do It, by P. E. Edelman.	15	1
ow to Install a Radio Set in Your Automobile, Part VII—Hupmobile Installation;	- 1	ı
Portable Receiver Circuits, by Harry J. Marx	17	ı
	18	ĺ
nexpensive Homemade Cabinet, Constructional Details of Case		ı
litigation of the Troublesome Birdies, a Radiation Interference Preventer	21	į
	221	
irectory of Radiophone Broadcasting Stations, Part III	23	ĺ
adio Illustrated, a page of pictures	24	i

Looking Ahead

"Underground Antennas for Broadcast Reception" is the title of a series of articles on a system of receiving that ELIMINATES STATIC. The articles begin next issue and are prepared by Edward Thomas Jones, A. I. R. E., who has taken the material direct from the work of the famous inventor of the scheme, Dr. J. H. Rogers of Hyattsville, Md.

"Working Through Interference," is the attractive sounding title of Paul Edelman's next contribution in the "Thirty-Minute" series for beginners. The secret of tuning through local for distant stations will be explained.

Operating and Trouble Shooting the Trans-Continental Radiophone will occupy the attention of this popular department next week. The directions are valuable to the owner of any set.

A Portable Transmitter and Receiver, suitable for talking to your friends several miles away, will be told about by Clarence H. West. The combination set is just the thing for the summer camp.

Durant Car Owners will soon be informed how to equip their automobiles with Radio. Included in the article by H. J. Marx is the description of a device for the shock proof suspension of sets in motor cars.

Take Radio Digest with You on Your Vacation

WHEN YOU WANT

YOU WANT IT!

BY SUBSCRIBING NOW

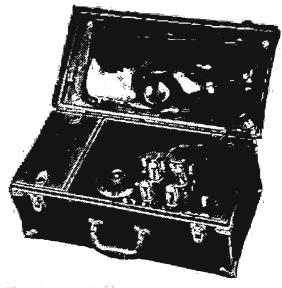
SEND IN THE BLANK TODAY

- 1	
	Publisher Radio Digest, 510 N. Dearborn St., Chicago, Illnois.
	Please find enclosed check M. O. for Five Dollars (Six, Foreign) for One Year's Subscription to Radio Digest, Illustrated.
	Name
	Address
	CityState

HANSEN BIRD CAGE LIME

PORTABLE 4-TUBE RADIO RECEIVER

\$92.50 COMPLETE



you get it and costs...

NIGHTINGALE-4-Tube Radio Receiver without accessories

MOCKING-BIRD-6-Tube Indeor-Loop Radio
Receiver without accessories

Write for Literature

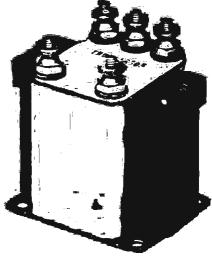
Dealers-A wonderfully attractive preposition JOBBERS—We want one responsible and active distributor in each state.

National Distributor

"The Million-Dollar Warehouse Company"

RADIO DEPARTMENT 134 Jefferson Street MILWAUKEE

THORDARSON



POWER AMPLIFYING TRANSFORMERS

Price per pair, \$13.00

The new Thordarson Power Ampliiving Transformers (push pull) are designed for use as third stage audio frequency amplifiers, to provide high power amplification for operating loud speaking devices.

With power amplification, not only is it possible to increase volume, but, since two tubes replace the usual one, the distortion and howling which usually accompany the overloading of a single tube on the third stage is done away with entirely.

The Thordarson Power Amplifying Transformers are well constructed electrically and are capable of indefinitely carrying the additional load

without breaking down. In tonal purity these transformers equal the Thordarson Super Audio Frequency transformer whose rich quality and even amplification has made it the popular transformer of the day.

'HORDARSON

ELECT. MFG.CO. 500 W. Huron St. CHICAGO

SPEECH QUALITY IS IN CHOICE OF WORDS

'RADIO PHONETICS' LATEST ADDITION TO SCIENCE

Wheeler McMillen Tells WLS Audience How Microphone Success Can Be Attained Easily

CHICAGO.-In the wording of a sentence or phrase, in the choosing of a word, hinges the success or failure of the Radio speaker," said Wheeler McMillen, editor and agriculturist of national reputation, in a broadcast delivered recently from WLS, Sears, Roebuck station

While resonance is a big secret of successful Radio speaking, Mr. McMlllen believes it but half the secret. Poor choice of words is the biggest trouble of most poor speakers, he says.

"Radio phonetics," said Mr. Wheeler, "is a new subject. As yet no one knows very much about it, but the man whose voice is lacking in Radlo quality can substitute a carefully constructed speech, and the result will be a decided improvement. Short sentences of simple words are the most effective.

"If long sentences are used make them compound. Compound sentences are more simple than complex.

Emphasizing Ends of Sentences
"A monosyllable with a long vowel is harder to pronounce sharply than a syllable with a short vowel. Listeners in cannot see the periods by Radio; the speaker must make them evident. This can be done if words are chosen for the endings and beginnings of sentences that are sharply defined. The sentence ending especially must never be ragged. Words are clearest and most easily pronounced that end in sharp consonants, such as 'p' in handicap, 'k' in overlook, and 't' in

"Words must be carefully chosen. Of a group of synonyms, there is always one that is most easily and clearly pronounced. Toil is a better word than work, for Radio use. The 't' is sharp as well as the diphthong.

"In the phrase, 'through legislative or economic channels,' 'routes' would have been a better word than channels. It is shorter. The phrase 'hangs back' is stronger than the word 'delays.' 'Put' is a better word than 'place'; 'start' is clearer than 'begin'."

Democrats Get Ready to Broadcast Confab

Install Special Equipment in Madison Square Garden

NEW YORK .- Radio equippage of the latest design will be found in Madison Square Garden next week with the opening of the democratic national convention liere. Commercial Radio communication companies will maintain substations, a special speech pick-up and amplifying equipment will be used for sending the convention happenings to over a score of land wire-linked broadcast stations, and loud speakers installed outside the auditorium will repeat what is occurring in-

Besides broadcasting convention highlights, speeches by party leaders will be made in the special studio which has been built for the purpose.

Spanish Fort Park Comes to Front as Broadcaster

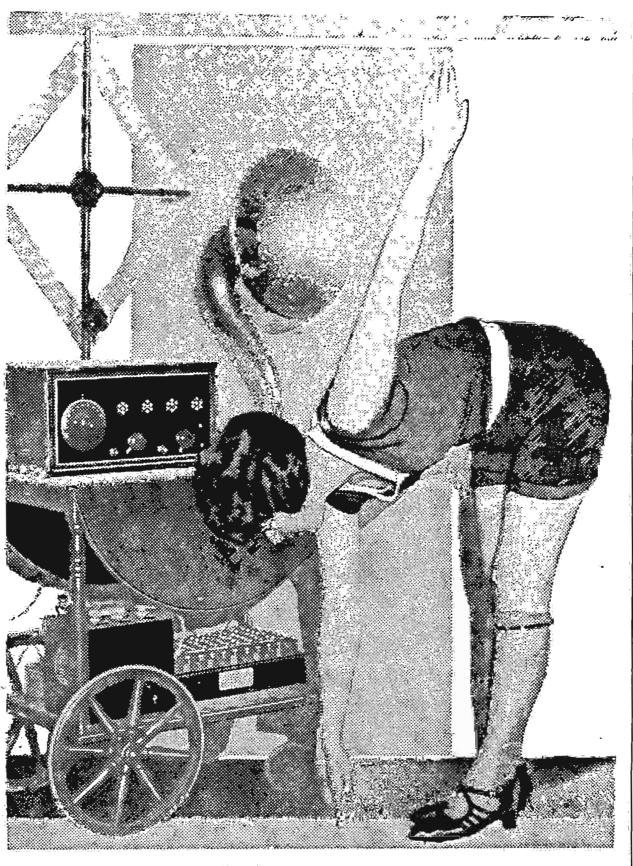
NEW ORLEANS, LA. - Spanish Fort Park, regarded as one of the largest amusement parks in the south, is installing a broadcasting station with a planned range of 2,000 miles. Concerts of Tosso's Concert Band and the dance programs of Beyersdorfer's Novelty or-The chestra will be broadcast nightly. park and the Crescent Amusement company are jointly sharing the expense.

WENDELL HALL CAN TELL HIM ABOUT IT

ASIIINGTON .- Strange letters from Radlophaus continue to occupy the attention of the department of commerce. A recent one suggests that the continued ralny spells have been caused by broadcasts, saying that the Radio disturbances in the ether have caused commotion and this in turn has caused rain. The commerce department has "passed the buck," referring the letter to the weather bureau for reply. RADIO LEADS MOVIE FILM LEADER SAYS

TEW YORK .- "Radlo will be even a greater force in the molding of public opinion and influencing the lives of the human race than the moving pictures were. Radio not only entertains and appeals to all classes of people, but the ease with which it is received makes its effects more far reaching," sald Lewis J. Selznick, internationally famous moving picture magnate, who has recently entered the Radio industry.

KEEPING TRIM BY LISTENING IN



Now comes the Radio gymnast, Miss Katherine Bonnet of San Francisco, who tunes in physical culture lessons broadcast by many stations nowadays. Miss Bonnett has mounted her set on a tea wagon so as to make it mobile. (Int. Photo.)

PENNSY PUTS O. K. ON RADIO'S RAILWAY AID

Tests of System with A.R.R.L. Prove Plan's Success

NEW YORK .- Extensive tests to determine the availability of the Radiotelegraph for transmitting railroad messages other than train orders in the event of emergencies arising in the use of the wire systems have been conducted suc- Crosley Radlo corporcessfully by the American Radio Relay heard in England.

league and the Pennsylvania railroad man-

agement.

The tests, which covered the principal operating points on the Pennsylvania between the Atlantic seaboard on the east and the Mississippi river on the west, demonstrate that the service of the Radiotelegraph stations embraced in the league offers a practical means of emergency communication.

WLW Heard in England CINCINNATI, O .- WLW station of the Crosley Radlo corporation here, has been

NO. 1,113,149 STILL INTACT, FIRM AVERS

WESTINGHOUSE TELLS ITS PATENT LICENSEES

Claims Recent DeForest Decision Has No Affect on Status of Arm-strong Set Makers

NEW YORK -The late t echo in the DeForest-Armstrong patent litigation has come to light in the Westinghouse company's issuance of a notice to holders of Armstrong lie uses. The notic would convey the Impression that the status of the licensees remains unchang d and that the famous patent number 1,113,149 is still untouched and valid.

The statement, in part, follows:
"A great deal of publicity has been given to a recent decision of the Court of Appeals of the District of Columbia in an interference involving applications of Armstrong, DeForest, Languir and Meissner. The Armstrong application involved is serial number 807,388 which is one of the inventions recited in the Armstrong regenerative circuit licenses.

"Armstrong application number 807,283 relates to the oscillating audion ..

Will Go After New Patent "The Westinghouse company as owner of the application has brought suit in the United States district court for the southern district of New York to compel the commissioner of patents to grant a patent to Armstrong on the counts in-volved in the recent District of Columbia decision, thus availing itself of the means provided by law for a review of the situation. It is believed that the facts of the case fully justify the belief that an addi-tional patent will eventually be granted to Armstrong.

"Armstrong patent number 1,113,119 was not involved in the interference. This patent (1,113,149) has been sustained in the United States circuit court of appeals for the second circuit In the case of Armstrong and Westinghouse against De-Forest Radio Telephone and Telegraph

company."

THIRD CONFAB IN JULY OR AUGUST

Secretary Hoover Sees No Way of Scheduling Radio Con-ference Earlier

WASHINGTON.—There is a possibility that the third Radio conference, which Secretary of Commerce Hoover has announced he will call, will not take place

until the autumn. The secretary will not go ahead with active preparations for the conference until he is certain just what Congress is going to do about Radio legislation.

In addition to this the Secretary wants to appoint some committees so that when the conference is actually called some program will be ready to lay before it. He has not yet decided whether these committees should be appointed before the conference, during it, or after it. These are details which have not yet been worked out. Indications at this time are then, that the third Radio conference will be held possibly in July, August or in the early autumn.

Aldermen Prepare to Ease Life of Chicago Radiophan

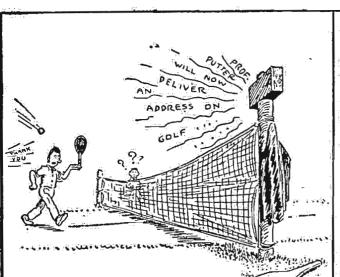
CHICAGO .- The city council here, by adopting a resolution, requested Mayor Dever recently to appoint a commission of four aldernien and five civilians to make it possible for Radlophans to get more enjoyment out of tuning in.

Alderman Arvey claims the rapidly growing number of powerful local broadcast stations have wave lengths so close together that the great majority of people have to listen to one station until its program is complete or listen to two or more programs at the same time.

THE ANTENNA BROTHERS

Spir L. and Lew P.

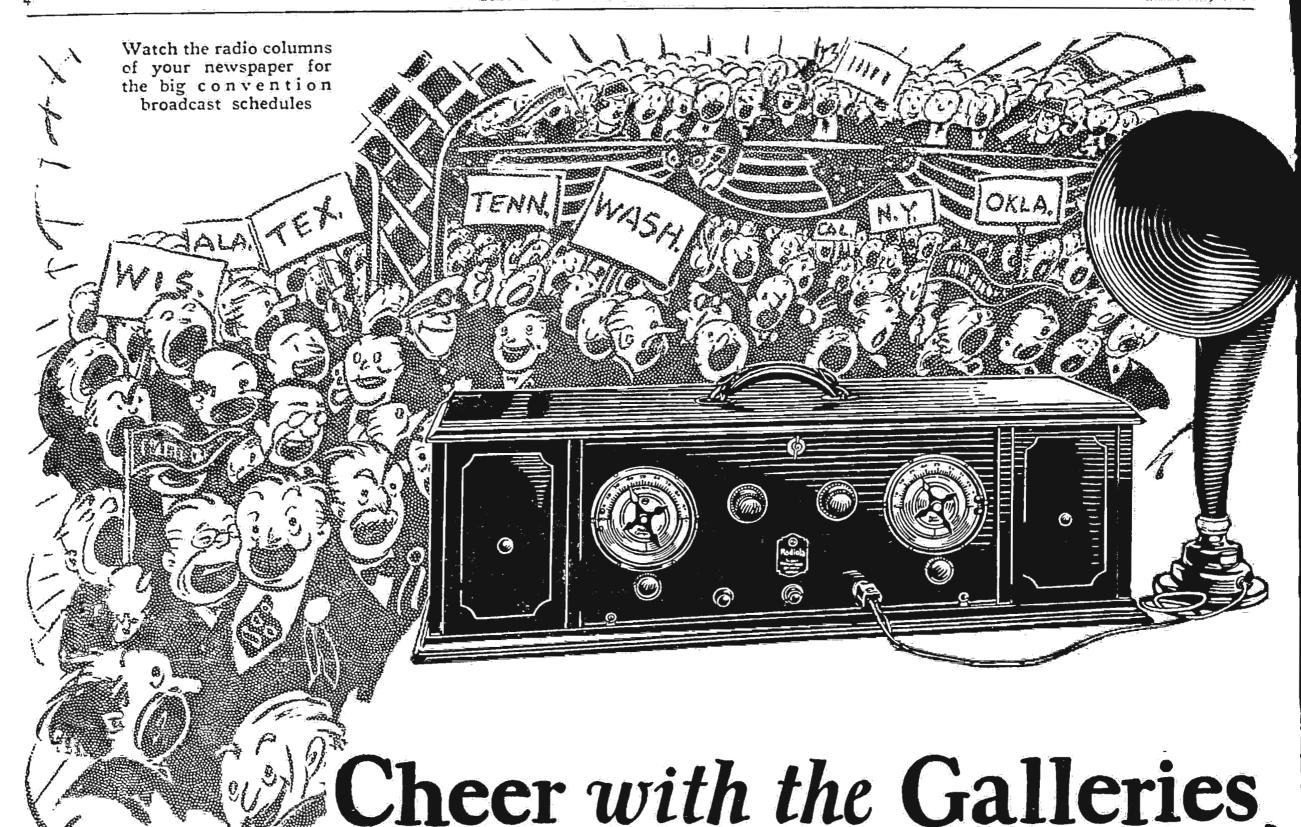
Untimely Suggestions











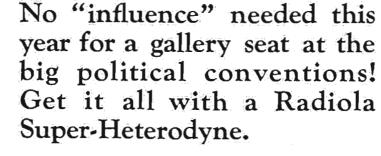
Radiola Super-Heterodyne is the great Radiola for the big events

of summer broadcasting. Listen in, at your office to the conventions and the ball games. Take it everywhere. It needs NO ANTENNA-no ground -no connections of any kind. Has a handle to lift it by. Tunes in with just two knobs that you turn to marked spots on the dials. Tunes out powerful near stations to get the far ones. A wonderful new achievement in the perfection of its toneits sensitivity - and its supreme selectivity!

Complete with six Radiotrons UV-199 and Radiola Loudspeaker; everything except batteries \$286

External, rotating loop, easily assembled, larger than self contained loop in Radiola Super-Heterodyne, for extreme reception range. Loop AG. 814. \$12.00

Operates on Dry Batteries



When the delegates march in -their banners streaming; when the bands play and the galleries cheer—be there with the "Super-Het." Hear the pros and cons as they fight their way to a "platform" for you. Hear the speeches for the "favorite sons." The sudden stillness when the voice of a great speaker rings out. The stamp and whistle and shrill of competitive cheering. Hear the actual nomination of a president.

It used to be all for the delegates' wives and the "big" folks of politics. Now it's for everybody. Listen in. Get it all with the newest Radiola.



your protec-

"There's a Radiola for every purse."

When the Delegates March In/

Radio Corporation of America

233 Broadway, New York

Sales Offices: 10 So. La Salle St., Chicago, Ill.

433 California St., San Francisco, Cal.

There are many Radiolas at many prices. Send for the free booklet that descr. bes them all.

RADIO CORPORATION OF AMERICA

Dept. 316 (Address office nearest you.) Gentlemen: Please send me your free Radio

Name

Address



BEFORE THEY THOUGHT OF "MIKES"



H. M. Milholland (left), KGO, looks different wearing a few more years and formal clothes than he possessed last week.

agricultural foundation station in Chicago has earned the odd descriptive appendage through twenty-eight years of experience, including the toting of an eighteen-pound

the stops for WMC, Memphis Commercial Appeal, appears to be much taller owing to his slight build and willowy fashion

Questioned along the lines of Lambdin WSB Kay's perfect questionnaire for an-

Colleges Shut Off Power for Summer

Five University Stations Close Down During Vacation Period

CHICAGO.-Broadcasting stations operated by or in connection with universities and colleges are for a large part closing down for the summer vacation period. Among those included in recent notices of going off the air temporarily are:

Station WCAL, St. Olaf College, North-Minn.; WBBF, Georgia Institute of Technology, Atlanta, Go.; WPAB, Pennsylvania State College, State College, Pa.; KFAE, University of Washington, Pullman, Wash.; WBAA, Purdue University, W. Lafayette, Ind.

Many others, reports from which have not yet been received, will be silent while college vacations hold forth. Listeners are warned not to discount their receivers because they cannot hear their Alma Mater during this time.

Pick Twelve Radio Dramas SCHENECTADY, N. Y.—From three

hundred manuscripts submitted in the WGY Radio drama contest twelve plays altogether have been selected for production by the WGY Players. Special prizes have been awarded the authors.

La Presse Gives Ilo Lessons

French daily newspaper here, has begun a series of lessons in Ilo, said to be the perfect international language and Radio he had on a new pair of pants. It auxiliary. La Presse owns Station CKAC, shocked his daddy, who was unaware of

nouncer-interviewing, the tabulation be-

Hair: dark brown and plenty, natural marcel; eyes, sweet blue; habits, terrible; servitude, married successfully, two offsprings, both girls; favorite recipe, gingerale and anything else; hobby, sleep, of which there is never enough; politics, same as the boss; ideal, J. P. Morgan; ambition, one cool million cash; experience, born in Attica, Indiana and lived there till the tender age of ten years, then accompanied proud parents removing to Chicago where he learned what there is to learn in the Windy City; left in 1918 to show the U.S. Army how to win the war, after winning which he connected with the Memphis Commercial Appeal where he originated and conducted a famous column known as "Howdy Judge," based chiefly on what occurred in the Memphis police court. From Memphis he migrated to Atlanta for a short time, then back to Memphis. When the Commercial Appeal decided to inject 500 more watts into the ether, the Solemn Old Judge began to get famous, and has been getting "famouser" every day since.

H. M. Milholland, KGO

OTATION KGO, H. M. Announcing." Millions have heard that. It's snappy and professional-like. But while "H. M," is an old timer in the announcing field there was time in his career as an announcer when he was not so widely known.

He was one of the loudest and most earnest announcers in Roodhouse, Illinois, where he was born. Announcing the weak points about safety-pins and the disadvantages of colic, from a baby's point MONTREAL, CAN .- La Presse, famous of view, was his specialty at that time.

In his fourth year he announced to the congregation of his daddy's church that

the presence of his small son right down

in front of his pulpit. A few years later he announced to a back to you." And that's that.

minister, a charming young lady, and others that he "would." The lady's name is now, of course, Mrs. Howard Milholland.

Look at him today. He is the chief announcer and studio manager of KGO, the new Pacific Coast Station of the General Electric Company, Oakland, California-announcing to half the continent.

"I like announcing," he said philosophically, "it's the most natural thing a man can do-even if we do think we are original sometimes."

Then he smiled and announced that he very much enjoyed "announcing KGO programs that give so many people entertainment and instruction." He meant it, too.

Recently a dear old lady wrote: "Dear H. M., when you say good night it sounds so natural I always say 'good night' right

NOMINATION CERTIFICATE Announcers' Contest

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

Dear Sir: I nominate

Signed Address

BRISTOL SINGLE CONTROL RADIO RECEIVER This set is completely equipped to use Loud Speaker. The well-known Bristol One Stage Power Amplifier is incorporated as the last stage of amplification. The Bristol Single Control Radio Receiver is designed to get satisfactory results with Antenna or Loop, and in most cases short antenna. The case is solid manogany walnut finish. A suitable piece of furniture for the finest home. The price of Bristol Single Control Radio Receiver is \$190.00. This does not include accessories such as tube, battery, and Loud Speaker. AUDIOPHONE LOUD SPEAKER A Real Reproducer of the Original Broadcasting It is easy to listen to the Audiophone reproductions because they are so perfect. The speech, songs and instru-mental music are not blurred or dis-guised by mechanical distortion. No auxiliary batteries are required for magnetizing. Made in three models—Senior \$30.00, Junior \$22.50, and Baby

THE BRISTOL COMPANY WATERBURY, CONN.

CROSS OCEAN PHONE GIVEN BRITISH CKEH

COMMITTEE RECOMMENDS 200-KILOWATT PLANT

Erection of Station Means Two-Way Talks on Land Wire Phones with English

(Contin d from page 1)

gi t pl.nt w ich is an outgrowth of a si essful trans-Atlantic demonstration id in January 1923 by the American Telephone and Telegraph company and t e Rad Corporation of America, in co-...r. ti n At this time speech was transi itt d for two hours from New York t 1. nd n while a British post office comtittee observed.

Use of Service to Perfect Itself

While it is hoped that the large station will be able to maintain trans-Atlantic R displiene communication at all times, it is believed that u .. vorable conditions at times may disret the service. The d - ulties, however, will be eliminated as t's as they present themselves, once s rvice has been established.

The tests which will be possible when the British transmitting station is compoted wil form another important step in the work which has been carried on for - - years in the development of R do talepheny across the Atlantic ocean.

si n ceross the Atlantic was in 1915, when Laren, acting mayor of San Francisco. engineers succeeded in talking by Radio from the United States naval station at Arlington. Virginia, across the Atlantic to Paris, while the same messages were heard 5.000 miles to the westward at Honolulu

Tests Made in January 1923

Another step in this work which created much interest took place January 14, 1923, at which time H. B. Thayer, president of the American Telephone and Telegraph company, and other officials, talking from their offices in New York city, were heard by a group of well-known engineers and laymen assembled at New Southgate, England.

The tests were very successful. The voices were clear, distinct and easily recognized by the men at the receiving end who were acquainted with the speakers. The circuit remained constant during the two hours during which speech was transmitted. Reception was carried out a part of the time through loud speaking devices, and reporters present took down many of the messages verbatim.

What British Plant Will Mean

The tests which have already been carried out and the additional tests to be made if the new British station is erected, will determine the practicability of trans-Atlantic telephone service, the best operating methods to be employed, and the attitude of the public toward such a service.

The difficulties to be overcome are indicated by the fact that atmospheric conditions often change so greatly that the amount of power required at one time may be 10,000 times as great as that required to give audible speech in Engla: d a few hours before.

Briefly, the news from London indicates that preparations are under way for transmission from London to New York, and that when completed two-way talking, at least experimentally, will be possible.

QUEEN TITANIA AT KHJ

(Continued from page 1) participants has not been divulged, con-sequently "Queen Titania" has become known as 'The Mystery Child of Radio." It s known, however, that at the time th' program was commenced that 'Queer Titania' in her earth-child form vis less than seven years of age.

Selected As Child Movie Star Recently a new motion picture company was formed in Hollywood to produce for t e silver sheet. None but chilren are to be featured in the making of the pro-

ductio s. They will make comedies deal-

ng strictl, with child life, revealing it in all of its clean, sweet phases.

Ivan Karn, director general of the new cor pany in an ardent Radiophan. As a result of hearing her voice, he has chosen 'Queen Titania' of KHJ fame to head the group of children. She is now being featured in the first of eighteen two-reel comed. s which will be made during the

All hall Radio and likewise thanks to Station KHJ and "Uncle John" who discovered and is bringing out into full unfoldment, another new star whose radiance shall add luster to both Radioland and the sliver sheet.

Hams Meet; Start "R. O. S."

CHICAGO.—The first strictly Illinois state convention of "brass pounders" was held recently at Wheaton near here by the A.R.R.L. second Illinois district. An attendance record of 165 owners of amateur stations was set and a new secret order for amateurs, "R. O. S.", was launched.

Ine thousand wholesale concerns are ergaged in the distributing and jobbing of Proposets and parts.

What Good Ideas | LAWMAKERS LEAVE to Improve WIP?

Gimbel Brothers' Station Offers Seven Prizes for Best 1,000-Word Essays on Subject

PHILADELPHIA -- WIP, Gimbel Brothers here, has opened a prize essay contest to determine, "How to Improve the Radio Broadcasting of Station WIP." Seven prizes are offered.

The essays, which must be submitted by midnight, August 31, 1924, are Ilmited to 1,000 words length, and must be written in ink or typewritten on one side of the paper only. Contestants must indicate their age and whether they attend high or grammar school, or are adults.

Prizes for the winning essays in the contest, which is open to everyone except employes of Gimbel Brothers, include two receiving sets, two gold watches, one platinum and gold wrist watch and two gold fountain pens.

Judgment of the winning essays will be made on a basis not only of quality of the composition, but on the worth of the suggestion made.

OAKLAND, CALIF.—Program resources it adjourned in June. of KGO here, Pacific coast station of the General Electric company, have been greatly increased by the introduction of

BUT NEGLECT RADIO

CONGRESS ADJOURNS WITH WHITE BILL PENDING

Dill Bill Also Left in Air-Politics More Important to Representatives of Public

WASHINGTON, D. C.—Congress ad-journed on June 7 without having taken any action on either the White Radio bill, the Dill bill, or the various other copyright bills pending, of interest to Radiophans.

When Representative White, of Maine, returns from Mexico, where he is attending the communications conferences as an official representative of the United States, he will probably feel that he has been double-crossed by Representative Snell, of New York, chairman of the rules committee of the House. Mr. White left the country with a complete understanding that Mr. Snell would see that a special rule was reported out of the committee and that the Radio bill would be KGO Opens San Francisco Studio passed by the House at the session before

Disagree on Bill's Provisions

This plan would probably have been carried out except for the fact that seva San Francisco studio at the Hotel St. eral members of the rules committee ence held at the bureau of standards it Francis. The new studio was opened re- would not agree to certain provisions con- was provided that a committee should be The first successful telephone transmis- recently with an address by Ralph Mc- tained in the bill. At any rate the White appointed to devise standard designations bill will be on the calendar when Con- for the various types of dry cells.

gress convenes again in December.

The patents committee of the Senate never went any further with the Dill copyright bill than to have the hearing printed. No report was ever made to the Senate proper. Neither did the patent committee of the House make any report on any of the copyright bills pending be-

All of the bills, however, will be before the Congress again when It convenes in December as that will not be the opening of a new Congress but simply the second session of the sixty-eighth Congress.

National conventions and politics, in the eyes of the lawmakers, are more important than a proper administration of

KDYL to Broadcast Meet Direct from Mormon Church

SALT LAKE CITY.-KDYL here will broadcast the convention of the Disabled American Veterans of the World War, opening June 23 in the famous Mormon Tabernacle here. A musical program, in addition to the speeches, includes songs by Mme. Schumann-Heink.

The June 24 to 28 sessions will take place in the Auditorium. Radiophans are expectantly awaiting the broadcast from the Mormon Tabernacle, which is known all over the world for its excellent acoustics.

Standardize Dry Cells

WASHINGTON .- At a recent confer-

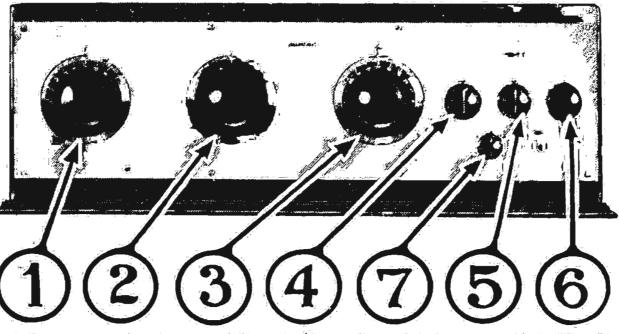


OPERATING AND TROUBLE SHOOTING

For the Owner of a Deresnadyne Receiver

PERATING and Trouble Shooting" is a Radio Digest feature whose purpose is to study the late models of various standard receiving sets and to show the newly initiated broadcast listener, who has purchased such a set, how he can operate it to get the best there is in it and how he can overcome minor difficulties which may be causing some trouble. On page 7 and 8 this week the Deresnadyne Receiver is described. Radiophans with other sets will also find these articles worth while reading, particularly the notes on trouble finding.

HIVE UV-201A or C-301A tubes should be used in the Deresnadyne. A UV-200 or C-300 tube can be used in the detector socket if desired, but the A tubes are generally found to be just as satisfactory and consume less current. A loud speaker should be used which is capable of handling a signal of great volume without blasting. Small, cheap loud speakers, using a standard head phone the positive 45-volt terminal of the B battunit may cut down the performance of tery is connected to the binding post the Deresnadyne quite appreciable. A good plug should be used to connect the loud speaker into the jack marked speakcr. Much trouble is sometimes caused by a cheap, poorly insulated plug which short circuits. It sometimes improves results to try different tubes in different satisfactory operation. If a 200 or 300 tube



sockets, as some A tubes are better Ra- is used as detector, from 16 to 22 volts socket. Others are better detectors. When a combination is secured giving maximum results, mark the tubes and always put them back in the same socket. Connecting the Batteries

The battery connections are made to the nve binding posts located on the subpanel at the right rear corner of the set. Bushings are provided in the back of the set through which the battery leads are brought in to the binding posts. The negative wire from the A battery should connect to the right hand binding post marked A minus. The positive wire from the A battery is connected to the next binding post marked A PLUS. The negative wire from the B battery connects to binding post marked B MINUS. When a tery is connected to the binding post marked PLUS B DET. The B voltage is not critical on these tubes and may range anywhere from 221/2 to 45 volts. A slight improvement may be obtained by trying different voltages between these limits, although this is not at all necessary to

dio frequency amplifiers than others and should be used on the terminal marked will work better in the first or second B PLUS DETECTOR. It is desirable in the case of the soft detector tubes to determine the best voltage by test. The 90-volt positive terminal of the B battery should be connected to the binding post at the extreme left of the sub panel marked PLUS B 90.

Antenna and Ground

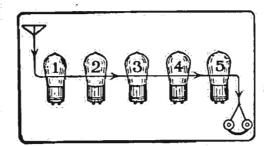
The ground should be connected to the binding post on the small sub-panel in the the set is not in use. When the arrow center marked GND. It is quite impor-tant to have a good ground. A wire in the first four tubes and one stage of fastened firmly to the clean surface of a amplification is connected to the speaker. cold water pipe is the best, but a steam pipe will do. Also an iron pipe driven into current is turned on to all five tubes and moist earth or a wire laying for a con-

derable length in water, such as in a lake, creek or well, can also be used. The lead from the ground to the et should be kept as short as possible. The antenna should be connected to the blidling post on the small sub-panel at the left of the set, marked ANT. A single wire i all that is necessary. This should be at high as it can be made conveniently and may be from 50 to 100 feet long. The longer aerial gives stronger signals but is less selective. While a shorter antenna gives greater selectivity but less signal strength. If an antenna can be arranged so that it runs over clear ground, it is better than one which runs over the top of a house, however, very good results can be had with aerials running over the top of houses or even inside the attic, or the room in which the set is located. Twenty-five feet of wire strung on the floor will sometimes give excellent results providing the location is suitable and no large masses of Iron are in the bullding. The outside antenna is preferable, however. The lead-in should be as short and direct as possible and the antenna and lead-in should both be thoroughly insul-

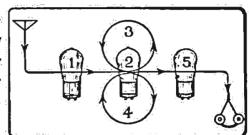
Operation The small knob, No. 7, at the bottom of the set on the right hand side controls the filament current of the tubes and also switches from the first stage to the second stage. When the arrow on this knob points toward the word OFF, the current is cut off from all the tubes. The switch should always be in this position when When arrow points toward LOUD, the

(Continued on page 8)

Why Use Five Tubes To Do the Work of Three?



Three tubes, duoreflexed as shown at the right, are fully equal to five tubes in conventional sequence.





The most important advance in coupling methods of late years is Erla Selectoformer, materially improving range, selectivity and volume. \$5



Unduplicated sensitiveness, range and volume, from 200 to 700 meters, are assured through employment of Erla reflex transformers. List \$5



Erla Push-Pull transformers handle output of five-watt power tubes, using as high as 350 volts on the plate, without distortion. Pair \$10

FIVE stages of amplification with only three tubes—this is the secret of the amazing coastto-coast loud speaker range of the Erla three-tube Duo-Reflex circuit, surpassing all but the most elaborate hook-ups in sensitiveness and volume.

Erla Duo-Reflex action (patent applied for) enables vacuum tubes to do triple duty, as simultaneous amplifiers of received radio frequency, reflexed radio frequency and reflexed audio frequency currents, tremendously increasing efficiency while reducing cost.

Indispensable to the practicable application of this principle, and the foundation of its success, are Erla synchronizing radio and audio transformers.

Accurately superimposing (1) received and reflexed radio, and (2) rectified radio and reflexed audio currents, in their coincident passage through amplifying tubes, they eliminate all trace of distortion. Only those who have actually heard Erla performance can realize the vast improvement in tone quality resulting.

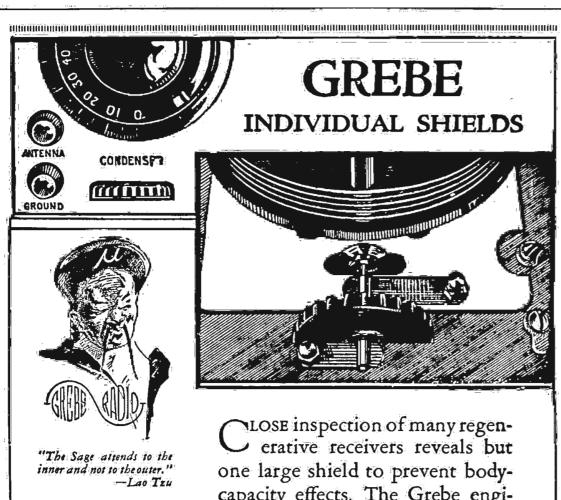
Other Duo-Reflex advantages, for example, the fool-proof tuning control, giving an accurate log of stations together with complete freedom from radiation, have equally scientific origin.

Erla Selectoformer, tested capacity condensers, and fixed crystal rectifier spell outstanding advancement in their respective fields.

Ask your jobber for complete details; or write, giving your jobber's name.

Electrical Research Laboratories 2500 Cottage Grove Ave., Chicago





The wise buyer of a radio receiver is not misled, he looks inside the cabinet.

Grebe Regeneralive Receivers are licensed under Armsirong U.S. Patent No. 1,113,149,Oct.6,1914 capacity effects. The Grebe engineers believed that this method resulted in the absorption and dissipation of too much precious energy.

As a result of their research, each tuning control on a GREBE Receiver has its own aluminum shield of special size and shape.

This is just one of many details of craftsmanship which make for the high efficiency of Grebe Receivers.

A. H. Grebe & Co., Inc. Richmond Hill, N. Y.

AN EVENING AT HOME WITH THE LISTENER IN

(SEE INSTRUCTIONS FOR USE BELOW)										
				Wednesday	1225	Friday	Saturday	Sunday		
7 4 VOD 3727 CJEA.	Met.					Silent	11:00- 1:00	Silent		
CECN Calcary, Arta	341	s lent Silent	12:30- 1.30 Silent	Silent 6:30- 7:30	Silent Silent	Silent	Silent	5:00- 6:00		
CAAC, M _ tren Q re _	423	3.1	E 20 10-20	Silent	L 6:30- 9:30	Silent	5:30-9:30	2:30- 3:30 Silent		
CKCD, V B. C CKCH Citara, Que.	410	10:30-11:30 Silent	10:30-11:30 Silent	5:30- 6:00	Silent	10:30-11:30 Silent	0.00- 0.00	Silent		
CKY, Winning, Man	4,50	Silent	S:15-10:00	Silent	8:15-10:00	8:15-10:00 Silent	Silent 8:30- 9:00	7:00-8:00 Silent		
CYB, Mexico Cay, Mex	370 510	Silent Silent	S:30- 9:00 10:00-11:30		9:00-11:00 Silent	10:00-11:30	Silent	Silent		
CTL Mexico City, Mex.	330	9:00-12:00	Silent	Silent	Silent	S:00- 9:30 5:30- 8:00	Silent 5:30- S:00	6:30- 7:30		
NDKA, E. Putsburgh, Pa	3.6	5:30- 5:00 9:00-10:00		5:03- 8:00 Silent	5:30-10:00 5:30- 9:00	9:00-10:00	9:00-10:00	Silent		
KFAF, Draver, Colo., KFGZ Berrien Springs, Mich.	286	7:45- 9:00	Silent	S:00- 9:00	Silent	9:00-10:00 8:45- 2:00	Silent 8:45- 2:00	7:45- 9:00 8:45- 1:00		
KFI, Los Angeles, Chall	266	12:00- 1:00 Silent	8:45- 1:00 7:30- 9:00		8:45- 1:00 7:30- 9:00	7:30- 9:00	7:30- 9:00	6:30- 7:30		
KFO L Seattle, Wash	455	10:30-11:30	Silent	10:30:11:30	Silent	10:30-11:30	Silent 10:00- 3:00	Silent Silent		
KGO, Cakend, Calif.	312	10:00-11:00	10:00 -3:00	12:00- 1:30	10:00-11:00 12:00- 1:30	12:00- 1:30	12:00- 1:30	12:00- 1:30		
KGU, Honolulu, Hawaii. KGW, Portland, Ore	360 492	10:00-11:30	Q.15_10.30	10:00-12:00/	10:00-12:00I	10:00-12:30	12.00- 2.00	9:00-10:00 8:00- 1:30		
KHL Los Angeles, Calif	395	\$:00- 1:30 10:00-12:00	S:00- 1:30 Silent	\$:00- 1:30 10:00-12:00	8:00- 1:30 Silent	8:00- 1:30 10:00-12:00	8:00- 1:30 Silent	Silent		
KLX, Oakland, Calif. KPO, an Francisco, Calif.	509 423	10:00- 1:00	10:00- 1:00	10:00-12:00	10:00- 1:00	Silent	10:00- 2:00			
KQV, Pattsburgh, Pa	270	7:00-10:00	Silent S:00- 9:00	7:00-10:00 6:30-11:00	Silent Silent	7:00-10:00 8:00- 9:00	Silent 8:00- 9:00	Silent Silent		
KSD, St. Louis, Mo KTW, Chicago, Ill	546 536	S:30- 9:30 Silent	7:00- 9:30	7:00- 2:00	7:00- 9:30	7:00- 2:00	7:00- 9:30	7:00- 8:00		
NAA. Radio, Va	435	5:45- 7:20			5:45- 7:40 Silent	7:05- 7:40 Silent	Silent 7:30-10:00	Silent Silent		
PWX, Havana, Cuba WBAH, Min'p''s, Minn.	400 417	Silent 7:00-10:45	Silent 7:00- 7:30	7:30-10:00 7:00- 7:30	7:00-10:45	7:00- 7:30	7:00- 7:30	Silent		
WBAP, Fort Worth, Texas	4.6	7:30-10:45	7:30-10:45		7:30-10:45 Silent	7:30-10:45 7:00- 9:00	7:00- 7:30 Silent	11:00-12:00 Silent		
WBAV, Columbus, O WBBR, Staten Isl., N. Y	390	7:00- 9:00 6:00- 7:00	Silent Silent	Silent 6:00- 7:00		Silent	6:00- 7:00	7:10- 8:30		
WBT, Charlotte, N. C.	360	Silent	7:30- 8:30	Silent	7:30- 8:30 6:00- 9:00	Silent 6:00-12:00	Silent Silent	5:30- 6:30 6:45- 9:00		
WBZ, Springfield, Mass. WCAE, Pittsburgh, Pa	337 462	6:00- 9:00 6:30- 7:30	6:00- 9:00 6:30- 7:30	6:00- 9:00 6:30- 7:30		6:30- 7:30		4:30- 5:30		
WCAL Univ. Place, Neb	360	Silent	7:00- 8:00	Silent	7:30- 8:30	Silent	Silent Silent	Silent 6 :20- 9:00		
WCAP, Washington, D. C. WCBD, Zion, Ill	469 345	7:00- 8:00 7:00- 9:15	Silent Silent	6:45- 8:45 Silent	Silent 7:00- 9:15	6:40- 7:00 Silent	Silent	1:30- 5:00		
WCX Detroit, Mich .	517	7:30- 9:00	7:30-11:00	7:30- 9:00	7:30- 9:00	7:30- 9:00	Silent	6:15- 7:15 4:00- 5:00		
WDAF, Kansas City, Mo	411 395	S:00- 1:00 5:30- 9:00	11:45- 1:00 5:30- 6:30		11:45- 1:00 5:30- 6:30	5:30-11:00	11:45- 1:00 5:30- 6:30	Silent		
WDAR, Philadelphia, Pa WEAF, New York, N. Y	192	5:30- 8:00	5:30- 8:00	5:30- 8:00	5:00-10:00	5:30- 8:00	5:30- 9:00	5:20- 8:00		
WEAY, Houston, Texas. WFAA, Dallas, Tex	360 476	6:00- 7:00 8:30- 9:30	6:00- 7:00 8:30-12:00	6:00- 7:00 Silent	6:00- 7:00 8:30- 9:30	8:00-10:00 8:30- 9:30	6:00-10:00 8:30-12:00	8:00-10:00 6:00-11:00		
W FBW. Cincinnati. Ohio	309	Silent	Silent	7:00-9:00	Silent	Silent	9:00-11:00	9:00-11:00		
WFL Philade phia, Pa WGL Medford, Mass.	395 360	Silent Silent	5:00- 9:00 5:30- 8:00	Silent 5:30- 8:00	5:00- 9:00 5:30- 8:00	Silent 5:30- 8:00	5:00- 9:00 5:30- 8:00	5:30- 6:30 6:30- 8:00		
WGR. Buffalo, N. Y	319	5:30-11:00	5:30- 6:30	5:30-11:00	5:30- 6:30	5:30-11:00	5:30- 6:30	3:00- 4:00		
WGY, Schenectady, N. Y. WHA, Madison, Wis	380 360	6:45- 9:00 7:30- 8:30	6:45- 9:00 Silent	Silent 7:30- 8:30	6:45- 9:00 Silent	6:45-10:30 7:30- 8:30	8:30- 9:30 Silent	6:30: 7:30 Silen t		
WHAA, lowa City	414	Silent	8.00- 9.30	Silent	Silent	Silent	7:30- 9:00	9:00- 9:30		
WHAS, Louisville, Ky.	400	Silent 8:00-10:00	7:30- 9:00 Silent	7:30- 9:00 Silent	7:30- 9:00 Silent	7:30- 9:00 Silent	7:30- 9:00 Silent	4:00- 5:00 Silent		
WHAZ, Troy, N. Y. WHB, Kansas City, Mo	350 411	7:00- 7:45	7:00-10:00	7:00- 7:45	7:00-10:00	7:00- 7:45	Silent	8:00- 1:00		
WHK. Cleveland, U	283	4:30- 5:00	4:30- 5:00 5:30-10:00	4:30- 5:00 5:30- 8:30	4:30- 5:00 7:30-10:00	4:30-10:00 7:30-10:00	4:30- 5:00 5:30-10:00	5:00- 9:00 7:30-10:00		
WHN, New York, N. Y WHO, Des Moines, Is.	360 526	7:30-12:00	11:00-12:00		11:00-12:00		11:00-12:00	7:30- 9:00		
WIP. Philadelphia, Pa	509	5:00- 6:30	5:00-11:00	5:00- 6:30	5:00-10:00 Silent	5:00- 6:30 6:00- 9:00	5:00-11:00 Silent	8:30-11:00 Silent		
WJAR, Providence, R. I WJAS, Pittsburgh, Pa	360 286	Silent 6:30- 9:00	6:00- 7:00 6:30- 9:00		6:30- 9:00	6:30- 9:00	Silent	Silent		
WJAX. Cleveland, O	300	Silent	6:30- 8:30	Silent	7:00- 9:30	Silent 5:30- 9:30	Silent Silent	Silent 6:15- 6:45		
WJY, New York, N. Y WJZ, New York, N. Y	405 455	Silent 5:00- 9:30	5:45- 7:00 5:00- 9:00	Silent 5:00- 9:30	5:30- 8:30 5:00- 9:30	5:00- 9:30	5:00- 9:30	5:00- 9:30		
WKAO, San Juan, P. R	360	Silent	6:00- 8:00	Silent	Silent	6:00- 8:00 9:30-10:45	Silent 9:30-12:30	Silent 7:45- 9:15		
WLAG, Min'p'l's St. Paul. WLAK, Bellows Falls, Vt.	417 360	6:15- 7:00 8:00-10:00	6:15- 7:00 8:00-10:00		6:15- 7:00 8:00-10:00	8:00-10:00	8:00-10:00	8:00-10:00		
WLS, Chicago, 111	345	Silent	5:30-12:00	5:30-11:00	5:30-12:00	5:30-10:00	7:00-11:00	5:30- 7:00		
WLW, Cincinnati, O WMAQ, Chicago, Ill	309 448	7:00- 9:00 Silent	9:00-11:00 5:00- 9:00		9:00-11:00 5:00- 9:00	Silent 5:00- 9:00	Silent 5:0 0- 9:00	6:45- 8:15 Silent		
WMC, Memphis, Tenn	500	8:30- 9:30	8:30-12:00	Silent	8:30- 9:30	8:30-12:00	8:30- 9:30	Silent		
WNAC, Boston, Mass WOAL San Antonio, Texas	278 385	5:00- 9:00 9:30-10:30		5:00- 9:00 Silent	7:00- 9:00 7:30- 8:30	5:00- 9:00 Silent	8:00- 9:00 Silent	6:30- 8:30 9:30-10:30		
WOAW, Omaha, Neb	526	6:00-11:00	6:00-11:00	Silent	6:00-11:00	6:00-11:00	6:00-11:00	9:00-11:00		
WOC, Davenport, Ia WOO, Philadelphia, Pa	484 509	8:00-11:00 5:30- 9:00		8:00- 9:00 5:30- 9:00	9:00-10:00 Silent	8:00- 9:00 5:30- 9:00	9:00-10:00 Silent	7:00-11:00 Silent		
WOQ, Kansas City, Mo	360	Silent	8:00- 9:30	Silent	8:00- 9:30	Silent	8:00- 9:30	7:00- 7:45		
WOR, Newark, N. J. WOS, Jefferson City, Mo.	405 441	4:15- 9:00 8:00- 9:30	4:15- 5:30 Silent	4:15- 9:00 8:00- 9:30	4:15- 5:30 Silent	4:15- 5:30 8:00- 9:30	5:15- 9:00 Silent	Silent 7:30- 8:30		
WQJ, Chlcago, Ill	448	Silent	6:00- 1:00	6:00- 1:00	6:00- 1:00	6:00- 1:00	6:00- 1:00	7:00- 9:00		
WRC. Washington, D. C. WRM, Urbana, Ill	469 360	Silent Silent	4:15-10:00 7:00- 9:30	Silent Silent	4:15-10:00 8:30- 9:30	Silent Silent	4:15-10:00 Silent	Silent Silent		
WSAI, Cincinnati, O	309	Silent	7:00-10:00	Silent	8:00-10:00	Silent	10:00- 1:45	Silent		
WSB, Atlanata, Ga WSY, Birmingham, Ala	429 360	8:00-12:00 Silent	8:00-12:00 Silent	Silent Silent	8:00-12:00 Silent	8:00-12:00 Silent	8:00-12:00 Silent	7:30- 2:00 8:00- 9:00		
WTAM, Cleveland, O	390	5:00- 6:00	5:00- 6:00	5:00- 9:00	5:00- 6:00	5:00- 6:00	5:00-10:00	Silent		
WTAS, Elgin, 111 WTAY, Oak Park, 111	286 283	7:30-12:00 Silent	7:30-12:00 7:15- 9:15		7:30-12:00 7:15- 8:15			7:30-12:00 Silent		
WWJ, Detroit, Mich	517	7:30- 8:30	7:30- 8:30				6:00- 7:30	6:30- 7:30		
I'	į, l			I	I,	J		1		

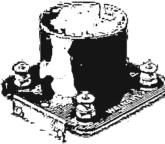
tructions for Use. - All the hours above are given in Central Standard Time. If your city uses Eastern Time, add one hour to each of the periods stated; if your city uses Mountain Time, subtract one hour; if your city uses Pacific Time, subtract two hours. If in addition, your city uses daylight saving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

OPERATION, TROUBLES (Continued from page 7)

the loud speaker is connected to the second stage of amplification. To operate the set, see that the loud speaker plug is in the jack marked SPEAKER, then turn the or 301A tube is used. If a soft tube is the same figure, each time working a few

used, this knob will have to be turned well around in the direction indicated by the curved arrow until a slight hiss is heard in the phones or loud speaker. Turn the knob No. 6 marked AF until the white arrow is horizontal pointing to the right. Now set the large dials marked 2 and 3 small knob, No. 7, of the set to SOFT or to 100 and rotate dial 1 slowly for a short LOUD. Turn the knob No. 4 as far as it distance on each side of this figure. Then will go in the direction of the curved set dial 2 and 3 at 95, again rotating arrow, tur. the knob No. 5, marked DET dial 1 slowly on both sides of this point. so that detector tube just lights, if a 201 Proceed in this way setting dial 2 and 3 to

They're like Buckin' Bronchos



UV-199 or standard base, list

50c

-YOU CAN'T BREAK 'EM!

A new Walnart Socket free for every one that breaks or fails in any way! You write your own ticket. Leading set manufacturers use them because they don't break and have lower dielectric losses than bakelite, fibre or composition sockets.

SENSIBLE SOCKETS

Approved by Radio News Laboratories. Over half a million doing duty. Features: Bakelite insulation; heavy, genuine phosphor bronze contact springs; low resistance; high elasticity (to insure perfect contacts). Nickel or dull black enamel finish. For base or panel mounting. Unconditionally guaranteed by world's largest producer of unknowledge eachers. This will convince the largest producer of unknowledge eachers. panel mounting. Unconditionally guaranteed by world's largest producer of unbreakable sockets. Trial will convince. Ask your dealer f.rst, please.

"Makers of good goods only" WALNART ELECTRIC MFG. CO. Chicago Dept. 440

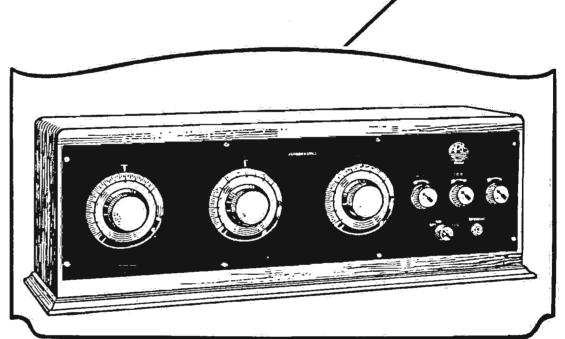
STATIONS IN ORDER OF WAVE LENGTHS USED

Mete	ers Call	Met	ers Call	Mete	rs Call	Met	ers Call	Meter	s Call	Met	ers Call
$\overline{244}$	WBBR	337	WBZ	360	WOQ	405	WOR	448	WMAQ	509	KLX
265	KFNF	341	CHYC	360	$\mathbf{w}_{\mathbf{R}\mathbf{M}}$	410	CKCD	450	CKY	509	WIP
270	KQV	3 4 5	WCBD		WSY	411	WDAF	455	KFOA	509	woo
278	WNAC		WLS		WGY	411	WHB		WCAE	510	CYL
283	WHK		KFAF		WHAZ		WBAH		KFI	517	WCX
283	WTAY	360	KGU		WOAI		WLAG	455	\mathbf{WJZ}		wwj
286	KFGZ	360	WBT		WBAV	1 2 2 2 2 2 2 2	KPO	469	WCAP	526	WHO
286	WJAS	360	WCAJ		WJAX	77.7	CKAC	469	WRC	526	WOAW
286	WTAS	360	WEAY		WTAM		CYB		WBAP		KYW
309	WFBW	360	WGI		KHJ		WSB		WFAA	546	KSD
309	WLW	360	WHA	4 - 4200 - 1	WDAR		CKCH		WHAA		
309	WSAI	360	WHN	18.00-0	WFI	435	NAA	484	woc		
312	KGO		WJAR		PWX		CFCN	492	KGW		
319	WGR		WKAQ		WHAS		wos	492	WEAF		
326	KDKA	360	WLAK	405	WJY	448	WQJ	500	WMC		

heard, adjust dial 1 until the signal is loudest, then adjust dial 3 to increase the signal strength and finally adjust dial 3 to secure the maximum strength of the LOUD position, on the small knob No. signal. When a station is heard, a record should be made of the setting of each dial, the same station will always be found substantially the same position. If there is a tendency for the set to whistle, or distort, on stations toward the O end of the scale, this can be corrected by turning the knob No. 4 in the opposite direction to the curved arrow, until the whistling ceases. A slight readjustment of the three large dials may help after the RF knob has been retarded. The knobs Nos. 5 and 6, marked DET and AF should be operated with the arrow on the knob has been retarded. The knobs Nos. 5 and 6, marked DET and AF should be operated with the arrow on the knob has been retarded. The knobs Nos. 5 and 6, marked DET and AF should be operated with the arrow on the knob has been retarded. The knobs no serial and is especially adapted the retarded the as far toward the tail of the curved Note.)

points closer to 0. When a signal is arrow as possible consistent with securing the desired signal strength. This saves current and also increases the life of the tube. When changing from the SOFT to 7, it may be necessary to turn the knob No. 6 in the direction indicated by the curved arrow, otherwise the signal may become weaker in going from SOFT to LOUD instead of the reverse, due to the cutting down of the current in the audio frequency tubes by adding the fifth tube to the circuit.

(How many of you own Trans-Continental Radiophone receivers? "Operating



THE ANDREWS DERESNADYNE*-Patents Pending

The CHICAGO DAILY NEWS says:

"DERESNADYNE" FILLS **CLAIMS OTHERS MAKE**

Tests Reveal Qualities of Crystal Set and Volume of a Superdyne"

"To say that the Deresnadyne is a better circuit than the neutrodyne would be scarcely a compliment. But to say that it is the best thing of its kind that has found its way to The Daily News laboratory would be giving it no more than its due."—Robt. J. Casey.

Write for reprints of the Deresnadyne* articles from the Chicago Daily News, also, personal endorsement of Robert J. Casey, technical editor, Daily News laboratory. The only unqualified endorsement given by the Chicago Daily News to any radio set.

A New Achievement

The DERESNADYNE* principle introduces a new standard in radio reception. It eliminates troublesome oscillation at its source, stabilizing the circuits without the use of special apparatus which suppresses and distorts the signal to be amplified.

Simplicity—Tone—

The ANDREWS DERESNA-DYNE* principle achieves a quality of radio broadcast reception never

before attained. It reproduces all tones with true fidelity, remarkable purity, and if desired, with tremendous volume. It is highly selective, with a super-sensitive reach for far distant signals. It's simplicity is amazing! Just turn the dials to the logged setting for any particular station and your loud speaker will deliver the signal with an unsurpassed volume and an unequaled tone quality. For demonstration or further information, address the

ANDREWS RADIO COMPANY 506-7 Webster Bldg. Harrison 0017 CHICAGO, ILLINOIS

Exclusive territory in your locality to foremost jobbers and dealers only.

*PRONOUNCED DE RES NA-DYNE, stands for a deres-onated plate c're-t or reduced induct-ance in the trans-former primary so that the plate circ-t is not reswart. So is not resonant to the signal being re-ceived in other words. securing six 1-117 ply through proper procurioning of the various dire t values.

www.americanradiohistory.con

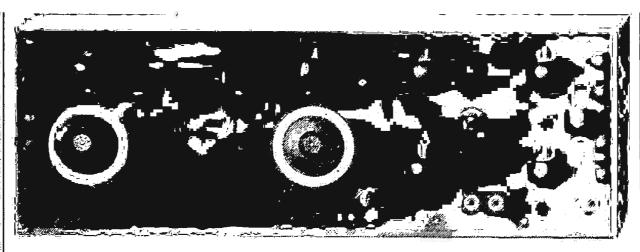
Compact Nine-Tube Super-Heterodyne Set

Part III—Assembling, Shielding and Cabinet Construction

By Harry Abbott

OING to the other end of the board, counect the tuned transformer consisting of the two 1000-turn coils, to the plus B, grld of first Radio frequency tube and plate of the first detector. The two .00025 mfd. fixed condensers are soldered to the bus wires leading from these colls. Short flexible leads must be attached to these coils so that they can be adjusted. At this time the plate and grid of the oscillator can be connected by bus bar wire and flexible wires to the oscillator coils and the grid coil connected to the mlnus A wiring.

You are now ready to attach the panel to the baseboard by means of five long, flat-head wood screws through the five holes across the bottom of the panel. This should be done with some care making sure that the board and panel are at right angles to one another as otherwise the panel will not fit well when the two are slipped into the cabinet. Having gotten them together you can now complete the wiring at the right end; the rheostats to the tubes and the plus lead connected



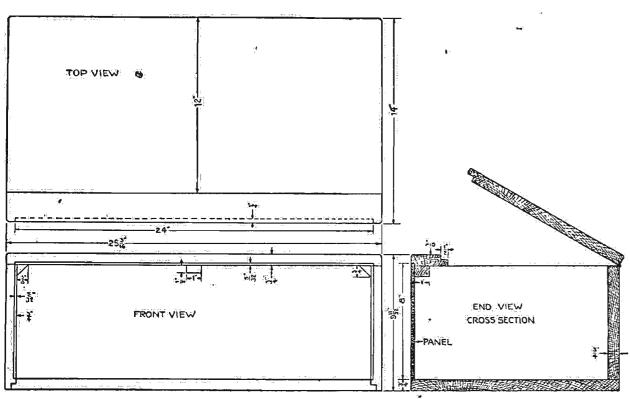
the plus 45 and the inner end of the other to the potentiometer. Reference to the wiring dlagram will make this clear.

Shielding Before proceeding with the shields, go over carefully all the wiring you have done, checking it carefully against the wiring diagram and looking out: First, to its proper binding post, Number 3 to see that no B battery wires are liable from the top. The jacks and transformer through jarring or slight pressure to wiring can be completed and the two touch the filament circuit; second, to see amplifier grid returns brought to Number that no grid and plate wires run parallel

adding the B battery will not blow any

holes may be omitted if copper is used All shields with the exception of F and J are regular in shape and no difficulty will be encountered in laying them out directly on the metal it eff. Shi ld J will cause but little trouble, but for F it is advisable to dr w a poper pattern for the irregular end and draw around It on the metal. Care should be u-ed in making this, as It is e ential that the 1/2 inch extension holding it to the pan I come directly under binding post Number 4, which is the minus of the A battery, and to be fastened by lt.

Shields J, G and F can now be bolted to the panel with flat-head brass machinscrews; the remaining shlelds should now be fastened together, elther with roundhead machine screws or solder, depending on the material of which they were made. The shields can be made of either sheet. The resulting structure should now be aluminum of number 24 guage, obtainable lowered gently into place (the batteries

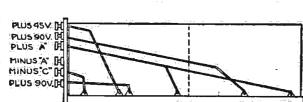


5 binding post, the detector plate circuit | if within 2 inches of each other; third, to the Number 1 binding post, and the that wires passing under shields A, B, C, two amplifier plate circuits to the Number

6 binding post at the bottom.

Having completed all the close-to-thepanel work at the right end, you can tubes and connecting the A battery to now move to the left end and connect the first grid leak to the first detector and the tuning condenser to the "pick-up" coil of the oscillator coupler. Next take up the oscillator condenser, coupler and tube socket, not forgetting the fixed condenser across the plate and filament of the oscillator tube. The tuned transformer can now be connected to the grid return leads of the intermediate amplifiers and see that all light and are properly conto the potentiometer. In connection with trolled by the rheostats. Leaving the this work it should be mentioned that tubes in, shift the A battery to the various the outside ends of the coils go to the pairs of binding posts intended for the plate and grid of their respective tubes, B and C batteries and if the tubes do the inner end of one being connected to not light you can be pretty sure that

D, E, F and G are close to the baseboard and well covered with spagnetti. Now test your filament circuit by inserting the

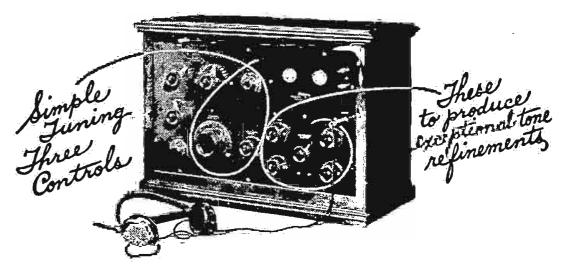


DRILLES SHIELD F

in strips 12 inches wide, or of copper, | all having been previously disconnected) flaps of the shields will have to be drilled and small brass, round head machine screws used to bolt the sections together. Copper can be readily soldered so the

If the former is used, the holes in the and permitted to rest on the various wires which pass beneath it.

Battery Connections The plus A battery wire to all tubes in (Continued on page 10)



T HAS been the tradition of the Federal Company, over its 25 years in manufacturing Electrical Communication Equipment, that it must give its users the highest refinements of the art.

Federal tradition will not permit the manufacture of a radio set just for radio noises. Each and every manufacturing necessity to produce a harmonious set is known to Federal Engineers, and no Federal set is produced without them.

Federal radio sets are built with two thoughts in mindfirst: simplicity of operation, but three controls being necessary-second: special controls for refinement if the user is interested in reproducing all the beauty of tones that fill the air.

"Lovers of good music" know why Federal is better, and know the real value of the refinement placed at their command to make it easy to obtain the clearest tone reception.

FEDERAL TELEPHONE & TELEGRAPH CO. Buffalo, N. Y.

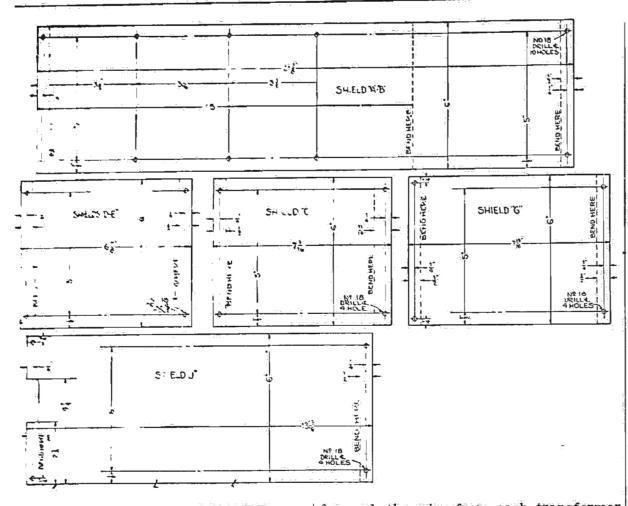


Boston New York Philadelphia Chicago ' Pittsburgh San Francisco

Look for this sign

Bridgeburg Canada London England

Audio Amplification at a Popular Price The volume and clearness of amplification of this HALF PRICE transformer is always a pleasant surprise to users. Many have written us that they prefer their 3 to 1 ratio Coto Specials to others selling at double the price. Great for reflex SHECIAL circuits. PUDIO FREDUENCY Type 4500..... CTG-COLLCO If your dealer fails you, write us, giving his name and address, and list of Coto parts you need. COTO-COIL CO. 87 Willard Ave., Providence, R. I. BRANCH OFFICES: Los Angelés, 329 Union League Bldg.; Min-neapolis, Geo. F. Darling. 705 Plymouth Bldg.; Atlanta, C. P. Atkinson, Atlanta Trust Co. Bldg.; CANADA, Perkins Elec-tric Co., Ltd., Montreal, Toronto, Winnipeg.



SUPER NINE-TUBE

(Continued from page 9)

e front row will pass under shields G d F, there will be a wire from rheostat W to the oscillator tube which will follew around under shield A, shield C, shield D and shield E. Under shield G will also lass the wire from rheostat X to the first detector tube, and the wire from Number 1 binding post at the right will go under shield F and under shield G to the tuned transformer. Thus there should be four passing under shield G, and two to five under each of the other shields except

Using either a pencil or a pointed instrument make a small mark near the bottom edge of shields where wires pass A at the middle, the plus B next to it and first A battery wire; about 3 inches back

forward, the wire from each transformer to the following grid, and near the front will be the grid return lead. Shield E will have but four notches, as the grid return lead from the transformer in front of the fourth intermediate tube goes to the plus filament wire and not to the potentiometer. The wire from the G binding post on that transformer passes under shield A close to its juncture with shield F and up to the grid leak on the panel at the right end.

Reference to the diagram will make clear how certain wires come outside of shield F and up to the binding posts. About 1 inch from the rear, the plus A battery wire comes through from the rear row of tubes and up to Number 3 binding post; 2 inches in front of that under and when all are so marked, lift the plus B comes out and up to the Numoff the shields and cut small inverted V's ber 2 binding post; just in front of the at each mark in the bottom edges. There point where shield A joins shield F, the will be five under shields C and D, the plus A battery wire from the front row plus A battery wire at the rear, the minus of tubes comes out and is soldered to the

detector jack and the first detector, to be Number 5 binding post.

notches will be found necessary and the may be made. shields will rest on the baseboard, not touching any apparatus and clearing all device on this set. When it is on one to the B battery posts when the tubes should not light. The set is now ready to try out.

Tuning

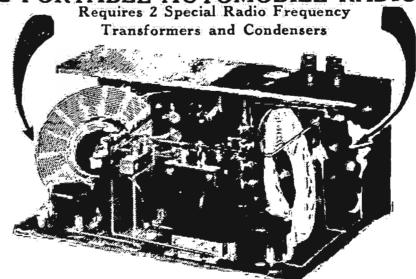
Connect the three sets of B battery, the C battery and the A battery and plug in on the detector jack at the right end of the panel. The loop should, of course, be connected at the other end, with the outside end of the loop to the grid side of the tuning condenser. The initial tun-

from the panel, the plus B battery from ing of a "super" is quite an adventure. the audio frequency amplifier jacks comes The tuning condenser should be set at 5 through to go to Number 6 binding post, and the oscillator condenser should be and the plus B 45 volts comes from the swung through its scale very slowly. If no signal is heard, move the tuning conbent up to the Number 1 post. The minus denser to 10 and again go slowly through C battery wire comes through to go to the scale on the oscillator condenser. This process of co-ordinating the dial A little adjusting of the shields and settings must be done until three or four slight enlarging here and there of the stations have been heard that a scale

wires by a sixteenth of an inch. Again side of center, the whistles will be heard the tubes should be inserted and the A as one swings through the scale; on the battery connected, first to its own posts when the tubes should light, and then you turn the potentiometer knob from the whistling side past center, a click will be heard which denotes that you have brought the intermediate amplifier out of the oscillating state into the proper condition for reception. It should be set at the point, on the quiet side, just after the click is heard, at which point the benefits of slight regeneration are secured.

With the potentiometer set and a signal (Continued on page 18)

THE PORTABLE AUTOMOBILE RADIO SET



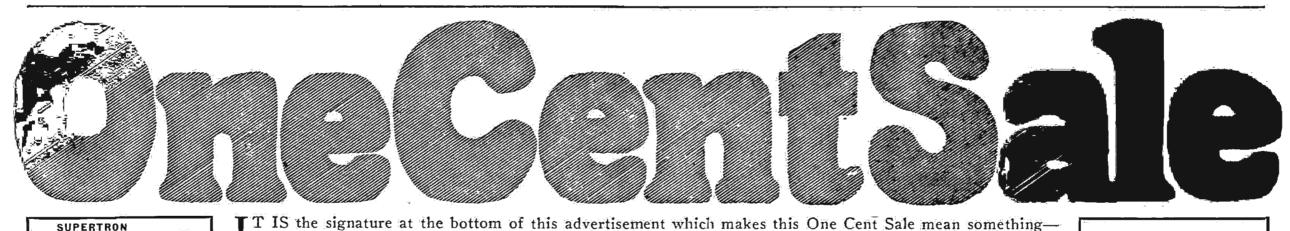
The Transformer Units Used by the Author of the Article on Page 17 are "LINCOLN BUILT" These variable transformers were designed especially for this circuit. It was necessary to build them special because ordinary transformers would not give the proper results.

Each Unit consists of primary and secondary windings, with variable coupling and a .00025 variable condenser.

Send for catalog of other Lincoln Products

LINCOLN RADIO CORPORATION,

224 North Wells St., CHICAGO, ILL.



an opportunity entirely worthy of your complete confidence. Henceforth, and in response to a very large

number of requests from buyers at our previous similar offering, we are pleased to announce that this One Sent Sale will be a SEMI-ANNUAL EVENT. Take advantage now, and watch for the next. While

these offerings are primarily for experimental work, every item is first grade, of standard makes and thoroughly

SUPERTRON TUBES Type 201A uses 6 volts, type WO 12 uses 1½ volts. Excellent as detector or amplifier.
Oraws ¼ amp. Oscillate
in all circuits. Type
UV199 uses 3 volts.
Oraws .06 amp.
1 FOR \$5.49

for

BATTERY

SWITCHES

that enly red but-

ten shows. No ca-pacity. Regularly

Panel mounting

\$1.00. 1 FOR 79¢

N. B.—Have you sent for our new Broadcast List, Station Map and Announcement of new 3-Tube Coast to Coast Set at \$25.95. FREE for postal card request. 221/2-V. BATTERY Variable Type Reg. \$1.75....\$1.44
Reg. 2.65......2.09
Reg. 3:00.....2.74
45-V. Variable
Reg. \$3:00.....\$2.99
Reg. 4.00.....3.69
Reg. 5.50.....5.39

PLUGS Torpedo or Flat, easy adjustment for phone cords. High finish. Perfect confor taet. Reg. \$1.25. I FOR 69¢

JACKS Single or Oouble Heavy Springs — German Silver Con-tacts. Nickel fintor tacts. Nickel ish. Reg. 90c. 60c 1 FOR 59¢

reliable and usable in every way. Your money gladly returned if you are not entirely pleased.

TUBE PROTECTORS Impossible to blow your tubes if you attach these to end of socket for 1/4 or tor 50c I amp. tubes I FOR 49c

BRUNSWICK PHONES 3000 ehms. Regularly \$7.50. First tor time at so low a price. 6.00 1 FOR \$5.99

FORMERS Audie - Frequency. tor Completely shielded. Regularly \$5.50. 4.50 I FOR \$4.49

CONCENSERS 17 PLATE

Genuino Radian End

Neutradyne. Regularly

I FOR \$1.69

101

1.70

CONTROL Ferany Oial. Makes a Vernier out of any tor make condenser. Very efficient. Reg. 75c. 50c I FOR 49c

tor

80c

SOLIO MAHOGANY Variometers for Kiln-Oried Mahooany Pigtail Leads. Reaches ever 600 meters. 3.50 Regularly \$5.00. 1 FOR \$3.49

MAKE 2 SETS AT PRICE OF

RHEOSTATS Resistance. Fada Type with ta-pered knob and se-**FOR** cure wire. 1c 6 ohms... 30 ehms... ...59€ MORE

VARIO-COUPLERS 180 Degree Wound on Genuine Bakelite tubing with green silk wire. Reaches 600 Ior meters. Reg. \$5.00. 1 FOR \$3.89

3-In. DIAL DeForest Type Remarkable Value. Brass Bushing. Tapered Knob. Reg. tor 1 FOR 49e

Vernier Condenser with Oial A beautiful moulded end instrument with 2 tapered dial and k n o b. Precision FOR made. Oclicate ad-Justment. 1c II Plate \$4.49 1C
23 Plate 4.99 MORE
43 Plate 5.50 MORE

COIL MOUNTS Oouble or Triple. Beautiful high finish mounts, com-plete, with plg tail wire. Reg. \$5.00. tor 1 FOR \$4.99

LARGEST

RADIO

DEALERS

IN

AMERICA

Well made in de-tail. Extra heavy 2 phosphor bronze con-tacts. Binding post FOR nuts. 1c Metal top.....49e All Moulded.....59c MORE Wiping Contact 69e

SOCKETS

D. L. COILS 35-50-75-100 Just the size for Three Circuit. Ior I FOR 69¢

SEND NO

MONEY

WE SHIP

C. O. D.

PAY

YOUR

POSTMAN

POWER RHEOSTATS ohms. Heavy winding. Bakelito base. Will not burn out. Regulartor ly \$1.25. 1 FOR 99c

BATTERY Sterage Bat. Extra heavy grip. bites largo posts. tor Makes perfect contact. 50c

2 AND 212 INCH DIALS DEFOREST TYPE. Oresses up your panel. At this price tor you can use dials instead of knobs. Regularly 40e. 30c 1 FOR 29c

4 INCH DIALS Tapered Knob Brass for Bushing. Regularly \$1.00. 70c I FOR 69¢

LITZ WIRE Most Efficient double silk covered wire with 37 strands of No. 38 wire each strand en-ameled. Wonderful for Coils, Loops, etc. tor **5c** 1 FT. FOR 4e

The RADIO-

Executive Offices, Dept. RD 621 55 VESEY ST., NEW YORK CITY

MOULDED VARIOMETER A remarkable buy-Green silk wire, pig tail contacts. Can be split. Heavy windings, Regularly tor 5.50 I FOR \$5.49

GOLO BUS

Most Efficient.
Allows high frequency currents,
least resistance.
Used in finest sets.

I FOR 15¢

Reg. 15c.

tor

lbc

ETERS

Very Accurate. Packed in weeden meisture preef bex. Reg. 75c. tor 60c 1 FOR 59e

tor

90c

HYOROM-

LOU0 SPEAKER Nickel Plated A small, neat horn for use with single phone. Loud and clear, no distortion. Rep. \$3.50. tor Extra Special I FOR \$3.49

We acknowledge all orders same day received, and ship same day or next day. Written Money-Back Guarantee with every purchase. We answer all letters we get on same day we get them. This is Radio Shack SERVICE, which continues after sale.

IGHTNING ARRESTERS Approved by Under-writers, You need these for your set. 1 FOR 894

VETERAN PROGRAMS DOMINATE WEEK

Wednesday, June 18

Silent night for: CKAC, KFAF, KFSG, KGO, WAAW, WBAV, WEAO, WFAA, WFI, WGY, WIP, WMC, WOAW, WRC, WSAI.
CHYC, Montreal, Can. (Eastern, Oaylight, 341), 9 p. m., St. Matthew's Clrls' choir.
CKAC, Montreal, Can. (Eastern, Daylight, 425), 1:45 p. u., dinner concert, Rex. Battle and his Mount Royal Hotel orchestra; 4:30, musical tea, Joseph C. Suilth and his Mount Royal Hotel orchestra.
KOKA, E. Pittsburgh, Pa. (Eastern, 326), 11:15 a. m., Daugherty's orchestra; 5:30 p. m., dinner concert, Pittsburgh Athletic association; 6:30, children period, Mrs. Jück Sprat; 8, sacred concert, Westinghouse hand,
KFI, Los Angeles, Calif. (Pacific, 469), 6:45-7:30

hand,

KFI, Los Angeles, Calif. (Pacific, 469), 6:45-7:30 p. m., detective stories, Detective Nick Harris; concert; 8-9. Evenling Herald concert; 9-10, Examinor concert; 10-11, Coy Barkley's orchestra; 11-12, Ambassador-Max Fischer's Coconnut Grove orchestra.

KFNF, Shenandoah, lowa (Central, 266), 7:30 p. m., old time music, Honry Field Seed company.

KFOA, Seattle, Wash. (Pacific, 455), 8:30 p. m., dance music, Earl Gerden's five-plece orchestra.

KFSG, Los Angeles, Calif. (Pacific, 278), 2:30-4:30 p. m., auditorium service, organ and clioir; "Message of Faith," Aimee Semple McPherson; 6:30-7:30, "Kozy Hour," Children's story, Frances Henking.

KGO, Oakland, Calif. (Pacific, 312), 3 n. m., speaker, Cora L. Williams institute; 4-5:30, concert orchestra, Hotel St. Francis.

KGW, Portland, Ore. (Pacific, 492), 3:30 p. m., talk.

Hotel St. Francis.
KGW, Portland, Ore. (Pacific. 492), 3:30 p. m., talk.
Jeanette 12. Cramer; 8, old time mosic, Walkers
brothers; 10, dance music, George Olsen's Metropolitan

KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:15 p. KHJ, Los Angeles, Calif. (Pacific, 395), 12:30-1:15 p. m.; Coy Barkley's Oakmont Country Club orchestra; 2:30-3:30, inatinee musicale; 6-6:30, Art Hickman's concert orchestra; 6:45-7:30, children's program, Prof. Walter Sylvester Herzog; Hattye Mueller, pianist-composer; Dick Winslow, Juvenile roporter; bedtime story, 'Uncle John; 8-10, program, courtesy, Fern Melrose, soprano; Dr. Mars F. Baumgardt, lecturer; 10-11, Art Hickman's dance orchestra.

KLX, Oakland, Calif. (Pacific, 509), 8-10 p. m., program, Walter Horace Bundy, director; songs, Sunset clob; songs, Ralph Sedwick; mirimba selections, Charles Birdman; songs, E. H. Phillips, Dolly and Thelma Jones, Sam Cerelli, Warren Brauer, James Gillich, Etheyl and Stephen Hempel; selections, Amerlean theater orchestra; Clement Baker, organist.

Norman White is one of the popular stars of the Red Apple Club which meets every Tuesday evening at WCX. Tune in for his "Marcheta" and "Until Tomorrow," June 24.

Headliners of the Week

AKLAND fans are rejoicing that KLX will now broadcast the famous American Theater orchestra. Tune in Wednesday. The 'Old Fiddlers" of WPAL who have been so highly applauded by mail, are all Civil war veterans and will play some of those peppy old tunes to which, no doubt, they marched away in 1861.

This is certainly a veteran week. Thursday, the Spanish-American war veterans will give a concert at WSB. This same night KGO will feature the Philippines, those island possessions close to the shores of Asia won in the Spanish-American war.

Friday night WBAP apparently schedules a heavenly host. Wonders will never cease! The Four H quartet from Paradise will sing.

All loyal graduates of the University of Wisconsin may enjoy the Alumni Banquet, Saturday, by tuning in for WHA at six o'clock.. Sunday afternoon Pres. E. A. Birge will give the Baccalaureate address.

Beginning Monday, June 23, KDYL will broadcast the proceedings of the fourth annual national convention of the Disabled American Veterans of the World War. Madame Schumann-Heink will sing "The Star Spangled Banner." The convention will last through the 28 and will be held in the world-famous Mormon Tabernacle at Salt Lake City.

The Democratic National convention will occupy the attention of many stations beginning Tuesday, June 25. The broadcasting will undoubtedly be handled very much like the Republican convention was. While the list of stations planning to carry this feature was not definitely decided at the time of going to press, it was announced sure to include WCAP, WEAF, WGN, WJAR, WJZ, WLS, WMAQ and WRC. Other stations mentioned as strong possibilities were KDAK, KSD, WBAP, WDAF, WFAA, WGR, WJAX, WLAG, WOAW, WOC and WSB. The convention may last two weeks.

WMAQ. Chicago. III. (Central. Oaylight, 447-5), 1 f

peech., 1. m., A. m. 1 n. f

2.55, Loon & II. pr

G, (hm 2 t eater & ..., (4-r. 1 m. d)

G, (hm 2 t eater & ..., (4-r. 1 m. d)

G, (hm 2 t eater & ..., (4-r. 1 m. d)

Ity; 8.30, The 1 viii.

Ity; 8.30, The 1 viii.

Gd den. q a tet fr fr

WOO, Philadelphia, Pa. (Eatern. Oaylig t, 50)

Il a. m. Mary Vo. t. or

maker Cryst i te. I — or -n. a 1 l. M-1.

WOC, Oavenport, lowa (Central. 484), 12 m. d)

Gaden volume vial; 8, Willam I. - z m. l.

WOO, Oavenport, lowa (Central. 484), 12 m. l.

Hotel Sylvania can e or h dra

WOQ, Kansas City, Mo. (Central. 360), 7 m. l.

WOQ, Kansas City, Mo. (Central. 360), 7 m. l.

Swlin, Frank E. Dal'm; 2.45, 0 m. m. l.

Barwig, soprano; 3:15-3-25, Fam. Mn. S.

"Prisons," Adolph Lewisohn; 5 m. T.

Topics," George Mitchell, a ter, 3 m. T.

Prisons," Adolph Lewisohn; 5 m. T.

Topics," George Mitchell, a ter, 3 m. M. N.

Barwig, soprano; 6 15-6 5, Mul. Wh. 1 m.

Dine," Baudl, tel's Olympic Park ra; 6 75-7 resome of the day's sport, New k V. m. Lee-r; 8-8-15, C. E. Don p. Jr. N. Y. T. m. 8 d.

Guggolz, baritone; 8.45-8.50, Ruth D nal n. socie-;

WKAQ, Ban Juan, P. R. (Central, 360), 6-9 p

Do your feet behave queerly when tuning in for WGR? Below is the cause, Harold Geiser, popular director of the Vincent Lopez Hotel Statler dance orchestra.



KPO, San Francisco, Calif. (Pacific, 423), 1-2 p. m., Rudy Selger's Fairmont Hotel orchestra; 2:30-3:30, Jack Fait's Entella Cafe orchestra; 4:30-5:30, Rudy Selger's Fairmont Hotel orchestra; 5:30-6:30, children's stories; 'Big Brother of KPO''; 7-7:30, Rudy Selger'a Fairmont Hotel orchestra; 8-12, E. Max Bradfield's Versatile band; Marie Marapport, soprano. KQV, Pittsburgh, Pa. (Eastern, Oaylight, 270), 5-5:30 p. m., 'Twilight Tale' and 'Diary of Snubs our Dog,' for the kiddies; 8:45-9, 'Cycle of Popular Song,' Addy Britt; 9-10, program, 'Famous Four Roses,' Richard River, first tenor, O. C. Wilson, second tenor, Norman Hardy, baritone, James H. Bell, bass, William Sexton, tenor.

kso, St. Louis, Mo. ..(Central, 546), 8 p. m., musle and specialties, Del Monte theater.

KYW, Chicago, III. (Central, Daylight, 536), 11:35
a. m., table talk, Mrs. A. J. Peterson; 6:45, children's bedtime story; 7-7:30, dinner concert, Congress hotel; 8-8:58, muslcal program; 9:45-12:30, midnight re-

PWX, Havana, Cuba (Eastern, 400), 8:30 p. in., Goneral Staff band of the Cuban Navy, Lieut. Ingleslas, divertion director.

WBAH, Minneapolls, Minn. (Central, 417), 12:30-1:30
p. m., mosical program; 7-7:30, lecture, Dr. J. W.

p. m., mosical problem,
Holland.
WBAP, Fort Worth, Texas (Central, 476), 9:30-10:45
p. m., concert, Collinsville Stringed band, M. Bell,

p. m., concert, Collinsville Stringed band, M. Bell, director, WBAV; Columbus, Dhio. (Eastern, 390), 12 m., 11a

WBAV, Columbus, Dhio. (Eastern, 390), 12 m., 11a Lorbach Owens, planist.

WBBR, New York, N. Y. (Eastern, Oaylight, 273), 8 p. m., instrumental selections; 8:15, Bible story for young people, Mrs. J. F. Stephenson; 8:35, instrumental selections.

WBZ, Springfield, Mass. (Eastern, Daylight, 337), 6 p. m., dluner concert, WBZ trio; 7:30, bedtime story for the kiddles; 7:40, WBZ trio; Charles H. Young, tenor; Mrs. Mirlam M. Thompson, accompanist; 8:30, concert, John Sinclair, director; Clan MacGregor Pipo band; Clan MacGregor Male quartet; Patrick J. Wilson, violinist; T. W. Stack, cornetist; George Beverldge, tenor; John Norrie, accompanist; 11:30, Leo Reisman and his orchestra; 12, songs, Bill Coty, Jack Arinstrong.

Arinstrong.

WCAE, Pittsburgh, Pa. (Eastern, Oaylight, 462), 3
p. m., Fred Rosenfeld, pianist; 6:30, dinner concert,
William Penn hotel; 7:30, Sunshine Girl; 8:30, Charles
Herpieh and its Golden Rose Melody boys.

WCAP, Washington, O. C. (Eastern, 469), 7:30 p. m.,
ontdoor concert, U. S. Navy band, Charles Benter, director; 9-9:10, Eveready Man about Town; 9:10-

9:20, studio program, 9:20-9:30, talk, Dr. Charles E. WCX, Detroit, Mich. (Eastern, 517), 4:15 p. m., musle; 6, dinner concert; 7, Elizabeth G. Fox, speaker; Eddle Barnes, tenor; Girls' Glee club, Woodrow Wilson

wdarf, tenor, Giffs Gree Club, woodow without school.

WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p.m., the Star's Radio trlo; 6-8 p.m., school of the air, piano tuning-in number, the Duo-Art; address, weekly health talk, auspices of the Health Conservation Association; the Tell-Me-a-Story Lady; the Hotel Muelbach orchestra; 8-9:15 p.m., program arranged and presented, Amy E. Winning; 11:45-1 a, m., nighthawk frolic, the Plantation players.

WOAR, Philadelphia, Pa. (Eastern, Oaylight, 395), 11:45 a.m., daily almanac; 12:02 p.m., organ recital, Stanley theater; 12:30, Arcadia Cafe concert orchestra; 4:30, Edna Finestone, planist; 7:30, Dream Daudy's bedtime stories; 10, Juck Harris, songs; Mary Norris, planist; 11, Howard Lauin's Arcadia Cafe dance orchestra.

chestra.

WEAF, New York, N. Y. (Eastern, Oaylight, 492), 11-11:30 a. m., health talks, N. Y. Health Speakers service; 44:15 p. m., Tessie Bloom, pianist; 4:15-4:30, Wright & Bessinger, singers; 4:30-5:00, Fay Milbars Society orchestra; 5-5:30, children's program; 6-7, dinner music, Hotel Waldorf-Astoria, 7-7:30, United Synagogue of America; 7:45-8, Mable Henderson, contralto; 8-8:30, American Agriculturist; 8:30-9, talk on "Psychology," Dr. G. Murphy of Columbia university; 9-9:15, Gold Dust Twins; 9:30-9:45, Chielet orchestra; 9:45-10, Eveready Man About Town. WEAO, Columbus, Ohio (Eastern, 360), 1:30 p. un. edneational talk, member Ohio State university faculty; 4 p. m., farm talk, faculty member; music, university talent.

WEAY, Houston, Texas (Central, 360), 12-1 p. m., Rice

talent.
WEAY, Houston, Texas (Central, 360), 12-1 p. m., Rice
Hotel orchestra; 2:30-3:30, studio concert; 6-7, Rice
Hotel orchestra.
WFAA, Oallas, Texas (Central, 476), 12:30-1 p. m.,

Hotel orchestra.

WFAA, Oallas, Texas (Central, 476), 12:30-1 p. m., Mario H. Bolack, planist.

WFI, Philadelphia, Pa. (Eastern, Oaylight, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3, Florence Steel Falconer, soprano. Lillian Hortlgan, soprano; Dorothy C. Miller, planist, Rocco A. Pulverenti, mandolinist; Loretta Kerk, planist; 1 p. m., Mountain Inn. dance orchestra; 6, Sunny Jim, the kiddies' pai; 6:30, Meyer Davis Bellevue Stratford concert orchestra.

WGI. Medford Hillside, Mass. (Eastern, Oaylight, 360),

VGI, Medford Hillside, Mass. (Eastern, Oaylight, 360), 6:30 p. mi., message to Camp Fire Girls, Charles W. Casson, "Bly Smoke"; 7, meeting of Amrad Big Brother club; 7:30, popular song hits, Don Ramsey.

WGR, Buffalo, N. Y. (Eastern, Oaylight, 319), 12:30-1 p. m., George Albert Bouchard, 8-8:50, City Mission program, nddress, W. Graham Scroggle of Scotland: organist; 6:30-7:30, dinner music; 8:50-9, "Annual Forgery Losses," F. L. Maguth, National Scenrity Alliance; 9-10, banquet, Hotel Statler, American Association of railroad superintendents; 11:30-1.30, supperdance music, Vincent Lopez Hotel Statler orchestra, Harold Gleser, directing.

WHA, Madison, Wis. (Central, 360), 7:30 p. m., "How a Goitre May Be Prevented." Dr. H. C. Bradley.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Alamo Theater orchestra, Harry S. Currie, conductor; "Just Among Home Folks," The Courter-Journal; Walnut Theater orchestra; 7:30-9, agricultural tablold talk; Earl Elliott's Falls Cities serenaders; Mrs. M. E. Burchett, planist.

"Just Among Home Folks," The Courier-Journal; Walnut Theater orchestra; 7:30-9, agricultural tablold talk; Earl Ellioti's Falls Cities serenaders; Mrs. M. E. Burchett, planist.

WHB, Kansas City, Mo... (Central, 411), 2-3 p. m., ladles' hour program, program of semi-classical music, Sweeney Radlo orchestra; 7-7:30, dance mosic, the Sweeney Radlo orchestra.

WHN, New York, N. Y. (Eastern, Oaylight, 360), 2:15-2:30 p. m.; Ben Jacobs, tenor; 3-3:45, Loew's Astoria theater; 4:30-5, Edw. B. Marks Music company; 5:15-5:30, Russ Fowier, bartione; 6-7, at the festive board; 7-7:30, Ted Barron's star surprise; 7:30-8; Roseland dance orchestra; 8-8:20, program, Union of Orthodox Congregation of America; 8:20-8:50, John Paaluhi's Hawaiian orchestra; 9-9 45, Astoria theater; 10-10:15, Alfred Dulin, planist; 10:15-10:30, Victor Wilbur, barltone.

WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a. m., Atlantic City seashore gossin; 3 p. m., "What the wild waves are saying"; 3:30, Counfort's Philharmonic orchestra; Veronica Sweigart, mezzo soprano, Edwin McKnight, xylophone soloist, direct from Atlantic City; 6:05, Dick King and Stänley dancing academy orchestra; 7, Unicle Wip's hedtime stories.

WIZ, New York, N. Y. (Eastern, Daylight, 455), 1-1:30 p. m., Schrafft's orchestra; 3-3:15, Porothy Bradshaw, soprano; Evelyn Hunt, planist; 4-4:15, Eleanor Gunin's fashion talk; 4:15-4:30, counsel on household equipment, Ethel R. Peyser; 4:30-5, Hotel Commodore stringed ensemble; 7-7:20, Cafe Boulevard orchestra; 7:30-7:45, Cafo Boulevard orchestra; 8:15-10, Goldman band concert, Edwin Franke Goldman, soprano; Madelolne Voss, accompanist; 10:30-10:45, Emil Coleman's Trocadera orchestra.

8:50-8:55, "Women's Interest in a Liberal Foreign Policy," Esther Ogden, of Woman's Boreau Democratic Headquorters' Convention; 8:55-9:00, "What We

live Done to Welche Y: Mrs. Jin Hin; 9-9-15. Elsa Schill, violinist; Otto K. Shall, p. ...; 9-15-9-15. rectal, Raymond G. Perker, t. -t. W. L. Guggolz, baritone; 9-45-10. Elsa Schill, vi. ni t. 10-11. Bell Record Symphony or lestra.

WDS, Jefferson City, Mo. (Central, 440.9), 8 p. ...
"Caring for Milk and Cream on the Far. I. G. Gibson; 8-20, oldtime barn dance turies, 8 r. g. tri. Loule Barton, Gorge Schrimpf, Bry-n Williams, WPAL, Columbus, Ohio (Eastern, 286), 6 p. m., Cilitenden Hotel orchestra; 7 p. m., Gr. nd Thea er or seatelecture, member Ohio League of W. -en Vot rs; 7 p. m., old time selections, Old Fiddlers, c. posed of fire Civil War Asterans.

WRO, Washington, O. C. (Eastern, 469), 3 p. m., fash-

p. m., old time selections, Old Fiddlers, c-posed of five Civil War seterans.

WRC, Washington, O. C. (Eastern, 469), 3 p. m., fashion developments of the n-neent, Wonen's Wear, 3:10, songs; 3 45. Elean r (Gynn, planst; 3 %, eirrent topics, edwor of The Outlock; 4, songs; 6, st ris for children, Peggy Albion; 6 15, talk, and lees of the Smithsonian institute.

WIAM, Cleveland, Ohio (Eastern, 390), S. p. m., Post Dealer program; quartet and s. los, Mrs. Frank Stack, songano; Mrs. Homer C. Dix. contracto: D. D. We estil, tenor; Raiph Edward S. p., bass; Mr leed S. a explanist; Bosiness Men's orchestra of Aris. Ohi; WTAM program; New Philadelpila (Classimary, Saxophone serenaders; Chas. Murray, barline; Pool Morray, cello; Virginia Hoffman, sapra; All Mirray, planist; J. Fentmore Hellick, lass: WTAS, Grehestra; Lee Sims, planst WMAS, orchestra; Lee Sims, planst WMA, Oetroit, Mich. (Eastern, 517), S. a. m., Setting-up exercises, R. J., Horton; 12 m., Detrit New orchestra; 3 p. m., Schmeman's band; 9 30, Detruit News orchestra.

Thursday, June 19

Silent night for; KFAE, KFOA, KQV, KSD, WBAV, WCAP, WOAR, WGR, WOO, WOR, WOS.
CKAC, Manteal, Can, (Eastern, Daylight, 425), 9
p. 30., Reval, Moitreal, Reval, to base, Some More and the second of the

DEMOCRATIC CONVENTION START

Where to Hear Concerts

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

Wednesday: CHYC, KDKA, KFAE, KFI. KFNF, KFOA, KGW, KHJ, KLN, KPO, KQV, KSD, KYW, PWX, WAAW, WBAP, WBBR, WBE, WCAP, WDAF, WDAF, WBBR, WCAE, WCAP, WCA, WEAF, WEAO, WFI, WCI, WHAS, WHB, WHN, WIP, WJZ, WKAQ, WIAG, WLS, WLW, WMAQ, WPAL, WOC, WOO, WOR, WOS, WSB, WTAM, WTAS, WWJ.

Thursday: CKAC, KDKA, KFAF, KFI. KFKN, KFNF, KFSG, KGO, KGW, KHJ, KPO, KYW, WBAH, WBAP, WBBR, WBZ, WCAE, WCBD, WCX, WDAF, WDJR, WEAF, WEAO, WFAA, WFI, VI, WGY, WHAS, WHB, WHN, WIP, WJAX, WJY, WJZ, WLAG, WLS, WLW, WMAQ, WMC, WOAW, WOC, WOO, WOR, WPAL, WSB, WRC, WSAI, WTAS, WWJ.

WWJ.

Friday. CFCN, KDKA, KFAF, KFI, KFY, KFOA, KFSG, KHJ, KGW, KSN, KYW, WBAH, WIAP, WBAY, WEAF, WCAP, WCAP, WCAF, WDAF, WDAR, WEAF, WEAO, WAY, WFAA, WFI, WGAZ, WGI, WGY, WHAS, WHB, WHK, WHN, WIP, WJY, WJZ, WKAQ, WLAG, WLS, WMAQ, WMC, WOO, WOR, WOS, WPAL, WSB, WTAS, WWJ.

Saturday: CKAC, KDKA, KFAF, KFI, KFNF, KGO, KPO, KSD, KYW, PWN, WBBR, WBZ, WCAE, WCX, WDAF, WDAR, WEAF, WFAA, WFI, WGY, WHAS, WHK, WIP, WJZ, WLAG, WLS, WMAQ, WMC, WOAW, WOC, WOO, WOR, WPAL, WRC, WSAI, WSB, WTAM, WTAS, WWJ.

Sunday: CHYC, CKAC, KDKA, KFI, KFNF, KFSG, KGO, KGW, KHJ, KYW, WBAP, WCAE, WDAR, WEAF, WEAY, WFAA, WGI, WGY, WHAS, WHK, WIP, WLAG, WLS, WLW, WOC, WOO, WPAL, WSAI, WTAS, WSB.

Monday: KFAF, KFI, KFKX, KFOA, KGO, KGW, KQV, WAAW, WBAH, WBAP, WBAV, WBZ, WCAE, WCBD, WCX, WDAF, WDAR WEAF, WFAA, WFI, WGAZ, WGY, WHAZ, WHN, WIP, WLW, WOAW, WOC, WOO, WOR, WOS, WPAL, WSB, WTAS, WWJ.

Tuesday: CKAC, KFAF, KFI, KFNF, KFSG, KGO, KGW, KHJ, KSD, KYW, WAAW, WBAH, WBAP, WBZ, WCAE, WCX, WDAF, WDAR, WEAF, WFAA, WFI, WGI, WGY, WHAS, WHB, WHN, WIP, WJAX, WJY, WJZ, WLS, WLW, WMAQ, WRC, WSB, WTAS, WWJ.



and Co.; "Sanitary Care of the Sleeping Room," Hester Ridland; "The Art of Canning Milk," Mrs. Ellen Rosa Dickey; 7-7:45, farm program, 'Beef Making Tips," John M. Evvard; 7:45-8. Iuliahy time, Glenn Rowell, Ford Rush; 10:15-1, Frank Westphal orchestra; music message of the Indian, Phyliss, Campbell; Night of real Indians and real Indian music; mldnight Mardi Gras.

WMAQ, Chicago, Ill. (Central, Daylight, 447.5), 4 p. m., lessons in household arts, Mrs. Elizabeth O. Hiller; 5:30, program, Campbell sisters; 6, Chicago theater organ; 6:30, Hotel LaSalle orchestra: 3, talks, Rockwell R. Stephens, Royal F. Munger; 9:15, program, Lyon and Healy concert.

WMC, Memphis, Tenn. (Central, 500), 8:30 p. m., program, Maude Mooreland, director.

WOAW, Omaha, Nebr. (Central, 526), 6-7:30 p. m., classical program, arranged by Carl Sibbert, tenor; 9-11, concert program, Hotel Fontenelie concert orchestra.

WOC. Oavenoort. lowa (Central, 484), 12 m., chimes:

classical program, arranged by Carl Sibbert, tenor;
9-11, concert program, Hotel Fontenelle concert orchestra.
WOC, Oavenport, lowa (Central, 484), 12 m., chimes;
5:45 p. m., chimes; 9, Palmer School Radio orchestra;
Ralph W. Fuller, baritone.
WOO, Philadelphia, Pa. (Eastern, Oaylight, 509), 11
a. m., Mary E. Vogt, organist; 12:02 p. m., Wanamaker Crystal Tea Room orchestra; 5:45, Mary E.
Vogt, organist.
WOQ, Kansas City, Mo. (Central, 360), 8-9:30 p. m.,
popular music program, Haniey Photo Shop, Paul
Hickman's orchestra; musical entertainers from K. C.
vaudeville, Hallett and Flemling.
WOR, Newark, N. J. (Eastern, Oaylight, 405), 7-7:30
a. m., WOR gym class; 2:30-2:45 p. m., recitai,
Burke's Imperial Jubilee Singers; 2:45-3; Joseph Garren, composer; George Perry, tenor; 3-3:15, "WomanCitizen," Virginia Roderick; 3:30-3:45, Burke's Imparlal Jubilee singers; 3:45-4, Joseph Garren, composer; George Perry, tenor; 6:15-6:30, "Radio for the
Layman," Albert E. Sonn of Newark Sunday Call;
6:30-7:20, "Music While You Dine," Tom Cooper and
His Country Club orchestra; 7:20-7:30, resume of
day's sports, Newark Morning ledger.
WPAL, Columbus, Ohio. (Eastern, 386), 6 p. m., Chittenden Hotel orchestra: Grand Theater organ.
WRC, Washington, O. C. (Eastern, 469), 6 p. m., children's hour, Peggy Albion; 7:45, talk on motorling,
auspices American Automobble association; 8, United
States Treasury Department program; 9, dance program, Pete Maclas' L'Aiglon orchestra.
WTAS, Elgin, III. (Central, 286), 7:30-12 midnight,
WTAS orchestra: Lee Slms, planist.
WMJ, Oetroit, Mich. (Eastern, 517), 8 a. m., setting-up
exerclese, R. J. Horton; 12 m., Detroit News orchestra; 3 p. m., Schmeman's hand, from Belle Isle park;
8:30, Schmeman's band; 9:30, Detroit News orchestra; 3 p. m., Schmeman's hand, from Selle Isle park;
8:30, Schmeman's band; 9:30, Detroit News orchestra; 10, Goldkette's orchestra; 11, Detroit News orches-

Gladys Gray (left) whose charming soprano voice will keep the standard of the WJAX programs up to its usual mark, Thursday, June 19. Alice O'Reilly, the charming colonial lady above will sing old fashioned songs from old fashioned songs from WBAH, Minneapolis, Tuesday, June 24. (David Youngling)

Thursday, June 19

(Continued from page 11)

cert, KDKA Little Symphony orchestra; 6:30, chlidren's period, "The Man, the Alligator and the Cunning Mr. Rah it"; S. concert of Civil War and other old time me'odies, KDKA Little Symphony orchestra; Irma Carpenter, sprano; Mabel King, contralto; Roy Strater tenor; Ethel Whittlesiy, harpist; 10, con-

KFAF, Denver, Colo. (Mountain, 360), 7:30-8:15 p. m., c.assical cusic.

KFI. Les Angeles, Calif. (Pacific, 469), 6:45-7:30 p. m.,

Y. M. C. A. concert and lecture; 8-9, Ambassador

H'el concert; 9-10, Examiner concert; 10-11, concert,

1.17 Cl. quartet.

KFNF, Shenandeah, Iowa (Central, 266), 7:30 p. m.,

concert, artists from Coburg, Mrs, A. L. Embree, di-

KFSG, Les Angeles, Calif. (Pacific, 278), 3:30-4:30 p.
, organ recital; 4:30-5:30, concert; Frances Hanking, reader; 6:30-7:30, "Kozy Hour;" story and song, Ruth Clayton; 8-9, address, Almea Semple Mc-Pherson; 9-10, concert, Gray studio; Angelus Temple g'artet; cboir; "Family Alter."

KGO, Oakland, Calif. (Pacific, 312), 4-5:30 p. m., concert rechestra, Hotel St. Francis; 8, part one: Durant Lodge No. 268, F. & A. M., male chorus; Mra. Clara Snyder, pianist; Robert M. Battlson, tenor; Lowell M. Redfield, barltone; Helen Chakurias, violin st; George R. Hunter, tenor: Daisy V. Beckett, soprano, part two: Hawaiian music, B. R. Solis, piani, Fern Backman, violinist; John Campbell, violit; Harry Tallman, violinist; Vernal Dean, cel-

KGW. Portland, Ore. (Pacific, 492), 3:30 p. m., chlidren's program; 8:15, studio program, dance music, George O.en's Metropolitan orchestra; 10, dance music, George Olsen's Metropolitan orchestra.

KHJ, Les Angeles, Calif. (Pacific, 395), 12:30-1:15 p. m., Oaks Travern orchestra, Frank Beiter, manager; 2:30-3:30, matinee musicale; 6-6:30, Art Hickman's concert orchestra; 6:45-7:30, children's hour, Prof. Waiter Sylvester Hertzog; Dickle Brandon, screen juvenile; concert, courresy. Sherwood School of music: nile; concert, courses, Sherwood School of music; bedtime story, "Uncle John"; 8-9:15, concert, courtesy, Fitzgerald Music company; 9:15-10, concert, Mackie's

Fitzgerald Music company; 9:15-10, concert, Mackie's Red Moon seremaders; Stewart Watson, barltone, KPO, San Francisco, Calif. (Pacific, 423), 1-2 p. m., Rudy Seiger's Fairmont Hotel orchestra; 4:30-5:30, Rudy Seiger's Fairmont Hotel orchestra; 5:30-6:30, children's hour stories, Big Brother; 7-7:30, Rudy Seiger's Fairmont Hotel orchestra; 8-9, Theodore J. Irwin, organist; 9:10, Norman Simon, director; Walter Wanzel, pianist; Elsa Naess, pianist; 10-11, E. Max Braifield's Versatile band.
KQV, Pittshurgh, Pa. (Eastern, Oaylight, 270), 5-5:30 p. m., "Twl'ght Tale" and "Diary of Snubs our Dre." for e kiddles

p. m., "Twl' cht Tale and Diaty."

Dr. fer e kiddies

Kyw. Chicago, iii. (Central, Daylight, 536), 11:35 a.

m., '2' e ta ', Mr. Anna J Peterson; 2:35-4 p. m.,

pr 5, 2 ; 6 i5, children's bedtime story; 7-7:30,

d er cert, c ngrees hotel; 8-8:20, "Twenty Min
d Reading," Rev. C. J. Pernin; 8:30-9:30,

Bank be source of George Horne, baritone; Sallie Pe e le, sopra o; George Horne, baritone; Sallie i , acompani : Mabel Becker, planist; Langdon tee gu tarists; 10-11:... late program.

WAAW, Omaha, Nebr. (Central, 360), 8-9 p. m., talks, Rev. E. M. Brown, R. A. Smith, Mrs. S. B.

WBAH, Minneapolis, Minn. (Central, 417), 12:30-1:30 p., U k Long's trio and solout; 9:30-11 p. m., Merald Tobel en, tenor; Alice O'Reilly, contralto;

WBAP, Fort Worth, Texas (Central, 476), 9:30-10:45

D. W. I ter, organi

WBAV. Celumbus, Ohio (Eastern, 390), 12 m., religious

From Council of churches, Rev. 1. M.

Part, part Firt Methodist Protestam church,

WBBR, New York, N. Y. (Eastern, Daylight, 273),
3.1 t. Her ert Frank, voim st; 9:25, Gene Frank,
va. t. 9:10. nerna ional Sinday School lesson for
June 22rd, S. M. Van Sipma.

WBZ, Springfield, Mass. (Eastern, Oaylight, 337), 6
p. dinner concert; Leo Reisman ensemble; 7:10,
'At the Theaters,'' A. L. S. Wood; 7:30, heddime
tury of e kiddle; 8:15, concert, quartet of the Centra Congress in al church; 9:15, Lina McSweeney, soprano; Alden Redmond, baritone; Mae Gorman, planint; Arth r Mb, accompanit

ist; Arth r Mon, accompani t

WCAE, Pittsburgh, Pa. (Eastern Daylight, 462), 4:30

Sun nine Gir; 6:30; dinner concert, William Penn
hetel, 7 D. Undle Kayhee, 7:45, Ben Fields, violinist;
The ma Field, accompani t; 8:30, Versatile Melody
trio; 11, late omeert.

WCBD, Zion, 19. (Central, 345), 8 p. m. semi-chorus,
Zir; cr r; ring q artet, Richard F. Hire, L. J.
Hire, Hermann Becker; trombone duet, Biddle and
Hamps n; Veatrice Beem, soprano; Katherine Schmidt,
molta : Mr. Banche Bishop, planist; Mrs. Mable
Dulmage Gustafson, reader,

Dulmage Gustafson, reader,

WCX, Detroit, Mich. (Eastern, 517), 5:15 p. m., music;

6, dinner concert; 7, Howard Simon; half hour program, at idents Southeattern high school.

WDAF, Kamas City, Mo. (Central, 411), 3:30-4:30 p. m., The Star's Radio trio; 6-7 p. m. school of the air, plano tuning-in n mber, the Duo-Art; address, speaker from the William Jewell o'llege: reading, Miss Cecile B rion; the Tell-Me-a-Story lady; music, the Hetel Michael orchestra; 11:45 1 a. m., night-k froile, the Plantation players.

DAR Philadelphia, Pa. (Eastern, Daylight, 395),

11:45 a. m., daily almanac; 12:02 p. m., organ recital, Stanley theater; 12:30, Arcadia Cafe concert orcbestra; 2. "Tha Market Basket," Mrs. Anna B. Scott; 7:30, Dream Daddy's bedtime stories.

WEAF, Naw York, N. Y. (Eastern, Oaylight, 492), 11-11:45 a. m., talk to bousewlves; 4-4:15 p. m., Joa, C. Wolff, baritone, accompanied by Bassia Krey; 4:15-4:30, Alma D. Stoll, contraito; 4:30-4.45, Royal Novelty orchestra; 4:45-5, Ethel H. Elderkin, soprano; 5-5:30, children'a program; 6-7, dinner music, Hotel Waldorf-Astoria; 7-7:30, children stories, Marshak & Co.; 7:30-8:15, concert, Mabelanna Corly and artists; 8:15-8:45, Chas, Magnantem, accordionist; Anthony Torre, violinist; 9-10, WEAF, announcers' hour progran; 11-12, Vincent Lopez and his orchestra. WEAO, Columbus, Ohio (Eastern, 360), 1:30 p. m., educational talk, mamber Ohio State university faculty: 8 p. m., selactions from "Holy City," Marion Cheeney, tenor; Dr. M. M. Nelson, barltone; Mary Walker, contraito; Ethel Petars, soprano; Alica Roha, cellist; Olwin Jones, planist; lecture, Ohio State university faculty member.

WEAY, Houston, Texas (Central, 360), 12-1 p. m., Rice Hotel orchestra.

WFAA, Oalias, Texas (Central, 476), 12:30-1 p. m.,

WEAY, Houston, Texas (Central, 360), 12-1 p. m., Rice Hotel orchastra; 2:30-3:30, matinee; 6-7, Rica Hotel orchestra.

WFAA, Oallas, Texas (Central, 476), 12:30-1 p. m., "Wealth of Texas Rocks," Dr. Ellis W. Shuler; 8:30-9:30, massed band of Garland, Wylia and Rockwall, L. R. Vidler, director; 11-12, Seven Syncopating Jackrabbita, manager B. A. Huggins.

WFI, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3 p. m., Daisy Sheppard Burnham, cornetist; 6, Sunny Jim, the kiddles' pal; 6:30, Meyar Davis Bellevue Stratford concert orchestra; 8:30, Reglna C. Marsh, contraito; Loretta Kerk, pianist; 11:05, Charlie Kerr and his symphonic dance orchestra.

WGI, Medford Hillside, Mass. (Eastern, Oaylight, 360), 7 p. m., meeting of the Amrad Big Brother club; 7:30, talk, Geoffrey L. Whalen, "The Radio Movie Man"; 7:45, Bernia and his bunch; 8-15, musicale.

WGR, Buffaio, N. Y. (Eastern, Daylight, 319), 12:30-1 p. m., George Albert Bouchard, organist; 6:30-7:30, dinner music; 9-10, concert, Highland Pipe Band of the St. Andrew's Scottish society, W. G. Douglas, director; 10-11, concert, direction of Edgar Messersmith.

WGY, Schenectady, N. Y. (Eastern, 360), 1 p. m., one-

director; 10-11, concert, direction of Edgar Messersmith.

WGY, Schenectady, N. Y. (Eastern, 360), 1 p. m., one-act play, "A Soldier's Courtship"; 5:30, Stephen E. Boisclalt, organist; 7:45, A Few Moments with New Books," L. L. Hopkins; 8, drama, "The House Next Door," WGY players; WGY orchestra.

WHAA, lowa City, lowa (Central, 484), 12:30-1 p. m., readings, members of speech department.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m.; Walnut Theater orchestra, Walter Davison, conductor; "Just Among Home Folks," The Courier-Journal; Alamo Theater orchestra, Harry S. Currie, conductor; 7:30-9, concert, William Vlck, conductor; Mrs. Cordia Greer Petrle, reader; four-minute digest of International Sunday-school lesson; four-minute Radio Forum Boy Scout talk.

Boy Scout talk.

WHB, Kansas City, Mo. (Central, 411), 2-3 p. m., ladies' hour program, program of light operatic pieces, Sweeney orchestra; 7-7:30, program of dance music, Sweeney Radio orchestra; educational talk; 8:10, dance program from the "Indian Village," Sweeney Radio orchestra

orchestra.

WHN, New York, N. Y. (Eastern, Oaylight, 360), 3-3:45
p. m., Loew's Astoria theater; 3:45-4:15, Leo Feist
Music company; 4:30-4:45, Alfred Dulin, planist;
4:45-5, William Mahoney, tenor; 5-5:30, Buddy Baldwin's Nassau hotel orchestra; 6-7, at the festive board;
9-9:45, Loew's Astoria theater! 9:45-10:15, tha Shere's
trio; 10:15-10:45, all nations program; 11:15-11:30,
Sylvia Brown, songs; 11:30-11:45, Ross Fowler, baritone.

tone. WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a. m., Atlantic City seashora gossip; 3 p. m., "What the wild waves are saying"; 3:30, Comfort's Philharmonic orchestra, Veronica Sweigart, mezzo soprano; William Tracey, cellist; 6:05, William Smith dance orchestra; 7, Uncle Wip's bedtime stories; 8, Comfort's Philharmonic orchestra, Veronica Sweigart, mezzo soprano; 8:15, Oreste Vessella and concert band; Margaret Keever, contralto; 10:30, Ted Weems and his dance orchestra, 11:15, LeRoyale dance orchestra.

WIAX, Cleveland, Ohio (Eastern, 390), 8 p. m., vocal duets, Betty Lalley, Marguerlte Kitzinger; Jack Evans, Welsh barltone; Marble Beitgey, colorature; Mrs. Miriam Ward, Welsh contralto; Gladys Gray, lyric; Betty Balley, dramatic; piano numbers.

WJY, New York, N. Y. (Eastarn, Oaylight, 405), "A

Friday, June 20

Silent night for: CKAC, KGO, KPO, WIP, WAAM, WBBR, WCX, WEAO, WFI, WLW, WOR, WRC,

WSAI.

CFCN, Calgary, Can. (Mountain, 440), Ed Strick, haritone; Romy Mitchell, soprano; J. B. Jamieson, reader; Mrs. L. E. Smith, violinist; Chris Russell, soprano; Gus Arlidge, tenor; Victoria Beauprc, pianist; Norman dann, saxophonist; Harry Handley, tenor.

CKAC, Montreal, Can. (Eastern, Daylight, 425), 1:45
p. m., Mount Royal Hotel lüncheon concert; 4:30, teadanca, Mount Royal Hotel orchestra.

KDKA, E. Pittsburgh, Pa. (Eastern, 326), 11:15 a. m., Broudy's orchestra; 5:30, organ recital; 6:30, children's period, Farmer John will discuss his "Four Musicians"; 6:45, "Quaint Quebec and Bermuda this Summer," Grayce Druitt; 8, popular concert, KDKA Serenaders.

mer," Grayce Druitt; 8, popular concert, KDKA Screnaders.

KFAF, Denver, Colo. (Mountain, 360), 8-9 p. m., program, Darrow Music company,

KFI, Los Angeles, Calif. (Pacific, 469), 6:45-7:30 p. m., varled musical program; 8-9, Evening Herald concert; 9-10, Examiner concert; 10:11, concert, Gaylord Trio; 11-12, Ambassador-Max Fischer's Cocoanut Grove orchestra.

KFNF, Shenandoah, Jowa (Centrai, 266), 7:30 p. m., modern dance music. Tetens orchestra.

KFNF, Shenandoah, Iowa (Centrai, 266), 7:30 p. m., modern dance music, Tetens orchestra.

KFNF, Shenandoah, Iowa (Centrai, 266), 7:30 p. m., monthly program, American College of music, James Hamilton Howa, director.

KFSG, Los Angeles, Calif. (Pacific, 278), 3:30-5:30 p. m., organ receltal, Roy Reid Brignall; Madeline Gilliland, the Happy Song girl! Jcnnie M. Durkee, ukelele, guitar soloist; Bessie Llncoln, piano; Ruth Russell, Spanish songs; Miidred Wetkayska, vlolinist; 6:30-7:30, "Kozy Hour," courtesy, Harry James Beardsley, "Cousin Jim," and associates; Bunyan's Pllgrim's Prograss, Daphna Goss; "Walking Life's Waves in Victory," Mother Kennedy; 8-9, Angelus Tempia Crusaders' Chorus; Judge Carlos S. Hardy; Madeline Gilliland, the Happy Song girl; message, Aimee Semple McPherson; 9-10, concert, Gray studio, courtesy Maude Recvos-Barnard; Angelus Temple Silver Band; "Peace Like a River; benediction, Aimee Semple McPherson. KGO, Oakland, Calif. (Pacific, 312), 4-5:30 p. m., concert orchestra, Hotel St. Francis.

KGW, Portland, Ore. (Paelfic, 492), 8 p. m., program Drasented by May Desphere Science.

Rudy Selger's Falrmont Hotel orchestra; 2:30-3:30, Theodore J. Irwin, organist; 4:30-5:30, Rudy Seiger's Fairmont Hotel orchestra.

KQV, Pittsburgh, Pa. (Eastern, Daylight, 270), 5-5:30 p. m., "Twilight Tale" and "Diary of Snubs Our Dog"; 9-10, program, faculty members and group of students, Universal Chiropractic college: lecture, Dr. Joy M. Loban; Eleanor A. Conley, soprano; John M. Hierholzer, flutist; Arthur Evans, tenor; E. E. Doak, baritone; L. E. Hilgartner, bass; Universal Chiropractic College orchestra. Wesley R. Newfield, dire tor, Minnie E. Meyers, accompanist; Themas J. Price, accompanist; 10:15-10:45, "Cycle of Popular Song," Addy Britt.

KSD, St. Louis, Mo. (Central, 546), 8 p. m., Silverman's orchestra.

KYW, Chicago, Ili. (Central, Oaylight, 536), 11:35 a. m., table talk, Mrs. Anna J. Peterson; 6:45, children's bedtime story; 7-7:30, dinner concert, Congress hotel; 8:20-8:45, talks, auspices of the American Farm

hotel; 8:20-8:45, talks, auspices of the American Farm Bureau: "Queens of the Farm House." A. D. F. ker; "Among Our Neighbors," Arthur C. Page; 9-12 3"

11.1 11.1 11.1

HARY HARAMAN HARA CHARAN CONTRACTOR OF THE PROPERTY OF THE PRO

DI

W.TI ⊗i TI

of M W I play Mat dist

Hon !

notel; 8:20-8:30, taiks, auspices of the American ration Bureau: "Queens of the Farm House." A. D. F. ker; "Among Our Neighbors," Arthur C. Page; 9-12.3 midnight rerue

WAAW, Omaha, Nehr. (Central, 360), S. p. m., bridge lesson, Mrs. Guy U. Purdy.

WBAH, Minneapolis, Minn. (Central, 417), 12:30-1:30 p. m., Dick Long's trlo and soloist; 6:30-7:30 p. m., Robert Morken's De Luize boy's orchestra.

WBAP, Fort Worth, Texas (Central, 476), 9:30-10:45 p. m., Four H. quartet of Paradise.

WBAV, Columbus, Ohio (Eastern, 390), 12 m., 112 Lorbach Owens, pianist; S. p. m., program. employes of Pennsylvania Railroad Co. Columbus Divisi-n band; R. H. McGreevy, tenor; banjo trio, W. F. Curran, C. H. Thompson, Ted Schu'tz; Accounting Department quintet, violins, banjos and piano; men's chorus; C. F. Taggart, baritone; male quartet; address, P. W. Sullivan, superintendent, Columbus division.

WBZ, Springfield, Mass. (Eastern, Daylight, 337), 6 p. m., dinner concart, WBZ trlo; 7:10, "Mrs. Warren's Discovery," dramatized story, Youth's Companion; Current book review, R. A. MacDonald; 7:30, bedtime story for the kiddies; 10, Garvin Wadron, tener Blanche Haskell, soprano; Alma Garrish, accompanist; 10:30, Beatrice E. Sample, soprano; 11, WRZ trlo; Mrs. Charles Weston, soprano; Katherine Gravelin, accompanist.

WCAE, Pittsburgh, Pa. (Eastern, Oaylight, 462), 4:30 p. m., special children's program. Suishine Girl; 6:30, dinner concert. William Penn hotel; 7:3, Uncle Kaybee; 6:30, Ted Newlin's orchestra.

WCAP, Washington, D. C. (Eastern, 469), 7 p. m., Violet Pierson, dramatic reader; 7:20-10, musicale; 10-12, dance music, Wardman Park hotel orchestra.

WCAP, Washington, D. C. (Eastern, 517), 4:15 p. m., music; 6. dinner concert; 7, Dr. George Vincent, speaker;

12, dance music, Wardman Park hotel orchestra.

WCX, Oetroit, Mich. (Eastern, 517), 415 p. m., music;
6. dinner concert; 7, Dr. George Vincent. speaker;
musical program, pupils of Woodrow Witson school.

WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p.
m. Newman concert orchestra and mammoth pipe
organ, Newman theater; 6-7 p. m., School of the Air.
piano tuning-in number, the Duo-Art; address, speaker
from the K. C. children's bureau; address, "Abou.
Installation." Fred Garner, Sterling Radio Co.; the
Tell-Me-a-Story lady; music, Hotel Muelbach orchestra.
8-9 p. m., the WDAF minstrels and the Stars Radio
orchestra; 11:45-1 a. m., nighthawk frolic, Plantation
players.

wdarfs.
Wdarfs. Philadelphia. Pa. (Eastern. Oaylight. 395).
11:45 a. m., daily almanac; 12:02 p. m., organ recitai.
Stanley theater; 12:30. Arcadia cafe concert orchestra;
2. Arcadia cafe concert orchestra; 4:30, Edna Finestone, pianist; 7:30, Dream Daddy's bedtime stries;
7:50, book review. Arnold Abbott; 10, Howard Lanin's Arcadia cafe dance orchestra; special Morning Glory Club features.
WEAF New Year In Marcadia Cafe New Year In Morning Glory

Club features.

WEAF, New York, N. Y. (Eastern, Oaylight, 492), 1111:30 a. m., talk to housewives; 4-4 15 p. m., Jos.
Fledell, baritone; 4:15-4:30, Betty A. Bright, contralto; 4:30-4:45, Moonlight Instrumental concert trio;
5-5:30, children's program; 6-7, dinner music, Hotel
Waldorf-Astoria; 7:15-7:30, Minnie Wasserman, pianist; 7:45-8, Happiness Boys—Ermest Hare and Bilty
Jones; 8:30-8:45 talk, Reid Ice Cream company; 9:159:30, Helen Larkin, soprano; 9:30-1e, B. Fischer's
Astor Coffice crehestra.

WEAO, Columbus, Ohis (Eastern, 360), 1:30 p. m.,
educational talk, member Ohio State university faculty;
4 p. m., farm talk, faculty member; music, university
talent,
WEAY, Houston, Texas (Central, 360), 3-9 p. m., poo-

WEAY, Houston, Texas (Central, 360), 8-9 p. m., pop-

JUNE 24 ON CHAIN OF STATIONS



ular songs; 9-10, Shrine band. WFAA, Dallas, Texas (Central, 476), 12:30-1 p. m., address, Dr. Robert S. Hyer; 8:30-9:30, old-time music box selections, George A. Nicoud; zither music, Dallag ayport

music box selections, George A. Nicoud; zither music, Dallas expert.

WFI, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 6 Sunny Jim, the kiddles' pal; 6:30, Meyer Davis Bellevue Stratford concert orchestra.

WGI, Medford Hillside, Mass. (Eastern, Daylight, 360), 7 p. m., meeting of the Amrad Big Brother club; 7:30, selected verses, Charles L. H. Wagner, Radio poet; 7:40, late Ampico releases; 8, musicale.

WGR, Buffalo, N. Y. (Eastern, Daylight, 3i9), 12:30-1 p. m., George Albert Bouchard, organist; 6:30-7:30, dinner music; 8:30-10:30, concert, Heirloom Plate band, direction, S. G. Biakeiock for William A. Rogers company; 10:30-11, concert, Semper Fidelis orchestra, direction of Rudolph Pinkei; 11:30-1:30, supper dance music, Vincent Lopez Hotel Statler orchestra, Harold Gieser, director.

Gieser, director,
WGY, Schenectady, N. Y. (Eastern, 380), 1 p. m., "The
Decorative Value of Pictures," Robert L. Smith; 5:30,
stories for children; 5:45, children's story in French,
Frederic Duclert; 7:45, Mediterranean travelogue,
James A. Leary; WGY orchestra; T. Reed Vreeland,
tenor; 10:30, Paramount, concert orchestra; Leo Pearlman tenor. man, tenor, WHA, Madison, Wis. (Central, 360), alumni reminis-

whas, Louisville, Ky. (Central, 400), 4-5 p. m., Alamo Theater orchestra; "Just Among Home Folks," The Courier-Journai; Walnut Theater orchestra; 7:30-9, concert, auspices National Music studios, George A.

Fogei, director.

WHB, Kansas City, Mo. (Central, 411), 2-3 p. m., ladies hour program, Sweeney Radio orchestra, direction of George Parrish; 7-8, dance music, Sweeney Radio orchestra.

tion of George Parrish; 7-8, dance music, Sweeney Radio orchestra.

WHK, Cieveland, Ohio (Eastern, 390), 9 p. m., concert program, arranged by Wm. Taylor Son & Co.; Louis Rich and his orchestra; solos, popular artists.

WHN, New York, N. Y. (Eastern, Daylight, 360), 2:15-2:45 p. m., Snappy quartette; 3-3:45 Loew'a Astoria theater; 3:45-4:15, Original Indiana five; 4:30-4:45, Frank Wright and Frank Bessinger; 4:45-5:15, Jay Ryan and His Glenwood Terrace orchestra; 5:30-5:45, Victor Wilhur, baritone: 6-7, at the festive board. Ryan and His Glenwood Terrace orchestra; 5:30-5:45, Victor Wilbur, baritone; 6-7, at the festive board, 9-9:45, Astoria theater; 9:45-10:15, Hotel Carlton terrace orchestra; 10:15-10:30, Harry Hock entertainers; 10:30-11, Roseland Dance orchestra; 11-11:30, Ted. Barron's surprise; 11:30-12, S. S. City of Seattle, Atlantie City Line orchestra.

WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a. m., Atlantic City Seashore gossip; 3 p. m., "What the wild waves are aaying"; 3:30, Comfort'a Philharmonic orchestra; Charles Cinti, piccolo soloist, Veronica Sweigart, mezzo aoprano; 6:05, Jordan-Lewis dance orchestra; 7, Uncle Wip's bedtline stories.

WIY New York N. Y (Fastern Daylight, 405)

dance orchestra; 7, Uncle Wip's bedtime stories.

WJY, New York, N. Y. (Eastern, Daylight, 405),
"Sport," 8:30 p. m., overture, 8:35, prologue, 8:40,
episode 1, Jazz, Xylophone, Hennssey orchestra, 9,
episode 2, a Sing Song, the Dixie Stars (Bernard and
Robinson), 9:30, episode 3, Three Nibs Up, Audrea
Peyree, 9:45, episode 4, popular melodies, Koty and
Abram, 10:15, episode 5 J. Andrew White, 10:30,
episode 6, Jazz.

WJZ, New York, N. Y. (Eastern, Daylight, 455); 11:15 p. m., Hotel Ambassador trio; 3-4, Hotel Astor
organ recitai; 4-4:10, Eleanor Gunn's fashion talk;
4:10-4:20, arts and decorations; 4:20-4:30, "Peeps at
People;" Edythe H. Browne; 4:30-4:45, "Kandy Kiddies," Sarita MacLeary; 4:45-5:15, "Fashions of the
Stage," Cora Moore; 5:15-5:30, Fred Gerrold, baritone; 8-8:15, "The Economic Value of Insects," Dr.
Frank C. Lutz; 8:15-10, Goldman band concert, Edwin Frank C. Lutz; 8:15-10, Goldman band concert, Edwin Franko Goldman, conductor; 10-10:45, peoples chorus, 10:45-11, Paul Specht's alamac orchestra.

WKAQ, San Juan, P. R. (Central, 360), 6-8 p. m.,

wkAQ, San Juan, P. R. (Central, 360), 6-8 p. m.l, studio program.

WLAG, Minneapolis-St. Paul, Minn. (Central, 417), 10:45-11:15 a. m., household hints; 11:35-12 m., aurprise hour; 2:10-2:40 p. m., woman's club hour, "Stage and Screen Beview," Lester Rees; "Fresh Air Camps as Character Bullders," Belle Mead; 2:40-4. Charles Cordray's Slowpoke orchestra; 4-4:30, magazine reading; 5:30-6, children'a hour; meeting Radio Health and Toothbrush Club of America; Dr. F. W. Pepper, president; 6-6:15, sport hour, "Canoeing West End of Hunter's Island," Mel Nyman; 7:30-8:15, farm

producing piano; vocal solo. WOR, Newark, N. J. (Eastern, Daylight, 405), 7-7:30

producing piano; vocal solo.

WOR, Newark, N. J. (Eastern, Daylight, 405), 7-7:30
a. m., WOR gym class; 2:30-2:45 p. m., Florence
Steele, contralto; 2:45-3:15, Manhattan serenaders;
3:30-3:45, Mrs. J. M. Beech, mono-actress, Katherine
Brun Martin, pianist; 3:45-4, Florence Steele, contralto; 6:15-6:30, songs for children, Agnes Leonard;
6:30-7, "Man in the Moon," stories for children;
7-7:20, "Music While You Dine," The Dixie Minstrei Troupe, Gus Pinand, director; 7:20-7:30, resume of day's sports, Newark Morning ledger.

WOS, Jefferson City, Mo. (Central, 440.9), 7:45 p. m.,
"Hydrophobia, or Rabies as a Menace to Animals and Folks," Dr. Homer A. Wilson; 8, address, George A. Pickens; 8:20, musical program, Hermann, Missouri Juvenile orchestra.

WPAL, Columbus, Ohio (Eastern, 286), 6 p. m., Athletic Club orchestra; lecture.

WRC, Washington, D. C. (Eastern, 469), 3 p. m., fashion developments of the moment, women's wear; 3:10, Arthur McCormick, baritone; 3:20, "Beauty and Personality," Elsie Pierce; 3:25, current topics, editor of The Review of Reviews; 3:35, Ethel Grant, pianist; 4, songs; 6, stories and songs for children, Peggy Albion, Mary Frances Glenn.

WTAS, Elgin, III. (Central, 286), 7:30-12 midnight, WTAS orchestra; Lee Sims, pianist.

WWJ, Detroit, Mich. (Eastern, 5i7), 8 a. m., setting-up exercises, R. J. Horton; 12 m., Detroit News orchestra; 3 p. m., Schmeman's band; 9:30, Detroit News orchestra.

Saturday, June 21

Silent night for: CKAC, KFNF, KFAE, KF0A, KFSG, KQV, WAAW, WBAP, WBAV, WDAR, WEAO, WGR, WLW, WOO, WOS, WWJ.

CKAC, Montreal, Can. (Eastern, Daylight, 425), 7 p. ni., kiddles' stories in French and English, The Book of Knowledge; 7:30, classic music, Rex Battle and his Mount Royal Hotel orchestra; Benjamin Scherzer, vlolinist; Herbert Spencer, organist; 8:30, La Presse Studio entertainment; 10:30, Mount Royai Hotel

Roof Garden Dance orchestra. KFAF, Denver, Colo. (Mountain, 360), 8-9 p. m., KFAF Gloom Busters.

KFI, Los Angeles, Calif. (Pacific, 469), 6:45-7:30 p. m., vocal concert; 8-9, concert, Ruth Shaffner; 9-10, Examiner concert; 10-11, concert, popular songs; 11-12, Ambassador-Max Fischer's Cocoanut Grove orchestra. KFNF, Shenandoah, Iowa (Central, 266), 7:30 p. m. concert, artists from Coburg.

KFSG, Los Angeles, Calif. (Pacific, 278), 3:30-5:30 m., concert, Gray studio, courtesy, Mrs. Ellzaboth Hughes; organ recital, Roy Reid Brignail; 6:30-7:30, "Kozy Hours," Junior Crusaders; Pre-vlew I. S. S.

"Kozy Hours," Junior Crusaders: Pre-vlew I. S. S. lesson by Mother; Snowgrim Sisters, Golden trio. KGO, Oakland, Calif. (Pacifie, 312), 4-5:30 p. m., concert orchestra, Hotel St. Francis; 8, part one: faculty of Arrillaga Musicai college: Raymond White, pianist; Frances D. Woodbridge, soprano; George Edwards, pianist; Mynard S, Jones, bass; Guy B. Kibbee, reader; part two: Musicai Art Society Male quartet, Vern Kelsey, pianist; 10-1, Hotel St. Francis Dance orchestra, Henry Halstead, leader.

www.americanradiohistory.com

Where to Hear Talks

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

Wednesday: KDKA, KFAE, KFOA, KGO, KGW, KHJ, KPO, KQV, KYW, WBAH, WBBR, WCAP, WCX, WDAF, WDAR, WEAF, WEAO, WGI, WHA, WHAS, WJZ, WLAG, WLS, WLW, WMAQ, WPAL, WOR, WOS, WRC,

Thursday: CKAC, KDKA, KGO, KYW, WAAW, WBBR, WCAE, WDAF, WEAO, WGY, WHAS, WHB, WIP, WJAX, WJZ, WLAG, WLS, WMAQ, WOC, WOR, WRC.

Friday: KDKA, KFOA, KGW, KHJ, KYW, WAAW, WBAV, WCAP, WDAF, WEAF, WEAO, WGI, WGY,

WHA, WHB, WJZ, WLAG, WLS, WLW, WMAQ, WOS, WPAL.

Saturday: KDKA, KYW, WBAH, WBAP, WBBR, WDAF, WFL WGI, WHAA, WJZ, WLAG, WLS, WOAW,

Monday: KGO, WBZ, WDAR, WEAF, WGR, WGY, WLAG, WLW, WOC, WOS.

Tuesday: KFAE, KFSG, KGW, KYW, WAAW, WCAE, WDAF, WDAR, WEAF, WGI, WGY, WHAS, WJY, WJZ, WLAG, WLS, WMAQ, WOC, WOR, WRC, WSB.

KGW, Portland, Ore. (Pacific, 423), 3 p. m., children's program: Katherino Doran, pianist; story, Aunt Neil; 10, George Olsen's Metropolitan orchestra.
KHJ, Los Angeles, Calif. (Pacific, (395), 12:30-1:15 p. m., concert; 2:30-3:30, matince musicaie; 6-6:30, Art Hickman's concert orchestra; 6:45-7:30, children's program, Prof. Walter Sylvester Hertzog; Heien Pirie, screen juveniie; Margaret Johnson, violinist; Thornton Ward, reader, age, 7 years; Bedtlme story, 'Uncle John'; 8-10, Santa Ana program, Ollimae Mattbewa, violinist; Mme Manuella Budrow, soprano; Caesar Cionfonl, trombonist; Eari Frazer, planist; Edward Burns, cellist; 10-11, Art Hickman'a dance orchestra. KPO, San Francisco, Calif. (Pacific, 423 i-2 p. m., Rudy Seiger's Fairmont Hotel orchestra; 2:30-3:30, musical matinee; 3:30-5:30, tea dance, E. Max Bradfield'a Versatiie band; 8-12, Art Weidner and his artists; David Zimet.
KSD, St. Louis, Mo. (Central, 546), 8 p. m., Missouri Theater orchestra and specialites.

artists; David Zimet.

KSD, St. Louis, Mo. (Central, 546), 8 p. m., Missouri Theater orchestra and specialties.

KYW, Chicago, III. (Central, Daylight, 536), 11:35 a. m., table talk, Mrs. A. J. Peterson; 7-7:30 p. m., dinner concert, Congress hotel; 8-8:58, Jessie Mandoville, soprano; Henrlette Nolan, violinist; Luther Carter, tenor; Eather Thomas, accompanist; E. H. Brunn, accompanist; Prof. John Wheeler, astrologist; 9, talk, Vivette Gorman; 8:05, Youth's Companion; 9:15-12:30, late show.

PWX, Havana, Cuba (Eastern, 400), 8:30 p. m., artists from personnel of the Cuban Telephone company; Adeilna Ares, planist; songs, Virginia Gonzalez; Maria Antonia Calcines, reader; Power, mandolinist; songs, Miss A. Biart; Elana Gii, mandolinist.

WBAH, Minneapolis, Minn. (Central, 417), 12:30-1:30 p. m., children's vaudeville; 7-7:30 p. m., Council of churches.

WBAP, Fort Worth, Texas (Central, 476), 7-7:40 p. m., Sunday school lesson and Radlo Bible class, Mrs. W. F. Barnum.

WBAV, Columbus, Ohio (Eastern, 390), 12 m., Ila Lorbach Owens, pianiat.

WBBR, New York, N. Y. (Eastern, Daylight, 273), 8 p. m., Mrs. B. F. Brown, Jr., mezzo-soprano; 8:15, Ruth De Boer, soprano; 8:30, Bible questions and

Ruth De Boer, soprano; 8:30, Bible questions and answers.

WBZ, Springfield, Mass. (Eastern, Daylight, 337), 6 p. m., dinner concert, Leo Reisman ensemble; 6:30, dinner dance muslc, Leo Reisman and his orchestra; 7:10, Leo Reisman ensemble; 7:30, bedtime story for the kiddies; 7:40, Hotel Kimball trio, Jan Geerts, violinist; Angela G. Lonergan, cellist; Paul Lawrence, planist; 9; concert, Mrs. George Y. Kella, director.

WCAE, Pittsburgh, Pa. (Eastern, Daylight, 462), 3 p. m., Billy Zoffer's Music Box Cafe orchestra; 6:30, dinner concert, William Penu hotel; 7:30, Uncle Kaybee; 7:45, vocai selections, Lew Kennedy, baritone; Irene Setzler, planist; 8:30, Nevin trio; Dr. John M. Hierholzer, flutist; Eleanor Conley, soprano; Marie Caveney, pianist.

WCX, Detroit, Mich. (Eastern, 517), 4:15 p. m., music; 6, dinner concert; 7, Eastern Star Cafe orchestra.

WDAF, Kansas City, Mo. (Central, 4i1), 3:30-4:30 p. m., the Star's Radio trio; 6-7 p. m., school of the air. plano tuning-in number, the Duo-Art; address, Edgar A. Linton, writer-lecturer of K. C.; the Tell-Me-a-Story Lady; music, the Hotel Muelbach orchestra; 11:45-1 a. m., nigbthawk frolic, the Plantation players.

WDAR, Philadelphia, Pa. (Eastern, Daylight, 395), 11:45 a. m., daily almanac; 12:02 p. m., organ recital, Stanley theater; 12:30, Arcadia Cafe concert orchestra; 2, Arcadia Cafe concert orchestra; 4:30, Coton Pickers dance orchestra; 7:30, Dream Daddy's bedtime stories.

WEAF, New York, N. Y. (Eastern, Daylight, 492),

stories.

WEAF, New York, N. Y. (Eastern, Daylight, 492),
4-5 p. m., Greenwich Village Inn orchestra; 5-5:15,
Warren Scofield, baritone; 5:15-5:30, Eila Mylius,
soprano; 6-7, dinner music, Hotel Waidorf-Astoria;
7-7:15, Wm. Owen Gilboy, tenor; 7:30-7:45, Zez Confrey, pianist; 7-8:15, bedtime story, G. R. Kinney
Shoe company; 8:15-9:15, joint program, Adeiaide de
Loca, contralto; Giadys Durham, soprano; Leslie
Ainned, baritone; Elsle T. Cowen, accompanist; 9:4510, Victor Bay, violinist; Amanuei Bay, pianist; 11-12,
Vincent Lopez and his orchestra.

WEAO, Columbus. Ohio (Eastern, 360), 1:30 p. m.,

Vincent Lopez and his orchestra.

WEAO, Columbus, Ohio (Eastern, 360), 1:30 p. m., educational talk, member Ohio State university faculty.

WEAY, Houston, Texas (Central, 360), 12-1 p. m., Rice Hotel orchestra; 6-7, Rice Hotel orchestra; 8:30-10, dance program, McMillan's dance hall.

WFAA, Dallas, Texas (Central, 475), 12:30-1 p. m., "Children's Camp," Frank E. Moran; 8:30-9:30, music, Mrs. V. O. Rosser and assisting musicians; 11-12, Adolphus Hotel orchestra.

WFI, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m.

WFI, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m. Meyer Davis Believue Stratford concert orchestra: 6, Sunny Jim, the kiddie's pal; 6:30, Meyer Davis Believue Stratford concert orchestra; 8:15 Charffe Kerr and his symphonic dance orchestra.

WGI, Medford Hillside, Mass. (Eastern, Daylight, 360), 7 p. m., Amrad Blg Brother club; 7:30, talk on cur-rent events, David M. Cheney; musicale. WGR, Buffalo, N. Y. (Eastern, Daylight, 319), 12:30-1 p. m., George Bouchard, organist.

WGY ,Schenectady, N. Y. (Eastern, 380), 8:30 p. m., dance music, orchestra of Hotel Ten Eyck.
WHA, Madison, Wis. (Central, 360), 6-9 p. ui., alumni

WHB Kansas City, Mo. (Central, 411), 2-3 p. m., indies' hour program, Sweeney Radio orchestra, direciadies' hour program, Sw tion of George Parrish.

tion of George Parrish.

WHN, New York, N. Y. (Eastern, Daylight, 360), 12-1
p. m., Radlo Shack orchestra; 2:15-2:45, Brean &
Tobias, songwriters; 2:30-3, Tom Banks orchestra; 33:45, Loew's Astoria theater; 3:45-4:15, Disabled
American Veteran orchestra, Anthony Toschis, leader;
4:30-4:45, Carrie Cohen, planist; 4:45-5, Natalie Shotland, singing; 5-5:30, Al King's Original Louisiana
Five; 6-7, at the festive board; 7:30-8, Bway
Jones and his Royal Poncianna orchestra; 8-8:15, W.
H. Carlong of the Terminal Barber shops; 8:15-8:30,
Soily Newman, planist; 8:30-8:45, Henriette Grennan,
soprano; 3:45-9, Elien Montague Cross presenting
Eugeno Willis Bradley and quartette; 9-9:45, Astoria
theater broadcasting; 10-10:30, Original Firement's
quartette; 10:45-11, Fitzpatrick brothers; 11-11:15,
Jos. B. Pobinor; 11:30-11:45, Mardia Dantzer,
soprano.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Walnut Theater orchestra; "Just Among Homo Folks," The Courier-Journal: Alamo Theater orchestra; 7:30-9, concert, Mrs. J. A. Nicklies, director; Wayne R. Euchner's orchestra.

WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a.m., Atlantic City seashore gossip; 1 p. m., Karl Bonawitz, organist; 3, "What the wild waves are saying;" 3:30, Comfort's Philharmonic orchestra; 6:05, William Smith dance orchestra; 7, Uncle Wip's bedtime stories; 8, Comfort's Philharmonic orchestra; 8:45, Vesseila's concert band, Margaret Keever, con-

tralto; 10:15. Bob Lehman's dance orche tra, Steel l'ier, Atlantic City.

WIZ. New York. N. Y. (Eastern, Daylight, 455), 3:1-3:30, "Photoplay Wrl lng," Roy C. Jrne; 1-7. Poil Specht pre ents liaroid Oxiey's Pat Lodge — e-r: 5-5:15. Frank Wright and Frank Besinger, 1 ge 1. 7-8, Greenwich Village Inn orchettra, Bif Wille, director; 8-8:15, Lenore Mans e le, soprano; 8-1-8. The Outlook Period; 8:30-8:45, Le re Mae coprano; 8-45-9, "Quieting the Receiver Neight resources of the New York Tiee, 10-19 15, Willington Lee, planist; 19:30-11, Club Lido Ve e orchestra.

9-10. pregram, the New York Tiee. 10-10 15, Willington Lee, planist; 10.30-11, Club Lido Ve orchestra.

WLAG, Minneapolis-St. Paul, Minn. (Central, 417), 11:35-12 m., post card club; 7:30-8.17, b. Te messages; 8-9:30, Municipai Band concert for Lake Harriet, Minneapolis; 10:30-12.0, dance program.

WLS, Chicago, Ill. (Central, Daylight, 345), natical farm barm dance.

WMAQ, Chicago, Ill. (Central, Daylight, 345), natical farm barm dance.

WMAQ, Chicago, Ill. (Central, Daylight, 447.5), b. 10.0, m., Hotel LaSalie orchestra; 8, Armour Glee ci; 9, weekly Balaban & Katz Chicago theater revue.

WOO, Philadelphia, Pa. (Eastern, Daylight, 509), 11 a. m., Mary E. Vogt, organist; 12:02, p. m., Wans aker Crystal tea room orchestra; 4:45, Mary E. Vit, organist; J. W. C. L. band.

WMC, Memphis, Tenn. (Central, 500), 8:30 p. m., program, Mrs. Arthur Bower and company.

WOAW, Omaha, Nebr. (Central, 526), 6-7:30 p. dinner program; 9-11, program, vocal studios, Fred G. Ellia, baritotne.

WOC, Davenport, lowa (Central, 484), 12 m., c I = 5:45, chimes; 6:30, sandman's visit; 9. The Pa ex School Radlo orchestra; Ralph W. Fuller, baritical Models, St. School Radlo orchestra; Ralph W. Fuller, baritical Models, St. School Radlo orchestra; Ralph W. Fuller, baritical Models, School iess n, Dr. W. e. L. Wilson; 8-9:30, music, Western Radio orche ir, 11-11:30, religious service, the Unity School of Contral Models, Allerian Models, Aller

11:30, religious service, the Unity School of Chainity.

WOR, Newark, N. 1. (Eastern, Daylight, 405), 7-7-3
a. m., Woit gym class; 2:30-3 p. m., Kola' Pie' a symphony orchestra; 3-3:30, concert. Orche tra ci symphony orchestra; 3:20-4. Kola's Picctru orchestra; 6:15-7:30, "Music While You Dine." E. Marchestra; 8:55-9:15, religiously of Mme. Jessie Fenner Hill: 9:15-9, "H. E. Hours with Men of Achievement," George Gr. y Branard, scuiptor; 9:45-10, Mme. Jessie Fenner Hill: 9:15-9, "H. E. Hours with Men of Achievement," George Gr. y Branard, scuiptor; 9:45-10, Mme. Jessie Fenner Hill: 9:15-9, "H. E. Mours with Men of Achievement," George Gr. y Branard, scuiptor; 9:45-10, Mme. Jessie Fenner Hill: 9:15-9, "H. E. Mours with Men of Achievement," George Gr. y Branard, scuiptor; 9:45-10, Mme. Jessie Fenner Hill: 9:15-9, "H. E. Mours with Men of Achievement," George Gr. y Branard, scuiptor; 9:45-10, Mme. Jessie Fenner Hill: 9:15-9, "H. E. Mours with Men of Achievement," George Gr. y Branard, scuiptor; 9:45-10, Mme. Jessie Fenner Hill: 9:15-9, "H. E. Mours with Men of Achievement," George Gr. y Branard, scuiptor; 9:45-10, Mme. Jessie Fenner Hill: 9:15-9, "H. E. Mours with Men of Achievement," George Gr. y Branard, scuiptor; 9:45-10, Mme. Jessie Fenner Hill: 9:15-9, "H. E. Mours with Men of Achievement," George Gr. y Branard, scuiptor; 9:45-10, Mme. Jessie Fenner Hill: 9:15-9, "H. E. Mours with Men of Achievement," George Gr. y Branard, Scuiptor, 9:45-10, Mme. Jessie Fenner Hill: 9:15-9, "H. E. Mours with Men of Achievement," George Gr. y Branard, Scuiptor, 9:45-10, "Men of Achievement," George Gr. y Branard, Scuiptor, 9:15-10, "Men of Achievement," George Gr. y Branard, Scuiptor, 9:15-10, "Men of Achievement, Men of Achievement

Dance orchestra; Amphion Male quartet.
WTAS, Elgin, III. (Central, 286), 7:30-12 / idni ...
WTAS orchestra; Lee Sims, pianist.
WWJ, Detroit, Mich. (Eastern, 517), 8 a. m., setti up exercises, R. J. Horton; 12 m., Detr it Ness
orchestra; 3 p. m., Schmeman's band; 7:30, S — e a s
band.

Sunday, June 22

Silent night for: CKAC, KFAE, KFAF, KFOA, KGO, KSD, WAAW, WBAH WDAF, WDAR, WGR, WHN, WIP, WOO.
CHYC, Montreal, Can. (Eastern, Daylight, 341), 7 p. m., American Prestyterian church.
CKAC, Montreal, Can. (Eastern, Daylight, 425), 4.19

CRAC, Montreal, Can. (Eastern, Daylight, 425), 4.79
p. m., sacred concert.
CRCK, Regina, Can. (Mountatin, 420), 8 p. m., Ret.
J. H. Wells, Church of Christ.
KFI, Los Angeles, Calif. (Paelfic, 469), 10 in 45 a. .
L. A. Church Federation service; 4-5 p. m., at the musicale; 6:45-7.30, concert; 8-9, Amba-s d r h el.
concert; 9-10, Examiner c neert; 10-i1.

concert.

KFNF, Shenandoah, Iowa (Central, 266), J.p. a. cervices, L. J. Schnabel, director; 6:50, sarrd

KGO, Oakland, Callf. (Pacific, 312), 3:30 p. m., KGO Little Symphony orchestra, t'ari Rh le a e .

ductor.

KGW, Portland, Ore. (Pacific, 492), 6 p. . . ch renservices, Rose City Park Preshyterian chur, R.v. Donald MacCleur, pastor, 7, George Olse 's cort orchestra.

8-10, De Luxe concert.

KYW, Chicago, III. (Central. Daylight, 536), 11 a. m. morning service; 2.0, studio chapel service.

WBAP, Fort Worth, Texas (Central. 476), 11-12:15 p. m., First Presbyterian church, Rtv. J. K. T. pastor; 4-5, Marguerite A. White, organit; 11-12, popular program, Fred Cahoon's reliestra.

WCX, Detroit, Mich. (Eastern, 517), 2 p. m., Rand chapel services, Detroit Free Press studic, 7 5, se via Central M. E. church, Rev. Lynn Harold Hu, pastor; Hudson quartet.

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

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

wdar, Ransas City, Mo. (Central, 417), 3-4 p. m., classical program, Star Radio orchestra.

WEAF, New York, N. Y. (Eastern, Daylight, 492), 3-4 p. m., hymn singing, Greater New York Federation of churches; 4-5, services, Greater New Yrk Federation of churches; 7:20-9-15, Capitol theater; 9-15-10-15, organ recital, Skinner organ company.

WEAY, Houston, Texas (Central, 360), 11 2, m., 8 p. m., church services, First Baptist church; 9:50-10, 1ris theater organ concert. WFAA, Dallas, Texas (Central, 476), 9-10 a.m., sacred song recital, Double Male quartet, Grace Methodist Episcopal church, Earle D. Behrends, d'recter; 10-11, crehestra, Grace Methodist Episcopal chur

(Continued on page 14)

DEMOCRATIC CONVENTION STARTING JUNE 24 ON CHAIN OF STATIONS

Where to Hear Concerts

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

Wednesday: CHYC, KDKA, KFAE, FI. KFNF, KFOA, KGW, KHJ, LX, KPO, KQV, KSD, KYW, PWX, AAW, WBAP, WBAR, WCAE, CAP, WCA, WLAF, WCAF, KFKN, KFNF, KFSG, KGO, CW, KHJ, KPO, KYW, WBAJI, PBAP, WBAF, WBAF, WCAF, KCAF, KC

WJ.

PHORY. CPCN. KDKA, KFAF, KFI,
NF, KFOA, KFSG, KIIJ, KGW,
X, KOV, KND, KYW, WBAH,
AP, WBAV, WBZ, WCAE, WCAP,
X, WDAF, WDAR, WEAF, WEAO,
AY, WFAA, WFI, WGAZ, WGI,
Y, WIIAS, WHB, WHK, WHN,
WJY, WJZ, WKAQ, WLAG,
WHAQ, WMC, WOAW, WOC,
N, WOR, WOS, WPAL, WSB,
S, WWJ.

WSAI, WSB, WTAM, WTAS, WWJ, Sunday: CHYC, CKAC, KDKA, KFI, KFNF, KFSG, KGO, KGW, KHJ, KYW, WBAP, WCAE, WDAR, WEAF, WEAF, WFAA, WGI, WGY, WHAS, WHK, WIP, WLAG, WLS, WLW, WOC, WOO, WPAL, WSAI, WTAS, WSB.

Monday: KFAF, KFI, KFKX, KFOA, KGO, KGW, KQV, WAAW, WBAII, WBAP, WBAV, WBZ, WCAE, WCBD, WCX, WDAF, WGX, WGX, WHAZ, WGY, WHAZ, WGY, WHAZ, WGY, WHAZ, WGY, WHAZ, WGY, WHAZ, WGY, WIP, WGW, WOO, WOO, WOO, WOS, WYAL, WSB, WTAS, WWJ, CKAC, KFAF, KFI,

Thursday, June 19

(Continued from page 11)

CONTINUED A TOTAL 1988 117

KDIKA Lillie Kymishony orchestra; 6:30, chliperiod, "The Man, the Allisator and like Cunning
labilit", 8, conject of Civil War and other old
melodies, KDKA Little Symishony brobestra; Irma
nick software, Salsol Kling, pantrallo; Roy
r, reaor; Ethol Whittesh, narpais; 10, con-

KFSO, Les Anpoles, Catti. (Pacific, 278), 3:30-4:30 p. cm. result; from Cohntr. Dirt. Concret; France Henking, reader; 6:30-7:39, "Kozy Hour;" story and song, ituth Chaytor; 8-9, address. Almes Semplo McPhatson; 9-10, concert, Grap, studio, Angelun Temple quartie; choir; "Family Alter. (GO. Dakinnd, Calit., (Pacific, 312), 4-5:30 p. m., concert orchester. Botel St. Francis; 8, part one; Durant Lodge No. 228, F. & A. M., maile chorus; Mrs. Clara Suydet, planis; Robert M. Battison, tenor; Lonell M. Redileit, burtlose; Holen Chakurias, violitals; George R. Hunter, Ienor; Dalsy R. Seckat, Soprano; pari two: Ilaxalian music, B. R. Seckat, and st. Fern Rachman, violitiet, John Lampbell, violitis; Barry Tallman, violitist, John Lampbell, violitis; Barry Tallman, violitist, John Lampbell, violitis; Barry Tallman, violitist, 2021, 23:30 p. m., chli-

anist; Fern Hachman, violinist; John Pamphell, Hinlst; Barry Tailman, violinist; Jernal Dean, cellist, Portland, Dre. (Pealin, 492), 3:39 p. m., chlidren's governar; 8:15, studio program, stance music, and stance of the st

Minneapelis, Minn, (Contral, 417), 12:30-1:30 filch Long's trio and soloist; 0:30-11 p. m., Tollofeen, tenor; Allee O'Relly, contrallo; over, pienist Fort Worth, Texns | Central, 4761, 9:30-10:45 Fort Worth, Texns | Central, 4761, 9:30-10:45

11:45 s. m., dally simonae; 12:02 p. m., organ recital, Stanley bioslar; 12:30, Arcadis Cafo concert orchostra; 2 c. m., organ recital; Stanley bioslar; 12:30, Arcadis Cafo concert orchostra; 2 c. m. orc

WEAY, Nouten, Taxas (Control, 360), 12-1 p. m., Rice Hotel ortelestra; 2:30-3:30, matthee; 6-7, Rice Hotel ortelestra.

WEAA, Dnilias, Texas (Cantral, 476), 12:30-1 p. m., WEAA, Dnilias, Texas (Cantral, 476), 12:30-1 p. m., "Westut of Texas Rochs," Dr., Ellis W. Shuler; 8:30-9 3:30, massed band of Garland, Wytle and Rockwall, L. R. Vidlor, director; 11-12, Seven Bymopailing Lackrabits, manager B. A. Hugelins.

WF1, Philadophin, P. B. Releaser, 1989, 1395, 13

Friday, June 20

Friday, June 20

White Fig. Nation Slum, director, Walter and States, plants; 19-10, E. Mais Sandardi, States, plants; 19-10, Sta

Gladys Gray (left) whose charming soprano voice will keep the standard of the WJAX programs up to its usual mark Thursday, June 19. Alice O'Reilly, the charming colonial lady above will sing old fashioned songs from WBAH, Minneapolis, Tuesday, June 24. (David Youngling)

DANCING F OR Daners the following scedule of the week's syncopation is given:

Wednesday

Thuitday:
CKAC, KDKAK
KFI, KOW, KHJ;
KPO, KIN, WBZ;
WEAR WHN,
WIP, WIZ, WMAQ,
WOC, WIC, WWJ.
Friday: CKAC,
KFI, KIJ, KPO,
KSD, KY W,
WDAR,
WEAR
WEI, WER, WHN,
WJZ,
WMAQ,
WOO, WWJ.
Saturd F.CKCA,
KFI, KIO, KGW,
KHJ, KIO, KGW,
KHJ, KIO, KYW,
WBAY,
WFAAJ, WFAY,
WFAAJ, WFAY,
WFAAJ, WFAAJ,
WOC, WOR,
WOAL,
WHAM,
WWJ.

Monday: CKAC, KFAF, KFOA, KPO, KQV, WDAR, WEAF, WFI, WHAS, WOO, WOS. Tnesday: CKAC, KDKA, KFI, KGO, KHJ, KPO, KYW, WEAF, WHN, WPFI, WHN, WJZ, WLW, WMAQ,

DRAMA NOTES WMAQ, "The Three Wishes," Students of McLear college; WLAG, WLAG

Thu ay:
Matinee, "A Soldier's Courtship"
Evening, "The
House Nett Door,"
WGY players.

Paul Specht will present Harold Oxley's Post Lodge or-chestra at WJZ Saturday, June 21. Here Mr. Specht is shown with his "insect jazz" orches-tra. Two beetles and a cricket are in the paper bags.

Where to Hear Talks

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

Thursday: CKAC, KDICA, KGO,
KYW, WAAW, WBBR, WCAE,
WDAF, WEAO, WGY, WHAS, WHR,
WHP, WJAX, WJZ, WLAG, WLS,
WMAQ, WOC, WOR, WCC.

Friday: KDKA, KFOA, KGW, KIIJ, KYW, WAAW, WBAY, WCAP, WDAF, WEAF, WEAO, WGI, WBY,

WILA, WHR. WJZ, WLAG, WLS, WLW. WAIAQ, WOS, WPAL, Saturday: KDKA, KYW, WBAH, WHAI, WBAE, WBAE, WBAE, WBAE, WBAE, WLS, WAAW, WRC.

Monday: KGO, WBZ, WDAR, WEAF, WGR, WHY, WLAG, WLW,

WOC, WOS,

TRESDAY: KFAE, KFSO, KGW,
KYW WAAW, WCAE, WDAF,
WDAR, WELF, WGI, WGY, WHAS,
WJZ, WLAG, WLS, WMAQ,
WOC, WOR, WRC, WSB.

KGW. Portland, Drs. (Patific, 423), 3 n. m., chiliters', poorsain: Katherine Decat. plantit; story, Anal Notl; 10. Gooree Olevit Mellopolitan carchester, 1230-113 n. H. Low Angolas, Calit. (Patific, 433), 112-0-113 n. H. Low Angolas, Calit. (Patific, 433), 113-0-113 n. H. Low Angolas, Calit. (Patific, 434), 113-0-113 n. H. Low Angolas, Calit. (Patific, 431), 113-0-113 n. H. Low Angolas, Calit. (Patific, 431), 113-0-113 n. H. Low Angolas, Calit. (Patific, 431), 123-0-113 n. H. Low Angolas, Calit. (Patific, 431), 133-0-13 n. H. Low Angolas,

wette his "Placed Sart" according to the control of the control of

padcast

WLS,

VBAH. WGI,

WDAR. WLW,

KGW, VHAS. WMAQ,

rche tra, Steel

t, 455), 3-15ne; i-7, P-1
)dre ep e tr;
neer, e ge 'i
Bi' Wyr e,
no; 8:15core Ma o
Feighborth ;
0-10 15, W-1
Lido Ve o

Central, 417), d 17, b e s ert frov L-Ec program. 345), nati al

447.5). • • • pur G ee c ; pr revue. it, 509), 11 & a., Wana aker pry E. V 2,

10 p. m., pro-

6-7:30 p. m., idios, Fred G.

the Pa er c, baritine.
7-7-30 p. m., r Wate L, orchett. 11-

405), 7-7 -1 lola's Pe == ldiestra or -a Dine." E ka Gene 1 - h = 1 -9 15, r it. 15-9 0, "H. I rre G sy B-r-Fenner H 's

> - J-45 Œ

10 p. .

dance orenestra; 7, Uncle Wip's Dedtime stories.

wjy, New York, N. Y. (Eastern, Daylight, 405), "Sport," 8:30 p. m., overture, 8:35, prologue, 8:40, episode 1, Jazz, Xylophone, Hennssey orchestra, 9, episode 2, a Sing Song, the Dixie Stars (Bernard and Robinson), 9:30, episode 3, Three Nibs Up. Audrea Peyree, 9:45, episode 4, popular melodies, Koty and Abram, 10:15, episode 5 J. Andrew White, 10:30, episode 6, Jazz.

wjz, New York, N. Y. (Eastern, Daylight, 455); 1-1:15 p. m.: Hotel Ambassador trio; 3-4, Hotel Astor organ recital; 4-4:10, Eleanor Gunn's fashion talk; 4:10-4:20, arts and decorations; 4:20-4:30, "Peeps at People," Edythe H. Browne; 4:30-4:45, "Kandy Kiddies," Sarita MacLeary; 4:45-5:15, "Fashions of the Stage," Cora Moore; 5:15-5:30, Fred Gerrold, baritone; 8-8:15, "The Economic Value of Insects," Dr. Frank C. Lutz; 8:15-10, Goldman band concert, Edwin Franko Goldman, conductor; 10-10:45, peoples chorus, 10:45-11, Paul Specht's alamac orchestra.

WKAQ, San Juan, P. R. (Central, 360), 6-8 p. m./, studio program.

WLAG, Minneapolis-St, Paul, Minn. (Central, 417),

WKAQ, San Juan, P. R. (Central, 360), 6-8 p. m./, studio program.

WLAG, Minneapolis-St. Paul, Minn. (Central, 417), 10:45-11:15 a. m., household hints; 11:35-12 m., surprise hour; 2:10-2:40 p. m., woman's club hour, "Stage and Screen Review," Lester Rees; "Fresh Air Camps as Character Bullders," Belle Mead; 2:40-4, Charles Cordray's Slowpoko orchestra; 4-4:30, magazine reading; 5:30-6, children's hour; meeting Radio Health and Toothbrush Club of America; Dr. F. W. Pepper. president; 6-6:15, sport hour, "Canoeing West End of Hunter's Island," Mel Nyman; 7:30-8:15, farm

Silent night for: CKAC, KFNF, KFAE, KFOA, KFSG, KQV, WAAW, WBAP, WBAV, WDAR, WEAO, WGR, WLW, WOO, WOS, WWJ.

CKAC, Montreal, Can. (Eastern, Daylight, 425), 7
p. m., kiddles' stories in French and English, Tho Book of Knowledge; 7:30, classic music, Rex Battle and his Mount Royal Hotel orchestra; Benjamin Scherger and his Mount Royal Hotel orchestra; Benjamin Scherger and Mount Royal Hotel orchestra; Benjamin Scherger organist; 8:30, La zer, violinist; Herbert Spencer, organist; 8:30. La Presse Studio entertainment; 10:30, Mount Royal Hotel Roof Garden Dance orchestra. KFAF, Denver, Colo. (Mountain, 360), 8-9 p. m., KFAF

Gloom Busters. KFI, Los Angeles, Calif. (Pacific, 469), 6:45-7:30 p. m., vocal concert; 8-9, concert, Ruth Shaffner; 9-10, Examiner concert; 10-11, concert, popular songs; 11-12, Ambassador-Max Fischer's Cocoanut Grove orchestra.

Ambassador-Max Fischer's Cocoanut Grove orchestra. KFNF, Shenandoah, iowa (Central, 266), 7:30 p. m., concert, artists from Coburg.
KFSG, Los Angeles, Calif. (Pacific, 278), 3:30-5:30 p. m., concert, Gray studio, courtesy, Mrs. Elizabeth Hughes; organ recital, Roy Reid Brignall; 6:30-7:30, 'Kozy Hours,' Junior Crusaders; Prc-view I. S. S. lesson by Mother; Snowgrim Sisters, Golden trio. KGO, Oakland, Calif. (Pacific, 312), 4-5:30 p. m., concert orchestra, Hotel St. Francis; 8, part one: faculty of Arrillaga Musical college: Raymond White, pianlst; Frances D. Woodbridge, soprano; George Edwards, planist; Mynard S. Jones, bass; Guy B. Kibbee, reader; part two: Musical Art Society Male quartet, Vern Kelsey, pianist; 10-1, Hotel St. Francis Dance orchestra, Henry Halstead, leader.

ladles hour program, Sweeney Radio orchestra, direc-

ladies hour program, Sweeney Radio orchestra, direction of George Parrish.

WHN, New York, N. Y. (Eastern, Daylight, 360), 12-1 p. m. Radio Shack orchestra; 2:15-2:45, Brean & Tobias, songwriters; 2:30-3, Tom Banks orchestra; 3-3:45, Loew's Astoria theater; 3:45-4:15, Disabled American Veteran orchestra, Anthony Toschis, leader; 4:30-4:45, Carrie Cohen, planist; 4:45-5, Natalie Shotland, singing; 5-5:30, Al King's Original Louisiana Five; 6-7, at the festive board; 7:30-8, Bway Jones and his Royal Poncianna orchestra; 8-3:15, W. H. Carlong of the Terminal Barber shops; 8:15-8:30, Solly Newman, planist; 8:30-8:45, Henriette Grennan, soprano; 8:45-9, Ellen Montaguo Cross presenting Eugene Willis Bradley and quartette; 9-9:45, Astoria theater broadcasting; 10-10:30, Original Firemen's quartette; 10:45-11, Fitzpatrick brothers; 11-11:15, Jos. B. Pobiner; 11:30-11:45, Mardia Dantzer, soprano. sobrano.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Walnut Theater orchestra; "Just Among Home Folks," The Courier-Journal; Alamo Theater orchestra; 7:30-9, concert, Mrs. J. A. Nicklics, director; Wayne R. Euchner's orchestra.

WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a. m. Atlantic City seashare gossin; 1 n. m. Karl

vIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a.m., Atlantic City seashore gossip; 1 p. m., Karl Bonawitz, organist; 3, "What the wild waves are saylng;" 3:30, Comfort's Philharmonic orchestra; 6:05, William Smith dance orchestra; 7, Uncle Wip's bedtime stories; 8, Comfort's Philharmonic orchestra; 8:45, Vessella's concert band, Margaret Acever, con-

recital and service from First M. E. church, Ar r. Blateley, (reanist; Rev. E. E. He s., paster; Art Hickman's concert orchestra; 7-7:0, read recital from First M. E. church, Arthur Biakeley, c. c. nist; 8-10, De Luxe concert.

from First M. E. church, Arthur Blakeley, e.g. nist; 8-10, De Luxe concert.

KYW, Chicage, iii. (Central, Daylight, 536), 11 a. m., morning service: 2:50, studio chapel service.

WBAP, Fort Worth, Texas (Central, 476), 11-12 15 p. m., First Presbyterian church, Rev. J. K. Th. 12, pastor: 4-5. Marguerite A. White, organit; 11-12, popular program, Fred Calloon's crehestra.

WCX, Detroit, Mich. (Eastern, 517), 2 p. m., Rac. of chapel services, Detroit Free Press studic: 7-5, servicentral M. E., church, Rev. Lynn Harold II., pastor; Hudson quartet.

WDAF, Kansas City, Mo. (Central, 411), 3-4 p. m., classical program, Star Radio orchestra.

WEAF, New York, N. Y. (Eastern, Daylight, 492).

3-4 p. m., hymn singing, Greater New York Federation of churches; 7:20-9-15, Capitol theater; 9-17-10:15, organ recital, Skinner organ company.

WEAY, Houston, Texas (Central, 360), 11 a. m., S.p. m., church services, First Baptist church; 9:30-10, 1ris theater organ concert.

WFAA, Dallas, Texas (Central, 476), 9-10 a. m., sacred song recital, Double Male quartet, Grace Methodist Episcopal church, Farle D. Rehrends, director; 10-11, crehestra, Grace Methodist Episcopal church, Farle D. Rehrends, director; (Continued on page 14)

Sunday, June 22

(C) U ued fron page 13)

WEI Polta elphia Pa, (Eastern, Daylight, 395), 4:30 w 61 M - ard Hillside, Mass. (Eastern, Daylight, 360).

Advent re hair "Youri's dispress Greater Boston

w GR Buffale, N. Y. (Eastern, Daylight, 319), S p. m.

w GR Buffale, N. Y. (Eastern, Daylight, 319), S p. m.,

w Y Schenectady N N. (Castern, 380), 10 a. m.,

S I't Y Isc I church, Rev Charles

I rec' p. m., choral evenson, Si
w MA, Madlson, Wis. (Central 360), 4 p. m., bac
res I'res F. A. Birge,

w HAS, Louisville, Ky. (Central, 400), 9:57 a. m.,

Scrives, Warren Memorial

R I. Pr Samuel L. Callen, pas
W a Y I're en or, anist: 45 p. m., concert,

N R in c. dll r.

w HB, Kansas City, Mo. (Central 411), 2-3 p. m., pro
fr s. sie. Sweeney Radlo orchestra;

first it c urch scriver from a Kansas City

s part, program of popular and semi
semi
w MK, Cleveland, Ohio (Eastern, 283), 6 p. m., chapel

K Sweeney Radlo orchestra.

w MK, Cleveland, Ohio (Eastern, 283), 6 p. m., chapel

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

S C ve and Federaved churches; 8 p. m.,

H H New York, N. Y. (Enstern, Daylight, 360), 3-3:45 Is Ast ria ! . iter: 4-5, Queen's County i an Ende v r uni . 9-9:45, Loew's Astoria . - r: 10-1 l. "A Bit of Shakespeare," James O - : i 11-1 l. Afred Dulin, planist; 10:30-25, Fed R. G. dri tenor; 10:45-11, Mme. a Windows Roy no.

WIP, Phiadelphia, Pa. (E. tern, Daylight, 509), 7:30 p. . serice: Hay Tringy church, Rev. Floyd W. T. kins, D.D.; !), concert, steel pler, Atlantic

WLAG, Minneapolis-St. Paul, Minn., (Central 417)

-12 m. West inster Presbyterlan church; 3:45-p in H se of Hope Presbyterlan church; 6:20-8 d C urch of Christ Scientist; 7:45-9, Henwls, Chago, III. (Central, Daylight, 345), program

WLS, Cheago, Ill. (Central, Daylight, 345), program Strong Army hand.
WOAW Omaha, Nebr. (Central, 526), 9-10:45 a.m., R Chilary and Strong Army hand.
WOAW Omaha, Nebr. (Central, 526), 9-10:45 a.m., R Chilary and Strong Army hastor of the Grand Control of the Grand Army hastor of the Grand Army h

WPAL, Columbus, Dhio (Eastern, 286), 6 p. m., Chitwtas, Elgin, III. (Central, 286), 7:30-12 midnight. Wtas, Elgin, III. (Central, 286), 7:30-12 midnight. Wtas rehesra; Lee Sims, planist. WwJ. Detroit, Mich. (Eastern, 517), 11 a, m., services, P. Eliscopal cathedral; 2 p. m., Detroit News cychestra.

Monday, June 23

Silent night for: KGW, WBBR, WDAR, WGR, WOC, WOO, WOR, WOS.

CKAC, Montreal, Can. (Eastern, Daylight, 425), 1:45

m. Mount Royal Hotel orchestra; 4:30, tea dance, Mount Royal Hotel orchestra; 4:30, tea dance, Mount Royal Hotel orchestra; 4:30, tea dance, Mountain, 360), fourth a... Jal national convention of the Disabled American Vecerans, music, speeches, H. C. Mailander, director; Mountain, 360), 8:0 p. m. Royal KFAF, Deunyer, Colo. (Mountain, 360), 8:0 p. m. Royal KFAF, Deunyer, Colo. (Mountain, 360), 8:0 p. m. Royal Ro

Violame Sciumann-Heink.

KFAF, Deunver, Colo. (Mountatin, 360), 8-9 p. m., Bo, ian Dance orchestra.

KFI, Los Angeles, Calif. (Pacific, 469), 8-9 p. m., Evering Herald concert; 9-10, Examiner concert; 10-11,
Ambassad r-Max Fischer's Coccanut Grove orchestra.

KFOA, Seattle, Wash. (Pacific, 455), 8:30 p. m.,
vi in recital, Evelyn Heidenstrom, Russell Pohl;
Evance i.e Hall, accompanist.

KGO, Oakland, Calif. (Pacific, 312), 3 p. m., speaker,
curtesy of Parent-Teacher associations; 4-5:30, Hotel
St. Francis Dance orchestra; 8, educational program;
Atlantic.

KGW, Portland, Dre. (Pacific, 492), 3:30 p. m., llterary program, Portland Library association; 8-10, old ings. Beaux Arts society.

KHJ, Los Angeles, Calif. (Pacific 395), concert, Carl Allem and Rendezvous Ballroom orchestra; E. M. Bonke, "Uncle Remus."

KQV, Pittsburgh, Pa., (Eastern, Daylight, 270), 5-5:30 r. m., "Twilleht Tele" and "Diary of Snubs, Our Dog"; 9-10, Feldman Hager trlo, Lillian Rith Feldman, planist; Rose A. Feldman, violinist; William Hager, flutist; Marguerite Lang, soprano.

WAAW Omaha, Nebr. (Central, 360), 7:30-9 p. m., i u ica'e, Helen Ergelston, Clara Yechout, Joseph Pastok, Herr an Strahmer, Lucille Taylor, Prof. Bennett, Pharen.

CK, Herr an Strahmer, Lucille Taylor, Prof. Bennett, 17. Haren.

WBAH, Minneapolis, Minn. (Central, 417), 12:30-1:30 p. m., Dick Long's trio and solist; 9:30-11:30 p. m., reert.

WBAP, Fort Worth, Texas (Central, 476), 9:30-10:45 p. concert octet of Old Time Fiddlers of Mineral Wis, it Johnson, director.

WBAY, Columbus, Ohio (Eastern, 390), 12 m., Ila Lorbach Owens, plantt; 8 p. m., WBAY orehestra, Frances H.nr. 1, director.

WCBD, Zion, III. (Central, Daylight, 345), 8 p. m.,
a. r. pro-tam; Zion band; Mrs. J. D. Thomas,
f. ence Farrar. contralto; G. R. Sparrow,
c. o'.: L. J. Hire, violinist; Richard F. Hire, violaist;
Mr. L. J. Hire, planist; J. D. Thomas, barltone;
George Beem, relophonist;
WEAY, Houston, Texas (Central, 360), 12-1 p. m., Rice
Hole orcheta; 2:30-3:30, studio concert; 8-7, Rice
H el orcheta; V. (Cantral, 400)

Hotel orcherta; 2:30-3:30, studio concert; 8-7, Rice H el orche a
WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Alamon Theater orchestra; Fred Hughes, Welsb tenor; Walk Theater orchestra. 9 p. m., concert, pupils of M. S. Jean L. Cooper; Myra Scott, reader; 9:30, Bringing Back the Bird.—What Refosestation is Ting to Circle wild life," Ca sius A. Johnson.
WXC, Detroit, Mich. (Eastern, 517), 4:15 p. m., music 6, d. et of cert; 2:30, ms. leaf program.
WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p. m., i'e Star's Itad'n trio; 5-5:30, Boy Scout program, direction of the Kansas City Council; 6-7, school of the a r, plano tuni g-in number, the Duo-Art; address, leaker, university of Kansas; request story numbers, "Tell-Me-2-Story Lady; 8-3-15, the Star's orchestra and the "DAF ministrels; 11-35-1 a.m., Nighthawk fr ic e Pantation player.
WDAR, Philadelphia, Pa, (Eastern, Daylight, 395), 11-45-2. m., daly almanae; 12:92 p. m., organ recital, Star'ey theater; 12:0, Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 7:30, Dream Daddy's bedtline ato les; 8:55, "Opera Talk," Samuel Lacler; 9:30, Stanley Symphony orchestra, Josef Pasternack, d rector; 10, Howard Lanin's Arcadia Cafe dance of the restar and the story of the

d rector; 10. Howard Lanin's Arcadia Cafe dance or e. ra.

WEAF, New York, N. Y. (Eastern, Daylight, 492), 1111.35 a. m., B. ard of Education; 11-55-11:45, Adele Woodward; 4-4-15 p. m., Charles Bryden, tenor; 4:15-4-30, Hilda Ramon, soprano; 4:30-4:45, Edna Robinson, soprano and Grace Ellen Cambell, contrato; 4:45-5, Ovear Rice, Melville and Robert Hicks, banjoins; 5-5:30, children's program; 6-7, dinner mu lt. Hotel Waldorf, Astoria; 7:15-7:30, Vanstan Lee, 14rl 16; 7:36-7-45, Raymoni H. Torrey-Hiking through New York state; 8-8:30, Corn Products Refined Carbons, soprano.

WEAC, Columbus, Ohio (Eastern, 360), 1:30 p. m., elucational talk, member Ohlo State univerlity fa

yul A.G. Minneapolis-St. Paul, Minn, (Central, 417), 11 15 a. m., housefold hints: 11:35-12 m., sur-F Philadelphia, Pa. (Eastern, Oaylight, 395), 1 p. m., Davis Bellevue Stratford concert orchestra; 3,

Loretts Kerk, pianist; 6, Sunny Jim, the kiddles' pal; 6.0, Meyer Pavis Bellevue Stratford concert orecestra; WGR, Buffalo, N. Y. (Eastern, Daylight, 319), 12:30-1 p. m., George Albert Bouchard, organist; 6:30-7:30, dinner music; 9-10:30, musical program, Catholic Union and Times; 10:30-11:00, concert, the Ganzer Buffalonian orchestra; 11:30-1:30, supper-dance music, Vincent Lopez Hotel Statler orchestra, Harold Gleser, directing. WGY, Schenectady, N. Y. (Eastern, 380), 1 p. m., "Sane Lunatics," Mrs. Katherine V. Steers; 7:45, Reutling's Imperial orchestra 'Fred G. Reutling, planist; "Auto 1.12hting," 1, C. Porter.

WHB, Kansas City, Mo. (Central, 411), 2-3 p. m., iadles' hour program of scml-classical and popular music by the Sweeney Radio orchestra; educational talk. WHN, New York, N. Y. (Eastern, Daylight, 360), 2:15-2:30 p. m., Irving Berlin Music company; 2:30-2:45, Sylvia Brown, songs, 3:45-4, L. Wolfe Gilbert, song-writer; 4-4:30, John Pääluhl's Hawilan orchestra; 6-7, nt the festive board; 7:30-8, Roseland orchestra; 6-7, nt the festive board; 7:30-8, Roseland orchestra; 6-7, nt the festive board; 7:30-8, Roseland orchestra; 6-8:15, Jean Moresco, tenor; 8:15-8:15, Broadway Jones and His orchestra; 9-9:15, Wright & Bessinger; 9:30-10, Hotel Carlton Terrace orchestra; 10-11, Radio Shack and entertainers; 12-2 a. m., Midnite Bohemia. WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10 a. m., Atlantic City seashore gossip; 3 p. m., "What the wild waves are saving"; 3:30, Comfort's philharmonic orchestra; 6:05, Student's Chapter dance orchestra; 7. Uncle Wip's bedtime stories. prise hour; 2:10-2:40, woman's club hour, "20th Century Housekeeping," Bernice Bell; "Dressmaking," Mine, Myrtle Sanerston; 2:40-4, daylight, concert; 4-4:30, magazine reading; 5:30-6, children's hour; 6-6:15, sport review; 6:15-7, dinner hour concert; 7:30-8:15, farm lectures.

farm lectures.

WMAQ, Chicago, III. (Central, Daylight, 447.5), 4:20
p. m., Items of Interest to women; 4:30, music; 6, Chicago theater organ; 6:30, Hotel LaSalle orchestra.

WOAW, Omaha, Nebr. (Contral, 526), 6 p. m., speakers' half-hour; 6:30-7:30, dinner program, Randall's Royal orchestra of Brandeis Store restaurants; 9-11, program, Lion's Club.

WOO, Philadelphia, Pa. (Eastern, Daylight, 509), 11

woo, Philadelphia, Pa. (Eastern, Daylight, 509), 11
a. m., Mary Vogt, organist; 12:02 p. m., Wanamaker
Crystal tea room orchestra; 5:45, Mary Vogt, organist;
7:30, Hotel Adelphia concert orchestra, A. Candelori,
director; 8:13, Eureau of Health weekly health talk;
9:10, Fox theater grand orchestra, Erno Rapee,
director; 10, Mary E. Vogt, organist; 10:30, Hotel
Sylvania dance orchestra, Vincent Rizzo, director.
WOQ, Kansas City, Mo. (Central, 360), 7:30-8 p. m.,
music, Liberty theater orchestra; pipe organ, Grand
Avenue Temple organist.
WOS, Jefferson City, Mo. (Central, 440.9), 8 p. m.,
"Uncle Sam's Movies," Arthur T. Nelson; 8:20, music, Rosallne McPherson, age 12 years; Staunton Calvert, age 11 years; Mrs. James T. Quarles, contralto,
WPAL, Columbus, Ohio (Eastern, 286), 6 p. m., Chittendon hotel orchestra; 7 p. m., Grand theater organ.
WRC, Washington, D. C. (Eastern, 469), 3 p. m., fashion
developments of the moment, Women's Wear; 3:10,
songs; 3:25, current events, editor of The International Interpreter; 3:35, piano; 3:50, "What Women
Are Doing Today," Mrs. William Atherton Du Puy;
4:10, book review, auspices of the League of American Penwomen; 6, stories for children, Peggy Albion;
6:20, talk on education, auspices of the National Education association.
WTAS, Elgin, III, (Central, 286), 8 p. m., songs by

6:20, talk on education, auspices of the National Education association.

WTAS, Elgin, III. (Central, 286), 8 p. m., songs by popular artists, Charles Dale, Joseph Mertz, Jimmle Egert, Isobel Simpson, Bert Davis, Lindsley Coons, Will Rosslter; Lee Sims, planist; orchestra.

WWJ, Detroit, Mich. (Eastern, 517), 8 a. m., setting-up exerclses, R. J., Horton; 12 m., Detroit News orchestra; 3, Detroit News orchestra; 7, Detroit News orchestra; 7:30, Schmeman's band.

Tuesday, June 24

Silent night for: CKAC, KFNF, KFOA, KFSG, KYW, WEAO, WFI, WHAS, WIP, WLS, WMAQ, WRC,

WEAO, WFI, WHAS, WIP, WLS, WMAQ, WRC, WSAI.
CKAC, Montreal, Can. (Eastern, Daylight, 425), 7 p. m., klddies' stories in French and English; 7:30, Mount Royal Hotel orchestra; Nap Dansereau, cellist; 8:30, entertainment, orchestra of S. S. Canada; 10:30, Mount Royal Hotel Roof Garden dance program, Joseph C. Smith and his orchestra.
KDYL, Salt Lake City, Utah (Mountain, 360), fourth annual national convention of the Disabled American Veterans.
KFAF, Denver, Colo. (Mountain, 360), 8-8:30 p. m., KFAF, Gloom Busters, KFI, Los Angules, Calif. (Parisa, 460)

KFAF, Denver, Colo. (Mountain, 360), 8-8:30 p. m., KFAF Gloom Busters, KFI, Los Angeles, Calif. (Pacific, 469), 6:45-7:30 p. m., vocal concert; 8-9, Ambassador-Max Flscher's Cocoanut Grove orchestra; 9-10, Examiner concert; 10-11, concert. KFNF, Shenandoah, Iowa (Central, 266), 7:30 p. m., cocert. Dr. D. W. Reed, director.

KFSG, Los Angeles, Calif. (Pacific, 278), 3:30-5:30 p. m., organ recital, Esther Fricke Green; Dorothy Sauter, 'cellist; John Walker, converted dope addict, tenor; Sarah Karcher, violinist; 6:30-7:30, "Kozy Hour," Mr. and Mrs. A, T. Heard, trombone and cornet; Frank Brown, baritone; Bunyan's Pilgrim Progress,

Prices Effective to July 5th Mention second choice to be shipped if article ordered is out of stock.

LOUD SPEAKERS Put a loud speaker on your set and get out in the open during the hot weather. Here are some exceptional values: Raldwin Standard 19.25
R3 Magnavox 24:30 Magnayox Magnayox MI Magnayox 24.80 Western Electric 10D 39.50 OAK CABINET SPECIALS

LIGHTNING ARRESTORS CONDENSERS

 CONDENSERS

 11 Plate—Standard
 \$ 1.04

 Vernier, with dial
 1.87

 23 Plate—Standard
 1.12

 Vernier, with dial
 1.32

 43 Plate—Standard
 1.32

 Vernier, with dial
 2.43

 TRANSFORMERS Amertran

Radlotron—UV 200, UV 201A, UV 199, WD 11, WD 12\$ 4.22 PHONES
 Western Electric
 \$ 8.50

 Baldwin, C
 8.43

 Frost 3000 Ohm
 3.50

 Pro t 2000 Ohm
 2.85
 BURGESS B BATTERIES

Radiola Type Set, 1 tube.....

VALLEY RADIO SUPPLY CO.

2206a Locust St.

ST. LOUIS, MO. Write for Agent's Confidential Price List. Always include Pareel Post and Insurance.

Dapline Goss; Dorris Jones, plano recital; Inex Lasley, soprano; Bible story, Mother Kennedy; 8-9:30, Angelus Temple revival service, address; music; sermon; 9:30-10:30. "Plantation Melodics;" Swannee Jubilee's; organ recital, Roy Reldd Drignall, Aimee Semple

KGO. Oakland, Calif. (Pacific, 312), 4-5:30 p. m., con-cert orchestra, Hotel St. Francis; 8, part one: Cali-fornia Mixed quartet; Josephine Holub, violinist; Edilfornia Mixed quartet; Josephine Holub, violinist; Edilberto G. Anderson, baritone; Clan MacDonald Double
Male quartet; Ruth Waterman, contralto; Carl Anderson, tenor; Beatrice L. Sherwood, pianlst; Laura
Broderick, soprano; part two: "In a Persian Garden," California Mixed quartet; address, "Omar Khayyani," Otto Richi.

KGW, Portland, Ore. (Pacific, 492), 3:30 p. m., children's program; 8, concert, Sieberling-Lucas music
company.

Company:

(HJ, Les Angeles, Calif. (Pacific, 395), concert, White's Californians, Steve White, leader, courtesy, LaRaza Palm Grovo; 2:30-3:30, matinee musicale; 6-6:30, Art Hickman's concert orchestra; 6:45-7:30, children's program, Prof. Walter Sylvester Hertzog; weekly visit of the Sandman and Queen Titania; bedtime story, "Uncle John;" 8-10, De Luxe concert; 10-11, Art Hickman's dance archestra.

of the Sandman and Queen Titania; bedtime story, "Uncle John;" 8-10, De Luxe concert; 10-11, Art Hickman's dance orchestra.

WAAW, Omaha, Nebr. (Central, 360), 8-9 p. m., Zion Lutheran church, Rev. Kniermann.

WBAH, Minneapolis, Minn. (Central, 417), 12:30-1:30 p. m., musical program; 7-7:30 p. m., musical, Minneapolis Boy Scouts; 9:20, Alice O'Reilly, contralto.

WBAP, Fort Worth, Texas (Central, 476), 9:30-10:45 p. m., '92 program, J. C. Rutledge.

WCX, Detroit, Mich. (Eastern, 517), 4:15 p. m., music; 6, dinner concert; 10, Red Apple club.

WDAF Kansas City, Mo. (Central, 411), 3:30-4:30 p. m., the Star's Radio trio; 6-7 p. m., school of the air, plano tuning-in number, the Duo-Art; address, speaker, the Meat Council of Greater Kansas City; address; Clerin Zumwalt, M. A.; the Tcil-Me-a-Story lady; music, the Hotel Muelbach orchestra; 11:45-1 a. m., nighthawk frolic, the Plantation players.

WDAR, Philadelphia, Pa. (Eastern, Daylight, 395), 11:45 a. m., daily almanac; 12:02, organ recital, Stanley theater; 12:30, Arcadla Cafe concert orchestra; 2, Arcadla Cafe concert orchestra; 2, Arcadla Cafe concert orchestra; 5:30-6, Emily Deitsch, soprano; 6-7, dinner music, Hotel Waldorf Astoria; 7:15-7:30, D. J. Williams, tenor; 7:30-7:45, Albert W. Barber, tenor; 8-8:30, Ansonia Clock Co.; 8:15-9:15, Robert H. Terry, composer; Martha Fire, soprano; Edna Fields, contralto; Hyman Piston, violinist; Jos. Karper, baritone; 9:30-9:45, Theo. Mattman, cellist; 9:45-10, Marie Adele Kiraly, planist; 10-11, Long Island Crotto Dug club. WEAY, Housten, Texas (Central, 360), 12-1 p. m., Rice Hotel orchestra; 2:30-3:30, studio concert; 6-7, Rice Hotel orchestra; 6.

Hotel orchestra, Hotel orchestra, WFI, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m., WFI, Philadelphia, Pa. (Eastern, Daylight, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 6, Sunny Jim, the kiddles' pal; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 9:35, Four-leaf Shamrock concert; 10:30, John McNulty, flutist; Joseph Dolan, planist; Adama McConnell, violinist; William Starkans, tenor; 11:05, Charlie Kerr and his symphonic dance orchestra.

WGY, Schenectady, N. Y. (Eastern, 380), 1 p. m., Eugene Field, American Humorist and Poet, 7:45, choir, St. Paul's Episcopal church, John Dick, baritone; chorus; male quartet; 10:15, Stephen E. Boisclair, organist.

WHAS, Louisville, Ky, (Central, 400), 4-5 p. m., Wal-

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Wal-nut Theater orchestra; Fred Hughes, Weish tenor; Alamo Theater orchestra; 7:30-9, ('arl Zoeller's Melo-dists; Charles H. Barnes, Jr., barltone; Fred Hughes, tenor

tenor.

VHB, Kansas City, Mo. (Central, 411), 2-3 p. m., ladles' hour program of popular and classical music by members of the Sweeney Radlo orchestra; 7-7:30, popular music by the Sweeney Radlo orchestra; educational talk; 8-10, from "Indian Village," Sweeney

tional talk; 8-10, from "Indian Village," Sweeney Radlo orchestra.
WHN, New York, N. Y. (Eastern, Daylight, 360), 2-3 p. m., Vaudeville & Overture State theater; 3:43-4:15, Bob Schaefer and his entertainers; 4:30-5, Bob Ward and his three children; 6-7, at the festive board; 9:30-9:45, Fred R. Goodrich, tenor; 10-10:30, Bertram J. Goodman's orchestra; 11:30-12, Buddy Baldwin's Nassau hotel orchestra.
WIP, Philadelphia, Pa. (Eastern, Daylight, 509), 10

USE-IS THE TEST

Build Your Radio Set With Kellogg **Guaranteed Parts**



KELLOGG Transformers furnish ample amplification without distortion. They are designed to overcome any defect of existing types. The winding developed by Kellogg was found to be most efficient.

The one piece laminations of silicon steel contain no punched holes, thus preventing eddy currents and losses.

The correctly designed brass shield permits close mounting without interference. The Bakelite top protects wires and prevents leakage. Binding posts are clearly marked. Amplify the value of your radio

set with Kellogg transformers. If your dealer does not handle Kellogg communicate direct with us.



Kellogg Switchboard & Supply Company 1066 W. Adams - CHICAGO



a, m., Atlantic City seashore gossip; 1 p. m., Karl Bonawitz; organist; 3, What the wild wares are saying; 3:05, 'Obesity Diet,' Mrs. Anna B. Scott; 3:30, Comfort's Philharmonic orchestra: 6:05, WIP ittle symphony orchestra; 7, Uncle Wip's bedthine storles; 8, Comfort's Philharmonic orchestra: 8:45, Murphy's Minstrels, Steei Pier, Atlantic City; 10:15, LeRoyale dance orchestra.

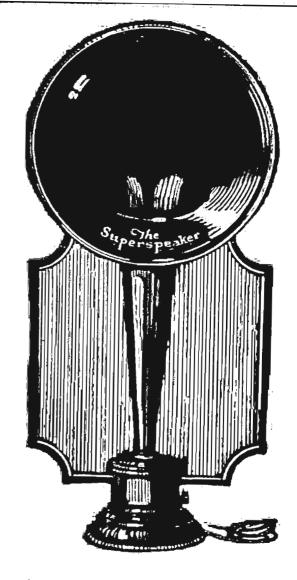
WJAX, Cleveland, Dhio (Eastern, 390), Cleveland News-Leader program; 7:30 p. m., bedtime story, E. G. Johnson; Radio cartoon, Don Palmer; special numbers. WLAG, Minneapolis-St. Paul, Minn. (Central, 417), 10:45-11:12 a. m., household hints; 11:35-12 m., surprise hour; 2:10-2:40, woman's club hour; 2:40-4, daylight concert; 4-4:30, WLAG players; 5:30-6 p. m., children's hour; 6-6:15, sport hour; 6-6:15-7, dinn-rhour concert; 7:30-8:15, farm lectures.

WMAQ, Chicago, III. (Central, Daylight, 447.5), Democratle convention.

WOAW, Omaha, Nebr. (Central, 526), 6-7:30 p. m., dinner program, Lion's Club of Pitisburgh, Pa.; 9-14. program, vocal class of Walter B. Graham.

WOO, Philadelphia, Pa. (Eastern, Daylight, 509), 11 a. m., Mary E. Vogt, organist; 12:02 p. m., Wanamaker crystal tea room orchestra, Robert E. Golden, director; 4:45, Mary E. Vogt, organist; 12:02 p. m., Wanamaker crystal tea room orchestra, Robert E. Golden, director; 4:45, Mary E. Vogt, organist; 12:02 p. m., children's hour, Peggy Alhion, Marguerite Meakin; 8, concert, Crandall's Tivoli thearer; 9:20, conc rt, trio from Irving Boernstein's Wardman Park hotel orchestra.

WTAS, Elgin, Ill. (Central, 286), 7:30-12 mldnight, WTAS orchestra; Lee Sims, planist.
WWJ, Detroit, Mich. (Eastern, 517), 8 a. m., setting up exercises, R. J. Horton; 12 m., Detroit New orchestra; 3 p. m., Detroit News orchestra; 7, Det



Superspeaker

MUSIC AND VOICE

contain no note to which the Superspeaker horn can possibly vibrate. Resonance - that bane of all reproduction - is thereby eliminated, leaving only the actual values of each note and tone, sent broadcast by the far-away station.

Micrometer adjustment to bring in extra distant stations - Needs no extra batteries or coils-A big, handsome, ebony gloss finished musical instrument. Dealers, you can sell it!

JEWETT RADIO & PHONOGRAPH COMPANY

5080 Twelfth Street DETROIT MICHIGAN

30 Minute A-B-C Lessons for Radio Beginners

Chapter XIV—What Tuning In Is; How to Do It

By P. E. Edelman

IN THIS series of articles the story of Radio is told in so simple a manner that the uninitiated can follow theory and practice whether or not he knows anything about electricity or its application to broadcasting and reception. The series consists of twenty-five chapters, of which the five next will be:

Chapter XV-Working Through Interference.

Chapter XVI-The Power Voice of Radio.

XVII-Reproducers, The Chapter Finishing Touch of Radio. Chapter XVIII-The Hero Circuits

of Radio. Chapter XIX-What is Doing in Complicated Circuits.

UNING, while at first difficult to each send splashes through the other to but the only one it reaches in correct STRING 12 FT LONG

SUPPORT

Mandolin Ilustrates Radio Tuning

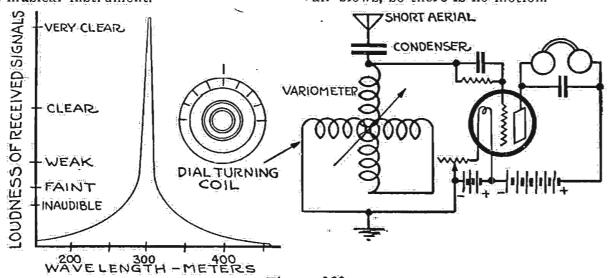
In a mandolin, eight strings are arranged in four pairs. Each pair of wires is tuned to the same note. If one of the wires of a pair is picked, no vibration occurs in any of the wires except the one picked and the other wire of the same pair. Although not touched, the second wire will vibrate as vigorously as the first. If the first wire is stopped with a finger, the second wire will continue to vibrate. The second wire is in tune with the first and coupled to it. The first string corresponds to a sending station and the second wire of the same pair represents a recciving station. The other strings may be thought of as other receiving stations tuned to different frequencies.

The first wire plucked pushes air during comprehend, is a simple principle, each swing to and fro. The pushed air Two different sending stations can falls on the other wires in the mandolin

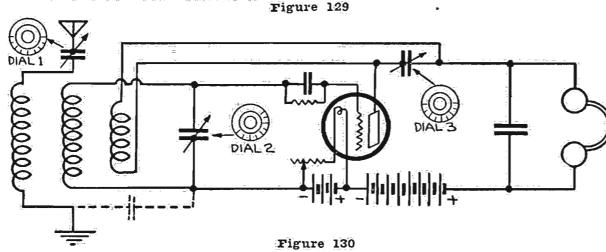
ILLUSTRATING TUNING

ILLUSTRATING COUPLING
Figure 128 radiate energy to a receiving outfit. Some timing to build up motion, is the other means is necessary to select the one de-tuned wire of the pair. When a differently sired. This is usually accomplished by tuned wire is struck by the wind blast, the electrical tuning. This is understandable tendency to start motion is opposed by by reference to mechanical tuning, as in incorrect timing of the next successive a musical instrument.

air blows, so there is no motion.



1 POUND WEIGHTS



By operating the loud pedal of a piano to release all of its strings, one can sing a note with the voice and certain of the by arranging weights on strings. Figure strings will respond with the same tone. 128 shows strings arranged to illustrate The other strings will not do this, as the Ituning and coupling. A horizontal string

Weights on Strings Illustrate Tuning The same principle may be visualized

DE FOREST RADIO TEL. & TEL. CO., Dept. R. D. 10, Jersey City, N.

plano string must be in tune for the fre- is stretched between two chair supports mination of electrical tuning is comprised quency picked up.

length strings are tied at one end and electrical indu tance (coils). To increase weighted to act like pendulums. At the the frequency of an electrical circuit,

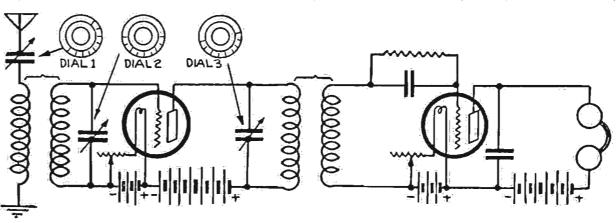


Figure 131

other end of the horizontal string, three either the inductance or the capacity may will build up a similar motion, while the length.

other strings corresponding in length are be reduced. To decrease the frequency at also hung with weights. When one string which an electrical circuit can vibrate, at one end is set into motion, only the more capacity or more inductance or both corresponding string at the other end can be put in. This increases the wave

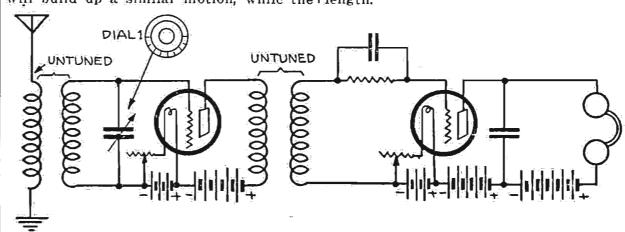


Figure 132

others dangle around. If two string pendulums are used with the same dimensions, the principle of tuned coupling is and capacity. A coil connected in series shown, as energy will be transferred by the swing of one pendulum to the other. Electrical Tuning

Electrical tuning occurs similarly but at much higher frequency. The deterTuning Aerial Circuit

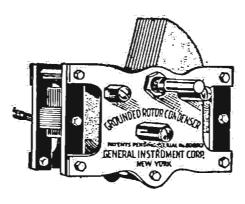
The aerial wire itself has inducta ce with it for simple adjustment, becomes a part of the aerial circuit, so the frequency can be adjusted. When incoming waves strike through the aerial wire elec-(Continued on page 18)

HEAR THE DIFFERENCE!

LABORATORIES USE

THE LOW LOSS GENERAL INSTRUMENT CORPORATION

GROUNDED ROTOR CONDENSER



They prefer it because actual tests have proved that dielectric losses have been practically eliminated. This makes it possible for your receiving set to surprise you with a new power.

Based on Greater Selectivity, More Distance and a Remarkable Increase in Volume

Replace Your Old Condenser with the New Low Loss Grounded Rotor Condenser and

HEAR THE DIFFERENCE

Type	46A 46D	13 21	Plate Plate	9	MMFD.	.00025 .0003 .0005	MFD. MFD. MFD.	 4.50 5.00
-0.2					r your			

Otherwise send purchase price direct to us and you will be supplied.

GENERAL INSTRUMENT CORP.



423 Broome Street **NEW YORK CITY**



Radio Digest

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

E. C. RAYNER, Publisher E. C. RAYNER, Publisher Editor
Evans E. Plummer Managing Editor Charles F. Smisor Editor Harry J. Mark Technical Editor

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

Member of the Audit Bureau of Circulations PUBLISHED WEEKLY

SUBSCRIPTION RATES Yearly in 1 S. and Possessions and Canada, \$5.00 Single copies. 10 cents. Foreign postage, \$1.00 auditional.

Chicago, Saturday, June 21, 1924 Vol. IX

Keep Out Undesirable Programs

R ADIO, like newspapers and the stage, motion pictures and current magazines, has a publicity power that in honest hands is a benefit of inestimable value, but under unscrupulous control may become a public menace and a delusion. Because of its newness, the power of Radio may benefit or harm is only beginning to be realized, but already there have ap-

peared many signs that propagandists, religious zealots and unprincipled persons with axes to grind are seeking a way to reach Radio audiences with their peculiar brands of publicity. Only the vigilance of studio One little tube tried to outshine the sun. nanagers on a number of occasions has availed to Almost succeeded; and then there was none. sidetrack offensive or biased speeches.

Just as an editor must watch his news to guard against propagandists who seek to reach the public with cleverly concealed arguments, so the Radio broadcasting station must review the speeches that are to go out on the ether waves to the listening world. It is to the credit of the Radio broadcasters that thus far they have succeeded well in shutting him: the designing propagandist out of the air, thereby saving the vast host of listeners from many an appeal for unworthy objects. It is always possible, of course, to tune out unwanted Radio offerings, but if it were not that broadcasting stations take good care to keep out undesirable programs, there would soon be no Radio audiences.

Colonists Use Radio

The Great Northwest Uses Ether for Information

R ADIO in Canada is mainly an agricultural institu-tion, differing therein from Radio in this country which is mainly a means of urban entertainment. The Dominion government announces that 60 per cent. of Canadian receiving sets are on the farms.

The most interesting side of the matter is the extent to which such use of Radio is encouraged by Canadian householder): authorities. In the prairie provinces of Manitoba, Saskatchewan and Alberta, the Radio is used deliberately to encourage colonization. Not only does it serve the practical purpose of dispensing useful information regarding crops, prices, etc., but by relieving the settler's loueliness and bringing him in touch with the outer world it reconciles him to his life. Thus Radio service, making farmers more contented, is accomplishing the settlement of more remote districts.

There is no more admirable use to which Radio could be put. The Canadian method is one that can be followed almost everywhere, and is going to play a big part hereafter in settling and developing the world's unoccupied areas.

One of the Largest Industries New Art Getting Down to a Sound Basis

THE growth of Radio from an educational and I social standpoint, has been so rapid that it has somewhat obscured its importance and significance as an industry.

Even yet it is not generally realized that Radio within a few years has become one of the major industries of the country. Some idea of the magnitude may be realized from the fact that annual sales of Radio at present amount to more than those of sporting goods and cameras, are one-fourth as large as furniture sales, three-fourths as large as jewelry, and the same for musical instruments.

Actual figures in sporting goods, cameras, etc., show annual value of about \$185,000,000. Sales of Radio equipment aggregate almost twice as much as all kinds of sporting goods. Likewise the annual value of Radio business is nearly twice as great as that of the carpet

and rug business. It is well for Radio as an industry, and for the public who are benefiting so greatly from the new art, that the industry is getting down to a sound basis and gradually becoming stabilized. The sound basis comes from the fact that now it is better understood just what may be expected from a certain hookup or set and how to use parts or sets to the best adventage to get the best results from their use.

RADIO INDI-GEST

Such Is Radio De 5XV



Ten little tubes, superhetting in a line, One went softly out; and then there were nine.

Nine little tubes perkin' rather late, One tried the B Bat; and then there were eight.

Eight little tubes working like-er-heaven. One overheated; and then there were seven.

Seven little tubes brought in politics. One split its side; and then there were six.

Six little tubes humin' and alive. One picked up La Follette; and then there were five.

Five little tubes tryin' hard to roar. Propagandists Should Have No Right to Broadcast One lost its vacuum; and then there were four.

> Four little tubes howling cheerfully. One fell upon its tip; and then there were three.

Three little tubes finding lots to do. One became a transmitter; and then there were two.

Two little tubes having lots of fun. Short in the rheostat; and then there was one.

Its Winter in Los Angeles

Dear Mr. Indigest: "Spider Webb," your correspondent in a recent issue, is some gay old bear, isn't he? Is he too dead to know that winter has gone? I can't express my thoughts as he can, you know, in such dolled-up language, but here's how I think of

> Please give gran'pa lots of air With his set and his easy chair, Here's to the dance with a lady fair A sweet waltz filt'ring through the air

Pulses throbbing filled with joy Twinkling feet of the girl and boy Sunshine's bright-no clouds of gray, Every "dog" must have his day,

Spider Webb, you're out of tune, Winter's gone, you dead old prune, Start the Radio? Don't you dare— Gran'pa sleeps in his easy chair. JACK.

And He Tuned in KOP

Burglar (after turning dial of Radio and arousing "H-, I thought that was a safe!" American Legion Weekly.

Mrs. Partington Speaks Out



Dear Indi: Mrs. Partington says that careless neighbor over to Mars who was killing off all the blackbirds in New Jersey, a spell ago. must have been shooting at her Court House tower lately, as the air she has been using to listen through has been all messed up and she jest knows she has been missing a lot of neighborhood news that she would have enjoyed listening at. She says she heard W.

G. N.'s station advertising the Chicago Tribune mighty loud, Sunday morning, and that same night the pronouncer there said his advertisement had been answered already from way

out to Australia. She says they ought to send him the paper three months, free, and throw in a phone cord or something like that for a prize on account of him hearing that far so quick. SIGNING OFF.

At Thompson's One-Arm Lunch Dear Indi: If Hazeltine eats at the Astoria, where will Neutrodyne? SAFFRON.

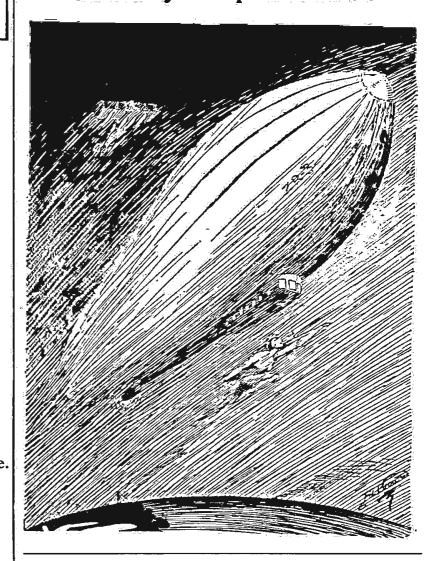
Thought for the Day Little Jack Horner sat in a corner,

Tuning his neutrodyne set; His circuits got crossed and five tubes were lost And he hasn't got over it yet. PAPRIKA.

He Keeps Time Thataway

Dear Indi: Whasa idea durin the WGN Sunday afternoon concerts of that announcer pluggin his phones in and out to see if the Dreck Onsombul is done playin? Whyn't the big *** leave the music alone? Ast 'm, gwan, ast 'm.
*** Deleted by the Office Squirrel. QRD-HADES.

Guided by the Spirit of Radio



Condensed

By DIELECTRIC

Of late we have not been surfeited with broadcast debates—if ever we were—having for their subject matter theological, political, economic and other controversial topics. In view of that, the recent debate "Why women should bob their hair." Joe Toye courageously taking the negative side of the proposition and Paul Waitt the affirmative, provided a fair amount of entertainment to listeners to WNAC, Boston. Special prizes were awarded to those tuned to this station though none should have been necessary, as mirth was the order of the evening.

Very few indeed of the broadcasting stations have failed to place on nearly all of their programs musical selections intended for devotees of terpsichorean art with the result that not only homes but halls have thus profited. Parties have been specially arranged in a great many homes throughout the land where dancing was indulged solely by means of Radio jazz, or more dignified rhythm. The Radio audience was invited to dance where the orchestra played.

When it takes a hundred or more dollars to purchase a good receiving set in this country one looks askance at the midget Radio set retailing for \$1.75 in Germany, yet they are selling at a tremendous rate -40,000 sets in one week is the record of one manufacturer. The outfit is placed in one's hat to be used in transit. Sounds like "talking through your hat," but this is listening. They need business over there so let 'em go ahead and eventually these newly created fans will be demanding some of our American efficient receiving sets.

Perhaps as much fun has come to amateur Radio operators through the ability to visit one another by code messages as any other feature of their activities. Hundreds have become acquainted in this manner whose appearance is utterly unknown to each other. A new organization just started in Texas is an interesting venture to Radiophans. Regular weekly meetings are held Sunday afternoons with the sessions opened by the president with a roll call, to which each member responds. These members all operate amateur broadcasting stations and are scattered over the entire state. At each meeting some member speaks as the others listen. The entire meeting from beginning to end is conducted through the use of Radiophone messages. The meetings are a great success for attendance is easy.

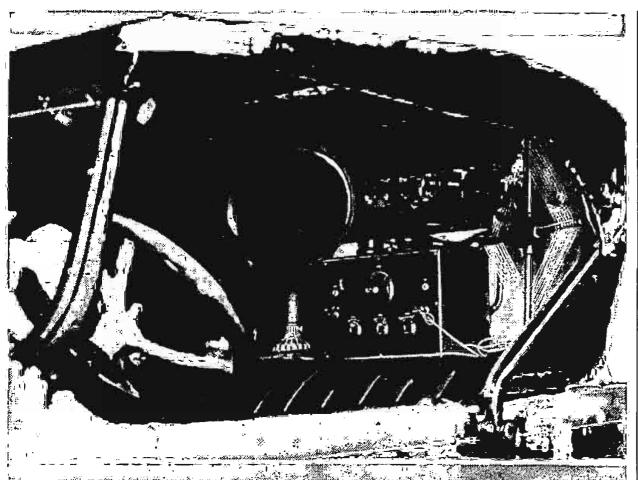
One of the best known Canadian broadcasting stations is CKAC, owned and operated by La Presse, the foremost newspaper in Canada. Since the occurrence of fire in the plant, which proved so destructive, the station has operated on a 2,000-watt all-remote control system. This amount of power gave a very acceptable receiving range, though not sufficient for the purpose in mind, namely, to reach all French-Canadians in America. They now use 7.000 watts which probably entitles them to be called the most powerful station in the world. Parle yous Francais?

Ever since we listeners in have twirled the dials a station's carrier wave either brought us luck or interference. The electrical engineering staff of the University of Illinois, operating Station WRM are experimenting with broadcasting without the carrier wave coninuously on the air. The effect of this departure seems to be much sharper tuning with greater ease in tuning out local stations to listen to dista t ones. The carrier wave is used only as sound occurs in the mike. Next winter will be anticipated with greater pleasure than ever. .

How to Install a Radio Set in Your Automobile

Part VII-Hupmobile Installation; Portable Receiver Circuits

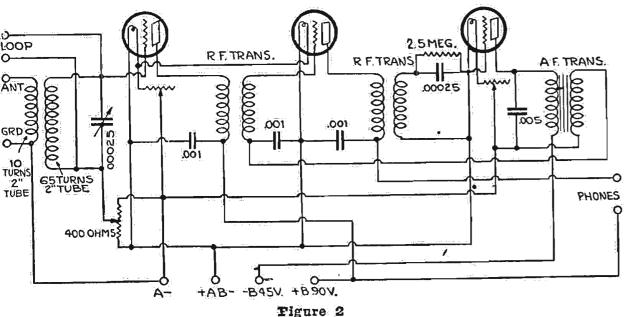
By Harry J. Marx



HEY call it "the smartest runabout top of the set. The loud speaker on the extreme brilliancy of the cars' perfor- were found quite handy to have around. mance and the desire to provide a body that would fittingly express the purpose No special fittings were required all that of this charming model. That all may be true but there was that definite some-

in town" and claim its design was other side helped balance out harmony of a happy inspiration suggested by the design. Yes, even a pair of head phones

Installation is really the wrong word. was necessary was to just stick the set in. So all you fans who have a Hupmobile



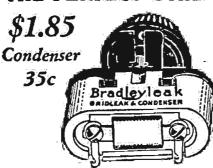
was installed. Then indeed did the car fulfill all of those requirements that its style indicated. Just a little two seater runabout. Yes, three people could squeeze in but you know the old story about two being company and three a crowd. The only third party wanted in this car was the artist of the broadcasting station whose technique and skill is reproduced in the loud speaker to help entertain and while away the hours of that happy couple that are enjoying their summer leisure in little trips around rural communities in the little Hupmobile roadster. Installing the Set

How is the set installed? That was the simplest part of the whole thing. There is a nice little shelf back of the seat just made to place your Radio equipment on. Underneath it is one of those convenient compartments that they use for tools and other little odds and ends that we like to store in our car but its just the thing to hide your B batteries away in. A batteries? Why worry, the car has a storage battery, use that. Antenna? This was a loop aerial set and there was ample room to put the loop on



thing lacking that made you doubtful as roadster have no alibi for not using to its claims until a real Radio receiver Radio set on your trips. There is ample room to put even a neutrodyne or a super-heterodyne on that back shelf. Just get busy and take advantage of the convenient space that is provided for it. Whoever told you that the little lady





Working Range 1/4 to 10 Megohms

This remarkable grid leak has leaped to prominence within three months, and is pronounced by leading radio engineers, such as Crosley, Kennedy, Cockaday, Flewelling, and others, as the most perfect of grid leaks. It is not a cheap makeshift. It is the best that has ever been made. Try one, to night, and be convinced.

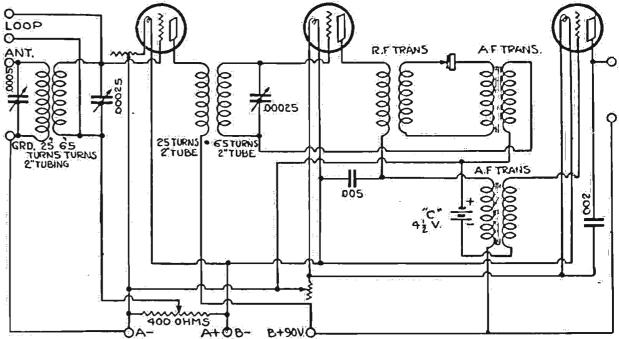


290 Greenfield Ave., Milwaukee, Wis. Mfrs. of Universal Bradleystat

wouldn't enjoy riding around with you spaced 1/2-inch from it, 65 turns of the is silver and silence is golden .

Three-Tube Circuit

especially with a Radio set to while away same wire for the secondary. A .00025 the time at those moments where speech variable condenser is used for tuning both the secondary and also the loop when it is connected in parallel with this secon-Figure 2 shows a long distance portable dary winding. A 400 ohm potentiometer



Pigure 3

circuit that will be found especially helps control the first tube and prevents adapted for using UV-199 tubes. Provision is made for the use of either a 4-wire cover antenna and a ground connection or a loop aerial as desired. The controls having been reduced to a minimum; namely, a variable condenser, a potentiometer and two rheostats. When you get away from the city with its numerous stations interference and the demands for selectivity do not become such important factors so that simplicity

List of Parts Required

Special Tuning Unit.

1 .00025 Variable Condenser. 400 ohm potentiometer.

3 Sockets.

3 UV-199 Tubes. 2 Audio Rheostats.

2 Radio Frequency Transformers. 1 Pixed Grid Leak 2.5 megohms.

1 Audio Frequency Transformer.

2 .0001 Fixed condensers. 1 .002 Fixed condenser.

1 .005 Fixed condenser. 10 Binding posts.

1 Panel about 9x14 inches.

1 Cabinet as desired.

of control is a big asset and helps eliminate a lot of unnecessary parts which would otherwise require too bulky an assembly. The tuning unit is a fixed coupler consisting of 10 turns of number 22 dcc. wire wound in a single layer on a 2-inch tubing and on the same tube and

S. HAMMER RADIO CO.

303 Atkins Ave., Brooklyn, N. Y. Never Before at This Price! Improved Cockaday 4 Circuit Receiver
These Are GENUINE Complete Parts
1 Precision Cockaday Coil
2 Amsco 26 Pl. Cond.
5 Melco Tube Sockets
1 Amsco 6 Ohm Rheostat
3 Amsco 20 Ohm Rheostat
1 Precision Cockaday Coil
2 Amsco 20 Ohm Rheostat
1 2 Comp Dim P

Amsco 20 Ohm Rheo-

2 Amplex Grid Densers 1 Durham Var. Grid Leak 1 Amsco 400 Ohm Potentlometer

1 Bradleyleak

Ohms Lavite

COMPLETE STANDARD PARTS FOR Neutrodyne 5-Tube Set

1 7x26 Panel. Drilled 2 Single Sockets 1 Triple Socket

2 Neutrodons 3 Neutroformers 2 Jefferson Transformers 1 Battery Switch 3 4 ln. Dials, Fada Type Power Rheostat 8 Blndlng Posts 1 Closed Circuit Jack

Complete

Parts...

I Filament Control Jack 27 ft. Insulated Tubing 27 ft. Tinned Bus Bar 2 Fixed Condensers, .006

Mfd.
1 Flxed Condensar.
.00025 Mfd.
1 Grld Leak, 2 Megohms
1 Dlagram for Above Set OUR \$30.50

O TUBE SUPER-

HETERODYNE

Wired Complete in Mahogany Cabinet...\$48.50 COMPLETE KNOCKDOWN

5-Tube Neutro-dyne Set, wired complete in a mahogany cabi-net — Genuine FADA Parts. \$70.00 \$65.60 FADA KNOCKDOWN PARTS No. 167-A Sealed In Fada's Factory.

Receptrad Kit Our \$89⁵⁰ \$49.00

SETS Crosley V 1-Tube....\$13.50 Crosley XJ Super

4-Tube \$53.50 Fada 160 \$8.00

Crosley 3B 3-Tube. 34.50 Freed-Elseman

Crosley XJ 4-Tube... 11.00 Neutrodyne NR 5.121.00

25% Deposit Required on Sets

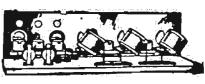
ALL MAIL ORDERS SHIPPED PROMPTLY. Orders over \$5.00 will be shipped prepaid. Money orders or C. O. D. Not insured unless insurance charges included. Write for Price List

any tendency for spilling over into violent osciliation. The circuit has two stages of Radio frequency amplification which is the transformer coupling. These Radio frequency transformers are of the untuned type. The vacuum tube detector is used and one stage of audio reflexed type to the secondary amplifier tube.

Another Three-Tube Circuit

This circuit has more controls for the fan who desires somewhat greater selectivity. In addition it uses a crystal detector and the extra tube is a pure audio frequency amplifier. Two tuning units both consisting of a 25-turn primary and a 65-turn secondary using number 22 dcc. wire wound on a 2-inch tube and spaced 1/2 inch apart are used in this set. Three variable condensers take care of tuning (Continued on page 20)

TUBE K. D.



EACH KIT INCLUDES

3 Neutroformers.

2 Neutrodons.

2 Low Dielectric Var. Condensers.

1 Drilled & Engraved Bakelite Panel.

1 Stained Base Board.

5 Vacuum Tube Sockets. 3 4-inch Bakelite Dials.

2 2-inch Rheostat Dials.

1 Detector Rheostat.

1 Amplifier Rheostat.

3 Frost Neutrodyne Jacks.

2 Audio Freq. Transformers.

1 Bypass Condenser, 1 mfd.

1 Mica Condenser .00025.

1 Mica Condenser .001.

1/2 Megohm Grid Leak.

8 Marked Binding Posts.

20 Lengths tin copper Bus Bar Wire.

2 Lengths Black Varnished Tubing. Instruction book and blue prints.

LIST \$80.

Our Price.....\$26.95



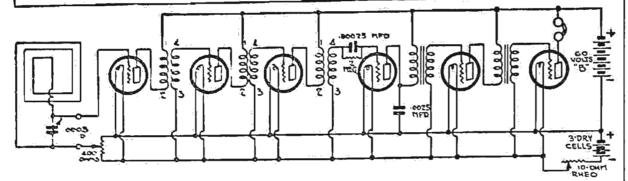
America's Greatest Radio Retailers

191 FULTON ST., Cor. Church 71 Certlandt St., near Washington 14 Church St., near Certlandt 140 West 32nd St., bet. 6th & 7th 15 Whitehall St., cor. Stone 241 West 42nd St., bet. Breadway & 8th New York City Brooklyn Branch: 81 Flatbush Ave. Post Radio Elec. Corp.

MAIL ORDER DEPT.

73 Cortland St. NEW YORK CITT

SUIT CASE HOOK-UP CORRECTION



The above hook-up diagram is given to supercede that given in the issue of May 31 with the article, "How to Make a Talking and Singing Suit Case," by S. R. Winters. While the original circuit showed the Radio frequency transformer connections right by numbers, the drawing was incorrect. The above hook-up uses the same apparatus as called for in the original. The position of the telephone receivers has also been changed to a point found better by experimentation.

THIRTY-MINUTE A-B-C

(Continued from page 15)

trical current of the same frequency will u'll up if the aerial circuit is thus tuned to that freq 'cy, otherwise not Thus it will be appr ated that the aerial c'reuit may be adjusted to pick up one ertain Radio frequency and reject others. In receiving apparatus, this is further exto led by additional circuit tuning, and it is p ssible to tune each individual cirit to ugh the receiving set.

Figur 129 illustrates how a dial setting in a single circuit receiving set can make the decte or subject only to Radio freu y of t e range tuned to. Suppose you tune to 300 meters. That is the same tong as tuning to Radio frequency of 100 cycles. If the aerial is short and the circuit has little resistance, the t ctor will now be affected only by R. dio frequency current closely approxirately 1.000 000 cycles. Other frequencs can reach the aerial but will only uild up feeble Radio currents in the tuned circuit.

Forced Vibration

If now the aerial is electrically hit by a powerful Radio wave front, the aerial ircuit can act like a bell hit with a hammer and oscillations may be caused ly forced vibration. A local broadcasting station may do this or natural pulses called static can act in such manner. Kinds of Tuning

That is why secondary tuning is often resorted to. Referring to Figure 130, dial 2 can adjust the condenser of the grid circuit so that the frequencies accepted from the aerial circuit via the coupling coils, will still further be re-stricted. If a third dial is used to control the tuning of the plate circuit, further selection is possible. Too many controls are difficult to manipulate.

Tuned Amplifier

Figure 131 illustrates a tuned Radio frequency amplifier. Dial 3 adjusts the plate circuit so that a particular frequency is transferred to the detector. Sometimes this is done in two or three stages of amplification, making for fine selection. But if any one stage is improperly adjusted for the desired frequency, a station may not be heard.

Figure 132 illustrates a practical single

control for tuning.

The procedure in tuning a set, is to get the input circuit tuned and then adjust the output circuit to suit. The reason why the usual regenerative set will have several adjustments at which the same station may be heard is that the intercoupling between the circuits permits the several combinations to have a similar effect. In nonregenerative circuits, the tuni g will usually be definite for a particular station to be heard, and this is the case for tuned Radio amplifier sets.



ALL GOOD DEALERS SELL THEM

Premier Electric Company

Other Kinds of Selection

Tuning is the principal reliance in selection but it is also possible to use other methods, such as phase tuning, directional tuning, mechanical tuning, etc. Tuning alone will not separate two broadcast stations of exactly the same frequency but a directional effect, as may be had from the use of a loop, will do this. Phase tuning is not much used in broadcast reception but its operation is to oppose the time relation of one received frequency to that of another, to balance it out.

(Interference is the bugaboo of Radio. However there are ways to get through and reach the long distance stations. The next article will deal with getting through interference.—Editor's Note.)

NINE-TUBE SUPER

(Continued from page 10)

tuned in, you can now adjust the tuned transformer by moving one coil nearer to and farther away from the other. This can be done while the set is in operation by using a wooden ruler or other nonconductor about a foot long. Moving this coil changes the peak efficiency of the transformer until it coincides with the peak efficiency of the iron core transformers. The final adjustment is moving the "pick-up" coil in its relation to the plate and grid coils until just the right amount of energy is absorbed from the oscillator to heterodyne both strong and faint signals for best results.

In connection with the audio frequency amplifier, it will be found that with 90 volts on the plates, the correct C battery

IN EVERY field of endeavor there is always a champion—a man, a product or a thing that takes the leadership, not by accident, but because of actual merit. In the new industry of radio, a leader has already arisen—Crosley Radio Receivers.

In new inventions, new simplified devices and new ways and means of giving greater radio value at a lower price, Crosley has constantly led. As a result, the purchaser of a Crosley Radio Receiver,

knows that he is getting the last word in radio

This is evidenced by the fact that Crosley is building more radio receivers than any other manufacturer in the world.

Above are illustrated two good reasons for Crosley supremacy—the Crosley Trirdyn 3R3 and Crosley Trirdyn 3R3 Special.

These instruments are the latest radio engineering triumphs three table.

trlumphs_three tube sets giving five tube ef-

They contain the following attractive features: Tuned Radio Frequency Amplification, Regenera-tive Detector reflexed back on the first tube, and an additional stage of Audio Frequency Amplification.

They are non-radiating, thus entirely eliminating neighborhood interference. For ease of picking up new and distant stations, perfect calibration and extreme selectivity, the Trirdyn is un-

The only difference between the two models is in the size and style of the Cabinets. The Trirdyn 3R3 Special is completely self-containing, having places for the necessary dry batteries, headphones and other accessories. Over 200 experts have thoroughly tested the Crustley Trirdyn. Their opinions are one and the same. There is no receiver to compare with it at any price.

Powel Crosley, Jr., President

6493 Alfred St.

Better-Cost Less

Radio Product:

Receivers.

should cause no difficulty.

The drawings for the cabinet were shown on page 9 and it will be noted that the greatest dimensions are but 25 3/16 inches by 14 inches by 9 11/16 inches. This is very compact for a "super" although the actual space within this cabinet is probably about the same as though one built the set with an 8 inch by 44 inch panel and a depth of 8 inches. The advantage of my construction is that my set requires only a small table with a 30 inch by 24 inch top, with the batteries on a curtained shelf beneath. (THE END)

Large Inside Loop During the winter several of the outdoor aerials of our village came to grief through weather conditions, and as I had no desire to be deprived of my Radio in the event of anything happening to my aerial. I constructed an indoor aerial as illustrated herewith, and I became independent of the outdoor aerial.

A frame was made of perfectly dry wood 1 foot square and 6 feet long. I wound 133 turns of number 15 dcc copper wire around it, leaving the ends free, thus making 532 feet of wire. I tapped this

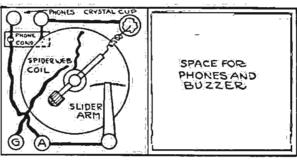
> TO SET GROUND

large coil at about every 6 turns as shown at D, and connected each tap with a piece of %-inch copper tubing. This in turn I tapped at three places C and joined into one line as a lead-in to my set.

By the way of an experiment I connected the lower end of the aerial B to a nearby ground and received good results,

voltage is 41/2. This part of the set the body capacity being eliminated, the volume increased and all hissing being absent.-Fred Inwands, Wayburn, Sask., Canada.

Portable Crystal Set
The set is mounted on a cigar box in the manner shown in the illustration. The coil is wound spider web fashion with 24 scc. wire, for as many turns as can be put on a form that will fit on the cover.



The insulation is then scraped off so that the slider will make contact with all the turns of wire. The condenser value is .00025 .- Herman J. Schweger, Appleton, Wis.



"Low-Loss" Variable Condensers Sharnen up your tuning, get greater volume out of your receiver by using the new FADA "low-loss" variable condensers. The low power factor and low equivalent series resistance proves their superiority. More efficient than many so-called precision condensers and have a capacity ratio of 40 to 1 as compared to the usual 30 to 1. Two sizes—No. 142-A (15 plate .0003 mfd) \$3.00 and No. 144-A (23 plate .0005 mfd) \$3.50. Your dealer sells them. F. A. D. ANDREA, Inc. 1581 Jerome Ave., New York City



STA-RITE RADIO BATTERIES are made especially for Radio and the big saving is made possible by coming direct to you Instead of through distributors, dealers, etc. Boxes are made of oak, finished in mahogany and the plates very thick and will give a steady discharge over a long period. No premiums, just good, honest battery value.



TRY TO BEAT THESE PRICES 2 Volt for W. D. 11 \$4.00 6 Volt 60 Amphr. \$ 7.50 and 12 850 8.50 6 Volt 80 4 Volt for U. V. 199 10.00 6 Volt 100 12.10 6 Volt 120 Glass Jars, Heavy Plates-6 Volt 150 --- 14.00 Case of 12 Cells, 4.90 6 Volt 200

Get Yours Today-NOW-Send No Money The batteries are fully guaranteed in writing and snipped subject to examination on the day your order is received. You pay on delivery or deduct 5 per cent if full cash ac or repanies order. You may deduct 10 per cent if two or more are ordered at one time.

STA-RITE BATTERY CO.

Department 5

LOUISVILLE, KY.



Before you buy see the Crosley line For Sale by Good Dealers Everywhere The Crosley Radio Corporation Formerly
THE PRECISION EQUIPMENT CO.
AND CROSLEY MANUFACTURING CO. WORLDS LARGEST HEADSET MAKERS Cincinnati, Ohio Manufactured under ideal THE TOWER MFG. CO. CROSLEY OWNS AND OPERATES BROADCASTING . STATION WLW 98 BROOKLINE AVE. BOSTON MASS The state of the state of the first of the state of the s

An Inexpensive Homemade Cabinet

Enclosure for All of the Equipment Used

THERE is no doubt but what the Radio equipment in combination with the Radio operator has caused some disturbance other than pleasant in the well kept home. The housekeeper is more than justified in her complaint and every

WORKSHOP KINKS EARN A DOLLAR—

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

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

effort should be made by all concerned to make Radio a more orderly occupation or pastime.

One way of doing this is to have a suitable place where most of the needed articles can be kept. At the same time the equipment should be kept under lock and key to prevent the intruder from doing damage to himself or to the equip-

Materials for the Cabinet

When it is impossible to have a Radio room the next best thing is a good cabi-The cabinet illustrated is good in appearance, simple to make, takes up little room and will generally add to the family peace.

Any wood may be used that is easily handled and strong enough to stand well.

Material List

- 2 Sides, 54 inches long, 12 inches wide and 3/4-inch thick
- 1 Top, 26 inches long, 12 inches wide and 34-inch thick 2 Shelves, 241/2 inches long, 103/4 inches
- wide and 34-inch thick 1 Shelf, 241/2 inches long, 111/2 inches
- wide and 34-inch thick
- 2 Strips, 16 inches long by 34-inch
- 1 Piece for drop door, 1634 inches long, 241/2 inches wide and 3/4-inch thick
- 1 Back piece, 411/4 inches long, 241/2 inches wide and 1/2-inch thick
- 2 Front doors, 411/4 inches long, 13 inches wide and 34-inch thick.

To make a very strong non-wobbling cabinet the best way to assemble the parts is to first assemble the parts C, D, F and E. These parts make a very strong box that should be well glued and nailed together. When the parts C, D, and F are together E is added after the manner of a desk lid or drop door. Very strong hinges must be used, also a desk chain or desk support on each side. With the desk lid closed the sides A are placed with the front edge on line with the closed box. This will leave a little space at the back that is needed in case the whole back of the cabinet is enclosed. To do this either wall board or light weight wood may be used.

The placing of the box compartment and shelf is about standard. They can of course be changed to suit the user. A very tall person would not be comfortable at a low arrangement.

As illustrated the idea is to use the top shelf for books, etc., the compartment for the receiver and the lower shelf for the batteries.

The doors, which make the appearance of the cabinet much more to be desired, are constructed very similar to making frames for screen doors. The frames are 2 inches wide and %-inch thick. They are

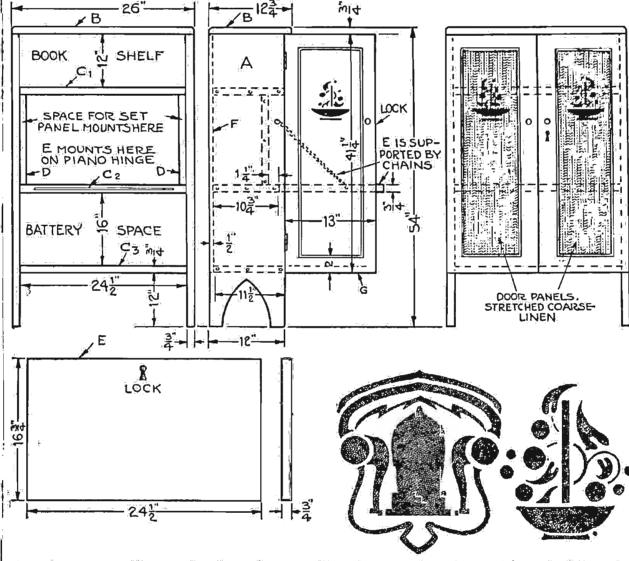


ON ONE TUBE

Broadcasting from Atlantic Coast, Mexico, Hawaii, Canada and Cuba heard in California by users of CROSS COUNTRY CIRCUIT. Range due to simplicity of set and only one tuning control. Easily and cheaply built by any novice. Dry cell tubes may be used. All instructions, blue print panel layout, assembly photo, etc. Postpaid 25c. Stamps accepted.

VESCO RADIO CO. BK D-117 OAKLAND, CAL.

CONSTRUCTIONAL DETAILS OF CASE



not distort the design.

Morey, Ottumwa, Iowa.

Guaranteed

The "Goode"

Two-o-One

Le Ton d'argent

QUARTER AMPERE

GUARANTEED SATISFACTORY

All "GOODE" Tubes Sold Direct to

the Consumer-No Dealer Profits

The Goode Tube Corporation

Incorporated

Detector-Amplifier.....\$2.39

ONE-"Goode"

THREE—"Goode"

BY

MAIL

ONLY

Postpaid

hinged at the sides and when they are ter to experiment on old material. Use closed they cover the entire front.

The cabinet may be finished by any method but the simpliest way is to stain and wax. The cabinet is first well sandpapered then stained with any regular wood stain and finished with wax.

The door panels are covered with a piece of coarse linen, burlap or cretonne. Two stencil designs are offered for decorating the panel. One design symbolizes Radio and the other is a conventionalized basket that will be suitable for the most particular housewife's sitting room. Color Schemes

Cabinet stained black with gray linen panels stenciled in dark blue. Cabinet stained green with dull black oil cloth panels stenciled in green. Cabinet stained brown with tan panels stenciled in orange or brown. Cabinet stained mahogany with cretonne panels matching the hangings used at the windows.

To Stencil Transfer the design to heavy paper and cut out the black parts. To apply to the panels lay the door on a flat surface and using a stencil brush with a tapping motion, stencil with oil color as it comes from the tube. If unfamiliar with this method of applying design it will be bet

A Boon to D-X Fans!

RADIO PANELS

can be bought at any good Radio Dealer's Store

At 25 to 50% Less than any other standard panel

With these panels the surface-leakage and power-loss is reduced to the minimum-hence the volume of your set will be that much greater.

A good panel deserves proper handling—therefore, to get the best results, use a sharp drill with slight

ELECTRASOTE is one of the "Sote" products of world-wide fame introduced by

THE PANTASOTE CO., INC. ALL STANDARD SIZES

JOBBERS AND DEALERS Write for our interesting proposition.

M. M. FLERON & SON, Inc.

Exclusive Sales Agents for Electrasole Radio Panels

Trenton

New Jersey

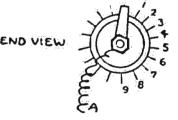
tor for a direct current motor it can be used for making a back panel swite It is only necessary to mount the commutator on the back of the panel and run a shaft through its center A . pring contart is attached to the end of the theft so that It has a surface to make to the

ROTATING **SPRING** CONTACT KNOB COMMUTATOR

Old Commutator Good

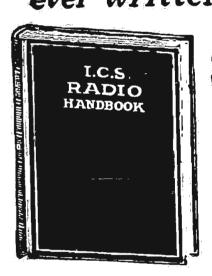
for Back Panel Switch

If you happen to have an old commut: -



with the commutator bars. A reg lar knob is attached for turning the shaft. Naturally the commutator bars are us d to make connection to the taps on the coil and the shaft makes the other cornection to the aerial or the ground in the regular circuit -Earl Lett, Cherryvill, Kansas.





50,000 SOLD

Compiled by HARRY F. DART, E.E. Formerly with the Western Electric Co., and U. S. Army Instructor of Radio. Technically edited by F. H. DOANE

NEW edition just off the press! The greatest book on radio ever written. Price only \$1. Filled with sound, practical, tested information for every radio fan, from beginner to hard-boiled owl. Written, compiled and edited by radio experts of national reputation.

Every page tells you something useful. And there are 514 pages! More than 150 illustrations and diagrams!

You may dip into this I. C. S. Radio Handbook at random, or hunt up special information you want, or read it right through. Different types of receiving and sending hook-ups are explained; electrical terins and circuits; antennas; batteries; generators and motors; electron (vacuum) tubes; interesting experiments; definitions, and thousands of suggestions for getting more pleasure out of radio. Will save you from wasting money on things that won't

Send \$1 to-day and get this 514-page I.C.S. Radio Handbook before you spend another cent on parts. Money back if not satisfied.

__ _ _ _ _ TEAR OUT HERE -- -- --INTERNATIONAL CORRESPONDENCE SCHOOLS

Box 8279-J. Scranton, Penna.

I enclose One Pollar. Please send me—post-paid—the 514-page I. C. S. Radio Handbook It is understood that if I am not entirely satisfied I may return this book within five days and you will refund my money.

EVANSVILLE - - INDIANA

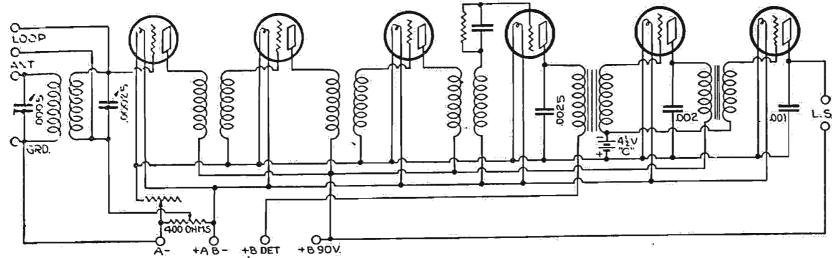


Figure 4

PORTABLE AUTO SET

(C utinued from page 17)

wave length while a potentiometer tr's the first tube. One stage of and of frequency after the crystal detector is reflexed with the second Radio frey ampliner tube after which one stee of pure audic requency amplie.ti is obtained.

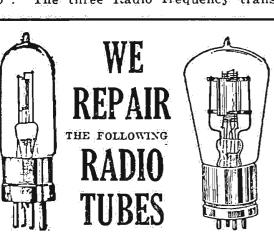
A s newhat larger panel will probably required, but a 7 by 18 inch should be table for this purpose.

Parts Required 1 .0005 Variable Condenser.

- 2 .00025 Variable Condensers.
- 2 Special Units. 3 Tube Sockets.
- 3 Amplifier Tubes.
- 1 Crystal Detector.
- 2 Audio Frequency Transformers. 1 400 Ohm potentiometer.
- 2 Rheostats.
- 1 .005 Fixed Condenser.
- 1 .002 Fixed Condenser. 1 412-Volt C Battery.
- 9 Binding posts.
- 1 Panel about 7x18 inches.
- 1 Cabinet as desired.

Six-Tube Circuit

Fir the fan who doesn't like to dabble with reflex circuits but wants loads of v'lume and plenty of opportunities for Ing distance work, the circuit shown in Figure 4 is presented. This hook-up has three stages of Radio frequency amplification, vacuum tube detector and two stages of audio frequency amplifica-The three Radio frequency trans-110 .



Dealers and Agents write for Special Discount

WD-11, WD-12, Our Specialties

WD-11	32.50	DV-6A	82.50
WD-12	2.50	UV-199	2.50
UV-200	2.50	C-299	2.50
UV-201	2.50	UV-201A	2.50
C-300	2.50	C-301A	2.50
C-301	2.50	Marconi	2.50
DV-6	2.50	Moorhead	2.50
DV-1	2.50	6 V. Plain Det	2.50
DV-2	2.50	6 V. Plain Amp	2.50

H. & H. RADIO COMPANY P. O. Box 22-A

Clinton Hill Station NEWARK, N. J.

Radio Batteries -they last longer

Conspicuous for vitality and endurance -the right batteries by test and proof for every radio use.

NATIONAL CARBON CO., INC. Headquarters for Radio Battery Information New York San Francisco

CANADIAN NATIONAL CARBON Co., LIMITED Factory and Offices: Toronto, Ontario

formers are of the untuned type. All tun- UV-199's the detector plate voltage should ing controls are at the input and consists be about 45. of a primary and secondary variable con-denser and a 400 ohm potentiometer. The inductance unit at input can consist of a device for automobiles, will be described. variocoupler or fixed coupler similar to either of the types described in the two previous circuits. This circuit likewise is practical for either antenna or loop aerial use. The use of a C battery in

Parts Required

- 1 .0005 Variable Condenser. 1 .00025 Variable Condenser.
- 1 Tuning Unit.
- 3 Untuned Radio Frequency Transformers.
- 6 Tube Sockets.
- 6 Tubes.
- 1 Rheostat.
- 400 Ohm potentiometer.
- Grid Leak 25 megohms.
- 1 Grid Condenser .00025.
- 2 Audio Frequency Transformers.
- 41/2-Volt C Battery.
- 1 .0025 Fixed Condenser.
- .002 Fixed Condenser.
- 1 .001 Fixed Condenser.
- 10 Binding posts.
- 1 Panel about 7x21 inches.
- 1 Cabinet to suit.

the audio grid circuits helps clear up the reception and provides economical drain on the plate batteries. The tubes used should be UV-199's because of the high A battery strain that will result as the use of six of the A type tubes. With



原图》

ĕ

 (\mathbb{Z})

At All Dealers

Buy your Keystone Arrestor today—install it according to instructions supplied, and forget about lightning. Made of Bakelite—weather-proof. No vacuum to lose. Approved by Underwriters. At all Dealers,

Manufacturers of over a million Lightning Arrestors

ELECTRIC SERVICE SUPPLIES CO.

17th and Cambria Streets, Philadelphia 53 W. Jackson Blvd., Chicago 50 Church St., New York

AS GOOD -METAL"

Signs and advertisements bearing the above words only serve to impress you with the real fact that our B-METAL Loud Talking Crystals have become the recognized standard in the radio crystal field radio crystal field.

Imitations of our B-METAL have appeared and have become so bold as to copy our literature and our packages, but if you will kindly look on the individual box cover for our full name as signed at the foot of this advertisement you are of this advertisement you are sure of getting genuine B-METAL Talking Crystals.

It is impossible to copy B-METAL quality and it is a simple matter to determine it by comparison with others sold as such, but lacking our firm name on the box.

14 mfl. 525 WOODWARD AVENUE DETROIT. MICHIGAN

(In the near future the Durant installation, as well as a portable set suspension -Editor's Note.)



CONNEWEY ELECTRIC LABORATORIES 309 Fifth Avenue NEW YORK CITY



火炸水 给长衫架的长衫

Great radio sensation coming

SHAMROCK-HARKNESS # REFLEX

(Licensed-registered manufacturer)

Two tubes operate loud speaker — with wonderful clarity, selectivity and volume.

Watch for further announcement SHAMROCK MANUFACTURING CO. Dept. 31, Market St. Newark, N. J.

FOR EFFICIENCY

Ofanstiehl PARTS

5.00
4.75
8.00
6.00
7.50

Special inductances for all circuits

Manufactured by

Pfanstiehl Radio Service Co. Highland Park, Ill.

Wave Length

A variocoupler or variometer have no wave length range. The wave length range is dependent upon the inductance and capacity of the other apparatus in the circuit that are used in conjunction with it.

A Tip About Tubes

Never try to operate vacuum tubes as amplifiers on potentials over 100 volts without proper grid bias batteries. Great distortion and probably burned out intertube transformers will result.



VARIOCOUPLERS

VARIOMETERS \$3.50 Workrite \$2.95 5.00 Pathe Moulded \$2.25 3.50 Fisher, Large \$2.85 CONDENSERS

\$2.00 R. C. 11 plate 2.25 R. C. 23 plate 2.75 R. C. 13 plate VERNIER CONDENSERS

PHONES \$18.00 DR. SEIBT IMPORTED "SUPER \$6.90 HEADSET" Imported \$6.90 The above items are just a few of our numerous attractive priced articles, which are contained in our BULLETIN DF RAD!O PARTS. Gladly sent

We are headquarters for "Radion" and "Bakelite Dilecto" Panels. The best panel material available. Mail orders promptly attended to. Will ship C. O. D. unless remittance accompanies order.

to you upon request.

What About It?

menting with multiple control circuits and build one that, combining ease of assembly and operation, loudness, clarity and selectivity of signals, as well as beautiful appearance is excelled by none? ance, is excelled by none?

THE ELGIN SUPER-REINARTZ RADIO RECEIVING SETS

Embodies all the advantages of the well known Elgin Reinartz. the set which was largely reaponshile for the popularity of this wonderful circuit) and many others. It is much itouder, more selective, requires no storage battery, and can be used with excellent results on a short or loop aerial.

or loop aerial.

It has brought in 2LO England, and California stations two thousand miles from Eigin, clearly and without interference on a 1 id speaker with only one tube, and that while our powerful local station was broadcasting three miles away.

Could you ask for more Could you ask for more.

Send 2-cent stamp f-r circular giv-ing one, two and three buils hook-ups of this remarkable circuit

ELGIN RADIO SUPPLY CO 207 East Chleage Street ELGIN, ILLINDIS



Why pay \$10.00 or more to have an aerial spoil the appearance of your home? Antenella eliminates all unsightly wiring, lightning arresters, etc., and precludes the possibility of dangerous grounding on a power line. It also stops "canary bird" reradiation from nearby oscillating sets interfering.

ANTENELLA

is not only a real distance getter, but also overcomes troublesome static.

At your Dealer, otherwise send purchase price and you will be supplied postpaid.

Ask for Circular A-40



Mitigation of Those Troublesome "Birdies"

How to Make a Radiation Interference Preventer

REGULAR RADIO INPUT WITHOUT BIRDE INPUT

F SWISHING, whistling sounds from neighbor's radiating receiving sets follow you around like buzzing insects, take heart, there is a remedy other than trying to stop the use of oscillating receivers. Stop some, and new oncs start

NEIGHBORS RADIATIONS

DISTANT PROGRAM WAVES

THE TREGULAR ALRIAL FIXED RADIO TRANSFORMER

AMPLIFIER SYSTEM

A device can be attached to your receiving set that will cut out such interference. It may seem hard at first since the radiations from the neighbor's outfit are of the same character as broadcast radiations. The problem is simpler than static mitigation as the source and character of the whistling disturbances is known, and the radiations are not power-

you are not satisfied with such partial remedies as the use of less sensitive receiving apparatus or a loop receiver which gets no interference from neighbors located at right angles to the pointing of the loop, the interference mitigator shown in the accompanying diagram will be of interest.

Interference Mitigator This attachment for any receiving set takes advantage of the differences in

neighboring radiations and broadcast radiation carrying a program. In addition to the regular receiving circuit a second absorbing receiver circuit is used. The regular receiver circuit gets the distant program and the local disturbance radiations. The second receiver circuit is arranged to get substantially only the disturbance radiations coming from the neighbor's outfit. Then a simple balance is obtained opposing the two outputs, so that only the distant program radiations affect the audio amplifier and reproducer of your regular set. This is a phase tuning method supplementing the regular frequency or wave length tuning and directional selection. It can be used with loop or aerial input and accomplished at Radio or audio frequencies, but in the example illustrated, a Radio balance from two aerial inputs is shown. The second aerial may be a short one placed near the regular aerial. This mitigator does not prevent distant reception. Cause of Whistles

Whistles are caused by beats from the

interference of neighboring radiating outfits. Supposing you are receiving a 300 meter broadcast program, with 1,000,000 cycles frequency adjustment. Then your neighbor can swish his oscillating set within say 60 to 6,000 cycles of this and you will hear the audible beats. But this interference comes from a nearby source. From experience with Radio amplifiers you probably know that they serve to boost weak distant signals to sufficient value to operate a detector but do not proportionately boost strong local signals,



The BILTMORE REFLEX, announced several months ago, was considered one of the most sensitive receivers manufactured, but now,—We announce the BILTMORE REFLEX improved,—the

BILTMORE MASTER REFLEX

UNSURPASSED, in sensitiveness. With its one stage of tuned radio frequency, two stages of transformer coupled radio frequency, detector, and three stages of audio frequency amplification, each stage more efficient than if it were used in a "straight" rocciver, this four-tube receiver equals and surpasses the best eight-tube set. Three thousand miles on the loud speaker is the distance many times accomplished on the BILTMORE MASTER REFLEX. And this with but a few feet of concealed wire and a ground. No outdoor antenna nor even a loop.

UNSURPASSED, in volume. If desired, the BILTMORE MASTER REFLEX will give tremendous volume. The largest hall or armory can he filled with loud, clear music with the BILTMORE MASTER REFLEX. A feat which few receivors can duplicate.

UNSURPASSED, in tone quality. Reflex receivers are used where perfect, true tone is required. The BILTMORE MASTER is the finest of reflex receivers and gives the finest of tone.

UNSURPASSED, in selectivity. Tuned radio frequency amplification makes the BILTMORE REFLEX extremely selective. Few receivers equal it in this respect, yet with but two controls, it is very easy

UNSURPASSED, in materials and workmanship.

A finer machine could not be made. Constructed by experts, it is made from the finest parts. Radion panel and dials, National "Perfect" Low Loss variable condensers, Dublier Micadons, Fada Theostats and potentiometers, Federal jacks, and Aème radio and audio frequency transformers. Each instrument the best in its class.

UNSURPASSED, in appearance. Our illustration imparts but a poor impression of the beauty of the receiver. Its beautiful Radion Mahoganite panel, its heavy hand-rubbed mahogany cabinet, and its bright nickeled metal parts make it a fine receiver for the

Unsurpassed, in value. The finest receiver made,

Price, \$100

Send for literature giving complete description of this wonderful receiver, showing interior, etc. DEALERS: We have a number of exclusive agencies for this receiver still open.

Write us at once. The BILTMORE RADIO COMPANY

BIRDIES WITHOUT BIRDIE RADIATION CURRENTS BALANCED OUT HERE HONEY COMB COILS -POSITIONS ADJUSTABLE, COIL @ CONNECTED TO OPPOSE COIL @ CONDENSERS (D& (F) TUNE TOGETHER AND REHAIN FIXED FOR ANY ONE NARROW WAVELENGTH BAND. No whistling radiations coming from your neighbors' oscillating receivers can affect your reception of distance broadcast programs when this attachment is used. because the detector can only handle a the "birdies." The two outputs are then fixed amount of Radio frequency current, opposed by the coils shown, and connec-The "birdie" mitigator utilizes this prin-As shown, one or two stages of Radio amplification ahead of the detector receiving set are used with the regular aerial input. This input gets the program from the distant station and the local "birdies"

TO OPPOSE TO GO DE

radiation. The second aerial input goes to a one stage Radio amplifier which is non-regenerative and tuned each time to the same wave length as the first aerial input circuit. The second aerial input from a smaller aerial, with the use of the one stage non-regenerative amplifier affords an output which gives the "birdies" radiation picked by the second aerial, but not the distant program because the second aerial and amplifier is not sensitive enough to be appreciably affected thereby. Even when the second system gets weak response on the distant program, this does not prevent operation of the mitigator because the program is brought through in much greater amplitude by the regular aerial system.

Two Outputs

The result is that you have two outputs, one with the signals and "birdies" and the other with substantially exclusively

PRE-AMPLIFIER



Makes Summer Radio Practical THE TWITCHELL PRE-AMPLIFIER is a powerful Radio Frequency Amplifier attachable to any receiving

It brings in many distant stations which you cannot hear without it. Brings in with tremendous volume those you now hear only faintly. Makes your set selective.

Prevents re-radiation. Price complete with tube \$25.00

Shipped Prepald S. A. TWITCHELL 1925 Western Ave. MINNEAPOLIS, MINN.

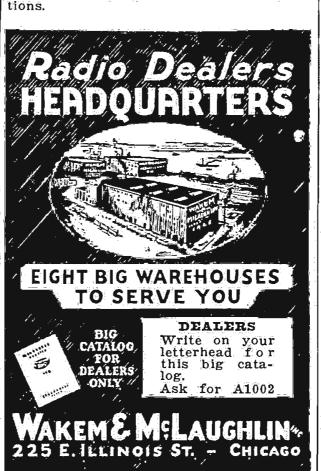
The duck migrates, but — the Hen stays at home and lays eggs

Radio is not a migratory proposition. 600 broadcasting stations, all over the U. S. A. are daily broadcasting programs summer and winter. The July program is equal in every way to the December. Let's not be fooled, let's take the moth balls out of set and set her up-and enjoy the warm eveningwith a cool refreshing concert on the front porch—taken to the jingle of the ice in that good old home made lemonade.



tions are reversed to get the opposing directions. A third coil takes the difference into the regular receiving and amplifying set. By adjusting the positions of the three colls, the input to the regular detector and audio amplifier outfit can be made to contain substantially exclusively the distant program without the "birdies." Standard units can be used for this eliminator and honeycomb coils on a tripie mounting are suitable for the coils. This is a real step toward "birdie" elimination as it does the work at the receiving outfit. In a city where there is plenty of reradiation from oscillating sets, the writer is able to receive broadcast programs in peace. Further improvements on this mitigator are being made. It is not difficult to set up and use.

Do not use a gas pipe for a ground, as this is strictly against insurance regula-





The new FAHNESTOCK Display Case Will stimulate your sales of Fahnestock Radlo Products. 14 of the most popular styles and sizes are included. Shows the purchaser instantly the correct piece for his set. A constant invitation to buy Fahnestock Products. Dealers are offered 200° profit on each case, an unusual offer on standard merchandise. Price to Dealer\$17.50

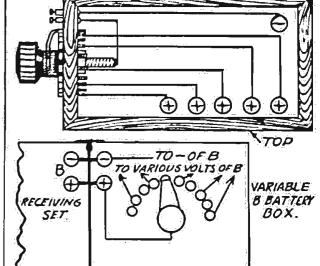
West of Mississippi...... 18.50 Transportation prepaid when money order or check accompanies order. Subsequent orders at regular price of \$20.00.

Contents Retail for \$51.50

Refills will be supplied at the regular 100 lot prices, shown in catalogue, which comes with case, less discount shown on enclosed sheet. Send check or money order, today.

FAHNESTOCK ELEC. CO LONG ISLAND CITY NEW YORK B Battery Box

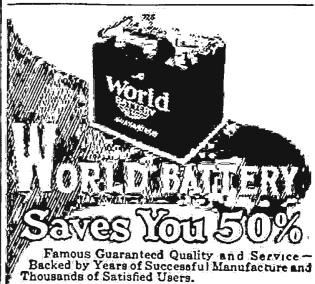
The illustration and description herewith are that of a neat and reliable variable B battery box. This box improves the appearance of the set as its cover the B battery. With this box you can shift from one voltage to another wit a slight turn of the wrist. The plus end minus birding posts should be placed so



that they are just opposit those of your set. Alternate contacts should be dead as shown .- H. Kranks, Cincinnati, Ohi

Spacing Wire on Coils

When winding spider web coils care must be exercised to see that the spac s between turns are even. Even spacing is one of the factors controlling the efficiency of spider web colis.



Prices That Save and Satisfy

Redio Batterles Auto Batterles G-Volt 11 Plate, \$12.25 G-Volt 60 Amps. \$ 8.50 G-Volt 12 Plate, \$14.25 G-Volt 100 Amps. \$ 14.50 G-Volt 120 Amps. \$ 14.50 G-Volt 120 Amps. \$ 14.50 G-Volt 140 Amps. \$ 16.00

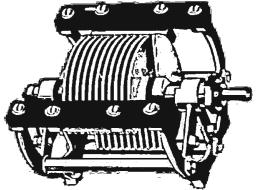
Special 2-Volt Storage Battery for W.D.11 and 12 tubes will run 200 hours on one charge. Rechargeable, \$5.00.
Special 4-Volt Storage Battery for U.V 199 tubes. Same features as 2 Volt. \$5.00.
Shipment express C.O.D. subject to examination.
Discount for cash in full with order.

2-Yr. Guarantee Bond in Writing
With Each World Storage Battery
proves satisfactory World performance. Mail this ad
with your name and address and we will ship battery day
order is received; and give you a 45-Volt 'B' Battery and
Hydrometer Free with each battery
purchased. Write today.

World Battery Company Dept. L. 60 E. Roosevolt Rd. CHICAGO







THE MOST STURDY of the New Type

LOW LOSS CONDENSERS



BUELL MANUFACTURING CO. 2977 Cottage Grove Ave., CHICAGO

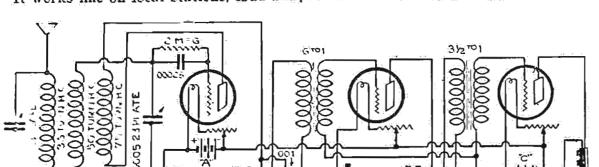
Brooklyn, N. Y.

Questions and Answers

R. C. Circuit and Amplifier (9146) LBB, Kansas City, Mo.

I am sending you a diagram of a set I rome and ask if you will make the e-- ss.ry corrections for me?

It works fine on local stations, loud and denser are in effect it is advisable to use



clear, though sor it has a very a smaller condenser or decrease number lad noise like frying in the head set. of turns on coil to reach the lower wave Before I spoiled it by putting trans-lengths. An approved combination is a formers and extra tubes on, it was a fine sixty-turn secondary, fifteen-turn primary receiver, getting many stations as far as and a twenty-three-plate variable con-Pitts urgh, Atlanta and St. Paul, but denser, ver g t west of Hastings, Nebraska. An using good material with all Amerian transformers and UV-199 tubes.

Q 24-9146

As it is now I can only get local stat ons loud and clear on the horn or phones. A .- We have noted carefully your difficulty in perfecting amplification with the c'rcuit of sketch submitted and are advising that the action encountered evidences either that you have reversed primary of the transformer, that you have them too close together or that there is a discrepancy in making connections at

sor e other point. We are giving a diagram herewith showing the proper method of adding audio frequency amplification in two stages, which will doubtless be helpful in tracing and locating the factor which is acting as a detriment.

Condenser Tuning Range (8961) LEM, Hutchinson, Kans.

I have been buying your Radio Digest from the news stands for the past year and have also built a neutrodyne 5-tube set from the articles that you have been publishing and I have had wonderful results with the exception of one or two items.

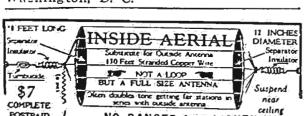
I wound my own neutroformers and have used number 24 cotton covered wire with 20 turns on the primary and 80 turns on the secondary and used a 31/2inch diameter cardboard cylinder for the S0-turn coil and also a cardboard cylinder for the 20 turn coil that fits real snugly inside of the other coil.

I am able to use only 45 points on my condensers that the neutroformers connect onto and I am of the opinion that my condensers are not of the proper capacity for the coils or perhaps the coils are too large for any condenser. I am using a 17plate condenser.

Please advise me as to how I can figure the proper proportions for coils and con-

SALESMEN, Sell coal in Carload Lots. side or main line. Experience Unneces-Earn week's pay in an hour. Liberal drawing account arrangement. Washington Coal Company, 900 Coal Exchange Building, Chicago.

PATENTS Procured. Send sketch or model today for examination, prompt report and advice. No charge for preliminary advice. Write for free Booklet and blank form on which to disclose your idea. Highest references. Promptness assured. Clarance A. O'Brien, Registered Patent Lawyer, 2 01 Security Bank Building, Directly ro. 5 the street from Patent Office, Washington, D. C.



Or \$5, if four set owners' addresses are sent to us.

Details about Killing Noise in Radio Sets FREE POSTPAID / INTER-STATE SIGNAL CO., DEPT. 1, COLUMBUS, OHIO

Don't You Get

riped of only hearing LOCAL stations on your Crystal Set? There's ruleic on If you want to hear it without buying a tube set, WRITE ME TODAY.

LEON LAMBERT

E01 Bouth Volutaia

Wichita, Kansas



densers so that & can get my set properly

balanced. A .- We have noted carefully your difficulties in operation of your neutrodyne circuit. If only forty-five degrees on con-

Manufacturing

(8517) RRR, St. Joseph, Mo. Will you kindly inform me if it would be unlawful for me to manufacture the following sets for market:

Neutrodyne, Reinartz, Miloplex, Reflex De Luxe and Flewelling?

What feature of parts of the neutrodyne are patented? A .- All of the circuits named involve principles controlled by patent rights and to manufacture receivers employing them,

without a license to do so, for commercial purposes is an infringement. The principle of neutralized circuit capacity is the patented feature of the neutrodyne receiver.

Bankrupt Stock

Cunningham Regenerative one tube long range sets \$10.50 Each

Prepaid while they last Formerly sold at \$32.50

No Circulars. Order from This Ad.

S. A. TWITCHELL

1925 Western Av., Minneapolis, Minn.

"Un Crystal Sets!

Results truly amazing. Everyone astonished. H. Harryman, Opdyke, Ill., says: "I have heard 26 stations, most distant 825 miles, Schenectady." H. Lapsley, Council Bluffs, Ia., says: "Second night I got KDKA. E. Pittsburgh." You can't doubt your own says. "I sten in on STEINITE at my risk." ears. Listen in on STEINITE at my risk.

50c Each or 3 for \$1.00

STEINITE opens up new poseibilities for cryetal eets. Don't delay the Radio treat in etore for yon, Send Dollar Bill today for 3 Crystale and free hookups. None gennine unless stamped "S" Two big Atchieon Banks guarantee prompt refund if not delighted. Literature FREE. if not delighted. Literature FREE

STEINITE LABORATORIES 9 Radio Bldg., Atchison, Kansas



Single-Circuit Troubles (07982) RR, Peoria, Ill.

I have a single-circuit two-tube WD-11 set. At times when I turn the coupler or the rheostat I hear a loud knock and the music becomes weak, but clear. Please

tell me how this-can be remedied. A .- The action encountered in operation of your receiver may be incidental to defective rheostat and unsteady filament current. Then, too, it could be due also to the way in which you adjust tuning units and could be eliminated by correct tuning procedure.

Trouble of this nature is sometimes due to defective transformer.

Honeycomb Coils in Reflex

(06583) ABP, Clayton, Mo. Would it be possible to use two honey-

comb coils in a reflex circuit, instead of the usual variocoupler? If so, what size should the coils be? I do not like using



349 FULTON STREET BROOKLYN, N.Y.

Send for our new CATALOGUE No. "B" (just off the press). The greatest radio bargain list in

the country. Don't buy anywhere before getting our prices.

ULTRADYNE **TRANSFORMERS**

1 Input Transformer and 3 \$20.00 Intermediate Transformers

Tuning, Oscillating Coils, \$ 4.00

Full instructions and Blue Prints furnished with each Kit. Absolutely guaranteed. These transformers are suitable for any Super-Heterodyne circuit. Put up in handsome Kit display box. Special discount to dealers. Prompt delivery. Write for special circular.

SYPHER MANUFACTURING COMPANY

1524 Fernwood Ave., Toledo, Ohio



Once you use Miller-B-Metal Crystal you will have no other—it certainly makes your set 'talk up." Two extra pleces of Miller-B-Metal sent free with every crystal container.

Order from your dealer or direct from factory. DISTRIBUTORS: "We have a few fine terri-tories still open for aggressive, legitimate radio Salos Agencies. If sincerely interested, write.

The A. H. MILLER RADIO COMPANY 1222 20th St. - Detroit, Mich.

The formula for B-Metal was originated by

OUD



White working to bring the best available crystal material to the highest point of efficiency through various methods of scientific treatment, we have also combed the Earth for more sensitive rectifying materials, feeling sure that resting somewhere in a mountain crevico was just what the Radio world was seeking.

Our confidence in Nature has been well rewarded in the discovery of that latest and Most Wonderful Crystal Material "STAR-ITE." This crystal is the Real Sensation of this Radio Season and you will agree when you have tried one on your radio set.

We are producers of B-METAL Loud Taiking Crystals, the old 50c "stand-by" Crystals that are as standard as sugar in a grocery, and getting better every day.

If you don't agree that our new STAR-ITE Crystal is worth \$1.00, we will exchange it for two B-METAL Crystals at any time, so you take no risk in STAR-ITE.

DETROIT - MICHIGAN

a variocoupler because of the switch points.

A.-We are advising in your inquiry that the substitution of honeycomb coils for variocoupler in a reflex circuit is quite feasible. Thirty-five and fifty, or fifty and seventy-five turn coils can be used interchangeably for primary and secondary respectively.



S. & H. BATTERY SUPPLY CO. 41 Nevins St.,

DOLLAR RADIO SPECIALS

Dept. (D)

Send for large, Illustrated catalog No. 5G.

WESTERN RADIO CORPORATION CEDAR RAPIDS, IDWA

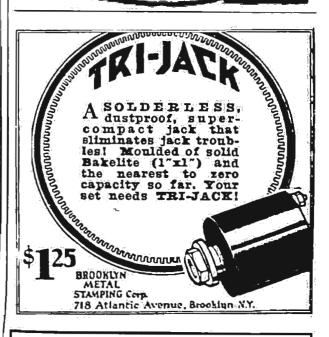
The Traffic Cop of the Air He arranges in orderly fashion the mass and jumble of Broadcasting Stations that are seeking entrance to your set and brings 'em in, one at a time, so you can enjoy them! Never reduces, but nearly always increases volume. Add a Ferbend Wave Trap to your set and "Police" your reception. Regulate the Traffic!

Guaranteed to tune out any interfering station. The price is \$8.50. Shipment is made purcel post C. O. D. plus a few cents postage. If you prefer, send cash in full with order and we will ship postage prepaid. Send us your order today.

PERBEND Wave Trap 23 E. South Water St. Chicago, Ill.

FERBEND ELECTRIC COMPANY





Guaranteed Head-Sets

RED-HEADS" are guar-anteed radio phones. You run no risk when you buy them. Money back if, after 7 days' trial, you're not satisfied that they're the best receivers on the market at the price. Why not act right now and get a pair? It'll mean getting the maximum from broadcasting from the day you put them into use.



NOW READY

\$6.50 Per Pair \$5.00 Per Pair \$5.00 "Red-Heads" sent prepaid on receipt of price it you are unable to get them at your dealers.

THE NEWMAN-STERN COMPANY DEPT. R. D., NEWMAN-STERN BUILDING, CLEVELAND, ORDO

Radiophone Broadcasting Stations

Corrected Every Week-Part III

FIND MISTAKES AND YOU'LL GET DOLLAR

NE DOLLAR will be paid to the Radiophan reader of Radio Digest submitting the most errors in any one station's listing in the Directory of Radiophone Stations, which appears in four parts, serially continuously, on page 23. Letters must reach Radio Digest's office not later than one week from date of issue corrected. Readers are not limited to correcting one station, but such corrections must be verified by the stations themselves, and NOT by comparison to other socalled accurate broadcasting directories or lists. Turn in corrections for as many stations as you can find-if you can find errors! Use separate sheet of paper for each station submitted and place name and address on each sheet. In case of tie, duplicate awards will be made.

NOTE.—The third part of the schedule list appears dow, The fourth part consists of the remainder of the st and the complete state, city-station index will annear next week.

WDAR, Phlladelphia, Pa. 395 meters. 500 watts. Lit Bros. Club, "Morning Glory." Dally ex Sun, 12-12:55 pm, musle; 2-3 pm, 4:30-6; musle, talks; 7:38-8 pm, Dream Daddy. Mon, Wed, 7:30-11 pm, entertainment. Fri. 8-10:50, entertaioment; 1 am, tlub. Eastern daylight saving.

WDAS, Worcester, Mass. 360 meters. 10 watts. Samuel A Woite

WDAU, New Bedford, Moss. 360 meters. 100 watts. Slocum & Kilburn. Mon, Wed, Frl. 12:15-12:50 pm, industrial reports; 7:45-10 pm, oiusic. Sun, 11 am-12:30 pm, 7-8, church services. Eastern.

WDAY, Fargo, N. D. 244 meters. 50 watts. Radio Equip. Corp. Slogai. "The Biggest Little City in the World." Daily ex Sun, 9:30 am, weather. Tues. Sat, 7:30-8:30 pm, concert, Thurs, 10:30-12 midnight. Sun, 10:30 am, church service; 4-6 pm, concert. Central.

WDBA, Columbus, Ga. 236 meters. 20 watts. Fred

WDBB, Taunton, Mass, 229 meters, 10 watts. A. H. WDBC, Lancaster, Pa. 258 meters, 50 watts. Kirk Johnson & Co., Inc. Mon, Tues, Thurs, 8 pm.

WDBD, Martinsburg, W. Va. 268 meters. 5 watts.
H. E. Burns, Thes, Thurs, Sat, 9-10:30 pm, talks, music, dance orchestra. Eastern.
WDBE, Atlanta, Ga. 252 meters. 10 watts, Gilham-Schoon Elec. Co. Eastern.

WDBF, Youngstown, Ohio, 246 meters. 50 watts. Robert G. Phillips.

WDBH, Worcester, Mass. 268 meters. 100 watts.

C. T. Sherer Co. Slogan, 'The Voice of the Heart of the Commonwealth.' Daily ex Sun, 11:30-12:30 pm, music, reports. Mon, Wed, Sat, 8 pm, music, Eastern daylight saving.

WDBL, New Orleans, La. 242 meters. 10 watts. F.

WDBI, New Orleans, La. 242 meters. 10 watts, E. Budd I'eddicord, WDBI. Roanoke, Va. 229 meters, 500 watts. Richardson Wayland Elec. Corp. Slogan, "The Magle City of the Old Dominion. WDBK, Cleveland, Ohio. 248 meters. 100 watts. M. F. Broz, Furniture, Hardware & Radio.
WDBL, Stevens Point, Wis, 278 meters, 500 watts.

Wisconsin Dept. of Markets.

Wisconsin Dept. of Markets.

WDM, Washington, D. C. 234 meters. 50 watts.
Church of the Covenant. Sun, 11 am, church service;
B pm, church service. Eastern.
WDBN, Bangor, Mc. 252 meters. 10 watts. Electric Light & Power Co. Club, Bangor Radio Club."
Daily 3-5 pm, 8-10. Eastern.
WDBD, Winter Park, Fla. 240 meters. 50 watts. Bollins College, Inc.

MDBP, Superior, Wis. 261 meters. 50 watts. Superior State Normal School. 234 meters. 10 watts. WDBQ. Salem. N. J.

State Normal School.

WDBQ, Salem, N. J. 234 meters. 10 watts. Morton Radio Supply Co.

WDBR, Boston, Mass. 256 meters. 100 watts. Trement Temple Baptlst Church.

WDZ, Tuscola, Ill. 278 meters. 10 watts. James L. Bush. Daily ex Sun, 9:30 am, 10, 10:30, 11, 11:30, 12 m, 12:30 pm, 1, 1:15, Chicago Board of Trace quotations. Central.

WEAA, Flint, Mich. 280 meters. 100 watts. Frank D. Fallaln. Slogan, "The Vehicle City." Daily ex Sun, 7:15 pm, police broadcasts, music. Eastern.

WEAE, Blacksburg, Va. 360 meters. Polytechnic Inst. WEAF, New York City, N. Y. 492 meters. 1000 watts. A. T. & T. Co. Slogan, "The Voice of the Millions." Mon, 4-5:30 pm. The Voice of the Millions." Mon, 4-5:30 pm. Tues, Wed, Thurs, Fri, 11-12 am, 4-5:30 pm. Mon, Tues, Wed, Frl, 7:30-10. Thurs, 7-12 pm. Sat, 4-5:30 pm, 7:30-11. Sun, 2:15-5:30 pm, 7:23-10. Eastern daylight saving.

WEAH, Wichita, Kan. 280 meters. 50 watts. Wichita Board of Trade and Board of Commerce. Daily ex Sun, 9:45 am, 10, 11, 12 m, 1 pm, 2, market reports. Tues, Fri 8-10 pm, music. Central.

WEAI, Ithaca, N. Y. 286 meters. 500 watts. Cornell Unit. Irregular.

Univ. 1rregular.
WEAJ, Vermilion, S. D. 283 meters. 200 watts.
Univ. of S. D. Mon, 8:30 pm, music, college activi-Central.

ties. Central.

WEAM, North Plainfield, N. J. 286 neeters, 100 watts.
Borough of N. Plainfield. Mon, 8-10:30 pm, concert, tolks. Eastern, Daylight Saving.

WEAN, Providence, R. I. 273 meters. 100 watts. Shepard Co. Daily ex Sun, 12-1 pm, 4-5, musle, reports, weather, concert. Mon, Wcd, 6-7 pm, Mon, Tues. Wcd, Fri. 8-10, concert. Sat. 9-11 pm, dance

10:45-I1:30 am, 7:30-8:45 pm, church Columbus, O. 360 meters. 500 watts.

wead, Columbus, O. 360 meters. 500 watts. Ohlo State Univ. Daily ex Sun, 1:30 pm. Wed, Fri, 4 pm. lectures, music. Thurs, 8-10 pm, lecture, concert. Eastern.

WEAP, Mobile, Ala. 360 meters. 100 watts. Mobile Radio Co. Daily ex Sun, 4-5 pm, music. Tues, Thurs, Sat, 7:45-8:45 pm, Music. Sun, 3:30 pm. Central.

WEAR, Baltimore, Md. 261 meters. 50 watts. Evening News Pub. Co.
WEAU, Sloux City, Ia. 360 meters. 100 watts. Davidson Bros. Co. Slogan, "The Heart of the Corn Belt."
Daily ex Sun; 10 am, 11, 12:13-12:45 pm; 2, 5, Mon, Fri, 8-10 pm, concert. Sun, 7-9 pm, cliurch services.

WEAY, Houston, Tex. 360 meters. 1000 watts. Iris Theater (Will Horwitz, Jr.). Slogan, "Where All the Oceans Meet All the Railroads." Dally ox Sun, 11 am, weather, news. 12 m, unusic: 12:57-1 pm, time; 2:30 pm, music: 6 pm, news, sports. Fri, 8-9 pm, band. Sat, 8-10 pm, concert. Sun, 11 am, 8 pm, church servies; 9 pm, concert. Sun, 11 am, 8 pm, church servies; 9 pm, concert. Central.

WEB, St. Louls, Mo. 273 meters, 500 watts. The Benwood Co., Inc. Tucs, 9-10:30 pm. Wed, 8-9:30 pm. Sot, 7:30-9 pm, 11 pm-1 am. (Central.

WEBH, Chicago, 111, 370 meters, 1000 watts. Edgawater Beach Hotel Co.

WEBP, New Orleans, La. 242 meters, 10 watts. E. Budd Peddleord. WEAY, Houston, Tex. 360 meters. 1000 watts.

Budd Peddlcord. Budd Peddlcord.

WEV, Houston, Tex. 360 meters, 100 watts, HurlburtStill Elec. Co. Daily ex Sun, 10 am, 5:30 pm,
weather, roads. Tues, Thur, 8 pm, concert. Central.

WEW, St. Louis, Mo. 261 meters, 100 watta, St. Louis
Univ. Daily ex Sun, 9 am, 10, 2, 5 pm, reports. Cen-

WFAA, Dallas, Tex. 476 meters, 500 watts. Dallas News and Dallas Journal. Slogan, "Working for All Alike," Dally, 10:30 am, reports; 12:30-1 pm, address; 22:30-3:30, reports, news; 5:30, hedtline story; 6:45-7; sports, news; 5:30, concert, weather WIAI, News, Neb. 278 meters, 200 watts. Daily

address: 2:30-3:30, reports, news; 5:30, hedtline story; 6:45:75, sports, news; 3:30-9:30, concert, weather (allent Wed). Tues, Sat, 11-12 pm, musle. Sun, 6-7 pm, Bible class; 9:30-11 pm musle. Central.

WEAB, Syracuse, N. Y. 234 meters. 100 watts. 1, F. Woese, Wed, 8-9 pm, dance musle. Sun, 9:30-10 pm, Service; 10-11, concert. Eastern.

WEAF, Poughkeepsle, N. Y. 273 meters. 20 watts. II. C. Sprstly Radio Co. Temporarily discontinued.

WEAF, Port Arthur, Tex. 236 meters. 150 watts. Eleesupply Co. Mon, Wed, Sat, 9-10 pm, Central.

WEAJ, Asheville, N. C. 360 meters. 50 watts. Hitrade Wireless Instrument Co. Sun, 7:30-8:30 pm, church services. Eastern.

WEAM, St. Cloud, Minn. 273 meters. 10 watts. St. Cloud Dally Times. Itally ex Sun, 3:30-4 por, markets. Mon, Wed, 7:30-9 pm, entertainment. Central.

WEAN, Hutchinson, Minn. 360 octers. 100 watts. Ilutchinson Elec. Service Co. Slogan, "Gateway to The Ten Thousand Lakes of Minn., located in the lieart of the Great Butter Belt." Dally, 11:55 am-12:30 pm, program, news, time, weather. Tues, 8-10 pm, program. Special hours. Central.

WEAQ, Cameron Mo, 360 meters. 10 watts. Missouri Wesleyan College.

WEAT, Sloux Falls, S. D. 258 meters. 50 watts. New

WFAQ, Cameron Mo. 360 meters. 10 watts. Missouri Wesleyan Collège.
WFAT, Sloux Falls, S. D. 258 meters. 50 watts. New Columbus Collège. Wed, Sun, 8-9 pin,
WFAV, Lincoln, Neb. 275 meters. 500 watts. Univ. of Nebr. Slogan, "The Ilomo of the Cornbuskers."
Dally ex Sun, 10 am, 12:40 pm, weather, news, road reports, Wed, 8:30 pm, concert.
WFBW, Cincinnati, Ohio. 309 meters: 500 watts. Ainsworth-Gates-Radio Co.-Hotel Alms. Slogan, "The Station on the Hill." Wed, 8-10 pm. Sat, Sun, 10-12 pm. Central daylight saving.

tlon on the Hll." Wed, 8-10 pm. Sat, Sun, 10-12 pm. Central daylight saving, WFI, Philadelphia, Pa. 395 meters. 500 watts, Strawbridge & Clothier, Daily ex Sun, 10:15 aio, reports; 1 pm, orchestra; 1:50, reports; 3-4:30, concert; 6-6:30, children's hour; 6:30-7, orchestra. Tues, Thurs, Sat, 7-7:30 pm, dance music; 8, concert. Tues, Sat, 10:10 pm, dance orchestra. Sun, 10:30 am, 7:30 pm, church services; 4:30, chapel service. Eastern Daylight Sating.

WGAL, Lancaster, Pa. 248 meters. 10 watts. Lancaster Elec. Supply & Construction Co. Slogan, "Garden Spot of U. S. A." Mon, Wed, Frl, 7:30-9 pm, concert, lecture, Sun, 3-3:30 pm, church service.

WGAN, Pensacola, Fla. 360 meters, 50 watts, Cecil E. Lloyd.

WGAQ, Shireveport, La. 252 meters, 150 watts. Glenwood Radio Corp. Daily ex Sun, 12:30-1:30 pm, 7-8 pm, music. Sun, 11 am, 7:30 pm, church service.

Central.

Central.

WGAW, Altoona, Pa. 261 meters. 100 watts. Ernest C. Albright. Slogan, "The Home of the World's Largest Railroad Slobs." Wed, 9 pm. Sun, 10:45 am; 7:30 pm. Eastern.

WGAZ, South Bend, 1nd. 360 meters. 250 watts. South Bend Tribune. Daily ex Sun, music. Mon, Wed, Fri, 7-8:30 pm, concert. Central.

WG1, Medford Hillside, Mass. 360 meters. 500 watts. Am. Radio & Research Corp. Slogan, "Amrad, the Voice of the Air." Daily ex Sun, 7:30-10 pm. Daily ex Sat. Sun, 12 m-1 pm, concert. Daily ex Sun, Mon, 6:30-7 pm, stocks; 7, Rig Brother Club. Sun, 4-5 pm, 8:30-10. Eastern Daylight Saving.

WGL, Philadelphia, Pa. 360 meters. 500 watts. Thos. F. J. Howlett. 1rregular schedule.

F. J. Howlett. 1rregular schedule. WGN, Chicago, 111. 370 meters: 1000 watts. Chicago

Tribune.

WGR, Buffalo, N. Y. 319 meters. 750 watts. Federal Tel. & Telg. Co. Slogan, 'Ley City of Industry.''

Dally, 10:45 am, weather; 12 m, reports; 12:30 organ music. Daily ex Sat. Sun, 12:30 pm, 4. Daily ex Sun, 2:30-4 pm, orchestra; 6:0, music; 7:30, news, Mon, Wed, Fri, 9-11 pm, concert; 11-1 am, orchestra. Sun, 3 po, vesper services; 4 organ. Eastern, WGV, New Orleans, La. 242 meters. 100 watts. Interstate Elec. Co. Slogan, 'The Gateway to the World's Richest Valley.'' Tues, Fri, 9:30-12:30 am, dance music. Central.

WGY, Schenectady, N. Y. 380 meters, 1000 watts.

Richest Valley. Tues, FII, 5,50-12.55 am, music. Central.

WGY, Schenectally, N. Y. 380 meters. 1000 watts, General Elec. Co. Daily ex Sun, 11:30-12 m, 5 pm, reports, time, sports. Mon, Tues, Thurs, Fri. 2-2:30 pm, 7:45, concert. Fri. 10:30 pm, special. Sun, 9:30 am, 6:30 pm, church service; 2:30 pm, Symplony Orchestra. Eastern.

WHA, Madison, Wis. 360 meters. 1,000 watts. Univ. of Wis, Mon, Wed, Fri. 7:50 pm, lectures, news, agriograms. Central.

of Wis, Mon, Wed, Fri, 7::0 pm, lectures, news, agriograms. Central.

WHAA, lowa City, Ia, 484 meters. 500 watts. Univ. of lowa, Tues, 8-9:30 pm, Sun, 9-9:30 pm; Yat, 7:30-9 pm. Central.

WHAD, Milwaukee, Wis. 280 meters. 100 watts. Marquette Univ. Tues, 10 am, business talk. Wed, 7:30-8:30 poi, music, entertainment. Alternate Wed, 3 pm, business talk for women. Central.

WHAG, Cinchinati, O. 222 meters. 100 watts. Univ. of Cinchinati. No definite schedule.

WHAH, Jöplin, Mo. 283 meters. 250 watts. Hafer Supply Co. Tues, Thurs, 9-11 pm; Sat, 10:30-11:30; Sun, 9-10 pm. Central.

WHAK, Clarksburg, W. Ya. 258 meters. 15 watts. Roberts Hdwe, Co. No definite schedule,

WHAL, Columbus, Ohlo. 286 meters. 150 watts. Avery Loeb, Fiec. Co.

Loeb Elec Co. VHAM, Rochester, N. Y. 283 meters, 100 wotts.
Univ. of Rochester, Rochester Times-Union, Democrat and Chronicle. Daily ex Sun, 3 pm, 4:15, 6:50,
7-7:30, 7:35-8:30. Sat, 10:45 pm-12:30 am, dance

crat and Chronicle. Daily ex Sun, 5 pm, 4:13, 6:30, 7-7:30, 7:35-8:30. Sat, 10:45 pm-12:30 am, dainer music. Sun, 2:55 pm, Sunday school service; 3:15, Radlo Chapel. Eastern.

WHAP, Decature, III. 360 meters. 50 watts. Otto & Kuhns, No definite sciedule.

WHAR, Atlantic City, N. 1, 231 meters. 20 watts. Seaside House, Dally, 2-3 pm, 7:30-8:30. Eastern.

WHAS, Louisville Ky. 400 meters. 500 watts. Courier Journal and Louisville Times Co. Daily ex Sun, 4-5 pm, 7:30-9. Sun, 9:57-10:45 am, 4-5 pm, church service. Mon night, silent. Central.

WHAV, Wilmington, Del. 360 meters. 50 watts. Wilmington Elee. Spec. Co. Slogan, "The First Broadcasting Station of the First City of the First State." Sun, 10-11 pm. Eastern, Daylight Saving.

WHAZ, Troy, N. Y. 380 meters, 500 watts. Rensselaer Polytechnic Inst. Slogon, "Transcontinental and International Broadcasting Station Located at the Oldest College of Engineering." Club, R. P. 1. students, Mon, 9-11 pm, concert, educational talks, features. Transcontinental second Monday of each month, 12-1:30 am, music. Eastern.

WHB, Kansas City, Mo. 411 meters. 500 watts. Sweeney Auto & Electric School. Slogan, "Heort of America" Daily ex Sun, 7:25 am, 8:25, 9:25, 10:25

WHB, Kansas City, Mo. 411 meters, 500 watts. Sweeney Auto & Electric School, Slogan, "lleort of America." Daily ex Sun, 7:25 am, 8:25, 9:25, 10:25, 11:25, 12:25 pm, 2, reports. Dally, 12:30-1, 2-3, 7-7:45 pm, nuusie. Tues, Thurs, Sun, 8:10 pm, concert,

11:25, 12:25 pm, 2, reports. Dally, 12:30-1, 2-3, 7-7:45 pm, nusie. Tues, Thurs, Sun, 8:10 pm, concert, midnight program. Central.

WHK, Cleveland, O. 283 meters. 100 watts. Warren R. Cox. Slogan, "WIIK Cleveland." Doily ex Sun, 1-1:30 pm, music; 5:30-6, baseball, news, music. Frl, 9-11 pm, dance program. Sun, 6 pun, ehapel; 6:30, news, baseball; 8-10:30, concert. Eastern.

WHN, New York, N. Y. 360 meters. 500 watts. Loewa State Broadcasting Stotion. Slogan, "The Voice of the Great White Way." Daily ex Sun, 2:15-3:15, 3:45-5:30, Mon, 7:30-11 pm, 12-3 am, "Special Midnight Bohemia." Wed, 7:30-10:30 pm, Sat, 7:30-12 pm, Tues, Thurs, Frl, 9:30-12 pm. Sun, 3:6 pm, 9:30-12 pm. Eastern, Daylight Saving.

WHD, Des Moines, Ia, 526 meters, 500 watts. Bankers Life Co. Dally ex Sun, 9-10:30 am, morket crop reports; 11:30-12:30 pm. New York Stock exchange; 2-4, close of markets; 11, music. Mon, Wed, Frl, 7:30-1 pm, music. Sun, 10:45-1:30 pm, chimes and religiou services: 4-6, lectures, music; 7:30-9 pm, music. WIAB, Rockford, Ill, 252 meters, 50 watts. Joshyn Automobile Co. Mon, 9-10 pm. Frl, 8-9 pm, music. WIAB, Rockford, Ill, 252 meters, 50 watts. Joshyn Automobile Co. Mon, 9-10 pm. Frl, 8-9 pm, music. WIAB, Rockford, Ill, 252 meters, 100 watts. Galveston Tribune. Daily ex Sun, 12:35 pm, reports, occasional evening program. Central, WIAD, Philadelphia, Pa, 254 meters 100 watts. Iloward R. Miller, 1rregular schedule.

WIAF, New Orleans, La, 234 meters, 10 watts. G. A. DeCortin. Tues, 8-9:30 pm, Sun 10-11:50 am, Central.

DeCortin. Tues, 8-9:30 pm. Sun 10-11:50 am. Meredith. No definite schedule.

Central.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

Round Hills Radio Corp. Slogan, "The Voice from Stores Co. Slogan, "In the Heart of the Ozarks."

Daily ex Sun 10:30-H am, reports, news, weather.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

Round Hills Radio Corp. Slogan, "The Voice from Way Down East." Temporarily discontinued.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

(Note The fourth part of the directory will appear next week, consisting of the rest of the station schedule.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

Round Hills Radio Corp. Slogan, "The Voice from way Down East." Temporarily discontinued.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

Round Hills Radio Corp. Slogan, "The Voice from way Down East." Temporarily discontinued.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

Round Hills Radio Corp. Slogan, "The Voice from watts." Temporarily discontinued.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

WMAF. Dartmouth. Mass. 380 meters. 500 watts.

Valley Raillo Supply Co.
WIAK, Oninha, Neb. 278 meters, 200 watta. Daily
Journal-Stockman. Daily ex Sun, 7 45 am, 9 lb,
10:20, 12 m, 1:30 pm, 3:50, markets, weather. Central.
WIAD Milwaukee, Wla. 360 meters, 100 watts, School
of Engineering of Milwaukee, Slogan, "In the Land
of the Sky Blue Water." Mon, Tues, Thur, Frl,
11:30-12 m, musle, news; 5-6 pm, musle, news; 7:8,
musle, speechea, Frl, 10-12 mid, Midmite Froile."

WIAQ, Marlon, Ind. 226 meters. 10 watts. Chronicle WIAQ, Marlon, Ind. 226 meters. 10 watts. Chronicle l'ub. Co. Temporarily discontinued.
WIAS, Burlington, Ia. 283 meters, 100 watts. Home Elec. Co. Slogan, 'Burlington, on the Mississippi.'
Tucs, 8-9 pm, concert. Thurs, 7:15-8 15 pm, concert. Sun, 10:30 am, church services. Central.
WIAU, Le Mars, Ia. 360 meters. 20 watts. Am, Trut. & Saylings Hank.
WIAY, Washington, D. C., 273 meters. 100 watts.
Woodward & Lothrop Dally ex Sun, 10:30 am, 2 pm, news, music, talks. Eastern
WIK, McKeesport, Pa. 234 meters. 100 watts. K& L. Electric Co.

Woodward & Lothrop Dally ex Sun, 10:30 am, 2 pm, newa, mualc, talks. Eastern
WIK, McKeeaport, Pa. 234 meters. 100 watts. K & L Electrie Co.
WIL, Washington, D. C. 360 meters, 5 watts, Continental Elec. Supply Co. Discontinued temporarily.
WIP, Philadelphia, Pa. 509 meters, 500 watts. Combel Bros. Slogan, "Waich Its Progress." Dally ex Sun, 1-2 pm, 3-4:30, 6-6:45, inusie: 6:45, markets, 7-7.76 pm, bedtime stories; Tues, Thurs, 8-10 pm, concert. Tues, Sat, 10:10-12 pm, concert. Sun, 4-6 pm, 9.30-12. Eastern, Daylight Soving.
WJAD, Waco, Tex. 360 meters 150 watts. Jackson's Rodlo Engineering Lab. Daily ex Sun, 4-4:30 pm, news, music. Mon Fri, 8-9, concert, Sun, 11-12 am, church service. Sun, 7:30-8:30 pm. Certral.
WJAG, Norfolk, Nebr. 283 meters. 250 watts. Norfolk Dally News. Slogan "The World's Greatest Country Daily." Dally ex Sun, 12:15 pm, 5, 5:30, reports. Sun, 3:30-6 pm, music. Central.
WJAK, Greentown, Ind. 254 meters. 25 watts. Rev. Clifford L. White. Slogan, "The Radio Parson." Mon, Wed, 6:30 pm Sat, 7:30 pm. Ceotral.
WJAM, Cedar Raplds, Ia. 268 meters. 20 watts. D. M. Perham. Slogan, "Creeal City of the World." Daily ex Sun, 12:35 pm, children's hour; 7-8, music. Sun, 2:35 pm, music. Central.
WJAN, Peoria, Ili. 280 meters. 100 watts. Peoria Star. Slogan, "The Grankriew City of Illinois." Daily ex Sun, 9 ain, 9:15, 10:30, 12:30 pm, markets, reports. Tues, Thura, Sat, 6-6:30 pm, children's hour; 7-8, music. Sun, 2:35 pm, soncert. Sun, 9 ain, 9:15, 10:30, 12:30 pm, markets, weather, agriograms. Tuesday Thurs, 9:15-10:45 pm, concert. Sun, 9 ain, 9:15, 10:30, 12:30 pm, markets, weather, agriograms. Tuesday Thurs, 9:15-10:45 pm, concert. Sun, 7:20-10:20 pm, concert. Eastern.
WJAQ, Topeka, Kan. 360 meters. 100 watts. Capper Publications. Irregular schedule.
WJAR, Providence, R. 1, 360 meters. 500 watts. The Outlet Co. Slogan, "The Gateway of Southern New England." Daily ex Sun, 5:15-5:45 pm, concert. Sun, 7:20-10:20 pm, concert. Eastern.
WJAS, Pittshurgh, Pa. 286 meters. 500 watts. Pittsburgh Radio Supply Hous

WJAT, Marshall, Mo. 360 meters. 10 watts, Kelley-Vawter lewelry Co Dally ex Sun, 5:15-5:45 pm, concert. Central.

WJAX, Cleveland, O. 390 meters. 500 watts. Union Trust Co. Slogan, "The Wave From Lake Erie."
Daily ex Sat pm and Sun, 9-9:15 am, market review; 9:30-10, women's program; 10:05-10:45, 2-2:45 pm, 3-3:45, financial reports, news. Tues. 7:30-10 pm; Thurs, 8-10:30 pm, entertainment. First Sat month, 12-3:30 am, "Night Caps." Eastern,

WJD, Granville, O. 229 meters. 50 watts. Denison Univ. Fri, Sat, 5-6 pm, ousic, educational lectures. Central.

WIX, New York, N. Y. 360 meters. 500 watts. De Forest Radio Telephone & Telegraph Co.

WIY, New York City, 405 meters, 500 watts. R. C. A.
Tues, Thurs, Fri, 7:30-11:30 pm, concert. Sun, 2:30-5 pm, 8-10:30. Eastern, Daylight Saving.

WJZ, New York, N. Y. 455 meters, 500 watts. R. C. A.
Daily ex Sun, 3-6 pm, entertainment; 7-11:0 pm, special program. Sun, 11 am-1 pm, church service; 7:10-30 pm. Eastern daylight saving.

WKAA, Cedar Rapids, 1a, 268 meters. 50 wotts. H. F. Paar. Daily ex Sun, 12:45 pm reports; 5:30, reports, agriograms; 6-7, music Thurs, 11-12 pm, music. Sun, 4-5 pm, church service. Central.

WKAD, East Providence, R. 1. 240 meters. 10 watts. Charles Looff.

WKAD, East Providence, Iv. 1.
Charles Looff.
WKAF, Wichita Falls, Tex. 360 meters. 100 watts.
W. S. Radio Supply Co.
WKAN, Montgomery, Ala, 226 meters. 15 watts. United
Battery Service Co. Wed, Frl, 8:30-9:30 pm, music,
news. Sun, programs. Central.
WKAP, Cranston, R. 1. 360 meters, 200 watts. Dutec
Wilcox Flint.

Wilcox Flint
WKAQ, San Juan, Porto Rico. 360 meters. 500 watts.
Radio Corp. of Porto Rico. Slogan, "The Island of Euchantment, Where the World's Best Coffee Grows."
Wed, 8-10 pm, band; Fri, 8-10 pm, music talks, entertainment, Inter-colonial

WKAR, East Lansing, Mich. 280 meters. 500 watts. Mich. Agrl. College. Off the air for the summer. WKAV, Laconio, N. H. 254 meters, 50 watts. Lacotia WKAY, Gainesville, Ga. 280 meters. 10 watts, Brenan College. Thurs, 8550 pm, concert, college octivities.

Eastern.

Eastern.

WKY, Oklahoota City, Okia. 360 meters. 150 watts. WKY Radio Shop. Mon. 9-10:30 pm. Thurs; 9:30-1 pm. concert. Daily ex Sun. 7-7:30, sports. Sun. 11 am. 7 1 m. church service. Central.

WLAG, Minneapolls and St. Paul, Minn. 417 meters. 500 watts. Cutting & Wash. Radio Corp. Slopan. The Twin City Radio Central in the Land of Ten Thousand Lakes." Club, "Tooth Brush, "Postcard." Daily ex Sun. 9:30 am. 9:40, 10, 10:30, 10.45, 11:35, 2 pm. 2:30, 2:40, 4, 4.30, 6.730, 9:15, markets. lectures, music. 5:30-6 pm, children's program. Mon. Tues, Thurs, 6:15-7 pm, music. Wed, Fri. Sat. 9:30 pm, music. Sat. 11:12:10 am, music. Sun. 10:30 am, 3:30 pm, 6:30, 7:45, church services. Central.

Central.

WLAH, Syracuse, N. Y. 234 meters, 100 watts. Samuel Woodworth. No regular shedule.

WLAK, Bellows Falls, Vt. 360 meters. 1000 watts. Vermont Farm Machine Co. Dally, 9-11 pm. Eastern.

WLAL, Tulsa, Okla, 360 meters, 100 watts. Naylor Elec. Co. Wed, Fri, 8 pm, muslc. Sat, 6:45 pm, Bible class, Sun, 11 am, 7:30 pm church services.

WLAP, Louisville, Ky. 360 meters. 20 watts, W. V. Jordon. Tues, Fri, 9:20-10 pm. Central daylight WLAQ, Kalamazoo, Mich. 293 meters. 10 watts. Arthur E. Schillog. Daily ex Sun, 11:30-12:30 pio. Thurs. 10:30-12:30 pm. Sun, 2:30-5 piu. Central Daylight.

Storing.

WLAV, I'ensacola, Fin. 254 meters. 20 watts. Elec. Shop, Inc. Daily Mon, Tues, Frl, 8-9 pm, music, entertainment. Cential.

WLAW, New York, N. Y. 360 meters. 500 watts. New York, Daile Days.

WLAW, New York, N. Y. 360 meters. 500 wates. New York Police Dept.
WLAX, Greencastle, 1nd. 231 meters. 10 watts. Greencastle Community Broadcasting Station. (Putnam Elec, Co.). Tues, 7:30 pm; Thurs, 7:30. Sun, 7:45 pm, church acrylees. Central.
WIB, Min. capells. Minn. 360 meters. 20 watts. U. of Minn. Dept. of Elec. Eng.
WLS, Chicago, Ill. 315 meters. 500 watts. Sears, Roebook S. Co. Dolly ex Sun. 1-2 pm, farm program.

buck & Co. Dolly ex Sun, 1-2 pm, farm program 3-15-4:45, home maker's hour. Tues, Thurs, 6:30-1 am. Wed, Frl, 6:30-11 pm, Sat, 8-12 inlength, barn dance. Sun, 6:30-8 pm. Central, Daylight Saving

WLW, Cincinnati, O. 309 meters. 500 watts. Crosley Radio Corp. Daily ex Sun, 10-30 am, 1:30 pm; daily ex Sut, Sun, 3, 4, reports. Mon, Wed, S-10 pm, ex Sat, Sun, 3, 4, reports. Mon, Wed, S-10 pm, entertainment. Tues, Thurs 10-12 pm, music. Sun, 9:30 am, S. S. services: 11, 7:45 pm, church services. 8:15, orchestra. Central daylight saving. WMAC, Cozenovia, N. Y. 261 meters. 200 watts. C. B.

www.americanradiohistory.com

Supply Co. Club, "Lincoln Hoot Onla." Mon, Thurs, WMAI, Ransas City Drovers Telegram, music. Central.
WMAI, Ransas City Drovers Telegram, Dary ex Fun,
8:15 ato, 9:15, 10:15, 11:15, 12:15 pm, 1:15, 2:17,
weather, markets, new. Central.
WMAK, Lockport, N. Y. 27, Leters 500 watts, Norton labs. Daily ex Fun, 11 am, weather, farm report.
Eastern.

Habe, Daily ear ron, 11 am, 12 fastern. WMAL, Trenton, N. J. 256 meter. 50 watts. Trenton Hdwe. Co. Slogan, "The Home of Good Musle" http://www.Thursday, 7.30-9 pm, mark, lecture. Eastern dayligh.

wman, Columbus, O 201 jecters, 100 watte. First Baptlet church. Sun, 10:30-12 m, 7:30-9 pm, churen

Baptl-t church. Bun, 10.30-12 m, 7.30-9 pm, chur-1 services. Eastern.

WMAP, Easton, Pa. 246 meters. 150 watts. Utility Battery Service Co. Irregular schedule.

WMAQ, Chicago, Ill. 448 meters. 500 watts. The Clacago Daily News. Mon. Tues, Thure, 4.20-5 pm. W-1, 1-2 pm. Wed, Fri, 2.35-3 pm. Daily er Bun, 6-7 pc. 15-2 pm. Wed, Fri, 2.35-3 pm. Daily er Bun, 6-7 pc. 15-2 pm. Wed, Mon, 5-10 pm. Central daylight saving. WMAV, Auburn, Ala. 254 meters. 500 watts. Alaba a Polytechnic in titue. Cl. ing for the summer. WMAY, St. Louis, M. 280 meters. 100 watts. Kinrhighway Pre hyterian church. Biogan, "May Every By-Way Hear Kingshig way." Sun, 11 am, 8 pm, T-e, 7-8 pm, church ervices. Sun, 3 pm, Bible chasa. Central. WMAZ, Macon. Ga. 261 meters. 100 watts. Mercer University.

WMAZ, Macon Ga. 261 meters. 100 watts. Mercer University.

WMC, Memphis, Tenn. 500 meters. 500 watts. The Comercial Appeal. Slogan, "Station WMC, Memphis" "Down in Dixle." Club, "Midnight Frolic." Dai') ex Sun, 9:45 am, 12 m, 3 pm, weather, markets. Dail, ex Sun, Wed, 8:30 pm, program. Tues, Frl, 11 pm. Midnight frolic. Central.

WMU, Washington, D. C. 261 meters. 100 watts. Double-day-Hill Elec. 10. Slegan, "WMI: Gateway to the South." Daily ex Sat, Sun, 4:30:5:31 pm. Eastern. WNAC, Boston, Mass. 278 meters. 100 watts. Shepa 1 Stores. Dally ex Sun, 1-2 pm, 4 5, 6 30:7:30, 8 lu. Mon, Wed, Frl, 6-8 pio. Sun, 11-12 m, church services; 3-4 pm, concert; 7:30:9:30, church and concert. Eastern daylight. 32 lb.

Eastern daylight at list WNAD, Norman, Okla. 350 meter. 100 watts. Univ. of Okla. Tues, Wed, Thurs, 8:30-9:30 pm, pr.gra

WNAL, Omaha, Neh. 206 meter. 100 watts, R. J. Bock-well. Slogan, "The Ploneer Broadcasting Station of Omaha."

well. Slogan, 'The Ploneer Broadcasting Reation of Omalia.'

WNAN, Syracuse, N. Y. 286 meters. 100 watts. Spanuse Radin Tel Co. Man, Wed, Sat, 7:30 pm, concert, agriograms, etc. Eastern.

WNAP, Springfield, O. 275 meters. 100 watts. Wittenberg College. Fri, evenings, lectures by faculty, music. WNAQ, Charleston, S. C. 560 meters. 10 watts. Charleston Radio Elec. Co.

WNAR, Butter, Mo. 231 meters. 20 watts. C. C. Rhodes. Fri, 9 pm. Sun, 11 sm, 7:30 pm. Central.

WNAS, Austin. Tex. 360 meters. 100 watts. Texs. Radio Corp. (Austin Statesman).

WNAY, Philadelphila, I'a. 360 meters. 100 watts. Lenning Bros. Co. Irregular schedule. Eastern.

WNAY, Knoxville, Tenn. 236 meters. 500 watts. Peopic's Tel. & Telg. Co. Temporarily discontinued.

WNAW, Fortress Monroe, Va. 360 meters. 5 watts. Henry Kunzmann. Sun, 2-4 pm, 7-9. Eastern.

WNAX, Yonkton, S. D. 244 meters. 100 watts. Dakid Radio Apparatus Co. Daly, 11 30 and, reports; 4 70 pm, reports, music. Wed, Sat, 9-10 pm, music Central.

WNA, Co., Inc. Wed, Sat, 5-10 pm, music Central.

WNA, Co., Inc. Wed, Sat, 5-10 pm, concert. Eastern.

WOAC, Lima, O. 266 meters. 50 watts. Page Organ (M. P. Maus). Mon, Wed, Fri, Sat, 8.3-9-0 pm, organ. Fri, Sun, 8:30-9-30 pm. Tues, Thurs, 8:30-9-3 pm, orchestra. Central.

WDAD, Sigoutney, 1a. 360 meters. 20 watts. Fri. y

organ. Frl, Sun, 8: 0.9:30 pm. Tues, Thurs, 8:30.9 pm, orchestra. Central. WDAD, Sigourney, Ia. 360 meters. 20 watts. Frl. y Battery & Elee Corp. Friday evening program. WOAE, Fremont, Neb. 360 oneters. 20 watts. Midlard tollege. WDAF, Tyler, Tex. 3:0 meters. 10 watts. The Tyler Commercial College. Daily ex Sat. Sun, 12 m, weat er, markets; 8 pm, weather, sports, code 3:10:15, U.S. Na'y press. Sun, 11 am, 7..0 pm, church service. Ce tr. WOAG, Belvidere, 11. 273 meters. 200 watts. A Theater. Frl, 5:30-6:30 pm. Cen t-1. WOAH, Charleston, S. C. 3:0 met rs. 1 watts. Psimetto Radio Corp. Mon, Thurs, Sat, Sun, 10 pm-1 am, musle. Eastern.

music. Eastern. WDAI, San Antonio, Tex 385 meters: 5-0 watts. South-

wdan, Lawrencehurg, Tenn. 60 neters. 20 watts. James D. Vaughan. Daily ex Sat, Sun, 8:30:9:30 pp.

James D. Vaughan. Daily ex Sat, San, S.30-S av pig. Eastern.

WDAD, Mishawoka, Ind. 360 meters. 50 watts. Lyradion Mrg. Co. Irregular sciedule

WDAP, Kalamazoo, Mich. 283 meters. 50 watts. Kalamazoo College. Slogan, "The Oldest College in Michigan," Tues, 7-8:30 pm. Central.

WDAR, Kenosha, Wis. 229 meters. 50 watts. H. P. Lundskow. Wed, 7 pio. Sun, 6 pm. Central.

WDAT, Wilmington, Del. 360 meters. 50 watts. B.31 Martell Hamp. Temporarily discontinued.

WDAV, Erle, Pa. 212 meters. 50 watts. Penney van a National Guard. Slogan. "Wayne Rangers. Clu.

Martell Hamp. Temporarily discontinued.

WDAV, Erle, Pa. 212 meters. 50 watts. Pennsy van'a
National Guard. Slogan, "Wayne Rangers. Clu,
Neversleep Clüb." Tues. 8: 0 pm. Thurs. 8 pm. 8 9:30 pm, muslc. S. 1, 1-4 am, Milkman's matine.
Sun, 10:30 am, 7:45 pm, church services. Eastern.

WDAW, Omaha, Neb. 526 meters. 500 watts. Wood.—
of the World. Slogan, "Gateway to the West and to
the East." Mon, Tues, Thurs. Fri, 8at, 6-7. 0 p.
9-11. concert. Sun, 9-11 - 2, 6-7 pm. 9-11. Central.

WDAX, Treiton, N. J. 2-7 meters. 500 watts. F. J.
Wolff. Intermittent scheddle.

WDC, Davenport, 1a. 481 meters. 500 watts. F. J.
School of Chirappactic. Slogan, "Where the West Beginard the State Where the Tail C rn Grows." Dist. e.
Sun, Tues night, 10 am, markets; 10:75, time: 1,
weather: 12 m; chlues; 2 pm, markets; (Sat, 1,
3:0, talk; 5:45, ch'mes, er Wed, 6:0, Sandran, 6:
scores, weather. M. n. 10 pm, concert. Thers, Sat,
pm, orchestra. Mon, Wed, Frl, 8 pm, mulle. San,
aiu, chimes; 1:70 pm, orchestra: 7, organ; 7: 7, report.
8, clurch services; 9:10, concert. Tues night, silert.

(Patral.

WDI, Ames, Ia. 360 meters. 500 watts. lowa State C-

WPAC, Okmulgee, Okla. 3 0 meters, 200 wat's, D -WPAC, Okmulgee, Okla. 3 0 meters, 200 watts, Dealton Radio Con.
WPAI, New Haven, Conn. 268 meters, 30 wetts, Dealtile Radio Con.
WPAK, Fargo, N. D. 360 meters, 100 watts, N. D. Agricultural College, Dally, 10 am, weater, M.n., Wed, Fri. 7:30-8:15 pm, music, lecture, address, Cer. 1.
WPAL, Columbus, O. 286 meters, 100 wats, Avery &

Lucth Fiee, Co. Eastern.

WPAM, Topeka, Kans. 360 meters. 100 watts. Azert & Guettel. Daily ev Sun, 1 pm, markets; Wed, 9 10:30 pm. Sat, 8-9 pm, musle. Central WPAR, Belolt, Kans. 230 meters. 10 wat s. Ward B t-tery & Radio Co. Thurs, 7:30 pm. Sun, 8 am, II pd., Central. tery & Radio Co. Thurs, 7:30 pm. Sun, 8 am, 11 jul. Central.

WPAT, El Paso, Tex. 360 meters, 20 watts, St. Pat-

