Hetduogen Questions and Answers; Over 300,000 Copies Printed This Issue; Tuning in Broadcasters on Their New Waves; The New Knox Two Tube Reflex

KdUlO ROGRAMS

Vol. XII

Copyright 1925 By Radio Digest Publishing Co.

SATURDAY, FEBRUARY 7, 1925

No. 5

SUN AFFECTS RECEPTION

RADIO WAVE THEORY HIT BY EXPERIMENTS

PROF. ARTHUR COMPTON IN TESTS SHOWS FAULTS

Says Research Proves Light and Radio Impulses Are Composed of Small Solid Particles

CHICAGO.—That light and Radio impulses are composed of small solid particles which, striking an article they cannot penetrate, "kis." and bound off just like billiard balls, is the recent statement of Prof. Arthur Compton of the University of Chicago, whose discoveries, it is said, may turn topsy-turvy the wave theory of light and Radio.

Professor Compton's experiments, covering a considerable period of time, show that light consists of "discrete bits," each proceeding in a definite direction. The research was based on the X-ray.

The professor photographed the tracks

The professor photographed the tracks of electrons ejected from air by the X-ray. (Continued on page 2)



Above, Miss Florence McDonald, who sails from New York February 7 on board the S. S. Berengaria for Europe. She will log various U. S. stations en route, using a receiver she is taking with her especially for this purpose. On a previous trip Miss McDonald constantly received broadcasting stations in this country until a few miles off the coast of France. Left, Jeannette Ginter, viola player in the Baotolien String quartet, recently heard from KGO. Right, Julia Glass, latest addition to "Boxy's gang" at the Capitol theater, New York.

SOLO HALTED WHEN PROFESSOR SQUINTS

OLUMBUS, Ohio,-A staid uniold MBUS, Ohio.—A staid university professor, making funny faces at the tenor while the latter was singing at WEAO recently, broke up the show, and as a penalty the program director caused the singer to start all over. The professor is A. P. McManigal, WEAO's chime player.

New WCCO Open March 1 Using Super Power Outfit

MINNEAPOLIS, Minn.—The new 5,000-watt transmitter for Station WCCO, is scheduled to go on the air about the beginning of March. This will be one of the finest super power stations in the northwest, and will cost approximately \$100,000 complete.
The transmitting apparatus will be lo-

and Minneapolis, two miles southeast of Anoka on the East River road.

Technical Advice on Sets Given from Station WAHG

RICHMOND HILL, N. Y.—Radiophans who enjoy the thrill of having their names who enjoy the thrill of having their names called out over the air from a broadcasting station are about to have their inning. "Ole Bill" Diehl is to conduct a Radio question box for WAHG and all sorts of technical Radio queries will be answered. For this role of "answer man," WAHG has made a happy choice, for William F. Diehl is one of the best informed engineers in the Radio industry. gineers in the Radio industry.

SHORT WAVES **HELPED; LONG ARE HINDERED**

Eclipse Puzzles Experts

Static and Fading Disappear During Totality—WIP Crosses Atlantic in Special Daylight Test

Static, much maligned partner of Radio, is not a local condition, but as country-wide observations made the recent total eclipse proved, is affected by the sun to a remarkable degree; short wave Radio transmissions follow the sun; and long wave Radio transmission, irregular before the eclipse, became

noticeably regular during totality. Such were the astounding, if not revolu-tionary, deductions made by the engineers (Continued on page 2)



SUN AFFECTS RADIO

一方では、大学をいるないのではなっても

(Continued from page 1)

of the Radio Corporation of America and many famous scientists following Radio tests carried out during the short inter-val that the sun recently hid behind the moon as the two traveled across the corner of the northeastern part of the United

ner of the northeastern part of the United States and into Canada.

And as a result, although no theories have been upset, scientists will "lock themselves up in a room after all the data are collected, and then some of the puzzles may be solved." Such was the statement made by Dr. Alfred N. Goldsmith, chief broadcast engineer for the Radio Corporation of America, who directed the colinse ation of America, who directed the eclipse tests made by the corporation.

Static Leaves with Eclipse

Both 75 and 380-meter wave length signals were sent out by WGY, Schenectady. These were received on a "fading recorder" in New York city by Dr. Goldsmith's staff. He said:

"The short wave could not be heard unity to be fore supplied when it came faintly."

"The short wave could not be neard uniti just before sunrise when it came faintly. As the sun appeared the waves grew stronger. As the short wave lengths increased the static increased. During totality the short wave was blotted out and conditions were exactly the same as before the sun rose. When the eclipse ceased the short waves and static re-

ceased the short waves and static returned as the sun appeared.
"The long 380-meter waves were irregular before the eclipse but became noticeably regular during totality. As the sun began to shine again the irregularity increased and the static returned."

Dr. Goldsmith's only general conclusion was that the eclipse had proved Radio waves were notably affected by the pouring of the sun's light and energy into the atmosphere through which they traveled.

WIP Crosses Atlantic in Daylight Short wave signals (on 75 to 100 meters)

WIP Crosses Atlantic in Daylight
Short wave signals (on 75 to 100 meters)
were intensified when sent at from 9 a. m.
to 9:10 a. m. Eastern time from stations
located in and beyond the path of the
eclipse, according to bureau of standards
observations made at Washington, D. C.
The direction of the waves was also altered during this time.

WIP, Gimbel Brothers store station in
Philadelphia, added a touch of romance
to the tests when it was learned that the
Quaker city broadcaster had been heard
in London, England, at 8:12 a. m., Eastern
time, while sending a special eclipse test
program. The reception was made known
by cable from Station 2LO, London, and
indicated the first successful 500-watt
transatlantic daylight broadcast.
Stations KDKA and WGY were also
heard in London.

CFCA Makes Discovery

CFCA Makes Discovery

That the increased strength in Radio signals did not agree perfectly with the time of absolute totality, but lagged behind it sixty seconds, was found to be the case by officials in charge of Station CFCA, Toronto Star, Toronto, Canada. Dominion government officials confirmed the CFCA results.

At Waterbury, Connecticut, where the

the CFCA results.

At Waterbury, Connecticut, where the Bristol company conducted Radio direction tests during the eclipse, results obtained by Dr. William H. Bristol and David Grimes proved conclusively that the direction of Radio waves changed as much as eight degrees to the west from normal. WDAR, Lit Brothers, Philadelphia was the station listened for in delphia, was the station listened for in an experiment which was one of four directed by Dr. G. W. Pickard, well-known Radio engineer of Boston.

Other Broadcasters Report Results

Results reported by a number of other broadcasters checked with the observations cited. During the eclipse their signals were received louder and over a greater distance. Some of the stations said that their fading had been less and static was less noticeable.

static was less noticeable.

Among the stations so reporting were CKAC, Montreal; WHAS, Louisville; WJAZ, Escanaba, Michigan; KYW, Chicago, and WGR, Buffalo.

In practically every case local reports were unreliable because the eclipse did not make sufficient difference in local signal strength

nal strength.

Frank D. Urie, at Iron Mountain as observer for a watch company, was tuned into NAA's long wave signals during the eclipse and reported that while the moon wholly covered the sun's face, he detected a slight increase in NAA's clarity and volume.

Airplane and Airship Aid

Allied with Radio in aiding astronomers to make the tests were two other modern inventions, the airplane and the airship. The giant dirigible Los Angeles went aloft one mile in the path of the celipse while airplanes at many places carried observers above the clouds and a shade closer to the phenomenon.

At Minneapolis WCCO rebroadcast a running story of the eclipse as told and broadcast from a plane 5,000 feet in the air. The plane carried a 5-watt Radiophone transmitter and was piloted by Lieut. G. M. Falmer who was assisted at the microphone by Hugh McCartney, WCCO operator.

In Argentina, when a broadcasting station interferes with governmental communication, its owner and operator are suspended.

YOU WANT IT!

BE SURE OF YOUR WEEKLY COPY BY SUBSCRIBING NOW

WM. BRADY WOULD PROTECT SHOWMEN

By William A. Brady



AM a Radio bug. It is a joy and a comfort, but it is a business which threatens to encroach on another equally important One will willingly

admit Radio as a wonderful boon to the wounded service men and other shutins, but I take it for granted that no one will dispute the fact that the theater and its people have done their part to help make life bearable for our soldiers. They have done much more, I have reason to believe, than other groups who talked more and

Wm. A. Erady

did less.

It is quite possible that the day is not It is quite possible that the day is not far distant when even the press will have to take steps to protect its news and talents it pays for. I believe I am speaking truthfully when I say that the Associated Press has already sounded an alarm such as I have just done to the other men in my business.

Recently a well-known American author was listening in when much to his sur

was listening in, when much to his sur-prise, he heard one of his popular plays being acted, or rather, murdered—on the Radio. On inquiry he found no consent had been given. On his protest the Radio people said that it was not a public performance for profit—but a few million people more or less were hearing the play free play free.

Hence my protest to arouse my brother managers to the necessity of a proper organization to protect our interests against the many serious business conditions that they are facing.

LEE SHUBERT CAN'T SEE RADIO-THEATER

By Lee Shubert



Lee Shubert

'M NEUTRAL on the topic of Radio. When we've tried it on some of our shows, we have found absolutely no effect. As a matter of fact, if anything, I believe it hurts the box office value. If we announce a Radio per-formance, people will sit home that evening to listen in. And, of course, if they aren't satisfied with the perform-ance, we are the

losers.

A play can't be given to full advantage over the Radio, especially when just

a part is given. It doesn't mean a thing to a Radio audience, and only proves detrimental. I am not in favor of it for the producer.

WAVE THEORY IS HIT

(Continued from page 1)

The angles and velocities were measured and found to agree with the quantum theory, a revival of the old Newton theory that light consists of minute streams of particles.

"We found that the wave lengths of the scattered X-rays were what they should be if a quantum of radiation bounced from an electron," the professor said, "just as one billiard ball bounds from another." He said that while the wave theory probably will stand until another is found capable of explaining the things it has so well interpreted, "it is unable in its pres-ent form to account for the results of our experiments."

CONTENTS

Radio Digest, Iliustrated, Volume XII, Number 5, published Chicago, Illinois, February 7, 1925. Published weekly by Radio Digest Publishing Company, 510 N. Dearborn Street, Chicago, Illinois. Subscription rates, yearly, Five Dollars; Foreign Postage One Dollar additional; single copies Ten Cents. Entered as second class matter at the postoffice at Chicago, Illinois, under the Act of March 3, 1879.

All the Live News of Radio..... WHO, the Bankers Life Insurance Station Tuning in Broadcasters on Their New Waves, by G. M. Raley..... Evening at Home with the Listener In, a popular chart showing when to listen in for your favorite station..... Advance Programs for the Week at All the Larger Stations..... Broadcast Listener's Reference Library, Part I—The Crystal Set with Various Circuits, by E. T. Jones..... Editorial; Indi-Gest; Condensed by Dielectric..... How to Make the Two Tube Knox Reflex, Part I—Analysis of Circuit and Winding of Spider Webs, by W. H. H. Knox..... Construction of the Hetduogen; Some Questions and Their Answers..... How to Construct Audio Frequency Transformers, by J. Foubert..... Questions and Answers Radiophone Broadcasting Stations, Part II......

Looking Ahead

Factors That Limit Range and Volume are pointed out by E. T. Jones in the next article of his series. Location, antennas and set construction are among these points which enable one fan to get "the coast regularly" and his neighbor to get locals only.

he Reverse Feedback Reflex begun on page 25 this week is assembled next week by W. H. Knox. This issue explains the principles involved and the winding of the spider web coils so the second article will include panel and baseboard

Did You Ever Tune in WFI, Philadelphia, and wonder what its studio and equipment look like? What is behind the station and who its staff members are? See WFI in next week's issue.

Mr. Standiford's Article on Set Construction, which was scheduled prematurely for this issue, will appear next week. The little things that make a receiver either a DX success or an expensive disappointment should be read by novice and experienced fan alike.

Newsstands Don't Always Have One Left

WHEN YOU WANT

SEND IN THE BLANK TODAY

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

London, Madrid Newcastle, Aberdeen--

that's just a few of them

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

Super-Reinartz The Ford of Radio

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

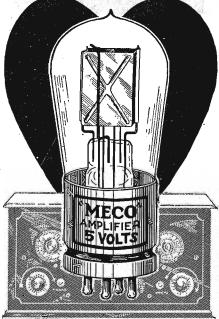
FREE

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

tear out this

coupon-ELGIN RADIO SUPPLY CO., Dept. A, 207 E. Chicago St., Elgin, Illinois. in, Illinois.

Send the FREE drawings of the Eighn Super-Reinartz at once. Also tell me how I save \$50.00 on this set. I enclose a stamp for postage. (Please PRINT in pencil)



Feel Its Pulse

When noise or faintness spoils your radio entertainment replace worn tubes—The Heart of your Radio-with Meco Tubes.

More and more radiophans are standardizing on Meco. Tubes for experience has shown them they obtain greater volume without sacrifice of exceeding clarity as well as longer service with these tubes. Look for the Meco stamped on the base if you want genuine Meco Tubes. Your dealer has them or will get them for you from recognized radio jobbers.

Metropolitan Electric Co. Des Moines, Iowa



ENGLISH FAN HEARS **OUR STATIONS WELI**

WRITES PUBLICATION FOR MORE INFORMATION

CNRA, KDKA, WGY and WOR Among Many Listed—Radio Digest Data Found Helpful

CHICAGO.—From 5 Carver road, Hale, Altringham, England, to the shores of Lake Michigan may seem far to the man who attempts to travel the journey, but Radio waves and reader interest in Radio publications seem to overcome the distance with great ease.

According to a letter from A. M. Turner at the address in England noted, CNRA, Moncton, N. B., Canada; KDKA, Pittsburgh; WGY, Schenectady; WOR, Newark, and many other American stations are often tuned in loud and clear.

Mr. Turner wrote Radio Digest for

further information concerning the sta-tions he had heard. He assured that he found the Radio Digest station information of great help to him, and that the American stations furnished the English

Radiophans with much enjoyment.

Mr. Turner's letter is but one of a score of similar ones.

So England isn't really so far away

STATION WEEL GIVES WAVE TRAP TO NAVY

BOSTON, Mass.—Proving that they are willing to go to any length to insure uninterrupted programs, officials of the technical and operating staff of Station WEEI have constructed and installed for the Naval Radio station at the Charlestown Navy Yard, a wave trap, making it unnecessary for the naval station to request a discon-tinuance of broadcasting during cases of emergency. When tested, the wave trap proved to be very successful, cutting out other broadcasters as well.

BURDEN OF JAILBIRDS LIGHTENED BY RADIO

* About a linear property of the second

count.

||TO PICK AMERICA'S

RADIO BEAUTY SOON

WLW ANNOUNCES SECOND ANNUAL PRIZE CONTEST

Listeners Telegraph Votes to Station After Hearing Broadcast Descrip-tions of Four Contestants

CINCINNATI, Ohio.-Who will be named

America's Radio beauty in the second annual Radio beauty contest to be conducted next Saturday, St. Valentine's night, from Crosley Station WLW, here?

The first Radio beauty contest, held one

year ago by WLW, aroused much interest. People wondered how a beauty contest

could be conducted over the air and tuned

could be conducted over the air and tuned in to find out.

The four contesting girls, picked by a committee of five from many photographs submitted, will be described over the microphone, beginning promptly at 8 p.m. Central time. Their names will not be given. Only numbers will be used to designate the four. The winner will be chosen by telegraphic vote of the invisible audience. Nothing but telegrams will count.

Not only will the four girls receive prizes, but every listener who sends a telegram will be mailed at least a half-(Continued on page 4)

AKLAND, Calif.—Does being in jail have any terrors in this Radio age? It would seem from a letter addressed to KGO from the inmates of the Marin county jail in California, who signed themselves the "Happy Five," that the question might be answered in the negative. "There are over one hundred prisoners here in the county jail listening in," the letter said, "the baptismal service was letter said, "the baptismal service was very impressive, and caused a marked silence among the prisoners."

Wampus Club's Thirteen Baby Stars Broadcast from KFI's Microphone

For Thirteen Days Before and After Annual Frolic February 5 of Motion Picture Publicity Men Their Lucky Young Women Proteges Go on Air

By G. L. King

THE biggest event in all filmdom is the annual ball and frolic of the Wampus club, which, translated, means Western Association of Motion Picture Advertisers. Each year the advertising and publicity men of the screen industry gather together to nominate and industry gather together to nominate and elect thirteen lucky young women from the ranks of the players as the Wampus Baby Stars. Out of the thousands struggling toward fame and luxury only thir-

then are selected each year.

The fact that the Wampus club's selections, to a very high degree, carry on to real stardom, accounts for the importance with which this event is heralded.

First Time Broadcast

This year thousands upon thousands of people will be able to hear the voices and get an idea of the personalities of the thirteen "baby" stars who otherwise thirteen "baby" stars who otherwise could not hope to be among those present when the frolic and ball takes place, because each baby star will be presented before the microphone both before and after the frolic, and it is the intention to broadcast the frolic itself.

The Examiner remote control station of KFI's super station has been broadcasting the roles of a baby star, one each night. thirteen

the roice of a baby star, one each hight, between the hours of 9 and 10 p. m., Pacific time, for thirteen days before, and will continue for thirteen days after the lucky day of February 5, 1925, the night

There is a city ordinance in Los Angeles prohibiting dancing after 1 a.m., and because the Wampus ball is a frolic, the promoters found it necessary last year to remove its locale to the city of San Francisco, where the film colony of Hollywood had a pleasant taste of north-ern California hospitality.

There is a great deal of rivalry between

southern and northern California, and this year the city fathers of Los Angeles found it convenient to pass an emergency ordinance for the night of the Wampus ball and frolic so it could continue on through the night and until the last dancer had enough.

Baby Stars Rise to Stardom

The Wampus frolic has been in vogue since 1922. Since that time the percentage of baby stars selected who have risen age of baby stars selected who have risen to real stardom has exceeded that of any other method of selection, indicating clearly that the publicity men of the movie industry know what they are doing when they pick a girl as a baby stars, among those who have been baby stars, and who now are vested in full stardom, may be counted Lois Wilson, Bebe Daniels, Tulanne Lohnson, Dorothy Mackelli Con Julanne Johnson, Dorothy Mackaill, Gertrude Olmstead and Alice Lake, to mention only a few as they come to mind.

The Wampus frolic is the ball of the screen, introducing the thirteen lucky girls for 1925, and broadcasting to the world through Radio their first initiation into the ranks of stars.



"LINE NIGHT" AT WGN **CREATES SENSATION**

RICHARD HENRY LITTLE IS INTRODUCING POETS

Famous War Correspondent Who Acts as "Colyum" Conductor in Chicago Tribune Has Large Audience

A LADY LIVED IN LESBOS

A lady lived in Lesbos a weary time ago; So many years have overpassed, it's little we can know; So many wars have worn away with gods and creeds and kings, It's little we remember now of older, happier things.

For men go up and down the land, under and over the (A lady lived in Lesbos, but what is that to thee)?
And men sit watching, night by night, how Mars the planet spins,
And women sit and gossip over marriages and sins.

We have forgotten beauty and all our gods are good And little we remember now the dryads and the wood. And only old philosophers and foolish dreamers know What lady lived in Lesbos a weary time ago.

—The King of the Black Isles.

CHICAGO.—The poets' foolscap and the poets' lyre are attaining a greater audience through Radio than ever they had in

history.



"R. H. L."

The audience of WGN, the Chicago Tribune station on the Drake hotel, is hearing poetry and humor from the lips of the poets and wits themselves. Eugene Field had an audi-ence—where the newspaper was read; and Mark Twain had an audience—when an audience—when they found his books; but Richard Henry Little, the famous humorist of the Tribune, betakes himself and his entourage and his magic has of tricks gic bag of tricks into every isolated living room.

Richard Henry Little, humorist, war correspondent and dramatic critic, is conductor of the "Line o' Type or Two" column on the editorial page of the Chicago
Trikune. He is the successor to the late
Bert Leston Taylor—"B. L. T." He has
probably the finest band of poetical and
witty contributors of all "colyums" in the country. Poets have produced excellent books of prose and verse from works which first appeared in "R. H. L.'s" column. There is "The King of the Black Isles," by J. U. Nicholson; "Black Babylon," by Dorothy Dow, and others.

"Line Night" at WGN

Mr. Little conducts a "Line Night" every third Thursday evening at WGN, during which he is ringmaster of a varied during which he is ringmaster of a varied program, featuring readings by his best known contributors themselves. His country-wide audience knows each "contrib" only as a nom-de-plume and wonders "what he is like." So Dick Little presents each star contributor—and the studio is jammed to the stairway on "Line Nights."

Among those who have already read

jammed to the stairway on "Line Nights."

Among those who have already read from their works over WGN are: "The King of the Black Isles," "Bitteroot Bill," "Helen Henna," "Mel-o-Dee," "The Phantom Lover," "Marjorie F. W.," "Snowshoe Al," "Peter Pan," "The Long Shot," and "Le Mousquetaire."

The next "Line Nights" on WGN will be Thursday, February 12; Thursday, March 5; and Thursday. March 26.

5; and Thursday, March 26.

YEAR OR MORE DELAY FOR WHITE RADIO BILL

Sponsor of Legislation Expresses Beliefs Concerning Law

WASHINGTON.—Probably more than washington.—Probably more than a year will elapse before Radio legislation is enacted by Congress. This is the belief of Representative Wallace White, Jr., of Maine, author of the White Radio bill.

While Mr. White does not agree with Secretary Hoover's theory that Radio legislation should be deferred for another

legislation should be deferred for another year or two, he is willing to be guided by the former's views.

Mr. White has not introduced the bill suggested by Mr. Hoover, which would enact into law the recommendations of the third Radio conference, because he is convinced it would have no chance of passage during the short seesing. passage during the short session.

KYW Artist on Tour

CHICAGO, Ill.—Charlie Schultz, one of the Westinghouse Station KYW artists is now a real "wandering minstrel." Mr. Schultz is making a tour of the middle west and all the large cities of the east, under the auspices of a large music house.
His tour will take about two months,

during which time he will visit the various Radio stations and theaters in the more important cities.

Rebroadcast of Victor Concert Through WHB

Picked Up with Super-Heterodyne for Midwest Fans

KANSAS CITY.—Station WHB, the Sweeney School here, it has been learned, successfully rebroadcast the first Victor successfully rebroadcast the first Victor artists concert for the benefit of crystal set owners around Kansas City and incidentally created quite a thrill for distant listeners, judging from the hundreds of letters received from practically every

state.

The receiver employed for the occasion used a two foot loop and was a seven tube super-heterodyne built in the Sweeney laboratory. Besides rebroadcasting Station WEAF, this unusual national rebroadcast test included selections from WBZ, WSB, WSAI, KFKX, KYW, WQJ, WCX, WFAA, KFI, and CNRW.

The Sweeney receiving set has been operated inside the studio of WHB only a few feet from the transmitter, but on the

few feet from the transmitter, but on the night of January 1, the receiving set was located in the home of R. M. Lott, manager of the Sweeney Radio and Electrical company. The output of the set was connected through about five miles of indirect telephone line to the transmitting station

An interesting feature in the program broadcast from Station 2LO, London, on January 22, was the reading of their own poems by six well-known poets of Oxford university.

JOHN LUND DIRECTS ORCHESTRA AT WGR

OHN Lund, composer, leader, instruc-tor, and arranger of orchestrations, intimate of Sousa, and a musical fig-of international importance, has

ure of international importance, has signed a contract with the Larkin company of Buffalo to direct a twelve piece orchestra which it has arranged to put on the air from Station WGR every Fri day night from 10 to 11 o'clock, East-ern standard time. M. A. Riggs, Jr., general manager of WGR, in announcing the new feature. stated that, without doubt this will be one of the greatest

for an indefinite period should be of more than passing interest not only to the friends of WGR, but also to

friends of the Larkin company, who covers North America in its activities.

ives assurance that the productions of this musical unit will be second to none in the field. His productions will be of a classical or semi-classical nature.

With Harold Gieser so ably leading the Vincent Lopez dance orchestra and John Lund in charge of the new unit, WGR will have one of the best balanced schedules on the air; the best of jazz for those who like it and the best of the classical for those who prefer that type.

PICK RADIO'S BEAUTY

(Continued from page 3)

pound box of Dolly Varden chocolates. The beauty contest is being sponsored by the Dolly Varden Candy company in conjunction with the Crosley Radio corporation.

Radiophans so fortunate as to vote on Radiophans so fortunate as to vote on the winner will receive two-pound boxes of Dolly Varden chocolates. Those telegraphing their choice for the second prize contestant will receive one-pound boxes of candy. Listeners will be allowed but one vote each

one of the greatest features which WGR ever put on the air, and the fact that the series will run the series will run Toran undefinite leaves.

Telegrams should be worded, "Number and choice annual Crosley-Dolly Varden beauty contest", and signed with full name and address.

The girl selected as America's Radio

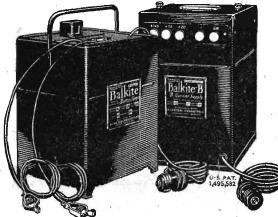
beauty will receive a cash prize of \$300. Second prize winner will receive \$100, while the remaining two will be awarded

A number of broadcasting stations are covers North America in its activities.

The fact that John Lund is in charge ment. There are more than 37,000 reand will personally direct the orchestra ceiving set licenses in the kingdom.

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

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



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

Price \$55

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

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

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

Sold by leading radio dealers everywhere

FANSTEEL

BALKITE BATTERY CHARGER - BALKITE "B" PLATE CURRENT SUPPLY

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

WHO, the Bankers Life Insurance Station





MUSIC MASTER—The Ultimate of Artistic Radio Re-Creation



Model VIII, Mahogany Cabinet with "full-floating" horn \$35

Music Master's precision instrument is the acme of scientific perfection. Music Master's tone chamber of heavy cast aluminum is a marvelous mold of sound without distortion. Music Master's bell of resonant wood gives to every sound its full, virile, vibrant qualities, its natural and life-like characteristics.

Music Master's purchase carries with it an implicit pledge of unreserved and unconditional protection. You can rely upon your dealer for full and unfailing service; but back of him stands the Music Master Corporation to guarantee its products to anyone, anywhere, any time.

Music-Master Corporation

Makers and Distributors of High-Grade Radio Apparatus

10th and Cherry Streets

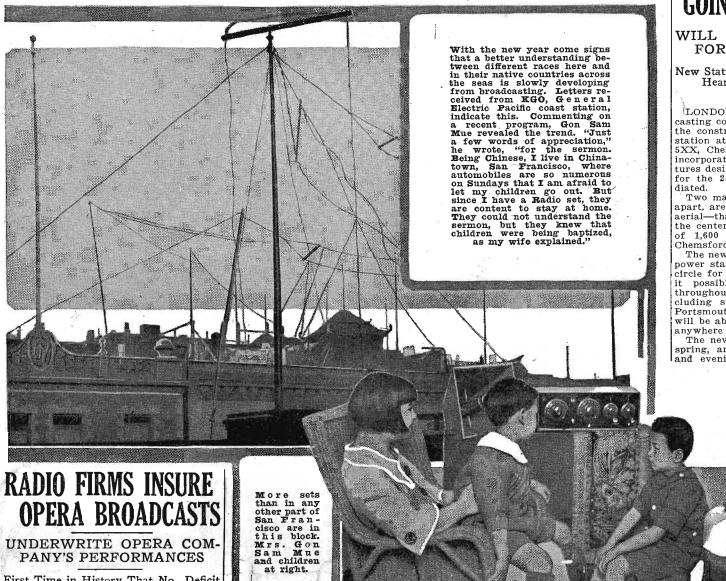
Chicago

PHILADELPHIA Pittsbi



Model V, Metal Cabinet, Mahogany \$16

PROGRAMS HELP TO AMERICANIZE HERE AND OVERSEAS



UNDERWRITE OPERA COM-PANY'S PERFORMANCES

First Time in History That No Deficit Has Been Guaranteed Because of Microphone

BOSTON.-For the first time in the history of grand opera and the Radio Indus-try, performances of opera broadcast by a Radio station have been underwritten prior to their performance. Radio absolutely guaranteed that the stay of the Chicago Civic Opera company in Boston would not result in a financial loss for its two weeks' visit here.

Following the leadership of WNAC, The Shepard Stores broadcasting station, twelve other firms, prominent in the Radio industry of New England, joined in under-writing the deficit the opera company would face if it did not sell practically every seat for every performance during the two weeks' engagement.

Four of these performances were to be broadcast by WNAC. "Aida" was heard

Red Grange Talks



Harold "Red" Grange, famous All-American halfback with the University of Illinois football team, recently made his ether debut when he broadcast a speech from the Palmer school station, WOC, at Davenport. Many college football enthusiasts are well acquainted with him.

January 26, and on the following Friday evening "Carmen" was broadcast. Two other operas were to be broadcast during

other operas were to be better the second week.

Without a doubt the four Radio-underwritten performances will do much to settle in the minds of theater managers whether theatrical broadcasts in Boston are hox office attractions. The firms are box office attractions. The firms underwriting the opera company's season here were convinced that the broadcasts will lure people to the opera house to hear subsequent performances in person, and are gambling on this conviction to the extent of thousands of dollars that they will have to put up if it proves otherwise. The result remains to be seen.

B. G. Hubbell, President of Federal, Dies in East

BUFFALO, N. Y.—Burt Gage Hubbell, resident of the Federal Telephone and president of the Federal Telephone and Telegraph company, manufacturers of Radio and telephone equipment and owners of Station WGR, died here Saturday, January 24, after a comparatively short illness. Born July 6, 1867, Mr. Hubbell made an enviable record as an organizer and business man. At one time he was president of seventy-five independent telephone companies between Syracuse and phone companies between Syracuse and Buffalo.

Direct Tug Boats by Radio

NEW YORK.—For the first time in any
port, the New York Central recently did
the despatching of a tug boat in the harbor by Radio. The system is devised to
replace the present practice of directing
the movements by the chief dispatcher of the movements by the chief dispatcher of railroad tugs and lighters.

Miguel Fleta, Tenor, in Victor Broadcast

Third Concert Includes Songs by Lucy Isabella Marsh

YORK .-- Miguel Fleta, famous young Spanish tenor of the Metropolitan opera; Lucy Isabella Marsh, lyric soprano, and the Flonzaley quartet, none of whom had ever broadcast before, were the attractions offered last Thursday, January 29, on the third Victor broadcast concert program. The successes of the pre-vious two offerings was repeated in the

third.

The recital included four numbers by Fleta, "La Donna e Mobile," "II Flor," "Mi Tierra" and "Ay, Ay, Ay." Miss Marsh sang "Ave Maria," "The Swallows," "Within a Mile of Edinboro" and "Beautiful Lady." The Flonzaley quartet played a movement from the Quartet in D, "Music of the Spheres," "Nocturne," by A. Borodin, and "Drink to Me Only with Thine Eyes."

The broadcasting was done as before.

The broadcasting was done as before, with Stations WEAF, WCAP, WJAR, WDBH, WGR, WCAE, WFI and WEEI participating.

Entertainers Engaged by Radio LONDON, Ont.—While listening to the broadcasting from Station WBAV, the officials of the Madison County Fish and Game Protective association here decided that the quartet who were on the air would be fine entertainment for their annual dinner. A long distance call to the nual dinner. A long distance call to the station "sold" the job to the entertainers.

Results of Gold Award Set Contest ESULTS of the Radio Digest

Gold Award Set contest, which closed on January 17, will be announced in the issue of Radio Digest dated February 21. Radiophans who have been anxiously awaiting information concerning the outcome, should not fail to order this issue now from

their news dealer, or direct. Many interesting sets have been received. Although none might be called revolutionary by Radio engineers of note, their points of difference from standard construction are unique, and will be greeted with aproval and applause by home set

25-KILOWATT PLANT **GOING UP IN BRITAIN**

WILL REPLACÉ CHELMS-FORD ON 1,600 METERS

New Station, on Air by Spring, May Be Heard in America on Sensitive Receivers

LONDON, England.—The British Broad-casting company has now well under way the construction of its new super power station at Daventry, which is to replace 5XX, Chelmsford. The new station will incorporate a number of interesting features designed to give a maximum output for the 25 kilowatts of power to be refor the 25 kilowatts of power to be ra-

Two masts, 500 feet high and 800 feet

Two masts, 500 feet high and 800 feet apart, are being erected to take a T-type aerial—that is, the lead-in drops from the center of the aerial. A wave length of 1,600 meters, that on which 5XX, Chemsford, is now working, will be used.

The new location for the B. B. C.'s super power station is the center of a 100-mile circle for crystal range, which will make it possible to pick up transmissions throughout a thickly populated area, including such large cities as Liverpool, Portsmouth, etc. Moreover, two tube sets will be able to pick up the transmissions anywhere in the United Kingdom.

The new station should be open in the spring, and will work in the afternoon and evening, providing programs of its

own two days weekly, a provincial relayed program on a third day, and relays of London programs for the remainder of the week. It should be heard easily in America on sensitive sets.

New Feature on the Air

CINCINNATI, Ohio. — Realizing that real humor was needed on the programs, the Crosley Radio station, WLW, arranged with E. D. Leonard of the Cincinnati Post

to give a humor review each Saturday night. Mr. Leonard is a former college wit and newspaper columnist.

The feature, called the "Lafafone," is a collection of the best two-line jokes received during the week.

Youngest Harpist



Geraldine Vito, nine years old, said to be the world's youngest harpist, gave her first Radio concert through Crosley WLW recently. Miss Vito is the daughter of Joseph Vito, solo harpist with the Cin-cinnati Symphony or

OPEN NEW CROSLEY

REMOTE CONTROL STATION OF ITS TYPE

New Transmitter Located at Harrison, 25 Miles From Studios—Only One Operator Necessary

CINCINNATI, Ohio.—The first remotely controlled super power station in the world, is the claim laid by the Crosley Radio corporation when it opened its new station located at Harrison, Ohio, about 25 miles from the studios and auditorium of the Crosley company.

the Crosley company.

Powel Crosley Jr., officiated at the formal opening of the station which took place January 27, and many prominent artists were on the program arranged by Fred Smith, studio director.

The initial program was of the sort that appealed to every class of Radio listener, embracing symphonic music, vocal quartets, vocal solos and dance music. The fame of Cincinnati as a musical center will now be broadcast to a greater distance than ever before, by the new distance than ever before, by the new

Introduce New Artists

An extraordinary feature of the program was the first studio appearance of Fritz Reiner, conductor of the Cincinnati Symphony orchestra, who conducted an orchestra composed of fifty musicians from that organization. The program rendered by this unit will long be remembered in the annals of broadcasting, as one of the firest ever put on the air.

bered in the annals of broadcasting, as one of the finest ever put on the air.

Numerous other artists who have appeared on the WLW programs in the past were present during the inaugural concert. Many others who have never been before the microphone, were also also introduced to the listening public in their first debut.

Control of Set Simple

One operator can look after the operation of the set, which is started by merely pushing a button, despite its multiplicity of controls and equipment. Tests made, using selective receivers and the present transmitting equipment, show that it is possible to tune WLW either "in" or "out" within two degrees on the dials.

dials.

Visitors are welcome to inspect the new station and equipment and will be shown through the station with all the finer points explained to them by an operator. This also applies to the studios in Cincinnati which are open to the public. No time is lost between numbers as an

No time is lost between numbers as an arrangement is used whereby as soon as one artist is through broadcasting, the microphone is switched to another studio. This does away with the long waits between numbers so prevalent in a large number of broadcast stations.

Madame Frances Alda Is Pleased by Recital

Metropolitan Opera Prima Donna Deluged with Letters

YORK .- Following her recent Radio debut, Madame Frances Alda, prima donna of the Metropolitan Opera company, has been deluged with communications from friends and admirers, many of them celebrities themselves. To the long list of artists who have felicitated the famous soprano, the name of Mario Chamlee, tenor of the Metropolitan opera, was added yes-

The prima donna herself was highly pleased with the response to her first Radio recital, as a result of which she has probably become an ardent Radio enthusiast. "I like Radio very much indeed," she said, "and I shall be glad to sing again any time the Victor company wants

Heavy mails continued to pour into the offices of the Victor company at Camden, N. J., and the studio of WEAF here, all day yesterday, all of them congratuatory and expressing appreciation of Madame Alda's recital.

Interesting Stories Are Told Regarding Museum Exhibit

CHICAGO.—The first of a series of weekly Radio talks on "Visual Stories in the Field Museum," was given Wednesday afternoon, January 28, over WLS here, by Mrs. Dorothy R. Cockrell, of the museum's visual education staff.

During this series Mrs. Cockrell will tell the stories that are woven around some of the anthropological, zoological.

some of the anthropological, zoological, botanical and geological exhibits in the institution. The series is under the auspices of the Chicago Federation of Women's clubs.

WCCO Broadcasts Concert

MINNEAPOLIS, Minn. — The private opening concert of the State theater's new \$75,000 Wurlitzer organ, in this city recently, was broadcast by the Gold Medal station, WCCO.

STORY LADY HELPS TO ENTERTAIN TOTS



Grace Sorenson

RACE Sorenson's stories for children are unique. In the first place, Grace doesn't tell any hair-raising stories about ferocious animals, but confines herself to telling stories about the thing she

self to telling stories about the thing she is interested in more than everything else—other children.

She relates the adventures of Petty Patch and her boy and girl friends. So pleased are her juvenile audiences with these narratives that they send her thousands of letters, telling how much they like Grace's stories, and all about themselves to selves, too.

selves, too.

Grace is successful in her unique methods because she has had many years experience telling stories. She edits a children's magazine, in which she writes her own stories, poems and plays. She has had a book of plays purchased recently by a large publishing house in the East. Many of these plays have actually been produced by local talent in churches and schools.

schools.

WOAW has been broadcasting Sorenson stories for more than a year, and her familiar "Good evening boys and girls" brings a thrill to her youthful listeners. Her narrations are especially pleasing to children in the isolated, rural districts, who seldom have the opportunity to enjoy such unique tales presented so pleasantly. Perhans Miss Sorenson derives her antly. Perhaps Miss Sorenson derives her ability to tell a good story from her father who is a historian of national reputation.

"WHO" AT DES MOINES

(Continued from page 5)

Cowper of the music department of Drake university at Des Moines, assisted by Miss Myrtle Williams, a soprano, as well. Miss Myrtle Williams, a soprano, as well. Helen Birmingham also of Drake university music faculty, is staff accompanist, and W. L. Marsh is director of the eightpiece Bankers Life orchestra. The organ concerts from the Capitol theater are given by L. Carlos Meler.

A recent supply of blackboard charts to 4,500 receiving sets over Iowa has been shipped to banks and grain elevators.

to 4,000 receiving sets over lowa has been shipped to banks and grain elevators. These are used in the town as local market bulletins on information finished by the government bulletins through WHO.

Baylor University Alumni Give Home Night Program

WACO, Tex.—The Alumni association of Baylor university recently held its annual Radio celebration on the 80th birthday of the university. The program was broadcast from Station WJAD, and thousands of former, students listened in to

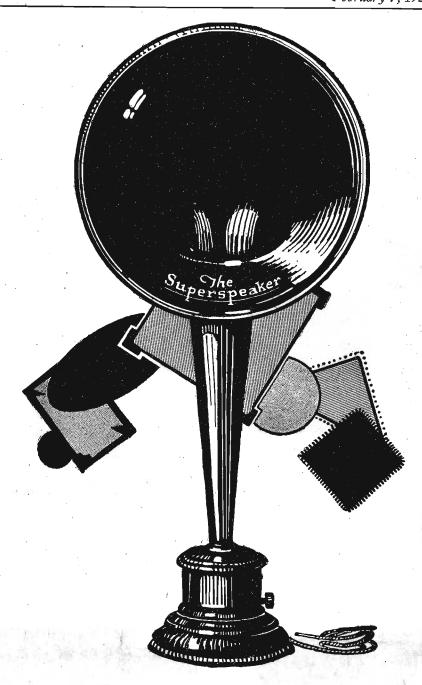
the concert.

It has been the custom of the Baylor alumni to hold banquets the country over and listen in on the Radio program. This and listen in on the Radio program. This year, however, the association made a home night of the affair.

Station Close—Return License WASHINGTON. - Announcement has been made by the Radio bureau that when-ever Radio stations are dismantled, their

licenses must be forwarded to the de WEAF Increases Power

WASHINGTON.—Station WEAF at New York city has increased its power to 2,000 watts on an experimental basis. This is the first station to use 2,000 watts under the test plan.



Just Try It!

If your present loud speaker does not yield satisfactory volume - or if, on local reception, it blares when your set is in tune - just try The Jewett Superspeaker. The result will amaze and delight you.

> Air-gap adjustment gives absolute command of volume - No extra batteries - Throat straight as an organ pipe, eliminates all bugling effect - Built and guaranteed by the million-dollar corporation whose name it bears.

> > "Compare It, You'll Buy"

Superspeaker,

lewett Radio & Phonograph Co.
DETROIT 5670 Twelfth Street MICHIGAN

Tuning in Broadcasters on Their New Waves

Interference Problem Not Hard to Solve

By G. M. Raley

locate wave bands among the broad-casters so as to create less interference and make room for more stations, the department of commerce Radio section has been hard at work attempting to execute the program mapped out by the conference. But the reallocation was much easier said than done.

easier said than done.

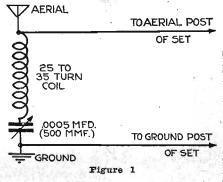
Not alone was it difficult to crowd the stations any closer together, but the expected co-operation of broadcasters in some cases was not forthcoming. Now the Radio administration officials have finally begun the active work of changing wave lengths here and there, raising some lowering others in a practical at-

ing wave lengths here and there, raising some, lowering others, in a practical attempt at carrying out the program.

As a result, Radiophans far and near are sending in complaints by the thousands. Radio supervisors, broadcasters and this publication have had their share of these. The trouble seems to be from two things:

1. Distant stations, with new waves spaced closer together, are difficult to tune in without interference, one from the other.

other.
2. Old dial settings, once sure to bring



in a certain station, mean nothing when that station's wave length has been

Solution of Problems Not Hard

Solution of Problems Not Hard

It is the purpose of this article to give the Radiophan some workable suggestions for the overcoming of these difficulties. Neither are hard to solve, but every listener might as well follow now the instructions outlined, as later, for the department of commerce assures that more than twenty 500-watt stations are awalting their opportunity of going on the airwith a corresponding renewal of the chaos. The first problem—separation of stations without interference—depends upon the selectivity of the receiving set used

the selectivity of the receiving set used by the Radiophan. Increased selectivity, to overcome the closer spacing of the stations, some of which are now only seven kilocycles apart in their frequen-cies, can be obtained in a number of ways.

A brief resume of the various methods A brief resume of the various methods of increasing the selectivity of a receiver includes the use of short outdoor or indoor aerials, better ground connections, wave traps (or high frequency by-pass circuits), good variable condensers, vernier controls, low loss inductances, shielded sets (when of the super sensitive type), and a great deal of patience. Patience in tuning a set is a remarkable aid to selectivity that is often overlooked by the beginning Radiophan.

Better Aerials and Grounds

Poor aerials and grounds mean a path of high resistance for the incoming Radio of high resistance for the incoming Radio signals, with an increased loss of selec-tivity. In general it may be said that the lower the resistance of an antenna circuit (aerial and ground), the corre-spondingly higher will be the selectivity of that circuit.

of that circuit.

Short aerials mean low resistance aerials. It is often wise, when selectivity is desired, to use an aerial not over sixty or seventy-five feet long, including the ground lead and lead-in in this length.

The ground connection is very important. This should be clamped or soldered to a cold water nine which has been

to a cold water pipe which has been scraped or filed clean at the point of connection.

The aerial lead should be insulated well from contact with the house or window still at the point where it is brought into the house. Porcelain tube, or other effective insulators should be used.

For the separation of local or nearby

stations, without interference, the writer has used a short indoor aerial with much success. It might be well to have one of these available for use or experiment.

Wave Trap Usually Sure Cure

The wave trap, sometimes called high frequency by-pass or filter, about to be described, is one of the surest methods of separating and eliminating one of two closely tuning stations, be they both distant or one distant and the other near-

VER since the third Radio confer- by. A wave trap consists essentially of ence when it was decided to real- a coil of wire (inductance) tuned either by switch taps (inductively) or by a variable condenser (capacitatively), which is placed in series or parallel with the coil. The device may either be placed in series with the receiver in the aerial lead, or in parallel with the receiver across the

derial and ground posts of the set.

One of the most efficient of these is One of the most efficient of these is shown in figure 1. It is connected in parallel with the receiver and is therefore known as the parallel type. The theory is that the wave trap circuit, when tuned to the wave length of the station not desired, will by-pass the signals from this station into the ground.

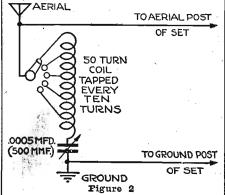
Bifficiency Depends on Parts Used

** Bificiency Depends on Parts Used
The parts required for the trap are but
two: a good low loss type variable condenser of .0005 mfd. (500 mmfd.) capacity and a 35-turn honeycomb coil, or
equivalent low loss coil inductance. The two are connected in series across the aerial and ground binding posts of the receiving set, and should be placed several feet away from the cabinet of the set so as not to be inductively coupled with the

receiving tuner.

The efficiency of this arrangement is almost entirely dependent on the grade of apparatus used, so that it is advisable to use the best obtainable condenser and

The coil can be made by the Radiophan possible in tuning to eliminate an interwho cares to dabble in such things. This fering station. is done by winding in a single layer 25 turns of number 24 dcc. wire on a 3inch diameter or 35 turns of the same size wire on a 2-inch diameter paraffined



cardboard, hard rubber or bakelite tube. To make the trap even more effective, wind fifty turns of the wire on a 2-inch diameter, tapping every 10 turns. See figure 2 for method connecting taps to switch points. When using a trap of this type, always use as much of the coil as

How to Use Trap

To use the trap, after having connected it as shown and placed it at least two feet away from the receiver's cabinet, set the dials of your receiver where the desired station is heard, but is interfered with by the undesired station. Next, adjust the variable condenser of the wave trap until the interference has been reduced to a minimum, at the same time readjusting the receiver so that the desired station comes in as strong as it is possible to make it. A little practice will soon surprise the most skeptical listener in. In logging or recording dial settings as to come back to a station when desired, it will now be necessary to include the reading of the wave trap dial along with the others.

Low loss variable condensers and inductances, if not used in your receiver, should materially improve the selectivity if substituted for the less efficient vari-

able condensers and inductances.
Super sensitive sets, such as the superheterodyne or five tube Radio frequency designs, should have their cabinets well shielded so as not to pick up interfering stations through the ability of their in-ductances to act as effective aerials. Some-

(Continued on page 26)





These artists broadcasting through courtesy of Victor Talking Machine Co.

Somerset

Quality-



4 Tubes - Dual Control

A superior four tube, tuned radio frequency receiver—two dial control—operates on storage battery or dry cells. Automatic filament control insures long life of tube.s The finest "low loss" condensers and the famous SOMERSET Calibrated Transformers are features. "B" battery space is provided in the handsome two-tone mahogany finish cabinet. Size 21"x"15"x 11".

List \$65

LVERY once in a while somebody brings forth an idea so big, so valuable, and so obvious, that everybody recognizes its merit immediately and wonders why it wasn't done long before. That is the reception which the public has accorded the Somerset Radio Receiver—the perfect tuned radio frequency line. Almost over night it has leaped into leadership through its unmistakable superiority in design, quality and value. The Somerset line consists of four models—Stratford Model 4-A, 4 tube set, 2 dials—\$65. Mars Model 5-A, 5 tube set, 3 dials—\$75. Shelbourne, Model 4-B, 4 tube set, 1 dial, syncronized control—\$85. Standish, Model 4-C, 4 tube set, 1 dial, synchronized control, with built-in loud speaker—\$150.

Let the Somerset Line Increase Your Profits!

YOU make profits only on the goods you sell—not on the shelf ornaments. Get aboard the Somerset line—it is going rull speed ahead. Somerset Radio Receivers have caught the public fancy because they are just what the public has been wanting. "Give them what they want"—that's the secret to bigger profits.

& & & &



E VERY STATION IS E-A-S-Y with the single dial synchronized control—featured on our Shelbourne and Standish Models. A simple twist of the big comfortable dial and your favorite station comes in—always at the same point. No need to fuss and adjust—you turn to it as confidently as yon turn into your own street going home. The Somerset single dial synchronized control has been perfected after most exhaustive tests, and is made possible only by the most paintaking selection and matching of coils, condensers and transformers. Leading radio engineers have pronounced it a triumph of radio engineering.

Dealers!

Somerset Dealer Service includes not only full cooperation and dealer helps on Somerset Radio Receivers, but also complete service on tubes, phones, batteries, loud speakers etc., at regular dealers' discounts. Fill out and mail the coupon for complete information and details of this service. Don't put it off-send today,

Act Quick!

Somerset Radio Receivers



at a Price!

SOMERSET cabinets are unique—each a piece of fine furniture to grace milady's drawing room. Substantial construction, with artistic two-toned, hand-rubbed mahogany finish. Somerset technical features are equally remarkable—secured not only by superior wiring and workmanship but by painstaking care and test in selecting parts and materials. Somerset Radio Receivers are easily the greatest value in radio to-day. And Somerset technical features—too many to describe in detail here—are equally notable. In simplicity of operation, reliability, range, selectivity and tone, Somerset Radio Receivers are without peers in their price range—easily the greatest values in radio today!

The Famous Somerset Guarantee-Satisfaction—or Money Back

YOU must be satisfied with this receiver or we do not want you to keep it. If for any reason you feel that it is not exactly as represented or that it is not the quality and value which you have a right to expect, we want you to return it for exchange or for refund, whichever you prefer. We will cheerfully and promptly make good any Somerset product which does not fully measure up to your expectations.

Q Q Q Q

EVERY completed Somerset Radio Receiver must pass the rigid tests of the Somerset Engineering Laboratories before it is certified "O.K. for shipment". It must function perfectly or it cannot leave the Somerset laboratory. And that is why Somerset receivers are so remarkably sensitive and selective, reaching out to get broadcast programs from incredible distances, and reproducing them with precise fidelity and rich mellow tone. It is this infinite care with the "tremendous trifles" that places Somerset Radio Receivers in a class by themselves.

Fill Out

National Airphone Corp. 16 Hudson St., N. Y. City

Without any obligation to me send full details and information on the Somerset line and remarkable assistance to dealers.

Name.....

Mail Today



Two stages tuned radio frequency, detector, and two stages audio frequency. Storage battery or dry cell operation, automatic filament control, highest quality 'low loss' condensers and the famous SOMERSET Calibrated Transformers. Artistic cabinet hand-rubbed mahogany finish providing space for dry cell "B" batteries. Size 29"x14"x11"

List \$75

STANDISH MODEL 4-C

Prices subject to change without notice

4 Tubes—Single Dial Control with built in loud speaker

Combining a built-in loud speaker of the highest type and the four tube tuned radio frequency circuit with single dial synchronized control—all the latest and best in radio. Storage battery or dry cell operation, automatic filament control, highest quality "low loss" condensers, and the famous SOMERSET Calibrated Transformers. Ample space is reserved in this cabinet for standard size high ampere hour storage "A" batteries and dry "B" batteries. Exquisite cabinet, antique mahogany finish. Size 29"x13"x14".

SOMERSET STANDISH MODEL 4-C \$150

by NATIONAL AIRPHONE CORP.

16-22 Hudson St. New York City

AN EVENING AT HOME WITH THE LISTENER IN

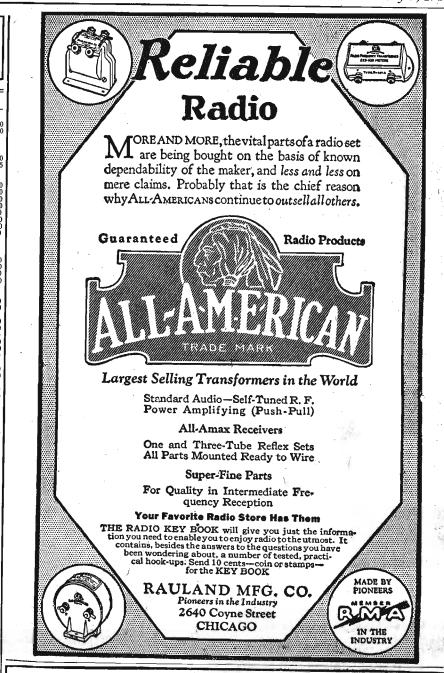
(SEE INSTRUCTIONS FOR USE BELOW)

_	Station and City	Met.		Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
AT CF CF	AC, Calgary, Alta CA, Toronto, Ont	435 430 350	Silent	7:00-8:00 Silent 6:00-7:00	9:00-11:00	7:00-8:58 Silent 7:00-8:06	6.00- 7.00	7:00-8:5: 10:00-11:00 7:00-8:0	7:00-8:0
CH	IYC, Calgary, Alta IYC, Montreal, Que (AC. Montreal Que	440 341 437	11:00- 1:00 Silent 6:30- 9:30	8:00-9:00	Silent	12:30 - 1:30 Silent	Silent 7:30 - 8:30	Silent	Silent
Č	Y, Winnipeg, Man	410 450	10:30-11:30 Silent	Silent 7:00-8:00	10:30-11:30 Silent	7:30-9:15	Silent 10:30-11:30 Silent	6:80-9:30 10:30-11:30 7:30-9:15	Silent 10:30-11:3 7:30-9:1
CY	RO, Ottawa, Ont	435 370 480	6:30-11:30 8:30- 9:00 Silent	Silent Silent Silent	Silent Silent Silent	Silent 8:30-9:00 10:00-11:30	6:30-11:30 Silent Silent	Silent 9:00-11:00 Silent	/ Silent
		330 309.1 330	Silont	Silent	9:00-12:00	Silent	Silent	Silent	8:00-10:0
KI KI	AE, Pullman, Wash AU, Boise, Idaho DM, Beaumont, Texas.	275 315.6 467	Silent Silent	Silent 9:00-10:00	9:00-10:00 Silent	Silent 8:00-11:00	Silent Silent	Silent	9:00-10:00
KF	I, Los Angeles, Calif KB, Milford, Kan KX, Hastings, Nebr	273 288.3	8:45 - 2:00 6:00-11:00 Silent	8:45-1:00 8:00-10:00 Silent	8:45-1:00 6:00-11:00 9:30-11:00	6:00-11:00	8:45- 2:00 6:00-11:00	8:45-1:00 6:00-11:00	8:45-2:0 6:00-11:00
ŔŔ	KX, Hastings, Nebr MQ, Fayetteville, Ark MX, Northfield, Minn. NF, Shenandoah, Ia	275 337 266	Silent Silent 6:30-9:00	Silent 7:00- 8:00 6:30- 8:00	Silent Silent 6:30-9:00	9:00-10:00 Silent	Silent 9:00-10:00	9:30-11:00 7:30- 8:30 Silent	Silent
KF	PT, Salt Lake Cy., Utah	450.2 268 238	8:45-12:00 9:00-11:00	Silent 10:00-11:00	8:45-12:00 9:00-10:00	Silent 8:45- 1:00 10:00-11:00	6:30-9:00 8:45-12:00 9:00-10:00	6:30 - 9:00 Silent 9:00-10:00	6:80-9:00 8:45-1:00 10:00-11:00
K F	O. Oakland, Calif	299.8	7:15- 2:00 Silent 10:00- 3:00	Silent 9:15-10:15 9:45-11:00	9:15- 1:00 Silent 10:00- 3:00	1 9:15- 1:00	1 9 • 15 - 1 • 00	Silent Silent 10:00-3:00	9:15- 1:00 Silent
K G K H K J	W, Portland, Ore	485.1 404.1 293	12:00- 2:00 10:00-12:00 Silent	9:15-10:15 9:45-11:00 8:00- 9:00 10:00-12:00 9:15-11:30	10:00-11:00 Silent Silent	10:00- 2:00 10:00-12:00 10:00-11:00	10:00- 2:00 10:00-12:00	Silent 10:00-12:00	10:00- 1:30 10:00- 2:00
KL	X. Hollywood, Calif	509.9 336.9 322.4	Silent	Silent 10:00-12:00 9:45-10:45	10.00 10.00	8:00- 1:00	10:00-12:00 8:00-1:00	10:00-11:00 Silent 8:00- 1:00	Silent 10:00-12:00 8:00- 1:00
KP	O. San Francisco Calif	$348.6 \\ 429.5$	10:00- 2:00	10:30-12:00	8:30-9:30 9:00-1:00 7:00-9:00	Silent Silent 9:00-1:00	10:00-11:00 8:30-9:30 9:00-12:00	Silent Silent 9:00- 1:00	10:00-11:00 8:30-9:30 10:00-12:00
15.5	AC, Manhattan, Kan	$275.2 \\ 340.7 \\ 545.1$	Silent Silent 8:00-9:00	Silent Silent Silent	7:30- 8:30	Silent 7:30-8:30 7:00-11:00	7:00-9:00 7:30-8:30 6:45-11:00	Silent 7:30- 3:30	7:00-9:00
KT KT KY	HS. Hot Springs Ark	375	8:00- 9:00 8:30-11:00 Silent 7:00- 2:00	9:00-11:30	7:00-11:55 8:30-11:00 Silent	8:80-11:00	8:80-10:00 Silent	Silent 8:80-10:00 Silent	Silent
NΛ	A Radio Vo	400	Silent 7:30-10:00	7:00- 8:00 Silent Silent	Silent 5:45- 7:20 Silent	7:00- 2:80 6:05- 7:20 Silent	7:00- 2:30 6:25- 7:40 7:30-10:00	7:00- 2:30 5:45- 7:40 Silent	7:00- 2:30 7:05- 7:40 Silent
WA WA WA	X, Havana, Cuba AW, Omaha, Nebr BL, Storrs, Conn BN, La Crosse, Wis	278 275 244	Silent Silent Silent	Silent Silent Silent	7:30- 9:00 6:00- 8:00 8:00-10:00	Silent Silent Silent	Silent 6:00-8:00 Silent	Silent 7:30- 9:00 Silent 9:00-11:00	Silent 6:00-8:00
WA WB WR	AP, Fort Worth, Tex.	316 472.9 293.9	11:00-12:00 7:00- 8:00 9:00-11:00	Silent	7:30-10:45	Silent 7:30-10:45	6:30-11:00 7:30-10:45	Silent 7:30-10:45	Silent 6:30-10:15 7:30-10:45
WB	BL, Storrs, Conn BN, La Crosse, Wis HG, Richmond, N. Y AP, Fort Worth, Tex AV, Columbus, O BG, Mattapoisett, Mass BR, Staten Island, N. Y. CN, Chicago, Ill Z. Springfield, Mass	248 272.3 266	Silent 7:00- 8:00 6:00- 1:00	Silent 8:10- 9:05 4:00-10:00	7:00- 9:00 7:00- 9:00 7:00- 8:00	Silent Silent Silent	Silent 7:00- 8:00 7:00- 8:00	Silent Silent 8:10- 9:05	7:00- 8:00 6:00- 1:00 Silent
W.C.	AF. Pittshurgh Pa	333.3I	6:40- 1:00 6:40- 8:55 6:30- 8:30 12:00- 1:00	6:00- 9:00 6:30- 8:30	7:00- 8:00 6:00- 7:00 6:40-11:00 6:80-11:00	6:00- 1:00 6:40- 8:55 6:30-11:00	7:00- 8:00 6:00- 1:00 6:40-11:00 6:30- 8:30	8:10- 9:05 6:00- 1:00 6:40- 8:55 6:30- 8:30	6:00-1:00 6:40-11:00 6:30-8:30
WC. WC.	AL, Northneld, Minn AP, Washington, D. C AU, Philadelphia, Pa	336.9 469 278	12:00- 1:00 Silent Silent	8:30-10:00 6:20- 9:00 5:00- 6:00	Silent 6:30- 9:00 5:00- 6:00	Silent Silent Silent	Silent 6:45- 9:00 5:00- 8:00	9:00-10:00 Silent 5:00- 8:00	8:30-9:00 6:30-11:00 5:00-10:00
WCI	BK, St. Petersburg, Fla.	345 266 417	Silent Silent	2:30- 6:00	8:00-10:30 6:00- 7:00 6:00- 9:00	Silent 7:00~ 7:15 6:00- 7:30	Silent Silent	8:00-8:00 8:00-10:30 6:00-7:00 7:00-10:30	Silent
WC	X, Detroit, Mich	516.9	6:00- 9:00 Silent 11:45- 1:00 6:30- 7:30	8:00- 9:00 6:15- 7:15 4:00- 5:00	7:30- 9:00	6:00-7:30 10:00-11:00 11:45- 1:00 6:30- 7:30	7:00- 8:00 6:00- 9:00 8:00- 1:00	7:00-10:30 6:00- 9:00 11:45- 1:00	6:00- 9:00 6:00- 9:00 8:00- 1:00
WE	Ar, New York, N. Y	294	5:00-11:00 Silent	Silent 6:20-9:15 Silent	5:00-10:00 Silent	6:30- 7:30 5:00-10:00 Silent	6:00- 9:00 8:00- 1:00 6:30- 9:00 5:00-11:00 Silent	6:30-7:30 5:00-11:00 7:00-9:00	6:30-12:00 5:00-11:00 Silent
WE. WE.	AR, Cleveland, O 3 AY, Houston, Texas BH, Chicago, Ill	364.3 360 370	Silent Silent 7:30-12:30	Silent 8:00- 9:00 7:00- 9:00	Silent Silent Silent	6:00-10:00 8:30-9:30 7:30-12:30	Silent 8:30- 9:30	7:00-10:00 Silent	Silent 8:30-9:30 7:80-12:30
WE	El. Boston, Mass	273 303 285.5	Silent Silent Silent	Silent 6:20- 9:00 7:00- 9:15	Silent 6:00- 9:45 7:00- 9:15	6:00-8:00 6:00-11:00	7:30-12:30 6:00-8:00 6:00-11:00	7:30-12:30 Silent 6:00-11:00	Silent 6:00-11:00 7:00-10:00
WF.	AA, Dallas, Tex	372.9 273	8:30-12:00 6:00-11:30	6:00-11:00	7:00- 9:15 L0:30-12:15	Silent 8:30-12:00 10:30-12:30	7:00- 9:15 Silent 6:30-12:30	Silent 8:30-12:00 6:00-12:15	7:00-10:00 8:30- 9:30 6:30-12:15
W.G.	AA, Dallas, Tex	395 263 316	Silent 9:00-12:00 6:30-11:00	6:30-7:30 Silent Silent	Silent 9:00-12:00 5:30- 6:30	7:00-8:00 Silent 5:30-11:00	Silent 8:00- 9:00 6:10- 6:30	6:00-12:15 7:00- 8:30 Silent 7:00-12:00	Silent
WG	N, Chicago, Ill	360 370 319	6:30-9:00 6:00-11:00 5:30-6:30	7:30-9:00 2:30-10:00 3:00-7:30	Silent	6:30-9:00 6:00-11:00 5:30-6:30	6:30-9:00 6:00-11:00 5:30-11:00	7:00-12:00 6:30-9:00 6:00-11:00	5:30-6:30 6:30-9:00 6:00-11:00 5:30-11:00
WGS	Y. Schenectady, N. Y.	270 380 535.4	Silent 8:30-9:30 Silent	Silent 6:30- 9:00 Sllent	5:30-11:00 9:00-10:00 6:45- 9:00 7:45- 8:45	Silent 6:45- 9:00	Silent	5:30-6:30 7:00-8:00 6:45-9:00	6:45-10:30
WH/	AS, Louisville, Ky	275 400	Silent 7:30- 9:00	Silent 4:00- 5:00	Silent	8:00- 9:00 Silent 7:30- 9:00	7:45-8:45 7:30-8:30 7:30-9:00	8:00- 9:00 Silent 7:30- 9:00	7:45-8:45 Silent 7:30-9:00
WHI	B. Kansas City. Mo! 3	380 365.6 273 360.4	Silent Silent 5:00-11:00 6:30-11:00	Silent 8:00-10:00 7:00-10:00	8:00-10:00 7:00- 8:00 5:00- 6:30	Silent 8:00-10:00 5:30-6:30	Silent 7:00- 8:00 5:00- 6:30	Silent 8:00-10:00	Silent 7:00-8:00 5:00-11:00
WHO	N, New York, N. Y 3 O, Des Moines, Ia Philadelphia. Pa 5	526	Silent I	8:30-11:00 Silent 9:30-12:00	5:00- 6:30 6:30-11:00 7:30-12:00 Silent	8:30-11:00 Silent	6:30-11:00 6:30- 9:45 Silent	8:30-11:00 1:00-12:00	8:30-11:00 7:30- 9:00
ALW ALW	R Providence R I	360 275.3 302.8	7:00-11:00 6:10- 7:10 Silent 7:15-12:00	Silent Slient Slient	7:00-8:00 7:30-10:00	7:00-11:00 7:00-8:00 7:30-10:00	7:00-12:00 7:30-10:00 7:15- 8:15	6:30- 9:00	Silent 6:30-10:00 6:30- 9:00
WJZ	New York, N. Y	405	Silent 6:00-10:30	7:15- 7:45 6:00-10:30	7:15- 8:15 Silent 6:00-10:30	7:00-11:00 7:00-8:00 7:30-10:00 7:15-8:15 6:45-8:00 7:00-8:30 8:00-9:30 6:30-1:00 0:00-1:00 7:00-9:00	Silent	Silent 6:30-9:30 6:00-10:30	7:15- 8:15 6:30-10:30 6:00-10:30
WKI	BF, Providence, R. I., BL, Stevens Point, Wis.	72.5 286 278	Silent Silent Silent	Silent Silent Silent	Silent Silent Silent	7:00- 8:30 8:00- 9:30 8:00- 9:00	Silent	6:30- 8:00 Silent	Silent
WLS WLV WM/	V, Cincinnati, O AK, Lockport, N. Y 2	345 423 65.5	8:00-12:00 Silent Silent	6:30-8:00 7:30-9:15 Silent	Silent 8:00-10:00 Silent	6:30- 1:00 0:00- 1:00	Silent 6:30-12:00 7:00-10:00 Silent	6:30-8:00 0:00-12:00	Silent 6:30-11:00 Silent
WM/ WM/	AQ, Chicago, Ill	448 03.9 25.9 1	6:00-10:00 8:30- 9:30 0:00-12:00 9:00-10:00	Silent Silent	Silent 8:30-9:30 8:00-10:00	8:30-12:00	Silent	6:00-10:00 8:30- 9:30 8:00-10:00	Silent 6:00-10:00 8:30-12:00
WNY	C, Boston, Mass 2 C, New York, N. Y 5	28.81	7:30-10:80	7:30- 9:30 Silent	6:00-10:00 7:30-10:30	Silent 8:00-10:00 7:30-10:30 8:30-10:30	8:00-11:00 6:00-10:00 7:30-10:30	8:00-10:00 8:00-10:00 7:30-10:30 9:30-10:30	Silent 6:00-10:00 7:30-10:30
WOA	W. Omaha, Neb	240 I	Silent 6:00-12:15 Silent		Silent 6:00-11:00 Silent	8:30-10:30 6:00-11:00 8:15-10:00			Silent 6:00-11:00 8:00-10:00 8:00- 9:00
WOU	, Davenport, 1a	83.6 270 09.9	Silent	7:00-11:00 Silent Silent	6:00-11:00 Silent 8:00-11:00 0:00-1:00 6:30-10:00	Silent Silent Silent	Silent 8:00- 9:00 Silent	Silent 9:00-11:00 8:15- 9:15	SHent
WOR	R. Newark, N. J	405 278 40.9	6:15-10:00 Silent Silent	7:00- 9:00	8:00- 9:00	5:15-10:00 8:00- 9:00	6:30-10:00 5:15-10:00 Silent	Silent 5:15- 6:30 8:00- 9:00	6:30-10:00 5:15- 6:30 Silent
WRE	C, Valparaiso, Ind	448 278	7:00- 2:00 Silent	8:00-10:00 7:30- 8:30	7:30- 8:801	Silent 7:00- 2:00 Silent	8:00-10:00 7:00- 2:00 Silent	7:00- 2:00	8:00-10:00 7:00- 2:00 Silent
WRE	O, Lansing, Mich	88 5I	7:15-10.00 8:00-10:30	6:00-7:00 7:00-10:30	8:00-10:30[6:00-10:30 7:15- 8:15 8:00-10:30	Silent	6:00-10:30 7:15- 8:15 8:00-10:30	Silent Silent 8:00-10:30
			Silent	Silent 3:00-4:00 1	Silent	Silent 7:90-10:00 8:00-12:00 1		Silent 0:00-12:00 8:00-12:00	Silent Silent
WSU	Atlanta, Ga	83.6 364	7:30-9:00 8:00-11:00 6:00-12:30	Silent I	7:00- 9:00	Silent	7:00- 9:00	Silent Silent	8:00-12:00 Silent Silent
WTA	Y, Oak Park, Ill	250 52.7	6:45-10:00 6:45-10:00	Silent	Silent	6:00-12:30 6:45-7:45 6:45-10:00	6:45-10:00	6:00- 1:30 6:45- 7:45 6:45- 7:45	6:00-12:30 6:45-10:00 6:45-10:00

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

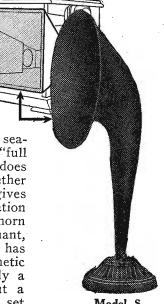
STATIONS IN ORDER OF WAVE LENGTHS USED

	,									
	Call Met	ers Call	Meter	s Call	Meter	s Call	Meters	Call	Mete	rs Call
238 KF 240 WO	QX 275 AX 275	WABL	010.0	KFDM	360	WGI	405	WOR	469	WRC
244 WA		$\begin{array}{cc} \mathbf{WHAD} \\ \mathbf{KQV} \end{array}$		WAHG	360	WJAR	410	CKCD	472.9	WBAP
248 WB			316	WGBS	360.4	WHN	417	WCCO.	472.9	WFAA
250 WT		WAAW	319	WGR		WTAM	423	WLW	`480	CYL
263 WG		WCAU	322.4 325.9	.KOA WMH		WEAR	429	WSB	483.6	woc
265.5 WM		WLBL	325.9	WSAI		WDAF	429.5	KPO	483.6	WSUI
266 KF		WORD	330	CYX	365.6 370	WHB	430	CFAC	485.1	KGW
-266 WBG	CN 278	WRBC	330	KFAE		$\begin{array}{c} \text{CYB} \\ \text{WEBH} \end{array}$	435	AT9	492	WEAF
266 WC1	BK 280.2	WNAC	333.3	WBZ	370	WGN		CNRO	503.9	WMC
268 KF	$PT \mid 285.8$	WEMC	336.9	KNX		WKAQ	435	NAA	509.9	KLX
270 WG		WKBF	336.9	WCAL	375	KTHŠ		CKAC	509.9	WIP
	OI 288.3		336.9	WSAC	380	WGY		CFCN	509.9	woo
272.3 WB				KFMX [WHAZ	440.9	wos	516.9	WCX
272.6 KT		KJS	340.7	KSAC	394.5	WOAI		VMAQ	526	WHO
273 KFI 273 WE			341	CHYC		WDAR	448	WQJ		WOAW
273 WE 273 WFI		WEAO KGO		MCBD	395	WFI	450	CKY	528.8	WNYC
273 WH			345 348.6	WLS	400	PWX		KFOA	535.4	KYW
273 WR			350	KOB CFCA		WHAS	455 462 V	WJZ	535.4	WHA
275 KF λ		WEEI	352.7	wwj	404.1	RHI	467	WCAE KFI	545.1	KFUO
275 KF		KDKA		WEAY	405			WCAP	545.1	
	- 4			*** 1271	100	, WY U 2 1.	#0 <i>5</i>	WCAF	949.1	KSD



It Has the Full Sweet Resonance of Our Upright Horn

THE new cabinet model has a seasoned wood horn which is "full floating"—the outer end, or bell, does not touch the cabinet. This, together with a long expansion chamber, gives it that same freedom of vibration which goes to make the Bristol horn type Loud Speaker such a resonant, sweet-toned instrument. It also has the same high-grade electromagnetic sound mechanism. It is not only a handsome piece of furniture, but a speaker worthy of the best radio set that money can buy.



Model S, \$25.00



There are five Bristol Loud Speakers, priced from \$12.50 to \$30.00. If not at your dealer's, write for Bulletin No. AY-3020.

THE BRISTOL COMPANY Waterbury, Conn.

· Cabinet Model, \$30.00

BRISTOL AUDIOPHONE Loud Speaker

For 36 Years Makers of BRISTOL'S RECORDING INSTRUMENTS. Ask Any Technical Engineer

WEDNESDAY LINCOLN PROGRAMS ON

Saturday, February 7

Saturday, silent night for: CFCA, CHNC, CKY, KFAE, KFDM, KFKU, KFKX, KJS, KOB, KSAC, WBAP, WCAL, WCAU, WCBD, WCX, WEAO, WEBW, WEBW, WEM, WEMC, WGST, WHAZ, WHO, WOS, WSAI, WUJ, WOAI, WOI, WOO, WORD, WOS, WSAI, WJ,

CFCA, Toronto, Can. (Eastern, 350), 5:30-6 p. m., bed-time story. time story. CKAC, Montreal, Can. (Eastern, 425), 7 p. m., kiddles' stories in French and English; 7:30, Windsor hotel



dinner concert; 8:30, studio entertainment; 10:30, Windsor hotel grill room dance orchestra.

CNRO, Ottawa, Can. (Eastern, 435), 7:30 p. m., bedtime story and lullaby, Aunt Agnes; 8. dinner concert, James McIntyre and his Chateau Laurier hotel orchestra; playing "Fierrabras," "Pizzicato Bluette," selection from 'San Toy," 'Chimes of Normandy;' "I Shall Always Hear You Singing in My Heart," "Think Love of Me," Fred Merryweather; mouth organ solo, First Prize contest winner; "Popular Scotch Comedian," Jock MacDonald; CNRO Hawaiian orchestra; 'Un Sospiro,' Molile Tuckman, planist, 'Indian Love Lyrles,' Bobs McDermott, 'Some Wild Animals You Should Know,' Clyde Patch; 'Le Reve,' Helen Langdon, cellist; 'Mona,' "The Road that Leads to You,' Fred Merryweather, vocalist; CNRO Hawaiian orchestra; mouth organ solo; bumorous, popular Scotch comedian; 'Prelude in G Minor,' Molile Tuckman; 'A Kiss in the Dark,' 'Sweetheart,' Bobs McComedian; 'Prelude in G Minor,' Molile Tuckman; 'A Kiss in the Dark,' 'Sweetheart,' Bobs McComedian; 'Prelude in G Minor,' Molile Tuckman; 'A Kiss in the Dark,' 'Sweetheart,' Bobs McComedian; 'Prelude in G Minor,' Molile Tuckman; 'A Kiss in the Dark,' 'Sweetheart,' Bobs McComeert, James McIntyre and his Chateau Laurier hotel orchestra; 6, dinner concert, Westinghous band, T. J. Vastine, conductor,' 7.30, children's period; 7:45, last minuto helps to Bible School Teach, 'Eastern, James McIntyre and his Chateau Laurier hotel orchestra; (* Minor Concert, Westinghous band, T. J. Vastine, conductor,' 7.30, children's period; 7:45, last minuto helps to Bible School Teach, 'Evening Herald, table talk and 16-3; 5:30-6, Examiner's musical half hour, 'Add-7, 'Molita's Californians and secondary, 'Traystational Psychology'. Dr. Clyde Sheldon School, 'Res, 'The Book Shell', 8-3, Pastel tot. Alta Runyon, cellist; Frieda Runyon, volinist; force Bowting, planist; 9-10, Examiner, program by Marcvia, Calif., Chamber of Commerce; 10:11, Packard Radio clube, 'Red, 'S-8, 'The Hoffman's Olympic hotel orchestra; reci

Pastor.

KGO. Oakland, Calif. (Pasific, 299.8), 11:30-1 p. m., luncheon concert, courtesy Pacific States Electric company; 4-5:30, concert orchestra, Hotel St. Francis, Vinton Le Ferrera, conductor; 8, "Pirates of Penzance," courtesy of the Pacific States Electric company, Carl Anderson, director; Wilhelmina Wolthus, accompanist; 10-1 a. m., dance music, Henry Haistead's orchestra.

pany, Carl Anderson, director; Wilhelmina Wolffus, aecompanist; 10-1 a. m., dance music, Henry Harstead's orchestra. KGW, Portland, Ore. (Pacific, 485.1), 10 p. m., Colburn's Melody Men, Hotel Portland. KHJ, Los Angeles, Calif. (Pacific, 404.1), 12-30-1:30 p. m., Hi Moulton's orchestra; 2:30-5, Charlie Wellman's Saturday afternoon frolic; 6-5:30, Art Hickman's Billmore hotel concert orchestra, Edw. Fitzpatricty, Prof. Walter Sylvester Hertzog; Helen Fitzpatricty, Prof. Walter Sylvester Hertzog; Helen Fitzpatricty, Prof. Walter Sylvester Hertzog; Helen Fitzpatricty, arranged by J. Howard Johnson, 10-12, Earl Burinett's Billmore hotel dance orchestra; 12-2 a. m., The Lost Angels of KHJ, Charlie Wellman, Bill Hatch, Jerry Cope and others.
KNY, Holler's J. Town Crier, news; 10, Hired Hand's morning message; 10:30, Forbes W. Van Why, Radio technical talk; 12-1 p. m., Wurlitzer pipe organ studio; 5 p. m., closing markets; 5:45-6:15, Wurlitzer studio program; 6:15-7:30, Green Mill dance orchestra; 7:30-8, D. B. Carpenter's "Little Gem" program; 8-10, program, Peerless Products company; 10-11, Abe Lyman's Coccanut Grove orchestra from Ambassador hotel.
KOA. Denver, Colo. (Mountain, 322.4), 9-12 midnight.

hotel.

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

KPO, San Francisco, Calif. (Pacific, 429.5), 7 a. m., daily dozen; 10, town crier; 10:15, "What is Playing at the Various Thouters," 1-2 p. m., Rudy Seiger's Fairmount hotel orchestra; 2:39-3:30, matinee, "The Avalons" dance orchestra; 3:30-5:30, tea dansant, Gene James' Rose Room Bowl orchestra; 5:30, "What is

Playing at the Various Theaters;" 8-12, Art Weidner's dance orchestra.

KSD, St. Louis, Mo. (Central, 545.1), 8 p. m., St. Louis Symphony orchestra, Rudolph Ganz, conductor, KTHS, Hot Springs National Park, Ark. (Central, 375). 8:30-10 p. m., concert, talent from Little Rock; 10-11, New Arlington Meyer Davis 10-plece dance orchestra. KYW, Chicago, Ill. (Central, 535.4), 6:30 a. m., morning exercises, Y. M. C. A.; 11:35, table talk, Mrs. Anna J. Peterson; 6:30-7 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 8-8:58, Hazel Wood, soprano; Elston King, bartione; Thomas S. Stephenson, tenor; 9:05, Youth's Companion; 9:35-11:30, Congress classis; 12-2, Congress carnival.

PWX, Havana, Cuba (Eastern, 400), 8:30-11:30 p. m., "Waltz," Prof. Jose Campos; "Romance," Cesar Simone, tenor; "Danza Norucga," Prof. Jose Campos, planist; "Gena, da," (Sewilla," Emma Roldan, soprano; talk on Cuba; "Sevilla," Prof. Jose Campos, planist; "Gran, ada," (Sessa Simone, tenor; "La Maja Del Sigla XX., Enriqueta Loureiro, contraito; "El Olvido," Manuel Menendez, bartione; "Due de la Africana, Emma Roldan, soprano; Cesar Simone, tenor; "Dos Danzas," Prof. Jose Campos; "Prof. Jose

W i 1 1 y
Stahl, conductor, concertmaster,
and violinist of the
R i a 1 t o
the ater
broadcasts
every Monday night
at WNYC,
New York.

Chapin, Edward Petri; 8:10, Lelah Koval, planist; 8:15, Bible questions and answers; 8:45, violin solos, Clifford Chapin; 8:55, Staten Island School of Music. WBZ, Springfield, Mass. (Eastern, 333.3), 8 p. m., Leo Reisman's Hotel Lenox ensemble; 7:05, bedtime story for the kiddies; 7:15, sketches from United States naval history, E. S. R. Brandt; 7:30, Hotel Kimball

trio; 8, Katherine Gravelin, pianist; 8:15, Elise Biron, violinist; Irs. Philip Ware, accompanist; 8:39, Mildred L. Bryant, soprano; 8:45, Elise Biron, violinist; 9:10, Alvyn E. W. Bach, barltone; Katherine Gravelin, accompanist; 9:25, George E. Port, guitarist; 9:40, Mrs. Minnie G. Nickels, contraito; Mrs. Miriam Munyan Thomson, accompanist.

WBCN, Chicago, Ill. (Central, 266), 8-6:45 p. m., dinner concert, Joe Urban's orchestra; Paul Hultman, tenor; 7-8, fireside hour, George R. Cleveland, director; Joe Urban's dance orchestra; Mrs. Mulvey, Walt Goodwin's gang; 8-12, popular program, Midway Dancing Gardons orchestra; George Forsyth, tenor; Jack Parker, tenor; Triangle entertainers, vocal-instrumental quartet; Will Dillon, tenor; Englewood string quintet; Les Cameron, tenor; Murphy sisters, harmony duo; Alvin Fry, tenor; Merle "Big Boy" Yagle, pianologist; Finney Briggs, humorist; Southtown harmonizers, harmony trio; 12-1 a. m., early, morning concert, Midway Dancing Gardens orchestra; Southown harmonizers, harmony trio; Les Cameron, tenor; Murphy sisters, harmony duo. WCAE, Pittsburgh, Pa. (Eastern, 462), 2:30 p. m.,

Alice Regina Johnson, planist, will be heard February 8 on the afternoon program of KYW, Chicago.



tea-dansant music; 4:30, "24 Lally's Rendezvous Cabaret orchestra; 6:30, dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, movie chats; 8:30, Royal entertainers.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 10:45 a. m., home service, Betty Crocker; 8 p. m., "Fireside Philosophies," Rev. Roy L. Smith; 8:15, "In Santlago, Chili, September 8, 1925," MacMartis, 8:30, Twin City Auto Show and Trade week; 10:30, dance program.

WCOO, Minecapolis-St. Paul, Minn. (Central, 417), 10:45 a. m. home service. Betty Crocker; 8 p. m., 178 in the contract of the

Headliners of the Week

ROSA RAISA, Forrest Lamont and Giacomo Rimini, three well-known stars of the Chicago Opera company, may be heard over the microphone of WNAC, Boston, Saturday, when the opera "Jewels of the Madonna" will be broadcast. Another outstanding program for this evening will be the Fiesta Mexicana at WGBS, New York. Among the Mexican artists listed is Madame Gonzalez, prima donna.

KFMX, Northfield, announces as its principal speaker Sunday evening, Dr. Shailer Mathews, head of the Theological seminary. Dr. Mathews is a vigorous and forceful leader of religious thought,

'The Sunset Trail," an Indian operatic cantata in two scenes by Cad-man, will be the Radio event Monday at KOA, Denver. This is a typical western opera interpreting Indian character. Original native songs will introduce the program.

Many have seen the face of Monte Many have seen the face of Monte Blue, but few have heard his voice. Tuesday night he will be master of ceremonies at KFI, Los Angeles on the Don Meany program. Here's for a clear cold night. Lincoln's birthday will be remembered by many stations Wednesday and Thursday. "Aida," given by the Philadelphia Civic Opera company Thursday, will be the gift of WIP.

CFCA will have the pleasure of entertaining Florence MacBeth Thursday. Miss MacBeth is also a member of the Chicago Opera company. Her perfect Radio voice has made her a perfect Radio voice has made her a favorite with Radiophans. Thursday is also important because it is "Line Night" at WGN. R. H. L., Dorothy Dow, "Mel-O 'D" and many other mysterious humorists of the "Line" will give you a chance to guess their identities.

Friday night is Grieg night at lovely will be played by the WGY orchestra. The songs will be interpreted by Matilda Bigelow Russ, soprano. Edward A. Rice will play the violin selections with his usual skill.

The wave length situation is still upset, but the Radio supervisors hold out hope for permanent waves in the near future. In the meantime we ask our readers to be patient with us as we always give the latest information

(Continued on page 14)

THURSDAY WGN "LINE O' TYPE" NIGHT

Saturday, February 7

(Continued from page 13)

Continued from page 13)

Dealers' musical program; 6-7:30, dinner music, Hallpryd string quartet.
"EY. Schenectady N. Y. (Eastern, 380), 9:30 p. m.,
dance music Phil Romano's orchestra.
"EY. Schenectady N. Y. (Eastern, 380), 9:30 p. m.,
dance music Phil Romano's orchestra.
"HAS, Leuisville, Ky.
(Gentral, 400), 4-5 p. m., selections, Alamo theater organ; 7:30-9, concert, auspless Arthur Findling, organ; 7:30-9, concert, auspless Arthur Findling, organ; 7:30-9, concert, auspless Arthur Findling, organ; 7:30-9, m., dinner
music, radiograms; 9 p. m., Rainbow club entertainmusic, radiograms; 9 p. m., Rainbow club entertainmusic, radiograms; 9 p. m., Rainbow club entertainer
Wille, Overs, June Farley, Lucille Phillips, Betty
Sooth, Dean Smith, John Peattie, Art Coole, McCory enterlaners; 10 p. m., Einerson Gill and his
Bunboo G. Stand Farley, 10 p. m., Einerson Gill and his
Bunboo G. Stand Roof orchestra; 11-11-130,
Jinno Clarke and his entertainers; 11:30-12, Roseorchestra; 8:30-9, Strand Roof orchestra; 11-130,
Jinno Clarke and his entertainers; 11:30-12, Roseorchestra; 8:30-9, Strand Roof orchestra; 11-130,
Jinno Clarke and his entertainers; 11:30-12, Roseand P. Philadophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Philadophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Philadophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, Pa. (Eastern, 509.9), 1 p. m., Karl
P. Chiladophia, P

wattori Astoria dance orchestra; 10:30-11, Hotel Astor dance orchestra. WLBL, Stevens Point, Wis. (Central, 278), 12 m., frolic, "Enemies of Sleep."
WLS. Chicago, Ill. (Central, 345), 7 p. m., Ford and Glenn's trip; 7:20, national barn dance with Glenn's Corn Huskers; Grace Wilson, Harmony Girls, Walter Peterson, Barn dance fiddlers, Ford and Glenn; 11:15, Scnate theater review.

Glenn's trip; 7:20, national barn dance with Glenn's Corn Huskers; Grace Wilson, Harmony Girls, Walter Peterson, Barn dance fiddlers, Ford and Glenn; 11:15, Senate theater review.

WLW, Cincinnati, Ohlo (Central, 423), 8 a. m., physical ersercises, Y. M. C. A., Wm. Stradtman, instructor; 1:30 p. m., dance program, Marco Melody Boys; 6, dinner hour concert. Selinsky Instrumental quintet; Lafafone, E. D. Leonard.

WMAQ Chicago, III. (Central, 447.5), 2 p. m., Union League club forum; 6, program, Rudolph C. Bryant; 8, LaSalie hotel orchestra; 8:30, "Australia," Capt. Kilroy Harris; 3, weekly Chicago theater revue.

WMC, Memphis, Tenn. (Central, 503.9), 12 m., O. K. Houck Plano company; 8:30 p. m., musical program.

WNAC, Boston, Mass. (Eastern, 280.2), 8:15 p. m., Jewels of the Madonna," Chicago Opera company, Rosa Raisa, Forrest Lamont, Glacomo Rimini.

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

WNYC, New York City, N. Y. (Eastern, 528.8), 6:30 p. m., Club Alabams' orchestra; 7:35, The Chateau Four; 8:30, Police quartet; 9:15, song recital; 10:10, travel talk, Board of Education.

WOAW, Omaha, Nobr. (Central, 526), 6 p. m., dramatte hour, Davis studio of expression; weekly lessons in voice improvement, Simmons Davis; 6:30, to be announced; 6:45, dinner program, Brandeis store restaurants; 11, Frank W. Hodek, Jr., and his Omaha

Sunday, February 8

Sunday, silent night for: CHNC, CKAC, CKY, KFAE, KFKU, KFKX, KOB, KSAC, WAHG, WBAV, WEAO, WCAE, WCAU, WCX, WDAF, WEAR, WEBJ, WGST, WHAS, WHAZ, WIP, WMAK, WKAQ, WLBL, WNJ, WOR, WRC, WTAM, WTAY, WWJ.

CFCA, Toronto, Can. (Eastern, 350), 11 a. m., services, University of Toronto, preacher, Chancellor C. W., Flint, 5:35-6 p. m., Bible story for small children, 7, service, Bloor Street Baptist church, Rev. W. A. Cameron.

CKAC, Montreal Can. (Eastern, 425), 4:30 p. m., band concert.

CKAC, Montreal Can. (Eastern, 425), 4:30 p. m., band concert.

CRY, Winnipeg, Can. (Central, 450), 7 p. m., service, Erist Baptist church.

KDKA, E. Pittsburgh, Pa. (Eastern, 309.1), 10:45 a. m., services, Sixth Presbyterian church, Dr. B. F. Farber, pastor; 2:30 p. m., concert; 4, Dr. Charles Heinroth, organist; 4:45, vesper services, Sadyside Presbyterian church, Rev. Hugh Thomson Kerr, pastor; 6:15, dinner concert, Pittsburgh Athletic association; 7:45, services, Point Breeze Presbyterian church, Rev. Percival H. Barker, pastor.

KFDM, Beaumont, Texas (Central, 315.6), 9 p. m., sacred program.

KFIM, Beaumonn, Pexas (Central, 313.5), 9 p. m., sacred program.

KFI, Los Angeles, Calif. (Pacific, 467), 10-10:45 a. m., L. A. Church Federation service; 4-5 p. m., Cecilian quartet and vocal trio; 6:45-7, musical appreciation talk; 7-8, stage acts and orphestra from Metropolitan theater, Creatore directing; 8-9, vocal recital; 9-10, Examiner, Abe Perluss and his Rose room orchestra; 10-11, Packard Six orchestra, Bill Hennessey, leader; Starr Russell, blues singer.

KFMX, Northfold, Minn. (Central, 337), 7 p. m., Sunday evening vesper service; Dr. Shailer Mathews, speaker.

KFMX, Northfiold, Minn. (Central, 337), 7 p. m., Sunday evening vesper service; Dr. Shailer Mathews, speaker.

KFMF, Shenandoah, Iowa (Central, 266), 10:35 a. m., church service; 3 p. m., services, Mcn's Gospel team; 6:30, concert, Forest City, Mrs. Richardson, director.

KFSG, Los Angels, Calif. (Pacific, 278), 10:30-12:30 p. m., complete morning service of Angelus Temple with sermon by pastor. Aimee Semple McPherson; 2:30-4:30 p. m., auditorium service, Temple choir and Silver band, sermon, Almee Semple McPherson, pastor; 7-9:45, musical hour and evening service of Angelus Temple; 10-11, organ rectial, Esther Fricks Green (KGO, Oakland, Calif. (Pacific, 299.8), 11 a. m., service, First Baptist church, Rev. John Snape, pastor; 3:30 p. m., KGO Little Symphony orchestra; 7:30, service, First Baptist church, Rev. John Snape, pastor; 3:40 p. m., kGO Little Symphony orchestra; 7:30, service, First Presbyterian church, Dr. Harlod Leonard Bowman, pastor; 3 p. m., municipal concert; 6, church services, Portland Council of churches; 7, dinner concert, Colburn concert orchestra.

KHJ. Los. Angeles. Calif. (Pacific, 404.1), 10 a. m.

First Presbyterian church, Dr. Harold Leonard Bowman, pastor; 3 p. m., municipal concert; 6, church services. Portland Council of clurches; 7, dinner concert, Colbum concert or chestra.

KHJ. Los. Angeles, Calif. (Pacific, 404.1), 10 a. m. J. C. Watt, elder International Bible Students' association; 10:30-12:30 p. m., organ recital and complete morning service of First Methodist Episcopal church. E. E. Helms, pastor; Arthur Blakely, organist; 6:30-7, Art Hickman's Bitmore hotel concert orchestra, Edward Fitzpatrick, director; 7-7:30 organ recital, Arthur Blakely, organist; 8-11, proam, Martin Music company, arranged by J. Howard Johnson; all Russian string quarter; Eugene Petrovska, tenor; Ruth Pitts, soprano; John Martin, planist, KJS, Los Angels, Calif. (Pacific, 293), 10:30-12:30 p. m., regular morning service of the Church of the Open Door, Dr. French E. Oliver, pastor; Alfred A. Butler, organist; 6-6:45, vesper services, soprano and baritone solos with short scriptural talk; 7-9:30, complete evening services of the Church of the Open Door, Chorus choir, C. M. Brooks, basso.

KNX, Hollywood, Calif. (Pacific, 337), 5 p. m., vesper service, Dr. Frank Dyer of Wilshre Boulevard Congregational church; 7-7:45, International Bible Students' association hour of music; 8-9, Ambassador hotel concert orchestra, Josef Rosenfeld, director; 9-11, program, El Encanto apartments, KNX string orchestra and Orpheus four. "The Altar of Genlus," concert, property overture, "The Altar of Genlus," concert, player and sermon, St. John's Episcopal cathedral, Rev. Benjamin Dunlap Dagwell, dean; Rev. Jonathan Watson, canon; 3 p. m., concert, First and Second band; "The Ambassador," Major Kenneth Gorsline, cornetist, "Orlental Internezzo," "U. S. Field Artillery March," First band; "Humorous Fantasia on Home, Sweet Home," the composer describes how "Home, Sweet Home," the composer describes how "

nightingales; 11:30, organ music, World theater, Arthur
Hays, organist.

WCC, Davenort, Ia. (Central, 498), 7:30 p. m., Sunday
school lesson, Rev. M. A. Getzendaner; 9, Lonis Corpmumbers, Peter MacAthur,
WCH, Ames, Ia. (Central, 270), 12:30 p. m., College
officers, Peter MacAthur,
WCH, Ames, Ia. (Central, 270), 12:30 p. m., College
officers, Peter MacAthur,
WCH, Ames, Ia. (Central, 270), 12:30 p. m., College
officers, Peter MacAthur,
WCH, Ames, Ia. (Central, 270), 12:30 p. m., College
officers, Peter MacAthur,
WCH, Ames, Ia. (Central, 270), 12:30 p. m., Wanmaker
erytal tes crom orebestra. Robert E. Golden, director;
WCH, Gran rectial, Mary E. Vegt; 12:02 p. m., Wanmaker
erytal tes crom orebestra. Robert E. Golden, director;
WCH, Gran rectial, Mary E. Vegt; 12:02 p. m., Wanmaker
erytal tes crom orebestra. Robert E. Golden, director;
WCH, Gran rectial, Mary E. Vegt; 12:02 p. m., Wanmaker
erytal tes crom orebestra. Robert E. Golden, director;
WCH, Gran rectial, Mary E. Vegt; 12:02 p. m., Wanmaker
erytal tes crom orebestra. Robert E. Golden, director;
WCH, Gran rectial, Mary E. Vegt; 12:02 p. m., Wanmaker
erytal tes crom orebestra. Robert E. Golden, director;
WCH, Gran rectial, Mary E. Vegt; 12:02 p. m., Wanmaker
erytal tes crom orebestra. Robert E. Golden, director;
WCH, Gran rectial, Mary E. Vegt; 12:02 p. m., Wanmaker
erytal tes crom orebestra. Robert E. Golden, director;
WCH, Gran rectial, Mary E. Vegt; 12:02 p. m., Wannaker
erytal tes crom orebestra. Robert E. Golden, director;
WCH, Markette, V. John M. Veston, Corneltial, S.
S. Misselbanna Cordy, Composer.
WCH, Washington, WCH, Composer.
WCH, Washington, WCH, WCH, WCH, WCH, WCH, Washington, WCH, Washington,



tations of popular songs, will be heard this week, Thursday, February 12, at WBAP, Fort Worth, Texas.

quartet; Chester Bagg, barltone; double duet, Weldman sisters; Esther Weldman soprano; Bessle Weldman, planist; Mrs. Hester Robinson, reader.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 10:30 a. m. Pymouth Congregational church, Rev. H. P. Dewey; 4:10 p. m., House of Hope Presbyterlan church, Rev. H. C. Swearinger; 7:45, Central Lutheran church, Rev. H. C. Swearinger; 7:45, Central Lutheran church, Rev. J. A. O. Stub, pastor; 9:15, classical concert.

WDAF, Kansas City, Mo. (Central, 365.6), 4-5 p. m., Star's Radio orchestra.

WDAF, Kansas City, Mo. (Central, 395), 2:30 p. m., Arcadia cafe concert orchestra, Feri Sarkozl, director; 7:30, Dream Daddy's stories of the Bible; 8, Seven Arts elut concert.

WEAF, New York, N. Y. (Eastern, 492), 7:15-8:15 p. m., Roxy and his Gang, Capitol theater; 9:15-10:15, organ recital.

WEAR, Cleveland, Ohio (Eastern 364.3), 1 p. m., Philip Splainy's Allen theater symphony orchestra: WEAF, Chicago, III. (Central, 370) 5-6 p. m., twillight musicale; 7-9, artists program.

WEAR, Cleveland, Ohio (Eastern 363.), 3:45-5:30 p. m., Sunday vest; Splain's Allen theater symphony orchestra: WEBH, Chicago, III. (Central, 269), 5:30 p. m., Sunday vest; Splain's Allen theater symphony orchestra: WEBH, Chicago, III. (Central, 201), 5-10:130, Mrs. WEMC, Berrien Springs, Mich. (Central, 266), 11-11:20 a. m., Radio Lighthouse choir; 1:20-11:30, Mrs. Fern Zillig, planist; 11:30-11:35, 11:45-12:10, sermon, Pastor W. R. French; 8:15-8:35, p. m., Radio Lighthouse choir; 8:35-8:50, Prof. Louis Thorpe, violinist; 8:15-9:05, Mrs. H. B. Taylor, soprano, Mrs. Gertrude Hanson, controllo; 9:05-9:35, sermon, Pastor John Knox.

WFAA, Dallas, Tex. (Central, 472.9), 6-7 p. m., Radio Bible class, Dr. William M. Anderson; 7:30-8:45.

John Kno.

FAAA, Dallas, Tex. (Central, 472.9), 6-7 p. m., Radio Bible class, Dr. William M. Anderson, 7:30-8:45, services, City temple, Dr. L. D. Young; 9:30-11, Dick Richardson orchester.

FI, Philadelphia, Pa. (Eastern, 395), 4:30 p. m., talk, Dr. P. Whitewell; 7:30 services, Arch Street Presbytorian church.

GN, Chicago, Ill. (Central, 370), 11 s. m., comics to children, Uncle Walt; 11:45, program, Chicago theater; 2, p. m., organ rectal, Lyon & Healy; 3, Tribune master artists concert Welsh "quartet; 3:30, program, artists of Chicago Musical college; 9-10, special program, "Composer Stephen Foster," Charles H. Babriel, WGP, Buffelo, N. V. (Eastern, 210), 24, p. m.

master artists concert Weisn Tquartet; 3:30, Program, artists of Chicago Musical college; 9:10, special program, "Composer Stephen Foster," Charles H. Babriel, Jr.

WGR, Buffalo, N. Y. (Eastern, 319), 3-4 p. m., vesper service, Rev. Fletcher Homan of the Central Park Methodist Episcopal church; 4-5, John F. Gunderman, Jr., organist; 7:15, Central Park Presbyterian church service, William Wall Whiddit, organist, and Dr. Robert J. MacAlpine, speaker.

WGY, Schenectady, N. Y. (Eastern, 380), 10:30 a. m. Madison Avenue Reformed church, Rev. Richard Earle Locke; 3:35, WGY symphony orchestra; T. Reed Vreeland, tenor; "Overture Nachtlager in Granada." WGY symphony orchestra; "Le Reve," T. Reed Vreeland, tenor; "Overture Nachtlager in Granada." WGY symphony orchestra; "Le Reve," T. Reed Vreeland, tenor; "Utle Hermione," "Danse des Corynbaes," "Valse Lente," "Danse des Cymbales," orchestra; "Roses d'Aour." "L'Heure Exquise," T. Reed Vreeland; "Kamarinskaja," orchestra; "La Serenata," T. Reed Vreeland; "Kamarinskaja," orchestra; "La Serenata," T. Reed Vreeland; "Fantasia," orchestra; S. organ recital, Dr. Frank Sill Rogers; 7:30, Madison Avenue Reformed church, Rev. Richard Earle Locke; 9, symphony orchestra, Waldorf-Astoria from WJZ.

WHAS, Louisville, Ky, (Central, 400), 9:57 a. m., organ music; 10, church service, auspices Broadway Baptist church, Rev. R. J. Pirkey, pastor; 4:50 p. m., vesper song service, auspices Broadway Baptist church, Rev. R. J. Pirkey, pastor; 9, Conn symphony orchestra, Ralph E. Story, conductor; Mirlam Waud, Welsh contralto; Elizabeth Weldemann Kelly, soloist; Fred W. Hinz, tenor; Roy J. Crocker, planist; A. B. Clark, trombone soloist. WHN, New York, N. Y. (Eastern, 273), 6 m. Rapper County Christian Endeavor program; 5:30-6, Roseland dance orchestra; 10-10:45, 6 mR Razor entertainers; 11-11:30, Vanity cluh revue; 11:30-12:30 a. m., Harry Richman and his orchestra; 12:30-1.

Bertram
Simon, violinist, is one of
the WOAI entertainers and
has helped to
make WOAI a
favorite station in southern Texas.
You may hear
Mr. Simon on Mr. Simon on Sundays and several times during week. the



WHO, Des Moines, Iowa (Central, 526), 11 a.m., sermon, Dr. C. S. Medbury; 4 p. m., program, Dean Holmes Cowper, director; "Why I Believe in Scout-

WHO, Des Moines, lowa (Central, 526), 11 a. m., sermon, Dr. C. S. Medbury; 4 p. m., program, Dean Holmes Cowper, director; "Why I Believe in Scouting," Dr. C. S. Medbury; with the services of the services, and the services, and

Little symphony, Erwin Swindell, conductor; Charles R. Hall, soloist; 8, church service; 9:30, musical program. Palmer Little symphony, Erwin Swindell, conductor.

WOI, Ames, lowa (Central, 270), 10:45 a. m., college chimes; 11, chapel services, Bishop Morrison.

WOO, Philadelphia, Pa. (Eastern, 509.9), 2:30 p. m., Sunday school services, Bethany temple; 6:05, organ recital, Clarence K. Bawden; 7:30, services, Bethany temple, Rev. Gordon A. Maclennon, pastor.

WORD, Batavia, III. (Central, 275), 7-8 p. m., Columbia Conservatory of music of Aurora; 8, I. B. S. A. singers; 3:10, Mrs. Elsle Demarce, soprano; 8:15, John T. Read, bass; 8:20, Bible lecture, Oscar Olson; 8:45, Mrs. Elsle Demarce, soprano; 8:15, John T. Read, bass; 8:20, Bible lecture, Oscar Olson; 8:45, Mrs. Elsle Demarce, soprano; 8:15, John T. First Presbyterian church.

WQJ, Chicago, III. (Central, 448), 10:30 a. m., People's church, Dr. Preston Bradley; Clarence Eddy, organist; 8:10, Ralph Williams and his Rainbo Garden orchestra; Elsle Orr, soprano; Ann Burrows, pianist; Leroy Trauger, bartione; Oscar H. Williamson, tenor; Harry Abornethy, accompanist; Carl G. Linner, pianist; Brock sisters, Julia and Ruth.

WREO, Lansing, Mich. (Central, 286), 10 a. m., chimes, Belfry Plymouth Congregational church; 10:30, services, First Presbyterian church, Rev. Frank Kingdon, pastor; John George, director Community singing; W. James Tülltson, organist.

WSB, Atlanta, Ga. (Central, 429), 11 a. m., First Presbyterian church service; 5-8 p. m., sacred service, St. John's Methodist Sunday school; 7:30, Wesley Memorial church service; 5-8 p. m., sacred service, St. John's Methodist Sunday school; 7:30, Wesley Memorial church service; 5-8 p. m., sacred service, St. John's Methodist Sunday school; 7:30, Wesley Memorial church service, Self Central, 433,6), 7 p. m., children's hour, Mrs. Alice McLeod Mills, director; 9-9:30, familiar hymns, Mrs. A. W. Volkmer, contratto.

WUJ, Detroit, Mich. (Eastern, 352,7), 7:30 a. m., Detroit News orchestra.

Monday, February 9

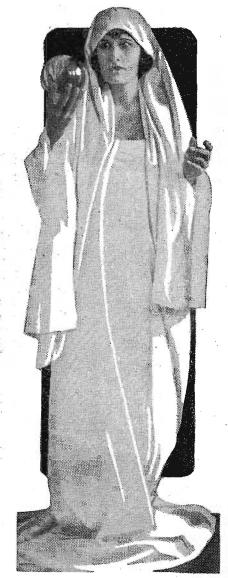
Monday, silent night for: CFCA, CKAC, CKY, KFDM, KFSG, KHJ, KJS, KYW, WEAO, WCAL, WCAU, WEBH, WEBJ, WEBW, WFI, WHAS, WLS, WMAK, WMAQ, WKAQ, WLBL, WNJ, WOAI, WQJ, WRC, WREO, WSAL, WTAY.

CFAC, Calgary, Can. (Mountain, 430), 8-9 p. m., play, Little theater players; 10-12, Holden's academy or-

CFAC, Calgary, Can. (Mountain, 430), 8-9 p. m., play, Little theater players; 10-12, Holden's academy or chestra.
CFCA, Torento, Can. (Eastern, 350), 5:30-6 p. m., bedtime story.
CHNC, Torento, Can. (Eastern, 350), 5:30-6 p. m., joint recital, Senor Alberto Guerrero, planist; Ferdinand Fillon, violunist; Arthur Blight, baritone.
CKAC, Montreal, Can. (Eastern, 430, 110 lesson.
KDKA, E. Pittsburgh, Pa. (Eastern, 430), 110 lesson.
KDKA, E. Pittsburgh, Pa. (Eastern, 399.1), 7 a. m., morning exercises; 8. morning exercises; 12:15, concert, KDKA Little Symphony orchestra; 7:30, children's period; 8:15, address, University of Pittsburgh studie; 8:30, concert.
KFAE, Pullman, Wash. (Pacific, 330), 7:30-9 p. m., Varesty, quartet playing "Doodle De Do," June Night, "All Alone, "A Little Close Harmony; readings. Treparing Bees for Spring; B. A. Slocum, "Opportunities in the Field of Physics," Dr. R. O. Hutchinson.
KFI, Los Angeles, Calif. (Pacific, 467), 5-5:30 p. m., Evening Herald, table talk, news; 5:30-6, Examiner's musical half hour; 8-9, Evening Herald, Radiolian's orchestra, Charile Melson, tenor; 9-10, program, Walter M. Murphy Motors company; 10-11, Examiner, Ray West and his Alexandria hotel orchestra.
KM, Murphy Spatish, lesson VI; 7:30, basketball and K, U. vs. Isoaaching, "Team Defense," Dr. F. C. Allen, Sasketball coaching, "Tcam Defense," Dr. F. C. Allen, KKA, Hastings, Nebr. (Central, 288.3), 9:30 p. m.

8:45, basketball coaching, "Team Defense," Dr. F. C. Allen.
KFKX, Hastings, Nebr. (Central, 288.3), 9:30 p. m. program, auspices W. M. Dutton & Sons company.
KFOA, Seattle, Wash. (Pacific, 450.2), 4-5:15 p. m., studio music, educational talks, recipe; 6:45-8:15, Sherman, Clay & company program; 8:30-10, Seattle Times studio program; Myra Bancroft Olive.
KFQX, Seattle, Wash. (Pacific, 238), 7:15-8 p. m.,

(Continued on page 15)



Zenola Randell, whose famous mystic mind has solved many of the dark and deep mysteries of Kansas City, will give personality talks on Friday evenings at WHB, the Sweeney school station. mystic

INDIAN PROGRAM MONDAY AT KOA

Monday, February 9

(Continued from page 14)

Aunt Vivlen's bedtime story; 8-9, Earl Gray and his Hotel Butler orchestra; 8-10, concert hour; 10-11, Earl Gray and his orchestra.

KGO, Oakland, Calif. (Pacific, 299.8), 9 a. m., music and lectures, California State Department of Education; 10-45, classroom instruction, Oakland public schools; 11:30-1 p. m., luncheon concert, courtesy Pacific States Electric company; 3, studio musical program; 4-5:30, Henry Halstead's dance orchestra; 5:30-6, Aunt Betty stories; KGO kiddies' club; 8, Arlon trlo; "Possibilities of Co-operative Marketing," Prof. Erdman; "A Lesson in English," Wilda Wilson Church; "College and University," Dr. Aurclia Henry Jackson; 10-1, dance music, Henry Halstead's orchestra. KGW, Portland, Ore. (Pacific, 492), 5 p. m., children's program Aunt Nell; 8, concert, Oregonian concert orchestra; 10, Colburn's Melody men; Shefler's string orchestra.

chestra.

I, Les Angeles, Calif. (Pacific, 404.1), 12:30-1:30

m., Carlyle Stevenson and his Bon Ton orchestra.

WBBR, New York, N. Y. (Eastern, 272.3), 8 p. m., I. B. S. A. vocal quartet; 8:10, tenor solos; 8:20, World News Digest, editor, Golden Age magazine; 8:40, vocal duct; 8:50, I. B. S. A. vocal quartet.
WBCN, Chicago, Ill. (Central, 266), 6-6:30 p. m., juvenile period, Lucella Drew Wilson.
WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m., dluner concert, William Penn botel; 7:30, Unacle Kaybee; 7:45, address; 8:30, concert, artist-pupils, studio of Mme. Lelia Wilson-Smith; 9, concert, A. & P. Gypsy string ensemble; 10, program; 10:30, Nixon resturant, Etzi Covato, director.
WCBD, Zion, Ill. (Central, 345), 8 p. m., mixed guartet:

resurant, Earl Covaco, Ourector.

WCBD, Zion, III. (Central, 345), 8 p. m., mixed quartet.

Erma Reynolds, soprano; Mrs. G. R. Sparrow, contraito; G. R. Sparrow, tenor; duet, Mr. and Mrs.

G. R. Sparrow; William C. Dunn, suphonium soloist,

Paul Stewart, cornetist; cornet and uphonium due.

Stewart, Dunn; Mary Ross, planist; Marlon Lee, reader.

Stewart, Dunn; Mary Ross, plantst; Marlon Lee, reader. WCCO. Minneapolls-St. Paul, Minn. (Gentral, 417), 2 p. m., woman's hour. "My Job—the Vocational High School," Elizabeth Fish; 2:30, matinee: 4, magazine hour excerpts from "In the Beauty of the Purple;" 5:30, children's hour, Ellen Nye; 6, sports talk; 8, Minnesota Poultry Problems," N. E. Chapman; 8:15, "Testing Cows for Profit," Prof. E. A. Hanson; 8:30, Third Infantry band, Carl Dillon, U. S. Army leader; travelogue, Northern Central and Southern China, Capt. Raymond C. Wolfe; 10, dance program, Dick Long's Nankin cafe orchestra.

Dealers' musical program; 6:30-7:30 dinner music, Vincont Lopez Hotel Statler dance orchestra, Harold Gieser, director; 8:30-8:55, recital featuring John F. Gunderman, Jr., Lewis McLouth and Balph Lord; 9-10, concert, Wheat's Ice Cream company, directed by P. Arlow Mathews; 9-10 concert presented by P. A. Winger of Bidgeway, Ont.; 11:30, supper dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Gieser, director.

WGST, Atlanta, Ga. (Central, 270), 9-10 p. m., Conklin's Harmonizers.

WGY, Schenectady, N. Y. (Eastern, 380), 2 p. m., "Helping Our Girls Choose a Vacatlon," 6:30, sport talk, Harold Anson Bruce; 6:45, dance music, Hotel Ten Eyck trio; 7, "Make Heads Save Time and Strength," Edna V. Smith; 7:15, "Agricultural Legislation," Hon, D. P. Witter, 7:30, "flungarian Dance," WGY orchestra; "Andante," orchestra; 7:45, one act play, "The Father of the Wilderness," Barrett H. Clark; "Berceuse," WGY orchestra; "Hungarian Dance in G. Minor," WGY orchestra: "WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Buth von Buest, violinist; three-minute talk, Peggy True; readings, Courier-Journal, Louisville Times.

WHAZ, Troy, N. Y. (Eastern, 380), 9 p. m., John N. Edwards, baritone; Edward W. Dodga, planist; "Supplying Your Electric Service," M. S. Sloan; 9:30, old-time songs, male quartet, Will H. Wade; 10:30, popular program, Paramount concert orchestra, Leo Pearlman, soloist.

WHK, Cleveland, Ohio (Eastern, 273), 6 p. m., musical offerings and new tlems; Ethel O. Hawes, bedtime story. WHN, New York, N. Y. (Eastern, 360,4), 5-6 p. m., Charles Taylor and his Southerners; 6:30-6:55, Alamac Index music; 6:55-7, health talk, Doctor Landis; 7-7:05; Alamac Index music; 7:05-7:27, fashlon chats, Madame Belle; 7:35-8, Hotel Carlion terrace orchestr

WHO. Des Moines, Iowa (Central, 526), 2:15 p. m.,

direction, Erno Rapee; 9, concert; 10:03, William Bove's Royal Palm dance orchestra; 10:30, Vincent Rizzo and his Hotel Sylvania dance orchestra. WOR, Newark, N. J. (Eastern, 405), 2:30 p. m., program, Theodore Van Yorx, director; 4, Charm magazine talk; 6:15, Dave Harman's Cinderella orchestra; 8-8:30. Eugene Moses, blind planist; 8:30-9:30, program, Branford theater; 9:30-10:30, Dr. Sigmund Spaeth, music critic and studio party; 10:45-11:15, concert: Carolinians; Perry and Russell, two-man singling orchestra.

Spacific music critic and studio party; 10:45-11:15, concert. Carolinians; Perry and Russell, two-man singing orchestra.

WORD. Batavia, III. (Central, 275), 8 p. m., Hawalian music; 8:10. Ward's six-piece orchestra; 8:20, Mrs. Halter, planist; 8:25, world news items; 8:50, orchestra.

WOS. Jefferson City. Mo. (Central, 440.9), 8-10, p. m., State Prison band; address, Honorable John D. Noland; "School Grounds and Their Equipment," Dr. Henry S. Curtis.

WQJ. Chicago, III. (Central, 448), 11-12 m., "Fudge Cake," Cleve Carney, master baker in charge of experimental department. Calumet Baking Powder company; "The New Modes for Spring," Mrs. Julia Bottomley; "How to Care for Your Skin," Mrs. Margaret E. Filkins; 3-4 p. m., "Bringing Brek the Family Appetite," Holen Harrington Downing; book review, Rev. Fred Harrison.

WRC, Washington, D. C. (Eastern, 469), 4 p. m., book reviews, auspices of the League of American Pen Women; 4:20, talk, National Geographie society; 4:30. Meyer Davis' New Willadh totel trio; 6, children's hour, Peggy Albion.

WSB, Atlanta, Ga. (Central, 429), 12 m., entertainment; 5-6 p. m., bedtime story, Bonnie Barnhardt; Vick Myers' Melody artists; 8-8:30, Al Bernard, Russell Robinson, Dixle stars; 8:30, Barry Pomar Bohemians; 10:45, Warner's Seven aces.

WSU, lowa City, Iowa (Central, 483.6), 12:30-1 p. m., music.

WTAM, Cleveland, Ohio Eastern, 364), 6 p. m., Guy Lombardo's Royal Canadians' orchestra; 8 p. m., music and drama staff Cleveland Young Women's Christian



KNX, Hollywood, Calif. (Pacific, 337), 8 a. m., morning prayer; 9, Hired Hand, news; 19, Hired Hand's morning message; 10:30, Mrs. Kate Brew Yaughn, home economics; 5 p. m., closing markets; 5:45-6:15, Wurlitzer studio, sports talk, Sid Ziff; 6:15-7:30, dinner hour music, John A. Evans corporation, Haclenda Park orchestra; 8-10, program, Los Angeles Ice and Cold Storage company; 10-11, Silvertown Cord orchestra, Lillyan May Challenger, soprano on program, B. F. Goodrich Rubber company; 11-12, Abe Lyman's Cocoanut Grove dance orchestra from Ambasador hotel. KOA, Denver, Celo. (Mountain, 322-4), 8 p. m., "Martha,' KOA orchestra; original Indian songs, "The Moon Dance." "Navajo Magic," "Po-se-ye-mo's Song," Forrest Rutherford, baritone; Jean Allard Jeancon, accompanist; address, "Primitive Coloradoans," Jean Allard Jeancon, curator of archeology and ethnology, Museum of Colorado; "Habanera," KOA orchestra; Indian opera in two seenes, "The Sunset Trail," John C. Wilcox, director.

KOB, State College, N. M. (Central, 346.6), 7:30-8:30 p. m., basketball game, New Mexico College of A. and M. A.—University of Arizona.

KPO, San Francisco, Calif. (Pacific, 429.5), 10 s. m., town crior; 10:15, theatrical nows; 11, chat to house-wives, Prudence Penny; 1-2 p. m., Rudy Selger's Fairmont hotel orchestra; 5:30-6:30, choldren's hour stories, Big Brother; 6:30, theatrical news; 7-7:30, Rudy Sieger's Fairmont hotel orchestra; 9-10, program, Maynard Jones, bass, director; 10:11, Gene James' Rose Room Bowl orchestra.

KSAC, Manhattan, Kans. (Central, 340.7), 9 a. m., march. 9:12, music for singing

keeping of herd records, J. B. Fitch.

KSD, St. Louis, Mo. (Central, 545.1), 8 p. m., dance program, Red and Black eight; 10:30, concert, Alhambra Grotto, choral club.

KTHS, Hot Springs National Park, Ark. (Central, 375), 8:30-10 p. m., concert, Shrine quartet, Little Rock, Natalie Brigham, violinist; W. C. Brown, barltone; Dr. O. H. King, barltone; Mrs. Mean, soprane; 10-11, dance concert, Charles L. Fischer and his 11-plece Eastman hotel orchestra; 12-1 a. m., Special owl concert, Meyer Davis New Arlington hotel orchestra, Jack Ronard director.

KYW. Chicago, III. (Central, 535.4), 6:30 a. m., morning exercises; 11:35, table talk, Mrs. Anna J. Peterson; 13-7 p. m., children's bedtime story.

WAHG, Richmond, N.Y. (Eastern, 316), 8 p. m., Cliff. W. Ulrich, planist; 8:15-9, Synerophaze string trio; 9, St. Valentine of WAHG; 9:15, Dorothy Davison, soprano; 9:30, Maude Mason, planist; 9:45, Jean Davison, mezzo-soprano; 10, Cliff. W. Ulrich, jazz planist; 10:15, Dorothy and Jean Davison, ducts; 10:30, dance music; 12-2 a. m., special dance music.

WBAP, Fort Worth, Tex. (Central, 472-9), 12:05-12:30 p. m., musical program; 7:30-8:30, dance music, Frensley Moore's Black and Gold Serenaders; 9:30-10:45, Green Dragon dance orchestra, Mrs. Fran Boggeman, director; 12-1 a. m., popular dance music, Swayne's Southern Serenaders.

WBAP, Columbus, Ohio (Eastern, 294), 8 p. m., popular and semi-classical concert, WBAV orchestra Frances Handibeau, director.

WCX. Detreit, Mich. (Eastern, 516), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 7, musical program.
WDAF, Kansas City, Mo. (Central, 365.6), 3:30-4:30 p. m., program, Newman and Royal theaters; 5-5:30, weekly Boy Scout program; 6-7, school of the air, plano tuning in number; address, C. H. Cheney; weekly request story night, music, Trianon ensemble; 8-9:15, program, Ivanhoe band, Walter A. Frencb; Irvanhoe Glee club, Edward H. Gill, Jr., director; 11:45-1, a. m., Nighthawi frolic, "Merry Old Chiet" and the Plantation players.
WDAR, Philadelphia, Pa. (Eastern, 395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital, Arcadia cafe concert orchestra; 4:30, Eleanor Eisenhardt, soprano; 7:30, Dream Daddy's bedtime stories; 8, Shoffner's "Short Agro Waves;" 9:30, Stanley theater symphony orchestra; 10:03, Arcadia cafe dance orchestra; vaude-ville features, Fay's Knickerbocker theater.
WEAF, New York, N. Y. (Eastern, 492), 4-4:20 p. m., Sonla Tralano, soprano; 4:40-5, children's story; 6-7, dinner music Waldorf-Astoria hotel; 7-7:15, Gustaf Langenna, clarinetist; 7:15-8:30, Strand theater program; 8:45-9, Bella Girard, contralicy; 9-10, A and P. Gypsies; 10:30-11:30, Ben Bernie and his Hotel Roose-velt orchestra.
WEAR, Cleveland, Ohio (Eastern, 364.3), 7 p. m., Loew's State theater, orchestral and vaudeville numbers, worgan.

Loow's State theater, orcnestral and vaduoville humony, organ.

WEEI, Boston, Mass. (Eastern, 303), 2 p. m., Frank Toomey's Roseland orchestra; 3, Fenway Radiowis; 6:30, Big Brother club, Noat's Arkadians; 7:15, Dokelisenbourg and his Sinfonians; 7:55, Pathe New flashed; 8, musicale; 9, New York program, A. & P. Gypsies; 10, Sid Reinherz and his orchestra.

WEMC, Berrien Springs, Mich. (Central, 266), 8:15-8:30 p. m., Gladys McCrillis, planist; 8:30-8:45, Mrs. H. B. Taylor, soprano; Andrew Aragona, tenor; 8:45-8:55, Tom Johnson, barltone; 8:55-9:05, Ruth Nelson, violinist; 9:05-9:20, Jesse Tanner, Ardis Bentley,

violinist; 9:05-9:20, Jesse Tanner, Arus Planists.

WFAA, Dallas, Texas (Central, 472.9), 12:30-1 p. m., address, Dr. J. D. Boon; 6:30-7:30, vesper recital, Paul Wellbaum and his orchestra; 8:30-9:30, Mozart choral club, Earle D. Behrends, director.

WFi, Philadelphia Pa. (Eastern, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3, concert, graduates Coombr's Conservatory of Music; 6, Rey Elrae and his dance orchestra; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, the kiddles' pal.

rae and his cance orenestra; 7, Sunny Jim, the kiddies' pal.
WGN, Chicago, III. (Central, 370), 1:40 p. m., luncheon concert, Drake concert ensemble, Blackstone string quintet; 2:30, artist series, Lyon & Healy; 3, rocking chair time; 5:30, Skeezix time for the children; 6, organ recttal, Lyon & Healy; 6:30-7, dinner concert. Drake concert ensemble, Blackstone string quintet.
WGR, Buffalo, N. Y. (Eastern, 319), 10:45-11 a. m., Gold Medal home service talks, Betty Crocker; 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Radio

"Why I Believe in Scouting," Rabbi Mannheimer; 7:30-8, G. W. Donaldson, Sotch singer; Loone Simmons, accompanist; Katherine Torcy, planist; 8-9, classical program, Dean Holmes Cowper, director; 11:15-12, organ recital, L. Carlos Meier.
WIP, Philadelphia, Pa. (Eastern, 509.9), 1 p. m., Gimbel tea room orchestra; 3, recital, students Clarence Fuhrman studies; 6, Hotel St. James orchestra; 7, Uncle Wip's bedtime stories; Jancing Issons, Miller Conservatory of Dancing,
WIJD, Mooscheart, 111. (Central, 302.8), 3:30-4:30 p. m., music, Mooscheart children; talks; 6:45-7:15, Albert Brown, organist; 7:15-8:15, talk, Ben Oswalt; 11:30-12:30, request organ music.
WIJZ, New York, N. Y. (Eastern, 455), 10:30-10:45 a. m., course in home decoration, Dorothy Ethel Walsh; 10:40-10:50; "Pork Squeals in Recognition," John E. Cuttling; 11-11:30, American Shrimes, Capitala Ashworth; 4-15; p. m., American history, John Musser; 8:40-9, Peart Spaudling, soprano, Everett Hall, accompanist; 10:30-11, Loc Lyvis-10:20, D. m., homemaker, Mrs. G. Weller, Welley, Mrs. G. W. W. Central, 34:3, 3:43-455 p. m., homemaker, Mrs. G. W. Central, 34:3, 8 a. m., physical exercises, Mrs. G. A. Wwn. Stradmens. Instructed; Central, 34:5, p. m., Williamson review and entertainment; 6 p. m., different hour concert. Selinsky Instrumental quintet; 8, Times-Star program, Times-Star orchestra; Esther Deschler, soprano; Howard Halford, tenor; Marion of the council Mrs. Frances M. Ford; 8 (thiesen theater

Esther Deschler, soprano; Howard Hafford, tenor; Marjorie Garrigus Smith, planist; the Popular Louise Law trio.

WMAQ. Chieago, Ill. (Central, 447.5), 4 p. m., mothers in council, Mrs. Frances M. Ford; 8, Chieago theater organ; 6:30, Hotel LaSalle orchestra.

WMC, Memphis, Tenn. (Central, 503.8), 12 m., O. K. Houck Piano company; 8:30 p. m., Hotel Gayoso orchiestra; Mrs. Ella Mae Goodrum.

NYC, New York City, N. Y. (Eastern, 528.8), 7 p. m., dance program; 7:35, health talk; 7:45, dance proprogram; 8:15, vocal and instrumental recitals; 9:10, "Trend of the Times," Dr. Sydney N. Ussher; 9:25, Elesenteld's Blatlo program.

WOAW, Omaha, Nebr. (Central, 526), 6 p. m., organ music, Arthur Hays; 6:30, dinner concert; 9, regular monthly father and son program, State Young Men's Christian association; 9:30, program, J. E. Brill, violinist, T. Standman's visit, Val McLaugblin; 7:20, "X-Ray Burns," E. A. Thompson; 8, Schmidd Music company concert orchestra; 10, Mabel Arnell, reader; Louise Fortenbeck, violinist; Edna Meckel, planist, College Fortenbeck, violinist; Edna Meckel, planist, College Fortenbeck, violinist; Edna Meckel, planist, College Fortenbeck, violinist; Edna Meckel, planist, Wol, Ames, Iowa (Central, 270), 12:30 p. m., college chimes; "Where Shall Lowa Grow Her Sugar?" Prof. C. L. Fitch; 10, program, popular music.

WOO, Philadelphia, Pa. (Eastern, 509.9), 11 a. m., organ recital, Mary E. Vogt; 7:30, A. Candelori and his ensemble; 8:25, Fos theater grand orchestra,

Gladys Atwood will appear on the Radio dealers' musical program, Friday, February 13, at WGR, Buffalo, N. Y. Miss Atwood is famous for her dialect readings.

association, "American Indian Night," direction Alecth Willard; WTAM Symphonic ensemble, direction Walter

Logan.

WWJ, Detroit, Mich. (Eastern, 352.7), 8 a. m., settingup exercises; 9:30, tonight's dinner; 12:05, Jules
Klein's Hotel Statler orchestra; 8 p. m., dinner concert; 8:30, Detroit News orchestra; F. Eugene Wilson, baritone; Margaret Foy, soprano.

Tuesday, February 10

Tuesday, silent night for: CHNC, KFAE, KFKU, KFKX, KFNF, KOA, KOB, WAHG, WBAV, WEAO, WBBR, WCAL, WCBD, WEMC, WGST, WHAZ, WHO, WOC, WOI, WOO, WORD, WOS, WTAM.

WBBR, WCAL, WCBD, WEMC, WGST, WHAZ, WHO, WOC, WOI, WOO, WORD, WOS, WTAM.

CFAC, Calgary, Can. (Mountain, 430), 7:45-8:45 p. m., Budden Beard and company; George Boothman, barltone; Harmonio trio.

CFCA, Toronto, Can. (Eastern, 350), 5:30-6 p. m., bedtime story; 8:15, "Old Toronto," T. A. Reed.

CKAC, Montreal, Can. (Eastern, 425), 7 p. m., kiddles' storics in French and English; 7:30, Windson hotel onsemble, Harry Sulter, director! 8:30, Fronténac Brewerles studio entertainment; 10:30, Ben Leonard's Red Jacket orchestra. (Central, 450), 7:30 p. m., university lecture; 8:15, concert, Winnipeg Piano company; 9, half-hour program, Capitol theater; 9:30, Roseland dance gardens.

CNRA, Montron, N. B. (Atlantic, 313), 8:30 p. m. "Thora," "An Irish Love Song," Mrs. Neva Buckley, mezzo-contraito; "God's Garden," "In Heavenly Love Abiding," R. T. Mawhinney, tenor; voiln solo, Martin Doueste; "Sunrise and You," "All Joy Be Thine," F. Borden Bowles, soprano; Gordon Douglas, saxophonist; "By the Waters of the Minnetonka," "Good Bye," Mrs. Neva Buckley Inch: "I'll Take You Home Again, Cathleen," "One Fleeting Hour," R. T. Mawhinney, tenor; Wartin Doucette, violinist; "Friend of Mine," "Sunshine of Your Smile," Richard Ballanger, tenor; "The Little House of Dreams," "The Fairles' Flute," Mrs. F. Borden Bowles, soprano; Gordon Douglas, saxophonist; popular dance musle, Joe Maz-zieo and his Rainbow Melody Boys.

CNRR, Regina, Can. (Mountain, 420), 8 p. m., weekly bedtime travel tales; R. A. O. B. orchestra and hand. KDKA, E. Pittsburgh, Pa. (Eastern, 309.1), 12:20 p. m., Institute, Trinity church; 6:15, dinner concert; 7:30, children's period; 8:30, concert; 11, concert, Pittsburgh Post studio.

KFDM, Beaumont, Tex. (Central, 315.6), 8 p. m., me-yeening Herald, table talk, news; 5:30-6, Examiner's

sical program. 162. (Central, 515.0), 5 p. m., nursical program. KFI, Los Angeles, Calif. (Pacific, 467), 5-5:30 p. m., Evening Herald, table talk, news; 5:30-6, Examiner's musical half hour; 6:45-8, Aeolian residence pipe organ studio, Dan McFarland, organist; 8-9, vocal and instrumental program; 9-10, Examiner, program by Ray Howard Crittenden; 10-11, Don Meany movie night, Monte Blue, master of ceremonies.

(Continued on page 16)

CHICAGO OPERA COMPANY IN "JEWE

Where to Hear Concerts

Central Standard Time

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

Popular

Saturday, February 7: 6:15, WTAY; 6:35, WNYC; 7, WOR; 7:20, WLS; 7:30, WCAE, WNYC, WOR; 8, KYW, WBCN, WEAF; 8:15, WOR, WSAI; 8:25, WBZ; 8:45, KFOA; 9, WEBH, WMAQ, WOAW, WTAY, 9:30, KNX; 10, KNX, WQJ; 10:45, WSB; 11, WFAA, WQJ; 11:15, WEBH, WLS; 12, WBCN, WQJ, WSAI; 1, KHJ.

Sunday, February 8: 6:15, WEAF; 6:20, WEEI; 7, WEBH; 8, WBCN, WNYC; 8:30, KOA, WQJ; 9, KFI; 10, KHJ; 11, KNX.

Monday, February 9: 6. WCX.

WNYC; 8:30, KOA, WQJ; 9, KFI; 10, KHJ; 11, KNX.

Monday, February 9: 6, WCX, WEAF, WWJ; 6:15, WEAF; 7, WAHG, WBAY, WBBR; 7:15, WJJD; 7:30, WHO, WOR; 7:40, WBBR; 8, WORD, WSB; 8:15, WAHG; 8:25, WNYC; 8:30, WHAZ, WOR; 8:45, KFOA, WAHG; 9:15, WAHG; 9:30, KFAE, WHAZ; 10, KNX, WOI, WOR; 10:30, KFOA; 11, KPO.

Tuesday, February 10: 6, WCX, WWJ; 6:15, WTAY; 7, WEBH, WEEI; 7:15, WIP, WREO; 7:30, WBAP, WEAF, WFI, WMAK; 8, KYW, WCAE, WBCN, WEAF, WEEI, WFI, WLBL, WSB; 8:15, KNX; 8:30, WFAA, WMC, WOAI; 8:45, CFAC, KFOA, KYW, WNYC; 9, CKY, WBCN, WEAF, WEBH; 9:30, WBAP; 10, KHJ, KNX, KPO, KYW, WQJ; 10:45, WSB; 11, KNX, WEBH; WQJ; 12, KFI, WBCN, WQJ.

Classical

Saturday, February 7: 6, KGO, WBCN, WEAF, WGN, WLW, WMAQ, WRC: 6:30, CKAC, KFNF, WBZ, WDAR, WGN; 6:45, WOAW; 7, KYW, WBBR, WBBR, WEAF, WEBH, WQJ; 7:15, WIP, WRC: 7:30, KDKA, KFI, PWX, WBZ, WHAS; 7:45, WBBR; 8, WNAC, KJS, KSD, WGN, WSAI; 8:10, WBZ; 8:15, WNYC; 8:30, KTHS, PWX, WCCO, WFAA, WMC; 9:30, PWX; 9:35, KYW; 10, KFI, KGO, KHJ; 10:05, WIP; 10:15, WRC; 11, KFI, KFQX; 11:30, WOAW Sunday, February 8: 6, KFI; 6:30,

KFI, KFQX; 11:30, WOAW

Sunday, February 8: 6, KFI; 6:30, WLS; 7, WBCN, WDAR, WLS, WORD; 8, WGY, WQJ; 8:10, WBBR; 8:15, WEAF, WEMC; 8:30, KHJ, KTHS; 9, KFDM, KFSG, KGW, KHJ, KNX, WBBR, WGN, WOAW; 9:15, WCCO; 9:30, WOAI, WOC; 10, KFI, KNX; 10:30, KPO; 12, KFSG

KNX; 10:30, KPO; 12, KFSG

Monday, February 9: 6, WGN, WMAG, WOAW; 6:30, KFNF, WFAA, WGN, WGY, WOO; 6:45, WJJD; 7, CHNC, KFI, WEEI, WOR; 7:15, WNYC; 7:30, WCAE, WOR; 8, KFDM, WCAE, WDAF, WGR, WHAZ, WHO, WOC, WOO; 8:15, KNX, WEMC; 8:30, KTHS, WDAR, WFAA; 9, WCAE, WOAW; 9:30, KFKX, WCAE, WOAW; 9:45, WOR; 10, KGW, WOA, KPO, WOC; 10:30, KSD, WJJD; 11, KFI, KFQX; 11:15, WHO; 12, KTHS.

Tuesday, February 10: 6, KGO.

Tuesday, February 10: 6, KGO, KSD, WGN, WMAQ, WRC; 6:25, WOAW; 6:30, WCAU, WEAF, WFAA, WGN, WGY; 6:45, WJJD; 7, KYW, WCBN, WKAQ, WQJ; 7:15, WCAU, WJJD; 7:30, CKAC, KDKA, KFI, WCAE, WHAS, WNYC; 8, KHJ, WCAE, WHAS, WNYC; 8, KHJ, CKY; 8:30, KTHS, WNYC; 8:45, KFI; 9, KSD, WCAE; 9:15, WMAQ; 10,

Wednesday, February 11: 6, WCX, WWJ: 6:30, WEAF, WTAY; 6:45, WCAE; 7, WAHG; 7:05, WCAU; 7:15, WJJD, WLS; 7:20, WBAV; 7:30, WBAP, WCAE, WDAE, WEAF, WHO; 7:45, WCAU; 8, KYW, WBCN, WDAF, WOS; 8:45, CFAC, KFOA; 9, KYW, WCCO, WBCN, WEBH, WTAY; 9:10, WCAU; 9:30, KFAE, KFI; 9:45, KYW; 10, KHJ, KNX, KOA, WNJ, WQJ: 10:30, KYW, WLS; 10:45, WSB; 11, KFI, KNX, WEBH; 11:30, KHJ, KYW; 12:30, KYW; 1:30, KYW.

Thursday, February 12: 6, WCX, WWJ; 6:30, WEAF; 6:45, WCAE; 7, WCAU, WGST; 7:15, WREO; 7:30, WBAP; 8, KSD, WBCN, WOR; 8:15, KNX; 8:20, KYW; 8.45, KFOA; 9, KFI, WBCN, WEBH, WOAW; 9:30, WBAP; 10, CFAC, KHJ, KNX, KYW, WCCO; 10, KNX, KPO, WEBH, WFAA; 12, WBCN.

Friday, February 13: 6, WCX, WGY, WWJ; 6:15, WTAY; 6:45, WEBJ; 7, WAHG, WBCN, WEAF, WEBJ, WEEI, WGY; 7:15, WJJD; 7:30, WEAF, WHO; 8, WDAF, WOC, WOS; 8:45, WAHG; 9, KYW, WAHG, WCCO, WEBH; 9:30, WBAP; 10, KHJ, KNX, KOA, KYW, WEBH, WNJ; 10:30, WLS; 10:45, WSB; 11, KYW; 12, KFI, KNX, KYW; 1, KYW.

KDKA, KFI, KGO, KJS; 10:30, KGW, WGY; 11, KFQX, WFAA.

Wednesday, February 11: 6, KGO, WGN, WMAQ; 6:30, KFNF, WGN, WLS, WOO; 6:45, WJJD; 7, KYW, WBAV, WBCN, WEBH; 7:15, WCAU; 7:30, KDKA, KFI, WEEI, WGY; 8, WCAE, WCAU, WGN, WGR, WHAS, WOC. WOR; 8:15, KNX, WEMC; 8:30, KTHS, PWX, WMAQ; 8:35, WCAU; 9, KNX, WCAL, WEEI, WGR; 9:30, WDAR, WLS; 10, KFI, KGW, KPO, WEEI; 11, KFQX.

Thursday, February 12: 6, KGO, WGN, WMAQ, WRC; 6:15, WTAY; 6:30, KFNF, WCAU, WCCO, WFAA, WGN, WKAQ, WLS; 7, KDKA, KYW, WBCN, WEBH, WEEI, WGR, WGY, WIP; 7:15, CFCA; 7:20, WCAU, WLS; 7:30, CNRM, KDKA, KFI, WEBW, WFI, WHAS, WNYC; 8, CKY, WCAE, WCAU, WCCO, WEAF, WEEI; 8:10, WBBR; 8:15, WOI; 8:30, KTHS, WFAA, WMAQ; 8:55, WBBR; 9, WCAE; 9:30, KFKU; 10, KDKA, KJS, KPO, WLS; 10:30, WGY; 10:45, WSB; 11, KFI; 11:45, KFSG; 12, KFI, KFSG.

11, KFI; 11:45, KFSG; 12, KFI, KFSG.
Friday, February 13: 6, CNRT,
KGO, WGN, WMAQ; 6:30, KFNF,
WCCO, WFAA, WGN, WLS, WOO;
6:45, WEAF, WJJD; 7, KYW, WEAV,
WEBH; 7:10, WCAU; 7:15, WGR,
WLS; 7:25, WOO; 7:30, CNRT, KDKA,
KFI, WAHG, WBAP, WCAE, WEEI,
WHAS; 8, CFAC, KFDM, WCAE;
WCO, WGN, WGR; 8:15, KNX,
WAHG; 8:30, CNRT, KTHS, WDAR,
WFAA, WNYC, WSB; 8:45, KFI; 9,
CKY, KTHS, WBCN, WEMC, WNYC,
WOAW; 9:15, WMAQ; 9:30, KFAE,
WLS; 10, KFI, WLS; 11, KFQX;
11:15, KFSG; 11:30, WJJD; 12, KFSG.

L. F. Payne.

KSD. St. Louis, Mo. (Central, 545.1), 6 p. m., concert, Benjamin Rader's orchestra; 9, recital, William Le-Master, barttone.

KTHS. Hot Springs National Park, Ark. (Central, 375), 8:30-10 p. m., concert, selections and specialty numbers, Charles L. Fischer and his Eastman hotel orchestra.

KYW, Chicago, III. (Central, 353.4), 6:30 a. m., morning exercises; 11:35, table talk, Mrs. Anna J. Peterson; 2:35-4 p. m., studio frolic; 6:35-7, children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 8-8:20, Mrs. Percy Cook, Socteh dialect songs; Roy Williamson, baritone; James Bichard Keyes, Evangelistic singer; Maris Wright, seprane; 8:39-8:45,

8 '49-9:30, musical program; 10-11:30, evening at non-coon-Sanders Original nighthawks; 11:05, Applesauce club.

WBAP, Fort Worth, Tex. (Central, 472.9), 12:05-12:30 p. m., popular music, Montgomery Ward and company's "Trail Blazers; "1:39-8:30, program, Hawaiian music, Hawaiian Knights, Frank Harding, director; 9:30-10:45, musical program, artists of the Baptist seminary, Frank Cheek, director.

WBCN, Chicago, Ill. (Central, 266), 6-6:30 p. m., juvenile period, Luella Drew Wilson; 7-8, classical hour, music, pupils of Hamilton Park studio, vocal and instrumental solos; Mrs. Mulvey, reader; Irving Schuster, tenor; L. Christensen, Danlsh bartione; 8-8:30, popular program, Marie Wright, soprano; Midway Dancing Gardens orchestra; 8:30-9, Walton School of commerce program, lectures on income tax and accountancy by faculty and members; 9-12, popular program, Hill, Hirsch and Gorny, "The Three Musketeers," harmony trio; Marie Wright, soprano; Anna Briggs, reader; Famous four, mixed harmony quartet; Al Phillips, tenor; Axel Christensen, pianologist; George Forsyth, tenor; Ann Williams, soprano; F. H. McDonald, president of Broadcast Listeners' association, Radio talk; Flinney Briggs, humorist; Will Rossiter's Melody girls, harmony duo; Ned Santry, tenor; 12-1 a. m., pirate shio.

WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m.

ship.

WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, address; 8:30, Stephen Sutch, planist; 9, Eveready hour; 10, Goodrich Silvertown Cord orchestra; 11, late concert.

11, late concert.

WGAU, Philadelphia, Pa. (Eastern, 278), 7:30 p. m., rectial, N. Shellenberg and company; 8, talk, Clara Zillessen; 8:15, rectial; 9:15, dance music, Penn Duo, WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 10:45 a. m., home service, Betty Crocker; 2 p. m., woman's hour; 4, magazine hour; 5:30, dildren's hour; 6:30, dinner concert, Minneapolis Council Boy Scouts; 7:30, "Credits for Earned Income," J. A. McHardy; 7:45, book review, Leonard Wells.

Gold Medal lady: 6:30, dinner concert, Minneapolis Council Boy Scouts; 7:30, "Credits for Earned Income," J. A. McHardy; 7:45, book review, Leonard Necolis Detroit, Mich. (Eastern, 516), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 7, musical program; 10, The Red Apple club. WDAF, Kansas City, Mo. (Central, 411), 3:30-4:30 p. m., Star's Radio trio; 5-5:30, weekly child talent program, Mary E. De Barnardi; 6-7, plano tuning-in number; "Tell-Me-A-Story Lady; Radio plano lesson, Maudellen Littlefeld; Trianon ensemble; 11:45-1. a. m. "Newman Nighthawk Night," theater entertainers appearing on stage Newman theater.
WDAR, Philadelphia Pa. (Eastern, 395), 11:45 a. m., claly almenae; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 10:02 p. m., women's program; 6-7, dinner music, Waldorf-Astoria hotel; 7:30-7:45, Maude K. Honeyman, planist; 8-8:15, talk, Rank of America; 8:20-8:30, John F. Hill; 8:30-9, Gold Dust Twins; 9-10, Eveready hour; 10-11, Goodrich hour.
WEAR, Cleveland, Ohio (Eastern, 364.3), 7 p. m., E. C. Bacon, bedtime story; Don Palmer, Radio carton talk; Mrs. B. Loomis, soprano; Mrs. W. Mc-Cue, contraito; Floyd Shannon, flutist; Joe Smithmarth Lee Club orchestra; Lan Russo, Ted Fioritto, celeste, violin soloists; musical bits, Riviera theater; 9, Oriole orchestra; talk on personality, M. S. Szymczak: Dennis Sisters; 11, Orlole orchestra, Loos Brothors, Nick Lucas, Kaye Romayne.

Romayne.

WEBI, New York, N. Y. (Eastern, 273), 7-8 p. m.,
Nat Martin and his "I'll Say She Is" orchestra; 8-30,
Clarence Williams Dud and Blue Fivo with Eva Taylor;
8:30-9. Cliff Crest Society orchestra.

WEBW, Beloit, Wis. (Central, 268), 8-9, p. m., concert,
Beloit college.

WEI, Boston, Mass. (Eastern, 303), 2 p. m., Napoli
Four; 6:30, Big Brother club; 7:15, Dog-Elsenbourg
and his Sinfonians; 8, program, New York studio;
9, Eveready hour; 10, Goodrich Silvertown Cord orchestra.

y, Evereacy nour, 10, Scotters
tra.

WFAA, Dallas, Texas (Central, 472.9), 12:30-1 p. m.,
health talk, Charles E. Osborne; 6:30-7:30, vesper
rectal, Paul Cretlen and his banjo quintet; 8:30-9:30,
Chamber of commerce, Tyler; 11-12, Palace theater
organ recital.

WFI, Philadelphia, Pa. (Eastern, 395), 1 p. m., Meyer
Davis Bellovue Stratford concert corehestra; 3, Phila-

WFI. Philadelphia, Pa. (Eastern, 385), 1 p. m., Meyer Davis Bellovue Stratford concert ornestra; 3, Philadelphia Music club; 6:30, Meyer Davis Bellevue Stratford concert ornestra; 7, Sunny Jim, the kiddles' pal; 8:30, Gold Dust Twins from WEAF; 9, Eveready hour; 10, Goodrich Slivertown Cord orchestra. WGN, Chicago, Ill. (Central, 370), 1:40 p. m., luncheon concert, Drake concert ensemble, Blackstone string quintet; 2:30, artist series, Lyon & Healy; 3, rocking ehair time; 5:30, Skeezix time for the children; 6, organ recital, Lyon & Healy; 6:30-7, dinner concert, Drake concert ensemble, Blackstone string quintet; 8-9, classical concert, Y, M. C. A. college gleo club, George W. Campbell, director; 10-11, Don Bestor Drake dance orchestra. WGR, Buffalo, N. Y. (Eastern, 319), 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Radio Dealers' musical program; 6-7:30, dlnner music, Hallpryd string quartet; 9-10, "Eveready hour" jointly with WEAF. 10-11, Goodrich Silvertown cord orchestra jointly with WEAF.

talk, Mrs. Charles A. Simon; 6:30, dinner music, Kenmore hotel orchestra; 7:30, "Woodland Dance," WGY orchestra; "Adaglo," Peter Schmidt, clarinetist; "Arablan Scrcnade," orchestra; "A Million for Advertising," Bruce Barton; "Impressions D'Orient," Edward A. Rice, violinist; "The King of the Spirits," WGY orchestra; "Arle," Glovanni Trombini, cellist; "Interazzo," Leo Kilwen, violaist; "Song," orchestra; 9, Brunswick hour of music; 11:30, organ recital, Stephen E. Bolselafr.

Brunswick hour of music; 11:30, organ recital, Stephen E. Boisclatr.
WHAS, Louisville, Ky, (Central, 400), 4-5 p. m., Mary Scudder, pianist; readings, Courler-Journal, Louisville Times; 7:30-9, Rosson's Entertainers; chapter of the "Billy and Jane" stories.
WHN, New York, N. Y. (Eastern, 360.4), 12:30-1
p. m., Charles Strickland and Palals Dor orchestra; 2:15-3:15, Loew's State theater; 6:30-7, Strand Roof orchestra; 10:30-11, New Rockland terrace revue; 11-11:30, Everglades revue; 11:30-12, Club Alabam orchestra; 12-12:30 a. m., Ted Lewis and his Parodciub orchestra.
WHO, Des Moines, Iewa (Central, 526), 2:15 p. m., Pathe news; 'Why I Belleve in Scouting,' Col. Olmstead.

club orchestra.

WHO. Des Moines, Iewa (Central, 526), 2:15 p. m., Pathe news; "Why I Belleve in Scouting," Col. Olmstead.

WIP, Philadelphia, Pa. (Eastern, 599.9), 1 p. m., Karl Bonawitz, organist; 3. Harmony concert company. William Emery, barltone; 6:05, songs, Joe Burek and Mark Fisher; 6:15. Harvey Marburger and his Yaude-ville orchestra; 7. Uncle Wip's bedtime stories; 8. "Timely Talks to Motorists," Gene Hogie, 8:15, Fishedelphia Police band; 9, play, "The Workshop," Emilied Caphia Police band; 9, play, "The Workshop," Emilied Ridder Norris players; 9:30, Boy Scotts' celebration of fifteenth birthday; 10:05, Emo's weekly movie talk; 10:30, Harvey Marburger's vauderlie orchestra.

WJID, Mooseheart, Ill. (Gentral, 32:8), 3:30-4:30 p. m., music, Mooseheart, children; talks; 6:45-7:15, Albert Brown, organist; 7:15-8:16, band concert; "Child Care," M. P. Adams; 7:15-8:16, band concert in the conce

p. m., musical selections, Euterpe Jazz band.
WLBL, Stevens Point, Wis. (Central, 278), 8 p. m.,
musical program.
WLS, Chicage, Ill. (Central, 345), 12-1 p. m., Nubs
Allan, contralto; "How to Succeed with Alfalfa,"
Georgo W. Kelley; 3:45-4:45, homemakers' hour, gentlemen's afternoon, "My Mother," Samuel Guard;
"Memories of the Little Red School House," Ben H.
Darrow; "What Makes Me Fat?" E. B. Heaton; "My
Favortic Recipe," R. C. Follock; "How to Develop
an Appetite for a Real Breakfast," Wayne Dinsmore;
Worth Jackson, whistler; music, Ford and Glenn;
6:30, Ralph Emerson, organist; 6:50, Senate theater
review; 7, lullaby time, Ford and Glenn; 7:15, Elmer
Hutcheson, tenor; 7:30, Albe La Tarte, pianist; 7:40,
Florence K. White, soprano; 7:45, "Rip Van Winkle,"
Anthony Wone; 8-9, Kenneth Clark and his Hawalian
guitat; Nubs Allan, contraito; Ford and Glenn; 'Inquisitive Broadcaster," "What Methods Have You
Found Most Successiul in Rearing Baby Chicks;"
C. C. Biggar; "How to Succeed with Asifaifa, Solis,"
George W. Kelley; 9, Grace Wilson, contraito; 9:10,
WLS theater, Anthony Wons; 9:30, George D. Howe;
9:40, Art Kahn and his Senate Syncopators; 10.
Woods male quartet; 10:30, Isham Jones and his
College Inn orchestra; 10:40, Ford and Glenn time;
11, vaudeville night; 12, midnite review, Ralph Emerson, organist; Isham Jones and his College Inn orchestra; Ford and Glenn; Dave Nucleman.
WLW, Cincinnati, Ohio (Central, 423), 8 a. m., physical exercises, Y. M. C. A., Wm. Stradtman, instructor;
12:15 p. m., dance program; Cliff Lange, Prince of
the Ivorles; program, Delta Omicron sorority; 4, pupils
of Wm. Kyle in recital; Mah Jongs lecture, Luey
Blackburn; 6, dinner hour concert, Selinsky Instrumental quintet; 10, concert, Radio division, Ohio
Rubber and Textile company; Ohio Rubbor Male quartet and Instrumental trio of violin, celeste and flute;
popular program, Refefer-Kecker orchestra; Ruth Crum-

Vivien Potter (left) is known to many children in the North time stories have a thrill witho and may be heard at 7:15 p. n from KFQX, Seattle. The Wagn Fred and Paul, popular with T regularly at WBAP, Fort Worwitt (right) will talk each FrikHJ, Los Angeles, on the India the Santa Fe trai speeches, auspices American Farm Bureau federation, 8:45-9:30, musical program; 10-11:30, evening at home, Coon-Sanders Original nighthawks; 11:05, Applesauce

> DANCING (Central Time)

Saturday, February 7: Wmaq; 8:15, Knx; 8:3 Wgy; 9, Kd, Wijd, Wc Wreo; 9:05, Wlo; 9:3 Ckac, Wnj, Wre; 10, Kfg, Koa, Kpo, Weaf, 10:3 Kfoa, Wcon; 11, Wah Wbap, Webh, Woaw; 1 Khi, Knx, Khia, Ky Wibi; 12:05, Kfoa; 12:3 Wsat.

Monday, February 8, Ksd. Wbp. Wer 90 West; 8:30, Wnc. Ws 90 West. Wfst; 9 ft Waar, Woo; 9:50, Wba Weaf, Woo; 10, 2 Wgr; 10:45, Wsb; 1 Cfac. Wahg; 11:4 Wdaf; 12; 16:50, 11:4 Wdaf; 12; 16:50, Wba

Tuesday, February 1 8:15, Weau; 9, Wex, We Wft, Wgr: 9:15, Wi Wnj, Weat; 19:15, Wi Wnj, Weat; 19:15, Kfo Kyw, Wnj, Will, Kno; 12:05, Kfoa.

Wednesday, Februa
11: 8, Weaf, Wee
Wkaq, Wsb; 6.45, Wny
9, Kpo; 9:03, Wda
Woo: 9:30, Wbap, Wn
Woo: 9:30, Kfox, Kp
Wben, Weaf, Wgn; 10:
Wnj; 10:30, Kfoa, Wg
11, Wnj; 12, Kfl, Kfq
Kgw, Khj, Wths;
Knx.

Thursday, February I: 9, Weaf, Weel, Wo Wwi; 9:30, Weaf, Wgn; 10:10, Weaf, Wgn; 10:10, Wow; 11, Wmak, Wo Wdaf; 12, Kgo, Kh Knx, Kpo, Wehh; 12:0 Kfoa.

Friday, February 1:
8, Ksd, Weaf; 8:11
Weau; 8:30, Wmc;
Wex, Webh, Wgr; 9:11
Weau; 9:15, Wahg; 9:31
Cnrt, Ksd, Knj, Wo
10, Kfqx, Wbcn, Wea
Wgn; 10:30, Wgr, Wn
Woaw; 11, Kfi, Wm
Wni; 11:45, Wdaf; 1:
Kfqx, Khj; 12:30, Kgw
1, Knx.

Tuesday, February 10

(Continued from page 15)

KFOA, Seattle, Wash. (Pacific, 450.2), 4-5:15 p. m., concert orchestra, recipe; 6:45-8:15, Rhodes' Department store program; 8-30-10, Seattle Times dance music, Lambda Chi Alpha fraternity orchestra; 1:0:5-11, Olympic hotel dance music.

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

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

hour with Harry James Bearusing (Cousin Jun, amassociates.

KGO, Oakland, Calif. (Pacific, 298.8), 11:30-1 p. m., luncheon concert, Pacific States Electric company; 4-5:30, concert orchestra, Hotel St. Francis; 8, Hawaiian Harmony Kings; Jennings Plerce, tenor; Edna Linkowski, planist; Elsa Baulsir, soprano; George N. Calfee, baritone; Pearl Derbidge, contraito; Kornells Berinz, violinist; Richard Lundgren, bass; "The Football Season Just Past;" 10-1 a. m., danco music, Henry Halstead's orchestra.

NOUNDAIL SCRISON JUST PAST. 10-1 a. m., danco music, Henry Halstead's orchestra.

KGW, Portland, Orc. (Pacific, 492), 12:30 p. m., concert; 5. children's program, story. Uncle Dave; 8. Orchestra, Children's program, story. Uncle Dave; 8. Storon Agricultural college extension service lecture; 8:30 concert, Civic Music club, Mrs. Miles Delwin Warren, Strain; Reatha Fowler Miller, contracto; 10. Multromah Hotel Strollers; colos, Phil Frank Houser.

KH., Strain Strollers; colos, Phil Frank Houser.

KH., Strain Strollers; colos, Phil Frank Houser.

KH., Strain Strollers; Calif. (Pacific, 404.1), 12:30-1:30

p. m. Mangles Calif. (Pacific, 404.1), 12:30-1:30

p. m. Mangles Calif. (Pacific, 203.) little stories, American instory. Prof. Walter Sylvester Hertzog; weekly visit of Queen Titania and the Sandman from Furiyland, Uncle John; 8-10, program, Birch-Smith Firniture company, arranged by J. Howard Johnson; 10:11, Earl Burtnett's Biltmore hotel dance orchestra.

KIS Les Angeles, Calif. (Pacific, 203), 8-9:30 p. m., Instrumental and vocal program of classical nature presented by mambers of Bible Institute.

(NX, Hollywood, Calif. (Pacific, 337), 8 a. m., morning prayer; 9, Hired Hand, news; 10, Hired Hand's morning message; 10:30, Mrs. Kate Brew Vaughn, home economics; 5 p. m., closing markets; 5:45-6:15, Wurlltzer organ recital; sport talk, Sid Ziff; 6:15-7:30, program, B. C. "Cliff", Durant; 8-9, program, Elite Catering company; Louise Sullivan, soprano; Elite trio; 9-10, KNX feature program; 10-12, movie night at the Ambassador, Abe Lyman's Cocoanut Grove dance orchestra.

Ambassador, Abe Lyman's Cocoanut Grove dance orchestra.

KOA, Denver, Colo. (Mountain, 322.4), 3 p. m., "Jasmine Door," "Coolan Dhu!," "Ave Maria," Mrs. Alexius Gargan, songon: "American Abroad," Mrs. A. J. Treichler: "Jugler," "Scherzino," "Country Gardens," Ruth Hanbury, planist.

KPO. San Francisco, Calif. (Pacific, 423), 7 a. m., daily dozen; F. vanorisco, Calif. (Pacific, 423), 7 a. m., daily dozen; F. Fairmont hotel orchestra; 4:30-5:30, Rudy Seiger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories, Big Brother; 6:30, theatrical heaters; 7-1:30, Rudy Seiger's Fairmont hotel orchestra; 5:10, orchestra; 8-10, program, Carl Numan, director; Ivy Holt, contralto; 10-11, Gene James' Rose Room Bowl orchestra.

KSAC, Manhattan, Kan. (Central, 340.7), 9 a. m., march; 9:02, muslc lesson; 9:07, muslc for singing exercises; 9:15, inspirational talk, Department of Education; 9:20, callsthenics; 10, back yard gossip; 10:05, all round the house; 10:10, questions and answers; 10:20, suggestions for today's meals, Amy Kelly, director; 12:30, p. m., Osceola Hall Bur, reader; "Making Plans for tho Farmstead," Walter G. Ward; "Seed Experiences," H. R. Sumner; 7:20, college bell and music; 7:30, "Varieties of Alfalfa," S. C. Salmon; 7:40, music, Mrs. G. W. Salisbury, director; 7:50, "Artificial Methods and Some Problems to Overcome."

KSD, St. Louis, Mo. (Central, 545.1), 6 p. m., concert, Boniamin Rader's orchestra; 9, rectal, William Le-

WELS OF THE MADONNA" AT WNAC



DANCING

(Central Time)

aturday, February 7: 8, 141; 8:15, Knx; 8:30, y; 9, Kfi, Wild, Woc, 0; 9.905, Wip; 9:30, c. Wnj, Wre; 10, Kfax, Kpo, Weat, Wgn; 10, Wccr; 10:30, a, Wcco; 11, Wahg, ap, Webh, Woaw; 12, Knx, Kths, Kw, this, Kyo, it, 12:05, Kfa; 12:30, it.

fonday, February 9:
Ksd. Wbap, Weaf,
9i: 8:30, Wmc, Wsb:
Weet, Wgst: 9:03,
ar, Woo; 9:30, Wbap,
it, Woo: 10, Kfi,
x, Kths, Wece: 10:30,
r; 10:45, Wsb: 11,
5, Wahg: 11:45,
ar, 12, 12-53, Kgo,
v, Kux, Kix, Wbap.

uesday, February 10;
5, Weau; 9, Wex, Weel,
Wgr; 9:15, Wrc;
Ckac, Cky, Wlp,
j, Woai; 10; Kfox,
a, Wnj; 10; Kfox,
v, Wnj, Joaw; 11,
e, Wnj; 11:30, Webh;
15, Wdaf; 412, Kfox,
t, Kgw, Khj, Knx,
t; 12:05, Kfoa.

fednesday, February 8, Weaf, Weel, 10, Wsb; 6:45, Wnyc; Kpo; 9:03, Wdar, 10, Kfqx, Kpo, 11, Kfqx, Kpo, 11, Kfqx, Kpo, 11, Kfqx, Kpo, 11, Kfqx, Kfqx, 12, Kfi, Kfqx, 13, Kfi, Wths; 1,

hursday, February 12: West, West, Wost, Wost, Wre; 1; 9:30, Wost, Wre; West, Wgn; 10:15, 7; 10:30, Kfoa, w; 11, Wmak, Wost, 12, Kgo, Khj, Kpo, Webh; 12:05, 3.

riday, February 13:
Ksd, Weaf; 8:15,
u; 8:30, Wmc: 9,
Webh, Wgr; 9:10,
u; 9:15, Wahg; 9:30,
Ksd, Kuj, Woo;
Kfdx, Wben, Weaf,
i; 10:39, Wgr, Wn;
i1, Kfi, Wmc,
i11:45, Wdaf; 12,
c, Khj; 12:30, Kgw;
cnx.

WMAK, Lockport, N. Y. (Eastern, 265.5), 7:30 p. m., Boy Scout program; 8-9, orchestra.

WMAQ, Chicago, III. (Central, 447.5), 12 m., weekly program, auspices Illinois Manufacturers' association; 4 p. m., American Red Cross talk, Dr. H. W. Gentles; 4:30, pupils, Glenn Dillard Gunn school; 5, lullaby lady, Mrs. Gene Davenport; 6, 'Chicago theater organ; 6:25, Hotel LaSalle orchestra; 6:50, Daddy; 8, Harry Hansen, book reviewer; 8:20, travel talk, Clara E. Laughlin; 8:40, Association of Commerce weekly talk; 8:50, lecture, University of Chicago; 9:15, musical program. Bratton concert four.

WMC, Memphis, Tenn. (Central, 593.9), 12 m., O. K. Houck Piano company; 8:30 p. m., Carl and Alex Bogar; 11, frolic.

WMJ, Newark, N. J. (Eastern, 233), 10:30-11 p. m., dance music, Frank Daily and his Meadowbrook orchestra; 11-11:30. Jimmy Clark and his Broadway entertainers; 11:30-12, Original Dixteland Jazz band; 12-12:30 a. m., Frank Daily and his orchestra.

WNYC, New York City, N. Y. (Eastern, 528.8), 7:33 p. m., sport talk, Thornton Fisher; 7:45, dance program; 8:30, concert, chorus and soloists of the Brahms club, Leo Braun, director; 9:30, violin recital; 9:45, popular songs; 10:10, lecture service, Board of Education.

WOAI, San Antonio, Tex. (Central, 394.5), 8:30 p. m., folk songs from all countries, WOAI, entertainers; music WOAI tric; 9:30, Jimmie Joy's Hotel St. Anthony orchestra.

WOAW, Omaha, Nebr. (Central, 526), 12:30 p. m., horticultural program; 6, "Advice to Lovelorn," Cynthia Grey; 6:25, dinner program, Shenandoah studio; 9, program, auspices Hannan-Van Brunt company, Sherwood Music school; 10:30, Frank W. Hodek, Jr., and his Omaha nightingales.

WOC, Davenport, Iowa (Central, 483.6), 5:45 p. m., chimes.

WOI, Ames, la. (Contral, 270), 12:30 p. m., college chimes; "How to Secure Carloads of Treated Seed Potatoes," Frof. C. L. Fitch.
WOO, Philadelphia, Pa. (Eastern, 509.9), 11 a. m., organ recital, Mary E. Vogt. 12:02 p. m., Wanamaker erystal tea room orchestra, Robert E. Golden, director; 4:45, organ reci

Caldwell, planologuist; University trio; Mary Sisters; Buster Graves, boy soprano; Blanche E. Robinson, accompanist, WRC, Washington, D. C. (Eastern, 469), 6:45 p. m., children's hour, Pergy Albion; 7, dinner music, Meyer Davis' New Willard hotel orchestra; 8, "Show Shopping," Leonard Hall; 8:10, music; 8:30, "The Political Situation in Washington Tondight," Frederick William Wile; 9, music; 10:15, dance music, Meyer Davis' Leparadis orcfestra.

WREO, Lansing, Mich. (Central, 288.5), 8-15-9:45 p. m., musical program, local talent; Reo Motor Car company band; Reo glee club.

WSB, Atlanta, Ga. (Central, 429), 12 m., entertainment; 5-6 p. m., bedtime story, Bonnic Barnhardt; 8-9, Vick Myers' Melody artists; 10:45, Bernard and Robinson; Divise string band.

WSUI, lowa City, Iowa (Central, 483.6), 12:30-1 p. m., "The Study of Spanish." Prof. R. E. House; 8, concert, music faculty.

WTAM, Cleveland, Ohio (Eastern, 364), 6 p. m., Maurice Spitalny's Hotel Statler orchestra.

WTAY, Oak Park, III. (Central, 250), 6:15-7:30 p. m., Al Melgard, organist; Sandy Meek, baritone; Raynor Dalheim and company orchestra.

WWJ, Dotreit, Mich, (Eastern, 352.7), 2 a, m., satting-

up exercises; 9:30, tonight's dinner; 12:05 p.m., Jules Klein's Hotel Statler orchestra; 3, Detroit News orchestra; 6, dinner concert; 8:30, Detroit News orchestra; Joseph Tesano, accordionist; William D. Leitch, tenor.

Wednesday, slient night for: CFCA, CHNC, CKAC, CKY, KFDM, KFKU, KFKX, KGO, KJS, WBAV, WCBD, WEBJ, WEBW, WFAA, WFI, WGST, WGY, WHAZ, WIP, WMAK, WHAZ, WOAW, WOI, WORD, WGC, WREO, WSAI,

CFAC, Calgary, Can. (Mountain, 430), 7:15 p. m., bed-time story; 7:45-8:45, Jean Gilbert, planist; Ruth Matthews, planist; Berg Ellinson, tenor. CFCA, Toronto, Can. (Eastern, 350), 5:30-6 p. m., bed-time story.

time story; 7:45-8:45. Jean Glibert, pianist; Ruth Matthews, pianist; Berg Ellinson, tenor.
CFCA, Toronto, Can. (Eastern, 350, 5:30-6 p. m., bedtime story.
CKAC. Montreal, Can. (Eastern, 425), 1:45 p. m., windsor hotel trio.
CNRO. Ottawa, Can. (Eastern, 435), 7 p. m., half hour talk for boys and girls, Unite Dick: 7:45, books for boys. Lawrence Burpee; 8, James McIntyre and bis Chatoau Laurier hotel orrestra playing "Fingal's Cave," "Remantle Melocy," Bal Masque." Miralle;" "My Ain Folk," "Bal Masque." Miralle;" "My Ain Folk," "Bal Masque." Mirellie;" "My Ain Folk," "My Word," Claude Trirer; address, William P. Fizamons; bagpipe selections, Pipemajor Sullivan; Sing Me to Sleep," "Prelude," B. DeLamothe, vocalist, CARO Hawaiian orchestra: "Mr Delamothestra: "Sing Me to Sleep," "Prelude," B. DeLamothestra: "First Movement Pathelique Sonata." Leslie McKenna; "First Movement Pathelique Sonata." Leslie McKenna; "First Movement Pathelique Sonata." Leurie notel orchestra.
Kr KA, E. Pittsburgh, Pa. (Eastern, 309.1), 7 a. m., morning exercises; 8, morning exercises; 6:15 p. m., dinner concert, Pittsburgh Athletic association; 7:30, children's period; 8:15, address, University of Pittsburgh Start, "Wash. (Paelfie, 330), 7:30-9 p. m., Arcadians' Pep orchestra playing "Ail Alone," "Decame of Dreams," China Girl, "The Last Hour, "Kashmiri Song," To the Sun; "The Last Hour, "Kashmiri Song," To the Sun; "Roy," Vivian King, soprano, singing "Twilight," The Last Hour, "Kashmiri Song," To the Sun; "Roy," To and Hegnauer; book talk, Alico L. Webb.
KFI, Les Angeles, Calif. (Paelfie, 467), 5:30 p. m. Evening Herald, table talk, news; 5:30-6, Examiner's musical half hour; 6:45-7:30, Nick Harris, detective paughters of the Golden West; 9-10, Examiner, popular song night; 10-11, Patrick Marsh's dance orchestra.

popular song night; 10-11, Patrick Marsh's dance orchestra.

KFMX, Northfield, Minn. (Central, 337), 9 p. m., Carleton Little symphony; Howard Owens, xylophone sololst; Ardis Swenson, soprano; Lillian Ellis, organist; Ruth Smith, harpist; Wayne Wilson, saxophonist

phonist.

KFNF, Shenandoah, Ia. (Central, 266), 6:30 p. m., Seedhouse concert.

KFOA, Seattle, Wash. (Pacific, 450.2), 4.5:15 p. m., Olymple botel concert orchestra, recipe: 6:45-8:16, Hopper-Kelly Company studio program, 8:30-10, Seattle Times studio program, string orchestra, W. R. Hedley, director.

Hopper-Kelly Company studio program, \$:30-10, Seattle Times studio program, studio program, \$:30-10, Seattle director.

KFOX. Scattle, Wash. (Pacific, 238), 7:15-8 p. m., Aunt Vivien's bedtime story; 8-9, Earl Gray and his Hotel Butler ornestra; 9-10, concert hour; 10-11, Earl Gray and his erchestra; 9-10, concert hour; 10-11, Earl Gray and his erchestra; 9-10, concert hour; 10-11, Earl Gray and his erchestra; 9-10, concert hour; 10-11, Earl Gray and his erchestra; 9-10, concert hour; 10-11, Earl Gray and his erchestra; 9-10, concert hour; 10-11, Earl Gray and his erchestra; 2-10, concert hour; 10-11, Earl Gray and his erchestra; 2-10, concert hour; 10-11, Earl Gray and his erchestra; 2-10, concert hour; 10-11, Earl Gray and his erchestra; 1-10, concert; 5, children's program, story, Aunt Nell; 8, Mrs. Rose, pianlet, Ked. Oakland, Callif. (Pacific, 492) 12-30, m., concert; 5, children's program, story, Aunt Nell; 8, Mrs. Hour, 10-10, concert; 5, children's program, story, Aunt Nell; 8, Multnomah Hotel Strolles, Franklin High school; 10, Multnomah Hotel Strolles, Calif. (Pacific, 404.), 12-30, 1-30, p. m., Abe Perluss and his Rose Room orchestra; Edward Fitzpatrick, director; 6:30-7:30, Prof. Walter Sylvester Hertzog, stories, American, history; Dick Winslow, invenile reporter; Baby Muriel MacCormac, seren juvenile; Uncle John, 8-9:30, program, Pacific Mutual Life Insurance company, Dr. Mars Bumgardt, seinchife lecturer; 9:30-10, Piggly Wigely Girls sport kNK, Hollywood, Callif. (Pacific, 337), 8 a. m., morning prayer; 9, Hired Hand, news; 10, Hired Hand; Brew Yaughn; 5 p. m., closing markets; 5:45-6:15. Wurlitzer pipe organ studio, Sld Ziff sport talk; 6:15-7, dinner hour music; 7-8, Ambassador hotel

Where to Hear Talks

Central Standard Time

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

Saturday, February 7: 6, WDAF, WCAE; 7, WCAE, WFI, WIP, WCR; 7:15, WBBR; 7:30, WOC, WRC; 8, WCC0; 8:30, KHJ, WMAQ; 8:40, WRC; 8:45, KFI; 9, KYW; 9:10, WNYC; 9:30, KFSG.

Sunday, February 8: 6:35, WBBR; 8:45, KFI.

Monday, February 9: 6, WDAF, WGY; 6:15, WGY; 6:35, WNYC; 6:45, WCAE; 7, WDAR; 7:15, KFKU; 7:20, KSAC, WBBR, WOC; 7:30, KDKA, WOS; 8, WAHG, WCCO; 8:10, WNYC; 8:15, WCCO; 8:30, KFKU, WCCO; 8:45, KYW; 10, KGO;

Tuesday, February 10: 6, WDAF, WOAW; 6:45, WCAE; 7, WCAU, WEAF, WGR, WIP, WRC; 7:15, CFCA; 7:30, CKY, KSAC, WCC0, WRC; 7:45, WCC0; 8, WMAQ; 8:20, WMAQ; 8:30, KHJ, WBCN; 8:50, WMAQ; 9:05, WIP; 9:10, WNYC; 10, KGW; 11:05, KYW.

Wednesday, February 11: 6, WDAF; 6:30, WCCO; 7:15, KDKA, WBAV; 7:20, WBBR; 7:30, KSAC, WNYC; 8, WMAQ; 8:30, KHJ, KOB, KYW; 8:45, WDI: 0:05 UNW

Thursday, February 12: 6, WDAF; 6:15, WEEI; 6:30, WGY; 7, WEAF, WRC; 7:10, WCAU; 7:15, KFKU; 7:20, WOC; 7:30, CKY, KFKU, KSAC, WCCO, WRC; 7:40, WCAU; 7:45, KFKU, WCCO; 8, KYW, WGN, WMAQ, WMC; 8:15, WMAQ; 8:30, KHJ, WBCN; 8:35, WBBR; 8:45, KFI; 9:15, KYW.

Friday, February 13: 6, WDAF; 6:30, WGY; 6:45, WGY; 7, WCAU, WDAR; 7:15, KDKA, WDAR; 7:20, WOC; 7:30, CKY, KGO, KSAC, WCCO; 7:45, WCCO; 8, CNRT, KYW, WAHG, WMAG; 8:30, KHJ, KOA, WAHG, WMAQ; 9:30, KHJ; 10, KGW.

concert orchestra, Josef Rosenfeld, director; 8-9, program, Carson-Baruch Baking company; 9-10, KNX feature program; 10-12, Hollywood dance orchestra. (OA) Denver, Colo. (Mountain, 322.4), 8 p. m., Troble Clef club; "Creme de la Creme," KOA orchestra; "On Wings of Music," "Whirl and Twirl," "To Music," Treble Clef club; "The Great Awakening," has Rains, soprano; "God's Glory," "The Asra," "Hear Me, Ye Winds and Waves," Leroy Race Hinman, baritone; folk songs of the British Isles, "Call of Home," "Comin' Thru the Rye," "Three Was a Plg," Treble Clef club; "Pinafore," KOA orchestra; "Lincoln and Law Enforcement," Omar E. Garwood; "Friend of Mine," "Love's Solace," "O Don Fatale from Don Carlos, "Florence Lamont Hinman, containing and Dance," "Gujus Anlman," Margaret Rederson and Dance, "Gujus Anlman," Margaret Rederson and Cliffet, "God France," "The Glef club; "Calm as the Night," "Lungi del Caro Bene," "Goman," "Reov Race Hinman, baritone; "Slavonic Dance," KOA orchestra. (OB, State College, N. M. (Central, 348.6), 7:30-8:30 p. m., international code course, lesson 6, Dean R. W. Goddard.

KPO, San Francisco, Calif. (Pacific, 429.5), 7 a. m., daily dozen; 10, town crier; 10:15, theatrical news; 1-2 p. m., Rudy Seiger's Fairmont hotel orchestra; 2:30-3:30, matinee program, Johnnie Bufck's Amphians; 4:30-5:30, Rudy Seiger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories; 77-7:30, Rudy Seiger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories; 77-7:30, Rudy Seiger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories; 77-30, Rudy Seiger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories; 77-30, Rudy Seiger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories; 77-30, Rudy Seiger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories; 77-30, Rudy Seiger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories; 77-30, Rudy Seiger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories; 77-7:30, Rudy Seiger's Fairmont hotel orchestra; 5:30-6:

of Life." Theodore M. Bedwin; 8:40, Watchtower orchestra.

WBCN Chicago, Ill. (Central, 266), 6-6:30 p. m., juvenile period, Luella Drew Wilson; 7-8, classical hour, Wilson Taylor, tenor; Ann Kelly, soprano; New Carlson, soprano; Franz Lazarus, violinist; Merle Yagle, planist; 8-9, Ambor Furniture company, popular program, O'Leary family, vocal-instrumental group; Midway Dancing Gardens orchestra; Florence Tenny, blues singer; Harry 'Dream Daddy' 'Davis, baritome; Englewood string quintet; 9-10, Englewood Overland company, popular program, Les Cameron, tenor; Southtown harmonizers, harmony trio; Berger Wedberg, tenor; Harry J. Mapp, president Englewood Overland company, automobile talk; George Dell, baritone; Midway Dancing Gardens orchestra; 10-10:15, Midway Dancing Gardens

mobile talk; George Deil, baritone; Midway Dancing Gardens ordestra; 10-10:15, Midway Dancing Gardens orchestra; 10-10:15, Midway Dancing Gardens orchestra.

WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m., dinnet concert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, special feature; 8:30, musical program; 9, concert, Aiwater-Kenf orchestra, draction Lon Chassey; 8:05, Meyer Davis Hotel Pennsylvania orchestra, direction Lon Chassey; 8:05, Meyer Davis Hotel Pennsylvania tric; 8:15, concert, Breyer Leaf Boys; 8:45, N. B. T. Boys, songs; 9, recital; 9:35, concert; 10:10, "The Voice of Paris."

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 10:45 a. m., home service, Betty Crocker; 2 p. m., woman's hour, Buchanan Bible study club; 2:30, matthee musicale; 4, MacPhail players, Maude Moore, director; 5:30, children's hour, Alpha Staison; 7, midweek church service, Rev. J. S. Briggs, pastor; 9, North Dakota night; 10, dance program, Arnold Frank's Casino orchestra; Gold Medal-Radio quartet.

WCX. Detreit, Mich. (Eastern, 516), 4:15 p. m. musical program; 6, dinner concert, Book-Cadillac hotel; 7, musical program.

WDAF, Kansas City, Mo. (Central, 365.6), 3:30-4:30 p. m., Star's Radio trio; 6-7, plano tuning-in number on the Duo-Art; speaker, auspless Health Conservation association; address, speaker, Moat Council of Greater Kansas City Tell-Me-A-Story lady; Trianon ensemble; 8-9:15, Star's Radio orchestra.

WDAR, Rhiladelphia, Pa. (Eastern, 395), 11:45 a. m., daily almanac; 12-02 p. m., Stanley theater organ resital; Arcadia cafe concert orchestra; 2. Arcadia cafe

concert orchestra: 4:20, Marcella North, pianist; Mary E. Elchelberger: contralto; 7:30, Dream Daddy's bedtlime stories; 3:30, Femsylvania Male quartet; special Abraham Lincoln Dregam, 19:03, Arcadia cafe dance orchestra; 10:30, Femsylvania Male quartet; special Abraham Lincoln Dregam, 19:03, Arcadia cafe dance orchestra; 10:30, Femsylvania Male quartet; special Abraham Lincoln Dregam, 19:03, Arcadia cafe dance orchestra; 10:30, Pemsylvania Male quartet; special Abraham Lincoln Hole, Castern, 492), 2-2:30 p. m., chapel services, Columbia university; 4:20-4:40, Ethel Rca, soprano; 4:40-5, children's stories; 6-7, dilner music, Waldorf-Astoria horte; 7-7:30, services, United Synagous of America; 7:30-8:30, U. S. Army band; Synagous of America; 7:30-8:30, U. S. Army band; Synagous of Marchael T. Barr and Kathleen Steward, plaulst; 9-10, Waldorf-Astoria orchestra; 11-12, Meyer Davis Lido Vallor T. Astoria orchestra; 11-12, Meyer Davis Lido Vallor G. Barr and Kathleen Steward, plaulst; 9-10, Waldorf-Astoria orchestra; 11-12, Meyer Davis Lido Vallor, Rose; 8:20 p. m., musical program. WEAO, Columbus, Ohio (Eastern, 294), 8 p. m., chimes concert, Prof. A. P. McManigal; 8:15 p. m., Radio talk, A. M. Rose; 8:20 p. m., musical program. WEAR, Cloveland, Ohio (Eastern, 364.3), 7 p. m., Hotel Cleval and orchestra; I arm Francisci, director. WEAR, Cloveland, Ohio (Eastern, 364.3), 7 p. m., Oriole orchestra; talk on books of the day, Llewellyn Jones; Lazera Laxman, soprano; Rhea Shelters, accompanist; 9, 9, Langdon Brothers, Grothestra; Marte Kelly, reader; Nubs Allen, Olic, Restrate, Agard, tenor; 11, Edna Salamon; Orthestra; Langdon Brothers, Hawaiian guitar-staller, Grothestra; Sao, musicale; 9, Glilotte Safety, Razoro, Nick Lucas; Marie Kelly, reader; Nubs Allen, Olic, Marie Langdon, Rick, Marie Kelly, reader; Nubs Allen, Olic, Marie Langdon, Rick, Marie Kelly, reader; Nubs Allen, Olic, Restrate, Sao, Sao, Sao, Rick, Hussia, Praveler Shoe orchestra; 3:30, musicale; 9, Glilotte Safety Razoro, R. S. S. S. S. S. S. S. S. S.

Mrs. Julia D. Hazard; readings, Lillian Biddle, Isabelle W. Henry, soprano; 8:39, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, the kiddles' pal.

WGN, Chicage, Ill. (Central, 370), 1:40 p. m., luncheon concert. Drake concert ensemble, Blackstone string quintet; 2:30, artist sories, Lyon & Healy; 3; Occiding chalr time; 5:39, Skeezix time for the children; 6, organ reclta; Lyon & Healy; 6:30-7, dinner concert. Drake concert consemble, Blackstone string quintet; 2:40, artist sories, Lyon & Healy; 3; Occiding chalr time; 5:39, Skeezix time for the children; 6, organ reclta; Lyon & Healy; 6:30-7, dinner concert. Drake concert ensemble; 210 Meyer, 2

m. music, Moosebeart children; talks; 6:45-7:15, Albert Brown, organist; 7:15-8:15, philharmonic orchestra, band.

WIZ, New York, N. Y. (Eastern, 455), 10:20-10:30 a.m., New York health speakers; 4-4:30 p. m. Regalbuto Sisters, pianists; 8:30-9:15, artist, pupil concert; 9:15-10, Allen trio; 10-10:15, England's East Side, Wirt W. Bamiltz; 10:15-11, Jack Penn, pianist, WKAQ, San Juan, P. R. (Intercolonial, 372.5), 8-9:35 p. m., concert, municipal band, wLS, Chicago, III. (Central, 345), 12-12:30 p. m., Kenneth Clark with his Hawaiian guitar; Peat and Its Uses," George W. Kedey; 8:45-4:45, homemakers' hour; "Thrift Talk", Mrs. Wilhur E. Fribley; "Women's Share In Public Opinion," Mrs. William G. Hibbard; "Wat Are Xuo Doing for Your Exservice Men;" Mrs. W. Hardy; 6:30, Ralbis Emerson, organist; 6:36, Senate theater studio; 7, Tribed Cone Scouts; 7:40, William Eske, tenor; Schen, and Carrol: "Hog Auction Sales in California," C. A. Stewart; 9, Lucas Sisters; 9:10, WLS theater, Waldace Bruce Amsbary in Wat Whitman's tribute to Lincoln, "When Lilaes Last in My Doorward Bloomed," a Saddler feature; 9:30, Evercti Shaw,

(Continued on page 18)

Wednesday, February 11

(Continued from page 17)

baritone: Pearl Doty, pianist; 9:45, Nubs Allan; 10, Art Kahn and his Senate Theater Symphony orchestra; 10:10, Verdl trio; 10:30, Isham Jones and his College Inn orchestra; 10:40, Ford and Glenn time.

WLW. Cincinnati, Ohio (Contral, 423), 8 a. m., physical exercises, Y. M. C. A., Wm. Stradtman, instructor; 12:15, program, Mu Phi Epsilon sorority; dance program, Ahaus orchestra; 4, program for "shut-ins;" 6, dinner hour concert, Selinsky quintet; 8, mixed quartet; Milnor trio; Clifford Lang, Prince of the Iveries; Fornica orchestra, Walter Esberger, director; Larsh M. Ferguson, barltone; Vernon Manor Instrumental trio.

WMAQ. Chicago, Ill. (Central, 447.5), 1 p. m., speeches, weekly luncheon of the Association of Commerce; 4, beauty talk, Madame Grace Earl; 4:30, program, pupils Cosmopolitan School of Music; 6, Chicago thoater organ recital; 6:30, stories for children, Georgenc Faulkner; 8, weekly lecture, Northwestern cuniversity; 8:30, piano concerto; 9, WMAQ players.

WMC, Memphis, Tenn (Central, 503.9), 12 m., O. K. Houck Plano company.

WNJ, Newark, N. J. (Eastern, 233), 10:30-11 p. m., Frank Daily and his orchestra; 11-11:15, Victor Wilbur, barltone; 11:15-12, Original Dixieland Jazz band; 12:12:30 a. m., Frank Daily and his orchestra; 11-11:15, Victor Wilbur, barltone; 11:15-12, Original Dixieland Jazz band; 12:12:30 a. m., Frank Daily and his orchestra; 11-11:5, Victor Wilbur, barltone; 11:15-12, Original Dixieland, Jazz band; 12:12:30 a. m., Frank Daily and his orchestra; 11-11:5, Victor Wilbur, barltone; 11:15-12, Original Dixieland, Jazz band; 12:12:30 a. m., Frank Daily and his orchestra; 11-11:5, Victor Wilbur, barltone; 11:15-12, Original Dixieland, Jazz band; 12:12:30 a. m., Frank Daily and his orchestra; 11-11:5, Victor Wilbur, barltone; 11:15-12, Original Dixieland, Jazz band; 12:12:30 a. m., Frank Daily and his orchestra; 11-11:5, Victor Wilbur, barltone; 11:15-12, Original Dixieland, Jazz band; 12:12:30 a. m., Frank Daily and his orchestra; 11-11:5, Victor Wilbur, barltone; 11:15-12, Origina

WOI, Ames, lowa (Central, 270), 12:30 p. m., collega chimes.
WOO, Philadelphia, Pa. (Eastern, 509.9), 11 a. m., organ recital, Mary E. Vogt; 12:02 p. m., Wanamaker crystal tea room orchestra, Robert E. Golden, director; 4:45, organ recital, Mary E. Vogt; 7:30, A. Candelori's ensemble from Hotel Adelphia; 8:30, WOO orchestra; 10:30, William Bove's Royal Palm dance orchestra; 10:30, William Bove's Royal Palm dance orchestra; 10:30, Vincent Rizzo's Hotel Sylvania dance orchestra; WOR, Newark, N. J. (Eastern, 405), 2:30 p. m., May Stone, soprano; 6:15, Harry Cox, orchestra; 8, Gene Ingraham; 9, Mrs. Zacharia, violinist.
WOS, Jofferson City, Me. (Central, 440.9), 8-10 p. m., program, Mrs. Cortex Enloe, director; address, Honorable J. M. Ramsey; talks, Senator Dwight Brown; Safeguarding Missouri Expenditures for Fertilizers; L. D. Haugh.
WQJ. Chicago, Ill. (Central, 448), 11-12 m., "Some

able J. M. Ramsey; talks, Senator Dwight Brown, "Safeguarding Missouri Expenditures for Fertilizers," L. D. Haugh.

W. Hall Haugh.

W. Hall Haugh.

W. Hall Harrington Downing; "Oleomargarine," Martha Logan; authority on women's dresses, Frank J. Mitchell; 7-8, dinner concert, Ralph Williams and his Rainbo Garden orchestra; Merrle Boyd Mitchell, sopranc; James Mitchell, bartlone; Rev. Carl Chworowski, pianist; 10-2 a. m., Ralph Williams and his Rainbo Skylarks; Rogers Boys, Larry and Billy; Clarence Theders, tenor; Alfred Tweed, harmenica and guitar soloists; Melodians, Laurio, Eddic, Bonny; George A. Little, Larry Shaw, song writers; Fred Jacobson, reader.

WRC, Washington, D. C. (Eastern, 469), 4 p. m., fashion developments of the moment, Eleanor Gunn; 4:10, piano recital, George F. Ross; 4:20, talk, Outlook; 4:30, tea music, Meyer Davis' New Willard hotel trio; 6, children's hour, Peggy Albion.

WSE, Atlanta, Ga. (Central, 429), 12 m., entertainment; 10:45, Ritz Harmony boys.

WSUI, lowa City, lowa (Central, 433.6), 9-9:30 a. m., High school assembly program, Prof. Phillip Greeley, Dean Henry C. Jones; 12:30-1 p. m., talk; 4:30, "The Psychology of Learning," Prof. Frederic B. Knight; 4:45, "Modern English," Prof. Thomas A. Knott.

WTAM, Cleveland, Ohio (Eastern, 364), 6 p. m., Phillip Spitalny's Music Box orchestra; 8 p. m. Cleveland

Knight; 4:45, "Modern English," Prof. Thomas A. Knott.
WTAM, Cleveland, Ohio (Eastern, 364), 6 p. m., Philip Spitalny's Music Box orchestra; 8 p. m., Cleveland Plain Dealer program; Albert Downing and his studio club; Mary Kettleman, soprano; Leona Woodcock, contralto; Robert Gaillard, tenor; Albert Dannenberg, violinist; WTAM Symphonic ensemble, Walter Logan, director; Walter Logan trio.
WTAY, Oak Park, Ill. (Central, 250), 6:30-7:30 p. m., artists from Oak Park; 9-10:15, Al Melgard, organist; Harmony Kings; Meiody Girls.
WWI, Detroit, Mich. (Eastern, 352.7), 8 a. m., setting-up exercises, R. J. Eorton; 9:30, tonight's dinner, woman's editor; 12:05 p. m., Jules Klein's Hotel Statler orchestra; 6, dinner concert; 3:30, Harry A. McDonald, baritone; Irene Barkume, soprano.

Thursday, February 12

Thursday, silent night for: CHNC, KFAE, KFDM, KFOA, KFQX, KGW, KOA, KOB, KSD, WAHG, WBAV, WEAO, WCAL, WEBJ, WEMC, WHA, WHO, WJJD, WLBL, WNJ, WOO, WSAI, WTAM.

CFAC, Calgary, Can. (Mountain, 430), 9-11 p. m. Canadlan National Rallway's program, Orpheus quartet. CFCA, Toronto, Can. (Eastern, 350), 5:30-6 p. m., bed-time story; 8:15, Eaton Choral society; Florence Mac-

CKAC, Montreal, Can. (Eastern, 425), 4:45 p. m., cabarel entertainment; 8:30, Canadian National Railways, using

entertainment, 5.33, Control of Control, CNRW.
CKY, Winnipeg, Can. (Central, 450), 7:30 p. m., lesson in French diction and conversation, A. C. De Lalande 8, Canadian National Railway's program using call CNRW.

nn rrenen queuon and conversation, A. C. De Lalande; S. Canadian National Railway's program using call CNRW.

CNRC, Calgary, Can. (Mountain, 430), 9 p. m., bedtime travel tale: Orpheus quartet, A. C. McCaghey, cellist; V. L. Samuelson, violinist; G. H. Deslandes, flutist; E. T. Gurling, planist; "Martha," quartet; G. S. Deslandes, flutist; E. T. Gurling, planist; "Martha," quartet; G. S. Deslandes, flut solo; "Haya," quartet; "Autumn and Winter," trio; violin solo, V. L. Samuelson; "The Minute Man," Orpheus quartet; "Irish Melodies," quartet; "Resignation," quartet; "Irish Melodies," quartet; "Resignation," quartet; "In Trovatore," quartet; flut solo, G. S. Deslandes, "The Little Soubrette," quartet; V. L. Samuelson, violinist; selections from "Faust," quartet; Mrs. F. B. Ruckert, Esther Williams Lab and party, A. Phillips, violinist; dance program, Plaza eabaret.

CNRM, Montreal, Can. (Eastern, 425), 8:30 p. m. Colonel Bogge, "For a Rose," "The Beautiful Galitea," "The Angelus," "Scenes Pittoresques," Montreal symphony orcheatra; Hawalian guitar solos, "One, Two, Three, Four," "Swince River, J. T. Livingstone, address, William P. Fitzsimons; "Cinderella," "By the Hearth," "The Godmother and the Fairles," The Court Ballinet, orchestra; "Kalohi Serenade," "The Rosary," J. J. Livingstone, guitarist; "The Gelsha CNRW, Winnipeg, Can. (Central, 450), 8:15 p. m.

Rosary," J. T. Livingstone, guitarios, into Gossia, Girl." orchestra.
CNRW, Winnipeg, Can. (Contral, 450), 8:15 p. m., old-time songs, Kathleen Daly, soprano; Al Kilgour, George E. Aylett, Ronald Gibson, planist; address, "Impression of Canada;" 10, Frank Wright's Country With deep conductors."

George E. Aylett, Ronald G'bson, planist; address, "Impression of Canada;" 10, Frank Wright's Country elub danee orchestra.

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

KFI, Los Angeles, Calif. (Pacific, 467), 5-5:30 p. m., Evening Herald, table talk, news; 5:30-6, Examiner's musical half bour; 6:45-7, Y. M. C. A. speaker; 7-8, Scherdena Aston on the marimbaphone; 8-9, program, Standard Oil company of California presenting a play with music; 9-10, Examiner, program by Elks Lodge of Orange, Calif.; 19-11, John Smallman vocal program. KFKU, Lawrence, Kans. (Central, 275), 6:50 p. m., piano tuning-in number; 7, music; 7:15, "The Child Health Problem," Prof. F. W. Blackmar; 7:30, chemistry lecture, "Priestly and the Discovery of Oxygen," Prof. A. W. Davidson; 7:45, educational psychology, lesson VI, Dean R. A. Schwegler.

KFKX, Hastings, Nebr. (Central, 283.3), 9:30 p. m., program, auspices Kearney State Normal college, George H. Aller, director.

KFNF, Shenandoah, lowa (Central, 266), 6:30 p. m., old time music, Hopkins R. Daniels, director.

KFOA, Seattle, Wash. (Pacific, 450.2), 4-5:15 p. m., Olympic Hotel concert orchestra, recipe.

KFSG, Los Angeles, Calif. (Pacific, 278), 10:30-11:30 a. m., sunshine hour program; 3:30-4:30 p. m., organ

recital, Roy Reid Brignall; 7:30-9:45, auditorium service and baptism, sermon by Almee Semple Mc-Pherson, pastor; 9:45-10, Gray studio musical program; 10-11, organ recital, Esther Fricke Green. KGO, Oakland, Calif. (Pacific, 299.8), 10:40 a. m., classroom instruction, Oakland public schools; 11:30-15, m., luncheon concert, courtesy Pacific States Electric company; 4-5:30, concert orchestra, Hotel St., Francis; 8, 'Seven Keys to Baldpate,' farce, KGO players; Arlon trio; 10-1 a. m., dance music, Henry Halstead's orchestra.

Arlon trio; 10-1 a. m., dance music, Henry Haistead s orchestra.

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

KHJ, Los Angeles, Califi. (Pacific, 404.1), 12:30-1:30 p. p., Lown's State theater program; 6-6:30, Art Hickman's Hilmore holed concert orchestra, Edward Fitzpatrick, director; 6:30-7, little stories American history, Frof. Walter Sylvester Hertzog; Dickie Brandon, Jane Hughes, screen starlets; 8-10, program. Los Angeles Investment company, arranged by J. Howard Johnson; 10-11, Earl Burtnett's Bilimore hotel dance orchestra.

orchestra. KJS, Los Angeles, Calif. (Pacific, 293), 8-9:30 p. m. vocal and instrumental numbers, Alfred A. Butler

Johnson; 10-11, Earl Burtheut's Bullimore noted Galuev orchestra.

KIS, Los Angeles, Calif. (Pacific, 293), 8-9:30 p. m., vocal and instrumental numbers, Alfred A. Butler, organist.

KNX, Hollywood, Calif. (Pacific, 337), 8 a. m., morning prayer; 9, Hired Hand, news; 10, Hired Hand's morning message; 10:30, Mrs. Kate Brew Vaughn, home economics; 12-1 p. m., Wurlitzer pipe organ studio; 5, closing markets; 5:45-6:15, Wurlitzer pipe organ studio; 5, closing markets; 5:45-6:15, Wurlitzer pipe organ studio; Sid Ziff, sports talk, 6:15-7:30, program, Los Angeles County Association of Optometrists, Zieglor's orchestra; 8-9, program, Globe Ice Cream company; 9-10, KNX feature program sponsored by B. H. Dyas company; 10-11, Abe Lyman's Cocoanut Grove dance orchestra; from Ambassador hotel.

KOA, Denver, Colo. (Mountain, 322.4), 3 p. m., "Sans Bols," "Meiody," Mable Stapleton, planist; "For All Eternity," "Love Has Eyes," Lillian Wheeler Blanchard; vollin chilgato, Helen Swah Bartow; "Abraham Lincoln," Mable Stapleton, "Lincoln," "Flag Without a Staln," Lillian Wheeler Blanchard; vocalist; "Cradle Song," Mable Stapleton, planist.

KPO. San Francisco, Calif. (Pacific, 429.5), 7 a. m., daily dozen; 10, town crier; 10:15, theatrical news; 12:20, m., Rudy Sieger's Fairmont hotel orchestra; 4:30-5:30, children's hour stories, Big Brother of KPO; 6:30, theatrical news; 7-7:30, Rudy Sieger's Fairmont hotel orchestra; 4:30-5:30, children's hour stories, Big Brother of KPO; 6:30, theatrical news; 7-7:30, Rudy Sieger's Fairmont hotel orchestra; 10:10, gene James Rose Room Bowl orchestra, M., mann's 20:31-21, and Stans Rose Room Bowl orchestra. M., mann's 20:31-31, and Stans Rose Room Bowl orchestra. M., mann's 20:31-31, and Stans Rose Room Bowl orchestra. M., mann's 20:31-31, and Stans Rose Room Bowl orchestra and Date yard gosslp; 10:30, 10:31, musle for singing exercises; 11:30, "Rose Room Bowl orchestra, 10:30, "Rose Room Bowl

tenor; 9:15, "Good Roads," Bert Vanderwarf; 10-11:30, evening at home.

WBAP, Fort Worth, Tex. (Central, 472.9), 12:05-12:30

p. m., musical program; 7:30-8:30 musical program, artists of Thorpe Springs Christian college; 9:30-10:45, Elena Munster of Dallas.

WBBR, New York, N. Y. (Eastern, 272.3), 9:10 p. m., Carl Park, violinist; 9:25, vocal solos; 9:35, Sunday school lesson, S. M. Van Sipma; 9:55, Carl Park, violinist; 10:10, vocal solos; 10:20, Robert Young, planist.

Carl Park, violinist; 9:25, vocal solos; 9:35, Sunday scbool lesson, S. M. Van Sipma; 9:55, Carl Park, violinist; 10:10, vocal solos; 10:20, Robert Young, planist.

WBCN, Chicago, Ili. (Central, 268), 6-6:30 p. mi., juvenile period, Lucila Drew Wilson; 7-8, classical hour. F. E. Hathaway and associated artists; 8-8:30, popular program, Isabelle Hogenbuik, whistler; Midway Dancing Gardens orchestra; 8:30-9, Walton School of commerce program, lectures on income tax and accountancy by faculty members; 9-12, Elmer Jordan & company's jamboree, Lou Harrington, story-teller; Midway Dancing Gardens orchestra; Lindsay McPhail, planist and composer; Larry Loser, tenor; Florence Eastman, contralto; Modrid Duo, instrumental pair; Al Phillips, tenor: Mort Green and Ralph Norris, singing, playing and songwriting team; Leona Fay, violinist; Louis Clark, tenor; Merie "Big Bay" Yagle, pianologist; 12-1 a. m. early morning concert, Linsay McPhail, planist and composer; Florence Eastman, contralto; Louis Clark, tenor; Mort Green and Ralph Norris, singing, playing and songwriting team; Leo Harrington, story-teller.

WCAE, Plitsburgh, Pa. (Eastern, 462), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, special feature; 9, Victor artists; 10, Goodrich Silvertown Cord orchestyn.

WCAU, Philadelphia, Pa. (Eastern, 278), 7:30 p. m. recital, N. Snellenberg and company: 8, the Musical Chefs; 8:10, talks on health essentials; 8:20, recital; 3:40, "Systematic Saving;" talk; 8:50, "What We See and Hear in Music," Maude Hanson Pettlt; 9, recital; 9:35, International Sunday school lesson. Procital; 9:35, Inter

concert orchestra; 7:30, "Abraham Lincom and Minnestola", Dr. Solon J. Buck; 7:45, health talk; 8, musicale; 10, Casey review.

WCX, Detroit, Mich. (Eastern, 516), 4:15 p. m., musicale program; 6, dinner concert, Book-Cadillac hotel; 7, musical program.

WDAF, Kansas City, Mo. (Central, 365.6), 3:30-4:30 p. m., Star's Radio trio; 6-7, plano tuning-in number on the Duo-Art; Cecile Burton, reader; book talk, Louis Meeker; Tell-Me-A-Story Lady; Trianon ensemble; 11:45-1, "Merry Old Chief" and the Plantation players.

WDAR, Philadelphia, Pa. (Eastern, 395), 11:45-a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 12.02 p. m., Lincoln's birthday program, Arthur Billings Hunt; 6-7, dinner music, Waldorf-Astoria botel; 77:30, services, Federation of churches; 7:30-8, John Ingram string quartet; 8-3:20, lecture course, Columbia university; 8:30-9, Packard Motor company; 9-10, Victor bour; 10-11, Silvertown Cord orchestra; 11-12, Vincent Lopez and his Hotel Pennsylvania orchestra.

WEAR, Cleveland, Ohio (Eastern, 364.3), 7 p. m., Austin J. Wylie's Golden Pheasant—Vocalion Recording orchestra; Albert Downing's program of old English songs and dance numbers; Ruth Baird, soprano; Carl Rupp and his Hollenden hotel orchestra.

WEBH, Chicago, Ill. (Central, 370), 7 p. m., Oriole orchestra; Margaret Fitzgerald, contralto; Rivlera theater; 9, Belle Forbes Cutter, soprano; John Stamford, tenor; Oriole orchestra; 11, Loos Brothers; Oriole orchestra; Banks Kennedy, pianist; songs, Nick Luess. WEBW, Beloit, Wis. (Central, 370), 7 p. m., Drabad concert, Fairbanks, Morse company band.

WEEI, Beston, Mass. (Eastern, 393), 1 p. m., assembly luncheon, Boston Chamber of Commerce; 6:30, special thicoln memorial program; address, 'Contradio'; Andrewe, pianist; address, DeWitt MeMurray; 6:30-7:30, Lone Star five's orchestra; 8:30-9:30, Mirs. Otis P. Holt, singer; Hedley Cooper, violinist; Wi

Introduction of Freshmen to Georgia Tech," Floyd Field.

WGY. Schenectady, N. Y. (Eastern, 380), 6:30 p. m., dinner music, Hotel Ten Byck orchestra: 7:30, book chat, L. L. Hopkins; S, "Dance," WGY orchestra: "Entr'acte," orchestra: "Dolls Reverte," orchestra: "Hymn," orchestra: 8:16, Radio drama, "Our American Cousin," WGY players; 11:30, organ recital, Stephen E. Boisclair.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., readings, Martha Frances Brantley: readings, Courier-Journal, Louisville Times; 7:30-9, mixed concert, auspices Mrs. John E. Harmon, Jr. WHK. Cleveland, Ohio (Eastern, 273), 6 p. m., music, news items; 8 p. m., concert program arranged by the Cleveland Press.

news items; 8 p. m., concert program arranged by the Cleveland Press.
WHN, New York, N. Y. (Eastern, 360.4), 12:30-1
p. m., Charles Strickland and his Palais Dor orchestra; 6:30-7:20, Alamac hotel music; 7:20-7;60,
welfare talk, Wm. J. Stuart; 9:30-10, O'Meara Gardens ballroom orchestra; 10-11, Loew's vaudeville
headliners; 11-11:30, Connies' Inn with Leroy Smith's
orchestra.

orchestra.

WHO, Des Moines, Iowa (Central, 526), 2:15 p. m.,
"Why I Believe in Scouting," Bishop Burnn; 11-12,

WHO, Des Moines, Iowa (Central, 726), 2:15 p. m., "Why I Believe in Scouting," Bishop Burnn; 11-12, orchestra: Augle, Pa. (Eastern, 509.9), 1 p. m., Gimbel tea room orchestra; 3, concert, Philadelphia Music academy; 6:05, Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtline stories; 8, Philadelphia Civic Opera company's rendition of "Aida." WIZ, New York, N. Y. (Eastern, 455), 9:25-11 p. m., Lincoln dinner, auspices National Republican club. WKAQ, San Juan, P. R. (Intercolonial, 372.5), 8:30-10 p. m., concert, La Cafetera. WLS, Chicago, III. (Central, 345), 12-1 p. m., Nubs Allan, contralto; "Farm Question Box," E. B. WLS, Chicago, III. (Central, 345), 12-1 p. m., Nubs Allan, contralto; "Farm Question Box," E. B. Heaton; "Reclaiming Sandy Cut Over Soils," George W. Kelley; 3:35-4:45, homemakers' hour; "How to Combine Pictures with Draperles and Furniture," Margaret Currey; "Kitchen Equipment," Bertha Harris; 6:30, Ralph Emerson, organist: 6:50, Senatc theater studio; 7, Ford and Glenn's Wodshed theater, "Jack the Glant Killer;" 7:20, Chicago and Alton male chorus.

WLW, Cincinnati, Ohio (Central, 423), 8 a. m., physical exercises, Y. M. C. A., Wm. Stradtman, instructor; "Jone of the contraltor," Rependence Ida Teimpidis; piano recital, Adelaide Apfel; 6, dinner hour concert, Selinsky Instrumental quintet; 10, three minute message. United States Civil Service department; 10:03, concert program, Cooper corporation; quartet, orchestra; Doherty Melody Boys; Bohemian entertainer, Rudolph Zak, playing Chinese fiddle; "A Little Close Harmony," Lucile and Mary Craig of WAK. Leekort, N. Y. (Eastern, 265.5), 12 midnight, WAK, Leekort, N. Y. (Eastern, 265.5), 12 midnight,

cuartet, orchestra; Doherty Melody Boys; Bohemian entertainer, Rudolph Zak, playing Chinese Biddle; "A Little Close Harmony," Lucile and Mary Craig of Dayton MAK, Lockport, N. Y. (Eastern, 265.5), 12 midnight, Murray Whiteman Sevenaders.

WMAQ, Chicago, III. (Central, 447.5), 2:30 p. m., Lincoln's birthday program, Chicago Public Libray; 4, household hour, Mrs. Blizabeth Q. Hiller, director; 4:39. Illinois Federation of Women's clubs; 8. Chicago theater recital; 6:25, Hotel Lassalle orchestra; 6:30, Daddy; 8, talk on Lincoln, Mrs. Elinore Gridloy; 8:20, talk, Daughters of the American Revolution and their work at Ellis Island, Irene Crandall; 8:35, financial talk; 8:50, lecture, University of Chicago; 9:15, program, Mrs. M. Greco, soprand, 8:35, financial talk; 8:50, lecture, University of Chicago; 9:15, program, Mrs. M. Greco, soprand; 8:40, Mrc. New York City, N. Y. (Eastern, 5:28.8), 7:35, p. m., sports talk, Thornton Fisher; 7:48, dance program; 8:15, "Timely Topics," F. P. Bent; 8:30, songram; 9:15, man and program; 9:15, man and progr

Laughlin, violinist; \$2.20, Sunday school lesson, B. J. Hollister; \$45, violin duets, Jimmie McLaughlin, Johnson.

Wos, efferson City, Mo. (Central, 440.9), 11 a. m., Boy Seout Lincoln day.

Woll, Chicago, III. (Central, 448), 11-12 m., "Some Unusual Supper Dishes," Erna Bertrams; "Style Advice to Stout Women," Eleanor Chalmers; "Breathing With Your Legs," "P. A. Leonhardt; 3-4 p. m., "Tea Table Etiquette," Josephine Naylor; "Undque Features or Effects on Home Lighting," J. L. Stair, "Some Suggestions for Home Builders," L. M. Francisco; 7-8, dinner concert, Ralph Williams and his Rainbo Garden orchestra; Mrs. Lydia Lochner, contralto; Edith Buckmaster, accompanist; Manual Rodriguez, Spanish tenor; talk, W. L. Ware; 10-2 a. m., Ralph Williams and his Rainbo Skylarks; June Lee, comedienne; Axel Christensen, pianologuist; Hill, Hirsch, Gorney, Three Musketeers; Brock Sisters; Rick, Whalen, Gardner, Harmony Singers; Rosemary Hughes, soprano.

WRC, Washington, D. C. (Eastern, 469), 6:45 p. m., children's hour, Peggy Abhon; 7, dinner music, Shoreham hotel orchestra, Sidney Seidenman, conductor; 8, talk, auspices, Smithsonfan institute; 8:46, music; 10:30, dance music, Waldorf-Astoria orchestra.

WREO, Lansing, Mich. (Central, 288.5), 8:15-9:45 p. m., musical program, Reo Motor Car company orchestra; Reo male quartet; Reo talent.

WSB, Atlanta, Ga. (Central, 429), 12 m., entertainment; 5-6 p. m., Vick Myers' Melody artists; beddime story, Bonnie Barnhardt; 8-9, Ozlethorpe university orchestra; 10:35, Dr. Charles A. Sheldon, organist; beddime story, Bonnie Barnhardt; 8-9, Ozlethorpe university orchestra; the Stylany's Heldon Statler orchestra.

WSUI, lowa City, iewa (Lentrai, 403.6 12.09-1 p. m., music.
WTAM, Cleveland, Ohio (Eastern, 364.3), 6 p. m., Maurice Spialny's Hotel Statler orchestra.
WTAY, Oak Park, III. (Centrai, 250), 6:15-7:30 p. m., organ; Heidi Roos, violinist; Millie DomVille, pianist.
WWI, Detroit, Mich. (Eastern, 352.7), 8 a. m., setting up exercises; 9:30, tonight's dinner; 12:05 p. m., Jules Kieln's Hotel Statler orchestra; 6, dinner concert; 8:30, Louis C. Rabaut, tenor; 10, Jean Goldkette's Victor Recording orchestra.

Friday, February 13

Friday, silent night for: CFCA, CHNC, CKAC, KFKU, KFKX, KGO, KJS, WCAL, WCBD, WEAO, WEBW, WFI, WGST, WHAZ, WIP, WMAK, WKAQ, WLBL, WLW, WOAI, WOI, WORD, WOS, WRC, WSAI, WTAM.

CFAC, Calgary, Cau. (Mountain, 430), 7-8 p. m., organ recital.

rectal.

CFCA, Toronto, Can. (Eastern, 350), 5:30-6 p. m., bedtime story.

CKAG, Montreal, Can. (Eastern, 425), 1:45 p. m., Windsor hotel luncheon concert; 4:30, Ilo lesson.

CKY, Winnipeg, Can. (Central, 450), 7:30 p. m., university lecture; 9, concert, Broadway Baptist church,
choir, Burton L. Kurth, director.

and the same

Stratford concert orchestra; 7, Sunny Jim, the kiddies' pal; 8:30, Victor concert.

WGN, Chicago, Ill. (Central, 370), 1:40 p. m., luncheon concert, Drake concert ensemble, Blackstone string quintet; 2:30, artist series, Lyon & Healy; 3, rocking chair time; 5:30, Skeezix time for the childron; 6, organ recital, Lyon & Healy; 6:30-7, dinnor concert, Drake concert ensemble, Blackstone string quintet; 8-9. Line o'Type night; 10-11, Don Bestor Drake dance orchestra; 'T' glee club.

WGR, Buffalo, N. Y. (Eastern, 319), 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Radio Dealers' musical program; 6-7:30, dinner music, Halipryd string orchestra; 8-11, musical programs jointly with WEAF including the Victor hour.

WGST, Atlanta, Ga. (Central, 270), 7-8 p. m., Charles Carter, bartione; Mrs. Charles Carter, soprano; 'The Introduction of Freshmen to Georgia Tcch,' Floyd Field.

WGY, Schenectady, N. Y. (Eastern, 330), 6:30 p. m., dilner music and Allegro, 'Yelledium and Allegro,' William Hardiman, violinist: 'Waltz,' "Scherezing, 'Record and his Rainbow Melody boys. (Mount Allison beddimo stories, Uncle Alf; 8:30, artists, Mount Allison beddimo stories, Uncle Alf; 8:30, art CNRA, Moncton, Can. (Atlantic, 313), 7:30 p. m., bedimo stories, Uncle Alf, 8:30, artists, Mount Allison Ladies' college; popular dance music, Joe Mazzieo and his Rainbow Melody boys.

CNRE, Edmonton, Can. (Mountain, 517), 7:30 p. m., children's bedtime story; 8:30, studio recital, pupilis, Mis. Surrey; Bernard Gee.

CNRT, Toronto, Can. (Eastern, 400), 6:30-8 p. m., Luigi Itomanelli and his King Edward hotel concert orchestra; 8:30-10, artists, Hambourg Consorvatory of Music, William Hardiman, violinist; Kathleen McIntosh, coloratura soprano; R. F. Gardner, flutist; Madame de Lozina, Pianist; overture to 'Dawn on the Kremilin,' ''Madame de Lezina; ''Vissi d'Arte,'' Kathleen McIntosh, soprano; ''Ave Maria,'' ''Prize Song,' William Hardiman, violinist; ''Waltz,'' ''Scherzino,'' R. F. Gardner, flutist; 'Rosebud,'' 'The Lass With the Dellcate Air,'' Kathleen McIntosh, soprano; ''Air on the G String,'' ''Preludium and Allegro,'' William Hardiman, violinist; ''La Cinquantaine,'' 'Serenade Badine,' R. F. Gardner, flutist; ''Lo Hear the Gentle Lark,'' Kathleen McIntosh, soprano; ''Prelude in G Sharp Minor,'' Madame de Lozina, pianist; 9, address; 10:30-12, Luigi Romanelli and his King Edward hotel dance orchestra.

KDKA, E. Pittsburgh, Pa. (Eastern, 309.1), 7 a. m., morning exercises; 12:20 p. m., Sunday school lesson, James C. Mace; 6:15, concert. Charlie Gaylord's orchestra 7:30, children's period; 8:30, concert.

KFAE, Pullman, Wash, (Paeife, 330), 7:30-9 p. m., Lusinn Barakian soprano; 'Por Frederiete C. Pultra-

concert.

KFAE. Pullman, Wash. (Pacific, 330), 7:30-9 p. m.,
Lusinn Barakian, soprano; Prof. Frederick C. Butterfield, planist; "Pied Piper of Hamlin," Dorothy G.
Jenkins; "When Silos Pay," Don G. Magruder; "Essentials of Successful Farm Management," Prof. George
Severance; health talk, U. S. Bureau of Health;
"Preparation for Travel in Europe," Prof. Carl M.
Brewster. Brewster. KFDM, Beaumont, Tex. (Central, 315.6), 8 p. m., band

Preparation for Travel in Europe," Prof. Carl M. Brewster.

(FDM, Beaumont, Tex. (Central, 315.6), 8 p. m., band concert.

(FDM, Beaumont, Tex. (Central, 315.6), 8 p. m., band concert.

(FI, Los Angeles, Calif. (Pacific, 467), 5-5:30 p. m., Evening Herald, table talk, news; 5:30-6, Examiner's musical half hour; 6:45-8, Acolian residence pipe organ recital, Dan McFarland, organist; 8-9, Evening Herald, Kennedy Broadcasters of Long Beach. C. Berrstrom, baritone; 9-10, Examiner, Carl Meyer and his orchestra; 10-11, vocal and instrumental program.

(FNF, Shenandoah, Iowa (Central, 266), 6:30 p. m., concert, New Market, Iowa, Rev. S. Dezeill, director.

(FOA, Seattle, Wash. (Pacific, 450.2), 4-5:15 p. m., concert, New Market, Iowa, Rev. S. Dezeil, director.

(FOA, Seattle, Wash. (Pacific, 450.2), 4-5:15 p. m., and soloist; 10:05-11, Olympic Hotel dance music.

(FOX, Seattle, Wash. (Pacific, 238), 7:15-8 p. m., Aunt Vivien's bedtime story; 3-9, Earl Gray and his orchestra.

(FFGX, Seattle, Wash. (Pacific, 238), 7:15-8 p. m., Aunt Vivien's bedtime story; 3-9, Earl Gray and his orchestra.

(FFGX, Seattle, Wash. (Pacific, 278), 10:30-11:30 a. m., sunshine hour for the sick; 3:30-4:30 p. m., organ recital, Roy Reid Brignall; 7:30-9:15, young people's evangelistic service with music by Silver band; 9:15-10, concert by Silver band of Angelus temple, G. N. Nichols, director; 10-11, organ recital, Roy Reid Brignall artists.

(GO, Oakland, Calif. (Pacific, 299,8), 11:30-1 p. m., luncheon concert, courtesy Pacific States Electric company; 4-5:30, concert orchestra, Hotel St. Francis, Vinton La Ferrera, conductor; 5:30-6, girls' half hour, Esther Wood Schneider.

(KGW, Portland, Ore. (Pacific, 492), 12:30 p. m., concert; 5, children's program; 8, lecture, Prof. Franklin E. Foltz; 10:30, Hotel Wash.

(FIX, Devision, June Program of news and music; 6-6:30, Art Hickman's Biltimore hotel concert orchestra, Edward Fitz-patrick, director; 6:30-7:30, 30, stories American history, Prof. Walter Sylvester Hertzog; Riebard Headrick, Vola

6:15-7:30. dinner hour music; 8-10. program, Broadway Department store; 10-11. amateur hour; 11-12. Abe Lyman's Cocoanut Grove orchestra from Ambassador hotel.

KOA, Denver, Colo. (Mountain, 322.4), 3 p. m., matinee for housewives; "Whims," "Prophet Birds," "Japanese Ettude," Margaret McKeon, pianist; "Radio, the Modern Curo-All," Rudyard Foote; "In Dream I Hear You Singing," "Pirate Dreams," "On the Nore," Maged Hickok, contraito; 6:40. Book of Knowledge; 8, studio program, Darrow Music company; "Rising Star," KOA orchestra: "O Carlo Ascolata," Lewis E. Shrewsbury, tenor; duct, "The Rosary," George Kerwin, bass, Frank Dinhaupt, tenor; "Columbia Polka," "The Palms," Howard L. Warder, cornetist; "Lift Un Thine Eyes," "To Mary," Llewellym Jones, tenor; "The Horn," George Kerwin, bass; "Sonata Nor," "The Horn," George Kerwin, bass; "Sonata Nor," "Robert H. Edwards, tenor; "Rocked in the Cradle of the Deep," Frederick W. Carringer, bass; "College Hornpipe," "Arkansas Traveler," Turkey in the Straw," "Old Zin Coon," "Mountain Musicians," Dr. Edward Clayton, violinist; "Mountain Musicians," Dr. Edward Clayton, violinist; "Chester Clayton, drummer; "Nina," "Kasmiri Song," Lewis E. Shrewsbury, tenor; Orville Wasley, accompanist; "It's Milrity Good World," C. K. Kettering; Lewis H. Chernoff, violinist; "Still Still With Thee," "Come Unto Me." Temple quartet; "Spanish Dance," KOA orchestra, the grand of the engineering faculty, the grand of the engineering faculty, Robert Research of the engineering faculty, Robert State College, N. M. (Central, 348,6), 7:30-8:30 p. m., popular sclence course, lesson No. 4, member of the engineering faculty, Robert State College, N. M. (Central, 348,6), 7:30-8:30 p. m., popular sclence course, lesson No. 4, member of the engineering faculty, Robert State College, N. M. (Central, 340,7), 9 a. m., and present sclence and successing 10-95, all round the hone; 10-10, questions and answers; 10-120, "Suggestions for Today's Meals," Amy Kelly; 12-30 p. m. Rudy Seiger's Fairmont hotel orchestra;

orchestra; 9:30, St. Louis university orchestra and glee club.

KTHS, Hot Springs National Park, Ark. (Central, 375), 8:30-9 p. m., concert, Phil Wall, plano wizard; 9-10, Meyer Davis' New Arlington hotel orchestra.

KYW, Chicago, III. (Central, 535.4), 6:30 a. m., morning exercises; 11:35, table talk, Mrs. Anna J. Peterson; 6:35-7 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 8, speechs, ausplees American Farm Bureau federation; 9-10, midnight revue; 11-2:30 a. m., midnight revue.

WAHG, Richmond Hill, N. Y. (Eastern, 316), 12-1 p. m., speedal program, Brooklyn Federation of churches; 8, Radio twins, Milly and Griffin, popular songs; 8:15, Norman Grayson, planist; 8:30, Michael Lamberti, concert cellist; 9, St. Valentine; 9:45, Pearl Cohen, soprano; 10, Norman Grayton, pianist; 10:15-11:30, Colonial Royal orchestra.

WBAP, Fert Worth, Tex. (Central, 472.9), 12:05-12:30, p. m., popular music, Montgomery Ward and company's "Trail Blazers;" 4, "Corn Planting and Production," Trail Blazers;" 4, "Corn Planting and Production," "Trail Blazers;" 4, "Corn Planting and Production," C. C. French, 7:308-330, dioner music, Time Planting and Production,"

Trail Blazers; 4, "Corn Planting and Production," C. C. French; 7:30-8:30, dinner music, Jim Rlley's Texas hotel orchestra; 9:30-10:45, Ralph's Red Hot Ramblers.

Ramblers.

WBAV, Columbus, Ohio (Eastern, 294), 8 p. m., concert, Dispatch Little symphony orchestra, John Clark,

cert, Dispatch Little symphony orchestra, John Clark, director.

WBCN, Chicago, III. (Central, 266), 6-6:30 p. m., juvenile period, Luella Drew Wilson; 7-9, Becker, Ryan company, popular program, Julius Fisher, one-string French fiddler; Will Rossiter, tenor; songwriter and publisher; Lee Darnell, banjoist; Roy Miller, tenor; Chicago trio, harmony group; Edna McGuffin, planist; Zender and Robison, harmony duo; Midway Daneing Gardens orchestra; Edith Stonehouse, soprano; Eddle Shepard, concertinist; 9-10, W. G. Tegtmeier & company classical concert, vocal and instrumental soloists; 10-10:30, Midway Dancing Gardens orchestra, with vocal soloists.

(Continued on page 28)

Broadcast Listener's Reference Library

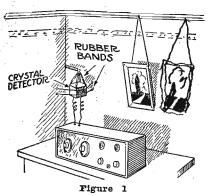
Part I—The Crystal Set with Various Circuits

By Edward Thomas Jones, A. I. R. E.

crystal set will give results, within a radius of twenty-five miles of a powerful broadcasting station which are excelled by no other type of receiver insofar as quality is concerned. A loud speaker cannot be operated directly from the crystal set; however, by adding a two stage amplifier (vacuum tube type) it is possible to operate a loud speaker

from nearby powerful transmitters.

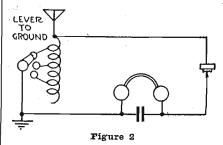
The most important part of a crystal set is the crystal detector. It is unwise to mount the crystal on the receiving set, it should be mounted on a separate stand so that it will not be jarred out of "ad-



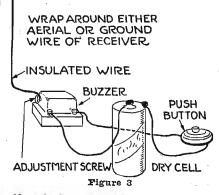
justment" every time it becomes necessary to change the tuner position. This is especially true of the cat-whisker type of detector.

Protection of the Crystal

Too much stress cannot be placed on the proper protection of the crystal detector. You must remember that it is not possible (except under very favorable conditions) to receive from great distances with crystal receivers, and what little energy is picked up and made available to operate the head phones must be taken



one sneezes or every time a trolley car passes. This is not far-fetched, but simply covers the situation frankly and makes known facts that every crystal set owner should know. It is the answer to those who have not met with much success with crystal detector sets.



Next in importance is the selecting of a good crystal. Of course you cannot look at a crystal and tell whether it is a good to operate the head phones must be taken a good crystal. Of course you cannot look at a crystal and tell whether it is a good If the detector is not adjusted to its proper state of sensitiveness, the chances are that you will sit and sweat your collar and listen in before passing judgment.

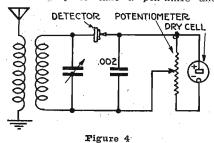
off without hearing a single sound. Therefore, make the proper installation of the detector where it will be safe—and cannot be jarred out of position every time some the heart transfer of the detector.

Crystals do not cost very much and it tion which will permit the adjusting of the detector.

Purchase from any electrical house a small "watch case" high frequency buzzer, the headphones.

How to Keep Crystal Clean Keep the surface of the crystal clean, especially if the detector is not of the especially if the detector is not of the enclosed type. This can be done by making use of an old toothbrush and some gasoline. Simply brush the surface of the crystal with the brush after it has been dipped in gasoline. Do not use soap. When a crystal has been in use for some time it becomes a hard matter to find a very sensitive spot. If, after cleaning the crystal as outlined the crystal as

ing the crystal as outlined, the crystal's sensitiveness is not increased, then it will be necessary to take a pen-knife and



scrape the surface of the crystal. perimenter at one time suggested that the mineral be ground down by properly applying it to the face of a carborundum stone. To the writer's knowledge, quite a number of experimenters have been successful in restoring crystals in this way

cessful in restoring crystals in this way. Always be sure to connect the ground post to the tuner lever or swich. If this is not done, and you bring your hand to rest on the metal parts of the switch while tuning, you ground the signals through your body and decreased signal strength results. This is shown in figure 2. Since it is not possible to pick up signals without the detector in adjustment, then the only way to operate a crystal then the only way to operate a crystal receiver is to provide a local sending sta-

300,000

Tungars

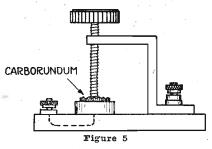
already

in use /

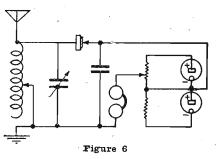
The new Tungar charges both radio A and B bat-teries, and auto batteries,

too. Two ampere size (East of the Rockies) \$18

The Tungar is also available in five ampere size (East of the Rockies) \$28



two dry cells, a small push button and sufficient wire to make the connections. Proper connections are shown in figure 3. Note that an extra wire is run from the contact post of the buzzer to either the aerial or ground connection of the receiver. Whenever you press the button the buzzer sends out migute electrical the buzzer sends out minute electrical waves. If the detector is adjusted, you



will hear a high pitched buzz in the head phones. By readjusting the detector you may find a "spot" where the "buzz" will come in louder—the crystal is then adjusted and you may then divert your attention to the tuning in of the broadcast (Continued on page 26)

Why it is Better Oversize locking nuts, slotted for screw driver, eliminating use of pliers to tighten Mederal Large laminated silicon steel, shell type core. In general the larger the core the better the transformer — Federal No. 65 weighs exactly 1½ pounds — guarantéeing a tonal quality and modulation pre-eminent among transformers. pletely surrounding windings leavy nickel plated brass mounting feet—2 screw slots and 2 screw holes for mounting.

M ASTER of Every Note in the Orchestral Range" is the proven claim of the Federal No. 65 Audio Frequency Transformer! Volume without distortion is the basis for the beauty of Federal Tone.

From its oversize locking nuts to its

same engineering skill that has made Federal the recognized leader in electrical communication apparatus since

Insist upon Federal parts for your "pet" hook-up. There are over 130 No. 65 Transformer incorporates the iron-clad performance guarantee.

FEDERAL TELEPHONE AND TELEGRAPH CO.

Buffalo, N. Y. Boston Philadelphia Pittsburgh

Chicago San Francisco Bridgeburg Canada



B batteries, with no change except slipping the wire from one terminal to another. It charges 2, 4 or 6 volt A batteries-24 to 96 volt B batteries—and auto batteries, too.

It is simpler than ever to use. Just two clips and a plug. No need to disconnect your battery from your set, or make any change in the wiring. The Tungar charges overnight while ou sleep. And it makes no disturbing noise.

It is more compact than ever. It has a new bulb, unchanged in principle, but more convenient in size and use. G-E research has made a good product better!

Keep your batteries charged with a Tungar -and get the most out of radio.

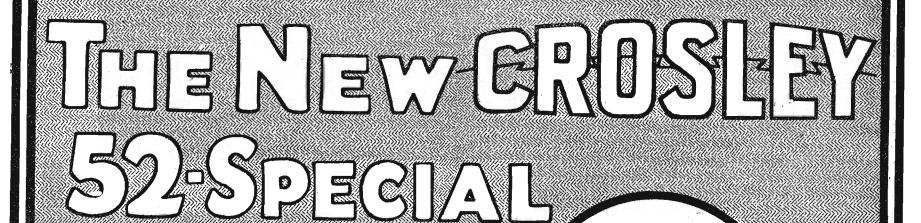


Tungar-a registered trademark-is found only on the genuine. Look for it on the name plate. Merchandise Department General Electric Company, Bridgeport, Conn.



THIS Little Giant of Radio, the Crosley one tube 50, has everywhere astounded people with the distant stations that it brings in, on ear phones of course. All parts of the United States report European stations were heard with it during international test week. It is the radio with which Leonard Weeks of Minot, N. D., kept in constant touch with the MacMillan expedition at the North

Pole. All other makes of receivers failed. For true radio value, it is excelled only by the other larger Crosley Radios. Stations may be easily logged and always located at the same place. For the beginner in radio, the Crosley 50 is ideal. For sale by good dealers everywhere. All Crosley Radios are licensed under Armstrong Regenerative U. S. Patent 1,113,149. Write for Catalog.





THE tremendous demand for the Crosley three tube 52 has encouraged us to offer this circuit in a new, attractive cabinet with sloping panel, the Crosley 52 Special. This cabinet is large enough to hold all dry cell batteries. It thus becomes self contained, a beautiful piece of furniture which can take its place in the living rooms of the most discriminating. The sloping panel makes operation easier and greatly adds to the appearance of the set. Of course,

Sloping Panel

the popular Crosley 52 will be continued. It has given uniformly satisfactory loud speaker service in all parts of the country. Continual coast to coast reception and even foreign stations on the loud speaker have been frequently reported. You can purchase a Crosley 52 or 52 Special from most any good dealer. All Crosley Radios are licensed under the Armstrong Regenerative U. S. Patent 1,113,149. Write for catalog.



Of Course the Famous Crosley 51 Regular at \$185° Will be Continued

HERE is the popular Crosley 51 dressed up in new clothes. It is known as the Crosley 51-Special. This two tube, genuine Armstrong regenerative receiver is exactly the same as the nationally known Crosley 51, except it is installed in a larger cabinet in which there is room for dry cell batteries. Also there is the slanting panel, a feature that adds

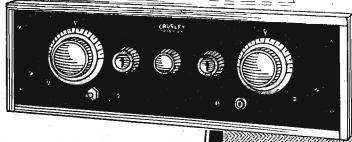
September 1

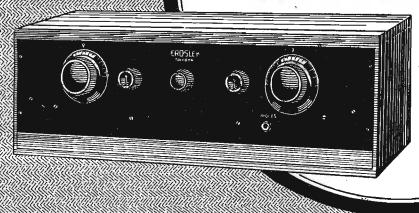
to the appearance of the set and makes operation more comfortable. This radio is as artistic as it is efficient, appealing to the housewife who demands beautiful appearance and elimination of visible batteries. All Crosley radios are manufactured under Armstrong Regenerative U. S. Patent No. 1,113,149. Write for Catalog.

ERUSIET TRIROTAS









Three Tubes
Do the work of
Five or Six
in the
Trirdyn

THE recognized outstanding achievement in radio is the Crosley Trirdyn. An overburdening amount of evidence proves that it is excelled by none and superior to most receivers costing many times more. It is a three tube radio combining one stage of tuned radio frequency, regenerative detector and reflex amplification. This combination enables three tubes to do the work of five or six. Brings in every large station in the country on the loud speaker. Is very selective, easy to tune and economical to operate.

The straight front Trirdyn Regular, formerly \$65; now \$50. The Trirdyn Special in large cabinet to house dry cell batteries formerly \$75; now \$60.

To these have been added the new Trirdyn Regular with sloping panel at \$55 and the new Trirdyn Special in beautiful cabinet with sloping panel \$65. All Crosley Radios are licensed under Armstrong Regenerative U. S. Patent 1,113,149. Demand a Crosley Trirdyn at any Good Dealer.

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

Eastern Office, Park Lexington Building, 247 Park Ave. New York. Telephone Bryant 4909, 10462.

Member of the Audit Bureau of Circulations

241 PUBLISHED WEEKLY

SUBSCRIPTION RATES Yearly in U. S. and Possessions and Canada, \$5.00 Foreign postage, \$1.00 additional Single copies, 10 cent

Vol. XII Chicago, Saturday, February 7, 1925 No. 5

What Is it All About?

Do Radio Waves Have Weight and Substance?

WO YEARS ago we all laughed at Einstein; now he is generally accepted as a leader of scientific ought. Just as he proves the theory that light has weight by measuring the deflection of star light, so we may prove that Radio waves have substance or weight by measuring the variation of energy when they travel east or west. Apparently, the increased momentum or tangential force of the earth revolving toward the east strengthens and improves those signals going

The greatest of scientists seem lost in the conflict of ideas; Herz, Fleming, Lodge and Edison have made suggestions, but their theories have all now been thrown down and everyone is at sea.

We might just as well use the hypothesis that Radio

messages or impulses are transmitted between points as an express train delivers packages to their destination. How is it done? The wave hypothesis has fallen down. The carrier is proven to have mass. If it is affected by gravity and has weight then it must also have shape and form. That form is something of which so far our senses cannot covering. It is like of which so far our senses cannot conceive. It is like the vague fourth dimension of mathematics. Only

those of concentrated development of mathematical knowledge can get the drift of the idea.

Just as we are trying to bring mental telepathy to an understanding so we must do likewise with Radio. There has never been in the world's history a more opportune time for a scientist to become crowned as now, with the solution of the phenomena of Radio.

The heaviside theory has proven faulty. The day absorption of short waves is greater than the night and now, contrary to all theory and practice of twentyfive years' development, we discover that signals from Bordeaux are stronger on eighteen thousand meters than on twenty-three thousand. After these years of long waves we are turning to the short waves and reflection and refraction principles. The problems of static is still unsolved and the peculiarities of so-called fading of signals cannot be satisfactorily ex-plained. The aurora borealis and other magnetic and electrical demonstrations improve Radio reception but disrupt the cables. From this you might say Radio laws should not be at all like laws of electricity and magnetism. Just as an electric motor may drive a water wheel or other dissimilar device, so our present day Radio transmitters and receivers built on electrical principles, are controlling the Radio phenomena.

Let us get some fresh minds on the subject-the old ones have gone stale and admit defeat of all their theories.

Cures Nerves

New Found Remedy Abroad for Nervousness

IF THE English recognize in Radio an aid in the treatment of nervous cases and insomnia what would they think of conditions in America where jazz is mostly the product of programs. Foreign doctors declare that Radio programs are important to nerve patients, not only in their direct effects but as antidotes for the unpleasant everyday street noises. English Radio must be different from ours. Static, jazz, crossed waves and local interference that have come to be almost the regular thing are enough to send some folks to the asylum with hopeless nerves. If not insomnia-isn't it Radio that keeps American folks awake nights?

Foreign Licenses System of Taxing the Use of Sets

THE postmaster general, who has control of Radio in England, finds that he has 2,000,000 slackers who have sets but pay no revenue. While an intended drive may bring in half of the slackers the large amount HE postmaster general, who has control of Radio that will escape payment makes the system a bad proposition. It is expected that the money brought in on delinquents will aid the broadcasting company to accomplish greater things.

The British trouble would be ours if we would adopt their plan for the payment of broadcasting.

RADIO INDI-GEST

Jim's Letter to Frank

Dear Indi:--I gave my brother Jim a regenerative set

Dear Indi:—I gave my brother Jim a regenerative set with a loud speaker. Like all farmers, he didn't take to it at first, but he gradually got the fever. He had a few months of good reception and then trouble came. Here is his letter to me. "FRANK."

Deer Frank:—"This is Sunday morning and I have just got in, with 2 rabbits for dinner, and the snow out of my shoes, and a fresh chew of tobacco, and a good fire with plenty of wood, and nothing to do; so I thought I might have time to write and tell you about the Radio. about the Radio.

about the Radio.

"The first thing I done for her was to buy twenty-eight dollars worth of medicine. The first dose was a new 'A' battery but she got no better. Then I got her 2 new tubes, and no better yet. Then I got her 3 new 'B' batteries and gave hem to her and she ate them all three up in three days.

"Then I hung the old ones back on her and doctored her for a few days until she got them 3 batteries digested and she got so she could whisper some. I kept on doctoring and tried all the remedies I could think of and now she is beginning to talk pretty plain.

kept on doctoring and tried all the remedies I could think of and now she is beginning to talk pretty plain. "The lights are all good and bright and her digestive organs seems lots better but she is pretty hoarse yet. I think I will operate on her again tomorrow. She will talk good and strong for a while and then she commences getting weak until she fades away and then comes back again as strong as before. I think that is caused by pains from eating the batteries, and she has got another trouble that I havn't found yet. "Well Frank I guess you can beat me hearing music from China and Japan but I can hear the alligators on the coast of Florida a croaking, and the bears in the rockies growling, and the monkies in Africa squealing, all with one tunein and it is loud enuff so, I can tell just what it is. Of course there is several other kind of animals that I can't just tell what they are but they sure have got loud voices." "JIM."

"Since Radio Came In" By E. Claire

Oh where's the dear old huskin bee On where's the dear old huskin bee
We had in days of yore,
And the darkies used to playin'
And a singin' 'round the door?
We used to hear them laughing,
Now we only see them grin;
Where once was mirth, it's hushed and still,
"Since Radio came in."

Where's the hay-rides and the Sunday picnics for the school, And where's the dear old crank That used to teach the Golden Rule, And where's the taffy pullin' And the yarn we used to spin? All seem to be forgotten now "Since Radio came in."

The young folks used to go to church On every Sunday night;
They used to give old folks the lurch,
To walk in pale moonlight;
But now they sit at home and spoon,
We used to think that sin;
And they get their sermon with their meals,
"Since Radio came in."

The baseball and the good old games We used to pay to see, And a great many other things, They've gone for charity; And those that used to have in store, Their light wines, beer and gin, Now have to drink the "ether waves" "Since Radio came in."

Pacific Oats Station—AGO

Dear Indi:-My set is made of two vacuum tubes They work great, amplicating the vacuum something wonnerful. Most nights I can't hear nothing else. I got a unsuspected shock las' night, however, me readin' got a unsuspected shock las' night, however, me readin' the programs as usual (which is mostly how I hear the concerts). All on a suddint my set perked up with a horse growl sayin', "Pacific Oats Station AGO—Henry Hothead's Orchestra," and the tubes got in their work again, makin' a perfect vacuum. I don't see this Pacific Oats stations in your program at all which will you please tell me why. Yours simply,

A. PUNK SETT.

Harry M. Snodgrass

Dear Harry, how we miss you
Since you have gone away;
And so do many millions
Who loved to hear you play.
But the memory of your music
Will always with us dwell;
Where ere you go what ere you Where ere you go, what ere you do We shall always wish you well.

And many a wintry evening,
When the earth was wrapped in snow,
We heard J. M. Witten calling
Upon the Radio.
And every Monday evening

"Home, Home Sweet Home" By Harry, will be next. on the Baldwin

E. T. BRYANT.

Walla Walla Expedition Rebels!

At the last minute, when the expedition was about to leave, mutiny broke out in the fo'c'sle. The cook claims that he was approached by a stranger and offered \$25 per week to stay away from the expedition. When the sailors heard of this, they rebelled, and demanded ple twice a week. According to the latest information brought ashore in the long boat, Capt. Oneoar was busily trying to recruit a new crew. We will leave next week, sure!

INDI HISSELF.

Someone's Sittin' Pretty



Condensed

By DIELECTRIC

WHB provided a feature not so long ago that introduced an innovation in terpsichorean art—that is, it must have attracted the attention of jazz fans. When the Old Time Dance orchestra came on the air at the the Sweeney school the unorthodox were impressed with its title. Personally, the most pleasing element was the absence of "silent periods."

There are not so many organ recitals coming through the ether as at one time, whether this be the wish of listeners in, or not, I should like to be able to say, but can't. An excellent organ recital was given by WNAC which merited applause cards. Did you send one?

In listening to the United States Navy band orchestra it seemed to me there had been improvement since early in the fall. As I listened to the concert, and particularly to Miss Hood's singing of "Because," the impression prevailed that WCAP was putting out pleasing programs. They are fortunate to Radiocast this and the Marine band concerts.

WNYC was less fortunate than some other stations winte was less fortunate than some other stations in its Radiocasting of the running of that marvel, Nurmi. Nevertheless, you could almost vision his peculiar style of covering the track and the yells of thousands of spectators as he flashed ahead of his nearest competitor for track honors. The transmission was inclined to be foggy.

Among the hotel orchestras providing music for their dining patrons, and we diners who are not patrons, mention should be made of the William Penn aggregation, whose playing is heard through WCAE.

One of the last piano selections heard from WOS during the stay of Harry Snodgrass in Jefferson City was his own conception of the way "Three o'Clock in the Morning" should be played. It was quite original, if the subject lacked peculiar distinction. Harry will be missed from the programs of this station, along with Anguncer Witten. along with Announcer Witten.

There are few sports so speedy in action and exciting to witness as basketball. No doubt this one game taxes the ability of a Radio observer as does no other, yet there can be only praise for the description given us of the Pittsburgh-Boston game. The cheers of the onlookers add to such events, not detract from them.

Most of us don't find the diversion in listening to the ceremonies attendant upon a wedding as when the Radio first carried such a feature. WLW had everything to make this occasion as nearly actual to the listening observer as could be wished for, yet it didn't stir us from our lethargy. Maybe we are getting unromantic.

It is too bad that such special concerts as those arranged by the Brunswick Phonograph company should not have the facilities of the best Radiocast stations. It is better to tune them in from some stations other than WJZ. So far these concerts have presented uniformly pleasing artists. May they continue for some time to come.

How to Make the Two Tube Knox Reflex

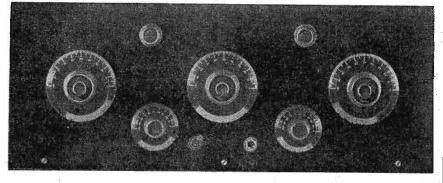
Part I-Analysis of Circuit and Winding of Spider Webs

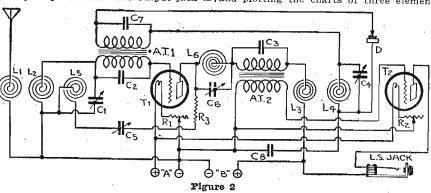
By W. H. H. Knox

THE writer has always been a staunch supporter of the crystal as a detector and, as the reflex circuit presents the best opportunities for utilizing this form of detector, it was naturally selected some two years ago when searching for a hook-up with which to experiment. The reflex has been faithfully added. ment. The reflex has been faithfully adhered to during this time and, in developing the circuit to be submitted, a great deal of pleasure has been derived; also a greater amount of knowledge regarding Radio and high frequency current than it was thought possible to absorb mentally in connection with any branch of science

Analyzing the Circuit

The analysis of this circuit is about as follows (see figure 2). Signals enter the circuit through the coil L1, which is an untuned primary in the antenna circuit. Because of inductive coupling, signals are passed into coil L2, which is tuned by condenser C1 and which, with this condenser, will cover the broadcasting range. At first glance it might be presumed that coil L5 introduced straight tickler regeneration, but this is not the case as coil L5 is connected to produce reverse feedback as in the superdyne. L5 is connected to the plate circuit of the first tube through a small condenser of is connected to the plate circuit of the first tube through a small condenser of .000045 or .00005 mfd. capacity and through the resistance R3, which is 24 ohms. Such a resistance is on the market in the form of a wire wound fiber strip intended to be used with a 6-ohm rheostat for control of dry cell tubes with 30 ohms. Signals pass from the plate of tube T1 through coil L6 tuned by the condenser C6 and through the primary of audio frequency transformer AT2 into coil L3, which is the primary of a Radio frequency transformer. L6 and C6 constitute the tuned impedance of the plate circuit and bring the plate circuit into exact resonance with the grid circuit composed of L2 and C1. The howl which would ordinarily result is prevented by composed of L2 and C1. The howl which would ordinarily result is prevented by the reverse feedback of coil L5 and condenser C5. The spider web L4 is inductively coupled to L3 and is tuned by variable condenser C4 with which it covers the broadcasting range. Signals then pass into the crystal detector D and the primary of audio frequency transformer AT1. They are now at audio frequencies and are passed into the grid circuit of tube T1 through the electro-magnetic coupling between the primary and secondary of audio





connected in this plate circuit. We thus have a successful application of the superdyne principle to a reflex receiver with consequent gain in both selectivity and range, but retaining the economy of tubes and tone quality of the reflex.

The "Goode" Two-o-One Le Ton d'argent Postpaid QUARTER AMPERE

GUARANTEED SATISFACTORY

All "GOODE" Tubes Sold Direct to the Consumer-No Dealer Profits

'Goode Detector-Amplifier.....\$2.39 THREE—"Goode" Detector-Amplifiers... (All postage prepaid)

The "Goods" Two-o-One A Tube amplifies or detects. It is a quarter ampere, five volts, standard base slivered tube. Send express or postal money order or New York draft to—

The Goode Tube Corporation Incorporated (Dept. A) Owensboro Kentucky

CARDWELL

first "low-loss" condensers

CARDWELL Condensers were the first condensers made with metal end-plates and grounded rotors. The phrase "low loss" was originally applied only to Cardwells, because engineers wished to distinguish them from ordinary varieties.

Cardwell Condensers today, as in the past, are the standard of com-parison. They have proved their superiority because of such a correct design that they have never been excelled electrically or mechanically by any commercial type. The

correctness of the Card-well design assures the utmost distance, smooth tuning free from noise, and prevents changes in capacity at given settings. Its ruggedness and general serviceability explain why a Cardwell Condenser requires no attention once installed in a receiver.

The Cardwell Condenser has proved so efficient that it has compelled the manufacture of more and more efficient apparatus of all kinds in order to keep the receiving sets uniform in their low-loss characteristics. This is a truly revolu-tionizing achievement not to be lost

Build your receiver around Cardwell Condensers. There's a Cardwell for every requirement—76 different

Ask your dealer to-

day for the complete Cardwell circular and look over the Cardwell Condenser types for the one you want.

Sold by all reliable dealers.

CARDWELL CONDENSERS

য

Instability of the set.

Attention was next directed to the prob-Attention was next directed to the prop-lem of magnetic coupling and, much to the writer's disgust, it was suddenly noticed that while coils L1 and L2 (figure 2) and L3 and L4 were about 5 inches apart, they were placed parallel to each other. The writer has never been able apart, they were placed parallel to each other. The writer has never been able to figure out how they got that way, but the fact remains that they were in this position, and after turning them both to about a 57-degree angle a decided improvement was noticed. Every three element tube is subject to a malady of capacity coupling, or the interaction of the grid and plate circuits. There are several remedies for this, all effective to a certain degree, such as the Hazeltine method of neutralization, conductive reverse feedback, and inductive reverse feedback. The first two were tried but there were certain features about their action that seemed unsatisfactory, so the inductive reverse feedback was tried and it was found that the tubes were under perfect control at all times. At this stage of the work it was felt that the experiments had gotten along pretty well, so the next step was to tackle regeneration once more. There was no whistle when tuning, but, (Continued on page 26) (Continued on page 26) ULTRUDARE MURDOCK MICHIGAN Plotograf **OZARKA** THERMIODYNE Pfanstiehl Builders! DERESNADYNE "Radio" and other leading publica-ons recommend in ghest terms the MALONE LEMON AUDIOLA GATES GLOBB HARMONY ODELL FERRY PEERLESS MASTER RADIO MUSIO MANY OTHERS

lthy don't you?

What better advice on transformers could you ask than the opinions of the leading fine set builders? The majority use Thordarsons—proof positive they're best! Unconditionally guaranteed by world's oldest and largest exclusive transformer makers—transformerspecialists since 1895. Follow the lead of the leaders—build or replace with Thordarsons. Recommended by best dealers. Audio frequency:2-1, \$5; 3%-1, \$4; 6-1, \$4.50. Power Amplifying, pair, \$13. Interstage Power Amplifying Transformer, \$8. Write for the latest Thordarson hose-up builetins.

THORDARSON ELECTRIC MFG. CO. CHICAGO.

to the oscillating point. Therefore, if regeneration could be retarded, thereby preventing an oscillating condition of the tube until the peak of amplification was reached, enormous amplification would most certainly result.

The writer decided, first of all, to attack the problem of inductive resonance. This really means that the inductance of the plate circuit is equal to the inductance of

really means that the inductance of the plate circuit is equal to the inductance of the grid circuit, a condition that will surely result in violent oscillation. The logical way of preventing this was, of course, to make this inductance as unequal as was practical and coils of different ratios were tried until it was finally decided that this was not the cause of the instability of the set.

while the writer now had a howl-less set, it was far from an efficient one. The local stations came in loud on the A tubes and the tone was excellent, but the DX reception was far from satisfactory and

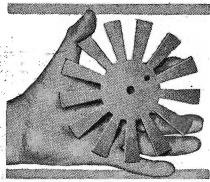


Figure 3

it was felt that there was some way of improving this. About this time an ar-ticle came out which stated that some of the most popular reflex circuits were prevented from oscillating by using a small number of turns in the primaries of the Radio frequency transformers, but that in doing so the impedance of the that in doing so the impedance of the plate circuit was reduced to such an extent that the plate voltage variations were very small, which reduced the efficiency of the set. This seemed perfectly reasonable and although it was known that by raising the impedance the tendency toward self oscillation would be increased, it was felt that regeneration was now under felt that regeneration was now under

felt that regeneration was now under strict control.

The writer decided to try a 50-turn honeycomb coil in the plate circuit of the first tube; this raised the impedance all right, but it also started the howling and whistling again. However, we were on the right track, so it was decided to vary the action of this coil by shunting a variable condenser across it, and discovered that the regeneration was at last under perfect control with tuned impedance.

The set still retained its excellent tone quality, but was now also an excellent distance set. Los Angeles is one of the most difficult cities in which to receive

distance set. Los Angeles is one of the most difficult cities in which to receive DX stations as there are many strong locals, and other conditions which seem to prevent getting out of town, yet the receiver now went through the locals and put stations 500 to 800 miles away on the loud speaker with good volume.

Constructing Spiderwebs

As can be seen from figure 2, there are six spiderweb coils used in this receiver and, as these are the only parts which must be made at home, we will take up their construction first. There are two their construction first. There are two methods of winding and using these coils. The easier method is that shown in figures 3 and 4 in which a thin fiber form is used with a solid center about 2½ inches in diameter, while the outside diameter is 5 inches. The wire is wound on this form in the manner shown and to the required number of turns, and when the coil is finished the form is left inside the coil and used for mounting. The secondmethod which was used by the writer is



Circular on Request. Dealers and Jobbers Write

Globe Radio Equipment Co. N. Y. C. <u>≡</u> 217 West 125th St.



TUBE KNOX REFLEX that of first making a wooden hub 24 inches in diameter and 1 inch thick, after which 15 holes are drilled in the circumference of this hub at equal distances apart. These holes are to be ¼ inch in diameter and ¼ inch dowel rods 2¼ inches long are fitted into the holes. These should be a snug enough fit that they will stay in while the winding is in progress, but not so tight that they cannot be read-ily removed when the winding is finished. When the required number of turns have

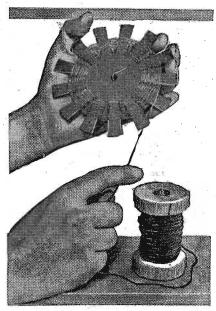


Figure 4

been put on this wooden form they may be either coated with cement or held firmly in place with heavy waxed thread interlaced in the windings.

The third possible method is to wind the coils as shown in figures 3 and 4 and the cons as snown in figures 3 and 4 and then go around the center disc with a fine hack saw, cutting off all of the spokes except one which is used for mounting. The turns are, of course, secured with thread or Radio cement before cutting out

Coil L2 may be wound first of all with turns, on either of the forms above escribed. When winding coils L1 and described. L5 string should be wound on first to a depth of about % inch after which 17 depth of about % inch after which 1't turns of wire are put on one form which makes coil L1, and 17 turns are put on another form to make L5. Colls L3 and L4 are wound each on their own form without string, L3 to contain 27 turns and L4 to contain 51 turns. Coil 6 is wound an another form and contain 221/4 turns. on another form and contains 331/2 turns.

Send NO Money Hear What YOU Like

We print special postal "Thank You" cards that a ATTENTION. See the name CHESTER A. WHEDELER Illustration. That is where YOUR OWN name will tYour INDIVIDUAL cards show more than crdinary intest and stations appreciate them and consider your reque



Thank YOUR Favorite Stations

Speakers and musicians deserve and appreciate applause for radio programs just the same as from the stage. Their entertailment makes your radio possible. Encourage them. Help bring the best taient to radio. Send YOUR "Thank You" card of appreciation. Let the children write Uncle Bob. It makes them happy. They cost so little. A joy to use. Save Stutionery, Telegram and P. stage Cards have post eard backs and require only Ic stamp. So convenient. A. pleasure to use. ALI THE RAGE. B. up-to-date. Get this additional pleasure from your radio.

LOGRECORD for YOUR Stations WITH FIRST ORDER-Places for wijh first under-riaces for stations, cities, dial settings, re-marks, etc. List alphabetical by wave length of 500 watt or over stations. Beautiful rippled cover.

No Charge for Printing Your Name and Address

Good quality cards. High grade printing. New attractive special radio design. The kind that gets results. 100 cnly \$1.53; 200-\$1.59; 300-\$2.45; 500-\$3.45; 1000-\$5.45 (about ½c each). Prepaid if you prefer to pay with order. Don't send one cent. Just pay postman after cards arrive. We GUARANTEE Satisfaction. Order Now. Money Returned If Not DELIGHTED Send order today—NOW. A postcard will do. Radio Printers, Dept. 4412. Mendota, Ill.

LIST OF PARTS

LIST OF TAKES	- 1
3 Variable condensers, .0005 mfd.	
vernier\$1	16.50
1 Variable condenser, .000045	.
mfd. midget	1.50
1 Crystal detector, panel mount	1.75
2 Sockets	2.00
2 Rheostats, 20-30 ohm	2.00
6 Spider web forms, 5"	3.00
1 ½ lb. spool No. 26 scc. wire	1.40
1 1/4 lb. spool No. 30 scc. wire	.85
2 Audio frequency transformers	8.50
1 7" x 18" panel	3.15
1 7" x 17" base-panel	2.95
1 Filament switch	1.00
1 Open circuit jack	.80
6 Binding posts	.60
1 Pixed mica cond., .001 mfd	.40
1 Fixed mica cond., .006 mfd	.75
1 Fixed mica cond., .0005 mfd	.35
1 Fixed mica cond., 0001 mfd	.35
1 Cabinet 7" x 18" x 7"	9:00
1 Resistance unit, 24 ohm	.75
Miscellaneous bus bar screws,	
etc	2.00
\$5	59.60

All coils, with the exception of L5, may be wound with number 24, 26 or 28 single cotton covered wire, or double silk if preferred, but coil L5 should be wound with wire not larger than number 30 and either number 30, 32 or 34 may be used. There should now be six spider web coils each on its own form and ready for mounting.

(Next week Mr. Knox gives the panel drilling layout and baseboard layout with detailed instructions on connecting the coils.—Editor's Note.)

Boosting Weak Signals

Weak signals from distant stations re ceived on a set using a loop antenna as the intercepting medium can be greatly the intercepting medium can be greatly intensified and strengthened by grounding the negative side of the A or filament battery. The increase will be particularly noticeable on sets employing only two stages of Radio frequency amplification because the infinitesimal amount of energy picked up by the loop cannot be suffi-ciently amplified.

Distant stations that can barely be de-

tected can often be raised to good audi-bility by grounding the receiver through the negative side of the A battery. While having the aforementioned advantage it also has the drawback of raising the static and noise level along with the weak and noise level along with the weak signals and in many cases of broadening the tuning.

Thoria Tubes

Maximum Results Real Economy Genuine Satisfaction

\$2.40



Type 201-A.
Quarter Ampere—Standard Base

Increased Range, Undistorted Volume, and Long Life are the properties you desire. All are built into THORIA TUBES, by the careful selection of raw material, use of modern equipment and scientific methods of manufacture. All Thoria Tubes are individually tested

ECONOMY in manufacture and DIRECT DISTRIBUTION SAVE YOU

40%

THORIA TUBES are unexcelled—only the price is low Satisfaction is Guaranteed or Money Refunded

PRICE \$2.40

Immediate shipment Parcel Post Prepaid on re-ceipt of Postal or Express Money Order. Parcel Post C. O. D. on request.

THORIA TUBE COMPANY 1701 Grand Ave. Middletown, Ohio

REFERENCE LIBRARY

(Continued from page 19) station. Occasionally, "test" to see if the detector is properly adjusted (provided you are not listening to a station).

Battery Supply for Crystal Sets
Battery supply for crystal detectors was
used as far back as 1903—four years before I heard or saw a Radio station in operation. Battery supply will aid silicon detectors and several other types, but it is primarily intended for carborundum crystals. It is strange indeed that so few carborundum detectors are being used. It will hold its adjustment for days and is will hold its adjustment for days and is fairly sensitive. It is the kind of crys-tal detector that "saves your religion." Note the sturdy construction suggested in

figure 5.

A battery is connected in the circuit as shown in figure 4. A "dead" dry cell and a potentiometer (400 to 600 ohms) are the only additional parts required. The battery must be connected in the circuit as regards polarity in such a way that it aids reception. To the broadcast listener it is suggested: try the battery first in one position in the circuit and then reverse the connections. Then place it in the circuit in the position in which best results were obtained. The writer has never been successful in adding battery supply to galena crystals. Another carboborundum hook-up is shown in figure 6.

(Next week Mr. Jones goes into the factors which limit Radio reception and enable some fans to get both coasts while a neighbor has difficulty getting out 500 miles.—Editor's Note.)

TUNING BROADCASTERS

(Continued from page 9)

times it is found good to shunt (place in parallel) heavy capacity (0.5 to 2 mfd.) fixed condensers across the A and B battery leads to the receiver, especially where these leads are over one foot in length. This prevents energy, so picked up, from going on through the receiver.

After all is said and done, the increas-

ing number of stations, many of which are of the super power type, has placed the Radio section of the department of commerce where it is literally "up against it." It remains therefore for the manu-facturers and Radiophans to improve their sets to meet the demands placed upon

Radio-Madrid Spanish Radio company at present operating the big broadcasting stations in that country, has recently un-dergone a complete organization.





4-Tube Receiver NIGHTINGALE

...\$32.50 A wonderful little set.

4-Tube Cabinet Receiver.

BLUEBIRD Easy to tune—long distance—selective.

4-Tube Receiver.

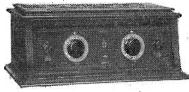
WARBLER ...

.....\$90.00 A very high grade receiver — very selective.

AMERICAN CREST.....\$150.00

This we believe to be the best 6-Tube

We Announce the 5 TUBE RECEIVER GOLDFINCH\$75.00



Bronze panel and Gold dials—Beautiful Mahogany Cabinet with space for B Batteries. This set looks and performs like a Million Dollars. We can

For further descriptions Write for New Catalogue Dealers and Jobbers—Our line is interesting and profitable.



Construction of the Six Tube Hetduogen

Some Questions and Their Answers

By C. E. Brush

have requested a little more information. Since some of these points and the answers will prove of interest to those who are building the hetduogen, they are being printed and will straighten out many diffi-

Q.—I am about to construct your het-duogen and want a filter, antenna coupler and oscillator constructed along low loss lines and also wish to use litz wire in these units. If you warrant the use of the above construction please give the details in Radio Digest.

H. E. S., Pittsburgh, Pa.

A.—We have your letter of January 5, and wish to edujon that there would be no

A.—we have your letter of January 6, and wish to advise that there would be no advantage in constructing the inductance units for hetduogen on low loss principals. Regeneration is introduced into the grid circuits of both detectors so that the effective of the construction of the const tive resistance of both circuits is nearly

reduced to zero.

The use of litz wire has been stated by leading authorities to be of no advantage below 2,000 meters and, in addition, if one of the little strands in a piece of litz becomes broken or is not connected by solder the result is far worse than if solid wire were used. wire were used.

Q.—In reference to the hetduogen set that you are publishing, if you are going to heterodyne to about 600 meters will you not get a large number of ship stations through the programs? Would it be possible to use a loop on this set?

D. L., Windsor, Canada.

D. L., Windsor, Canada. A.—We have your letter of January 5, and would advise that while we do not know the reason, we found that ship stations and other transmissions around 600 meters are not picked up on the hetduogen. The writer is going to try out this set on a loop, but has not as yet had an opportunity to do this.

Tubing Used

Q.—Concerning construction of the 6-tube hetduogen on page 15 of the January 3 issue—oscillator windings—advise if the tube should be 2% inches inside or outside dismeter?

R. L. B., Dalton, Ga. R. L. B., Dalton, Ga. A.—The hard rubber or bakelite tube for the oscillator coupler of the hetduogen should have an outside diameter of 2¾ inches; the antenna coupler tube should have an outside diameter of 3¾ inches. These are both standard sizes and the wall has a thickness of 1/16 inch. Q.—I have plenty of number 26 dcc. wire and wish to know if I can use it instead of the dsc. How will the volume and tone of the hetduogen compare with the super-

of the hetduogen compare with the super-dyne, that is, tube for tube and ordina-rily should I expect coast to coast reception from this city by using the hetduo-gen? Would I gain anything by winding coils basket weave fashion, and if so, should the same diameter and number of turns he used? T. L. M., Rome, Ga.

A.—Number 26 dcc. wire will be suitable for winding the coils, providing the proper space is left between the anchoring holes to accommodate it. We would hardly say that you will get reliable or daily ly say that you will get reliable or daily coast to coast reception, as we are not familiar with receiving conditions in Georgia, but if any other receiver will do this in your locality the hetduogen will. We doubt whether any gain would be noticed from the use of basket weave coils, as the resistance of the circuits is lowered to

Q.—I wrote your Q and A department some time ago and wish to thank you for the information received. I am now very much interested in hetduogen which is

much interested in hetduogen which is being described in your issues, and wish to ask the following questions. Is the center dial a volume control or is it used to tune in stations? Does the set radiate and bother other receiving sets? Does it whistle when tuning in to a station?

T. T. M., What Cheer, Iowa.

A.—The center dial on the hetduogen acts as a volume control since it is a control of regeneration in the first tube. This receiver will radiate if improperly handled, as will any other set, since this regeneration control can be brought up too far. If this control is advanced too far, tuning can be done on the whistle of the carrier wave. Correctly operated, the carrier wave. Correctly operated, however, tuning is done with this control considerably below the oscillation point and this control is then advanced for increased volume.

Hetduogen Best Yet

Radio Digest: I am listening to KFI, with WCAP going full blast, no interference. Had KFI, KGO, and KOA last Monday night—loud speaker on hetduogen with five tubes, one transformer and one

with five tubes, one transformer and one stage resistance coupled. Am well pleased, but will you please tell me what transformers Mr. Brush uses? Only put up a test set but am starting to rebuild now. I would also like to know what he used that second variable leak for? Won't you please give me the information I ask by return mail. I will buy the Radio Digest just the same as I have a copy reserved each week. The programs alone are well worth the price. I am a locomotive engineer, and have built nearly everything I have found in Radio for last two years, during my spare time. Hetduogen gives promise of being the best yet, or at least the equal of a seven tube super-het. E. R. Riker, 525 North Irving avenue, Scranton, Pa.

best yet, or at least the equal of a seven tube super-het. E. R. Riker, 535 North Irving avenue, Scranton, Pa. Q.—Please answer the following questions in regard to the hetduogen. Does tube W use a separate rheostat, and if so, what size rheostat do I need for tubes V, U, and X? If tube W does not use a separate rheostat what size rheostat do I need for tubes V, U, W, and X? I want to use jacks between tubes X, Y, and Z; do I need separate rheostats if I use jacks between these tubes? I have three unshielded audio transformers, and wish to know if they will work all right in this

unshielded audio transformers, and wish to know if they will work all right in this set?

M. J. G., Howard Lake, Minn.
A.—We have your letter of January 2. In hetduogen as built by the writer, tubes U and W are on one rheostat, while tubes V, X, Y, and Z are on another. It would be advisable to have a separate rheostat on tubes X, Y, and Z if you are going to put jacks between them. As built by the writer, there is a jack in the plate circuit of tube Y, and the jack in the plate circuit of tube Y, and the jack in the plate circuit of tube Z is of the filament control type. Unshielded transformers might work in this set, but if you are going to use them we would advise the installation of but two stages of audio amplification. The use of three stages requires carefully shielded and unusually well designed transformers.

Resistance Coupling

Digest. I am anxious to know if I can use resistance coupled amplification, as I have three stages of this type; or must this se have the transformer style of coupling?

J. J. S., Boise, Idaho.

A.—We wish to advise that resistance coupled amplification can be used in the hetduogen and will probably give equal, if not better, results than the transformer coupled amplification shown. The three stages of resistance coupling will not give quite the volume that three stages of audio will, but there will be no tenden-

stages of resistance coupling will not give quite the volume that three stages of audio will, but there will be no tendency to howl and the output will be remarkably free from distortion. A hetduogen made with such coupling of the amplification should prove very satisfactory.

Q.—In checking over the hetduogen subpanel layout and the wiring diagram as shown in figures 10 and 11, and then looking at the panel from the front as shown in figure 1, I find two rheostats, two jacks and one filament switch. The wiring diagram as shown in figure 2 has only one rheostat, one jack and no filament switch. Please advise whether this is an error or how there is this discrepancy.

W. A. F., Greensboro, N. C. A.—The hetduogen hook-up shown in our December 27 issue, figure 2 was not the actual hook-up used. It was intended only for use with the explanation of the circuit given in that article, and all parts such as extra rheostats and C battery, were eliminated so that the essential features might be found as easily as possible. The actual hook-up and directions for wiring are contained in the January 17 issue, in figures 10 and 11, and will be found to agree with the front view as shown in figure 1.

Q.—I am not yet a subscriber for your magazine but I buy it regularly at the newsstand and have become very interested in the construction of hetduogen by C. E. Brush. Will you please give me an

ted in the construction of hetduogen by C. E. Brush. Will you please give me an estimate of the cost of this set when com-

HERE are several points in connection with hetduogen receiver on which the readers of Radio Digest

HERE are several points in connecting the minimum possible by the use of relation with hetduogen receiver on generation.

Radiation

Hadiation

I am impatiently waiting for next week's the complete set of parts for the hetduogen receiver is about \$75. Our opin-resistance coupled amplification, as I have in its this receiver will be just as effigen at list prices is about \$75. Our opinion is this receiver will be just as efficient as any five tube set, and far more selective than most of them. The complete list of parts is in the issue of January 17 uary 17.

Amplifier Tubes Used

-Although the construction of het-Q.—Although the construction of hetduogen has been very carefully described in your magazine you have not as yet mentioned what tubes are to be used. I presume that the hard tubes are to be used in all sockets, but will appreciate your letting me know definitely on this.

K. L. B., Oklahoma City, Okla.

A.—As used by the writer, the amplifier tubes such as UV-201A or C-301A are fier tubes such as UV-201A or C-301A are used as detectors, oscillator and audio frequency amplifiers. 199 tubes may be used in place of the storage battery tubes, providing of course, that four volts is used at the A battery binding posts, but the volume will naturally not be quite as great as that to be expected from the larger tubes. The writer has not tried the WD tubes, but can see no reason why they would not work in this set.

Grounding Rotor Plates

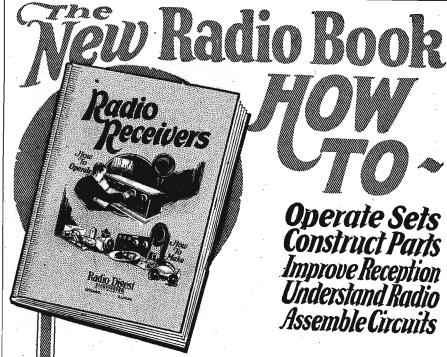
Connect the movable plates of a condenser to the ground or filament side of the circuit and the effect of body capacity can generally be eliminated. The difference in the connections is more noticeable when weak signals are received. In the case of the antenna series condenser the rotary plates should be connected to the wire leading to the ground, and the stationary plates to the antenna.

Graining a Panel

To give a special grained finish to a Radio panel, place the panel securely on a table and stroke it lengthwise with fine sandpaper or steel wool. When all traces estimate of the cost of this set when complete, understanding that I buy all materials at regular list price? Will the set when completed be as efficient as the standard make five tube sets on the market?

H. D., Kankakee, Ill.

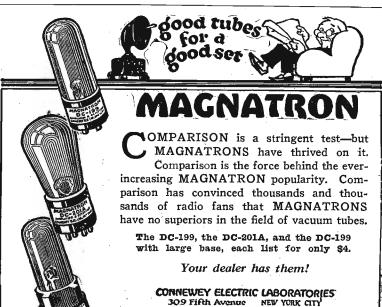
A.—We wish to advise that the cost of in machine oil.



The greatest assemblage of facts and hints, from actual everyday practice, ever gotten together. Edited by the technical staff of Radio Digest, it supplies the demand for a book covering every phase of Radio. Starts at the beginning with simple explanation of Radio reception, with technical explanations of the different parts and leads right on to the more advanced instruction. A complete handbook serving as a ready reference in the Radio field. It gives suggestions on parts and sets which will prove to be a money saver. Blue prints and diagrams are essentially an important part of this Blue prints and diagrams are essentially an important part of this book. Special chapter is devoted on "How to Operate," which gives detailed information on the operation of many well known sets.

A general information is vital to the knowledge of anyone interested in Radio. It gives a complete list of all broadcasting stations with a colored map showing their location. The workshop kinks will save you time and money. Now is the time to take advantage of this exceptional offer. Mail coupon today!

RADIO DIGEST, 510 N. Dearborn Street, Chicago, Illinois.	2-7-25
Enclosed find \$5.00 for one year's tion to Radio Digest. The new R Radio Receivers," will me mail postage prepaid.	s subscrip- adio Book, ed FREE,
Name	***************************************
Address	
CityState	***************



Friday, February 13

(Continued from page 18)

(Continued from page 18)

WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 8:30, Viola Buisker-Lecnard, dramatic soprano; 9, concert, Astor Coffee dance orchestra.

WCAU, Philadelphia, Pa. (Eastern, 278), 6:30 p. m., Meyor Davis' Hotel Pennsylvania trio; 8, talk, Clara Zillessen; 8:10, recital; 9:15, dance music, Southland seven dance orchestra.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 10:45 a. m., home service, Betty Crocker; 2 p. m., woman's hour, Blind People's program Edith Marsh, leader; 4, magazine hour; 5:30, children's hour, Court of Gold Medal; 6, sports talk; 6:30, dinner concert, Troendle trio; 7:30, lecture, Taxpayers' association; 7:45, lecture; 8, St. Paul-Minneapolis Real Estate board program; 9. "The F. & R. Fanily."

WCX, Detroit, Mich. (Eastern, 516), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 7, musical program; 10-12, dance music, Finzel's Aradia orchestra.

WDAF, Kansas City, Mo. (Central, 365.6), 3:30-4:30 p. m., Star's Radio trio; 6-7, plano tuning-ln number on the Duo-Art; address, speaker, Kansas City Childen's bureau; Tell-Mea-Story lady; Trianon ensemble; 8-10, popular program; 11:43-1 a. m., "Merry Old Chief" and the Plantation players.

WDAR, Philadelphia, Pa. (Eastern, 395), 11:45 a. m., daily almanac; 12:20 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 4, 14:45 a. M., daily almanac; 12:20 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; Morning Clory elub.

WEAF, New York, N. Y. (Eastern, 492), 4:10-4:25 p. m., Trench lesson, Columbia university; 4:40-5, chil-

cert; 10:03, Arcaula tale unice volume, Clory elub.

WEAF, New York, N. Y. (Eastern, 492), 4:10-4:25
p. m., French lesson, Columbia university; 4:40-5, children's stories; 6-7, dinner music, Waldorf-Astoria hotel; 7:30-7:45, children's stories, G. R. Kinney company; 7:45-8, Gertrude Otto, contraito; 8-8:30, Happiness boys; 8:30-9, Holmer Harmony four; 9-10, B. F. Fischer's Astor Coffee orchestra; 11-12, Meyer Davis Lido Venice orchestra.

pany; (149-8, Gertrune Otto, contraints, 38-39, Happanss boys; 8:30-9, Holmer Harmony four; 9:10, B. F. Fischer's Astor Coffee orchestra; 11-12, Meyer Davis Lido Venice orchestra.

WEBH, Chicago, Ill. (Central, 370), 7 p. m., Oriole orchestra; Dan Russo, violinist, Ted Florito, celeste; musical bits, Riviera theater; 9, Rita McFawn, soprano; Oriole orchestra; Frederick Agard, tenor; 11, Three Musketeers; Orlole orchestra; songs, Nick Lucas.

WEBI, New York, N. Y. (Eastern, 273), 7-7:45 p. m., Original Indiana five from the Cinderella ballroom; 7:45-8:15, Edith Law accompanied by Alice Law; 8-8:15, Victor Wilbur and Joe Maley; 8:15-9, Johnny Basilone and his Harlem Tea Garden orchestra.

WEEI, Boston, Mass. (Eastern, 303), 2 p. m., Happy Hawkins and his Grand Garden's orchestra; 6:30, "Fire Precaution," Charlos A. Donohoe; 7:15, James A. Watts, tenor; 7:30, A. E. Richardson interviewed by Otto Grow; 8, program, courtesy of the Neapolitan lee Cream company; 8:30, U. S. Army band concert.

WEMC, Berrien Springs, Mich. (Central, 286), 9-9:20-9:30, Ruth Lee, soprano; 9:30-9:40, Ernest Hurd, tenor; 9:40-10, Bible chat, Orville Lunn.

WFAA, Dallas Texas (Central, 472.9), 12:30-1 p. m., address, Dr. Robert Stewart Hyer; 4:30-5, woman's hour; 6:30-7:30, vesper recital, Jack Gardner's Honey boys' orchestra; 8:30-9:30, Marcell Jones, tenor; Jenkins, reader; William H. McRaven, planist. WFI, Philadelphia, Pa. (Eastern, 395), 1 p. m., Moyer Davis Bellevue Stratford concent orchestra; 7, Sunny Jim, the kiddles' pal. WGN, Chicago, Ill. (Central, 370), 1:40 p. m., luncheon concert, Drake concert ensemble, Blackstone string quintet; 2:30, artists sorles, Lyon & Healy; 3, rocking chair time; 5:30, Skeezix time for the children; 6, organ recital, Lyon & Healy; 6:30-7, dinner concert, Drake concert ensemble, Blackstone string quintet; 2:9, grunn School of music; 10-11, Don Bestor Drake dance orchestra; Phil Fleming, Vernon Ricks, Jazz

8-9. Gum School of music; 10-11, Don Bestor Drake dance orchestra; Phil Fleming, Vernon Ricks, jazz artists.

WGR, Buffalo, N. Y. (Eastern, 318), 10:45-11 a. m., Gold Medal home service talk, Betty Croeker; 12:36-1, p. m., Hotel Statler concert ensemble; 2:30-4:30, Radio Dealers' musical program, featuring Gladys Atwood; 6:30-7:30, dinner music, Vincent Lopez Hotel Statler dance orchestra, Harold Gleser, director; 8:15-8:55, recital by Agnes Luther Tullis, contraito, and Mildred Daugherty Emery, pianist; 9-10, Astor House coffee program jointly with WEAF; 10-11, Larkin string orchestra, John Lund, director; 11:30, supperdance music, Vincent Lopez Hotel Statler dance orchestra, Harold Gleser, director.

WGY, Schenectady, N. Y. (Eastern, 360), 2 p. m., health talk, Dr. C. Woodall; 6:30, Sunday sehool lesson; 7, program, Strand theater orchestra; 7:30, health talk, 7:45, "What Psychology Tests Do Not Show," Dr. Lecnard C. Jones; 8, musical program; 9:15, Union League club dinner, speakers, Elihu Root, Harlan Fiske Tone, Charles Evans Hughes; 10:30, Greig night; "Medley of Grieg Melodles," WGY orchestra; "Album Leaf," "Scherzo," Oillie G, Yettru, pianist; "Nocturne," "Gavotte," American trio; "In a Boat," Matilda Bigelow Russ, soprano; "Four Norwegian Dance," orchestra.



Audio Transformers

28 Set Manufacturers

Ratio 31/2 to 1 and 6 to 1.

Fits all hook-ups.

FOR consistently smooth performance use Dongan Audio Transformers. At all good dealers or supplied direct from factory. Special proposition to mf'gs., mounted or unmounted type.

Greatly increased manufacturing facilities insure prompt deliveries to manufacturers and jobbers.

Dongan Electric Manufacturing Co. 2979 Franklin St. Detroit, Mich.

Transformers of Merit for 15 years

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Mrs. Charles Kansingor, soprano; 7:30-9, Jake Seligman and his Kentucky Nightowis; T. H. Grat, planist.

WHO, Des Moines, lowa (Central, 526), 2:15 p. m., "Why I Believe in Scouting," Boy. Mathieson, 7:30-9, Williamson Brothers; artists from Booone, Wilp. Philadelphia, Pa. (Eastefn, 599.9), 1 p. m., Glinbel tea room orchestra; 3, Elwood M. Wagner, barl-volle, Mattide E. Eves, soprano; Harry A. Glidstein, cone, Mattide E. Eves, soprano; Harry A. Glidstein, Lichtenberger, University of Penna; 6:05, songs, Joe Lichtenberger, University of Penna; 6:05, songs, Joe Lichtenberger, University of Penna; 6:05, songs, Joe Misser, and Mark Fisher; 6:15, Harvey Marburger and his Vaudeville orchestra; 7, Unice Wip's bedtime stories.

Burke and Mark Fisher; 6:15, Harvey Marburger and his Vaudeville orchestra; 7, Uncle Wip's bedtime stories.

Wiz, New York, N. Y. (Eastern, 455), 12:15-1 p. m., Brick Church noon hour of music; 4-5, Charlotte Petrucelli, soprano; Pasquale Rubino, tenor; 8:40-9, Helen Davis, banjoist.

WLS, Chicago, Ill. (Central, 345), 12-1 p. m., 4 Aces of Harmony; "Book Farmer" series, G. C. Biggar; "A Practical Poulity," George W. Kelley; 3:45-4:45, homemakers' hour; "Active Citizenship," Mrs. Walter Evans; "Preparation for the Baby," Ellen Rose Dickey; 6:30, Ralph Emerson, organist; 6:50, Senate theater studio; 7, Iuliaby time, Ford and Glenn; "John Turnipseed" series, E. G. Thiem, "Cooperative Marketing in Minnesota," George W. Kelley; "How the Bureau of Agricultural Economics Serves You," Earl B. Mallison; 9, Ben Ritzenthaler; 9:10, WLS theater presents "Mansions," one act drama; 9:30, Art Kahn's Senate Theater Symphony orchestra; 10:10, Marquette Mandolin club; Rudojph Bryant's Marquette Banjo quartet; 10:30, Isham Jones and his College Inn orchestra; 10:40, Ford and Glenn time.

W.W. Cineinnati, Ohio (Central, 423), 8 a. m., physical

Jones and his College ann orchestra; 10:20, rorg and Glenn time.

W.L.W. Cincinnati, Ohio (Central, 423), 8 a. m., physical exercises, Y. M. C. A., Wm. Stradiman, instructor; 12:15 p. m., program, Delta Omicron sorority; 4, lesson in French, Madame Tcimpidis, pupils of Leo Stoffregen in recital.

WMC, Memphis, Tenn. (Central, 503.9), 12 m., O. K. Houck Plano gompany; 8:30 p. m., Britting orchestra; 11, frolic, Lowensteins.

WNJ, Newark, N. J. (Eastern, 233), 10:30-11 p. m., Frank Daily and his Meadowbrook orchestra.

Frank Daily and his orchestra; 11-11:30. Wolfe Gilbert and company; 11:30-12, Original Disieland jazz band; 12-12:30 a. m., Frank Daily and his Meadowbrook orchestra.

WNYC, New York, N. Y. (Eastorn, 528.8), 7:35 p. m., resume of meeting of board of estimate; 8:30, famous minstrels, United Societies of Holy Rosary church; 10, concert.

WOAW, Omaha, Nebr. (Central, 526), 4 p. m., mattnee program; 6, story hour, Doris Claire Secord; 6:20, music; 6:30, G. R.'s Radio orchestra, Angelo Lupo, director; 9, program, Original Music masters, Herb Fairman, Joe Havlicek, leaders; 10:30, orchestra, Brandels store restaurants.

WOC, Davenport, Iowa (Central, 483.6), 5:45 p. m., chimes; 7, sandman's visit, Val McLaughlir; 7:20, "Legislation and the Farmer," Judge F. D. Letts; 8, program, Rohlf trio.

WOR, Newark, N. J. (Eastern, 405), 2:45 p. m., Chester Sutta; 6:15, Bluebird orchestra; 6:30, man in the moon; 7-7:15, Bluebird orchestra; 6:30, man in the moon; 7-7:16, Bluebird orchestra; 6:30, man in the moon; 7-7:16, Bluebird orchestra; 6:30, man in the moon; 7-7:16, Bluebird orchestra; 6:30, man in the monaphic william Job.

WOJ, Chicago, III, (Central, 448), 11-12 m., Sunday dinner menu, Ted Wilmus; 3-4 p. m., "Touring Europe with Mrs. Sanger," Mrs. Harry T. Sanger; "Syle Talk," Dudley C. Palmer; 7-3, dinner concert, Ralph Williams and his Ralnbo skylarks; Elsle Orr, soprano; Ann Burrows, accompanist; Rogers boys, Larry and Billy; Brock sisters, Julia and Ruth; West brothers; Nubs Allen, contratio; Lauretta Giles, soprano; Monogram trio; Nate Caldwell, planist, WRC, Washington, D. C. (Eastern, 469), 4 p. m., fashion developments of the moment, Eleanor Gunn; 4:10, Eleanor Glynn, planist; 4:20, "Beauty and Personality," Elsle Pierce; 4:30, tea music, Meyer Davis' New Willard



Loop Aerials

Electrically and Mechanically Correct



4-Point Tapped Loop More Loop—for less Money

The most efficient, moderate priced tapped loop on the market. The Lincoln 4-point tapped loop is built for any circuit where it is desired to vary the inductance of the loop. Fine for Superheterodynes.\$8.00

CENTER-TAPPED LOOP BETTER AND CHEAPER

The only loop of this type offered at a low price. For any set employing radio frequency amplification. For certain superheterodynes requiring a center tan **.\$6.50**

If your dealer cannot supply you, order direct glying dealer's name.

Dealers and Jobbers Write for our sales offer Send for the Lincoln catalog

Lincoln Radio Corporation 224 North Wells St. CHICAGO

TABLE FOR MAKING USE TIME TRANSITIONS

Eastern Standard Time	1	2	3	4	5	6	7	8	9	10	11	12
Central Standard Time	12	1	2	3	4	5	6	7	8	9	10	11
Mountain Standard Time	11	12	1	2	3	4	5	6	7	8	9	10
Pacific Standard Time	10	11	12	1	2	3	4	5	6	7	8	9

HOW TO USE. If a station is giving a program at 8 o'clock Mountain time and you wish to find what this is equivalent to in Central time, find 8 o'clock in the third of Mountain time row. Then immediately above it in the same vertical column will be found the figure 9 in the Central time row. This indicates that the program would be heard at 9 o'clock Central time.

WSB, Atlanta, Ga. (Central, 429), 12 m., entertainment;
5-6 p. m., bedtime story, Bonnie Barnhardt; garden
talk, William B. Deckner; 8-9, program, college; 10:45,
Bernard and Robinson.
WTAM, Cleveland, Ohio (Eastern, 364.3), 6 p. m., Guy
Lombardo's Royal Canadians orchestra.

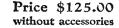
WTAY, Oak Park, III. (Central, 250), 6:15-8 p. m.,
Black Cat orchestra; Al Melgard, organist.
WWJ, Detroit, Mich. (Eastern, 352.7), 8 a. m., setting
up exercless; 9:30, tonight's dinner; 12:05 p. m., Jules
Klein's Hotel Statler orchestra; 3, Detroit News orchestra; 6, dinner concert; 8:30, Detroit News orchestra; 6, dinner concert; 8:30, Detroit News orchestra; 4, Anne Campbell, poet; Harry E. Parker, tenor.

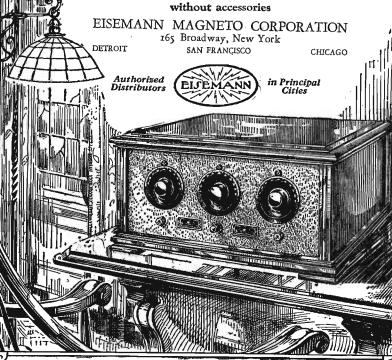




Satisfies every demand

Type 6-D meets the most exacting requirements. Here you will find generous volume, an uncommon absence of distortion, unlimited range, ease of tuning and the highest degree of selectivity. And the handsome appearance of this receiver gratifies the desire for good taste in the home.





How to Construct A. F. Transformers

Homemade Amplifier for Your Receiving Set

The first step in the construction is the two end plates. These are made up of either hardwood, hard rubber or any of the numerous insulating materials on the

WORKSHOP KINKS EARN A DOLLAR—

THERE are many little kinks worked out at home that would aid your fellow Radio worker if only he knew about them. There are new hook-ups, new ways of making parts and various unique ways of operating sets that are discovered every day. Radio Digest is very much interday. 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

market. If hardwood is used these should be cut 2 inches square and ½ inch thick. The center core hole should be drilled 7/16 inch in diameter and the two small holes are made with a number 30 drill.

are made with a number 30 drill.

It will be noted that the small holes are located differently in the two end blocks. The one side is for the primary and the other for the secondary wires. The edges of these holes should be well rounded to avoid chafing of the fine wire.

The end pieces are mounted on a bundle of core wires. The space between the end plates is 3 inches. Care should be taken to see that these core wires are kept perfectly straight and parallel. It is suggested that the wires be slightly moistened with oil to avoid rust. with oil to avoid rust.

with oil to avoid rust.

After the end pieces are properly spaced the core should be wrapped twice around with two layers of waxed paper. This should exactly fill the space between the end blocks in order to avoid short circuiting the wires on the core.

For convenience it would be advisable to let the core wires project from one end plate 1 inch. This will permit mounting in a lathe chuck, thus facilitating the coll winding. The supply spool from which the wire is unwound should rotate with a slight friction in order to avoid any tendency of spinning and thus accumulating an unnecessary length of loose wire. Care should be taken not to attempt winding

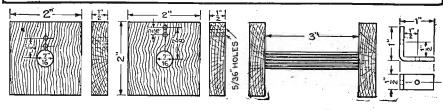
an unnecessary length of loose wire. Care should be taken not to attempt winding too rapidly. Start slowly and gradually increase the speed as the work proceeds. The primary winding should be wound in smooth consecutive layers until the diameter is 13/16 inch. In calipering this diameter the sharp ends of the calipers should not scratch or damage the insulation on the wire. Avoid all kinks in the wire. In fact a kink should be treated as a break and the two ends should be twisted together, soldered and then wrapped with a thin piece of silk.

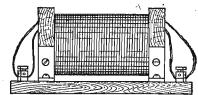
The wire must be wound on evenly from

wrapped with a thin piece of silk.

The wire must be wound on evenly from end to end. This method of winding avoids any comparatively large differences of potential between layers. Afer the primary winding has been completed it should be tested with a milliammeter or galvanometer and a 6-volt battery. The ends of the primary winding should project

END BLOCKS ON CORE OF WIRES





through the two holes nearest to the core holes. It may be advisable to solder a heavier gauge wire to the ends of the coil in order to avoid a break.

The description of the core ply bass wood was used.

Material List

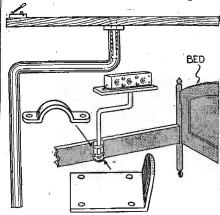
When the primary winding is complete 1 Top 28 inches long, 15 inches wide and two or three layers of parafin paper should % inch thick. be wrapped around the primary winding be wrapped around the primary winding to provide an insulation between the coils. The secondary coil is wound in the same manner to a diameter of 1% inches. The beginning and end should be reinforced with a heavier gauge wire and then led out through the end piece in the holes farthest out.

When the secondary winding is com-plete cover it with a layer or two of parafin paper and then wind tightly with tape,

The complete coil is mounted on a wooden or fiber base plate and fastened in place by means of four angles as shown. The ends of the primary and secondary are secured to binding posts and marked in the usual manner.—J. Foubert, Cornwall, Ont. wall, Ont.

For the Real Shut-in

All Radio tables to be used near or over the bed are constantly jarred along with the sick persons nerves by stumbling feet and careless bumps. The following is a



plan for a Radio set table that may be

plan for a Radio set table that may be instantly removed without lifting or disturbance of any kind.

The top is of wood, long and wide enough to hold the set and any switches needed. The metal parts are all easily obtained from a plumber's supply store.

- % inch thick.
 ½-inch iron pipe 42 inches long.
 ½-inch flat headed bolt 8 inches long.
- piece of pipe that is large enough to just fit over the pipe used for the arm, 8 inches long.
- 2 iron straps of the proper size for the

2 iron straps of the proper size for the arm.

The arm may be made of one piece of pipe bent into shape or it may be made of short lengths put together with elbows. The holder which carries the arm is fastened to a wooden bed inside the side board with iron straps. If to be used



the very tips with a waterproof substance. This is the first homemade leak I have seen that can be mounted in the regular grid leak forms or supports.—J. Forman Smith, Sylacauga, Ala.

WOOD PENCIL MARK

STRING

on an iron bed, fasten with bolted collar

Wood and Foil Make

Cartridge Grid Leak

The grid leak shown is nothing but a stick of wood marked with a pencil, with tinfoil caps placed on the ends and bound with a piece of twine. In order to make this leak of a permanent value it is only

necessary to paint the whole thing except

TINFOIL

SUPPORTS-

When properly constructed the top will turn and also the arm at the side of the bed. The set can be instantly swung out of the way.

out of the way.

The top should be stained and waxed and the iron parts enameled black.

In making the table adjust the measurements to individual needs and requirements.—Morey Studios, Ottumwa, Iowa.



Who is buying LIBERTY this month?

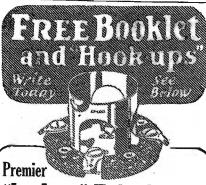
> Friends of people who bought the

LIBERTY Sealed Five

Last Month



Manufactured by
LIBERTY TRANSFORMER CO.
555 N. Parkside Ave. Chicago



"Lo Loss" Tube Socket Checks Current Losses

Checks Current Losses
What is it that saps current strength? Insulation leakage, poor contact and mutual capacity between parts. The Premier LO LOSS Tube Socket is specially designed to stop such losses. The bakelite cross section is thin to prevent phase angle losses between terminals. All metallic parts are arranged for minimum capacity. Positive contact is insured by cam action lock and self cleaning action of contact spring on tube prong. One piece contact springs have twice ordinary deflection range. Skeleton barrel permits inspection of contacts at all times.

Price 90 cents

Send for Bulletin No. 94

Send for Bulletin No. 94
showing complete line of Premier Quality Radio
parts. Ask your dealer for Premier free hook-ups.
If he cannot supply them, write us, mendoning his

Premier Electric Company 3810 Ravenswood Avenue



ROICE Radio Tubes



Economical and Powerful
CUT your tube expenses in
HALE. Here's "Roice," an
efficient and durable tube that
gives longer service and
greater satisfaction. Powerful; increases range and
volume with maximum elearness. We sell direct only.
You save by this plan; that
enables us to sell "Boice" at
this low price.

Type 00—5 Volts, 1 Ampere
Detector Tube
Type 01A—5 Volts, 25 Ampere Amplifier and Detector
Type 39—3-4 Volts, .06 Ampere with Standard Base. Amplifier and Detector
Type 12—1½ Volts, .25 Ampere Platinum Filament Amplifier and Detector Economical and Powerful

Shipped Parcel STANDARD \$250
Post C. O. D. TYPES TYPES

Type 02 5-watt Transmitters, \$3.00 All Tubes Guaranteed

to give best results in Radio Frequency. Also for high-powered circuits such as Neutrodyne, Reflex and Super-heterodyne sets.

When Ordering Mention Types

ROICE TUBE CO. 21 Norwood St. Newark, N. J.

BLUEBIRD Radio Tubes



Distinctly New AND EFFICIENT, satisfying every radic fan's wish in performance and price. Our direct sales plan enables us to sell at this low figure. "Bluebird" assures increased range and undistorted volume.

Type 400-5 Velts, 1 Ampere Detector Tube

Type 499A—3-4 Volts, .06 Ampere with Standard Base Amplifier and Detector.

Type 412—1½ Volts, 25 Ampere Platinum Filament Amplifier and Detector.

All Standard Types . . . \$250

Shipped Parcel Post C. O. D. When Ordering Mention Type

200 Broadway NEW YORK CITY

Type 401A—5 Volts, .25 Ampere Amplifier and Detector Type 499—3-4 Volts, .06 Ampere Amplifier and Detector

TYPE 402 5 WATT TRANSMITTERS.....\$3.00

EVERY TUBE GUARANTEED to work in Radio Frequency. Especially adapted for Neutrodyne, Reflex and Super-Heterodyne Sets.

BLUEBIRD TUBE CO.

FOR A LIMITED TIME ONLY You can purchase for \$3.50 a 12 cell 24 volt RABAT SEMIOR battery. Saving \$6.10 through direct buying. The Jobber and Palers prolit now is yours. 24 cell 48 volt size \$7.00. Rabat Senior Batteries

RABAT JUNIOR BATTERY \$2.15 c. o. d.

Incompariable in price and performance Designed to assistances operate sets equipped with 3 tubes or less. Constitucted in the same high grade materials as used in our Senior bastery. Shipped drg. uscharged. Order today and save \$1.81.

Rabat batteries can, be recharged at home at a very low cost Rabat Supc Charger \$3.00 c. o. d.

SEND NO MONEY But write us, today, advising quantity and type wanted. After examining and approving these wonderful batteries then pay the Expressman the small CO.D. charges.

The Rabat guarantee is back of all our products. DON'T WAIT ORDER TODAY and save the middleman's profit THE RADIO RABAT COMPANY 1767 Ct. Cleir Avenue, Cleveland, Onto

Duestions and Answers

Hetduogen Filter Construction

(10706) HES, Pittsburgh, Pa.

I am building the hetduogen as described in Radio Digest Mr. Brush stated that ten different filters were constructed before the present one was adopted.

suppose it cost quite a lot of money and time to have perfected so wonderful a circuit. I do not wish to condemn the filter, but would it be possible to use three

filter, but would it be possible to use three spider web coils wound on a 2-inch diameter core with 17 prongs? That is, one for the primary and two for the secondary with the special regeneration condenser mounted along side of the secondary?

A.—We have your letter of January 8 containing suggestions for the changing of the filter in the hetduogen. If you have ever wound spider web coils you must realize that to put 350 turns on a spider web form wou require a spider web about 7 inches in diameter. Incidentally it would take more than 350 turns to get the same value of inductance on a spider web coil that one gets from winding 350 turns as wound in the filter shown. Of web coil that one gets from winding 350 turns as wound in the filter shown. Of course the spider web could be kept of smaller diameter by using smaller wire, but the D. C. resistance would be so increased that any possible advantage gained from the low loss method of winding would be more than offset.

We really sel that in this case a spider web filter is out of the question, but we feel that the honeycomb coils of 400 turns might be used one for the primary and

might be used one for the primary and two for the secondary.

Multiphone enables five persons to listen with one set head phones. Price \$3.50. Write Hinkle & O'Neil, 1314 Union Trust, Cincinnati, Ohio.

PATENTS

Write for my free Guide Books "How to Obtain a Patent" and "Invention and Industry" and "Record of Invention" blank before disclosing inventions. Send model or sketch of your invention for instructions. Promptness assured. No charge for above information. Clarence A. O'Brien, Registered Patent Lawyer, 2007 Security Bank Building, directly across street from Patent Office, Washington, D. C.

Radio Dealers

We can make immediate delivery on Federal 141 Style Receivers.

CHURCHILL DRUG CO. Burlington, Iowa

GO into the RADIO BUSINESS

We specialize in Equipping New Dealers with entire stock — ADVICE FREE. Send for Our Radio CATALOG & BARGAIN LISTS

Wholesale Only
MANHATTAN RADIO CO.
Mew York City

Large Radio Wall Map

FREE The very latest up-to-date radio wall map 28 by 34 inches. Shows call letters, locations, wave lengths, and kilocycles of all radio broadeasting stations, U. S., Canada, and Mexico, relay divisions and radio districts. Also a scale for measuring distance. This wonderful map postage paid, ABSOLUTELY FREE. Merely send us a list of stores in your city which handle radio apparatus. Be sure and give the street address, and if you know the manager's name, give it also. DO IT TODAY before this offer is withdrawn.

OZARKA INCORPORATED 808 Washington Blvd. Chicago



ntifically Designed New Karas Harmonik Audio Transformers.

Low ratio-100% circular shielded-extra large coils-over size iron core.

Karas Harmoniks were used by Mr. Brush to seeure best results with his wonderful Hetduogen hook-up that so many radio fans are now enthusiastically building.

Price \$7.00 each

KARAS ELECTRIC COMPANY 4042 North Rockwell St. Chicago, Ill.

Hetduogen (11317) CBW, Kansas City, Mo. In the December 27 issue the article on the hetduogen has started. If the succeeding articles necessary to build this are to extend over several issues at what cost may I obtain sufficient data to enable me to build at once. In your reply will you kindly advise me at once if the unusual amount of regeneration makes this set noisy. You know regeneration has been abandoned in a number of cases on set noisy. account of noise.

A.—We have your letter of the 26th relative to hetduogen receiver. It is not regeneration itself which makes a set noisy. Regeneration reduces the resistance of the tuning circuit and regeneration itself nimes noisy. Regeneration reduces the resistance of the tuning circuit and so increases the sensitivity of the set and the result is that the static over a very great range is brought in which increases the noise in the head phones The same result is to be noted when operating a superheterodyne.

Adding Radio Frequency

(11316) FHH, Brecky, Sask., Can.
Some time ago I asked about adding
Radio frequency to my receiving set. I
might say that my receiving set is a
Westinghouse Radiola IIIA.

A.—The best answer we can give to your question is to write to Mr. S. W. Goulden of the Radio Corporation of America, 233 Broadway, New York city. He will be glad to advise you on any additions to be made to Radiola receiver.

Write for Our Free Book on Patents— Munn & Co. 643 Woolworth Building, New York City; 518 Scientific American Bldg., Washington, D. C.; 407 Tower Bldg., Chicago, Ill.; 360 Hobart Bldg., San Fran-cisco, Calif.; 215 Van Nuys Bldg., Los Angeles, Calif. Angeles, Calif.

158 GENUINE Foreign Stamps. Mexico War Issues. Venezuela, Salvador and India Service. Guatemala, China, etc., only 5c. Finest approval sheets 50 to 60%. Agents Wanted. Big 72-p. Lists Free. We Buy Stamps. Established 20 years. Hussman Stamp Co., Dept. 153, St. Louis, Mo.



and the state of t Shows at a glance "Who's on the air", every day, everywhere—all over North America. 700 Broadcasting Stations Indexed with Call Letters, Location, Wave Lengths, Power. Handy DX map included. RADIOCLOK SALES



SOLVED!

-The "B" Battery Problem

Throw away your "B" Batteries and install a Kellogg Trans-B-former. It gives you "B" Battery current direct from your electric light socket at the trifling cost of onefifth of a cent per hour. Gives better reception—no interfe Write for details.

KELLOGG

SWITCHBOARD & SUPPLY CO.

Trans-B-Former

1066 W. Adams St., Chicago, Ill.

Limited Range

(10688) EEE, Mead, Neb.
I cannot reach high wave lengths with my three circuit regenerative receiver. My aerial is four wires each 22 feet long and 40 feet high. The trouble lies in the length of my aerial, because the same set on my former aerial reception was best on high wave lengths. I cannot change my aerial because of local interference and obstacles so it cannot be lengthened. Is there any way of coming the control of the contro lengthened. Is there any way of equip-ing my set so high wave lengths may be reached? Which is the most simplest

Also, I am using two metal pipes as masts for the aerial, must they be grounded?

A .- The additional wires in your antenna system should be eliminated for they reduce the efficiency of the set. The overall length of antenna system is inoverall length of antenna system is inclusive of lead-in and ground lead of the single wire. This should be properly insulated from its supports, which are not necessarily grounded.

We are suggesting that you connect a 35 or 50-turn honeycomb coil in the grid lead of your secondary circuit to permit of reception on high wave lengths.

RADIO LOG BOOKS. Used with any set. Satisfaction guaranteed. Postpaid 25c. Dealers wanted. Roy Stacy, Rockford, Ill.

Ivory Radio Panel: Grained white "Ivorylite" makes most beautiful set of all. Guaranteed satisfactory. Any size, %" thick, sent prepaid, 3c per square inch. Sample free. E. P. Haltom, Dept. N, 614 Main St., Fort Worth, Texas.

PATENTS SECURED Radio Inventions a Specialty Trade Marks Registered WRITE US

Mason, Fenwick & Lawrence

Patent and Trade Mark Lawyers Washington, D. C. New York Chicago ESTABLISHED OVER 60 YEARS

Matched Transformers For the Ultradyne Circuit

Full instructions and Blue Prints furnished with each Kit. Absolutely guaranteed. These transformers are suitable for any Super-Heterodyne elreuit. Put up in handsome Kit display box. Special discount to dealers. Prompt delivery. Write for special circular.

SYPHER MFG. CO., 1524 Fernwood, Toledo, O.



The Crystalstat



The Ideal Reflex Detector but equally suitable for crystal sets The Ideal Reflex Detector but equally suitable for crystal sets. The Crystal stat ombodies the following features: A super-sensitive erystal in an air tight enclosure. A brush cat whisker of gold tinsel strands. A micrometer adjustment by means of which the most delicate adjustment may be had. The multiple contacts of fine gold filaments prevent howling and gives light but sure contact. The crystal is our wonderful Star-ite, the pick of the Earth's best crystal. The Crystalstat attaches through one 5/16" hole in the panel so that only the centrol knob shows on the face of the panel.

Packed in one dozen lots for dealers
Ask your dealer to supply you or you may send for one C. O. D. with your money back if not completely satisfied.

DEALERS and JOBERS please get our catalog of crystals and detectors and our liberal distributing proposition.

Star Grystal Co
14 PR 525 Woodward Avenue
DETROIT - MICHIGAN

Interference from Weighbors

(11314) MOR, Kalamazoo, Mich. By accident I discovered that the vibra-By accident I discovered that the vibrations from a battery charger make a constant hum in the receiver. After several experiments I found that the vibrations from the battery charger in the neighborhood can spoil the night's entertainment

for the whole neighborhood.

Having seen nothing in your paper about this, I thought it wise to call your attention to it. The only remedy I see for it at present is to educate the neighbors not to recharge their batteries during Radio hypadcasting hours.

Bors not to recnarge their patternes during Radio broadcasting hours.

A.—In order to overcome the trouble which you report as resulting from the operation of a battery charger in your neighborhood during broadcasting hours, we suggest that you persuade the person we suggest that you persuade the person or persons operating the charger to erect a wire screen around it and ground the screen, also connect two good quality .5 mfd. fixed condensers across the A. C. line in series and ground the center point. This will do away with much or all of the annoying hum which you have experienced.

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

It's your money and you can spend it for tubes or batteries if you want to; but I can show you how to bring distant stations in on a simple crystal set. Same plans increase range of tube sets also. Copyrighted plans \$1.00. Complete parts for long distant crystal sets \$5.00. Leon Lambert, 501 Kaufman Bldg., Wichita, Kansas.

Send No Money LOG for YOUR Radio

Holds 400
Stations
Spaces for call, city, location or each dial on YOUR set, and remarks. List stations or over. Log cards in neat, durable to the plant of solo-main. Only \$1.00. PRE-PAID if you prefer to pay with order.

MONEY REFUNDED if Not Delighted

Send Order today—NOW. A postal will do. RADIO PRINTERS, Dept 8412 MENDOTA. ILL.

Satter Batter

Gets 1000 Miles on 1-Tube Reflex Sets

Get real performance from your reflex set with the Bat-tery Crystal. Operates loud speaker on local stations just like big receiver. You can find more stations and a lot more volume than ever before. a lot more before.

The Battery Crystal is the crystal work—

zenith in crystal work—with reflex sets the smoothest performance and greatest volume yet obtained.

Send money order or we will ship C. O. D.

The A. H. Miller Radio Co. Genuine

Miller-B-Metal CRYSTAL



ATLAS MATCHED TUBES INSTRUMENT TESTED

Made in all standard types.
Guaranteed to function efficiently in
the most exacting circuits.
Every Atlas Tube is individually instrument tested.

Try them 30 days. Money refunded if you are not delighted.

At best dealers or direct from us. Our guarantee includes safe delivery.

Special Offer

At no extra charge, we will furnish selected Atlas Instrument Tested Tubes in matched sets for Reflex, Neutrodyne, Radio Frequency, Superbeterodyne or other sets. They will improve the performance of any sot.

DEALERS: Atlas Matched Sets are in great demand. Write or wire for proposition

THE R-S-K CO.

311 Caxton Building 771 Ellicott Square 609 Chamber of Commerce

CLEVELAND, O. BUFFALO, N. Y. PITTSBURGH, PA.

Radiophone Broadcasting Stations

Corrected Every Week-Part II

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 five parts, serially continuously on the next to last page. Letters must reach Radio Digest's office not that than one week from date of issue corrected. Readers are not limited to correcting one station, but such corrections must be verified by the stations themselves, and NOT by comparison to other so-called accurate Radio directories or lists. Turn in corrections for as many stations as you can find—if you can find errors! Use separate sheet of paper for each station submitted and place name and address on each sheet. In case of tie, duplicate awards will

(Owing to the temporary adjustments in reallocating wave lengths of many stations errors in wave lengths will not be considered eligible for the dollar offer until further notice. Once the changes are madepermanent this ban will be removed.)

United States (Cont'd)

(Note-The second part of the schedule list appears blow. The first appeared last week.)

helow. The first appeared last week.)

KFSG, Los Angeles, Calift. 277.6 meters. 500 watts.
Angelus Temple. Tues, Thurs, Fri, Sat, 3:30-4:30
pm. Tues, 6:30-7:30 pm. Wed, 2:30-4:30 pm: 6:307:30. Thurs, Fri, Sat, 7:30-11 pm. Sun, 10:30-12:30
pm. 2:30-4:30, 7-9:30. Mon stlent. Pacific.
KFSY, Helena, Mont. 248 meters. 10 watts. The Van
Blarlcom company. Announcer, George C. Stockling.
Wed, 7:30 pm, music, talks. Mountain.
KFUJ, Breckenridge, Minn. 242 meters. 50 watts.
Hoppert Plumbing & Heating Co. Daily ex Sun, 10:30 am, 5:40 pm, weather. Daily ex Sun, 10:30 am, 5:40 pm, weather.

Daily ex Sun, 10:40 am, 1:30 pm, 5:45 markets. Mon, Wed, 8-9 pm.

10:30 am, 5:40 pm, weather. Daily ex Sun. 10:40 am, 1:30 pm, 5:45 markets. Mon, Wed, 8-9 pm. Central.
KFUL. Galreston. Tex. 258 meters. 10 watts. Thomas Gosgan & Bros.
KFUM, Colorado Springs, Colo. 242 meters. 100 watts. City of Colorado Springs Station.
KFUG, St. Louis, Mo. 545.1 meters. 500 watts. Concordia Theological Seminary. Announcer. Prof. Walter. A. Maler. Sun, Wed, 9:15 pm. Central.
KFUG, Penver, Colo. 234 meters. 50 watts. Fitzsimons. General Hospital.
KFUG, San Francisco, Calif. 234 meters. 5 watts. Julius Branton & Sons Co.
KFUR, Ogden, Utah. 224 meters. 50 watts. R. W. Feary & C. Redfield.
KFUS, Oakland, Calif. 233 meters. 50 watts. Louis L. Sherman.
KFUT, Sait Lake City, Utah. 261 meters. 100 watts. Colburn Radie Laboratories.
KFUK, San Leandre, Calif. 224 meters. 100 watts. Colburn Radie Laboratories.
KFUK, Springfield, Mo. 252 meters. 10 watts. G. Pearson Ward.
KFUK, Moberly, Mo. 233 meters. 10 watts. Earl Wm. Keus.

KFUV, Springfield, Mo. 232 meters. 10 watts. G. Pearson Ward.
KFUW, Moberly, Mo. 233 meters. 10 watts. Earl Wm. Lewis.
KGB, Tacoma, Wash. 249.7 meters. 50 watts. Tacoma Daily Ledger. Announcer, Alvin Stenso. Slogan, "This is KGB in Tacoma, Washington, the Lumber Capital of America and the Gateway to Mount Tacoma." Mon, Wed, Fri, 7-9 pm. Pacific.
KGO, Oakland, Calif. 299.8 meters. 1,500 watts. Gen. Elec. Co. Announcer, Howard I. Milholland. Daily ex Sun, 11:30 am, luncheon concert. Daily ex Sun, 11:30 pm; Sat, 12:30, markets, weather; Mon, Wed, Fri, 3 pm, muslc. Mon, 4-5:30 pm, concert orchestra. Daily ex Sun, Mon, 4-5:30 pm, concert orchestra. Daily ex Sun, Mon, 4-5:30 pm, concert orchestra. Daily ex Sut, Sun, 6:45 pm, reports, news. Mon, Tues, Thurs, Sat, 8 pm, lectures, music. Mon, 9 am, lectures, California State Dopt. of Education; 5:30-6 pm, children's half hour. Fri, 5-5:30 pm, girls' half hour. Mon, Thurs, 10:45 am, class room instruction. Sun, 11-12 m, 7:45-9 pm, church services; 3:30-5 pm, concert. Pacific.
KGU, Honolulu, Hawaii. 360 meters. 100 watts. Marion A. Mulrony, The Honolulu Advertiser. Announcer, M. A. Mulrony, Daily, 7:30-9 pm. Tues, Thurs, Sat, special program. 150 meridian. 2½ hours later than Pacific.
KGW, Portland, Ore. 485.1 meters. 500 watts. Portland Morning Oregonian. Announcer, Dick Haller. Slogan, "KGW, Keep Growing Wiser." Daily ex Sun, 11:30 am, weather; Tues, Wed, Thurs, Fri, 12:30 pm, concert. Daily ex Sat, Sun, 5 pm, children's stories; 7:15, police, markets, weather, news. Mon, Wed, 8 pm, concert. Tues, 8 pm, lecture; 8:30, m, concert. Pacific.
KGY, Lacey, Wash. 246 meters. 10 watts. St. Martins College. Amouncer, Schastian Ruth. Slogan, "Out Worker Meter More Meters and Morning Orecert. Tues, St. Sun, 10:30 an, church; 3 pm, concert. Schastian Ruth. Slogan, "Out Worker Meter Meters Meter Meters and Morning Orecerts. Tues, St. Sun, 15 pm, College. Amouncer, Schastian Ruth. Slogan, "Out Worker Meter Meters Meters Sun.

concert. Pacific.

KGY, Lacey, Wash. 246 meters. 10 watts. St. Martins
College. Announcer, Schastian Buth. Slogan, "Out
Where the Cedars Meet the Sea." Tues, Fri, Sun,
8:30-9:30 pm, news, concert, lecture. Pacific:
KHJ, Los Angeles, Calif. 404.1 meters. 500 watts. Los
Angeles Times. Announcer, John S. Daggett. Slogan,
"Kindness, Happlness, Joy." Daily ex Sun, Mon,
12:30-130 pm, 2:30-3:30, 6-7:30, 8-11:30. Sun, 1012:30 pm, 6:30-7:30, 8-10. Mon, 12:30-1:30 pm.

:30 pm, v.:30-1...oc, v.:...cifie, cifie, l, Seattle, Wash. 360 meters. 100 watts. Louis

KHQ, Seattle, Wash. 860 meters. 100 watts. Louls Wasmer.
KIAF, Sihtipoc, Minn. 421 meters. 500 watts. Steele Co. Program irregular.
KJQ, Stockton, Calif. 273 meters. 5 watts. Gould, The Light Man. Daily ex Sun. 5-6 pm, concert. Wed, Sat, 9-11 pm, dance music. Mon., 9-10 pm. Sun., 10-11 am, church. Paclific.
KJR, Seattle, Wash. 283 meters. 100 watts. Northwest. Radlo Service Co. Announcer, Vincent I. Kraft. Slogan, "Radio Headquarters." Daily ex Sun. 5:30-6:30 pm, dinner hour program. Daily Sat and Sun. 3-10:30 pm, studio programs; 10-11, orchestra. Sat. 9-10 pm, orchestra. Paclific.
KJS, Los Angeles, Calif. 293 meters. 750 watts.

KIS. Los Angeles, Callf. 293 meters. 750 watts.

Bible Inst. of Los Angeles. Announcer, M. E. Carrier.

Slogan, "King Jesus Saves." Tues. Thurs, 8-9 pm,
sacred music, lectures, etc. Sun. 10:45-12:30 pm,
6-6-45, 7:15-9:30, church services. Pacific.

KLS, Oakhand, Callf. 248 meters. 250 watts.

Bros. Radic Supplies. Announcer. S. Warner.

The City of Golden Opportunity." Daily 11:30-1

pm. Sun, 10-11 am. Pacific.

pm. Sun, 10-11 am. Pacific.

KLX Oakland, Calif. 509.9 meters. 500 watis. Oakland Tribune. Announcer, Seth T. Bailey. Slogan, "Where Rail and Water meet." Daily ex Sun, 7, news; 7:30, weather. Mon, Wed, Fri, 8-10 pm, talits; entertainment. Fri, 10:30-12 midnight, dance music. Pacific. KLZ, Denver, Colo. 266 meters. 250 watts. Reynolds Radio Co. Announcer, Mrs. William D. Reynolds. Slogan, "Its a Privilege to Live in Colorado." Daily ex Sun, 8:30 am. Tues, Sun, 9-10:30 pm. Thurs, 8:15-9:30 pm. Mountain.

KMJ, Fresso, Calif. 234.2 meters. 50 watts. San Joaquin Lt. Pr. Corp. Announcer S. W. Green.

Slogan, "Home of the Raisin." Irregular sched-

ule.

KMO, Tacoma. Wash. 250 meters. 10 watts. Association Station. (Love Electric Co.) Mon. Wed. Fri. 6-7 pm. popular program; 9-10, artist's program. Pacific. Kukak Bay, Alaska. 263 meters. 100 watts.

Pacific.

KNT. Kukak Bay, Alaska. 263 meters, 100 watts.

Walter Hemrich.

KNX. Hollywood, Calif. 336.9 meters, 500 watts. Los
Angeles Evening Express. Announcer, "Town Crier."
Daily ex Sun, 8 am and every hour, time; 6-7.30,
dinner concert; 8-10, feature program; 10-11, dance
music. Sun, 8-10 pm, feature program; 10-11, dance
music. Sun, 8-10 pm, feature program; 10-11, dance
music. Sun, 8-10 ym, feature program; 10-11, dance
music. Sun, 8-10 ym, feature program; 10-11, dance
music. Sun, 8-10 ym, feature program; 10-11, dance
music. Sun, 11 pm; 2, stocks. Daily ex
Sat. Sun, 6 pm, stocks. Tucs. Thurs, 3 pm, matinee,
Mon, Wed, Frl, 8 pm, entertainment. Sat, 9-12,
danco music. Sun, 11 am; 7.30 pm, services. Mountain.

KOB, State College, N. M. 348 6 meters, 500 watts. N. M.
College of Agri. & Mech. Arts. Announcer, J. B.
Burke, Siegan, "The Sunshine State of America."
Daily 11:15-12 m, 9:55-10 pm, time, roports. Mon,
Wed, Frl, 7:30-8:30 pm, concert. Mountain.

KOP, Detroit, Mich. 277.8 meters. 500 watts. Detroit,
Police Dopt. Announcer, Elmer C. Reich. Slogan,
"Safety First." Daily ex Sun, 1 pm, 6:30; reports,
police information, emergency. Safety talks: Eastern.

RO, San Francisco, Calif. 429.5 meters. 500 watts. Hale
Dios., Inc. Announcer, Clair E. Morrison. Slogan,
"The City by the Golden Gate." Daily ex Sun,
12 m, reading. Daily ex Sat, Sun, 1-2 pm,
3:30-5:30 pm, music. Fri, 12:45-1:30 pm, talks. Sat,
1-2 pm, 3:30-5:30 pm, music. Fri, music.
Sun, 11-2:15 pm, oflurch services, 8:30-10, music.
Fracfic.

RPC, Pasadana, Calif. 229 meters. 50 watts. Pasa-

Thurs, 5:30 pm, church services, 20, 211. concert, lectures, Sat. 8:12 midnight, music. 8:11, concert, Sat. 8:12 midnight, music. 8:12 midnight, music. 10:12:13 pm, Pa. 27:32 meters. 500 watts. Apple City Radio Club. Announcer, H. B. Reas. Slogan, The Home of the Hood River Apple. Fri, 6:30 pm, The Home of the Hood River Apple. Fri, 6:30 pm, The Home of the Hood River Apple. Fri, 6:30 pm, The Home of the Hood River Apple. Fri, 6:30 pm, The Home of the Hood River Apple. Fri, 8:10 pm. Eastern. Royal Sat. 8:11 Spec. Co. Dally ex Sun, 10:30-11:30 atm, music: 3 pm. Mor. Wed, Fri, 8:10 pm. Eastern. Royal Sat. 8:12 pm. Mor. Wed, 8:12 pm. Mor. Wed, 8:12 pm. Hor. Wed, 8:12 pm. Hor. Wed, 8:12 pm. Hor. Wed, 8:12 pm. Hor. Sat. Wed, Sat. 8:12 pm. Sun, 10:41 am, services, Pacific. KSAC, Manhattan, Kan. 340.7 meters. 500 watts, Kansas State Agricultural College. Announcer, Sam. Pickard, Dally ex Sat. Sun, 9:11 am, 12:30 pm, 7:20-8. Wed, Thurs, 8:9 pm. Sun, 8:9 pm. Central. KSD, St. Louis, Mo. 5:45.1 meters, 5:00 watts, Kansas State Agricultural College. Announcer, Sam. Pickard, Dally ex Sat. Sun, 9:40 am, 10:40, 11:40, 12:40 pm, 1:40, 2:40, 3:40. Mon, 7 pm. 9. Wed, 4:45 pm, 1:40, 2:40, 3:40. Mon, 7 pm. 9. Wed, 6:45 pm, 11. Fri, 8 pm. Sat, 8 pm. Tues, 6 pm. 9:47 pm. Sun, silent night. Central. KTHS, Hot Springs, Ark. 876 meters, 5:00 watts. The New Arlington Hotel. Announcer, G. C. Arnoux, Daily ex Sun, 12:30-130 pm, weather, markets, orchestra: 8:30-10 pm, concert. Mon, Wed, Sat, 10-11 pm, dance concert. Sun, 11 am, church services; 8:30-10 pm, concert; 9:00 watts. First Presbyterian church. Shogan, "Hear ve, the Gospel." Sun, 11-12:30 pm, 1:30-12:30 pm, 1:30-4 pm, pm. sincert, 11:30, pm. service. Pacific. KW. Gloschon,

12-2. carnival. Sun. 11 am, Central church; 2:30 pm, chapel; 7. Chicago Sunday Evening club. World Crier Kary, hail hour. Central.

KZKZ, Manlla, P. I. 270 meters. 100 watts. Electrical Supply Co.

KZM, Oakland, Calif. 241 meters. 100 watts. Western Radio Institute (Hotel Oakland). Announcer, H. Lewis. Daily ex Sun, 6:30-7 pm, orchestra. Pacific.

KZRQ, Manlla, P. I. 222 meters. 500 watts. Far Eastern Radio, Inc.

KZRQ, Manlla, P. I. 222 meters. 500 watts. Far Eastern Radio, Inc.

KZUY, Manila, P. I. 370 meters. 500 watts. F. Johnson Elser.

NAA, Radio, Va. 435 meters. United States Navy Dept. Daily ex Sun, 9:45-10:40 am, 12:25-12:40 pm, 1:45-2:20, markets, weather; 2:45-3 (Tues only), Dept. Interior; 3:25-4:40, 5:05-5:20, markets, weather 10:05-10:20, weather. Wed, 7:25-7:40 pm, Cit. Ser. Daily ex Sat. Sun, 7:45-8 pm, dept. programs. Mon, 8:25-8:40 pm, Dept. of Interior. Eastern.

PWX, Havana, Cuba. 400 meters. 500 watts. International Tcl. & Toleg. Corp. Announcer, R. O. Farrill. Slogan, "If you hear the tick of a clock you are in time with PWX, at Havana, Cuba." Wed, Sat. 8:30-11 pm, music. Eastern.

WAAB, New Orleans, La. 268 meters. 100 watts. Valdemar Jensen.

WAAB, New Orleans, La. 268 meters. 100 watts. Valdemar Jensen.

WAAB, New Orleans, La. 275 mcters, 100 watts. Valdemar Jensen.

WAAB, New Orleans, La. 275 mcters, 100 watts. Organ. Central.

WAAD, Cincinnati, O. 258.8 meters. 25 watts. Ohio Mechanics Inst. No regular schedule.

WAAC, Chicago, Jeducational and entertainment program. Central.

WAAM, Newark, N. J. 263 meters. 200 watts. Chicago Daily Drovers Journal. Announcer, Carl Ulrich. Daily ex Sun, 8:40 am, 10:30, 10:45; 12:30 pm, Daily ex Sun, 8:40 am, 10:30, 10:45; 12:30 pm. Daily ex Sun, 8:40 am, 10:30, 10:45; 12:30 pm. Daily ex Sun, 8:40 am, 10:30, 10:45; 12:30 pm. Daily ex Sun, 8:40 am, 10:30, 10:45; 12:30 pm. Daily ex Sun, 8:40 am, 10:30, 10:45; 12:30 pm. Daily ex Sun, 8:40 am, 10:30, 10:45; 10:15, 10:45, 10:45, 10:45, 10:45, 10:45, 10:45, 10:45, 10:45, 10:45, 10:45, 10:45, 10:45, 10:45, 10

music. Daily et Sun. Sat. 10 pm. dance. Sun. 10:30

mn. 7:30 pm. church strvice. Eastern.

WABN, La Crosse, Wis. 244 meters. 500 watts. Ott.
Radio Ine. Announcer, W. C. Grover. Slogan, "The
City Beaultful on the Old Mississippl," Club, Thirsty
Wable, Marches, S. D. pm. Thurs, 9:11 pm. Central,
Wable, Marches, S. D. pm. Thurs, 9:11 pm. Central,
Wable, Marches, S. D. pm. Eastern.

WABO, Haverford, Pa. 261 meters. 50 watts. Haverford College Radio Club. Announcer, Dr. James Mcf.
Thurs, 1 pm. Seb. pg., educational program,
WABR, Toledo, O. 263 meters. 50 watts. Scott High
School, Irregular programs. Frl, 8:16-9 pm, program
by high school students. Eastern.

WABW, Wooster, O.

WABW, M. Clemens, Mtcb. 254 meters. 250 watts.
Jiony B. Joy, Marches, M. C.

WABW, Wooster, O.

WABW, Wooster

WEAO. Decatur, III. 275 meters. 100 watts. James Millikin Univ. University activities. No definite schedule.

WBAP. Fort Worth, Tex. 472.9 meters. 1000 watts. Fort Worth Star-Telegram. Announcer, "The Hired Hand" Club, "Radio Truth League." Daily ex Sun, 10, 11, 12 m, 1 pm, 2, market reports, weather; 4. "Port of Missing Mien." 6:30, sports. Mon., Tues, Wed, Thurs, Fri. 12:05-12:30 pm, 7:30-8:30, 9:30-10:45, concert. Sat. 7 pm, Bible lesson. Sun, 11 am, church; 4 pm, concert; 11, midnight frolic. Central.

WBAV. Columbus, O. 293.9 meters. 500 watts. The Erner and Hopkins Co. Announcer, H. E. Day. Slogan, "We Broadcast a Variety." Daily ex Sun, 12-1 pm. Mon. Fri, 8-10 pm. Eastern.

WBAX, Wilkes-Barre, Pa. 256 meters. 100 watts. John H. Stenger, Jr. Slogan, "In Wyoming Valley, Home of the Anthraeite." Tues, Wed, Thurs, Sat, 9:30-12 midnight, music. Sun, 6-9 pm. Eastern.

WBAY, New York, N. Y. 492 meters. 500 watts. A. T. & T. Co. Experimental purposes only.

WBBA, Newark, Ohlo. 227.5 meters. 20 watts. Plymouth Congregational church. Daily, 6:30 pm, news. Fri, 7 pm, special Radio service. Sun, 11 am; 7:30 pm. Eastern.

Eastern.

WBBD. Reading, Pa. 234 meters. 50 watts. Barbey
Battery Service. Wed, 10-11:30 pm. Sat, 10-11:30
pm. Eastern.

WBBG. Mattapoisett, Mass. 248 meters. 500 watts.
Irving Vermilya. Mon, Wed. Fri, 8-10 pm, music.
Sun, 10:45-12 m, church service. Eastern.

WBBH. Port Huron, Mich. 205.4 meters. 50 watts. J.
Irving Bell.

Irving Bell.

WBBJ, Weat Palm Beach, Fla. 258 meters. 50 watts.

Neel Elec. Co. Announcer, R. C. Bender. Slogan,

Where Summer Spends the Winter." Tues, Thurs,
Frl. 8-10 pm, band. Sun, 11-12 m, 7:30-9 pm,
church services. Eastern.

WBBL, Richmond, Va. 229 meters. 100 watts. Grace
Covenant Presbyterian church. Announcer, Horhert C.
Taylor. Tues, 8 pm. Sun, 11 am, 8 pm. Eastern.

WBBM, Chicago, Ill. 226 meters. 200 watts. H. Leslie
Atlass.

WBBP, Petoskey, Mich. 238 meters. 100 watts. Petoskey High School Announcer, Carl Bowman. Wed, 8-9

High School. Announcer, Carl Bowman. Wed, 8-9
pm. Central.

BBR, Staten Island, N. Y. City, N. Y. 273 meters.

500 watts. International Bible Students' Association.

Mon, Wed, Sat, 8-9 pm, lectures, music. Sun, Thurs,

9:10-10:30 pm. Eastern.

BBS, New Orleans, La. 252 meters. 50 watts. First

Baptist Church

BBU, Monmouth, Ill. 224 meters. 10 watts. Jenks

Motor Sales Co.

BBU, Johnstown, Pa. 248 meters. 5 watts. Johnstown,

Radio Co.

BBW, Johnstown, Pa. 248 meters. 50 watts. Ruffner

Junior High School. Announcer, Lee M. Kilnefelter.

Slogan, "We're Backed by Workers." Wed, 8:30 pm,

wasic. Fri. 3:30 pm. Eastern.

WBBY, Charleston, S. C. 268 meters. 20 watts. Wash
ington Light Infantry. Announcer, Hugh Easterly.

WBBY, Charleston, S. C. 268 meters. 20 watts. Washington Light Infantry. Announcer, Hugh Easterly. Eastern.

WBBZ, Indianapolis, Ind. 227 meters. 50 watts. Noble B. Watson. Robert Robbins. Mon. 8-9:30 pm. Central. WCCN. Chase, Ill. 268 meters. 500 watts. Southtown Economist. Fally or Sun. 6-6:30 pm. children's hour. Sat. Tres. Thurs. Sun. 6-6:30 pm. children's hour. Sat. Sat. Sat. Sun. 6-6:30 pm. concert. Sun. 6-6:30 pm. concert.

Sun, 10:45 am, church services; 3:30-10 pm, consess. Eastern.

WGAD, Canton, N. Y. 263 meters. :50 watts. St. Lawrence Univ. Announcer, Ward C. "riest. Slogan, "The Voice of the North Country." Daily, 11 am, weather, reports, time. Wed, 8 pm, pr gram. Eastern. WGAE, Pittsburgh, Pa. 462 meters. 567 watts. Kaufman & Baer Co., Pittsburgh Press. Announcer, Joseph Sartory. Daily ex Sun. 12:30 pm, news; 3:30, news; 4:30, reports; 6:30, music; 7:30, Uneie Kaybe, 8:30, music. Mon, Tues, 11 pm. Syn, 10:45 am, services; 3 pm, sermon; 4, 6:30, music

watt town. Eastern.
Eastern.
WCBV, Tullahoma, Tenn. 252 meters. 10 watts. Tullahoma Radio Club.
WCBW, Macon, Ga. 226 meters. 20 watts. Mattland Soloman and G. P. Rankin, Jr. Irregular schedule.
WCBX, Newark, N. J. 233 meters. 100 watts. The Radio Shop. Tucs, Wed, Fri, 6-6:30 pm; 7:30-10:30.

Radto Snop. Tucs, wed. Fil, which saters. 10 watts. Eastern. WCBY, Buck Hill Falls, Pa. 268 meters. 10 watts. Forks Electric Shop. Announcer, Hugh Kemper. WCBZ, Chicago Heights, Iil. 248 meters. 50 watts. Coopoteili Brothers Music House. Announcer, John King. Slogan, "Where the Lincoln and Dixio Highways Meet," Mon, Fri, 8:30-10:30 pm, program. Central.

King. Slogan, "Where the Lincoln and Dixie Highways Meet." Mon, Fri, 8:30-10:30 pm, program. Central.

WCCO, Minneapolis-St. Paul, Minn. 417 meters. 500 watts. Washburn-Croeby Co. Announcer, Paul Johnson. Daily ex Sun. 9:40 an, reports, weather; 10, 10:30, markets; 10:45, home service; 11:30, markets; 1:30 pm markets, weather; 2, woman's hour; 2:30, music; 4, magazine; 5:30, children's hour; 6:30, dinner concert. Mon. 8 pm, lecture; 8:30, music; 10:30, dance. Wed, 6:30 pm, markets; 7, vespers; 2, music; 10:30, dance. Thurs, 6:30 pm, markets; 7, 6:30 pm, markets; 10:30, dance. Thurs, 6:30 pm, usic. Eri, 6:30 pm, dinner concert; 7:30, lecture; 8:30, music. 10:20 am, 4:15 pm, 7:30, church services; 9:15, music. Central. WCEE, Eighn, III. 275 meters. 1,000 watts. Carles E. Erbstein. WCK, St. Louis, Mo. 275 meters. 100 watts. Stix, Baer & Fuller Dry Goods Co. Announcer, Helen G. Hatifield. Daily, 12-12:30 pm, 3-3:30. Mon, Tues, Wed, Fri, Sat, 8-9 pm. Mon, Fri, 11-1 am. Wed, 11:30-1 am. Tues, Sat, 11-1 am. Sun, 9-10 pm. Central.

11:30-1 am. Tues, Sat, 11-1 am. Sun, 9-10 pm. Central.

Central Central Texas, Sat, 11-1 am. Sun, 9-10 pm. Central.

WCM, Austin, Tex. 268 meters. 250 watts. University of Texas. Announcer, J. Austin Hunter. Daily ex Sun, 9:45 am, 11:45, 2:46, 3:45 pm. Central.

WCX, Detroit, Mich. 516.9 meters. 500 watts. The Detroit Free Press. Announcer, C. D. Tomy. Club, 'Red Apple Club.' Daily ex Sun, 2 pm, news; 2:15, stock reports; 2:50, weather, markets; 4:15, 6, must. Daily ex Sat, Sun, 8:30-10 pm, alternate weeks, concert. Tues, 10-12 pm, club. Sun, 10:39 am, 7:15 pm, church services. Eastern.

WDAE, Tampa, Fla. 273 meters. 250 watts. Tunpa Daily Tines. Announcer, McDonald Thompson. Daily, 12:30 pm. Thurs, 8-10 pm. Eastern.

WDAF, Kansas City, Mo. 355.6 meters. 500 watts. Kansas City Star. Announcer, Leo Fitzpatrick. Club.

Daily Times. Announcer, McDonald Thompson. Dally, 12:30 pm. Thurs, 8:10 pm. Eastern.

WDAF, Kansas City, Mo. 365.6 meters. 500 watts. Kansas City Star. Announcer, Leo Fitzpatrick. Club. "Nighthawks." Daily ex Sun, 3:30-4:30 pm, music; 5:50, markets, weather; 6-7, educational, bedtime story, inusic; 11:45, Nighthawks: Mon, Wed, Fri. 8-9:30 pm, concert. Sun, 4-5 pm, nusic. Central.

WDAG, Amarillo, Tex. 263 meters. 100 watts, J Laurence Martin. Slogan, "Where Dollars Always Grow." Tures, Thurs, 8-9:30 pm, music. Central. WDAH, El Paso, Tex. 268 meters. 50 watts. Trinity Methodist Church South. Announcer, Oscar Morton. Wed, 7:30 pm. Sun, 11 am; 7:30 pm, services. Mountain. pm. Sun, 11 am; 7:30 pm, services. WDAR, Philadelphia, Pa. 39.5 meters. 500 watts. Lit Bros. Announcer, Harry E. Ehrhart. Club, "Morning Glory." Dally ex Sun, 11:45-12:55 pm, music; 2-3 pm, 4:30-6, music, talks; 7:30-8 pm, Dream Daddy. Mon, Wed, 8-10 pm, entertainment. Fri, 8-10:50, entertainment; 1 m, Club. Footon.



Exclusively, to banish the solitude of the North Pole region. He recognized the voice of his sister faithfully reproduced within eleven degrees of the North Pole, on a ZENITH receiver. He had to have the best. Had John McCormack and Madam Bori sung while MacMillan was in the Arctic, he would have recognized their voices, the reproduction would have been so faithful.

MacMillan used a duplicate of our Model 3R, which sells for \$160.00. Other models from \$95.00 to \$550.00. F. O. B. Factory.



Handled only by selected dealers who give you service. We give who service AFTER THE RADIO IS SOLD. When you buy a ZENITH

we are not through. Our exclusive dealer's serviceman will call once a week or oftener if you other words, Zenith dealers have done your shopping for you.

Write us for the name of your nearest exclusive Zenith dealer

332 SOU

In ... munication, its owner and operassespended. Chicago, Illinois

TH	MICHIG	AN AV	ENUE

Zenith Radio Corporation, Dept. 10C, 332 S. Michigan Ave., Chicago, Ill. Please send me literature and the name of your nearest Zenith dealer.