

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

Radio Digest

EVERY WEEK

Illustrated PROGRAMS

TEN CENTS

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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, "kiss" 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 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 Bactolien String quartet, recently heard from KGO. Right, Julia Glass, latest addition to "Roxy's gang" at the Capitol theater, New York.

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 during 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 revolutionary, deductions made by the engineers

(Continued on page 2)



SOLO HALTED WHEN PROFESSOR SQUINTS

COLUMBUS, 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 located 18 miles equidistant from St. Paul 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 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.

SUN AFFECTS RADIO

(Continued from page 1)

of the Radio Corporation of America and many famous scientists following Radio tests carried out during the short interval that the sun recently hid behind the moon as the two traveled across the corner 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 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 until 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 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) 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

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 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 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.

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.

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 eclipse 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 Radio-telephone transmitter and was piloted by Lieut. G. M. Palmer 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.

WM. BRADY WOULD PROTECT SHOWMEN

By William A. Brady



Wm. A. Brady

I 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.

One will willingly admit Radio as a wonderful boon to the wounded service men and other shut-ins, 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 did less.

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 surprise, 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.

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

I'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 performance, people will sit home that evening to listen in. And, of course, if they aren't satisfied with the performance, 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 present form to account for the results of our experiments."

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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.

The 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 layouts.

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

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ELGIN 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 Elgin Super-Reinartz, the set that gets the distant stations. They are free—no obligations, just a stamp for postage, please!

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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 WELL

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 stations 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 after all.

STATION WEEI 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 discontinuance 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

OKLAND, 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 very impressive, and caused a marked silence among the prisoners."

TO PICK AMERICA'S RADIO BEAUTY SOON

WLW ANNOUNCES SECOND ANNUAL PRIZE CONTEST

Listeners Telegraph Votes to Station After Hearing Broadcast Descriptions 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 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)

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 Protesges 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 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 thirteen 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 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 voice of a baby star, one each night, 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 of the frolic.

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 northern 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 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 star. Among those who have been baby stars, and who now are vested in full stardom, may be counted Lois Wilson, Bebe Daniels, Julianne 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.

Left column top, exotic Dorothy Revier, a perfect "dark type." Center, Violet Avon, a striking blonde beauty. Bottom, Madeline Hurlock, of Mack Sennett comedies, who was selected unanimously as one of the 1925 Baby Stars. Right, top, Edna Gregory. Center, Evelyn Pierce. Bottom, Anne Cornwall.



Above, the Wampus Baby Stars of 1925. Every year a selection of thirteen girls are picked to typify the forthcoming stars of future motion picture productions. This selection has been made by the club every year since 1922. Eleven of the thirteen are shown in the group photo.

"LINE NIGHT" AT WGN CREATES SENSATION

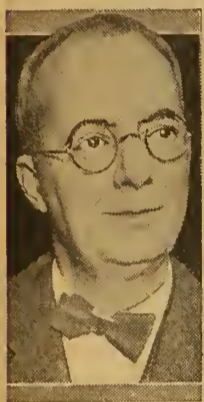
RICHARD HENRY LITTLE IS INTRODUCING POETS

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
seas
(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 audience—where the newspaper was read; and Mark Twain had 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 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 Tribune. 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 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 from their works over WGN are: "The King of the Black Isles," "Bitterroot 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.

YEAR OR MORE DELAY FOR WHITE RADIO BILL

Sponsor of Legislation Expresses Beliefs Concerning Law

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 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 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 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 WEA, 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 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

JOHN Lund, composer, leader, instructor, and arranger of orchestras, intimate of Sousa, and a musical figure 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 Friday night from 10 to 11 o'clock, Eastern standard time.



John Lund Colgrove Studio Photo

M. A. Riggs, Jr., general manager of WGR, in announcing the new feature, stated that, without doubt this will be one of the greatest features which WGR ever put on the air, and the fact that the series will run for an indefinite period should be of more than passing interest not only to the friends of WGR, but also to the friends of the Larkin company, which covers North America in its activities.

The fact that John Lund is in charge and will personally direct the orchestra

gives 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)

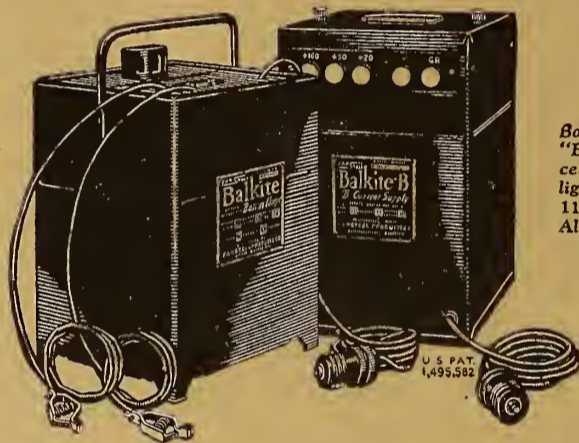
pound box of Dolly Varden chocolates. The beauty contest is being sponsored by the Dolly Varden Candy company in conjunction with the Crosley Radio corporation.

Radiophans so fortunate as to vote on 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.

Telegrams should be worded, "Number _____ my 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 \$50 each.

A number of broadcasting stations are being erected in Sweden by the government. There are more than 37,000 receiving 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
In Canada \$75

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

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

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

Sold by leading radio dealers everywhere

FAN STEEL Balkite Radio Power Units

BALKITE BATTERY CHARGER—BALKITE "B" PLATE CURRENT SUPPLY

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

WHO, the Bankers Life Insurance Station



William H. Heinz, better known as "Billy," who is the manager and instigator of Station WHO.

Bankers Life Radio orchestra of Station WHO. They are known on the air as the California Collegiate, and have made a host of friends through their concerts.

WHO? It's Billy Heinz at Des Moines

By Vera Brady Shipman

WHO, THOSE interrogating call letters which cause the listener to lift his eyebrows—WHO—it sounds like an owl and the answer is "Why, it's Billy Heinz of Des Moines, of course!"

W. H. Heinz is not at heart an insurance man. You can't make an insurance man out of a General Electric man any more than you can make a pie out of waffle dough. He tried though, tried as hard as he could, to be an insurance man (being the son-in-law of the president of the company), but twelve years at Schenectady was too powerful an influence.

Then the Radio idea came to Billy. He figured every detail of cost of operation and results to be gained both financial and from advertising view, before he laid the question before the president. Then sufficiently armed with figures that do not lie, he approached the president while motoring to the office in the morning.

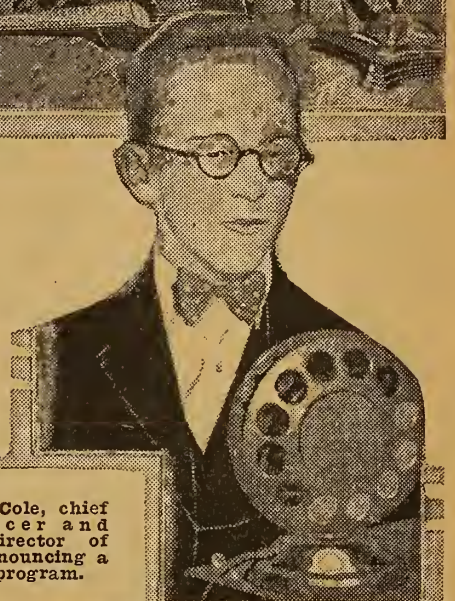
And the result (for they tell me Billy usually gets what he wants) was the installation of a Radio station at Des Moines on the ninth floor of the Liberty building, a station which does pay its own bills, for WHO opened and is operated as a commercial station.

WHO has a beautifully equipped and furnished operating room and studio. The station has operated on 526 meters but is scheduled to change to 522.3. It opened on April 1, 1924. Isn't it a coincidence that WHO with its owl-like call letters should open on April Fools' Day?

WHO has been planned and personally supervised since its beginning by Heinz. His years of technical work made him familiar with the operation and the station may be called his very own "brain child" although his official title is manager of the station. Heinz is secretary of the National Association of Broadcasters and has taken a prominent part in its activities.

The operators who work under Mr. Heinz' directions are Williard D. Ryan, chief operator, and Harold Bennett. N. D. Cole is the studio director and chief announcer, while J. C. Scovel, a baritone, and Hibbard Cleveland, bass, intersperse their announcing with songs. Musical direction is given by Dean Holmes

(Continued on page 8)

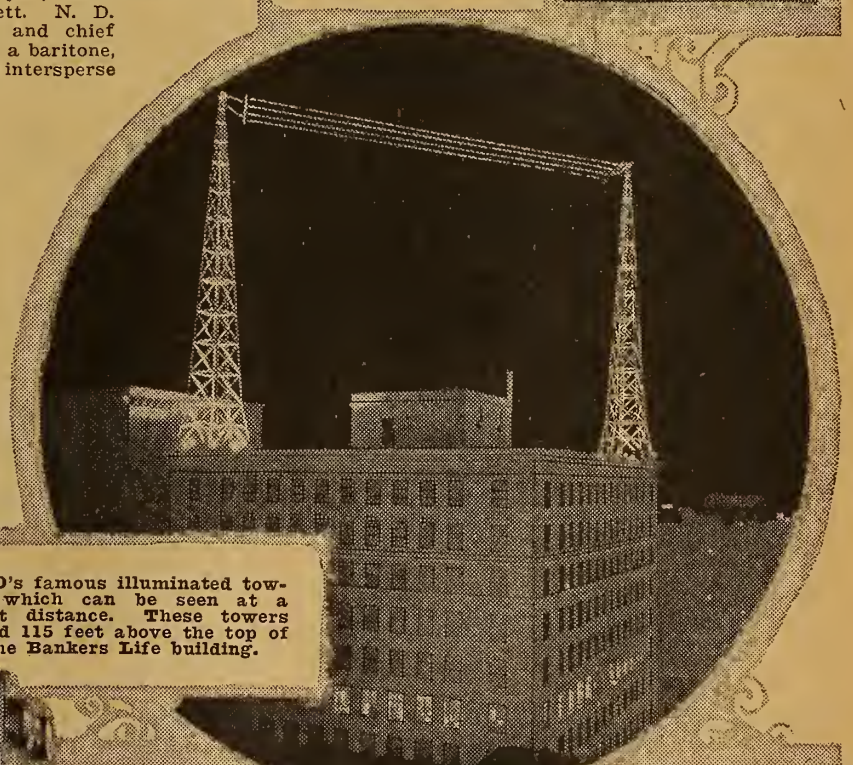


A. Dean Cole, chief announcer and studio director of WHO, announcing a WHO program.

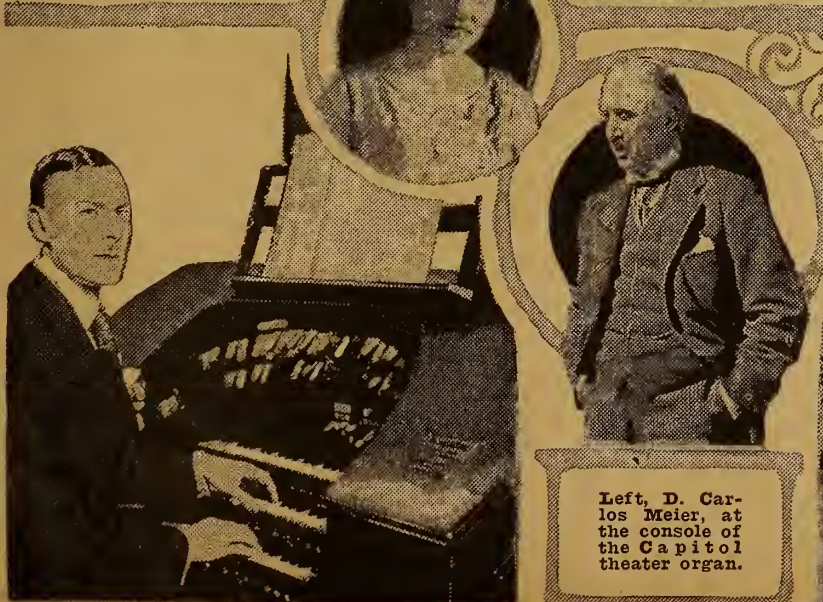


Completely equipped remote control truck, used to pick up and broadcast football games and anything of importance throughout the city, by WHO.

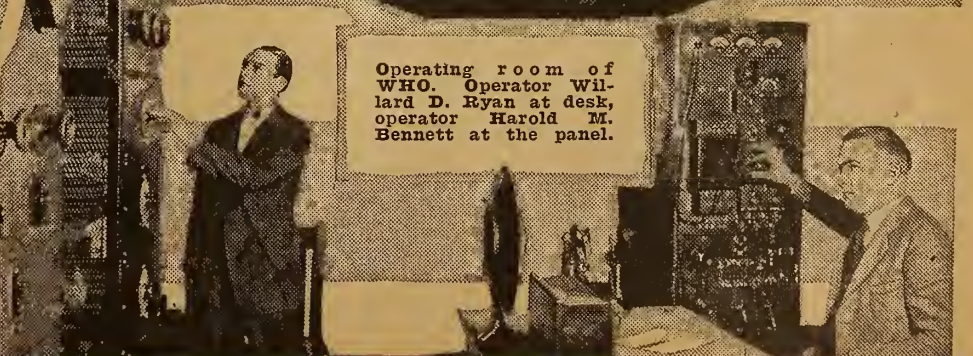
Below, Miss Myrtle Williams, assistant musical director and soprano soloist; Holmes Cowper, musical director of WHO, and a musician of note.



WHO's famous illuminated towers which can be seen at a great distance. These towers stand 115 feet above the top of the Bankers Life building.



Left, D. Carlos Meier, at the console of the Capitol theater organ.



Operating room of WHO. Operator Willard D. Ryan at desk, operator Harold M. Bennett at the panel.

Music Master

Success

—its True Significance



Model VI, \$30
14" wood bell,

Model VII, \$35
21" wood bell,

Connect Music Master in place of headphones. No batteries. No Adjustments.

Resonant Wood Insures Natural Tone Quality

THE advent of Music Master sounded the death knell of the mere "loud speaker" and transformed the radio receiving set into a musical instrument—a triumph of re-creative art.

Music Master's full-voiced volume and characteristic tone qualities heralded the New Era of Radio Art. It made possible the re-creation of the supreme expression of Music, Song and Speech in the wonderful stellar programme now an established feature of American nation-wide broadcasting.

Music Master does more than reproduce—it interprets, it re-creates. It is the standard of comparison by which all "loud speakers" are judged. While it has been inadequately imitated, Music Master remains the supreme musical instrument of radio—and there IS no substitute.

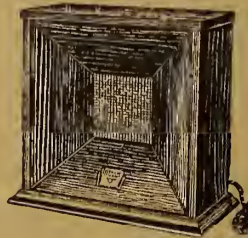
MUSIC MASTER—The Ultimate of Artistic Radio Re-Creation



Model VIII, Mahogany Cabinet with "full-floating" horn \$35 of natural wood 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.



Model V, Metal Cabinet, Mahogany finish \$18

Music Master Corporation

Makers and Distributors of High-Grade Radio Apparatus

10th and Cherry Streets

Chicago PHILADELPHIA Pittsburgh

PROGRAMS HELP TO AMERICANIZE HERE AND OVERSEAS



With the new year come signs that a better understanding between different races here and in their native countries across the seas is slowly developing from broadcasting. Letters received from KGO, General Electric Pacific coast station, indicate this. Commenting on a recent program, Gon Sam Mue revealed the trend. "Just a few words of appreciation," he wrote, "for the sermon. Being Chinese, I live in Chinatown, San Francisco, where automobiles are so numerous on Sundays that I am afraid to let my children go out. But since I have a Radio set, they are content to stay at home. They could not understand the sermon, but they knew that children were being baptized, as my wife explained."

RADIO FIRMS INSURE OPERA BROADCASTS

UNDERWRITE OPERA COMPANY'S PERFORMANCES

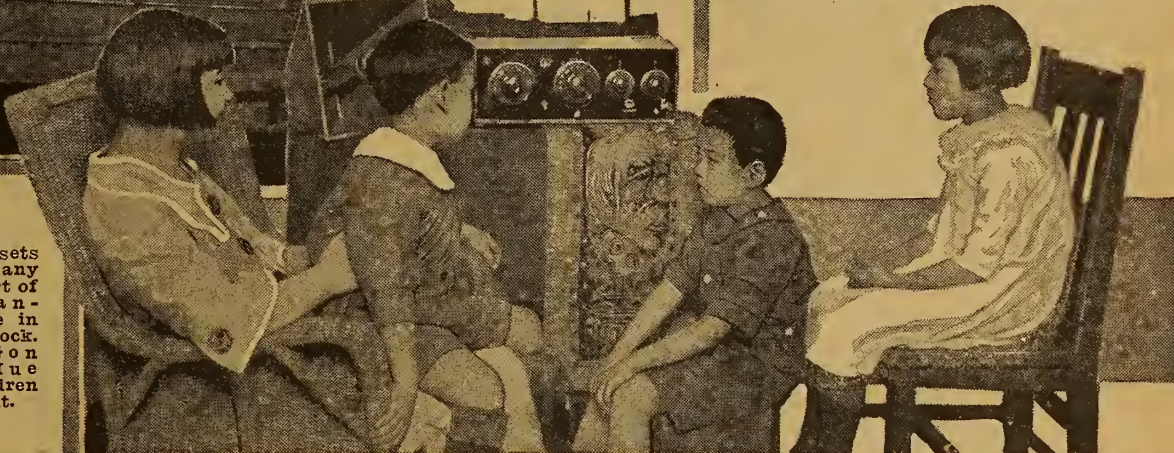
First Time in History That No Deficit Has Been Guaranteed Because of Microphone

BOSTON.—For the first time in the history of grand opera and the Radio industry, 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 underwriting 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

More sets than in any other part of San Francisco are in this block. Mrs. Gon Sam Mue and children at right.



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

Miguel Fleta, Tenor, in Victor Broadcast

Third Concert Includes Songs by Lucy Isabella Marsh

NEW 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 previous two offerings was repeated in the third.

The recital included four numbers by Fleta, "La Donna e Mobile," "Il 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. Bordin, and "Drink to Me Only with Thine Eyes."

The broadcasting was done as before, with Stations WBAF, 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 station "sold" the job to the entertainers.

25-KILOWATT PLANT GOING UP IN BRITAIN

WILL REPLACE CHELMSFORD ON 1,600 METERS

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

LONDON, England.—The British Broadcasting 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 radiated.

Two masts, 500 feet high and 300 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, Chelmsford, 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.

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.

Results of Gold Award Set Contest

RESULTS 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 approval and applause by home set builders.

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 Cincinnati Symphony orchestra, who had a special small harp built for her.

OPEN NEW CROSLY SUPER POWER UNIT

FIRST 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.

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 station.

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 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 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.

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 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

NEW 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 yesterday.

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 me."

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 congratulatory 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 23, 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, 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

GRACE 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 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, 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.

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. 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. Helen Birmingham also of Drake university music faculty, is staff accompanist, and W. L. Marsh is director of the eight-piece Bankers Life orchestra. The organ concerts from the Capitol theater are given by L. Carlos Meier.

A recent supply of blackboard charts to 4,500 receiving sets over Iowa 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.

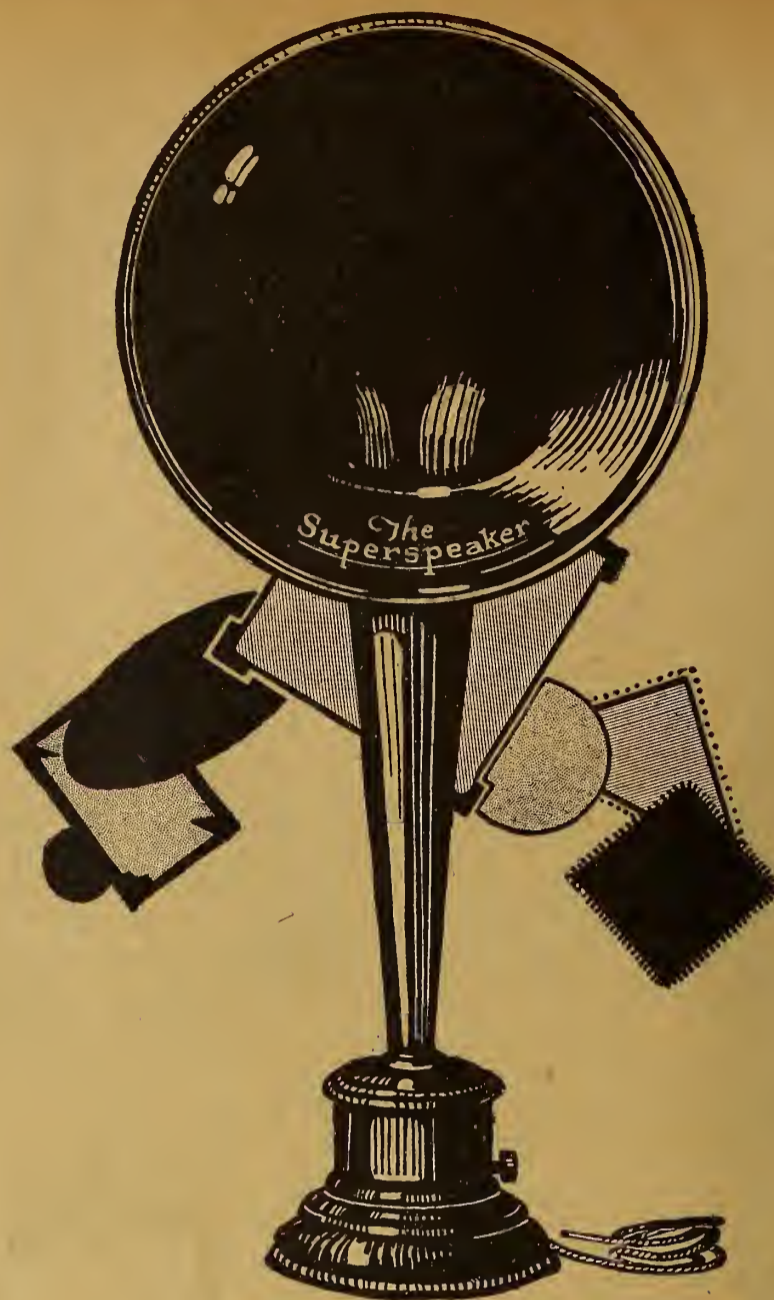
It has been the custom of the Baylor alumni to hold banquets the country over and listen in on the Radio program. This year, however, the association made a home night of the affair.

Station Close—Return License

WASHINGTON.—Announcement has been made by the Radio bureau that whenever Radio stations are dismantled, their licenses must be forwarded to the department of commerce.

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"

The
Superspeaker,
Trademark Registered

Jewett 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

EVER since the third Radio conference when it was decided to reallocate wave bands among the broadcasters 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.

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 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.
2. Old dial settings, once sure to bring

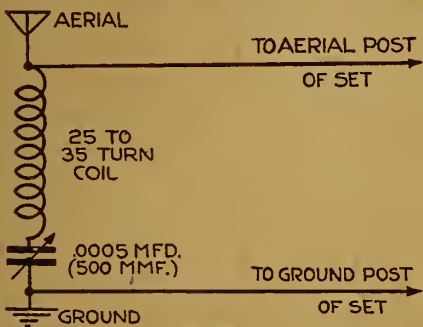


Figure 1

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

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 awaiting their opportunity of going on the air—with a corresponding renewal of the chaos.

The first problem—separation of stations without interference—depends upon 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 frequencies, can be obtained in a number of ways.

A brief resume of the various methods of increasing the selectivity of a receiver includes the use of short outdoor or indoor aeriels, 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 Aeriels and Grounds

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

Short aeriels mean low resistance aeriels. 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 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-

by. A wave trap consists essentially of 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 aerial and ground posts of the set.

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.

Efficiency 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 coil.

The coil can be made by the Radiophan who cares to dabble in such things. This is done by winding in a single layer 25 turns of number 24 dec. wire on a 3-inch diameter or 35 turns of the same size wire on a 2-inch diameter paraffined

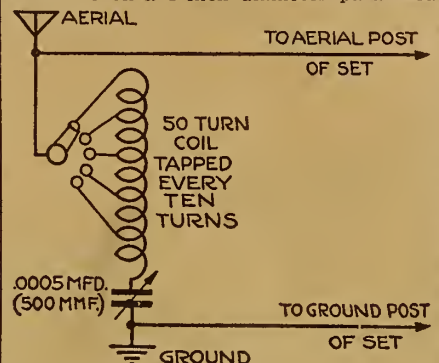


Figure 2

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

possible in tuning to eliminate an interfering station.

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 so 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.

Other Aids to Selectivity

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

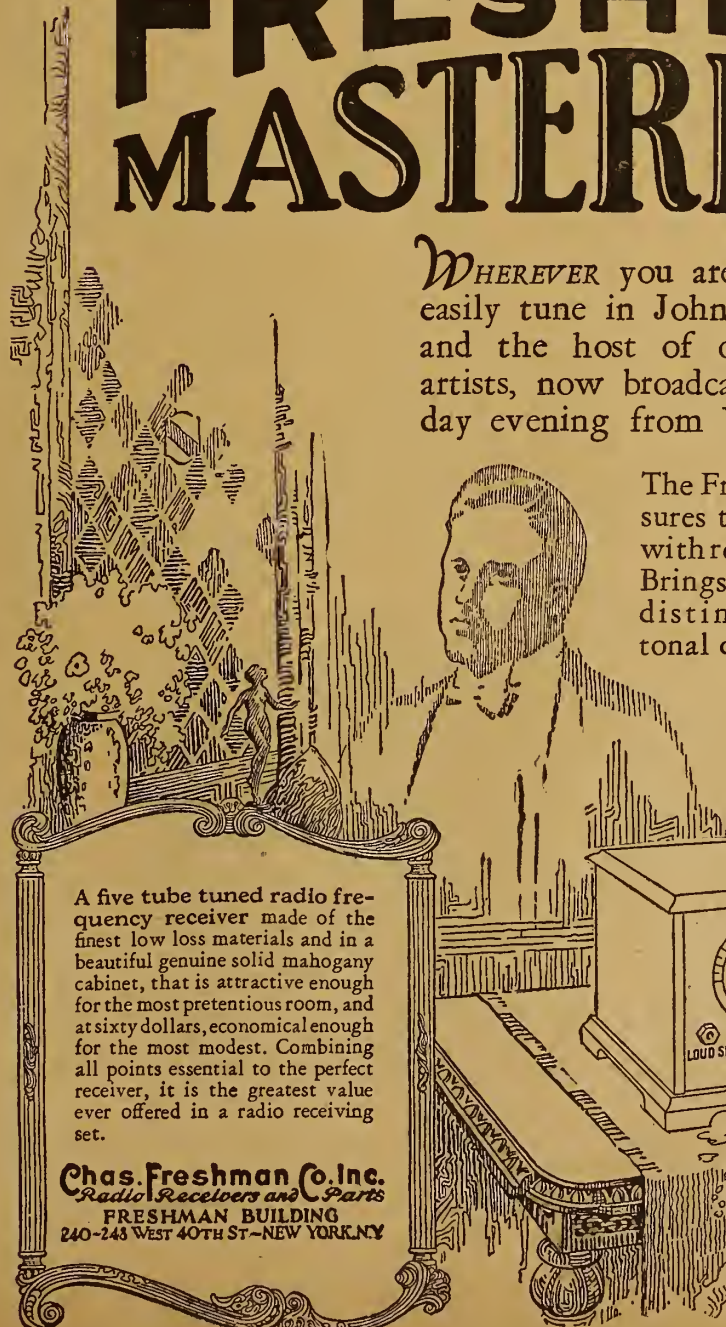
Super sensitive sets, such as the super-heterodyne or five tube Radio frequency designs, should have their cabinets well shielded so as not to pick up interfering stations through the ability of their inductances to act as effective aeriels. Some-

(Continued on page 26)

McCormack—More Clearly

on the

FRESHMAN MASTERPIECE



WHEREVER you are in this country you can easily tune in John McCormack, Bori, Alda and the host of other Metropolitan Opera artists, now broadcasting every other Thursday evening from WEA and other stations.

The Freshman Masterpiece assures true to life reproduction with real loud speaker volume. Brings out every single note distinctly, with matchless tonal qualities.

The easiest of all sets to operate.

A five tube tuned radio frequency receiver made of the finest low loss materials and in a beautiful genuine solid mahogany cabinet, that is attractive enough for the most pretentious room, and at sixty dollars, economical enough for the most modest. Combining all points essential to the perfect receiver, it is the greatest value ever offered in a radio receiving set.

Chas. Freshman Co. Inc.
Radio Receivers and Parts
FRESHMAN BUILDING
240-243 WEST 40TH ST.—NEW YORK, N.Y.

These artists broadcasting through courtesy of Victor Talking Machine Co.

Somerset

Quality-



SOMERSET
STRATFORD
MODEL 4-A
\$**65**

STRATFORD MODEL 4-A

EVERY 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, synchronized 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!

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 tubes. 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

YOU make profits only on the goods you sell—not on the shelf ornaments. Get aboard the Somerset line—it is going full 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.

Prices subject to change without notice

SHELBOURNE MODEL 4-B

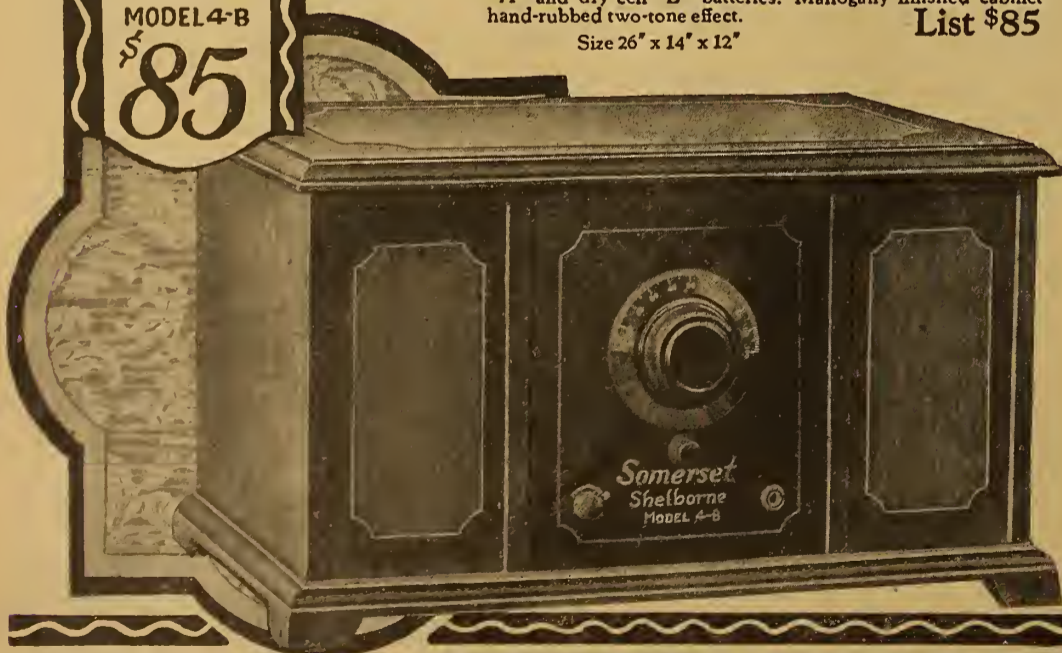
SOMERSET
SHELBOURNE
MODEL 4-B
\$**85**

4 Tubes—Single Dial Control

Our perfected tuned radio frequency circuit with single dial synchronized control. Storage battery or dry cell operation, automatic filament control, the finest "low loss" condensers, and the famous SOMERSET Calibrated Transformers. Compartments for large sized storage "A" and dry cell "B" batteries. Mahogany finished cabinet hand-rubbed two-tone effect.

Size 26" x 14" x 12"

List \$85



EVERY 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 you 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 painstaking 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

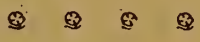
Radio

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.



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.....

City.....

State.....

Mail Today



SOMERSET MARS Model 5-A

5 Tubes—Three Dial Control

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

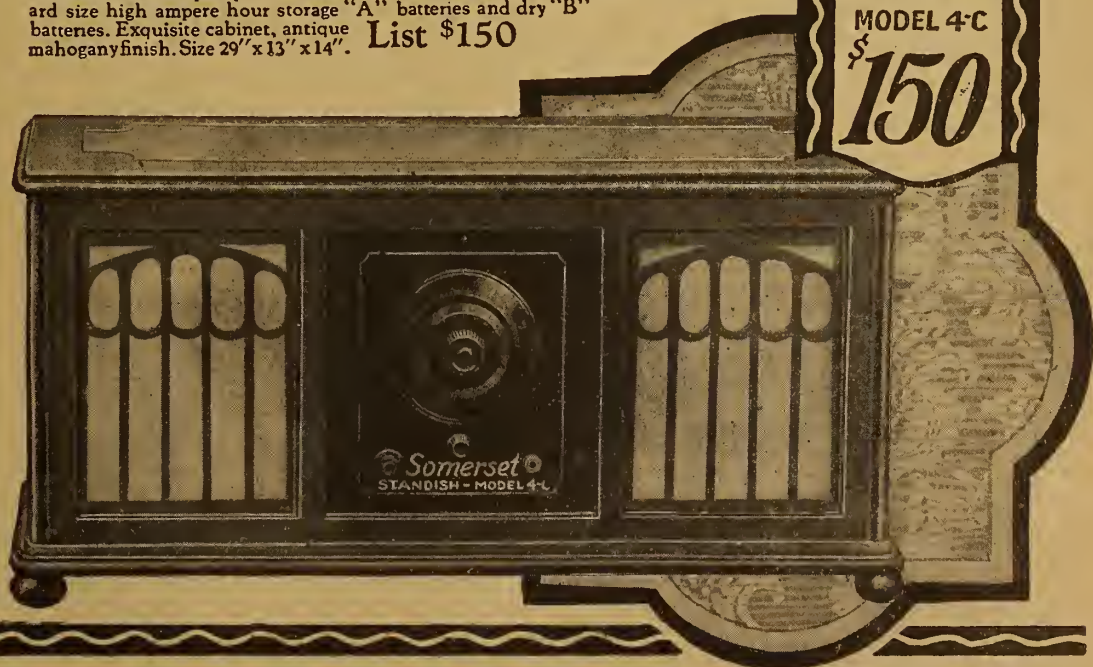
Prices subject to change without notice

**4 Tubes—Single Dial Control
with built-in loud speaker**

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AN EVENING AT HOME WITH THE LISTENER IN

(SEE INSTRUCTIONS FOR USE BELOW)

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

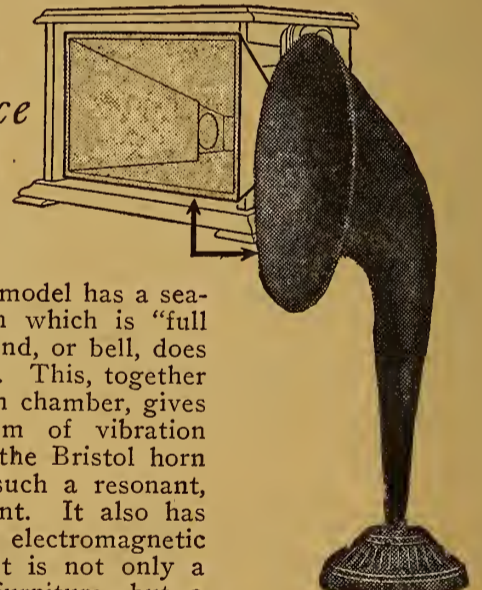
Instructions for Use.—All the hours above are given in Central Standard Time. If your city uses Eastern Time, add one hour to each of the periods stated; if your city uses Mountain Time, subtract one hour; if your city uses Pacific Time, subtract two hours. This table includes only the evening broadcasts,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

STATIONS IN ORDER OF WAVE LENGTHS USED

Table with columns: Meters Call, Meters Call, Meters Call, Meters Call, Meters Call, Meters Call. Lists stations grouped by wave length.

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LINCOLN PROGRAMS ON WEDNESDAY

Saturday, February 7

Saturday, silent night for: CFCA, CHNC, OKY, KFAE, KFOH, KFKU, KFKV, KJBS, KOB, KSAC, WBAP, WCAI, WCAU, WGBD, WGS, WEAO, WEBB, WEBW, WEEL, WEMC, WGST, WHAZ, WHO, WMAK, WKAQ, WLW, WOAI, WOI, WOO, WORO, WOS, WSAI, WWJ.

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

Dr. Charles A. Sheldon, city organist and choir director of the First Presbyterian church of Atlanta, Georgia, appears regularly on the Thursday night programs at Station WSB.



trio; 8, Katherine Gravelin, pianist; 8:15, Elsa Bron, violinist; Mrs. Phillip Ware, accompanist; 8:30, Mildred L. Bryant, soprano; 8:45, Elise Biron, violinist; 9:10, Alwyn E. W. Bach, baritone; Katherine Gravelin, accompanist; 9:25, George E. Port, guitarist; 9:40, Mrs. Minnie G. Nickels, contralto; Mrs. Miriam Munyan Thomson, accompanist.
 WBCN, Chicago, Ill. (Central, 266), 6-6:45 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 Gardens orchestra; George Forsyth, tenor; Jack Parker, tenor; Trianga 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; Southtown harmonizers, harmony trio; Les Cameron, tenor; Murphy sisters, harmony duo.
 WCAE, Pittsburgh, Pa. (Eastern, 462), 2:30 p. m.,

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



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 "Flerabras," "Pizzicato Bluettes," 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," Jack MacDonald; CNRO Hawaiian orchestra; "Un Sospiro," Mollie Tuckman, pianist; "Indian Love Lyrics," Bobs McDermott; "Some Wild Animate You Should Know," Clyda Patch; "La Reve," Helen Langdon, cellist; "Mona," "The Road that Leads to You," Fred Merryweather, vocalist; CNRO Hawaiian orchestra; mouth organ solo; humorous, popular Scotch comedian; "Prelude in G Minor," Mollie Tuckman; "A Kiss in the Dark," "Sweetheart," Bobs McDermott; dance program, James McIntyre and his Chateau Laurier hotel orchestra.
 KOKA, E. Pittsburgh, Pa. (Eastern, 309.1), 1:30 p. m., concert, Daugherty's orchestra; 6, dinner concert, Westinghouse band, T. J. Yastine, conductor; 7:30, children's period; 7:45, last minute helps to Bible School Teachers, C. C. Johnson; 8:30, concert, Westinghouse band.
 KFI, Los Angeles, Calif. (Pacific, 467), 5-5:30 p. m., Evening Herald, tabla talk and news; 5:30-6, Examiner's musical half hour; 6:45-7, "Inspirational Psychology," Dr. Clyde Sheldon Shepard; 7-7:45, White's Californians dance orchestra; 7:45-8, The Book Shelf; 8-9, Pastel trio, Alta Runyon, cellist; Frieda Runyon, violinist; Irena Bowring, pianist; 9-10, Examiner, program by Monrovia, Calif., Chamber of Commerce; 10-11, Packard Radio club.
 KFNH, Shenandoah, Ia. (Central, 266), 6:30 p. m., concert, Fainage entertainers, J. L. Paben, director.
 KFOA, Seattle, Wash. (Pacific, 450.2), 4:15-5 p. m., Wm. F. Hoffman's Olympic hotel orchestra; recipe; 6:45-8:15, Rhodes Department store program; "Eyes and Your Diet," Dr. E. A. S. Schilling; concert, Olga Kahlike, director; 8:30-10, Blind Radio Flva dance orchestra; 10:05-11, Olympic hotel dance music.
 KFQK, Seattle, Wash. (Pacific, 238), 7:15-8 p. m., Aunt Evelyn'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., sunshina hour program personally conducted by Mrs. McPherson; 8:30-9:30, studio impromptu program with Roy Held Brignall, pianist and Gladwyn N. Nichols, cornetist; 7:30-9:30, auditorium service, sermon on Divine Healing, Almee Semple McPherson, pastor.
 KGO, 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 Le Ferrera, conductor; 8, "Pirates of Penzance," courtesy of the Pacific States Electric company, Carl Anderson, director; Wilhelmina Wolthua, accompanist; 10-1 a. m., dance music, Henry Halstead's orchestra.
 KGW, Portland, Ore. (Pacific, 485.1), 10 p. m., Columbia's Melod Men, Hotel Portland.
 KHL, 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; 6-6:30, Art Hickman's Biltmore hotel concert orchestra, Edw. Fitzpatrick, director; 6:30-7:30, little stories, American history, Prof. Walter Sylvester Hertzog; Helen Pirie, screen juvenile; Uncle John; 8-10, program, Silverwood's, arranged by J. Howard Johnson; 10-12, Earl Burnett's Biltmore hotel dance orchestra; 12-2 a. m., The Lost Angels of KHL, Charlia Wellman, Bill Hatch, Jerry Kopa and others.
 KNX, Hollywood, Calif. (Pacific, 337), 8 a. m., morning prayer; 9, Town Crier, news; 10, Hired Hand's morning message; 10:30, Forbes W. Van Why, Radio technical talk; 12-1 p. m., Wuriltzer pipe organ studio; 5 p. m., closing markets; 5:45-6:15, Wuriltzer studio program; 6:15-7:30, Green Hill dance orchestra; 7:30-8, D. B. Carpenter's "Little Gem" program; 8-10, program, Peerless Products company; 10-11, Abe Lyman's Coconut Grove orchestra from Ambassador hotel.
 KOA, Denver, Colo. (Mountain, 322.4), 9-12 midnight, Joa 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 Theaters;" 1-2 p. m., Rudy Salger's Fairmount hotel orchestra; 2:30-3:30, 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.
 KSO, 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-piece dance orchestra.
 KYW, Chicago, Ill. (Central, 535.4), 6:30 a. m., morning exercises, Y. M. C. A.; 11:35, tabla 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, baritone; Thomas S. Stephenson, tenor; 9:05, Youth's Companion; 9:35-11:30, Congress classic; 12-2, Congress carnival.
 PWX, Havana, Cuba (Eastern, 400), 8:30-11:30 p. m., "Valtz," Prof. Jose Campos; "Romance," Cesar Simone, tenor; "Danza Noruega," Prof. Jose Campos, pianist; "Melodia," Emma Roldan, soprano; talk on Cuba; "Sevilla," Prof. Jose Campos, pianist; "Granada," Cesar Simone, tenor; "La Maja Del Siglo XX," Enriqueta Loureiro, contralto; "El Olvido," Manuel Menendez, haritone; "Duo da la Africana," Emma Roldan, soprano; Cesar Simone, tenor; "Dos Danzas," Prof. Jose Campos; "Palomita Blanca," Augusto Vincente Carunchu; "Cancion Cubana," Enriqueta Loureiro, contralto; "Tango Argentino," Augusto Carunchu, tenor; "El Desanzano," group.
 WAHG, Richmond Hill, N. Y. (Eastern, 316), 12-2 a. m., special midnight program, Paramount dance orchestra.
 WBAP, Fort Worth, Tex. (Central, 472.9), 7 p. m., review of interdenominational Sunday school lesson, Mrs. W. F. Barnum.
 WBBR, New York, N. Y. (Eastern, 272.3), 8 p. m., Staten Island School of Music, Lelah Koval, Clifford

Chapin, Edward Petri; 8:10, Lelah Koval, pianist; 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), 6 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 Klimball

Willy Stahl, conductor, concertmaster, and violinist of the Rialto theater broadcasts every Monday night at WNYC, New York.

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 Cadman, 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 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 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 WGY. His lovely Nordic melodies 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 possible.

tea-dansant music; 4:30, Ed Lally's Rendezvous Cabaret orchestra; 6:30, dinner concert, William Penn hotel; 7:30, Uncla Kaybee; 7:45, movie chats; 8:30, Royal entertainers.
 WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 10:45 a. m., home service, Betty Crocker; 3 p. m., "Freside Philosophies," Rev. Roy L. Smlth; 8:15, "In Santiago, Chlii, September 8, 1925," MacMartin; 8:30, Twin City Auto Show and Trade week; 10:30, dance program.
 WDAF, Kansas City, Mo. (Central, 365.6), 3:30-4:30 p. m., Star's Radio orchestra; 6-7, school of the air; address, Roger W. Babson; The Tell-Me-a-Story lady; Trilanon ensemble.
 WDAK, Philadelphia, Pa. (Eastern, 395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 2:30, Mary L. Steinruck, contralto; 4:30, Cotton Pickers dance orchestra; 7:30, Arcadia cafe concert orchestra.
 WFAF, New York, N. Y. (Eastern, 492), 4-5 p. m., dance program; 6-7, dinner music, Waldorf-Astoria hotel; 7:30-7:45, Hazel Fleener Love, mezzo soprano; 7:45-8, Rafael Samuella, pianist; 8-8:15, Walter Scott, violinist; 9-11, special musical program; 11-12, Ben Bernie and his Hotel Roosevelt orchestra.
 WEAR, Cleveland, Ohio (Eastern, 364.3), midnight, "The Nite Caps on Lake Erie," program arranged by Cleveland News-Leader and Euclid Music company; Austin J. Wylie's Golden Pheasant orchestra; Mrs. Carl Rupp, soprano; Kozle-Wallace orchestra; Ethel Rohde, pianist; Vinton Vernon's Crystal Slipper orchestra; Peggy Ely, soprano; Carl Rupp's Hawaiian guitar solos; Fred C. Erdman, tenor; Carr Singing-Saxophone orchestra; Julius Miko, Gypsy violinist, dulcimer; Cleveland Mandolin and Banjo quintet; Mrs. Carl Rupp, Fred Erdman, duet; All-star Hawaiian trio; Rex Haller, soprano; Eddie Connors, banjoist; Julius Miko, xylophonist; Frank Wiessenberger, pianist; Austin J. Wylie's Golden Pheasant orchestra.
 WEBH, Chicago, Ill. (Central, 370), 7 p. m., Oriola orchestra; Radio Sunday school lesson, Dr. Herbert W. Virgin; Marie Kelly, reader; Edgewater Beach Oriola orchestra; Langdon Brothers, Hawaiian guitarists; Cambridge Sisters, songs; 11, Oriole orchestra; Loos Brothers; Nubs Allen, soloist; Hawaiian guitar solos, Langdon Brothers; Nick Lucas, songs; Nick Lucas, soloist; Marie Wright, soprano; Banks Kennedy, pianist; Ned and Ches.
 WFAA, Dallas, Tex. (Central, 472.9), 12:30-1 p. m., address, Hugo Swan; 8:30-9:30, musical recital, G. C. Davis, president; and faculty of Davis School of Music; 11-12, Dallas String quartet.
 WFL, Philadelphia, Pa. (Eastern, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; banquet, Women's International League for Peace and Freedom, speaker: Countess Karolyi and Jeanette Rankin; 3, Loretta Kerk, pianist; Helen Barlow, soprano; Edman M. Snyder, readings; Symphony by Moret for two violins and piano, Morris Marcus, violinist; Ruben Brodsky, violinist; Bella Braverman, pianist; 4, Piccadilly Strens dance orchestra; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, the kiddies' pal; 8, medical talk.
 WGBS, New York, N. Y. (Eastern, 316), 10 a. m., timely talks with Terese; 10:10, kiddies' klub, Eleanor Schorer; 10:40, "Professions for Women," Dorothy Cox; 1:30 p. m., Scripture reading, auspices American Bible society; 1:35-2, Jack Wheaton and his orchestra; 2, Alfred Seeger, ballad singer; 2:10, Jack Wheaton and his orchestra; 3, Fulton Oursley interviewed by Teresa Rose Nead; 3:10, Cecile Werler, contralto; 3:20, Americanization talk, Harold Fields; 3:30, Cecile Werler, contralto; 3:40, National Woman's Party program; 3:50, Cecile Werler, contralto; 6-6:30, Uncle Gabebo; 6:30-7:30, Cameo Collections; 9-9:30, modern marriage; 9:30-9:45, inside movie chats, Sou Comly; 9:45-10:45, Fiesta Mexicana, Louis Zundido, Mexican baritone; Gonzalez trio; Madame Gonzalez, Mexican prima donna; Roberto Cantillano, fustist; National anthem; 10:45-11, Bob Emmerleh, pianist; 11-12, Vincent Rose orchestra.
 WGN, Chicago, Ill. (Central, 370), 1:40 p. m., Drake concert ensemble; Blackstone string quintet; 2, rocking chair time; 5:30, Skeezix time; 6, organ recital, Lyon & Healy; 6:30-7, dinner concert, Drake concert ensemble; Blackstone string quintet; 8-9, classical concert; 10-11, dance numbers, Don Bestor Drake dance orchestra; Jerry Conley Blackstone dance orchestra.
 WGR, Buffalo, N. Y. (Eastern, 349), 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Radio

THURSDAY WGN "LINE O' TYPE" NIGHT

Saturday, February 7

(Continued from page 13)

Dealers' musical program; 6-7:30, dinner music, Hall-pryd string quartet.

GY, Schenectady, N. Y. (Eastern, 380), 9:30 p. m., dance music, Phil Romano's orchestra.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., selections, Alamo theater organ; 7:30-8, concert, auspices Arthur Flindling.

WHK, Cleveland, Ohio (Eastern, 273), 6 p. m., dinner music, radiograms; 9 p. m., Rainbow club entertainers, Billie Bugbee, Dede and Bobbie Fitzpatrick, Violet Owens, June Farley, Lucille Phillips, Betty Booth, Dean Smith, John Peattie, Art Cooke, Mickey Croxy entertainers; 10 p. m., Emerson Gill and his Bamboo Garden orchestra.

WHN, New York, N. Y. (Eastern, 360.4), 5-6:30 p. m., Broadway Melody boys dance music; 6:30-7:30, Alamo hotel dinner music; 7:30-8, Hotel Carlton terrace orchestra; 8:30-9, Strand Roof orchestra; 11-11:30, Jimmy Clarke and his entertainers; 11:30-12, Rose-land dance orchestra.

WIP, Philadelphia, Pa. (Eastern, 509.9), 1 p. m., Kerl Bonawitz, organist; 3, Gerald O'Dell and his entertainers, "Me and the Boy Friend," "Sweet Little You," "Oh, Peter," "Blacin' Blues," "Show Me the Way," "Only You," "Where is the Only Girl of Mine," "Too Free," "Red Hot Mama," "Somebody Loves Me," "Oh, Aabel," "Tell Me Dreamy Eyes," "Nobody Loves You Like I Do," "San"; 6:05, Hotel St. James dinner orchestra; 7, Uncle Wip's bedtime stories; Merion Henry, 12-year-old pianist; 8, "The Water Sully and Its Relation to Health and Disease," Dr. Ellbur Horn, Ph. D.; 8:15, Senior choir Holy Trinity church of Audubon, N. J.; 10:05, Benjamin Franklin dance orchestra; 11:05, organ recital, Karl Bonawitz.

WJJO, Mooseheart, Ill. (Central, 302.8), 7:15-8:15 p. m., Mooseheart theater orchestra; 9-12, dance music.

WJZ, New York, N. Y. (Eastern, 455), 7-8 p. m., Waldorf 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, Senate theater review.

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

WMAQ, Chicago, Ill. (Central, 447.5), 2 p. m., Union League club forum; 6, program, Rudolph C. Bryant; 8, LaSalle hotel orchestra; 8:30, "Australia," Capt. Kilroy Harris; 9, weekly Chicago theater review.

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

WNAK, Boston, Mass. (Eastern, 280.2), 8:15 p. m., "Jewels of the Madonna," Chicago Opera company, Rosa Raisa, Forrest Lamont, Giacomo 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 Alabama's orchestra; 7:35, The Chateau Four; 8:30, Police quartet; 9:15, song recital; 10:10, travel talk, Board of Education.

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

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

WOC, Davenport, Ia. (Central, 498), 7:30 p. m., Sunday school lesson, Rev. M. A. Getzsdorfer; 9, Louis Connor and his LeClaire hotel orchestra; song and novelty numbers, Peter MacArthur.

WOI, Ames, Iowa (Central, 270), 12:30 p. m., college chimes; address.

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.

WOR, Newark, N. J. (Eastern, 405), 2:30 p. m., Anne "The soprano," John Romiser, 3:30, Joe Brown and his orchestra; 6:15-7:15, Ernie Kuchert's orchestra; 8, Schubert string quartet; 8:30, program, Mabelanna Corby, composer; 9:15, Clemont male quartet; 10-10:30, Mabelanna Corby, composer.

WQJ, Chicago, Ill. (Central, 448), 11-12 m., home comedies program, Helen Hixson Downing, director; Abroad with a Paint Box and a Family of Six; Mrs. Anita Burnham; "Window Display—the Barometer of Store Service," L. S. Jones; 3-4 p. m., coffee klatsch; 7-8, dinner concert, Ralph Williams and his Rainbo Garden orchestra; Agatha Karlen, reader; Henrietta Nolan, violinist; Ois Ike Jester, soprano; M. J. Jones, piano; 10:15, Ralph Williams and his Rainbo Skylerks; Jerry Sullivan; Harry Geise; Ykona Cameron, soprano; The Melodians, Laurio, Eddie, Bennie; Alfred Tween, harmonica soloist; Clarence Theaders, tenor; George A. Little, Larry Shay, song writers; June Lee, comedienne.

WRC, Washington, D. C. (Eastern, 469), 8:45 p. m., children's hour, Madge Tucker; 7, dinner music, Hotel Washington-Irving Boernstein orchestra; 8, Bible talk; 8:30, "The Development of Washington," Fred J. Essary; 10:30, dance program, Astor Hotel orchestra; 11:15, Otto Beck, organist.

WREO, Lansing, Mich. (Central, 286), 10-12 midnight, Frank Logan and his orchestra.

WSAI, Cincinnati, Ohio (Central, 325.9), 8 p. m., chimes; 8:15, Bicycle sextet; 9, weekly news review; Allison F. Stanley; 9:15, Bicycle mixed and male quartet; 12, Sammy Scept, Tommie Malle; 12:30, Freda Senker's Toad Stool orchestra.

WSB, Atlanta, Ga. (Central, 429), 12 m., Co-ed Glee club, University of Georgia; 5-6 p. m., Bonnie Barnhardt; 8-9, Monroe Georgia Fifth district A and M school band; 10, John Hines, Help skyle; 10:15, WSUI, Iowa City, Ia. (Central, 483.6), 2:30 p. m., correspondence course, "Current, Social and Economic Problems," Theodore D. Woder; 12:45, "Appreciation of Literature," Prof. Frank L. Mott; 1, "The American Constitutional System," Prof. Frank E. Horack.

WTAM, Cleveland, Ohio (Eastern, 364.3), 6 p. m., Niaro, male quartet; WTAM dance orchestra, Ev Jones, director.

WTAY, Oak Park, Ill. (Central, 250), 6:15-7:30 p. m., Franklin Earl Hathaway, violinist; Earl Bundy, tenor; Esther B. Hawkins, pianist; Mark Love, baritone; 9-10:15, organ from the Pantheon; Lester Kelsey, tenor; Dr. W. V. Zimmer, organist.

WVJ, Detroit, Mich. (Central, 52.7), 8 a. m., setting up exercises, R. J. Horton; 9, tonight's dinner; 12:05 p. m., Jules Klein's Hotel Statler orchestra; 3, Detroit News orchestra; 6, Jules Klein's Hotel Statler orchestra; 7, Detroit News orchestra.

Sunday, February 8

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

CFCA, Toronto, Can. (Eastern, 350), 11 a. m., services, University of Toronto, preacher, Chancellor G. W. Firth; 5:35-8 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.

CKY, Winnipeg, Can. (Central, 450), 7 p. m., service, First Baptist church.

KOKA, 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 Helroth, organist; 4:45, vesper services, Shady-side 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.

KFOA, Fort Worth, Texas (Central, 315.6), 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 orchestra from Metropolitan theater, Creators directing; 8-9, vocal recital; 9-10, Examining Abel, and his Rose room orchestra; 10-11, Packard Six orchestra, Bill Hennessey, leader; Starr Russell, blues singer.

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

KFNF, Shenandoah, Iowa (Central, 266), 10:45 a. m., church service; 3 p. m., services, Men's Gospel team; 6:30, concert, Forest City, Mrs. Richardson, director.

KFSG, Los Angeles, 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, Aimee Semple McPherson, pastor; 7-9:45, musical hour and evening service of Angelus Temple; 10-11, recital, Esther Frickel, organist.

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.

KGW, Portland, Ore. (Pacific, 492), 10:30 a. m., service, First Presbyterian church, Dr. Harold Leonard Bowman, pastor; 3 p. m., concert; 8, church services, Portland Council of churches; 7, dinner concert, Colburn concert orchestra.

KHJ, Los Angeles, Calif. (Pacific, 404.1), 10 a. m., 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 Baltimore hotel concert orchestra, Edward Fitzpatrick, director; 7-7:30, organ recital, Arthur Blakely, organist; 8-11, program, Martin Music company, arranged by J. Howard Johnson; all Russian night, Russian string quartet; Eugene Petrovsky, tenor; Ruth Frits, soprano; John Martin, pianist.

KJS, Los Angeles, 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 service 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 Wilshire 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.

KOA, Denver, Colo. (Mountain, 322.4), 11 a. m., morning prayer and sermon, St. John's Episcopal cathedral, Rev. Benjamin Dunlap Dagwell, dean; Rev. Jonathan Watson, canon; 3 p. m., concert, First and Second bands, Olinger Highlander boys, John S. Leitch, conductor; overture, "The Altar of Genius," concert polka; "The Ambassador," Major Kenneth Gorsline, cornetist; "Oriental Intermezzo," U. S. Field Artillery March; First band; "Humorous Fantasie on Home, Sweet Home," the composer describes how "Home, Sweet Home" might be played in other lands, Second band; Mrs. Agnes Clark Glalster, soprano; some blues, "The Trombone Blues," "The Red, White and Blues," Second band; operate bits, high bands; 7:30, evening prayer and sermon, St. John's Episcopal cathedral, Rev. Benjamin Dunlap Dagwell, dean; Rev. Jonathan Watson, D. D., canon.

KOB, State College, N. M. (Central, 348.6), 7:30-8:30 p. m., Boy Scouts, troop No. 1.

KPO, San Francisco, Calif. (Pacific, 429.5), 11-12 m., church services, talk, Dr. T. F. Day; soloist, Faun Post Trowbridge, soprano; Theodore J. Irwin, organist; 8:30-10, concert, Ruth Seiger, Fairmont hotel orchestra.

KSAC, Manhattan, Kans. (Central, 340.7), 8 p. m., piano voluntary; 8:05, special sacred music; 8:10, prayer of affirmation; 8:15, hymn; 8:20, "Common Folks," understand them; 8:35, song of benediction, Walter Burr, director.

KTHS, Hot Springs National Park, Ark. (Central, 375), 12:15 p. m., services, Central Avenue Methodist church; 8:30-10, concert, 10-piece Meyer Davis New Arlington hotel orchestra, Jack Renard, director; 10-11, dance concert, Phil Baxter and his singing orchestra, DeSoto Springs Japanese ballroom.

KYW, Chicago, Ill. (Central, 535.4), 11 a. m., Central church service, Dr. Frederick F. Shannon, pastor; 4-5 p. m., studio concert; 7, Chicago Sunday Evening club, Dr. Robert E. Spear, speaker.

WBAP, Fort Worth, Tex. (Central, 472.9), 11 a. m., complete services, St. Paul's M. E. church, Rev. C. D. Mesde, pastor; Mrs. F. L. Jaccard, organist; 4 p. m., concert, Rialto theater; 11-12, midnight frolics, Ted Miller's Crazy hotel orchestra.

WBBR, New York, N. Y. (Eastern, 272.3), 9:10 p. m., Mrs. Hans Haag, pianist; 9:20, Dr. Hans Haag, violinist; 9:35, "Souls of the Dead Delivered from the Grave Soon," Fred W. Franz; 10, vocal duets; 10:10, Dr. Hans Haag, violinist; 10:20, Mrs. Hans Haag, pianist.

WBCN, Chicago, Ill. (Central, 266), 10:30-12 m., sermon, Rev. R. A. White and morning service from People's Lutheran church; 4-5 p. m., Lain & Son, classical concert; vocal and instrumental artists with pipe organ accompaniment; 5:15-6:15, talk, Rev. Richard D. Hughes; vesper service, Emerald Avenue Presbyterian church; 7-8, classical hour, Englewood temple chorus; 8-10, popular program, Franz Lazarus, violinist; Midway Dancing Gardens orchestra; Borden Bros., harmony duo; F. L. Berong, tenor; Buster Graves, boy soprano; Blanche Robinson, pianist; Florence Eastman, soprano; Bobbie Mehr, blues singer; Alfred Winterfeldt, concertinist; 10-10:15, Midway Dancing Gardens orchestra.

WCAE, Pittsburgh, Pa. (Eastern, 462), 10:45 a. m., services, Rodef Shalom temple; 3 p. m., People's radio church services; 4, Prof. Otto Kaitels, pianist; 6:30, dinner concert, William Penn hotel.

WCAU, Philadelphia, Pa. (Eastern, 278), 5:30 p. m., sermon, Rev. John Stockwell; 6, Meyer Davis Hotel Philadelphia trio.

WCBO, Zion, Ill. (Central, 345), 8 p. m., Cornet



Elena Munster, well-known in Dallas, Texas, for her interpretations of popular songs, will be heard this week, Thursday, February 12, at WBAP, Fort Worth, Texas.



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 Sundays and several times during the week.

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 Scouting," Dr. Medbury.

WIP, Philadelphia, Pa. (Eastern, 509.9), 10:45 a. m., services, Holy Trinity church, Rev. Floyd W. Tomkins, D. D., rector; 4 p. m., services, auspices German-town Y. M. C. A.; lecture, "What Western Democracy Means to Me," Arthur Walwyn Evans.

WJJO, Mooseheart, Ill. (Central, 302.8), 7:45-8:45 p. m., Roman Catholic services; 8:40-9:40, Albert Brown, organist; 9:40-11, Protestant service, 3-4, concert.

WJZ, New York, N. Y. (Eastern, 455), 3:30-3:45 p. m., "American Education in Arab Lands," Bayard Dodge; 3:45-5, David Brown, pianist; 8-8:30, Leon Gilbert Simon, baritone; 8:30-9, Irwin Hassell, pianist.

WLS, Chicago, Ill. (Central, 345), 6:30 p. m., Ralph Emerson, organist; 7-8, Grace church orchestra.

WLW, Cincinnati, Ohio (Central, 423), 9:30 a. m., school, editorial staff of Sunday School publications, Methodist Book concern; 11, services, Church of Covenant, Dr. Frank Stevenson; 7:30 p. m., services, First Presbyterian church of Walnut Hills, Dr. Frederick McMillan; 8:30, Western and Southern orchestra, William Kopp, director; Carl Wunderle, zither soloist.

WMAK, Detroit, Mich. (Central, 325.5), 10:25 a. m., service, First Methodist Episcopal church.

WMC, Memphis, Tenn. (Central, 503.9), 11 a. m., services, St. Mary's Episcopal cathedral.

WNYC, New York, N. Y. (Eastern, 528.8), 9 p. m., Brooklyn Mark Strand theater program, Edward L. Hyman, director.

WOAI, San Antonio, Tex. (Central, 394.5), 10 a. m., services, First Presbyterian church; 7:30 p. m., services, Central Christian church; 9:30, "La Boheme," WOAI entertainers.

WOAW, Omaha, Nebr. (Central, 526), 9 a. m., Radio chapel service, Rev. R. Brown; 2:15 p. m., matinee program, Cumberland; 6, Bible study period, Mrs. Carl B. Gray, director; 9, chapel service, Kountze Memorial Lutheran church, Dr. O. D. Sattly, pastor; John Helgren, choir director; Albert Sands, organist.

WOC, Davenport, Iowa (Central, 483.6), 2 p. m., Palmer Little symphony, Erwin Swindell, conductor; Charles R. Hall, soloist; 8, church service; 9:30, musical program, Palmer Little symphony, Erwin Swindell, conductor.

WOI, Ames, Iowa (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. MacLennan, pastor.

WOR, Batavia, Ill. (Central, 275), 7-8 p. m., Columbia Conservatory of music of Aurora; 8, I. B. S. A. singers; 8:10, Mrs. Elsie Demaree, soprano; 8:15, John T. Read, bass; 8:20, Bible lecture, Oscar Olson; 8:45, Mrs. Elsie Demaree, soprano; 8:50, I. B. S. A. singers.

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

WPC, Chicago, Ill. (Central, 448), 10:30 a. m., People's church, Dr. Preston Braden; Clarence Eddy, organist; 8-10, Ralph Williams and his Rainbo Garden orchestra; Elsie Orr, soprano; Ann Burrows, pianist; Leroy Trauger, baritone; Oscar H. Williamson, tenor; Harry Abernethy, accompanist; Carl G. Linner, pianist; Brook sisters, Julia and Ruth.

WREO, Lansing, Mich. (Central, 286), 10 a. m., chimes, Belfry Plymouth Congregational church; 10:30, services, First Presbyterian church, Rev. Guy W. Simon, pastor; Dwight Steere, organist; 7 p. m., services, Central M. E. church, Rev. Frank Kingdon, pastor; John George, director Community singing; W. James Phillips, organist.

WSB, Atlanta, Ga. (Central, 429), 11 a. m., First Presbyterian church; 5-6 p. m., sacred service, St. John's Methodist Sunday school; 7:30, Wesley Memorial church service.

WSUI, Iowa City, Iowa (Central, 483.6), 7 p. m., children's hour, Mrs. Alice McLeod Mills, director; 9-9:30, familiar hymns, Mrs. A. W. Volkmer, contralto.

WWJ, Detroit, Mich. (Eastern, 352.7), 7:30 a. m., services, St. Paul's Episcopal cathedral; 2 p. m., Detroit News orchestra.

Monday, February 9

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

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

CFCA, Toronto, Can. (Eastern, 350), 5:30-10 p. m., bedtime story.

CHNC, Toronto, Can. (Eastern, 350), 8-10 p. m., joint recital, Senor Alberto Guerrero, pianist; Ferdinand Fillion, violinist; Arthur Blight, baritone.

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

KOKA, E. Pittsburgh, Pa. (Eastern, 309.1), 7 a. m., morning exercises; 8, morning exercises; 12:15, concert, Sealzo's orchestra; 6:15, concert, KDKA Little symphony orchestra; 7:30, children's period; 8:15, address, University of Pittsburgh studio; 8:30, concert.

KFAE, Pullman, Wash. (Pacific, 530), 7:30-9 p. m., Varsity quartet playing "Doodle De Do," "June Night," "All Alone," "A Little Close Harmony," readings, "Preparing 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; 5:30-6, Evening Herald's musical half hour; 8-9, Evening Herald, Radiofan's orchestra, Charlie Melson, tenor; 9-10, program, Walter M. Murphy Motors company; 10-11, Examiner, Ray West and his Alexandria hotel orchestra.

KFKU, Lawrence, Kans. (Central, 275), 6:50 p. m., piano tuning-in number; 7, music; 7:15, elementary Spanish lesson, VI, 7:30, basketball game, U. of Iowa State Agricultural college; 8:30, "Methods of Judging, Selection of Judges," Prof. B. A. Gilkinson; 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.

KFOX, 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 WEB, the Sweeney school station.

INDIAN PROGRAM MONDAY AT KOA

Monday, February 9

(Continued from page 14)

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.

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, Arion trio; "Possibilities of Co-operative Marketing," Prof. Erdman; "A Lesson in English," Wilda Wilson Church; "College and University," Dr. Aurelia Henry Reinhardt; "Chats About New Books," Joseph Henry Jackson; 10-11, 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; Shepherd's string orchestra.

KHJ, Los Angeles, Calif. (Pacific, 404.1), 12:30-1:30 p. m., Carlyle Stevenson and his Bon Ton orchestra.

William Hoke has been heard at WTAY, Oak Park, WTAS, Elgin, and many other stations. He will sing this week, Wednesday, February 11, at KYW, Chicago. Edna Linkowski, pianist, has taken part many times in the classical programs at KGO, Oakland. Tune in Tuesday, February 10.

WBRR, 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 duet; 8:50, I. B. S. A. vocal quartet.

WBCN, Chicago, Ill. (Central, 266), 6-6:30 p. m., juvenile period, Luella Drew Wilson.

WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Raybeer; 7:45, address; 8:30, concert, artist-pupils, studio of Mme. Lella Wilson-Smith; 9, concert, A. & P. Gypsy string ensemble; 10, program; 10:30, Nixon restaurant, Etzi Covato, director.

WCBD, Zion, Ill. (Central, 345), 8 p. m., mixed quartet; Erma Reynolds, soprano; Mrs. G. R. Sparrow, alto; G. R. Sparrow, tenor; duet, Mr. and Mrs. G. R. Sparrow; William C. Dunn, euphonium soloist; Paul Stewart, cornetist; cornet and euphonium duet, Stewart, Dunn; Mary Ross, pianist; Marion Lee, reader.

WCCO, Minneapolis-St. Paul, Minn. (Central, 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, "Feeding 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, Vincent Lopez Hotel Statler dance orchestra, Harold Gesler, director; 8:30-8:55, recital featuring John F. Gunderman, Jr., Lewis McLouth and Ralph Lord; 9-10, concert, Wheat's Ice Cream company, directed by P. A. Arlow Mathews; 9-10, concert presented by P. A. Winger of Ridgeway, Ont.; 11:30, supper dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Gesler, 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 Vacation," 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, "Hungarian Dance," WGY orchestra; "Andante," orchestra; 7:45, one act play, "The Father of the Wilderness," Barrett H. Clark; "Berceuse," WGY orchestra; "Polish National Dance," WGY orchestra; "Hungarian Dance in G Minor," WGY orchestra.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Ruth 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. Dodge, pianist; "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.

WKK, Cleveland, Ohio (Eastern, 273), 6 p. m., musical offerings and new items; Ethel O. Hawes, bedtime story.

WNN, New York, N. Y. (Eastern, 360.4), 5-6 p. m., Charles Taylor and his Southerners; 6:30-6:55, Alamac dinner music; 6:55-7, health talk, Doctor Landis; 7-7:05, Alamac hotel music; 7:05-7:27, fashion chats, Madame Belle; 7:35-8, Hotel Carlton terrace orchestra; 8:50-9:20, Littmann's employees' orchestra; 10-11, Radio Shack.

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 York, director; 4, Chasm magazine talk; 6:15, Dave Harman's Cinderella orchestra; 8-8:30, Eugene Moses, blind pianist; 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 singing orchestra.

WORD, Batavia, Ill. (Central, 275), 8 p. m., Hawaiian music; 8:10, Ward's six-piece orchestra; 8:20, Mrs. Halter, pianist; 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. Norland; "School Grounds and Their Equipment," Dr. Henry S. Curtis.

WJ, Chicago, Ill. (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 Back the Family Appetite," Helen 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 Geographic society; 4:30, Meyer Davis' New Willard hotel trio; 6, children's hour, Peggy Abbon.

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, Dixie stars; 8:30, Harry Pomar Bohemians; 10:45, Warner's Seven aces.

WSU, Iowa 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



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.

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; 5 p. m., closing markets; 8:45-9:15, Wurlitzer studio, sports talk, Sid Ziff; 6:15-7:30, dinner hour music, John A. Evans corporation, Harleida Park orchestra; 8-10, program, Los Angeles Ice and Cold Storage company; 10-11, Silvertown Cord orchestra, Lillian May Challenger, soprano on program, E. F. Goodrich Rubber company; 11-12, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel.

KOA, Denver, Colo. (Mountain, 322.4), 8 p. m., "Martha," KOA orchestra; original Indian songs, "The Moon Dance," "Navajo Magic," "To-se-ye-mo's Song," Forrest Rutherford, baritone; Jean Allard Jeanon, accompanist; address, "Primitive Coloradoans," Jean Allard Jeanon, curator of archeology and ethnology, Museum of Colorado; "Habenera," KOA orchestra; "Butterfly Dance," "Rain in the Desert," "Homestead," Forrest Rutherford; "At Dawning," KOA orchestra; Indian opera in two scenes, "The Sunset Trail," John C. Wilcox, director.

KOB, State College, N. M. (Central, 348.6), 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 a. m., town crier; 10:15, theatrical news; 11, chat to housewives, Prudence Penny; 1-2 p. m., Rudy Selger's Fairmont hotel orchestra; 4:30-5:30, Rudy Selger's Fairmont hotel orchestra; 5:30-6:30, children's hour stories, Big Brother; 6:30, theatrical news; 7-7:30, Rudy Selger's Fairmont hotel orchestra; 8-9, Theodore J. Irwin, organist; 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; 9:02, music lesson; 9:07, music for singing exercises; 9:15, inspirational talk; 9:20, callisthenics; 10, back yard gossip; 10:05, all round the house; 10:10, questions and answers; 10:20, "Suggestions for Today's Meals," Amy Kelly; 12:30 p. m., Osceola Hall Burr, reader; "Legume Hay as a Feed," J. W. Linn; Radio question box; "Plans for Summer Pasture," A. W. Knott; 7:20, college bell and quartet; 7:30, "Spotted Poland China, Hampshire and Berkshire," A. D. Weber; 7:40, Radio college quartet; 7:50, keeping of herd records, J. B. Eltch.

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, baritone; Dr. O. H. King, baritone; Mrs. Mean, soprano; 10-11, dance concert, Charles L. Fisher and his 11-piece Eastman hotel orchestra; 12-1 a. m., special owl concert, Meyer Davis New Arlington hotel orchestra, Jack Renard director.

KYW, Chicago, Ill. (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.

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

WBAF, Fort Worth, Tex. (Central, 472.9), 12:05-12:50 p. m., musical program; 7:30-8:30, dance music, Frenley Moore's Black and Gold Sorenaders; 9:30-10:45, Green Dragon dance orchestra, Mrs. Fran Bergeman, director; 12-1 a. m., popular dance music, Swayne's Southern Serenaders.

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

WCX, Detroit, 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, piano tuning in number; address, C. H. Cheney; weekly request story night, music, Trilane ensemble; 8-9:15, program, Ivanhoe band, Walter A. French; Ivanhoe Glee club, Edward H. Gill, Jr., director; 11:45-1 a. m., Nighthawk frolic, "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; 4:30, Eleanor Eisenhardt, soprano; 7:30, Dream Daddy's bedtime stories; 8, Shoffner's "Short Ago Waves"; 9:30, Stanley theater siphony orchestra; 10:03, Arcadia cafe dance orchestra; vaudeville features, Fay's Knickerbocker theater.

WEAF, New York, N. Y. (Eastern, 492), 4-4:20 p. m., Sonia 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, contralto; 9-10, A and P. Gypsies; 10:30-11:30, Ben Bernie and his Hotel Roosevelt orchestra.

WEAR, Cleveland, Ohio (Eastern, 364.3), 7 p. m., Loew's State theater, orchestral and vaudeville numbers, organ.

WEEL, Boston, Mass. (Eastern, 303), 2 p. m., Frank Toomey's Roseland orchestra; 3, Fenway Radlows; 6:30, Big Brother club, Noah's Arkadians; 7:15, Dok-Eisenbourg and his Sintonians; 7:55, Ethe News fished; 8, musicale; 9, New York program, A. & P. Gypsies; 10, Sid Rehnherz and his orchestra.

WEMC, Berrien Springs, Mich. (Central, 286), 8:15-8:30 p. m., Gladys McChrills, pianist; 8:30-8:45, Mrs. H. B. Taylor, soprano; Andrew Aragona, tenor; 8:45-8:55, Tom Johnson, baritone; 8:55-9:05, Ruth Nelson, violinist; 9:05-9:20, Jesse Tanner, Ardis Bentley, pianist.

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 Coomb's Conservatory of Music; 6, Rey Elras and his dance orchestra; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, the Kiddies' pal.

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; 3:30, Skeezzy time for the children; 6, organ recital, 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 Mannheim; 7:30-8, G. W. Donaldson, Scotch singer; Leone Simons, accompanist; Katherine Torey, pianist; 8-9, classical program, Dean Holmes Cowper, director; 11:15-12, organ recital, L. Carlos Meler.

WIP, Philadelphia, Pa. (Eastern, 509.9), 1 p. m., Gimble tea room orchestra; 3, recital, students Clarence Fuhrman studios; 6, Hotel St. James orchestra; 7, Uncle Wip's bedtime stories; dancing lessons, Miller Conservatory of Dancing.

WJJD, Mooseheart, Ill. (Central, 302.8), 3:30-4:30 p. m., music, Mooseheart children; talks; 6:45-7:15, Albert Brown, organist; 7:15-8:15, talk, Ben Oswald; 11:30-12:30, request organ music.

WJZ, 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. Cutting; 11-11:30, American Shirnes, Capitola Ashworth; 4-4:15 p. m., American history, John Musser; 8:40-9, Pearl Spaulding, soprano; Everett Hall, accompanist; 10:30-11, Leo Lynch, tenor.

WLS, Chicago, Ill. (Central, 349), 3:45-4:45 p. m., homemakers' hour, club contest, Oak Park League of Women Voters, Mrs. G. W. Cornell, president.

WLW, Cincinnati, Ohio (Central, 423), 8 a. m., physical exercises, Y. M. C. A. Wm. Stradtman, instructor; 12:15 p. m., Williamson review and entertainment; 6 p. m., dinner hour concert, Selinsky Instrumental quintet; 8, Times-Star program, Times-Star orchestra; Esther Deschler, soprano; Howard Haford, tenor; Marjorie Garrigus Smith, pianist; the Popular Louise Law trio.

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

WMC, Memphis, Tenn. (Central, 503.9), 12 m., O. K. Houck Piano company; 8:30 p. m., Hotel Gayoso orchestra; Mrs. Ella Mae Goodrum.

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

WOC, Davenport, Iowa (Central, 483.6), 5:45 p. m., chimes; 7, standman's visit, Val McLaughlin; 7:20, "X-Ray Burns," E. A. Thompson; 8, Schmidt Music company concert orchestra; 10, Mabel Arnell, reader; Louise Fortenbeck, violinist; Edna Meckel, pianist.

WOI, Ames, Iowa (Central, 270), 12:30 p. m., college chimes; "Where Shall Iowa Grow Her Sugar?" Prof. C. L. Ritch; 10, program, popular music.

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 and his ensemble; 8:25, Fos theater grand orchestra,

association, "American Indian Night," direction Aleeth Logan; WTAM Symphonic ensemble, direction Walter Logan.

WWJ, Detroit, Mich. (Eastern, 352.7), 8 a. m., setting-up exercises; 9:30, tonight's dinner; 12:05, Jules Klein's Hotel Statler orchestra; 6 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, WBAO, WBRR, 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, baritone; Harmonic 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., kiddies' stories in French and English; 7:30, Windsor hotel ensemble, Harry Salter, director; 8:30, Frontene Brewer studio entertainment; 10:30, Ben Leonard's Red Jacket orchestra.

CKY, Winnipeg, Can. (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.

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

CNRR, Regina, Can. (Mountain, 420), 8 p. m., weekly bedtime travel tales; R. A. O. B. orchestra and band.

KDKA, E. Pittsburgh, Pa. (Eastern, 309.1), 12:30 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., musical 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, Acolian resident pipe organ studio, Dan McFarland, organist; 8-9, vocal and instrumental program; 9-10, Exmsiner, program by Ray Howard Crittenden; 10-11, Don Meany movie night, Monte Blue, master of ceremonies.

(Continued on page 16)

CHICAGO OPERA COMPANY IN "JEWELRY"

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, WBE; 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, WEAF, WWJ; 6:15, WEAF; 7, WBAW, 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, KFAC, 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, WRO; 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.

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, KFAC, 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, WRO; 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.

Classical

Saturday, February 7: 6, KGO, WBCN, WEAF, WGN, WLW, WMAQ, WRC; 6:30, CKAC, KFNE, WBE, WDAE, WGN; 6:45, WOAW; 7, KYW, WBBR, WBE, WEAF, WEBH, WQJ; 7:15, WIP, WRC; 7:30, KDKA, KFI, PWX, WBE, WHAS; 7:45, WBBR; 8, WNBC, KJS, KSD, WGN, WSAI; 8:10, WBE; 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, WLS; 7, WBCN, WDAE, 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

Monday, February 9: 6, WGN, WMAQ, WOAW; 6:30, KFNE, 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, WDAE, WFAA; 9, WCAE, WOAW; 9:30, KFEX, 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, KSD, WGN, WMAQ, WRC; 6:25, WOAW; 6:30, WCAU, WEAF, WFAA, WGN, WGY; 6:45, WJJD; 7, KYW, WBCN, WKAO, WQJ; 7:15, WCAU, WJJD; 7:30, CKAC, KDKA, KFI, WCAE, WHAS, WNYC; 8, KHJ, WGN, WGR, WEBW, WSAI; 8:15, CKY; 8:30, KTHS, WNYC; 8:45, KFI; 9, KSD, WCAE; 9:15, WMAQ; 10,

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

Wednesday, February 11: 6, KGO, WGN, WMAQ; 6:30, KFNE, 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, WCAE, WEEI, WGR; 9:30, WDAE, WLS; 10, KFI, KGW, KPO, WEEI; 11, KFQX.

Thursday, February 12: 6, KGO, WGN, WMAQ, WRC; 6:15, WTAY; 6:30, KFNE, WCAU, WCCO, WFAA, WGN, WKAO, 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.

Friday, February 13: 6, CNRT, KGO, WGN, WMAQ; 6:30, KFNE, WCCO, WFAA, WGN, WLS, WOO; 6:45, WEAF, WJJD; 7, KYW, WBAV, 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, WCCO, WGN, WGR; 8:15, KNX, WAHG; 8:30, CNRT, KTHS, WDAE, WFAA, WNYC, WSB; 8:45, KFI; 9, CKY, KTHS, WBCN, WEMC, WNYC, WOAW; 9:15, WMAQ; 9:30, KFAC, WLS; 10, KFI, WLS; 11, KFQX; 11:15, KFSG; 11:30, WJJD; 12, KFSG.

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; 11, closing markets; 11:45-12:15, Wurlitzer organ recital; sport talk, Sid Ziff; 6:15-7:30, program, R. 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 Coccanut Grove dance orchestra.

KOA, Denver, Colo. (Mountain, 322.4), 3 p. m., "Jasmine Door," "Dhu," "Ave Maria," Mrs. Alexius Gargan, soprano; "American Broad," Mrs. A. J. Treichel; "Jugler," "Scherzino," "Country Gardens," Ruth Hanbury, pianist.

KPO, San Francisco, Calif. (Pacific, 423), 7 a. m., daily dozen; 10, yow town crier; 10:15, theatrical news; 1-2, Rudy Selzer's Fairmont hotel orchestra; 4:30-5:30, Rudy Selzer's Fairmont hotel orchestra; 5:30-6:30, children's hour stories, Big Brother; 6:30, theatrical theater; 7-7:30, Rudy Selzer's Fairmont hotel orchestra; 8-10, program, Carl Numan, director; Ivy Hoyt, contralto; 10-11, Gene James' Rose Room Bowl orchestra.

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

KSD, St. Louis, Mo. (Central, 545.1), 6 p. m., concert, Benjamin Rader's orchestra; 9, recital, William LeMaster, baritone.

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, Ill. (Central, 535.4), 6:30 a. m., morning exercises; 11:35, table talk, Mrs. Anna J. Peterson; 2:35-4 p. m., studio frolic; 6:25-7, children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 8-8:20, Mrs. Percy Cook, Scotch dialect songs; Roy Williamson, baritone; James Richard Keyes, Evangelistic singer; Marie Wright, soprano; 8:20-8:45,



Vivien Potter (left) to many children in time stories have a and may be heard from KFOX, Seattle, Fred and Paul, pop regularly at WBAF, WTT (right) will talk KHJ, Los Angeles, the Sa...

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 club.

WBAP, Fort Worth, Tex. (Central, 472.9), 12:05-12:30 p. m., popular music, Montgomery Ward and company, "Trail Blazers," 7:30-8:30, program, Hawaiian music, Hawaiian Knights, Frank Harding, director; 9:30-10:45, musical program, artists of the Baptist seminary, Frank Check, 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; Erling Schuster, tenor; L. Christensen, Danish baritone; 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, harmony quartet; Al Phillips, tenor; Axel Christensen, pianologist; George Forsyth, tenor; Ann Williams, soprano; F. H. McDonald, president of Broadcast Listeners' association, Radio talk; Finney Briggs, harmony; Will Rossiter's Melody girls, harmony duo; Ned Santry, tenor; 12-1 a. m., pirate ship.

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

WCAU, Philadelphia, Pa. (Eastern, 278), 7:30 p. m., recital, N. Snellenberg and company; 8, talk, Clara Zassen; 8:15, recital; 9:15, radio piano recital, WCCO, Littlefield, Brianon, (Central, 417), 10:45 a. m., home service, Betty Crocker; 2 p. m., woman's hour; 4, magazine hour; 5:30, children's hour, 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 Welis.

WCAU, 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 Barnard; 6-7, piano tuning line number; "Tell-Me-A-Story Lady"; 9, Orlole orchestra; Maudelle Littlefield, Brianon, 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., daily almanac; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 7:30, Dream Daddy's bedtime stories; 7:50, piano recital, Arnold Abbot.

WEEI, New York, N. Y. (Eastern, 492), 4:30-5:30 p. m., women's program; 6-7, dinner music, Waldorf-Astoria hotel; 7:30-7:45, Maude K. Honeyman, pianist; 8-8:15, talk, Bank of America; 8:20-8:30, John E. Hill; 8:30-9, Gold Dust Twins; 9-10, Eveready hour; 10-11, Goodrich hour.

WEAF, Cleveland, Ohio (Eastern, 364.3), 7 p. m., E. C. Bacon, bedtime story; Don Palmer, Radio cartoon talk; Mrs. F. R. Loomis, soprano; Mrs. W. McCue, contralto; Floyd Shannon, flutist; Joe Smith-Martha Lee Club orchestra.

WEBH, Chicago, Ill. (Central, 370), 7 p. m., Orlole orchestra; Dan Russo, Ted Florito, celeste, violin soloists; musical bits, Riviera theater; 9, Orlole orchestra; personal talk, M. S. Szumczak; Dennis Sisters; 11, Orlole orchestra, Loos Brothers, Nick Lucas, Kaye Romayne.

WEBJ, 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 Five with Eva Taylor; 8:30-9, Cliff Crest Society orchestra.

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

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

WFAA, Dallas, Texas (Central, 472.9), 12:30-1 p. m., health talk, Charles E. Osborne; 6:30-7:30, vesper recital, Paul Creten 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 Believe Stratford concert orchestra; 3, Philadelphia Music club; 8:30, Meyer Davis Believe Stratford concert orchestra; 7, Sunny Jim, the kiddies' pal; 8:30, Gold Dust Twins from WEAF; 9, Eveready hour; 10, Goodrich Silvertown 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 chair time; 5:30, Skeezix time for the children; 8, organ recital, Lyon & Healy; 6:30-7, dinner concert, Drake concert ensemble, Blackstone string quintet; 8-9, classical concert, Y. M. C. A. college glee club, George W. Campbell, director; 10-11, Don Bestor Drake dance orchestra.

WGR, Buffalo, N. Y. (Eastern, 319), 12:30-1 p. m., Hair Statler concert ensemble; 2:30-4:30, Radio Dealers' musical program; 6-7:30, dinner music, Halprydr string quartet; 9-10, "Eveready hour" jointly with WEAF; 10-11, Goodrich Silvertown cord orchestra jointly with WEAF.

WGY, Schenectady, N. Y. (Eastern, 280), 2 p. m.,

talk, Mrs. Charles A. Simon; 8:30, dinner music, Kenmore hotel orchestra; 7:30, "Woodland Dance," WGY orchestra; "Adagio," Peter Schmidt, clarinetist; "Arabian Serenade," orchestra; "A Million for Advertising," Bruce Barton; "Impressions D'orient," Edward A. Rice, violinist; "The King of the Spirits," WGY orchestra; "Arle," Giovanni Trombini, cellist; "Intermezzo," Leo Kliwien, violist; "Songs," orchestra; 9, Brunswick hour of music; 11:30, organ recital, Stephen E. Boiscclair.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Mary Scudder, pianist; readings, Courier-Journal, Louisville Times; 7:30-9, Rosson's Entertainers; chapter of the "Bible and Jane" stories.

WHN, New York, N. Y. (Eastern, 360.4), 12:30-1 p. m., Charles Strickland and Palais 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 Parody club orchestra.

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

WIP, Philadelphia, Pa. (Eastern, 509.9), 1 p. m., Karl Bonawitz, organist; 3, Harmony concert company, William Emery, baritone; 6:05, songs, Joe Burek and Marie Pisch; 6:15, Harvey Manburger and his Vaudeville orchestra; "Uncle Wip's bedtime stories"; 8, "Timely Talks to Motorists," Gene Hogle; 8:15, Philadelphia Police band; 9, play, "The Workshop," Emille Delpha Norris players; 9:30, Boy Scouts' celebration of fifteenth birthday; 10:05, Emo's weekly movie talk; 10:30, Harvey Manburger's vaudeville orchestra.

WJJD, Moonshart, Ill. (Central, 302.8), 6:30-4:30 p. m., music, Mooseheart children; talks; 6:45-7:15, Albert Brown, organist; 7:15-8:15, band concert; "Child Care," M. P. Adams.

WJZ, New York, N. Y. (Eastern, 455), 10:30-10:40 a. m., architecture, Augusta Owen Patterson; 10:40-10:50, "Care and Use of Ranges and Heaters," Arthur J. Donnelly; 4-4:15, Alvin Hill, contralto; 4:15-4:30, Nathan Praeger, trumpeter; 8:45-9, "Prehistoric Farmers of the Ozarks," Dr. Meivin Gilmore; 9-10, Brunswick hour.

WKAQ, San Juan, P. R. (Intercolonial, 372.5), 9-10:30 p. m., musical selections, Eutcrpe Jazz band; 8 p. m., musical program.

WLS, Chicago, Ill. (Central, 345), 12-1 p. m., Nubs Allan, contralto; "How to Succeed with Ailfa," George 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. Hcaton; "My Favorite Recipe," R. C. Pollock; "How to Develop an Appetite for a Real Breakfast," Wayne Dinamore; 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, Alice La Tarte, pianist; 7:40, Florence K. White, soprano; 7:45, "Rip Van Winkle," Anthony Wons; 8-9, Kenneth Clark and his Hawaiian guitar; Nubs Allan, contralto; Ford and Glenn; Inquisitive Broadcasters; "What Methods Have You Found Most Successful in Rearing Baby Chicks?" C. C. Biggar; "How to Succeed with Ailfa, Soils," George W. Kelley; 9, Grace Wilson, contralto; 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 Jacks; 10:40, Ford and Glenn time; 11, vaudeville night; 12, midnight review, Ralph Emerson, organist; Isham Jones and his College Inn orchestra; Ford and Glenn; Dave Nudelman.

WLW, Cincinnati, Ohio (Central, 423), 8 a. m., physical exercises, Y. M. C. A., Wm. Stradtman, instructor; 12:15 p. m., dance program; Cliff Lane, Prince of the Ivories; program, Delta Omicron sorority; 4, pupils of Wm. Kyles in recital; Mah Jongg lecture, Lucy Blackburn; 6, dinner hour concert, Selinsky Instrumental quintet; 10, concert, Radio division, Ohio Rubber and Textile company; Ohio Rubber Male quartet and Instrumental trio of violin, celeste and flute; popular program, Keefer-Koeker orchestra; Ruth Crum-fine, soprano; Ruth Crawford, accompanist.

Tuesday, February 10

(Continued from page 15)

KFOA, Seattle, Wash. (Pacific, 450.2), 4-5:15 p. m., concert orchestra, recital; 6:15-8:15, Rhodes' Department store program; 8-10, Seattle Times dance music, Lambda Chi Alpha fraternity orchestra; 10:05-11, Olympic hotel dance music.

KFQX, Seattle, Wash. (Pacific, 238), 7:15-8 p. m., Aunt Wren'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 Bardsley (Cousin Jim) and associates.

KGO, Oakland, Calif. (Pacific, 299.8), 11:30-1 p. m., luncheon concert, Pacific States Electric company; 4-5:30, concert orchestra, Hotel St. Francis; 8, Hawaiian Harmony Kings; Jennings Pierce, tenor; Edna Linkowski, pianist; Elsa Baulis, soprano; George N. Calfee, baritone; Pearl Derbridge, contralto; Kornelia Bering, violinist; Richard Lundgren, bass; "The Football Season Just Past"; 10-1 a. m., dance music, Henry Halstead's orchestra.

KGW, Portland, Ore. (Pacific, 492), 12:30 p. m., concert; 5, children's program, story, Uncle Dave; 8, Oregon Agricultural college extension service lecture; 8:30, concert, Clive Music club, Mrs. Miles Delwin Warren, soprano; Reatha Fowler Miller, contralto; 10, Multnomah Hotel Strutters; 10:30, Phil Frank Houser, Furniture company, arranged by J. Howard Johnson; 10-11, Earl Burnett's Billmore hotel dance orchestra.

KJS, Los Angeles, Calif. (Pacific, 293), 8-9:30 p. m., instrumental and vocal program of classical nature presented by members of Bible Institute.

Saturday
Wmaq;
Wry; 9;
Wroo;
Koa, K;
10:10,
Kfoa;
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Monday
8, W;
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Cfca;
Wdaf;
Kgw, K;
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8:15, W;
Wbl, W;
9:30, C;
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Wmc, W;
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Wednesday
11: 8;
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Cnr, K;
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WDAF;
WCAU,
R: 7:20,
WCCO;
WAHG,
WAHG,

... pianist; Mary
... Daddy's bed-
... quartet; special
... radio cafe dance
... and concert from

... 2-2:30 p. m.,
... 1:20-4:40, Ethel
... es; 6-7, dinner
... services, United
... S. Army band;
... thleen Steward,
... ; 11-12, Meyer

8 p. m., chimes
5 p. m., Radio
program.
7 p. m., Hotel
ector.

... p. m., Oriole
Llewellyn Jones;
... rs, accompanist;
... ; Marie Kelly,
... Edna Salamon;
... Hawaiian guitar-
... , reader; Nubs

... 30 p. m., Big
Harry Einstein;
... ale; 9, Gillette
... Fenway organ

... al, 286), 8:15-
8:30-8:55, bird
... ry Lou Lucock,
... Beuchell; 8:55-
...), "The Game

12:30-1 p. m.,
1 p. m., Meyer
... nstra; 3, talk,
... Lillian Biddle,
... r Davis Bellevue
... im, the kiddies'

... p. m., luncheon
... lackstone string
... ealy; 3, rocking
... he children; 6,
... dinner concert,
... ng quintet; 6-9,
... li, Don Bester
... oys.

10:45-11 a. m.,
Crocker; 12:30-1
2:30-4:30, Radio
... dinner music,
... chestra, Harold
... ther Adventures
... Buffalo Society
... nt musical pro-
... m, Jackson eloe
... , supper dance
... dance orchestra,

... , 7 p. m., pro-
...), 4-5 p. m.,
... Courier-Journal,
... rminal Railroad
... K. & I. Ter-
... the "Billy and

6 p. m., music,
... story,
... 30.4) 6:30-6:55
... Harry Richman

... D), 2:15 p. m.,
... rt Finch; 6:30-
... Bankers Life
... 15, Des Moines

... 1 p. m., Gtm-
... students Kurta
... d So Many Go
... Benjamin Franklin
... W. T. Oppenheim;

... central, 302.8), 3:30-4:30 p.
... children; talks; 6:45-7:15,
... Albert Brown, organist; 7:15-8:15, philharmonic or-
... chestra, band.

WJZ, New York, N. Y. (Eastern, 455), 10:20-10:30
a. m., New York health speakers; 4-4:30 p. m.,
Regaluto Sisters, pianists; 8:30-9:15, artist pupi
concert; 9:15-10, Allen trio; 10-10:15, England's East
Side, Wirt W. Barnitz; 10:15-11, Jack Penn, pianist.
WKAQ, San Juan, P. R. (Intercolonial, 372.5), 8-9:45
p. m., concert, municipal band.

WLS, Chicago, Ill. (Central, 345), 12-12:30 p. m.,
Kenneth Clark with his Hawaiian guitar; "Peat and
its Uses," George W. Kelley; 3:45-4:45, homemakers'
hour; "Thrift Talk," Mrs. Wilbur E. Fribley;
"Women's Share in Public Opinion," Mrs. William
G. Hibbard; "What Aro You Doing for Your Ex-
Service Men?" Mrs. H. W. Hardy; 6:30, Ralph
Emerson, organist; 6:50, Senate theater studio; 7,
lullaby time, Ford and Clean; 7-7:15, program, WLS
Tribe of Lone Scouts; 7:40, William Hoke, tenor;
8, "A Ration for Pigs Without Milk," George W.
Kelley; "Faru Flickerings," E. B. Heaton; talk,
John A. Carroll; "Hog Auction Sales in California,"
C. A. Stewart; 9, Lucas Sisters; 9:10, WLS theater,
Wallace Bruce Amsbury in Walt Whitman's tribute
to Lincoln, "When Lilies Last In My Dooryard
Bloomed," a Saddle feature; 9:30, Everett Shaw,

(Continued on page 13)

... 12:
... Woc,
... Wrc;
... 10:15,
... Cfea,
... Woc;
... 11:45,
... Kh,
... 12:05,
... 13:
... 8:15,
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... 9:10,
... 9:30,
... Woc;
... Wcaf,
... Wwj,
... Wme,
... 12,
... Kgw;

Garden orchestra; Excelsior quartet; Dorothy Davis
Dillow, soprano; income tax talk, 10-2 a. m., Ralph
Williams and his Rainbo Skylarks; Will Rossier; Nate
Caldwell, pianologist; 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, Peggy Aldon; 7, dinner music, Meyer
Davis' New Willard hotel orchestra; 8, "Show Shop-
ping," Leonard Hall; 8:10, music; 8:30, "The Political
Situation in Washington Tonight," Frederick William
Wile; 9, music; 10:15, dance music, Meyer Davis'
LeParadis orchestra.
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, Bonnie Barnhardt; 8-9, Vick
Myers' Melody artists; 10:45, Bernard and Robinson;
Dixie string band.
WSUI, Iowa City, Iowa (Central, 483.6), 12:30-1 p. m.,
"The Study of Spanish," Prof. R. E. House; 8, con-
cert, music faculty.
WTAM, Cleveland, Ohio (Eastern, 364), 6 p. m., Maurice
Sptalny's Hotel Statler orchestra.
WTAY, Oak Park, Ill. (Central, 250), 6:15-7:30 p. m.,
Al Melgard, organist; Sandy Meek, baritone; Raynor
Dalhelm and company orchestra.
WWJ, Detroit, Mich. (Eastern, 352.7), 8 a. m., setting-

... a. m., Sunshine hour program; 2:30-4:30 p. m., after-
noon auditorium service, sermon, "Divine Healing,"
Almee Semple McPherson, pastor; 6:30-7:30, children's
hour, presenting Helen Edwina and Mary Elizabeth
Hughes, Mrs. Rose, pianist.
KGO, Oakland, Calif. (Pacific, 299.8), 11:30-1 p. m.,
luncheon concert, courtesy, Pacific States Electric
company; 3, musical program, Cora L. Williams insti-
tute; 4-5:30, concert orchestra, Hotel St. Francis.
KGW, Portland, Ore. (Pacific, 492), 12:30 p. m., con-
cert; 5, children's program, story, Aunt Nell; 8,
first act "The Mikado," Franklin High school; 10,
Multnomah Hotel Strollers.
KHJ, Los Angeles, Calif. (Pacific, 404.1), 12:30-1:30
p. m., Abe Perluss and his Rose Room orchestra;
6-6:30, Art Hickman's Bltmore hotel concert orchestra,
Edward Fitzpatrick, director; 6:30-7:30, Prof. Walter
Sylvester Hertzog, stories, American history; Dick
Winstow, juvenile reporter; Baby Muriel McCormac,
screen juvenile; Uncle John; 8-9:30, program, Pacific
Mutual Life Insurance company, Dr. Mars Bumgardt,
scientific lecturer; 9:30-10, Piggly Wiggly Girls trio;
10-11, Earl Burnett's Bltmore hotel dance orchestra.
KNX, Hollywood, Calif. (Pacific, 337), 8 a. m., morn-
ing prayer; 9, Hired Hand, news; 10, Hired Hand's
morning message; 10:30, home economics, Mrs. Kate
Brew Vaughn; 5 p. m., closing markets; 5:45-6:15,
Wurlitzer pipe organ studio, Sid Ziff sport talk;
6:15-7, dinner hour music; 7-8, Ambassador hotel

... dinner concert, William Penn hotel; 7:30, Uncle Kay-
bee; 7:45, special feature; 8:30, musical program; 9,
concert, Atwater-Kent orchestra.
WCAU, Philadelphia, Pa. (Eastern, 278), 6 p. m.,
Meyer Davis Hotel Pennsylvania orchestra, direction
Lon Chassey; 8:05, Meyer Davis Hotel Pennsylvania
trio; 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, matinee
musical; 4, MacPhail players, Maude Moore, director;
5:30, children's hour, Alpha Stalson; 7, midweek church
service, Rev. J. S. Briggs, pastor; 9, North Dakota
night; 10, dance program, Arnold Frank's Casino or-
chestra; Gold Medal Radio quartet.
WCCO, Detroit, 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, piano tuning-in number on
the Duo-Art; speaker, auspices Health Conservation as-
sociation; address, speaker, Meat Council of Greater
Kansas City Tell-Mo-A-Story lady; Trianon ensemble;
8-9:15, Star's Radio orchestra.
WDAR, Philadelphia, Pa. (Eastern, 395), 11:45 a. m.,
daily almanac; 12-02 p. m., Stanley theater organ re-
cital; Arcadia cafe concert orchestra; 2, Arcadia cafe

... m., music, housewifery
... children; talks; 6:45-7:15,
... Albert Brown, organist; 7:15-8:15, philharmonic or-
... chestra, band.
WJZ, New York, N. Y. (Eastern, 455), 10:20-10:30
a. m., New York health speakers; 4-4:30 p. m.,
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p. m., concert, municipal band.
WLS, Chicago, Ill. (Central, 345), 12-12:30 p. m.,
Kenneth Clark with his Hawaiian guitar; "Peat and
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G. Hibbard; "What Aro You Doing for Your Ex-
Service Men?" Mrs. H. W. Hardy; 6:30, Ralph
Emerson, organist; 6:50, Senate theater studio; 7,
lullaby time, Ford and Clean; 7-7:15, program, WLS
Tribe of Lone Scouts; 7:40, William Hoke, tenor;
8, "A Ration for Pigs Without Milk," George W.
Kelley; "Faru Flickerings," E. B. Heaton; talk,
John A. Carroll; "Hog Auction Sales in California,"
C. A. Stewart; 9, Lucas Sisters; 9:10, WLS theater,
Wallace Bruce Amsbury in Walt Whitman's tribute
to Lincoln, "When Lilies Last In My Dooryard
Bloomed," a Saddle feature; 9:30, Everett Shaw,

Broadcast Listener's Reference Library

Part I—The Crystal Set with Various Circuits

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

THE 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.



Figure 1

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 care of so that reception will be possible. If the detector is not adjusted to its proper state of sensitiveness, the chances are that you will sit and sweat your collar

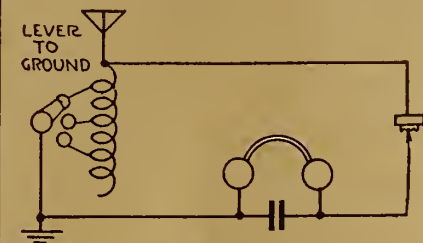


Figure 2

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.

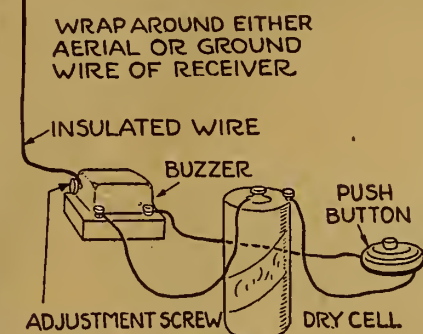


Figure 3

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 one or not, although some Radiophans will tell you so. You must try out the crystal and listen in before passing judgment.

Crystals do not cost very much and it will pay you to purchase several specimens, and, after conducting your tests, use the one which gives best response in the headphones.

How to Keep Crystal Clean

Keep the surface of the crystal clean, 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's sensitiveness is not increased, then it will be necessary to take a pen-knife and

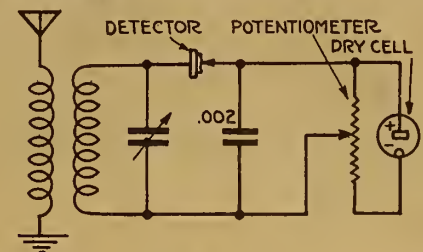


Figure 4

scrape the surface of the crystal. An experimenter 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.

Always be sure to connect the ground post to the tuner lever or switch. 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 receiver is to provide a local sending sta-

tion which will permit the adjusting of the detector.

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

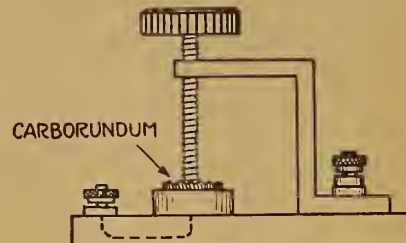


Figure 5

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 minute electrical waves. If the detector is adjusted, you

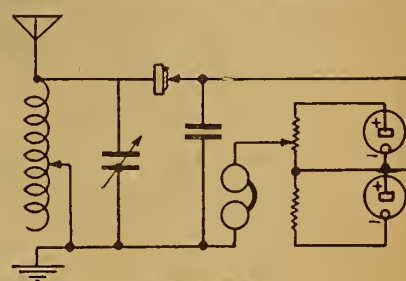
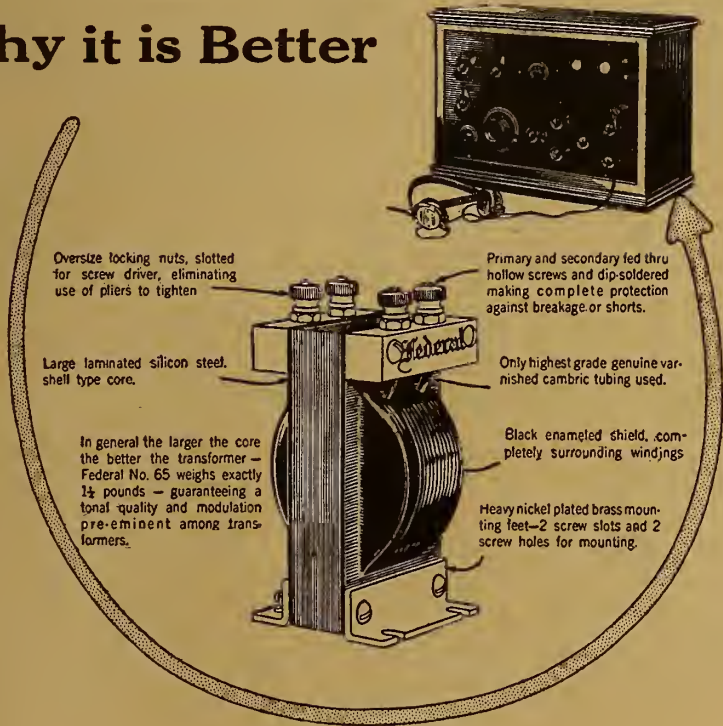


Figure 6

will hear a high pitched buzz in the headphones. 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



"MASTER 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 heavy brass mounting feet the Federal No. 65 Transformer incorporates the

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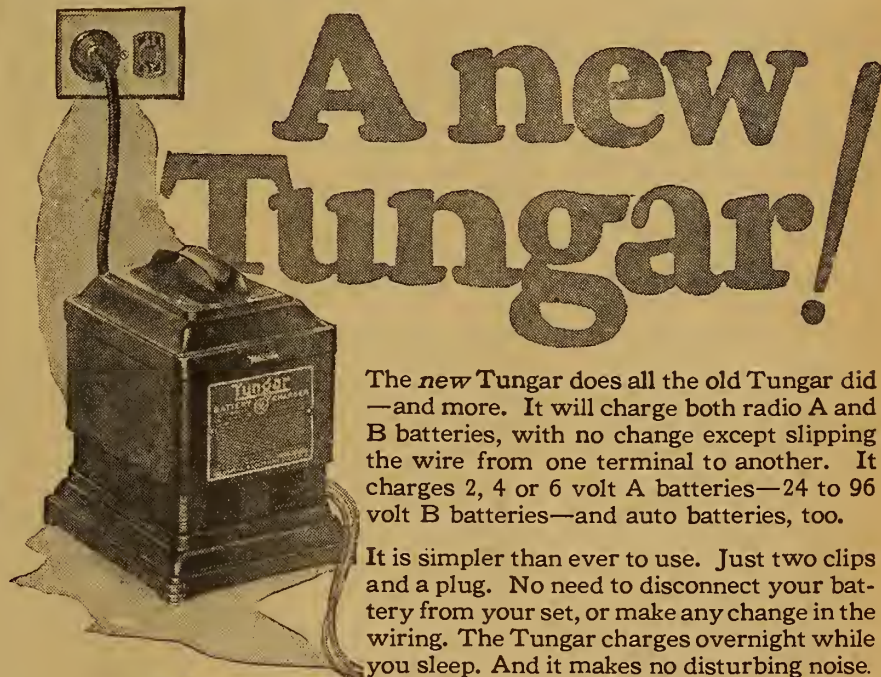


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Standard RADIO Products

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A new Tungar!

The new Tungar does all the old Tungar did—and more. It will charge both radio A and 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 you 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.



300,000
Tungars
already
in use!

The new Tungar charges both radio A and B batteries, 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
60 cycles—110 volts

Tungar

REG. U. S. PAT. OFF.

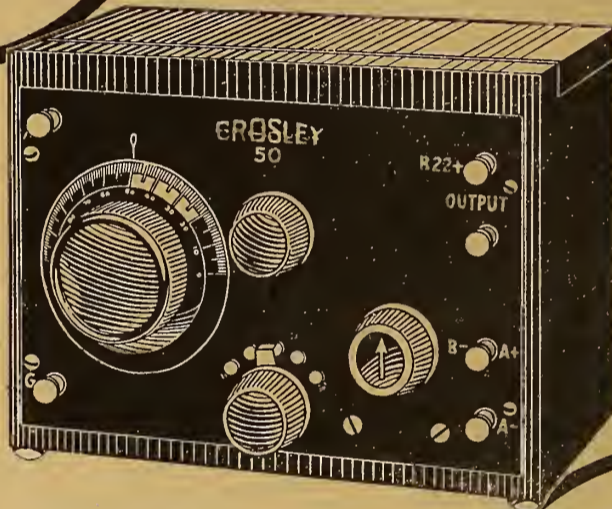
BATTERY CHARGER

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

GENERAL ELECTRIC

CROSLEY 1 TUBE-50

\$14⁵⁰



*The Little
Giant of Radio
Coast to Coast Reception
with phones frequently
reported.*

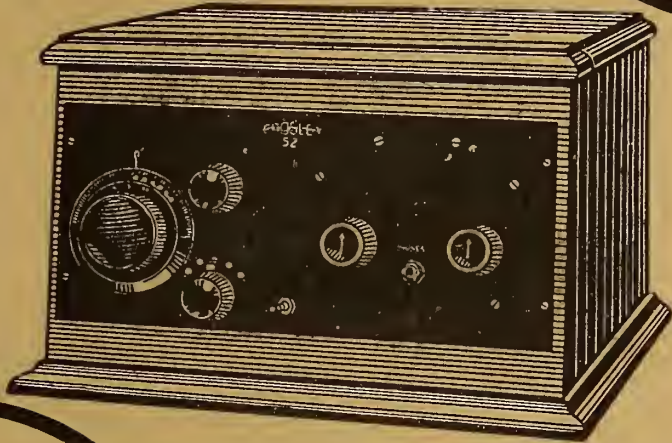
THIS Little Giant of Radio, the Crosley one tube 50, has everywhere astounded people with the distant stations that it brings in, on ear phones of course. All parts of the United States report European stations were heard with it during international test week. It is the radio with which Leonard Weeks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

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cabinet with
Sloping Panel*

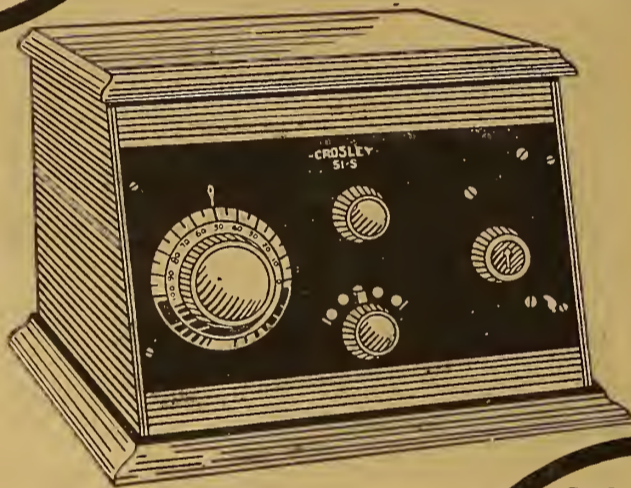
THE tremendous demand for the Crosley three tube 52 has encouraged us to offer this circuit in a new, attractive cabinet with sloping panel, the Crosley 52 Special. This cabinet is large enough to hold all dry cell batteries. It thus becomes self contained, a beautiful piece of furniture which can take 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,

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.

THE CROSLLEY RADIO CORPORATION
CINCINNATI

THE NEW CROSLLEY 51-SPECIAL

\$23⁵⁰



*Of Course
the Famous
Crosley 51 Regular at
\$18⁵⁰
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

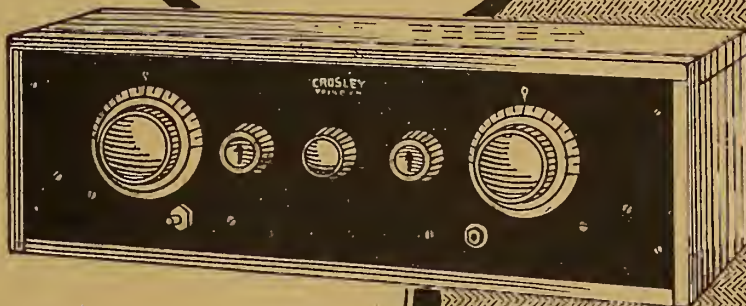
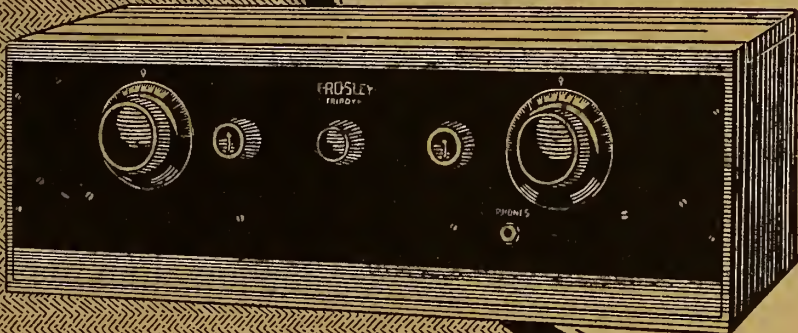
to the appearance of the set and makes operation more comfortable. This radio is as artistic as it is efficient, appealing to the housewife who demands beautiful appearance and elimination of visible batteries. All Crosley radios are manufactured under Armstrong Regenerative U. S. Patent No. 1,113,149.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

THE CROSLLEY RADIO CORPORATION
CINCINNATI

CROSLEY TRIRDYNS

With Sloping Panel
\$55
New Model

Regular
\$50
Formerly \$65



*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.

THE CROSLEY RADIO CORPORATION
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Radio Digest

PROGRAMS
Illustrated

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What Is it All About?

Do Radio Waves Have Weight and Substance?

TWO YEARS ago we all laughed at Einstein; now he is generally accepted as a leader of scientific thought. 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 west.

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 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 twenty-five 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 explained. 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 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 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.

Dear 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.

"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.

"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 haven'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 monkees 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."

"Since Radio Came In"

By E. Claire

Oh 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 wonderful. Most nights I can't hear nothing else. I 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 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
We could hear his favorite text,
"Home, Home Sweet Home" on the Baldwin
By Harry, will be next.

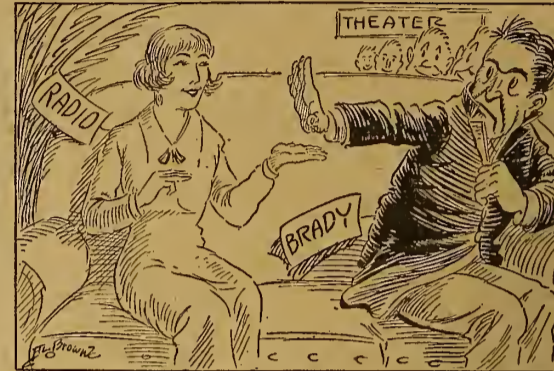
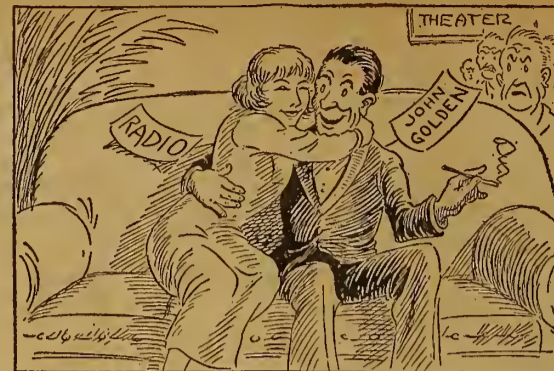
E. T. BRYANT.

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 pie 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 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 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.

WOC is as well-known a station to old timers as any on the air. There never was any severe criticism for the station at any time and the future is unlikely to develop any with their improved outfit. I had heard the Chaminade club concerts from this station before, but never to such advantage as on the opening night of the new regime.

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 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 .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 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

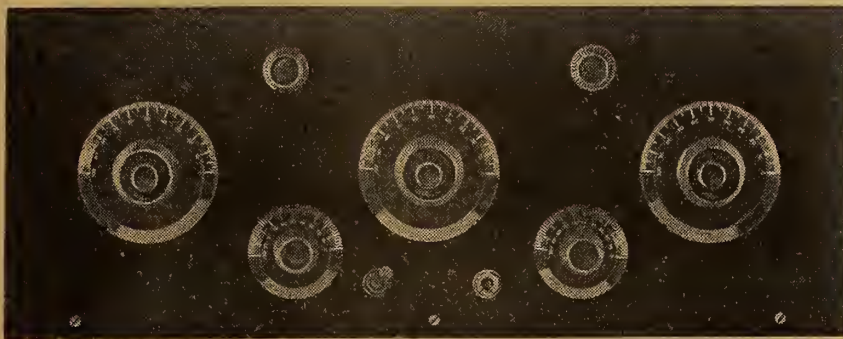


Figure 1

transformer AT1. At audio frequencies they are amplified by tube T1, passed through coil L6 and into the primary of AT2. This being an audio transformer the audio frequency is passed into its secondary and onto the grid of tube T2, which is a second stage of audio frequency amplification. The output jack is

tickler coil, experimental work was gone into along this line which nearly deafened one with the groans, howls and whistles that came out of the headphones. It was finally decided that some means of bringing regeneration up gradually must be employed. After very careful observation, and plotting the charts of three element

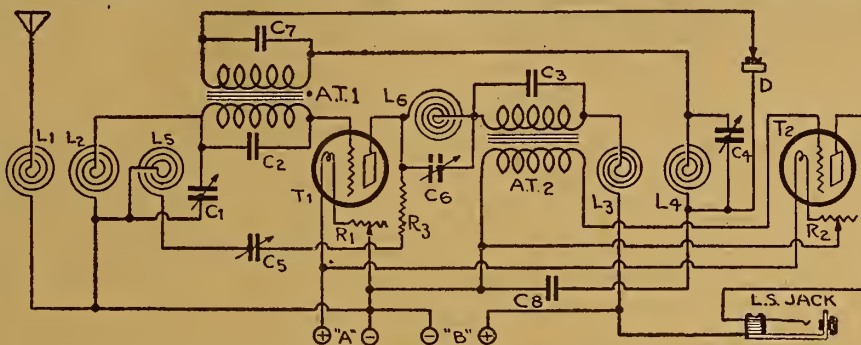


Figure 2

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.

Difficulties Overcome

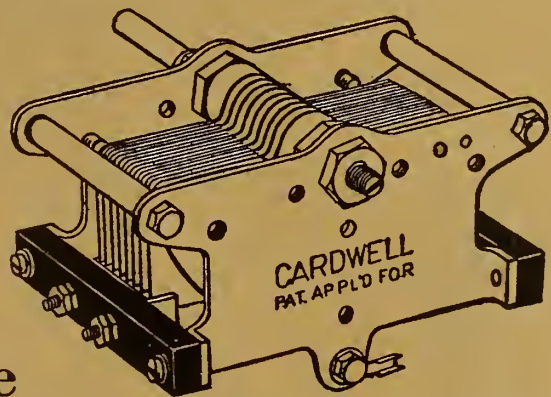
Something over a year ago it was decided to try introducing regeneration into the reflex circuit and, starting with the

tubes, it was found that regeneration is constantly in advance of amplification up

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 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.

Attention was next directed to the problem 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 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)



The 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 comparison. 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 Cardwell 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 re-

quires 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 revolutionizing achievement not to be lost sight of.

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

Ask your dealer today for the complete Cardwell circular and look over the Cardwell Condenser types for the one you want.

Sold by all reliable dealers.



CARDWELL CONDENSERS

The "Goode" Two-o-One

A

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MASTER RADIO
MUSIO
SAAT AND
MANY OTHERS

Super-Het Builders!

"Radio" and other leading publications recommend in highest terms the Thordarson 2:1 ratio transformers for the Best Super-Heterodyne. Take no others!

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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—transformer specialists since 1895. Follow the lead of the leaders—build or replace with Thordarsons. Recommended by best dealers. Audio frequency: 2-1, \$5; 3 1/2-1, \$4; 6-1, \$4.50. Power Amplifying, pair, \$13. Interstage Power Amplifying Transformer, \$8. Write for the latest Thordarson hook-up bulletins. THORDARSON ELECTRIC MFG. CO. CHICAGO.

2 TUBE KNOX REFLEX

(Continued from page 25)

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

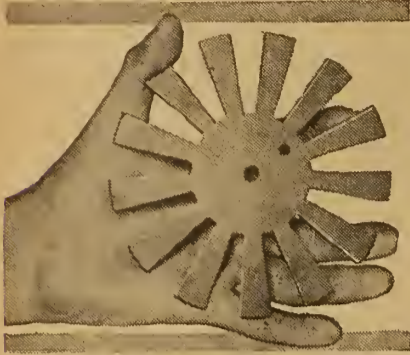


Figure 3

it was felt that there was some way of improving this. About this time an article 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 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 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 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 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 2 1/4 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 second method which was used by the writer is

that of first making a wooden hub 2 1/4 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 1/4 inch in diameter and 1/4 inch dowel rods 2 1/4 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 readily removed when the winding is finished. When the required number of turns have



Figure 4

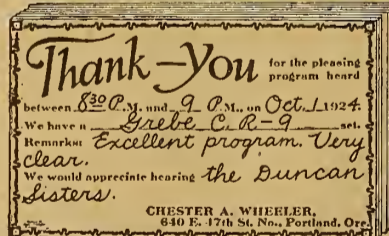
been put on this wooden form they may be either coated with cement or held firmly in place with heavy waxed thread interlaced in the windings.

The third possible method is to wind the coils as shown in figures 3 and 4 and 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 the fiber.

Coil L2 may be wound first of all with 41 turns, on either of the forms above described. When winding coils L1 and L5 string should be wound on first to a depth of about 3/4 inch after which 17 turns of wire are put on one form which makes coil L1, and 17 turns are put on another form to make L5. Coils 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 on another form and contains 33 1/2 turns.

Send NO Money Hear What YOU Like

Stations are glad to put on numbers at your request. We print special postal "Thank You" cards that get ATTENTION. See the name CHESTER A. WHEELER on illustration. That is where YOUR OWN name will be. Your INDIVIDUAL cards show more than ordinary interest and stations appreciate them and consider your request.



Thank YOUR Favorite Stations

Speakers and musicians deserve and appreciate applause for radio programs just the same as from the stage. Their entertainment makes your radio possible. Encourage them. Help bring the best talent to radio. Send YOUR "Thank You" card of appreciation. Let the children write Uncle Rob. It makes them happy. They cost so little. A joy to use. Save Stationery, Telegram and Postage

Cards have post card backs and require only 1c stamp. So convenient. A pleasure to use. ALL THE RAGE. B. up-to-date. Get this additional pleasure from your radio.

FREE LOG RECORD for YOUR Stations
WITH FIRST ORDER—Places for stations, cities, dial settings, remarks, 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 only \$1.35; 200—\$1.95; 300—\$2.45; 500—\$3.45; 1000—\$5.45 (about 1/2c 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

3 Variable condensers, .0005 mfd. vernier	\$16.50
1 Variable condenser, .00045 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 1/2 lb. spool No. 26 sec. wire	1.40
1 1/4 lb. spool No. 30 sec. 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 Fixed 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
Total	\$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 received on a set using a loop antenna as 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 sufficiently amplified.

Distant stations that can barely be detected can often be raised to good audibility 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 signals and in many cases of broadening the tuning.

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 fairly sensitive. It is the kind of crystal 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 carborundum 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 increasing 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 manufacturers and Radiophans to improve their sets to meet the demands placed upon them.

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

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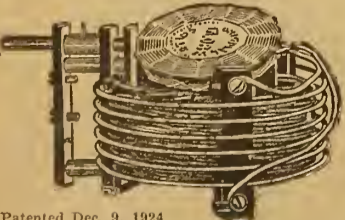
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GLOBE COILS

Construction of the Six Tube Hetduogen

Some Questions and Their Answers

By C. E. Brush

THERE are several points in connection with hetduogen receiver on which the readers of Radio Digest 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 difficulties.

Q.—I am about to construct your hetduogen 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 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 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.

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.

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 3/4 inches inside or outside diameter?

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 2 3/4 inches; the antenna coupler tube should have an outside diameter of 3 1/2 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 superdyne, that is, tube for tube and ordinarily should I expect coast to coast reception from this city by using the hetduogen? Would I gain anything by winding coils basket weave fashion, and if so, should the same diameter and number of turns be 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 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

the minimum possible by the use of regeneration.

Radiation

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 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, 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 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, 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 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 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

Q.—The hetduogen as described in the December 27 issue sounds very good, and

I am impatiently waiting for next week's Digest. I am anxious to know if I can use resistance coupled amplification, as I have three stages of this type; or must this be 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 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 sub-panel 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 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

the complete set of parts for the hetduogen 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.

Amplifier Tubes Used

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 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 of the natural polish have been removed, brush the panel with a dry cloth, and finish by wiping with a clean cloth dipped in machine oil.

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Friday, February 13

(Continued from page 18)

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

WCAU, Philadelphia, Pa. (Eastern, 278), 6:30 p. m., Meyer Davis' Hotel Pennsylvania trio; 8, talk, Clara Zillesen; 8:10, recital; 9:15, danc music, Southland seven; 10:10, 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, Starbuckers' association; 7:45, lecture; 8, "The F. & R. Family."

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

WDAF, Kansas City, Mo. (Central, 365.6), 3:30-4:30 p. m., Star's Radio trio; 6-7, piano tuning-in number on the Day Art address, speaker, Kansas City Children's bureau; Tell-Me-a-Story lady; Trionan ensemble; 8-10, popular program; 11:15-1 a. m., "Merry Old Chief" and the Plantation players.

WDAU, 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; 7:30, Dream Daddy's bedtime stories; 8, book review, Arnold Abbott; 8:15, "Fifteen Minutes of Humor," Sam Winfield; 9:30, Stanley theater concert; 10:03, Arcadia cafe dance orchestra; Morning Glory club.

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, contralto; 8-8:30, Happiness boys; 8:30-9, Hohner 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 hits, Riviera theater; 9, Rita McFawn, soprano; Oriole orchestra; Frederick Agard, tenor; 11, Three Musketeers; Oriole orchestra; songs, Nick Lucas.

WEBJ, 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; 8:15-8:30, Victor Wilson and Joe Maley; 8:15-9, Johnny Basile 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," Charles A. Donohoe; 7:15, James A. Watts, tenor; 7:30, A. E. Richardson interviewed by Otto Grow; 8, program, courtesy of the Neapolitan Ice Cream company; 8:30, U. S. Army band concert.

WEMC, Barren Springs, Mich. (Central, 286), 9-9:20 p. m., old hymns, Radio Lighthouse choir; 9:20-9:30, Ruth Lee, soprano; 9:30-9:40, Ernest Hurd, tenor; 9:40-10, Bible chat, Orville Lunn.

WFAX, Dallas Texas (Central, 472.9), 12:30-1 p. m., address, Dr. Robert Stewart Hyer; 3:30-5, woman's hour; 6:30-7:30, vesper recital, Nick Garden; Honey boys' orchestra; 8:30, William H. McTaven, pianist.

WFI, Philadelphia, Pa. (Eastern, 395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3, Caroline Hoffman, pianist; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, the kiddies' pal.

WGN, Chicago, Ill. (Central, 370), 1:40 p. m., luncheon concert, Drake concert ensemble; Blackstone string quintet; 2:30, artists series, Lyon & Healy; 3, rocking chair time; 3:30, Skeezix time for the children; 6, organ recital, Lyon & Healy; 6:30-7, dinner concert, Drake concert ensemble, Blackstone string quintet; 8-9, Gunn School of music; 10-11, Don Bestor Drake dance orchestra; Phil Fleming, Vernon Ricks, jazz artists.

WGR, Buffalo, N. Y. (Eastern, 319), 10:45-11 a. m., Gold Medal home service talk, Betty Crocker; 12:30-1 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 Gieser, director; 8:15-8:55, recital by Agnes Lutha, Tullis, contralto, and Mildred Daugherty Emery, pianist; 9-10, Astor House coffee program jointly with WEAU; 10-11, Larkin string orchestra, John Lund, director; 11:30, supper-dance music, Vincent Lopez Hotel Statler dance orchestra, Harold Gieser, director.

WGY, Schenectady, N. Y. (Eastern, 380), 2 p. m., health talk, Dr. C. Woodall; 6:30, Sunday school lesson; 7, program, Strand theater orchestra; 7:30, health talk; 7:45, "What Psychology Tests Do Not Show," Dr. Leonard C. Jones; 8, musical program; 9:15, Union League club dinner, speakers, Ellhu Root, Harlan Fiske Stone, Charles Evans Hughes; 10:30, Greg night; "Medley of Grieg Melodies," WGY orchestra; "Album Leaf," "Scherzo," Ollio G. Yetru, pianist; "Nocturne," "Gavotte," American trio; "In a Boat," Matilda Bigelow Russ, soprano; "Meruett," orchestra; "I Love Thee," Matilda Bigelow Russ, soprano; "Four Norwegian Dance," orchestra.

WHAS, Louisville, Ky. (Central, 400), 4-5 p. m., Mrs. Charles Kansinger, soprano; 7:30-8, Jake Seligman and his Kentucky Nightbirds; T. H. Graf, pianist.

WHO, Des Moines, Iowa (Central, 526), 2:15 p. m., "Why I Believe in Scouting," Rev. Matheson; 7:30-9, Williamson Brothers; artists from Boone.

WIP, Philadelphia, Pa. (Eastern, 509.9), 1 p. m., Gimbel tea room orchestra; 3, Elwood M. Wagner, baritone; Matilde E. Eves, soprano; Harry A. Glidstein, violinist; 4, "White Australian Policy," Dr. Jas. P. Lichtenberger, University of Penna.; 6:05, songs, Joe Burke and Mark Fisher; 6:15, Harvey Marburger and his Vaudeville orchestra; 7, Uncle Wip's bedtime stories.

WJZ, New York, N. Y. (Eastern, 455), 12:15-1 p. m., Brick Church noon hour of music; 4-5, Charlotte Petrucci, soprano; Pasquale Rubino, tenor; 8:10-9, Helen Davis, banjoist.

WLS, Chicago, Ill. (Central, 345), 12-1 p. m., 4 Aces of Harmony; "Book Farmer" series, G. C. Biggar; "A Practical Poultry," George W. Kelley; 3:45-4:15, 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, lullaby time, Ford and Glenn; 7:15, Mark Oster Opera club; 8-9, Nubs Allan, contralto; Kenneth Clark, Hawaiian guitarist; Ford and Glenn; "John Turnipseed" series, E. G. Thiem; "Co-operative 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, Ben Ritzenthaler; 10, Senate Theater Symphony orchestra; 10:10, Marquette Mandolin club; Rudolph Bryant's Marquette Banjo quartet; 10:30, Isham Jones and his College Inn orchestra; 10:40, Ford and Glenn time.

WLW, Cincinnati, Ohio (Central, 423), 8 a. m., physical exercises, Y. M. C. A., Wm. Stradman, instructor; 12:15 p. m., program, Delta Omicron sorority; 4, lesson in French, Madame Teimpidis, pupile of Leo Stoffreccn in recital.

WMC, Memphis, Tenn. (Central, 503.9), 12 m., O. K. Houck Piano company; 8:30 p. m., Britling orchestra; 11, frolic, Lowenstein.

WNJ, Newark, N. J. (Eastern, 233), 10:30-11 p. m., Frank Daily and his orchestra; 11-11:30, Wolfe Gilbert and company; 11:30-12, Original Dixieland jazz band; 12-12:30 a. m., Frank Daily and his Meadowbrook orchestra.

WNY, New York, N. Y. (Eastern, 528.8), 7:35 p. m., 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., matinee program; 6, story hour, Doris Clair Secord; 6:20, music; 6:30, G. R. e. Radio orchestra, Angelo-Lupo, director; 9, program, Original Music masters, Herb Fairman, Joe Horvick, leaders; 10:30, orchestra, Brandeis store restaurants.

WOC, Davenport, Iowa (Central, 483.6), 5:45 p. m., chimes; 7, sandman's visit, Val McLaughlin; 7:20, "Legislation and the Farmer," Judge F. D. Letts; 8, program, Kohl tri.

WOR, Newark, N. J. (Eastern, 405), 2:45 p. m., Chester Sutta, violinist; 3, Allen R. Cullimore, lecturer; 3:30, Chester Sutta; 6:15, Bluebird orchestra; 6:30, man in the moon; 7-7:15, Bluebird orchestra.

WOS, Jefferson City, Mo. (Central, 440.9), 8-10 p. m., talent from Mexico district, J. J. Humphrey, director; address, Honorable William Job.

WQJ, Chicago, Ill. (Central, 448), 11-12 m., Sunday dinner menu, Ted Wilmsa; 3-4 p. m., "Touring Europe with Mrs. Sanger," Mrs. Harry M. Sanger; "Style Talk," Dudley C. Palmer; 7-8, dinner concert, Ralph Williams and his Rainbo Garden orchestra; Leroy Trauger, baritone; Blanche E. Robison, pianist; Shepard Levine, tenor; 10-2 a. m., Ralph Williams and his Rainbo skylarks; Elsie Orr, soprano; Ann Burrows, accompanist; Rogers boys, Larry and Billy; Brock sisters, Julia and Ruth; West brothers; Nubs Allen, contralto; Lauretta Giles, soprano; Monogram trio; Nate Caldwell, pianist.

WRC, Washington, D. C. (Eastern, 469), 4 p. m., fashion developments of the moment, Eleanor Gunn; 4:10, Eleanor Glynn, pianist; 4:20, "Beauty and Personality," Elsie Pierce; 4:30, tea music, Meyer Davis' New Willard hotel trio; 6, children's hour, Peggy Albion.

WRO, Lansing, Mich. (Central, 288.5), 1-3 a. m., orchestra, special Pacific coast program.

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. Decker; 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, Ill. (Central, 250), 6:15-8 p. m., Black Cat orchestra; Al Melgard, organist.

WWJ, Detroit, Mich. (Eastern, 352.7), 8 a. m., setting 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; Anne Campbell, poet; Harry E. Parker, tenor.

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Dealers and Jobbers
Write for our sales offer
Send for the Lincoln catalog

Lincoln Radio Corporation
224 North Wells St. CHICAGO

How to Construct A. F. T 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 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 1/2 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.

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.

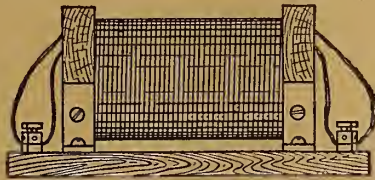
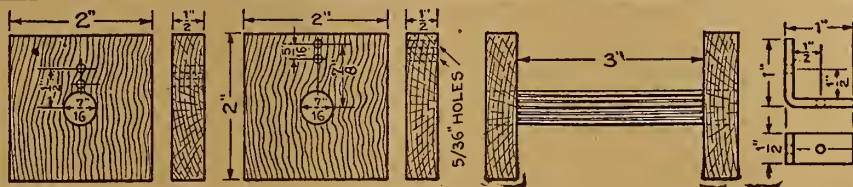
After the end pieces are properly spaced the core should be wrapped twice around with two layers of waxed paper. This should exactly fill the space between the end blocks in order to avoid short circuiting the wires on the core.

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 coil 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 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 end to end. This method of winding avoids any comparatively large differences of potential between layers. After 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.

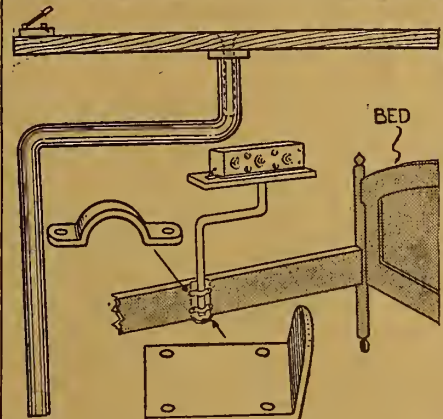
When the primary winding is complete two or three layers of paraffin paper should be wrapped around the primary winding to provide an insulation between the coils. The secondary coil is wound in the same manner to a diameter of 1 1/4 inches. The beginning and end should be reinforced with a heavier gauge wire and then led out through the end piece in the holes farthest out.

When the secondary winding is complete cover it with a layer or two of paraffin 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.

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 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.

For the table illustrated a piece of three-ply bass wood was used.

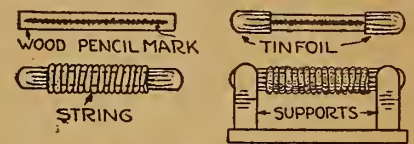
Material List

- 1 Top 28 inches long, 15 inches wide and 3/4 inch thick.
- 1 1/2-inch iron pipe 42 inches long.
- 1 1/2-inch flat headed bolt 8 inches long.
- 1 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 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

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



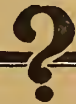
the very tips with a waterproof substance. This is the first homemade leak I have seen that can be mounted in the regular grid leak forms or supports.—J. Forman Smith, Sylacauga, Ala.

on an iron bed, fasten with bolted collar straps.

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.

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.



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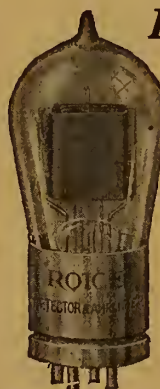
What is it that saps current strength? Insulation leakage, poor contact and mutual capacity between parts. The Premier LO LOSS Tube Socket is specially designed to stop such losses. The bakelite cross section is thin to prevent phase angle losses between terminals. All metallic parts are arranged for 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

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- Type 99A—3.4 Volts, .06 Ampere with Standard Base Amplifier and Detector
- Type 12—1 1/2 Volts, .25 Ampere Platinum Filament Amplifier and Detector

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- Type 499A—3.4 Volts, .06 Ampere with Standard Base Amplifier and Detector.
- Type 412—1 1/2 Volts, .25 Ampere Platinum Filament Amplifier and Detector.

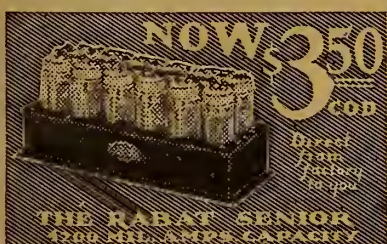
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Questions and Answers

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. I 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 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 would 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 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 feel 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 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.

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Karas Harmoniks were used by Mr. Brush to secure 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 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 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 super-heterodyne.

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.

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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 equipping my set so high wave lengths may be reached? Which is the most simplest way?

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 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 "Ivory-lite" makes most beautiful set of all. Guaranteed satisfactory. Any size, 1/8" thick, sent prepaid, 3c per square inch. Sample free. E. P. Haltom, Dept. N, 614 Main St., Fort Worth, Texas.

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DETROIT - MICHIGAN

Interference from Neighbors

(11314) MOR, Kalamazoo, Mich.
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 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 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.

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Radiophone Broadcasting Stations

Corrected Every Week—Part II

FIND MISTAKES AND YOU'LL GET DOLLAR

ONE DOLLAR will be paid to the Radiophone 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 later than one week from date of issue corrected. Readers are not limited to correcting one station, but such corrections must be verified by the stations themselves, and NOT by comparison to other 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 be made.

(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 made permanent this ban will be removed.)

United States (Cont'd)

(Note—The second part of the schedule list appears below. The first appeared last week.)

KFSG, Los Angeles, Calif. 277.6 meters. 500 watts. Angelus Temple. Tues, Thurs, Fri, Sat, 8:30-4:30 pm. Tues, 6:30-7:30 pm. Wed, 2:30-4:30 pm; 6:30-7:30 pm. Thurs, Fri, Sat, 7:30-11 pm. Sun, 10:30-12:30 pm; 2:30-4:30, 7-9:30. Mon silent. Pacific.

KFSV, Helena, Mont. 248 meters. 10 watts. The Van Buren company. Announcer, George C. Stocking. 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, 10:40 am, 1:30 pm, 5:45 markets. Mon, Wed, 8-9 pm. Central.

KFUL, Galveston, Tex. 258 meters. 10 watts. Thomas Gogan & Bros. Announcer, George C. Stocking. City of Colorado Springs Station.

KFUM, Colorado Springs, Colo. 242 meters. 100 watts. City of Colorado Springs Station.

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

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

KFUQ, San Francisco, Calif. 234 meters. 5 watts. Julius Branton & Sons Co.

KFUR, Ogden, Utah. 224 meters. 50 watts. R. W. Peary & C. Redfield.

KFUS, Oakland, Calif. 223 meters. 50 watts. Louis Sherman.

KFUT, Salt Lake City, Utah. 261 meters. 100 watts. University of Utah.

KFUU, San Leandro, Calif. 224 meters. 100 watts. Colburn Radio Laboratories.

KFUV, Springfield, Mo. 252 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 Stenro. 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 Sat, Sun, 1:30 pm; Sat, 12:30, markets, weather; Mon, Wed, Fri, 3 pm, music. Mon, 4-5:30 pm, dance orchestra. Daily ex Sun, Mon, 4-5:30 pm, concert orchestra. Daily ex Sat, Sun, 6:45 pm, reports, news. Mon, Tues, Thurs, Sat, 8 pm, lectures, music. Mon, Tues, Thurs, Sat, 10-11 am, dance music. Mon, 9 am, lectures, California State Dept. of Education; 5:30-6 pm, children's half hour. Fri, 5-5:30 pm, girls' half hour. Mon, Thurs, 10:45 am, class room instruction. Sun, 11-12 pm, 7-9:45 pm, church services; 7:30 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. 2 1/2 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, concert. Fri, 8 pm, lecture; 10:30, Hot. Mon, Tues, Wed, Sat, 10-12, midnight dance. Sun, 10:30-11 pm, church, concert; 6, church service; 7, concert. Pacific.

KGY, Lacey, Wash. 246 meters. 10 watts. St. Marthins College. Announcer, Sebastian Ruth. 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, Happiness, Joy." Daily ex Sun, Mon, 12:30-1:30 pm, 2:30-3:30, 6-7:30, 8-11:30. Sun, 10-12:30 pm, 6:30-7:30, 8-10. Mon, 12:30-1:30 pm. Pacific.

KHQ, Seattle, Wash. 360 meters. 100 watts. Louis Wassmer.

KIAP, Sibley, Minn. 421 meters. 500 watts. Steele Co. Program irregular.

KIAT, 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. Pacific.

KIR, Seattle, Wash. 283 meters. 100 watts. Northwest Radio Service Co. Announcer, Vincent I. Kraft. Slogan, "Daily Headquarters." Daily ex Sun, 5:30-6:30 pm, dinner hour program. Daily Sat and Sun, 8-10:30 pm, studio programs; 10-11, orchestra. Sat, 9-10 pm, orchestra. Pacific.

KIS, Los Angeles, Calif. 293 meters. 750 watts. Bible Inst. of Los Angeles. Announcer, M. E. Carrier. Slogan, "King Jesus Saves." Tues, Thurs, 8-9 pm, dance music, lectures, etc. Sun, 10:45-12:30 pm, 6-8:45, 7:15-9:30, church services. Pacific.

KLS, Oakland, Calif. 248 meters. 250 watts. Warner Bros. Radio Supplies. Announcer, S. Warner. Slogan, "The City of Golden Opportunity." Daily 11:30-1 pm. Sun, 10-11 am. Pacific.

KLX, Oakland, Calif. 509.9 meters. 500 watts. Oakland Tribune. Announcer, Seth E. Bailey. Slogan, "Where Rain and Water Meet." Daily ex Sun, 7 news; 7:30, weather. Mon, Wed, Fri, 8-10 pm, talks; entertainment. Fri, 10-12 midnight, dance music. Pacific.

KLZ, Denver, Colo. 266 meters. 250 watts. Reynolds Radio Co. Announcer, Mrs. William D. Reynolds. Slogan, "It's 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, Fresno, Calif. 234.2 meters. 50 watts. San Joaquin Lt. Pr. Corp. Announcer S. W. Green.

Slogan, "Home of the Raisin." Irregular schedule.

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.

KNT, Kukak Bay, Alaska. 263 meters. 100 watts. Wlster Henrich.

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. Pacific.

KOA, Denver, Colo. 322.4 meters. 1500 watts. General Elec. Co. Daily ex Sun, 1 pm; 2-stocks. Daily ex Sat, Sun, 6 pm, stocks. Tues, Thurs, 3 pm, matinee. Mon, Wed, Fri, 8 pm, entertainment. Sat, 9-12, dance 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. Slogan, "The Sunshine State of America." Daily 11:15-12 m, 9:55-10 pm, time, reports. Mon, Wed, Fri, 7:30-8:30 pm, concert. Mountain.

KOP, Detroit, Mich. 277.8 meters. 500 watts. Detroit Police Dept. Announcer, Elmer C. Reich. Slogan, "Safety First." Daily ex Sun, 1 pm, 6:30; reports, police information, emergency. Safety talks. Eastern.

KPO, San Francisco, Calif. 429.5 meters. 500 watts. Hale Bros., 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, 4:30-5:30 pm, music. Fri, 12:45-1:30 pm, talks. Sat, 1-2 pm, 3:30-5:30 pm, music. Mon, Tues, Wed, Thurs, 5:30 pm, children's hour; 7-7:30, dinner music; 8-11, concert, lectures. Sat, 8-12 midnight, music. Sun, 11-12:15 pm, church services. 8:30-10, music. Pacific.

KPP, Pasadena, Calif. 229 meters. 50 watts. Pasadena Presbyterian Church.

KQP, Hood River, Ore. 270.1 meters. 10 watts. Apple City Radio Club. Announcer, H. B. Reas. Slogan, "The Home of the Hood River Apple." Fri, 6:30 pm, music. Wed, 9 pm, special. Pacific.

KQV, Pittsburgh, Pa. 275.2 meters. 500 watts. Double-day-Hill Elec. Co. Daily ex Sun, 10:30-11:30 am, music; 8 pm, Mon, Wed, Fri, 8-10 pm. Eastern.

KQW, San Jose, Calif. 240 meters. 50 watts. Chas. D. Herrold. Daily ex Sun, 1-1:30 pm. Wed, 8-9 pm, concert. Pacific.

KRE, Berkeley, Calif. 259 meters. 100 watts. Daily Gazette. Announcer, J. E. Wiggins. Sat, Wed, 8-12 midnight, dance music. Sun, Thurs, 8-9:30 pm, concert. Tues, 8-10 pm. Sun, 10-11 am, services. Pacific.

KSAC, Manhattan, Kan. 340.7 meters. 500 watts. Kansas State Agricultural College. Announcer, Sam Pickard. Daily 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. 545.1 meters. 500 watts. St. Louis Post Dispatch. Daily ex Sun, 9:40 am, 10:40, 11:40, 12:40 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. Thurs, 4 pm. Sun, silent night. Central.

KTHS, Hot Springs, Ark. 375 meters. 500 watts. The New Arlington Hotel. Announcer, G. C. Arnoux. Daily ex Sun, 12:30-1:30 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; 10-11:30, jazz. Central.

KTW, Seattle, Wash. 272.6 meters. 1000 watts. First Presbyterian Church. Announcer, J. G. Priestly. Slogan, "Hear Ye, Hear Ye, the Gospel." Sun, 11-12 pm, 4-5 pm, news, concert, markets. Pacific.

KUO, San Francisco, Calif. 245.8 meters. 150 watts. San Francisco Examiner. Slogan, "The Voice of the West." Temporarily off the air.

KWG, Stockton, Calif. 247.8 meters. 50 watts. Portable Wireless Telephone Co. Announcer, E. R. Garrow. Slogan, "Voice of the San Joaquin Valley." Daily ex Sun, 4-5 pm, news, concert, markets. Tues and Fri, 8-9 pm, concert. Sun, 2-3 pm, concert. Pacific.

KYQ, Honolulu, H. T. 270 meters. 100 watts. Elec. Shop, Teves & Joaquin Co., Ltd.

KYW, Chicago, Ill. 553.4 meters. 1500 watts. Westinghouse Elec. & Mfg. Co. Announcer, Edward Boroff. Daily ex Sun, Sat, at, 9:30 am, 10, 10:30, 11, markets; 10:55, time; 11:05, weather; 11:30, news; 11:55, table talk; 12 m, 12:30 pm, 1, 1:20, 2:15, 2:30, markets; 3, 3:30, 4, news; 4:15, market; 4:30, 5, net; 6, 30, markets. Daily ex Sun, Mon, 6:35-7 pm, bedtime story; 7-7:30 pm, dinner concert; 8, concert; 9, special. Tues, Thurs, 2:30-4 pm, musical frolic. Wed, Fri, 10-2, midnight revue. Tues, Thurs, 10-11:30 pm, "at home" program. Sat, 10-11:30 pm, classical program; 12-2, carnival. Sun, 11 am, Central church; 2:30 pm, chapel; 7, Chicago Sunday Evening club. World Crier every half hour. Central.

KZZK, Manila, 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.

KZRO, Manila, P. I. 222 meters. 500 watts. Far Eastern Radio, Inc.

KZUJ, 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, Civ. Ser. Daily ex Sat, Sun, 7:45-8 pm, dept. program. Mon, 8:25-8:40 pm, Dept. of Interior, Eastern.

PWX, Havana, Cuba. 400 meters. 500 watts. International Tel. & Teleg. Corp. Announcer, R. O. Farrell. 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.

WAAC, New Orleans, La. 275 meters. 100 watts. Tulane Univ. Announcer, D. Elliott. Fri, 7:15-7:30 pm, reports; 8-9:30, educational and entertainment program. Central.

WAAD, Cincinnati, O. 258.6 meters. 25 watts. Ohio Mechanics Inst. No regular schedule.

WAAP, Chicago, Ill. 275 meters. 200 watts. Chicago Daily Drivers Union. Announcer, Carl Ulrich. Daily ex Sun, 8:40 am, 10:30, 10:45, 12:30 pm. Daily ex Sun, Sat, 12:45, 3, 4:30, live stock and weather reports. Central.

WAAM, Newark, N. J. 263 meters. 250 watts. I. R. Nelson Co. Announcer, J. B. Bayley. Slogan, "Electrical Repairing and Manufacturing." Daily ex Sun, 11-12 m, music, talks, markets. Mon, Tues, Wed, Fri, 8-11 pm. Eastern.

WAAN, Columbia, Mo. 254 meters. 80 watts. Univ. of Mo. Announcer, Otto S. McDaniel.

WAAP, Omaha, Neb. 278 meters. 500 watts. Omaha Grain Exchange. Slogan, "Where Agriculture Accumulates Wealth." Daily ex Sun, 9:45, 10:15, 10:45, 11:15, 11:45, 12:45, 1:15, 2:15, market reports. Mon, 7:30-9 pm, music. Thurs, 7:30 pm, bridge talk; 8, program. Central.

WABA, Lake Forest, Ill. 227 meters. 100 watts. Lake Forest university. Wed, 8-9 pm, music, talks. Central.

WABB, Harrisburg, Pa. 266 meters. 10 watts. Harrisburg Sporting Goods Co. Announcer, Frank B. Gaucher. Tues, 10-11 pm, sports, music. Sun, 9 pm, church services. Eastern.

WABD, Dayton, O. 283 meters. 5 watts. Parker High School. Announcer, A. H. Schroy.

WABH, Sandusky, O. 240 meters. 20 watts. Lake Shore Tire Co.

WABI, Bangor, Me. 240 meters. 100 watts. Bangor Ry. & Elec. Co. Announcer, H. D. Tucker. Slogan, "The Pine Tree Valley." Daily ex Sun, 5 pm, stocks, markets. Wed evening, music.

WABL, Storrs, Conn. 275 meters. 500 watts. Connecticut Agri. College. Announcer, Daniel E. Noble. Slogan, "From the Nutmeg State." Mon, Wed, Fri, 7-9 pm. Eastern.

WABM, Saginaw, Mich. 261 meters. 350 watts. F. E. Doherty Automotive & Radio Equip. Co. Announcer, G. C. Hiatt. Daily ex Sun, 10:15 am, news, markets, 2:15 pm, weather, stocks; 6, news, stocks, sports,

music, Daily ex Sun, Sat, 10 pm, dance. Sun, 10:30 am, 7:30 pm, church service. Eastern.

WABN, La Crosse, Wis. 244 meters. 500 watts. "The City Beautiful on the Old Mississippi." Club, Thirsty Knights. Mon, 8-10 pm, Thurs, 9-11 pm. Central.

WABO, Rochester, N. Y. 277 meters. 100 watts. Lake Avenue Baptist church. Announcer, Laurence Hukson. Sun, 10:15-12 m, 7:15-9 pm. Eastern.

WABQ, Haverford, Pa. 261 meters. 50 watts. Haverford College Radio Club. Announcer, Dr. James McF. Carpenter. Tues, 8-9 pm, educational program. Thurs, 9-11 pm, music. Eastern.

WABR, Toledo, O. 263 meters. 50 watts. Scott High School. Irregular programs. Fri, 8:15-9 pm, program by high school students. Eastern.

WABU, Camden, N. J. 226 meters. 50 watts. Victor Talking Machine Co.

WABW, Wooster, O. 207.4 meters. 100 watts. The College of Wooster, Dept. of Physics. Announcer, Victor Andrew.

WABX, Mt. Clemens, Mich. 254 meters. 250 watts. Henry B. Joy.

WABY, Philadelphia, Pa. 242 meters. 50 watts. John Magaldi, Jr. Slogan, "Quaker City Sleep, Doggers." Club, The American Broadcasting Club. Sun, 9 pm, music; 10:30, "Sleep Doggers Session." Eastern.

WABZ, New Orleans, La. 263 meters. 100 watts. The Coliseum Place Baptist church. Announcer, V. W. Bradbury. Slogan, "The Station with a Message." Wed, 9-10 pm, talks, music; Sun, 11-12:15 pm, 7:30-8:45. Central.

WAG, Richmond Hill, N. Y. 316 meters. 500 watts. A. H. Grebe & Co. Slogan, "Wait and Hear Grebe." Mon, 7:30-8 am. Wed, Fri, 7:30-11:15 pm. Sat, 12-2 m. Eastern.

WAR, Sisseton, Wis. 406 meters. 500 watts. Kopp Radio Co. Indefinite schedule.

WBAA, W. Lafayette, Ind. 273 meters. 250 watts. Purdue University. Announcer, J. W. Stafford. Daily ex Sun, 9:50 am, stocks, markets, weather. Mon, Fri, 12:30-1:30 pm, special program. Central.

WBAK, Harrisburg, Pa. 400 meters. 500 watts. Pennsylvania State Police. Announcer, Frank P. Gaucher. Daily ex Sun, 10 am, 1:30 pm, 5:45, police reports, fire protection, markets; 12:30 am, police reports. Mon, Tues, Wed, 7:30 pm, special. Eastern.

WBAN, Paterson, N. J. 244 meters. 100 watts. Wireless Phone Corp. Announcer, H. W. Iyerson. Slogan, "The Silk City of America." Daily ex Sun, 9-10:30 am, 12:30-5:30 pm. Sat morning only. Sun, 10-12 am, 2-5 pm, 7:30-10:30. Eastern.

WBAP, Fort Worth, Tex. 479.9 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 Men." 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; 7-11, midnight frolic. Central.

WBBC, Columbus, Ga. 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 Anthracite." Tues, Wed, Thurs, Sat, 9:30-12 midnight, music. Sun, 2:30-5 pm. Eastern.

WBAY, New York, N. Y. 492 meters. 500 watts. A. T. & T. Co. Experimental purposes only.

WBBA, Newark, Ohio. 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.

WBBD, Reading, Pa. 234 meters. 50 watts. Barbey Batters Service. Wed, 10-11:30 pm. Sat, 10-11:30 pm. Eastern.

WBEG, Mattapoisett, Mass. 248 meters. 500 watts. Irving Vermilya. Mon, Wed, Fri, 8-10 pm, music. Sun, 10:45-12 m, church service. Eastern.

WBEP, Port Huron, Mich. 205.4 meters. 50 watts. J. Irving Bell.

WBFI, West Palm Beach, Fla. 253 meters. 50 watts. Neel Elec. Co. Announcer, R. C. Bender. Slogan, "Where Summer Spends the Winter." Tues, Thurs, Fri, 8-10 pm, band. Sun, 11-12 m, 7:30-9 pm, church services. Eastern.

WBFL, Richmond, Va. 229 meters. 100 watts. Grace Covenant Presbyterian church. Announcer, Herbert C. Taylor. Tues, 8 pm. Sun, 11 am, 8 pm. Eastern.

WBMM, Chicago, Ill. 226 meters. 200 watts. H. Leslie Atlas.

WBPP, Petoskey, Mich. 238 meters. 100 watts. Petoskey High School. Announcer, Carl Bowman. Wed, 8-9 pm. Eastern.

WBBS, 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.

WBSS, New Orleans, La. 252 meters. 50 watts. First Baptist Church.

WBST, Memphis, Tenn. 224 meters. 10 watts. Jenks Motor Sales Co.

WBVV, Johnstown, Pa. 248 meters. 5 watts. Johnstown Radio Co.

WBWW, Norfolk, Va. 222 meters. 50 watts. Ruffner Junior High School. Announcer, Lee M. Klinefelter. Slogan, "We're Backed by Workers." Wed, 8:30 pm, music. Fri, 8-10 pm. Eastern.

WBWY, Charleston, S. C. 268 meters. 20 watts. Washington Light Infantry. Announcer, Hugh Easterly. Eastern.

WBZZ, Indianapolis, Ind. 227 meters. 50 watts. Noble B. Watson. Robert Robbins. Mon, 8-9:30 pm. Central.

WBCN, Chicago, Ill. 265 meters. 500 watts. Southern Economy. Daily ex Sun, 6-6:30 pm, children's hour. Sat, Tues, Thurs, 6:30-11. Wed, Fri, 6:30-10:15 pm. Sun, 10:30-12 m, church service; 4-5 pm, concert; 5:15-6:15, vespers; 6:50-7 police bulletins; 7-8, classics; 8-10, popular; 10-10:15, dance music. Central.

WBDC, Grand Rapids, Mich. 256 meters. 30 watts. Baxter Laundry Co.

WBDR, Butler, Pa. 1599 meters. 250 watts. Pa. State Police. Announcer, H. Nifong. Daily ex Sun, 9:30 am, 10, 10:30, 1 pm, 1:30, 2, 5:30, 5:45, 6:15, 12, 12:30 am, 1. Eastern.

WBRE, Wilkes-Barre, Pa. 231 meters. 10 watts. Baltimore Radio Exchange.

WBS, Newark, N. J. 252 meters. 100 watts. D. W. May, Inc. Announcer, C. A. Roberson. Daily, 11-12 m, music; 1-2:15 pm, reports, music. Mon, Thurs, 5:30-7 pm; 8:30-12. Tues, Wed, Fri, 7-8:30 pm. Fri, 12-2 am. Eastern.

WBT, Charlotte, N. C. 275 meters. 250 watts. Southern Radio Corp. Announcer, "Happy Jack" Slogan, "Queen City of the South." Daily ex Sun, 11 am, weather; 12:30-1:30, 7, music; 7:15, markets. Tues, Thurs, 9 pm, music. Mon, Wed, Sat, 10:45 pm, music. Sun, 11 am, 7:30 pm, church services. Eastern.

WBZ, Springfield, Mass. 333.3 meters. 1500 watts. Westinghouse Elec. & Mfg. Co. Announcer, A. E. Bach. Daily ex Sun, 6-7 pm, dinner concert; 7, market reports, talks; 7:10, bedtime stories; 9:15-7:30, lectures; 9:55-10:05, time, weather. Daily ex Mon, Fri, 8:30-10:30 pm, concert. Mon, Fri, 7:30-8 pm, extension course. Mon, 8-10:30 pm, concert; 11:30-12, orchestra. Tues, 11:30-12 pm, organ. Wed, 11-12 midnight, dance program. Fri, 10-11:30 pm, concert; 11:30-12, dance. Sat, 11:30-12 pm, dance program. Sun, 10:45 am, church services; 8:30-10 pm, concert. Eastern.

WCAD, Canton, N. Y. 263 meters. 250 watts. St. Lawrence Univ. Announcer, Ward C. Priest. Slogan, "The Voice of the North Country." Daily, 11 am, weather, reports, time. Wed, 8 pm, program. Eastern.

WAE, Pittsburgh, Pa. 462 meters. 500 watts. Kaufman & Bern Co., Pittsburgh Press. Announcer, Joseph Sartory. Daily ex Sun, 12:30 pm, news; 3:30, news; 4:30, reports; 6:30, music; 7:30, Uncle Kaybee, 8:30, music. Mon, Tues, 11 pm. Sun, 10:45 am, services; 3 pm, sermon; 4, 6:30, music. Eastern.

WCAG, New Orleans, La. 268 meters. 100 watts. Clyde R. Randall. Temporarily off the air.

WCAL, Northfield, Minn. 336.9 meters. 500 watts. Dept. of Physics, St. Olaf College. Announcer, Kenneth Onsgaard. Slogan, "The College on the Hill." Daily.

WCAH, Columbus, O. 266 meters. 200 watts. Enteklin Elec. Co.

WCAJ, Univ. Place, Nebr. 275 meters. 300 watts. Nebr. Wesleyan Univ. Announcer, J. C. Jensen. Daily 10:30 am, weather. Tues, 7 pm, children's hour. Fri, 9 pm, music, lectures. Central.

WCAK, ex Sun, Mon, 9:45 am, chapel. Thurs, 9 pm, music. Fri, 8:30 pm, talk. Sat, 12 midnight, music. Sun, 8:30 pm, sermon, music. Central.

WCAO, Baltimore, Md. 275 meters. 50 watts. Sanders & Stayman Piano Co. Announcer, R. E. Brunner. Daily ex Sun, 11:55 am, time; 12 m, weather; 12:05-2:30 pm, dance music. Mon, Wed, 8-10 pm. Sun, 5 pm, vesper service. Eastern.

WCAP, Washington, D. C. 469 meters. 500 watts. Chesapeake & Potomac Tel. Co. Announcer, William E. Herson. Mon, 7:30-10 pm. Wed, 7:30-12 midnight. Fri, 7:30-12 midnight. Sun, 11 am, 4 pm, 7:20-10 pm, jointly with WEAP. Eastern.

WCAR, San Antonio, Tex. 263 meters. 200 watts. Southern Radio Corp. of Texas. Announcer, L. Tatom. Club, "Royal Order of Preparatorics." Mon, Thurs, Sat, 8:30-9:30 pm, concert. Wed, Sat, 11 pm. Central.

WCAT, Rapid City, S. D. 240 meters. 100 watts. S. D. State School of Mines. Announcer, J. O. Kammerman. Daily ex Sun, 9:30 am, 12:30 pm, weather, reports. Thurs, 7:30 pm, concert. Mountain.

WCAU, Philadelphia, Pa. 278 meters. 500 watts. Durham & Co. Daily ex Mon, Sat, 7-10 pm. Eastern.

WCAV, Little Rock, Ark. 263 meters. 20 watts. J. C. Dice Elec. Co. Wed, Fri, 8:30 pm, lecture, music. Sun, 9-10:30 pm, special musical concert. Central.

WCAX, Burlington, Vt. 252 meters. 50 watts. University of Vermont. Fri, 7-8 pm. Eastern.

WCAY, Milwaukee, Wis. 266 meters. 250 watts. Milwaukee Civic Broadcasting Station. Announcer, Billy Williams. Mon, Wed, Fri, 12:15 pm. Thurs, 9:15 pm. Central.

WCBA, Carthage, Ill. 246 meters. 50 watts. Carthage College. Wed, 9-10 pm. Central.

WCBB, Allentown, Pa. 254 meters. 10 watts. Chas. W. Heimbach. Wed, 8:15-11 pm. Fri, 6:45-7:45 pm. bedtime stories, Bible lesson. Sun, 5-7 pm, church service. Eastern.

WCBC, Ann Arbor, Mich. 229 meters. 200 watts. U. of Mich.

WCBD, Zion, Ill. 345 meters. 1500 watts. Wilbur Glenn Voliva. Announcer, J. H. DePew. Slogan, "Where God Rules, Man Prospers." Mon, Thurs, 8-10:30 pm, concert. Wed, 12:30-1 pm, organ. Thurs, 2:30-3:15 pm, service. Sun, 9:10-10:45 am, Bible School; 2:30-6, church services. Sun, 8-10:30 pm. Central.

WCBE, New Orleans, La. 263 meters. 5 watts. Uhalt Brothers Radio Co. Announcer, Johnny Wilson. Slogan, "Second Floor." Sat, 9 pm, dance. Sun, 12:30-2 pm, dinner concert; 9, dance music. Central.

WCBF, Mayfield, Ky. 268 meters. 10 watts. Howard S. Williams. Slogan, "Will Christ Be Glorified?"

WCBG, Oxford, Miss. 242 meters. 20 watts. U. of Mississippi. Announcer, W. L. Kennon. Mon, Fri, 8 pm. Central.

WCBH, Fenwick, La. 244 meters. 10 watts. J. C. Mans.

WCBT, St. Petersburg, Fla. 266 meters. 500 watts. E. Richard Hall. Mon, Thurs, 7-8 pm. Tues, 8-8:15 pm. Sun, 8-10 pm. Eastern.

WCBL, Houlton, Me. 266 meters. 100 watts. Northern Radio Mfg. Co. Announcer, Lee J. Bell. Slogan, "Call of the North." Wed, 7:30-10 pm. Sun, 10:30 am. 7. Eastern.

WCBM, Baltimore, Md. 229 meters. 250 watts. Hotel Chateau. Announcer, Harry J. Dobe. Tues, Thurs, 10 pm-1 am. Sat, 9:30-12 mid. Sun, 9:45-11 pm. Eastern.

WCO, Memphis, Tenn. 250 meters. 20 watts. The Radio Shop, Inc. Wed, Sun, 8:30 pm. Central.

WCQ, Nashville, Tenn. 236 meters. 100 watts. First Baptist church. Announcer, R. G. Monahan.

WCBR, Providence, R. I. 246 meters. 5 watts. Charles H. Messter. (Portable).

WCBS, Worcester, Mass. 238 meters. 250 watts. Clark University, Collegiate Dept.

WCBU, Arnold, Pa. 220 meters. 50 watts. Arnold Wireless Supply Co. Announcer, F. J. Ambrose. Slogan, "The Little 50 Watt Station in a 50 Kilo-watt town." Wed, Sun, 9-10 pm. Sat, 10-11 pm. Eastern.

WCBV, Tullahoma, Tenn. 252 meters. 10 watts. Tullahoma Radio Club.

WCBW, Macon, Ga. 226 meters. 20 watts. Maitland Solomon and G. P. Rankin, Jr. Irregular schedule.

WCBX, Newark, N. J. 266 meters. 100 watts. The Radio Shop. Tues, Wed, Fri, 6-6:30 pm; 7:30-10:30. Eastern.

WCBY, Buck Hill Falls, Pa. 263 meters. 10 watts. Forks Electric Shop. Announcer, Hugh Kemper.

WCBZ, Chicago Heights, Ill. 248 meters. 50 watts. Croopletts Brothers Music House. Announcer, John 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-Crosby Co. Announcer, Paul Johnson. Daily ex Sun, 9:40 am, 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, sport hour; 6:30, dinner concert. Mon, 8 pm, lecture; 8:30, music; 10:30, dance. Wed, 6:30 pm, markets; 7, vespers; 9, music; 10:30, dance. Thurs, 6:30 pm, dinner concert; 7:30, lecture; 8, classical music; 10, music. Fri, 6:30 pm, dinner concert; 7:30, lecture; 8:30, music. Sat, 8 pm, lecture; 8:30, music; 11, dance. Sun, 10:20 am, 4:15 pm, 7:30, church services; 9:15, music. Central.

WCEE, Elgin, Ill. 275 meters. 1,000 watts. Charles E. Erbstein.

WCK, St. Louis, Mo. 275 meters. 100 watts. Stix, Baer & Fuller Dry Goods Co. Announcer, Helor G. Hatfield. Daily, 12-12:30 pm, 3-3:30 pm. 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.

WCM, Austin, Tex. 268 meters. 250 watts. University of Texas. Announcer, J. Austin Hunter. Daily ex Sun, 9:45 am, 11:45, 2:45, 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, music. Daily ex Sat, Sun, 8:30-10 pm, alternate weeks, concert. Tues, 10-12 pm, club. Sun, 10:30 am, 7:15 pm, church services. Eastern.

WDAE, Tampa, Fla. 273 meters. 250 watts. Tampa Daily Times. Announcer, McDonald Thompson. Daily, 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 stories, music; 11:45, Nighthawks. Mon, Wed, Fri, 9-9:30 pm, concert. Sun, 4-5 pm, music. Central.

WDAG, Amarillo, Tex. 263 meters. 100 watts. J. Lawrence Martin. Slogan, "Where Dollars Always Grow." Tues, Thurs, 8-9:30 pm, music. Central.

WDAN, 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.

WDAR,

HIS VOICE TO REACH ALL OVER COUNTRY



President Coolidge will be the first president of the United States ever to have had his inaugural ceremonies broadcast.

BROADCAST INAUGURAL

wire lines transmit the program to WJZ, its New York station, and WGY, the Schenectady station of the General Electric company, for broadcasting at those points.

Probable Stations to Broadcast The usual A. T. & T. link, consisting of Stations WCAP, WJAR, WEEL, WDBH, WGR, WCAE and WFI, will undoubtedly carry the inaugural program.

The Westinghouse group of WBZ, KDKA, KYW and KFKX are almost certain to be included. KOA and KGO, Denver and Oakland stations respectively of the General Electric company, are also fairly sure to be in the link.

More than sixteen other 500-watt broadcasters located in every part of the country are negotiating for the privilege of sharing a part of the expense and carrying the ceremonies on March 4.

The final list of participating stations will be announced just prior to the event.

To the Radiophan of today the fact that a public address loud speaker system is to be installed means but little. Four years ago, however, it marked an epoch-making event in the history of voice transmission.

People throughout the land were amazed when they learned that on this inauguration day the voice of President Harding was clearly heard and understood by a crowd of 125,000 people, a crowd that completely filled the plaza in front of the capitol and overflowed into the park beyond.

Today this same equipment acts as an aid to bring the voice of the President of the United States not to 125,000 but to several millions. It is this equipment, combined with the use of the long distance telephone lines of the Bell system and Radio relays, that brings the human voice to many stations for broadcasting.

Australia Hears Complete Program from Pittsburgh

E. PITTSBURGH, Pa.—Station KDKA, Westinghouse company here, recently reached several cities in Australia with a complete program.

Arrangements for the test were made between the Westinghouse company and The Melbourne Herald. The hour was from 5 to 6 a. m., eastern time, which corresponds with 8 to 9 p. m. at night in Australia, there being a difference of fifteen hours in time.

THEATRICAL LIGHTS GIVE RADIO ALARM

WHILE MOVIE MANAGERS INDORSE BROADCASTS

Actors' Equity Organizes Committee to Discuss Radiocast Competition and Other Problems

NEW YORK. — Representatives of actors, managers, dramatists, composers, scenic artists, publishers, stage hands and musicians—leading lights of the theatrical world—sounded a Radio alarm recently when they met together here for the first time in history to form a committee to make plans for the "betterment of the institution to which we all belong."

Radio broadcasting and its relation to the theater, discussed pro and con, mostly con, for two hours was named as the first matter for the committee to handle.

The Actors' Equity association is the moving spirit behind the organization of the new committee of the theater. Although many other problems are said to be ready for discussion by the proposed committee, none of these has been named. Radio's so-called competition with the spoken play is of chief interest.

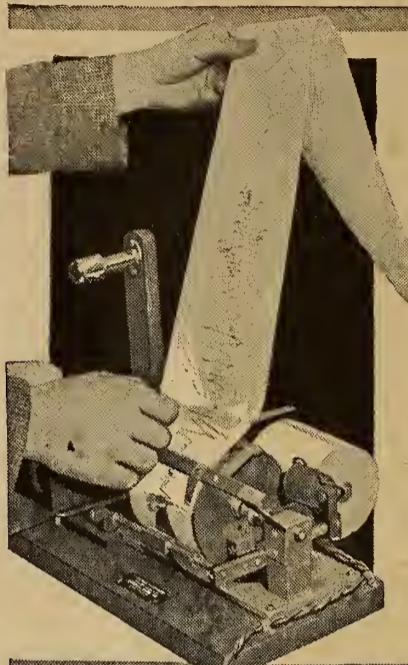
Movie Managers Indorse Radio

While the Actors' Equity in New York was sponsoring the call to arms against Radio, down in Atlanta, Georgia, the Famous Players-Lasky theater managers from all parts of the United States and Canada in convention assembled unanimously indorse Radio broadcasting as an influence beneficial to the growth and prosperity of the silent drama.

The motion picture theater managers further declared themselves in favor of a policy of close co-operation between theater directors and broadcasting stations.

The meeting was attended by Jesse L. Lasky, production manager of the organization, and Harold B. Franklin, head of the theater department. Lambdin Kay, director of WSB, the Atlanta Journal station, spoke in behalf of broadcasting.

FADING RECORDER IS AID TO ECLIPSE TEST



The apparatus pictured is a fading recorder and was used by the Radio Corporation of America in the recent Radio eclipse tests in New York city to make a permanent record of the effect the eclipse had on Radio signals of various wave lengths. If signals came in always with the same strength the result would be a straight line on the paper tape. Note the wavy line on the tape.

Union College, Schenectady, 2XQ, recently held two-way Radiotelegraph communication with G. Marcuse, England, 2NM.

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Radio Digest, Illustrated, Volume XII, Number 6, published Chicago, Illinois, February 14, 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.

Table listing contents: All the Live News of Radio... 1 to 3, WFI—in the City of Brotherly Love... 5, An Evening at Home with the Listener in, a Popular Chart Showing When to Listen in for Your Favorite Station... 8, Advance Programs for the Week at All the Larger Stations... 9 to 14, Construction of the Hetuogen, More Details About the Circuit, by C. E. Brush... 15, Editorial; Indi-Gest; Condensed by Dielectric... 16, How to Make the Knox Reflex, Part II—Panel and Baseboard Layout, by W. H. H. Knox... 17, Broadcast Listener's Reference Library, Part II—Distance and Reception Limitations, by E. T. Jones... 19, B Battery Read with 10-Volt Meter, by Louis L. Matson... 21, Questions and Answers... 22, Radiophone Broadcasting Stations, Part III... 23

Looking Ahead

"Uncle John" Daggett, KHJ Director-Announcer, and his almost equally famous staff, including "Kindness," "Happiness" and "Joy," will be pictured next week, together with the station of the Los Angeles Times. Read about beloved "Uncle John" and his broadcasting ideals in the next issue of Radio Digest.

Tuning and Trouble Shooting the Knox Reflex will be the third part of the series by W. H. H. Knox. Readers that have built this improved reflex will find the tuning not at all complicated and errors in assembly can be easily located.

Antenna and Ground Requirements are treated by Mr. Jones in the next issue in a way that is distinctly new. Antenna circuit resonance and some pointers on securing selectivity are not usually included in articles of this type.

An Easily Made Quick Reference Station Directory which enables readers to use the lists printed in Radio Digest without searching through several copies will be presented by David J. Morris. Compactness and low cost are other factors which recommend it.

Newsstands Don't Always Have One Left

WHEN YOU WANT

Radio Digest

YOU WANT IT!

BE SURE OF YOUR WEEKLY COPY BY SUBSCRIBING NOW

SEND IN THE BLANK TODAY

Publisher Radio Digest, 510 N. Dearborn St., Chicago, Illinois.

Please find enclosed check M. O. for Five Dollars (Six. Foreign) for One Year's Subscription to Radio Digest, Illustrated.

Name

Address

City.....State



MORE DISTANT STATIONS

WITH THE APEX VERNIER DIAL

Greater range, bigger volume, finer selectivity, less interference. Lasts forever. The one big advance yet made in tuning. Ratio 12 to 1.

Quickly applied to any shaft.

For sale by all good Radio Dealers.

If unable to obtain from dealer, enclose

\$2.00 for Royal Brass Finish.

\$2.50 for Satin Silver Finish.

\$3.50 for De Luxe Gold Plated Finish.

The Apex Super Five

is a tuned radio frequency receiver of the highest type. Built into a highly finished walnut cabinet—complete with Jones Multiple Battery Cable—all settings highly gold plated. List price \$95.00 complete.

7 Tube Microdyne Super-Heterodyne for \$97.50

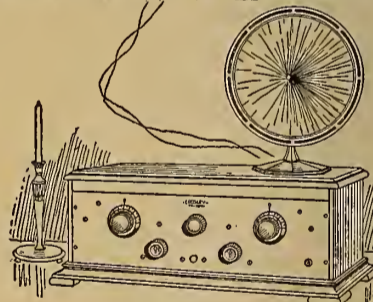
Receive the parts complete to assemble your set. Coast to coast on an 18 in. loop. Assemble this 7-tube Microdyne Super-Heterodyne on a 7 x 18 in. panel in 3 hours. Parts complete. Price of cabinet, to fit, on application. If your radio dealer cannot supply, send check or money order and name of dealer.

RADIO JOBBERS: Some very profitable Apex Radio Territory still available. Write or wire immediately.

RADIO DEALERS: Apex Radio Products have the call today. Write for profitable sales plan at once.

Apex Electric Mfg. Co. 1414 West 59th Street Chicago

CROSLEY AGAIN LOWERS PRICES



Big Reduction in Famous TRIRDYN and other Radios CROSLEY TRIRDYN SPECIAL

THE biggest selling high grade receiver on the market—the Crosley Trirdyn—reduced from \$65 to \$50.

The Trirdyn Special—the beautiful Model with Cabinet to house batteries—formerly \$75, now \$60.

The Crosley 51-P, a tremendous seller at \$25, reduced to \$23.50.

We unhesitatingly state that these sets, together with the other Crosley Radios represent the biggest values ever offered. Crosley Radios range in price from the one tube Model 51 at \$14.50 to the Trirdyn Special at \$60. There is a Crosley to suit every taste and pocket-book.

Before You Buy—Compare Your Choice Will Be a Crosley

Most Good Dealers Handle Crosley Radios As is customary prices quoted do not include tubes, loud speaker, phones or batteries.

All Crosley Radios Are Licensed Under Armstrong U. S. Patent 1,113,149.

Prices West of Rockies—Add 10 per cent.

The Crosley Radio Corporation

POWEL CROSLEY, JR., President 2492 Sassafras St. Cincinnati, O. Crosley Owns and Operates Broadcasting Station WLW

SONG COMPOSERS IN NEW WAR ON RADIO

BACK BILL FOR MORE CONTROL OF WRITINGS

American Society Believed Instigator of Proposed Legislation Aimed to Throttle Broadcasters Anew

WASHINGTON.—Song composers have broken out with a new war on Radio. Up to very recently they were willing to license stations to broadcast their music. Now they would take away that license, even to the extent of cancelling privileges already bought and paid for.

The latest move is a lobby here in support of a new copyright bill, supported and promoted it is said by the American Society of Composers, Authors and Publishers. The new copyright bill, needless to say, is stronger than any protective copyright measure ever considered before, and contains, of course, a clause indicative of the American society's Radio throttling policy.

The bill, introduced in the House of Representatives by Representative Perkins of New Jersey, has been referred to the House patents committee, which likewise has been a reception committee during the past few weeks for a lobby composed of song composers, playwrights, authors and artists galore.

The American society, incidentally, is reported with having notified broadcasters whom they have licensed that broadcasting of certain late popular songs, which they name, must be stopped forthwith because one of their members (Arthur Hammerstein) objects. The society even goes so far as to suggest cancellation of licenses. In explanation this means that a broadcaster has no assurance that he may broadcast the music which the society claims to control, even after he pays for a license.

Amateur Quebec Bands Play for La Presse Trophy

MONTREAL, Can.—Keen competition has been aroused in the province of Quebec for the silver cup offered by La Presse station, CKAC, for the most popular local amateur bands.

Bands from Joliette, St. Hyacinthe, St. John and Drummondville have already gone through the ordeal of broadcasting their musical programs and the mayor of each town has waxed eloquently on the values of their individual cities.

The cities of Three Rivers, Quebec, Sorel, St. Jerome and many others have entered the contest, and especially good band programs are promised listeners who choose to dial on the 425 meter mark each Sunday afternoon between 4:30 and 6:30, eastern time.

Talks on Home Lighting

CHICAGO.—The first of a series of ten lectures on "home lighting" was given recently from Station WQJ by C. E. Johnson, speaking under the auspices of the lighting educational commission.

STARS FOR KIDDIES FROM UNCLE WALT

CHICAGO.—"Uncle Walt," the 5:30 o'clock story teller at WGN, Chicago, has become so engulfed in requests from young listeners for "shooting stars" that he has set aside certain days for children with certain names. On Tuesday, February 10, all little girls named "Mary" who wrote to Uncle Walt and asked for a star received one, and nobody but the Marys got one that evening. The next evening, it was "Johnny's" turn, and all John's who had written to the fat fellow found a star shot into the heavens for them.



"Uncle Walt"

Every night will be dedicated to another name—Thursday, February 12, "Margaret's or Peggy's" night; Friday, February 13, "James' or Jimmy's" night; Tuesday, February 17, "Helen's" party; Wednesday, February 18, "Paul's" show; Thursday, February 19, "Louise's" time, and Friday, February 20, "Tom's or Thomas'" turn.

Each evening at 5:30 Uncle Walt conducts Skeeex time at WGN. "Cuckoo," the impudent bird, is custodian of the children's stars. He tucks the names of the children on the twinkling stars in his star-shooting machine; then there is a "boom" and a sky-rocket whirl—and Uncle Walt points the children's attention to the place in the sky where that star is.

HEAR U. S. BUSINESS MEETING PUT ON AIR

WASHINGTON.—Even the United States government can have a business meeting. Radiophans learned this recently when the semi-annual business meeting of the government was broadcast for the first time. The principal feature of the evening was an address of President Coolidge and the report of Gen. H. M. Lord, director of the budget. Ten stations, well scattered about the country, broadcast the entire meeting. The ones carrying the program included WCAP, Washington; WEA, New York city; WOO, Philadelphia; WJAR, Providence, R. I.; WDBH, Worcester, Mass.; WEEI, Boston; WCAE, Pittsburgh; WMAQ, Chicago; WWJ, Detroit, and WOC, Davenport, Iowa. All stations reported good reception of the program.

TRAIN FANS MAKE UP CHURCH COLLECTION

SASKATOON, Sask.—The old joke that Scotchmen prefer Radio church services because of the absence of collection plates will have to be discarded. When the Continental Limited, a Radio-equipped Canadian National railway train, approached here on a recent Sunday morning the passengers heard the services from the Westminster Presbyterian church in this city. They also heard the sermon by Rev. George A. Dixon of Knox church in Calgary, Alta. Both pleased the passengers in the Radio observation so much that a collection was taken and handed to the minister of the Westminster church when the train reached this city. The minister was much surprised by the unexpected contribution.

LEAVES STAGE TO BROADCAST



Maxine Brown, musical comedy leading woman, who is the first to quit the stage for Radio. She is now a paid entertainer at Station WTAS, Elgin, Ill. Miss Brown is well known to thousands of theatergoers, having played in "Odds and Ends," "Floradora" revival, "Moonlight," "The Right Girl" and "Plain Jane."

MAINE WOULD ERECT STATE BROADCASTER

Bill Will Be Introduced Soon in the Legislature

AUGUSTA, Me.—A bill will be introduced soon in the Maine legislature by Senator Benedict F. Maher of Kennebec county seeking the establishment of a state broadcasting station at Augusta.

It is proposed to tell the world about Maine through this medium, giving out news as to the agricultural, tourist and industrial resources of the state. The bill will call for an initial appropriation of \$30,000 for the establishment of the service and \$25,000 a year for the maintenance for the first two years.

The nearness of the proposed station to Europe and that it would be America's most easterly 500-watt broadcasting station is being emphasized.

German broadcasting stations have commenced transmitting conversations and lectures in English to enable their listeners to learn the language. For a long time past French lessons and some Spanish talks have been included in British programs, but the results have not reached expectations.

Hammerstein Would Control Music Used

Producer Takes Rap at American Society's Workings

NEW YORK.—Arthur Hammerstein, producer of "Rose-Marie" and other large musical productions in recent years, has announced that he would stop the publication of sheet music of the tunes of any of his future productions and that he would reserve for himself the rights to the disposition of this music for use by Radio, victrolas and orchestras.

"The composer of shows in whose production I have risked hundreds of thousands of dollars," said Mr. Hammerstein, "by arrangement with the American Society of Composers, Authors and Publishers, permits these melodies which I have popularized to be played everywhere.

"At the end of the year the revenue is divided between this organization and the composer, this despite the fact that I have been directly responsible for creating the demand for the music.

"In the future the composer will have to consent to giving me the sole rights of his work, and if he is a member of the American Society he will have to resign or disregard its rules."

FAMED ANNOUNCERS TO TRAVEL TO WDAF

MEET IN KANSAS CITY FOR RADIO-ELECTRIC SHOW

Hired Hand, Solemn Old Judge, Bill Hay, Lambdin Kay and Gene Rouse Gather

KANSAS CITY, Mo.—Interest of Radiophans all over the country will be centered in Kansas City during the week of March 2, when the Kansas City Electric club will hold its Radio and Electrical show.

For during that week the best-known announcers in the United States will be grouped together for the first time in the history of broadcasting. Announcers who have already accepted the invitation of the Electrical club include the Hired Hand of WBAP; George Hay, the solemn old judge of WLS; Bill Hay, of KFKX; Lambdin Kay, the voice of the south, WSB; Gene Rouse of WOAW; and two Kansas City announcers, John Schilling of WHB and Leo Fitzpatrick, the merry old chief of WDAF. All programs of WHB and WDAF will be broadcast from a special glass-front studio in Convention hall, where the show is to be held, and all the announcers will take part in directing and announcing.

Samuel Furst, who managed the Radio show held in the Hotel Muehlebach in 1923 and also the Electrical show last year, has been elected manager of the show. Leo Fitzpatrick, Radio editor of the Kansas City Star and director of WDAF, will be in charge of entertainment and broadcasting from the hall.

NAA Gets 1,000-Watt Set; Only Waiting New Wave

WASHINGTON.—Fans living within a thousand miles of Washington may soon pick up a "new" and powerful broadcasting station. But the call is an old one in the east; it is "NAA," Arlington, Va., the pioneer naval Radio station and government broadcaster.

A new 1,000-watt set has been installed and the station will start using it just as soon as a suitable wave length can be secured from the department of commerce. The old wave of 435 meters, it is said, would interfere seriously with the two local stations, WRC and WCAP. On account of the increased power, a lower or higher channel is being sought.

Lutheran Church Plans to Broadcast Gospel Services

ST. LOUIS, Mo.—Following the news that the Paulist Fathers would establish a Roman Catholic broadcasting station in New York city, the National Lutheran council announced recently the Lutheran Church in America would shortly broadcast messages through Station KFUS here.

In experimental broadcasting, the council said, it had been heard from Colorado to Massachusetts. Prominent Lutherans will appear on the program from time to time.

ENGLISH IN DRIVE ON OSCILLATING FIENDS

LONDON, England.—Easily the most hated man in the British Radio world is the oscillating fiend who persists in ruining the relaying of every American program in this country. The



The Re-Radiator

British Broadcasting company has promised to ruthlessly track him down. The howling and screeching he sets up by trying to pick up the Pittsburgh station direct cannot be cut out by the B. B. C. set and consequently are heard in most parts of Britain, as the American station is re-transmitted from every British station, being relayed from Biggin Hill.

Re-radiators have become such pests that a special department has been set up by the British Broadcasting company to deal with them. This department is using direction-finding apparatus to track down the culprits. According to Captain Eckersley, chief engineer of the B. B. C., a re-radiator can effect reception over a radius of quite five miles from his set. This is because the apparatus used in Britain has not been raised to the high standard of selectivity used in America.

The accompanying cartoon is reproduced from a recent issue of the London Evening News, and illustrates the feeling current here.

CLASS B WAVES SET FOR TIME AT LEAST

COMMERCE DEPARTMENT DESPAIRS AT PROBLEM

Announces Final Allocation of Wave Lengths—\$100,000 Is Allowed for Investigation of Tangle

WASHINGTON, D. C.—Despairing at any possible chance of obtaining more wave channels for contemplated broadcasters, the department of commerce has issued an official list of the new wave lengths for class B stations. This list was effective February 4 and is the result of work of the experts of the department since the third Radio conference last fall.

It will be noted that comparatively few changes have been made, because several schemes which were worked out experimentally, did not prove practicable.

New and Final Class B Assignments			
Wave Length Meters	Call Letters	Wave Length Meters	Call Letters
230.2	WNAC	379.5	WGY
282.8	WOAN	379.5	WHAZ
285.5	WREO	384.4	WMBF
285.5	WEMC	389.4	WTAM
285.5	WKAR	389.4	WEAR
288.3	KFKX	394.5	WFI
291.1	Reserved	394.5	WDAR
293.9	WEAO	394.5	WOAI
293.9	WBAV	399.8	WHAS
296.9	KFRU	405.2	WOR
299.8	WPG	405.2	WJY
302.8	WTAS	410.7	Reserved
302.8	WJJD	416.4	WCCO
305.9	WJAR	422.3	WLW
309.1	KDKA	422.3	WMH
312.3	Reserved	428.3	WSB
315.6	WAHG	434.5	NAA
315.6	WGBS	440.9	WDWF
315.6	KFDM	440.9	WOS
319.0	WGR	447.5	WQJ
322.4	KOA	447.5	WMAQ
325.9	WMH	454.3	WJZ
325.9	WSAI	461.3	WCAE
329.5	Reserved	468.5	WCAP
333.1	WBZ	468.5	WRC
336.9	WSAC	475.9	WEEI
336.9	KPMX	475.9	WBAP
336.9	WCAL	475.9	WSUI
340.7	WKAQ	483.6	WHAA
340.7	KSAC	483.6	WOC
344.6	WLS	491.5	WEAF
344.6	WCBD	499.7	WMC
348.6	KOB	508.2	WOO
348.6	WTIC	508.2	WIP
352.7	WWJ	516.9	WCX
352.7	WJAD	526.0	WNYC
356.9	Reserved	526.0	WHO
361.2	WHN	526.0	WOAW
365.6	WHB	535.4	KYW
365.6	WDAF	535.4	WHA
370.2	WEBH	545.1	KSD
370.2	WGN	545.1	KFUO
374.8	KTHS		

\$100,000 for Investigation

An investigation to determine why a receiver within ten miles of a broadcasting station may fail to receive its transmission although in another direction receivers as far as 200 miles away may be obtaining good results, has been approved by the budget bureau. A \$100,000 expenditure for this has been allowed.

Detecting devices will be placed at various points throughout the country. From the results it is hoped to make a better allocation of wave lengths and territories to broadcasters.

The great trouble is caused by the present inadequate legislation giving no power to the secretary of commerce to refuse a license to any applicant who has fulfilled the easy qualifications now necessary. And many class B stations are pending.

ANNOUNCE NEW SUPER STATION FOR CHICAGO

WLS Contemplates the Erection Within Three Months' Time

CHICAGO.—Erection of a new 5,000-watt super-power broadcasting station to replace the 500-watt equipment now in use by WLS, Chicago, was announced here today by Charles M. Kittle, president of Sears, Roebuck and company. The new station is to be built in the open country to avoid interference with other Chicago broadcasters, but the exact location of the antennae has not been decided. The sending towers will probably be erected within fifty miles of Chicago.

Service from the new station will start within three months, according to the present plans of Edgar L. Bill, director of WLS. At the time of inaugurating the new plant it is hoped to have the twin studios now in preparation in the downtown district of Chicago ready for use.

Open House at WEBW

BELOIT, Wis.—Station WEBW recently broadcast the "open house" of the Fairbanks, Morse and company. This is held every year by the employees.

The stars of the evening were "Put" Mossman, Eldora, Iowa, youth, who is the present world's champion horseshoe pitcher, and George May, Akron, Ohio, pitcher, twice holder of the world's barnyard golf championship title.

BEAUTIES ENTERED IN WLW BEAUTY CONTEST



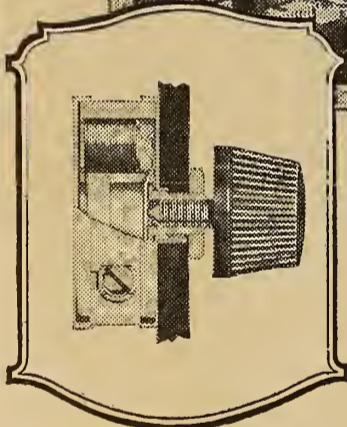
Reading from left to right: Melba Hardert, Mrs. Vera Fischer Weber, Rhoda Bogardus and Lavera M. Bourgeois. Radiophans will vote for them on St. Valentine's night, Saturday, February 14, at 8 p. m., when they are described from Crosley WLW.

Allow \$220,525 for Radio Law
WASHINGTON, D. C.—In reporting out the appropriation bill of the department of commerce for the fiscal year 1926, the appropriations committee of the House of Representatives allowed \$220,525 for administering the Radio law. It is expected that in addition to this a deficiency will be allowed.

Before You Build Your Radio Set



See the New Allen-Bradley Line



Distinctive Features

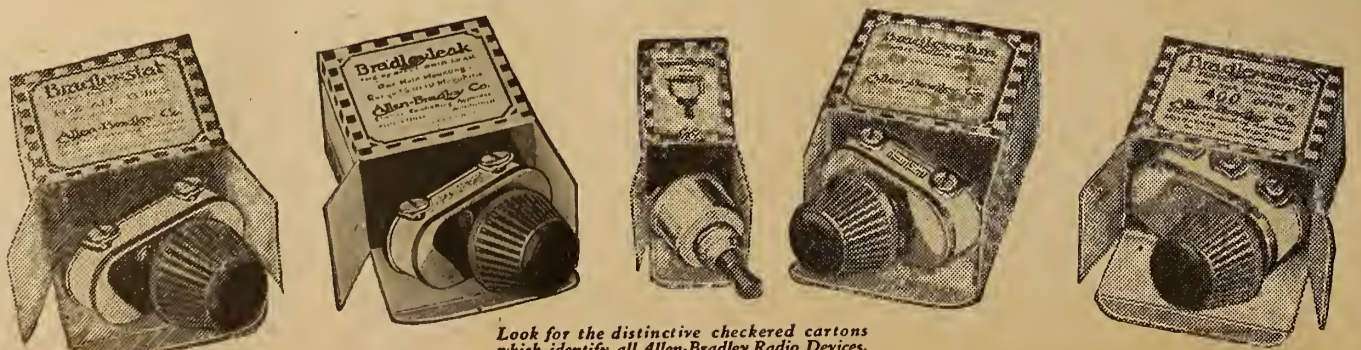
- 1—Extremely compact without loss of control.
- 2—One-hole mounting for panels. Table mounting if desired.
- 3—Noiseless, stepless control, due to graphite discs.
- 4—Guaranteed against defects in material and workmanship.
- 5—Sold in distinctive checkered cartons by leading radio dealers.

Radio amateurs are building better receiving sets, today! They want greater distance, better selectivity and clearer reception.

The new Bradleystat, Bradleyleak, Bradleyohm, Bradleyometer and Bradleyswitch have met with instant favor, everywhere. In a super-class, by themselves, they are the exclusive choice of the discriminating amateur who has learned from experience that noiseless, stepless control is essential for perfect radio reception. Your set will work better with Allen-Bradley Radio Devices. For sale by leading dealers.

Allen-Bradley Co.
Electric Controlling Apparatus

General Office and Factory: 290 Greenfield Avenue Milwaukee, Wisconsin

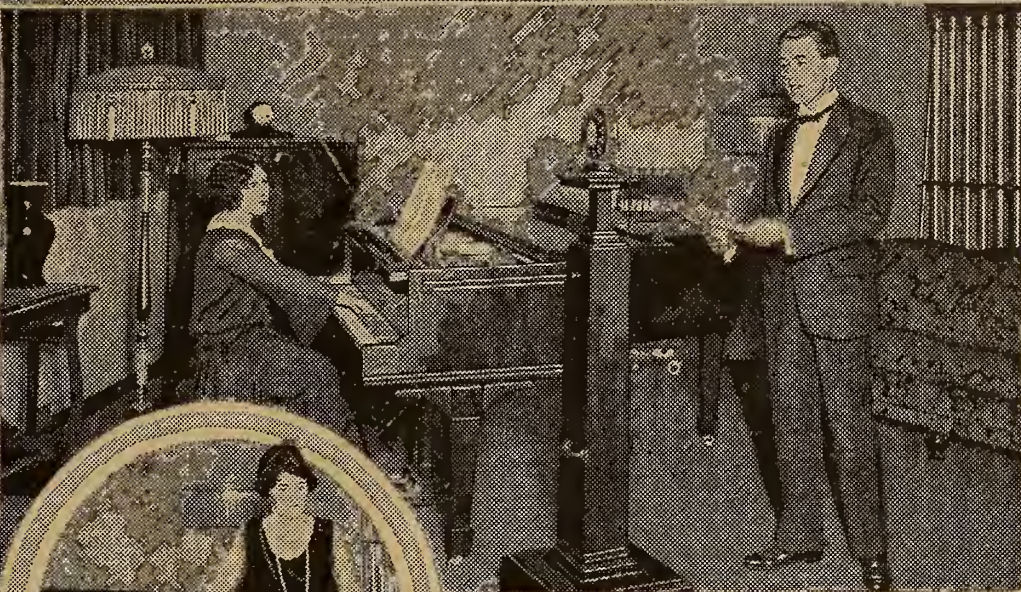


Look for the distinctive checkered cartons which identify all Allen-Bradley Radio Devices.

WFI—In The City of Brotherly Love



Ednyfed Lewis, station director at WFI.



Above, view of the studio, showing Harold Simonds at the microphone. Miss Caroline Hoffman, one of the station's accompanists, at the piano. Left, Mabel Swint Ewer, program director.



John Vandersloot, bass soloist and announcer "J. V."



IF YOU'RE a DX hound you've no doubt heard Station WFI, one of the most powerful stations in the United States. It is not an idle boast to say WFI is powerful, for, be it known, it is the only station in Philadelphia that was heard on the other side during the recent trans-Atlantic tests. And that's going some, for the city of brotherly love boasts of five broadcasters transmitting on 500 watts.

WFI, operated by Strawbridge and Clothier, a large department store, boasts of the honor of being the first station in Philadelphia to broadcast. It just nosed out another "Philly" station by about fifteen minutes for the coveted honor. The governor of Pennsylvania and the mayor of Philadelphia both participated in the opening exercises, and then proceeded to another station just across the street, there to also officially open that station.

When WFI "went on the air" it was only a 15-watt station. Then it got a little more power, and now, since the station has been rebuilt at a large expense, it transmits on 500 watts. The wave length is 36 meters.

To give the people what is best in everything is a hard road to travel, and one on which the owners and the personnel of any broadcasting station will find little help. But, and WFI proves it, if a station will stick to its rule and allow no deviations, it will finally win a host of admirers, and admirers are listeners in, and that's what every station wants.

WFI is the Philadelphia station which broadcasts the *Eveready* hour and the Goodrich Silverton Cord orchestra, and its latest achievement is to be among those broadcasting the Victor concerts, which have created a furore in theatrical circles. Many other features have been offered WFI, but it turned them down flat and simply because it did not think it was the kind of entertainment its clientele of listeners in wanted.

The personnel is composed of people musically inclined. The director, Ednyfed Lewis, is one of the best known Welsh tenors in the eastern section of the country. He comes of a musical family. His father was an opera star, and his brothers are part of a well-known Welsh quartet. Mr. Lewis last year won the \$1,000 prize in Philadelphia as director of the Welsh chorus, which competed against a number of other well-known musical organizations.

John Vandersloot bears the reputation of being one of the best announcers in the country. He is known as "J. V.," and is also an excellent bass soloist. Mabel Swint Ewer, program director and hostess to those who entertain from the studio, is an accomplished musician. She also comes from a musical family of Boston, and to keep up the

name, Mrs. Ewer is having all the little Ewers study music. Although her children are well up in music, none have ever been heard over the Radio, for living up to the traditions of the station, Mrs. Ewer says they will not be heard until she thinks they are up to the mark for the best Radio broadcasting. Harold A. Simonds, who announces as "H. S.," is the possessor of a pleasing baritone voice, particularly adapted to Radio broadcasting. Aleta Smith, an assistant, is a soprano with a sweet mellow voice, who hopes to be heard in the higher circles of music some day.

One of the best known entertainers from WFI is Jean Hight, better known as "Sunny Jim, the kiddies' pal." Mr. Hight, who is still quite young, made "a hit over night." Previous to his coming to WFI, the station always had women bedtime story tellers. Sunny Jim came, spread a lot of sunshine among thousands of kiddies all over the country, and became so popular that one of the song hits last year, "Sunny Jim," which was played and sung at virtually every station throughout the country, was composed in his honor by a nationally known song writer.

There is one person connected with the station who is virtually unheard of over the air and he is, nevertheless, the guiding light in all things musical. It may be said that he is responsible for nearly all of the big musical events heard from this station. He is Mr. Herbert J. Tily, general manager of the store, and a doctor of music. Mr. Tily is one of those unusual combinations of successful

business man and musician, and neither vocation suffers because of the other. He is a conductor, an organist, composer and a connoisseur of art, and was a regular entertainer some time ago over the Radio.

Now, Radiophans know why WFI broadcasts such wonderful music. It is said that song pluggers on passing WFI hang a piece of crepe on their hats and go their way. They know there is no open door for them.

One of the outstanding broadcasts that this station has put across, was when they broadcast the Carnivora Opera company. The members of the company, be it known, hail from Africa, Asia and points west. Their initial appearance was broadcast from their present headquarters at the Zoological Gardens in Philadelphia.

Leo Africanus, a gentleman of color, with a deep bass voice, proceeded to imitate static during its worst period when he opened his mouth. At last reports, the operators of the station were well on the way to having the microphone adjusted to its normal sensitiveness.

Novel features WFI has just added are the Gold Dust Twins and the Atwater Kent Radio artists. Many novel and unique features are scheduled for this station in the future. That is one of the WFI staff's best pastimes—planning new and original features for Philadelphia and outside listeners—and they thrive on the pastime.



Jean Hight, better known as "Sunny Jim, the kiddies' pal."



Main operating room. Howard W. Miller, chief operator, at the control table, while George Humpfer, Radio engineer, is seen at the power panel.

"Sunny Jim" telling the kiddies their bedtime story. Although women have tried to take his place in the kiddies' hearts, they have not succeeded.

LICENSES FAIL WITH LISTENERS AVOIDING

ENGLISH ARE PUZZLED BY NON-PAYING LISTENERS

Believe Three Times as Many Set Owners Exist as Pay—Problem Irritates Officials

LONDON, England.—How many "pirate" listeners are there in Great Britain? That is the question that is puzzling the British Broadcasting company, which relies for its entire revenue upon a percentage of the license fees. Radio "pirates" abound in their thousands. The estimates of people who are supposed to know, place the number of persons using receiving sets without a license at no less than 2,000,000, or twice the number of persons with licensed sets. While this may perhaps be going too far it is undoubtedly a fact that there are many towns in England where for every licensed listener there are two unlicensed. Only a few days ago a station director found out of 1,200 letters on a certain broadcast topic only about sixty were signed, indicating that they had come from license holders.

Conscientious Objectors Object

It is felt that the enactment of new legislation covering this contingency is needed. Many fans are refusing on principle to pay the license fee, declaring that strictly in the law broadcast licenses are illegal under the particular act of parliament by which they were brought into being. But it is unfair that one section of the Radio public should be paying for the entertainment of another section that refuses to admit its liability to pay. One fan, however, points out that he would willingly take out a license if he listened to British programs, but states that as he only listens to Continental programs, he owes the B. E. C. nothing. (Note.—At present the annual license fee which all British fans must pay is \$2.50, one-fourth of which is retained by the post office.)

French Lessons Swell Class

CINCINNATI, Ohio. — Madame Ida Teimpidis, teacher of French at Crosley WLW, has a number of interesting letters from her pupils in all parts of the land who have been following her lessons.

LAST TUBE PATENT EXPIRES NEXT WEEK

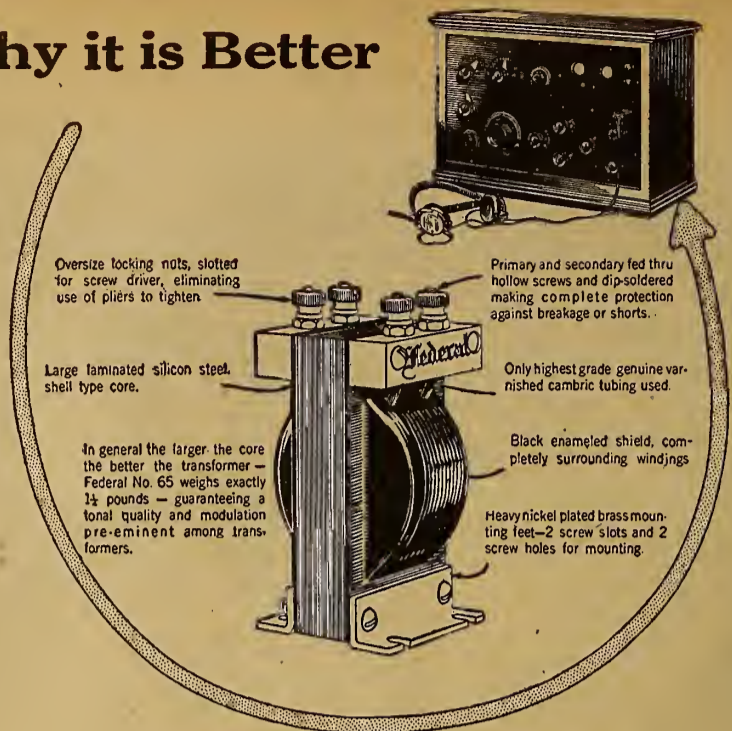


THE second and last basic patent on the three electrode vacuum tube expires Wednesday, February 18. What will happen to tubes as a result of competition will be the source of much delight to Radiophans, it is believed. In this connection what is believed to be the first Radio tube is shown in the above picture. It is being held by C. W. Mitman, curator of engineering at the U. S. National museum at Washington, and was made in 1898 by D. McFarlan Moore of New York city. Radio impulses from this tube ignited a bomb a city block away and blew up a miniature of the battleship Maine.

New Broadcasting Chamber for Station WHA Musicians

MADISON, Wis.—A new broadcasting chamber in the music hall has been fitted up for broadcasting musical programs from Station WHA, University of Wisconsin, in addition to the regular broadcasting room in Sterling hall. The choral union and the university orchestra are now using the new music hall room, and regular programs are being also sent out at the station headquarters.

Why it is Better



"MASTER 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.

same engineering skill that has made Federal the recognized leader in electrical communication apparatus since 1890.

Insist upon Federal parts for your "pet" hook-up. There are over 130 standard parts bearing the Federal iron-clad performance guarantee.

From its oversize locking nuts to its heavy brass mounting feet the Federal No. 65 Transformer incorporates the

FEDERAL TELEPHONE MANUFACTURING CORP.
Buffalo, N. Y.

- Boston
- New York
- Philadelphia
- Pittsburgh



Federal

Standard RADIO Products

- Chicago
- San Francisco
- Bridgeburg
- Canada



The Silvertown Cord Orchestra (above) under the direction of Joseph Knecht, has been delighting millions of lovers of good dance music in programs broadcast every Tuesday night from 10 to 11 from WEA, N. Y.; WJAR, Providence; WFI, Philadelphia; WCAE, Pittsburgh; WGR, Buffalo; WEEI, Boston.

Goodrich Hard Rubber Radio Panels • Goodrich V. T. Sockets • Goodrich Variometers Unwound. Radiophone Ear Cushions • Spaghetti Tubing Battery Mats.

Better Reception

Science has established a big fact in radio—dielectric losses reduce range and selectivity.

in those distant stations finer—get better reception and enjoy to a greater degree the big dance orchestras, soloists, orators, and other features.

Hard Rubber has the lowest dielectric losses of any practical panel material yet employed. Goodrich Hard Rubber Panels are distinctly superior in permanence of color and lustre, and freedom from warpage. Use them in your set and bring

For maximum selectivity and widest possible range use Goodrich Rubber Radio Products. Fifty-five years' experience is behind them—they represent highest rubber quality.

THE B. F. GOODRICH RUBBER COMPANY
ESTABLISHED 1870
Akron, Ohio

Goodrich RUBBER RADIO PRODUCTS

"Best in the Long Run"

STATION CHIC OPENS WITH FINE PROGRAM

NORTHERN ELECTRIC NOW OWNS TWO STATIONS

Famous Artists to Broadcast Through Courtesy of Canadian National Carbon Company in Future

TORONTO, Can.—Station CHIC is now on the air. This station, owned and controlled by the Northern Electric Company, Ltd., is the second station owned by this company to broadcast in Canada. The other station is located at Montreal, using the call letters CHYC.

The opening program was broadcast on 350 meters from 7:30 to 8:30 p. m., consisting of numbers of a classical nature. From 9:30 to 11 p. m. was a popular dance program.

Radiophans in the eastern part of the country are going to hear more programs by famous artists, who are recognized masters in their particular arts. This will be through the courtesy of the Canadian National Carbon company.

Use Best Talent Procurable

Senor Alberto Guerrero, who is recognized among authorities as one of the greatest pianists in North America; Mr. Ferdinand Fillion, who is perhaps Canada's finest exponent of the violin, and Mr. Arthur Blight, who is not only Canada's premier baritone, but is rated as one of the authorities on voice in this continent, are slated for two recitals to be given in the near future.

All three of these artists are members of the faculty of the Toronto Conservatory of Music of the University of Toronto, and have been heard in connection with Eveready entertainments throughout the eastern part of the United States on previous occasions. This will be the first time that all three of these artists have appeared on the same program.

The hornless loud speaker made out of papier mache is rapidly gaining favor in England. Greater care, however, is necessary in adjusting this type of producer to avoid a tendency to "drumminess."

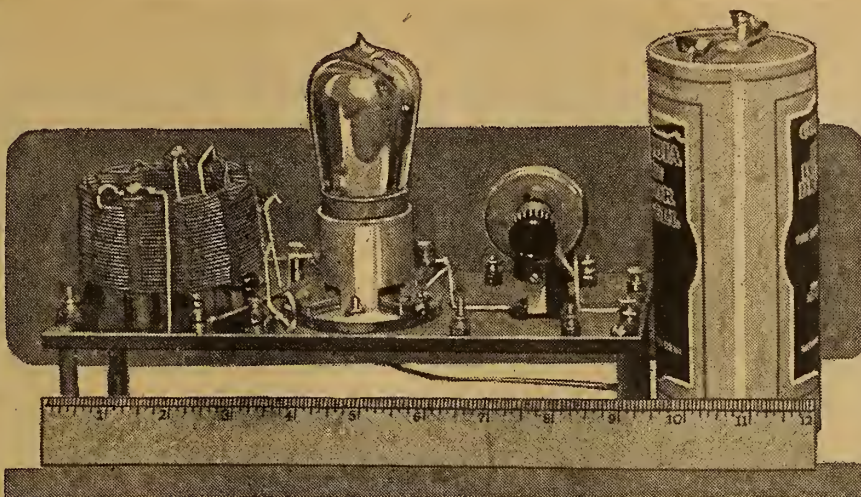
ZENITH
KENNEDY
Radiodyne
THERMODYNE
ULTRADYNE
MURDOCK
QZARKA
Pfanstiehl
MICHIGAN
Deresnadyne
MALONE LEMON
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Super-Het Builders!
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SAAL AND MANY OTHERS

More set makers use THORDARSON Super TRANSFORMERS



Can you imagine nationally famous builders of sets costing up to \$400 each, jeopardizing the tone quality of their instruments with anything short of the best amplification? Of course not! That is why Thordarsons are standard on more quality sets than are all competitive transformers combined. Follow the lead of the leaders—build or replace with Thordarsons. Unconditionally guaranteed. Audio frequency: 2-1, \$5. 3 1/2-1, \$4. 6-1, \$4.50. Power Amplifying, pair \$13. All good dealers. Made in Chicago by Thordarson Electric Manufacturing Co.

SMALL BROADCAST TRANSMITTER



The small sending set shown above with foot rule and dry cell for size comparison is capable of broadcasting a distance of several miles. Listeners in, however, should not attempt to build sending sets without first obtaining a government license. This requires an expert knowledge of Radio. Radiophans might remember this picture as an object lesson, for receiving sets this size and larger often transmit disagreeable noises for miles around when improperly handled.

Experiments in voice amplification are being carried out at Westminster Abbey. Microphones have been placed over the pulpit and the reading desk. It has yet been decided whether the installation is to be permanent.

WAHG IN NEW FEAT; REBROADCASTS KGO

IS FIRST TIME EAST HAS RELAYED WEST COAST

Presents Program of Harry Halstead Orchestra Playing in San Francisco —Will Repeat Stunt

RICHMOND HILL, N. Y.—Thousands of eastern Radiophans experienced a brand new thrill on a recent morning when from 2:25 to 4 a. m., eastern time, WAHG, A. H. Grebe station here, rebroadcast the program of KGO, General Electric station at Oakland, Calif.

This is the first time in the history of Radio that a west coast program has been rebroadcast by an east coast station.

The program at KGO, picked up and released for its second flight over the ether, was by the Harry Halstead orchestra at the St. Francis hotel, San Francisco. The rebroadcasting at Richmond Hill was done through the experimental station which uses the call letters 2XE. A wave length of 516 meters was employed instead of the usual 316-meter wave length of WAHG.

More rebroadcasts of KGO are promised for eastern fans by WAHG. The first very successful effort was rewarded by a great response from eastern listeners. Telephone messages and telegrams flooded into the offices of the Grebe station.

Train at Home For Big Money in RADIO!

Thousands earning \$50 to \$200 a week in easy, interesting work You can do it!



Earns College Education
I entered the maritime service of the Radio Corporation of America and served several months on board ship. I not only had the advantages of visiting foreign countries at no cost to me but I was also able to save enough money to pay for my tuition to college.
G. E. Rogers, Troy, N. Y.



\$405 in One Month
I cleaned up \$405 in one month recently. Not so bad—is it—for a fellow who just completed your course a short time ago.
Emmet Welch, Peculiar, Mo.

Radio just teems with money making opportunities. Every Radio set which is sold means profit in somebody's pocket. Every broadcasting station erected means big pay for Radio Engineers, Radio Mechanics, Operators, etc. Thousands are "cleaning up," fortunes are being made almost overnight in this fascinating business. Big salaries, interesting, easy work, short hours, and a wonderful future are offered to ambitious men who get into Radio now!

One of our recent graduates is making over \$400 a month in his own business. Another has increased his pay \$1,300 a year. Still another writes, "I made \$3,500 in one year working for myself."

Easy to Learn Radio at Home in Spare Time

Right now Radio is the fastest growing industry in the world. Thousands of Certified Radio-tricians are wanted to design Radio sets; to make new Radio improvements; to manufacture Radio equipment and install it; to maintain and operate great broadcasting stations and home Radio sets; to repair and sell Radio apparatus; to operate aboard ships and at land stations. Employers write and telegraph us continually, seeking to employ our graduates at splendid salaries.

You, too, can easily and quickly qualify in your spare time at home through the help of the National Radio Institute—America's first and biggest correspondence Radio school. No matter how little you know about electricity or Radio, we will guarantee to prepare you thoroughly for one of the big jobs in a few months. One of our recent graduates, Bert Roodzant, writes, "I now have a license and a good job, although I did not know the difference between a volt and an ampere before enrolling."

You Learn by Doing

All materials required for practical instruction are furnished you free of charge. This is an absolutely complete course now being offered which prepares you for a Government First Class Commercial License and the really "big-pay" jobs in Radio.

Send for Free Book and Special Offer

No other field today offers such great opportunities as Radio. Take your choice of the wonderful openings everywhere. Prepare now to step into the most fascinating and best paid profession today. Read about the opportunities open now—the different kinds of work—the salaries paid. Write today for 32-page book, "Rich Rewards in Radio," that tells how prominent Radio experts can teach you to become a Certified Radio-trician in your spare time.

Important—those who act immediately will also receive the details of our Special Reduced Rate. Mail the coupon or write a letter Now.—National Radio Institute, Dept. 55DB, Washington, D. C.



Earns \$50 to \$83 a Week
I enjoyed every one of your lessons and had no trouble whatever. I earn \$50 to \$83 a week beside a commission on sales.
Michael De Marco, Boston, Mass.



Triples Salary
I am earning three times as much as before enrolling.
Arthur Herke, Vancouver, B. C.



From \$15 to \$80 a Week
Before I enrolled I was making \$15 a week. Now, I earn from \$2,080 to \$4,420 a year. I believe the course will be worth at least \$100,000 to me.
George A. Adams, Tamaqua, Pa.



Doubles Salary
I can very easily make double the amount of money now than before I enrolled with you.
T. Winder, Grand Junction, Colo.



Pay Increases Over \$100 a Month
I am averaging anywhere from \$75 to \$150 a month more than I was making before enrolling with you. I would not consider \$10,000 too much for the course.
A. N. Long, Greensburg, Pa.

NATIONAL RADIO INSTITUTE, Dept. 55DB, Washington, D. C.

Without obligation send me your book, "Rich Rewards in Radio," which tells all about the opportunities in Radio, how spare time study at home will qualify me quickly as a Certified Radio-trician so I can get one of these splendid positions, and how your Employment Service helps me to secure a big pay job.

Name..... Age.....
Street.....
City..... State.....

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

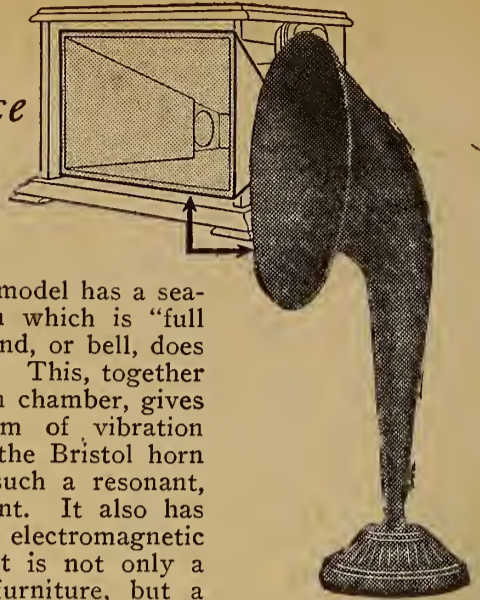
Table with columns for Station and City, Met., Saturday, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday. Lists various radio stations and their broadcast times.

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

Table with columns for Meters Call, listing stations and their corresponding wave lengths.

It Has the Full Sweet Resonance of Our Upright Horn



Model S, \$25.00

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.



Cabinet Model, \$30.00

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.

BRISTOL AUDIOPHONE Loud Speaker

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

Send for it!

Before you build your set



EVERY RADIO FAN should have a copy of the "Shamrock Radio Builder's Guide Book." It contains carefully planned diagrams and complete instructions for building ten different circuits—at prices ranging from \$15.00 to \$50.00. Page 21 of this popular booklet describes a powerful little receiver—

THE SHAMROCK-HARKNESS Two-Tube Reflex

Operates a loud speaker—Two tubes do the work of five—Cuts battery cost 60%—Does not squeal, howl or radiate—Stations can be logged with utmost accuracy—Amazing clarity and volume!

Also ask to see the improved SHAMROCK-HARKNESS THREE-TUBE COUNTERFLEX The Wonder Set \$39.50

Insist on the genuine Shamrock Kit containing only genuine licensed Shamrock-Harkness parts. They are specially balanced, \$35 and are backed by our unconditional guarantee.

Form with fields for Name and Address, and a request to send a copy of the Shamrock Radio Builder's Guide Book.

SHAMROCK FOR SELECTIVE TUNING

VALENTINE PARTY SATURDAY AT WGN

Saturday, February 14

Saturday, silent night for: CFAC, CFCA, CKY, KFAE, KFOH, KFKU, KFKX, KFMX, KIS, KOB, KSAC, WBAP, WBAV, WCAU, WCEB, WOFW, WEEI, WEMC, WGST, WHA, WHAZ, WHB, WHO, WJY, WKQA, WMAK, WOAI, WOJ, WOO, WORD, WOS, WSUI.

CHNC, Toronto, Can. (Eastern, 350), 9-11 p. m., Charles E. Bodley and his orchestra; Arline Jackson, pianist.
 CKAC, Montreal, Can. (Eastern, 425), 7 p. m., kiddies' stories in French and English; 8:30, University of Montreal night; 10:30, Ben Leonard and his Windsor hotel Red Jacket orchestra.
 CNRO, Ottawa, Ont. (Eastern, 435), 7:30 p. m., bedtime story, Aunt Agnes; 8, James McIntyre and his Chateau Laurier hotel orchestra; 8:30, "Bees," Rev. G. Gauvreau; Mrs. Weston Allan, vocalist; G. Bourque, pianist; character songs, Gordon Rogers; Hawaiian orchestra; Tom Hamilton, Scotch comedian.
 KFI, Los Angeles, Calif. (Pacific, 467), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, "Inspirational

WBZ, Springfield, Mass. (Eastern, 333.1), 7:15 p. m., sketches from the U. S. naval history, E. S. R. Brandt; 7:30, Hotel Kimbell trio; 8, Myron A. Kesner, reader; 8:15, Elise Biron, violinist; Mrs. Phillip Ware, pianist; 8:35, "Giant Worlds Yet in the Making," George Leo Patterson; 9:05, William J. Doyle, baritone; 9:20, Elise Biron, violinist; Mrs. Phillip Ware, pianist; 9:40, Geraldine I. Havens, soprano; Mrs. Inez Main Momm, accompanist; 10:05, R. H. Isensee, bass; Helen Isensee Wilkins, contralto; 10:20, Geraldine I. Havens, soprano; Mrs. Inez Main Momm, accompanist; 10:30, R. H. Isensee, bass; Helen I. Wilkins, contralto.

WCAE, Pittsburgh, Pa. (Eastern, 462), 2:30 p. m., tea-dansant, Nixon restaurant; 4:30, Ed. Lally's Rendezvous cabaret orchestra; 6:30, dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, movie chats; 8:30, music.
 WCCO, Minneapolis-St. Paul, Minn. (Central, 416.4), 10:45 a. m., home service, Betty Crocker; 8 p. m., "Fireside Philosophies," Rev. Roy L. Smith, pastor; 8:15, "Out Back in Australia," Capt. Kilroy Harris; 8:30, Sutorius Mandolin orchestra; 10, Minneapolis Athletic club orchestra.

WCX, Detroit, Mich. (Eastern, 516.9), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel.
 WDAF, Kansas City, Mo. (Central, 365.6), 6-7 p. m.,

Langdon Brothers, Hawaiian guitarists; 11, Cambridge Sisters; Oriole orchestra; Loois Brothers; Nubs Allen, soloist; Langdon Brothers, Hawaiian guitarists; Nick Lucas; Marie Wright, soprano; Banks Kennedy, pianist; Ned and Ches.
 WFAA, Dallas, Tex. (Central, 475.9), 8:30-9:30 p. m., program, Methodist Orphanage; 11-12, artists, Capitol theater.

WFI, Philadelphia, Pa. (Eastern, 395), 3 p. m., Mary Little Brown, soprano, Florence W. Keller, mezzo soprano, Nellie S. C. Hennessy, pianist; "Can a Good Thing Come out of Nut Tree Planting," John W. Hershey; 4, Dickerson's dance orchestra; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim; 8, concert from WEAJ.

WGBS, New York, N. Y. (Eastern, 315.6), 6-6:30 p. m., Uncle Geebee; 6:30-7:30, Cameo Collegians; 8:30-9, "The Outpost," Radio drama, Captain Archibald; 9-9:30, authors night, Lyon Meerson, director; Ben Hecht, Fulton Oursler, the anonymous author of "Haunch, Paunch" and Jowl, Anzia Yezierska, Harry Drago; 9:30-9:45, Sam Comby, movie talk; 9:45-10:15, Ruth Bowman, contralto; 10:15-10:35, songs of old Ireland; 10:35-11, Hotsie Totsie Boys; 11-12, Vincent Rose orchestra.

WGN, Chicago, Ill. (Central, 370.2), 5:30 p. m., Skeezix time; 6:30-7, dinner concert, Drake concert ensemble, Blackstone string quintet; 8-9, classical program, St.

WJZ, New York, N. Y. (Eastern, 454.3), 1-2 p. m., Er-dody's Park Lane orchestra; 2:15-3, Saturday Dis-cussion of National Republican club; 4:30-5:30, Sherry's Tea orchestra; 7-8, Freddie Rich and Hotel Astor dance orchestra; 8-8:15, "Art for Laymen," Walter M. Grant; 8:15-9, Jean Walker, baritone; Helen B. Frommer, accompanist; 9:30-9:45, "Ice Hockey," Tom Howard; 9:45-10, Fay Foster, unpublished compositions; 10-10:15, Orphans quartet; 10:15-10:30, Constance Merline, pianist; 10:30-11:30, Joseph Knecht's Waldorf-Astoria dance orchestra.

WLBL, Stevens Point, Wis. (Central, 278), 12 midnight, Enemies of Sleep.
 WLIT, Philadelphia, Pa. (Eastern, 395), 4:30 p. m., Cotton Pickers dance orchestra; 7:30, Arcadia cafe concert orchestra.

WLS, Chicago, Ill. (Central, 344.6), 7 p. m., lullaby time, Ford and Glenn's trip to Germany; 7:20, national barn dance, Glenn's Corn Huskers; Ralph Emerson, organist; Isham Jones and his College Inn orchestra; Harmony Girls; Walter Peterson; Sears-Roebuck 4 Aces of Harmony; Ford and Glenn; 11:15, Senate theater recital.

WLW, Cincinnati, Ohio (Central, 423), 6 p. m., dinner hour concert, Selinsky Instrumental quintet; Lafafone, E. D. Leonard.
 WMAQ, Chicago, Ill. (Central, 447.5), 6 p. m., Chicago Daily News Newsboys' band; 8, LaSalle hotel orchestra; 8:30, "Guenos Aires," Isaac Cox; 9, weekly Chicago theater revue.

WMC, Memphis, Tenn. (Central, 499.7), 8:30 p. m., classical program, William Newton, director.
 WNYC, New York, N. Y. (Eastern, 526), 7-7:30 p. m., dance program; 7:35-8, dance program; 8-8:30, concert, Anna Pinto, harpist and other artists; 8:30-9, police quartet; 9-10:30, dinner to Grend Exalted Ruler, B. P. O. E., John G. Price from Elks club, N. Y. C.

WOAW, Omaha, Nebr. (Central, 526), 6:30 p. m., dramatic hour, Davis Studio of Expression; 6:30, selected readings and regular weekly lesson in voice improvement, J. Simmons Davis; 6:45, dinner program; 9, program, WOAW's studio in May Seed & Nursery company; 11, Frank W. Hodek, Jr., and his Omaha Nightingales; 11:30, Arthur Hays, organist.

WOC, Oavenport, Ia. (Central, 483.6), 7 p. m., sand-man's visit; 7:30, International Sunday school lesson, Rev. M. A. Getzender; 9, Lonis Connor and his LeClaire hotel orchestra; Jack Little, Paul Small, Radio entertainers.

WOO, Philadelphia, Pa. (Eastern, 509.9), 4:45 p. m., organ recital, Mary E. Vogt.
 WQJ, Chicago, Ill. (Central, 448), 11-12 m., "Abroad with a Paint Box and a Family of Six," Helen Harrington Downing; "Authority on Advertising," J. W.

Bonnie Barnhardt (below) is the charming lady who sings and tells bedtime stories to the Radio children who dial each evening for WSB, Atlanta.



Irma Seydel (above) is the famous Boston violinist heard regularly at WEEI. Miss Seydel completed her musical education in Europe. Gilbert Jaffey (right) is the violinist director of the Sweeney Radio trio which gives the ladies' matinee program at WHB, Kansas City.



piano tuning in number on the Duo-Art; address, personal message, Roger W. Babson; Tell-Me-a-Story Lady; music, Trion ensemble; 11:45-1 a. m., Merry Old Chief, Plantation players.

WEAF, New York, N. Y. (Eastern, 491.5), 4-5 p. m., Eugene M. Ingraham's orchestra; 5-5:20, Helen V. Ryan, violinist; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:15, talk, Boy Scouts; 7:15-7:30, Gertrude J. Van Deina, soprano; 7:30-7:50, stories for boys, Fred J. Turner; 7:50-8:15, Adolph Katchko, Cantor of Jewish Communal; 8:15-8:25, Jimmy Hudson, readings, monologues; 8:25-8:50, Joseph Gincold, violinist; 8:50-9, Cora Griffin, contralto; 9-9:45, Waldorf-Astoria hotel concert orchestra; 9:45-10:30, WDAF Light Opera quartet; 10:30-10:45, Bert Brenner, oboe soloist, accompanied by Maria Blance; 10:45-11, Louis Zanudio, Mexican tenor; 11-12, Vincent Lopez and his Hotel Pennsylvania orchestra.

WEO, Columbus, Ohio (Eastern, 294), 8 p. m., play by play report of Minnesota-Ohio State basketball game, H. Lee Henderson, announcing.
 WEEB, Chicago, Ill. (Central, 370.2), 7 p. m., Oriole orchestra; Radio Sunday school lesson, Dr. Herbert W. Virgin; 9, Marie Kelly, reader; Oriole orchestra;

Valentine's program; 10-11, Don Bestor Drake dance orchestra, Jerry Conley Blackstone 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, dinner music, Hall-pryd string quartet.

WGY, Schenectady, N. Y. (Eastern, 379.5), 9:30 p. m., dance music, Phil Romano's orchestra.
 WHAS, Louisville, Ky. (Central, 399.8), 7:30-9 p. m., Sylvian trio; Oriole E. Vessells, baritone; Paul G. Clemmons, tenor.

WHK, Cleveland, Ohio (Eastern, 273), 12:30 p. m., Dean Smith, pianist; soloists; 6:30 p. m., talk: "The Ohio Legislature Week by Week," by a member; 9 p. m., carnival night program; McCrory's Entertainers, Billie Bugbee, Violet Owens, Betty Booth; June Farley, Bobbie and Dede Fitzpatrick, Dean Smith, Emerson Gill's Bamboo Garden orchestra.

WIP, Philadelphia, Pa. (Eastern, 509.9), 6:05 p. m., St. James dinner dance orchestra; 7, Uncle Wip's bedtime stories; William Young, harmonica soloist; 10:03, Benjamin Franklin dance orchestra; 11, organ recital, Kari Bonawitz.

"Psychology," Dr. Clyde Sheldon Shepard; 7-7:45, Dye Synopaters; 7:45-8, The Bookshelf, Nancy; 8-9, Oriental song recital; 9-10, Examiner, program, Orange Chamber of Commerce; 10-11, Packard Radio club.

KFNF, Shenandoah, Ia. (Central, 266), 6:30 p. m., concert, Braddyville, Donald K. Wilson, director.
 KFOA, Seattle, Wash. (Pacific, 455), 6:45-8:15 p. m., Rhodes Department store program, dance music; Betty Winningham, juvenile prodigy; 8:30-10, Times program, Moyer's Melody Night Hawks, Honeymoon serenaders; Jack Mooney, tenor; 10-11, Eddie Harkness and his orchestra.

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

KFSG, Los Angeles, Calif. (Pacific, 278), 7:30-9:30 p. m., auditorium service, testimonials and sermon on Divine Healing, Aimee Semple McPherson, pastor.
 KGO, Oakland, Calif. (Pacific, 300), 8 p. m., California string quartet; Harvey Schubert, tenor; trumpet solos, S. Duke Smith; Mrs. S. G. Walsh, contralto; "Contentment," Dr. Frederick W. Clampett; Walter Klugek, baritone; Dr. Frederick W. Clampett; "Stemp Collecting," George W. Ludlow; 10-1, Henry Halstead's orchestra.

KGW, Portland, Ore. (Pacific, 492), 10 p. m., Colburn's Melody Men, Hotel Portland.
 KHJ, Los Angeles, Calif. (Pacific, 404), 6-6:30 p. m., Art Hickman's Billmore hotel concert orchestra; Edward Fitzpatrick, director; 6:30-7, little stories, American history, Prof. Walter Sylvester Hertzog; Henrietta Poland, Helen Pirie, screen juveniles, with Uncle John; 7:45, "Income Tax," Capt. John T. Riley; 8-10, El Encanto Apartments' Valentine party; 10-11, Earl Burtnett's Billmore hotel dance orchestra; 12-2 a. m., The Lost Angels of KHJ.

KNX, Hollywood, Calif. (Pacific, 337), 6:15-7:30 p. m., Green Mill dance orchestra; 7:30-8, Wurlitzer pipe organ studio; 8-10, continuity, Voyage to the South Seas by Salisbury and Alexander; 10-11, Abe Lyman and his Cocoanut Grove dance orchestra from Ambassador hotel; 11-12, popular songs, June Pursell, the KNX girl.

KOA, Denver, Colo. (Mountain, 322.4), 9-12 midnight, dance music, Joe Mann and his Rainbow-Lane orchestra.
 KPO, San Francisco, Calif. (Pacific, 429.5), 5:30 p. m., "What Is Playing at the Various Theaters;" 8-12, Art Weidner's orchestra.

KSO, St. Louis, Mo. (Central, 545.1), 8 p. m., concert, St. Louis Symphony orchestra, Rudolph Ganz, conductor.
 KTHS, Hot Springs National Park, Ark. (Central, 375), 8:30-10 p. m., concert, Charles L. Fisher and his Eastman hotel orchestra; 10-11, dance music, Meyer Davis New Arlington hotel orchestra, Jack Renard, director.

KYW, Chicago, Ill. (Central, 535.4), 5:35-7 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert; Congress hotel; 8-8:58, Fannie Schiesinger, soprano; John Hayes, baritone; Ned Santry, tenor; 9:05, talk, auspices National Live Stock & Meat Board; 9:15, health talk, Dr. John M. Dodson; 9:35-10:30, Congress classic; 12-2, Congress carnival.
 PWX, Havana, Cuba (Eastern, 400), 8:30 p. m., concert, artist.

WBAP, Fort Worth, Tex. (Central, 475.9), 7 p. m., interdenominational Sunday school lesson, Mrs. W. F. Barnum.
 WBBB, New York, N. Y. (Eastern, 272.3), 8 p. m., Frank Wood, flutist; 8:10, vocal solo; 8:15, Bible questions and answers; 8:45, vocal solos; 8:50, Frank Wood, flutist.

WBCN, Chicago, Ill. (Central, 266), 6-6:30 p. m., juvenile period, Luella Drew Wilson; 6-6:45, dinner concert, Harold Rulle's orchestra; Walsh, soprano; Clyde March, tenor; 7-8, fireside hour, George R. Cleveland, Harold Rule's orchestra; Genevieve Logan, reader; R. E. Silas, tenor; Jack Heath and Eddie Downs, harmony duo; 8-12, James Smisek, harmonica player; Marie Wright, soprano; Midway Gardens dancing orchestra; George Forsyth, boy tenor; Southtown Harmonizers; Elizabeth Emmett Malone, soprano; George Collins, mouthorganist; Triangle Entertainers; Murphy Sisters; Englewood string quintet; Les Cameron, tenor; Florence Tenney, blues singers; Belden Britcoe; Mrs. Arma Selgert, violinist; 12-1 a. m., early morning concert, Murphy Sisters; Englewood string quintet; Les Cameron, tenor; Southtown Harmonizers; George Collins, mouthorganist.

Headliners of the Week

ONE station at least plans a unique Valentine party Saturday. WGN, the Chicago Tribune station, promises an unusual celebration, with all the thrills of the old school postoffice. WCCO is more serious, scheduling a lecture by Captain Kilroy Harris, a native Australian, who will tell about the curious prehistoric animals and plants of his continent.

KTHS is giving a Spanish-American concert Sunday complimentary to Latin-American friends of this station. All announcements will be made in Spanish by Leon Numainville. The Venetian Serenaders, a musical organization of skill, will be the Sunday headliner of WDWF, Providence.

Francis Macmillen, who startled the Radio world not long ago by giving an entire recital before the microphone, returns to KSD Monday. Lovers of classical music should reserve this date, as Mr. Macmillen is a famous American violinist. The Radio Lighthouse Musicmakers of WEMC, Berrien Springs, will prove this same evening that music may be both classical and popular.

A musical program in three parts will be broadcast by KGO Tuesday

evening. Part one, thirty minutes long, will be supplied by Antonio de Grassi, violinist, and Maxine Cox, pianist. Part two consists of old time songs given by the Francisco mixed quartet. The Francisco quartet, also in charge of the third part of the program, will sing operatic airs.

Good band music is promised Wednesday by WLIT (formerly WJAR), Philadelphia. The famous Atlantic City Railroad band will play. Thursday WGST, Atlanta, features a talk, "Chivalry in the Old South," by Edwin H. Folk. Frances Woodbery, Mrs. C. R. Prescott, Helen Schaid and Mrs. Mary Miller Trown-sell will entertain musically.

Listeners in to KHJ, Los Angeles, will take a trip Friday through Orange county, where acres of orange trees blossom and bear. Fans will take part in wild surf fishing and hear the modern pirate, the bootlegger, land at night.

A translation of one of the oldest poems contributed to English literature, "Beowulf," will be read by Professor William Ellery Leonard on Friday at WHA, Madison.

WSUI are the new call letters of WHAA, Iowa City.



Foley; 3-4 p. m., Koffee Klatsch; 7-8, Ralph Williams and his Rainbo Garden orchestra; Agatha Karlen, reader; Oils Pike Jester, soprano; Mary Thrash House, pianist; Henrietta Nolan, violinist; 10-2, Ralph Williams and his Rainbo Skyarts; Melodians, Laurie Eddie, Bennie; Jerry Sullivan; Herry Geise; Alfred Tweed, harmonica and guitar soloist; Clarence Theders, tenor; George A. Little, Larry Shay, song writers; June Lee, comedienne; Yukona Cameron, soprano.

WREO, Lansing, Mich. (Eastern, 286), 10-12 midnight, Frank Loring and his orchestra, Arcadia ball room.
 WSB, Atlanta, Ga. (Central, 429), 6 p. m., Sunday school lesson, Dr. Marion M. H. Hull; 8-9, DeMoss family concert; 10:45, Journal hired help; Ed and Grece McConnell.

WTAM, Cleveland, Ohio (Eastern, 390), 6 p. m., Guy Lombardo's Royal Canadians orchestra; 9, WTAM dance orchestra, Ev Jones, director, soloists.
 WTAY, Oak Park, Ill. (Central, 250), 6:15-6:30 p. m., Al Mildgard, organist; 6:30-7:30, Guydon Don Howe, soprano; Zelma Lowry, pianist; Mildred Brown, reader; 9-9:15, organ, Parthenon theater; 9:15-10, Rex Berrit, tenor; Ray Kroe, pianist; Lester Kelsey, tenor; Fred Jacobsen, Swedish alderman.

WWJ, Detroit, Mich. (Eastern, 352.7), 3 p. m., Detroit News orchestra; 6, dinner concert.

Sunday, February 15

Sunday, silent night for: CFAC, CKAC, CHNC, KFAE, KFOH, KFKU, KFKX, KFOA, KOB, PWX, WBAV, WCAE, WDAF, WDWF, WEAQ, WEMC, WGST, WHA, WHAS, WHAZ, WHO, WJY, WKQA, WLBL, WLIT, WMAK, WMC, WOJ, WOO, WOR, WSAI, WTAY, WWJ.

CFAC, Calgary, Can. (Mountain, 430), 11 a. m., First Baptist church, Rev. Dr. H. H. Bingham.
 CFCA, Toronto, Can. (Eastern, 350), 11 a. m., services, Bloor Street Presbyterian church, Preacher, Rev. George C. Pidgeon; 5:55-6 p. m., Bible story for small children; 7, service, Walmer Road Baptist church, Preacher, Dr. John MacNeill.

(Continued on page 10)

KHJ VISITS ORANGE COUNTY FRIDAY

Sunday, February 15

(Continued from page 9)

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

CKY, Winnipeg, Can. (Central, 450), 7 p. m., service, St. Stephen's Presbyterian church.

KDKA, East Pittsburgh, Pa. (Eastern, 309.1), 10:15 a. m., Emory Methodist Episcopal church, Rev. W. W. Duncan, pastor; 2:30 p. m., concert; 4, organ recital, Dr. Charles Gehmroth; 4:45, services, Shadydale Presbyterian church, Rev. Hugh Thomson Kerr, pastor; 6:30, dinner concert, Gregorio Scialzo, conductor; 7:45, Calvary Episcopal church, Rev. E. J. Van Ethen, pastor.

KFI, Los Angeles, Calif. (Pacific, 467), 10-10:45 a. m., L. A. Church Federation service; 11-12:30, morning service and organ recital of Temple Baptist church; 4-5 p. m., vesper service, Federated Church musicians; 6:45-7, musical appreciation talk; 7-8, stage acts, orchestra from stage of Metropolitan theater; 8-9, Antoinette and Sigurd, Fredericksen, duo ecclia numbers; and William Hiestand, tenor; 9-10, Theron Bennett's El Albanian dance orchestra.

KFMX, Northfield, Minn. (Central, 336.9), 7 p. m., college vesper service, Rev. Samuel Johnson.

KFNF, Shenandoah, Ia. (Central, 266), 10:45 a. m., First M. E. church; 3 p. m., sacred concert, Creston; 6:30, Golden Rule Circle.

KFSG, Los Angeles, Calif. (Pacific, 278), 10:30-12:30 p. m., morning service, Angelus Temple, sermon by pastor, Amee Temple McPherson; 2:30-4:30, afternoon service, Angelus Temple, Silver band, Temple choir; 7-9:45, evening service, Angelus Temple; 10-11, organ recital, Esther Rieck Green.

KGO, Oakland, Calif. (Pacific, 300), 11 a. m., service, Trinity Episcopal church, Rev. Charles P. Deems, rector; 3:30 p. m., concert, KGO Little symphony orchestra, Carl Rhodohamel, conductor; Arthur S. Garbett, musical interpretative writer; 7:30, service, Trinity Episcopal church, Rev. Charles P. Deems, rector.

KGW, Portland, Ore. (Pacific, 492), 10:30 a. m., service, First Presbyterian church, Dr. Harold Leonard Bowman, pastor; 3 p. m., municipal concert; 6, church service, Portland Council of churches; 7, Colburn concert orchestra; Jeannette Reinson, pianist.

KHJ, Los Angeles, Calif. (Pacific, 404), 10:30-12:30 p. m., First Methodist Episcopal church, Dr. E. E. Helms, pastor; Arthur Blake, organist; 6:30-7, Art Hickman's Baltimore hotel concert orchestra, Edward Fitzpatrick, director; 7-7:30, organ recital, Arthur Blakely; 8-10, program, Los Angeles Soap company, J. Howard Johnson.

KJS, Los Angeles, Calif. (Pacific, 293), 10:45-12:30 p. m., morning services, The Church of the Open Door; 6-6:45, Radio vesper service, Rev. William H. Pike; 7:15-9:30, regular evening service of Church of Open Door, sermon, pastor, Alfred A. Butler, organist and choir of 100 voices.

KNX, Hollywood, Calif. (Pacific, 337), 5 p. m., vesper service of Wilshire Congregational church, Dr. Frank Dyer, pastor; 7-7:45, International Bible Students' association hour of music; 8-9, Ambassador hotel concert orchestra, Josef Rosenthal, director; 9-11, program, Globe Ice Cream company.

KOA, Denver, Colo. (Mountain, 322.4), 11 a. m., service, Central Christian church, Dr. James E. Davis, pastor; 7:45 p. m., service, Central Christian church, Dr. James E. Davis, pastor.

KSAC, Manhattan, Kan. (Central, 340.7), 8 p. m., piano voluntary; 8:45, special sacred music; 8:15, prayer of affirmation; 8:15, hymn; 8:20, "Common Folks"; talk; 8:35, song of benediction, Walter Burr, director.

KTHS, Hot Springs National Park, Ark. (Central, 375), 11 a. m., service, First Presbyterian church, Rev. Chauncey Hickok; 8:30-10, Spanish-American concert, Meyer Davis-New Arlington hotel ensemble; Spanish announcements, Leon Numainville; 10-11:45, dance concert, Phil Baxter and his singing orchestra.

KYW, Chicago, Ill. (Central, 535.4), 11 a. m., Central church, Dr. Frederick P. Shannon, pastor; 4-5 p. m., studio concert; 7, Chicago Sunday Evening club, Raymond B. Foslidge, speaker.

WBAP, Fort Worth, Tex. (Central, 475.9), 11 a. m., services, St. Paul's M. E. church, Rev. C. D. Meade, pastor; 8 p. m., concert, Rialto theater; 11-12, midnight frolics, Ted Miller's Crazy hotel orchestra.

WBBR, New York City, N. Y. (Eastern, 272.3), 9:10 p. m., Dr. Hans Haag, violinist; 9:25, I. B. S. A. choral singers; 9:35, "Why the Doctrine of the Trinity is not True," E. J. Coward; 10:05, I. B. S. A. choral singers; 10:20, Dr. Hans Haag, violinist.

WBCN, Chicago, Ill. (Central, 266), 10:30-12 m., ser-

WEAR, Cleveland, Ohio (Eastern, 390), 1 p. m., Phillip Spitalny's Allen theater symphony orchestra.

WEEL, Boston, Mass. (Eastern, 473.9), 7:20-8:15 p. m., Roxy and his Gang, Capitol theater.

WEMC, Berrien Springs, Mich. (Central, 285.5), 11 a. m., sacred music, Radio Lighthouse choir; Angie Wilson, pianist; Miltand Alfred, tenor; 11:40, sermon, Pastor, W. R. French.

WFAA, Dallas, Tex. (Central, 475.9), 6-7 p. m., Radio Bible class, Dr. William M. Anderson, pastor; 7:30-8:30, service, First Methodist Episcopal church, South, Dr. Carl C. Gregory, pastor; Mrs. Robert H. Morton, soloist; Nell Lowrey, soloist; Belcanto male quartet; 9:30-11, Jack Gardner and his orchestra.

WFI, Philadelphia, Pa. (Eastern, 395), 4:30 p. m., services, from Central Y. M. C. A., talk, Dr. P. Whitwell Wilson; 7:30, services, Arch Street Presbyterian church.

WGN, Chicago, Ill. (Central, 370.2), 2 p. m., organ recital, Lyon and Healy; 3, Tribune master artist concert, Mossyale Boguslawski, pianist; 3:30, program, (Chicago Musical college); 9-10, special program, "Old Ballads," Charles H. Gabriel, Jr.

WGR, Buffalo, N. Y. (Eastern, 319), 3-4 p. m., vesper service, Rev. Oscar Krauch of St. John's United Lutheran church, speaker; 4-5, John F. Gunderman, Jr., organist; 7:15, service of Central Presbyterian church, William Wall Whitlitt, organist; Dr. Robert J. MacAlpine, speaker.

WGY, Schenectady, N. Y. (Eastern, 375.9), 10:30 a. m., services, First Baptist church; organ prelude, Mrs. J. B. Van Patten; 8:35 p. m., WGY Symphony orches-

WREO, Lansing, Mich. (Eastern, 286), 10 a. m., chimes, Belfrey Plymouth Congregational church; 10:30, services, St. Paul's Episcopal church, Dr. Virgil Boyer, pastor; Bruce Hartsuch, organist-director; 7, services, Central M. E. church, Rev. Frank Kingdom, pastor; John George, director Community Singing; W. James Tillison, organist.

WSAI, Cincinnati, Ohio (Central, 325.9), 2 p. m., sermonette; 3:10, chimes.

WSB, Atlanta, Ga. (Central, 429), 11 a. m., service, First Presbyterian church; 5-6 p. m., service, Monroe Methodist church choir; 7:30, Memorial church service.

WSU, Iowa City, Iowa (Central, 453.6), 7 p. m., children's hour, Mrs. Alice McLeod Mills; 9-9:50, familiar hymns, Celeste Fuhrman, soprano.

WWJ, Detroit, Mich. (Eastern, 352.7), 11 a. m., services, St. Paul's cathedral; 2 p. m., Detroit News orchestra.

William C. Dunn, euphonium soloist; Paul Stewart, cornetist; Mary Ross, pianist; Marion Lee, reader.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 5:30 p. m., children's hour, Mrs. R. G. Cargill; 6, sports talk; 8, "Poultry Feeding," N. E. Chapman; 8:15, "Care of Brood Sows," Prof. E. P. Ferrin; 8:30, South Dakota night; 9:30, Wallie's Coliseum orchestra; White Brothers & Stendal, singing trio.

WCX, Detroit, Mich. (Eastern, 516.9), 4:15 p. m., musical program; 6 p. m., dinner concert broadcast from the Book-Cadillac hotel; 8:30 p. m., musical program.

WDAF, Kansas City, Mo. (Central, 365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; address, C. H. Cheney; weekly request-story night; music, Trianon ensemble; 8-9:15, "Around the Town with WDAF," 11:45-1 a. m., Merry Old Chief and the Plantation players.

WEAF, New York, N. Y. (Eastern, 491.5), 4-4:15 p. m., Elsie Nesbit, soprano; 4:15-4:30, Arthur Stone, blind pianist; 4:40-5, children's stories; 6-7, dinner music, Waldorf-Astoria hotel orchestra; 7:15-8:30, Strand theater program; 8:30-9, Cushman's Sons, Inc.; 9-10, A and P Gypsies; 10-10:30, Choir visible from Washington, D. C.; 10:30-11:30, Ben Bernie's Hotel Roosevelt orchestra.

WEAR, Cleveland, Ohio (Eastern, 390), 7 p. m., Loew's State theater, organ recital, soloists and vaudeville features.

WEEL, Boston, Mass. (Eastern, 475.9), 6:30 p. m., big band tuning-in number; 7:15, Dok-Eisenberg and his Sinfonians; 7:30, Charlesworth State Prison; 8:45, musicale; 8:55, Pathe News flashes; 9, A. & P. Gypsies.

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

WFAA, Dallas, Tex. (Central, 475.9), 6:30-7:30 p. m., vesper recital, Tommy's Texans; 8:30-9:30, musical recital, faculty representatives of Gunter college.

WFI, Philadelphia, Pa. (Eastern, 395), 6:30 p. m., Meyer Davis' Bellevue Stratford concert orchestra; 7, Sunny Jim.

WGN, Chicago, Ill. (Central, 370.2), 6 p. m., organ recital, Lyon and 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 talk, Betty Crocker; 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Radio Dealers' musical program; 4:30, address, "The Spanish War Veteran," Leonard S. Garpis; 6-7:30, dinner music; 8:15-8:45, musical program, the National Vaudeville exchange; 8:45-9, address, "Rural Sanitation," J. Warren Fortenbaugh, chief sanitary engineer of the Kaustine company; 6-10, musical program, Elm Vocational school; 10-11, "The Musical Entertainers"; 11-1 a. m., supper-dance music, Vincent Lopez' Hotel Statler dance orchestra, Harold Geser, director.

WGST, Atlanta, Ga. (Central, 270), 9-10 p. m., Tech. glee club, Al Holden, president.

WGY, Schenectady, N. Y. (Eastern, 375.9), 6:20 p. m., sport talk, Harold Anson Bruce; 6:40, dinner music, Hotel Ten Eyck trio; 7:30, WGY orchestra; Ethel Doyle, soprano; Giovanni Trombini, cellist; American trio; Edward A. Rice, violinist; Peter Schmidt, clarinetist.

WHA, Madison, Wis. (Central, 535.4), 7:30 p. m., basketball game, Iowa-Wis.; address on food and nutrition, Mrs. Nellie Kedzie Jones.

WHAZ, Troy, N. Y. (Eastern, 380), 9 p. m., vocal recital, direction of A. Y. Cornell of Troy; 11, dance program, Arcadians.

WHB, Kansas City, Mo. (Central, 365.5), 2-3 p. m., ladies' hour program, Al Bridge, George Garpis, Gilbert Jaffey, violinist; Jess Sutton, pianist; 7-8, popular music, Pekin cafe; address, George J. Enkers, optician; K. C. Optometric association.

WHK, Cleveland, Ohio (Eastern, 273), 6:15 p. m., news items; 6:30, Emerson Gill's Bamboo Garden orchestra; 6:45, bedtime story, Ethel O. Haves.

WHO, Des Moines, Ia. (Central, 526), 7:30-9 p. m., Helen Miller, pianist; Vera Trevits, pianist; George Davis, flutist; classical program, Dean Holmes Cooper, director; 11:15-12, L. Carlos Meier, organist.

WIP, Philadelphia, Pa. (Eastern, 508.2), 6:05 p. m., Hotel St. James dinner dance orchestra; 7, Uncle Wip's bedtime stories; dancing lessons, Miller Conservatory of dancing.

WJZ, New York, N. Y. (Eastern, 454.3), 4-4:15 p. m., Alvah Harlow Atwood, tenor; 4:15-4:30, Flora Intemann Lange, contralto; 8:45-9, "Speed Skating," John Murray; 9-10, Friendly Sons of St. Patrick glee club concert, Astor hotel.

WLIT, Philadelphia, Pa. (Eastern, 395), 5:15 p. m., Gus Daniel's dance orchestra; 7:30, Dream Daddy; 8:30, George P. Boggs, baritone; 9:25, Stanley theater symphony orchestra; features from Stanley theater; 10:02, Arcadia cafe dance orchestra; vaudeville features from Fay's Knickerbocker theater.

Monday, February 16

Monday, silent night for: CFCA, CKAC, CKY, KFCK, KFSG, KIS, PWX, WBCN, WCAU, WDFW, WEAO, WEBB, WFI, WGN, WHAS, WJY, WKAO, WLBL, WLS, WMAK, WMAQ, WOAI, WQJ, WREO, WSUI, WTAY.

CHNC, Toronto, Can. (Eastern, 350), 8-10 p. m., CHNC



Here are the Novak's Vaudettes, a Portland, Oregon, organization, pleasing both to the eye and ear, which performs regularly at R. G. Elma Novak, director, plays the piano; Beulah Blackwell, the violin; Esther Rickard, the trumpet; Ruth Hook, banjo, and Calla Howard, the drums.

tra; Mrs. W. Lawyer Hanes, soprano; 5, Dr. Frank Hill Rogers, organist; T. Roy Keefer, violinist; 7:30, First Baptist church services, organ prelude; P. J. Brunton, tenor; sermon, Rev. Gordon H. Baker; 8:45, Symphony orchestra, Waldorf-Astoria, Joseph Knecht, conductor.

WHAS, Louisville, Ky. (Central, 399.8), 4-5 p. m., vesper song service, auspices, First Unitarian church, Dr. Lon R. Call, pastor; Mrs. Velda Grant Kelleher, soprano; Reginald W. Billin, baritone.

WHB, Kansas City, Mo. (Central, 365.6), 9:40-11 a. m., service, Linwood Christian church, Dr. B. Morris A. Jenkins, minister; 8-8:15 p. m., evening services, Independence Boulevard church, R. H. Miller, pastor; midnight, popular dance music, Gilbert Jaffey's music masters.

WHK, Cleveland, Ohio (Eastern, 273), 10:30 a. m., Old Stone church, Rev. W. H. Foulkes, pastor; 4:30 p. m., vesper services, Cleveland Federated churches, Rev. E. R. Wright, conductor; current religious topics, hymns, sermon; 7:30 p. m., Epworth-Euclid Memorial church, Rev. Louis Wright, pastor; 9 p. m., Conn. Symphony orchestra, Ralph D. Story, conductor; solo numbers.

WHD, Des Moines, Ia. (Central, 526), 11 a. m., sermon, Dr. Charles S. Meubury, pastor, University church of Christ; 4, classical program, Dean Holmes Cowper, director.

WIP, Philadelphia, Pa. (Eastern, 509.9), 4 p. m., talk, "Give the Boy a Chance," H. L. Taylor; 7:15, services, Holy Trinity church, Rev. Floyd W. Tomkins, D. D.; 9:30, Ben Stad and his Wip Symphony orchestra; Karl Bonawitz, organist.

WJZ, New York, N. Y. (Eastern, 454.3), 2:30-3:30 p. m., Radio Bible class; 3:30-4, Brooklyn string quartet; 5:45-6:30, "The Metropolis of Mankind," Edgard White Burrill; 8-8:15, Marie Rothman, soprano; 9:30-10:30, Godfrey Ludlow, violinist.

WLIT, Philadelphia, Pa. (Eastern, 395), 2:30 p. m., Arcadia cafe concert orchestra, Feri Sarkozi, director.

WLS, Chicago, Ill. (Central, 344.6), 6:30 p. m., Ralph Emerson, organist; 7, Fourth Congregational church choir, Thomas Munroe, director.

WLW, Cincinnati, Ohio (Central, 423), 9:30 a. m., school, editorial staff of Sunday School Publications, Methodist Book concern; 11, services, Church of the Covenant, Dr. Frank Stevenson; 7:30 p. m., services, Presbyterian church of Walnut Hills, Frederick McMillan; 8:30, Western and Southern orchestra, William Kopp, director; Italo Picchi, bass.

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

WMC, Memphis, Tenn. (Central, 499.7), 11 a. m., services, Second Presbyterian church, Rev. A. B. Curry, pastor.

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

WDAI, San Antonio, Tex. (Central, 394.5), 11 a. m., services, First Presbyterian church; 7:30 p. m., services, Central Christian church; 9:30, WDAI entertainers in "Carnegie."

WOAW, Omaha, Neb. (Central, 526), 9 a. m., Radio chapel service, Rev. R. K. Brown, pastor; 1:30 p. m., matinee program, WOA's May Seed & Nursery company building; 2:30, music; 6, Bible study, Mrs. Carl R. Gray, director; 9, musical chapel service, Trinity Baptist church, Rev. Charles Francis Holler, pastor; E. Catherine, organist.

WOC, Davenport, Ia. (Central, 483.6), 8 p. m., church service, Rev. John M. Stephenson, pastor; Broadway Presbyterian church, musical numbers; 9:30, The Fisher Little Symphony, Erwin Swindell, conductor.

WOO, Philadelphia, Pa. (Eastern, 509.9), 10:45 a. m., services, Bethany temple; 2:30, Sunday school services, Bethany temple; 6:05, organ recital, Clarence K. Bawlen.

WRO, Batavia, Ill. (Central, 275), 7 p. m., I. B. S. A. choral singers; 7:10, Irwin L. Fisher, pianist; 7:20, A. Violet Tait, soprano; 7:25, Bible lecture, W. H. Woodley; 7:50, I. B. S. A. choral singers.

WDS, Jefferson City, Mo. (Central, 440.9), 7:30 p. m., religious service, First Christian church, Rev. R. M. Talbert, pastor.

WQJ, Chicago, Ill. (Central, 448), 10:50 a. m., sermon, Dr. Preston Bradley; Clarence Eddy, organist; 8-10, Ralph Williams and his Rainbo Garden orchestra; Jeannette Van Lennep, mezzo-soprano; Mary Van Lennep, accompanist; Milford Burdall, baritone; Harold News, pianist; Robert Metzler, Parolian pianist.

Little Symphony orchestra; Lionel H. Bilton, cellist; Simeon Joyce, pianist; Aeolian male quartet.

KOKA, East Pittsburgh, Pa. (Eastern, 309.1), 6:15 p. m., KDKA Little Symphony orchestra, Victor Saudek, conductor; 7:30, children's period; 8:30, Boy Scout meeting; 8:15, address, University of Pittsburgh studio; 8:30, concert.

KFI, Los Angeles, Calif. (Pacific, 467), 5:30-6 p. m., Examiner's musical half hour; 8-9, Evening Herald; Owen Fallon's Californians; Wm. MacDougal, Scotch character singer; 9-10, program, Walter M. Murphy Motors company; 10-11, Examiner, Ray West and his Alexandria hotel dance orchestra.

KFKU, Lawrence, Kan. (Central, 275), 6:50 p. m., piano tuning-in number; 7, music; 7:15, "Basketball Officiating," Dr. E. C. Allen; 7:30, "The Ethics of Debate," Prof. B. A. Gilkinson; 7:45, Spanish lesson.

KFNF, Shenandoah, Ia. (Central, 266), 6:30 p. m., concert, Henry Field Seed company.

KFOA, Seattle, Wash. (Pacific, 455), 6:45-8:15 p. m., Sherman Clay and company program; 8:30-10, studio program, Maybelle Brannan, director.

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

KGO, Oakland, Calif. (Pacific, 300), 8 p. m., "Limitations of Co-operative Marketing," Prof. Erdman; "A Lesson in English," Wilda Wilson Church; "The Challenge of the Professional Life," Dr. Aurelia Henry Reinhardt; "Chats about New Books," Joseph Henry Jackson; 10-1, Henry Halstead's orchestra.

KGW, Portland, Ore. (Pacific, 492), 5 p. m., children's program; 8, Oregonian concert orchestra; 10, Colburn's Melody men; Sheffer's string orchestra.

KNX, Hollywood, Calif. (Pacific, 337), 6:30-7:30 p. m., dinner program, John A. Evans corporation, presenting Hacienda Park orchestra; 8-10, program, Western Auto Supply company; 10-11, Silvertown Cord orchestra and Lillyan May Challenger, contralto, presented by B. F. Goodrich Rubber company; 11-12, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel.

KOA, Denver, Colo. (Mountain, 322.4), 3 p. m., studio program, featuring Everett E. Foster, Mabel Tarvin Baber, Ada Marie Castor, Frank Fowler, Ralph Freese, Ruth Gilbert Gilles; KOA orchestra.

KOB, State College, N. M. (Mountain, 348.6), 7:30-8:30 p. m., "Germs with Special Reference to Ordinary Care in the Matter of Infection," Dr. McBride; American Association of Engineers' program; "Irrigation and Water Development for the Indian of the Northern Arizona and New Mexico," Gen. F. H. Robinson.

KSAC, Manhattan, Kan. (Central, 340.7), 7:20 p. m., college bell and quartet; 7:30, "Where Are the Hogs and Where Are They Consumed," A. D. Weber; 7:40, Radio College quartet; 7:50, "Development of Dairy Hifers," R. H. Lush.

KSC, St. Louis, Mo. (Central, 545.1), 9 p. m., return engagement, Francis MacMillen, violinist; David Kriegshaber, accompanist.

KTHS, Hot Springs National Park, Ark. (Central, 375), 8:30-10 p. m., concert, Natalie Brigham, violinist; Arthur Platz, tenor; 10-11, Charles L. Flisher and his 11-piece Eastman hotel orchestra.

KYW, Chicago, Ill. (Central, 535.4), 6:35-7 p. m., children's bedtime story, Uncle Bob.

WBAP, Fort Worth, Tex. (Central, 475.9), 7:30-8:30 p. m., Frenley Moore's Black and Gold Serenaders; 9:30-10:45, Montgomery Ward & Co.'s "Trail Blazers."

WBAV, Columbus, Ohio (Eastern, 294), 8 p. m., WBAV orchestra, Frances Handibeau, directing; solos, to be announced.

WBBR, New York, N. Y. (Eastern, 272.3), 8 p. m., Syrian Oriental music, Toufic Moubadi, Elizabeth Awad; 8:10, Irene Klempner, soprano; "The Electronic Theory," Wm. F. Hudjins; 8:40, Irene Klempner, soprano; Ida Parks; 8:50, Syrian Oriental music, Toufic Moubadi, Elizabeth Awad.

WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m., dinner concert, William Penn hotel; 7:50, Uncle Kay-bec; 7:45, special feature; 8:30, Mrs. Betty Kalbaugh Wingard, soprano; 9, A. & P. Gypsy string ensemble; 11, concert, Nixon restaurant, Etzi Covato, director.

WCDD, Zion, Ill. (Central, 344.6), 8 p. m., Emma Reynolds, soprano; Mrs. G. R. Sparrow, contralto; G. R. Sparrow, tenor; Mr. and Mrs. G. R. Sparrow;

WILLIAM C. DUNN, euphonium soloist; Paul Stewart, cornetist; Mary Ross, pianist; Marion Lee, reader.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 5:30 p. m., children's hour, Mrs. R. G. Cargill; 6, sports talk; 8, "Poultry Feeding," N. E. Chapman; 8:15, "Care of Brood Sows," Prof. E. P. Ferrin; 8:30, South Dakota night; 9:30, Wallie's Coliseum orchestra; White Brothers & Stendal, singing trio.

WCX, Detroit, Mich. (Eastern, 516.9), 4:15 p. m., musical program; 6 p. m., dinner concert broadcast from the Book-Cadillac hotel; 8:30 p. m., musical program.

WDAF, Kansas City, Mo. (Central, 365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; address, C. H. Cheney; weekly request-story night; music, Trianon ensemble; 8-9:15, "Around the Town with WDAF," 11:45-1 a. m., Merry Old Chief and the Plantation players.

WEAF, New York, N. Y. (Eastern, 491.5), 4-4:15 p. m., Elsie Nesbit, soprano; 4:15-4:30, Arthur Stone, blind pianist; 4:40-5, children's stories; 6-7, dinner music, Waldorf-Astoria hotel orchestra; 7:15-8:30, Strand theater program; 8:30-9, Cushman's Sons, Inc.; 9-10, A and P Gypsies; 10-10:30, Choir visible from Washington, D. C.; 10:30-11:30, Ben Bernie's Hotel Roosevelt orchestra.

WEAR, Cleveland, Ohio (Eastern, 390), 7 p. m., Loew's State theater, organ recital, soloists and vaudeville features.

WEEL, Boston, Mass. (Eastern, 475.9), 6:30 p. m., big band tuning-in number; 7:15, Dok-Eisenberg and his Sinfonians; 7:30, Charlesworth State Prison; 8:45, musicale; 8:55, Pathe News flashes; 9, A. & P. Gypsies.

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

WFAA, Dallas, Tex. (Central, 475.9), 6:30-7:30 p. m., vesper recital, Tommy's Texans; 8:30-9:30, musical recital, faculty representatives of Gunter college.

WFI, Philadelphia, Pa. (Eastern, 395), 6:30 p. m., Meyer Davis' Bellevue Stratford concert orchestra; 7, Sunny Jim.

WGN, Chicago, Ill. (Central, 370.2), 6 p. m., organ recital, Lyon and 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 talk, Betty Crocker; 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Radio Dealers' musical program; 4:30, address, "The Spanish War Veteran," Leonard S. Garpis; 6-7:30, dinner music; 8:15-8:45, musical program, the National Vaudeville exchange; 8:45-9, address, "Rural Sanitation," J. Warren Fortenbaugh, chief sanitary engineer of the Kaustine company; 6-10, musical program, Elm Vocational school; 10-11, "The Musical Entertainers"; 11-1 a. m., supper-dance music, Vincent Lopez' Hotel Statler dance orchestra, Harold Geser, director.

WGST, Atlanta, Ga. (Central, 270), 9-10 p. m., Tech. glee club, Al Holden, president.

WGY, Schenectady, N. Y. (Eastern, 375.9), 6:20 p. m., sport talk, Harold Anson Bruce; 6:40, dinner music, Hotel Ten Eyck trio; 7:30, WGY orchestra; Ethel Doyle, soprano; Giovanni Trombini, cellist; American trio; Edward A. Rice, violinist; Peter Schmidt, clarinetist.

WHA, Madison, Wis. (Central, 535.4), 7:30 p. m., basketball game, Iowa-Wis.; address on food and nutrition, Mrs. Nellie Kedzie Jones.

WHAZ, Troy, N. Y. (Eastern, 380), 9 p. m., vocal recital, direction of A. Y. Cornell of Troy; 11, dance program, Arcadians.

WHB, Kansas City, Mo. (Central, 365.5), 2-3 p. m., ladies' hour program, Al Bridge, George Garpis, Gilbert Jaffey, violinist; Jess Sutton, pianist; 7-8, popular music, Pekin cafe; address, George J. Enkers, optician; K. C. Optometric association.

WHK, Cleveland, Ohio (Eastern, 273), 6:15 p. m., news items; 6:30, Emerson Gill's Bamboo Garden orchestra; 6:45, bedtime story, Ethel O. Haves.

WHO, Des Moines, Ia. (Central, 526), 7:30-9 p. m., Helen Miller, pianist; Vera Trevits, pianist; George Davis, flutist; classical program, Dean Holmes Cooper, director; 11:15-12, L. Carlos Meier, organist.

WIP, Philadelphia, Pa. (Eastern, 508.2), 6:05 p. m., Hotel St. James dinner dance orchestra; 7, Uncle Wip's bedtime stories; dancing lessons, Miller Conservatory of dancing.

WJZ, New York, N. Y. (Eastern, 454.3), 4-4:15 p. m., Alvah Harlow Atwood, tenor; 4:15-4:30, Flora Intemann Lange, contralto; 8:45-9, "Speed Skating," John Murray; 9-10, Friendly Sons of St. Patrick glee club concert, Astor hotel.

WLIT, Philadelphia, Pa. (Eastern, 395), 5:15 p. m., Gus Daniel's dance orchestra; 7:30, Dream Daddy; 8:30, George P. Boggs, baritone; 9:25, Stanley theater symphony orchestra; features from Stanley theater; 10:02, Arcadia cafe dance orchestra; vaudeville features from Fay's Knickerbocker theater.



Mrs. Ruth Gunnell, violinist, is one of the promising young musicians of Kansas City. She will take part Wednesday night, February 18, in the 8 p. m. program of WDAF, the Kansas City Star station.

WLW, Cincinnati, Ohio (Central, 423), 6 p. m., dinner hour concert, Selinsky instrumental quintet; B. Times-Star program; Times-Star orchestra, William Kopp, director; soloists, Hazel Motz, soprano; Howard Bradford, tenor; Armand Leurn, young Marimba artist; Senator Schultz.

WMAQ, Chicago, Ill. (Central, 447.5), 6:30 p. m., Hotel LaSalle orchestra.

WMC, Memphis, Tenn. (Central, 499.7), 8:30 p. m., concert, Hotel Gayoso orchestra.

WNYC, New York, N. Y. (Eastern, 526), 7-7:30 p. m., dance program; 7:30-7:45, health talk; 7:45-9:25, special studio program; 9:25-10:30, Risenfeld's Rialto program; 10:35-10:50, talk, "Trend of the Times," Dr. Elyse N. Usher.

WDAW, Omaha, Neb. (Central, 526), 6 p. m., Arthur Hays, organist; 8:20, studio, Mrs. Henry B. Cox, pianist; 6:45, Harmo-Jazz orchestra, Ralph Portal, director; 9, program, auspices Auto Electric & Radio corporation.

WOC, Davenport, Ia. (Central, 483.6), 7 p. m., sandman's visit, Val McLaughlin; 7:20, educational lecture, "Human Spine-Mechanics," R. G. Maybach; 8, musical; Wesley Gleslie Hawaiian trio; C. C. Harrod, tenor; Emil Haas, reader; 10, 3-act comedy-drama, "Deacon Dupps," W. E. Van Allen, director.

WOI, Ames, Iowa (Central, 270), 10 p. m., program of popular music.

WOL, Philadelphia, Pa. (Eastern, 508.2), 7:30 p. m., A. C. Cleburn's ensemble from Hotel Adelphia; 8:30, concert from WEAF; 10:30, Vincent Rizzo's dance orchestra.

WORD, Batavia, Ill. (Central, 275), 8 p. m., Columbia Conservatory of Music of Aurora; 8:25, world news items, Ralph Leffer; 8:45, Columbia Conservatory of Music.

WOS, Jefferson City, Mo. (Central, 440.9), 8 p. m., "Arrow R. Ch. Tavern," Mrs. W. W. Graves; "What Figures Show about Missouri Public Schools," W. W. Gibbons; musical program, Mrs. Homer Talbert.

WQI, Chicago, Ill. (Central, 448), 11-12 m., "Saucers

(Continued on page 11)



Leon Dashoff is the leader of the Des Moines Symphonic orchestra, which will be heard this week, Wednesday, February 18, at WHO, Des Moines. Mr. Dashoff is also a concert violinist, who has won Radio fame and recognition.

mon, Rev. R. A. White, Peoples Liberal church; 4-5, Main and Son classical concert; 5:15-6:15, talk, Rev. Richard D. Hughes, vesper service, Emerald Avenue Presbyterian church; 7-8, Blue Bird Serenaders; 8-10, Rosemary Hughes, soprano; Mayday Dancing Gardens orchestra; Susanna Pepper, coloratura soprano; Honner Pepper, flutist; Adelle Pepper, alto; Mrs. Florence St. Claire, contralto; Borden Brothers; Bobby Mehr, blues singers; Buster Graves, boy soprano; Blanche Robinson, pianist; Florence Eastman, mezzo-soprano; Alfred Winterfeldt, concertinist; 10-10:15, Midway Dancing Gardens orchestra.

WCAE, Pittsburgh, Pa. (Eastern, 462), 10:45 a. m., services, Rodet Shalom temple; 3 p. m., People's Radio church services; 4, Prof. Otto Keltels, pianist; 6:30, dinner concert, William Penn hotel.

WCAU, Philadelphia, Pa. (Eastern, 278), 5:15 p. m., recital; 5:30, sermon, Rev. Dr. John W. Stockwell; 5:45, recital; 6, dinner concert, Meyer Davis Hotel Pennsylvania orchestra, direction, Lon Chassy.

WCBQ, Zion, Ill. (Central, 344.6), 8 p. m., Chester Bagge, baritone; Wedman Sisters; Esther Wedman, soprano; Bessie Wedman pianist; Mrs. Hester Robinson, reader.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 10-10:20 a. m., Plymouth Congregational church, Rev. H. P. Dewey, pastor; 4:10 p. m., House of Hope Presbyterian church, Rev. H. C. Staringen, pastor; 7:45, Central Lutheran church, Rev. J. A. Stubb, pastor; 9-15, classical concert; Norwegian male chorus, Carl G. Hansen, director; Lillian Dahl Lindstrom, pianist.

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

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

WDFW, Providence, R. I. (Eastern, 440.9), 5-6:45 p. m., Radio recital, The

SPANISH-AMERICAN MUSIC AT KTHS

Monday, February 16

(Continued from page 10)

and Garnishes," Mrs. Jean Prescott Adams; "Ice Cream—For Health," J. E. Davies; 5-4 p. m., "The Hot Sandwich Meal," Helen Harrington Downing; "The Care of Your Hair," Madame Huntingford.

WSAI, Cincinnati, Ohio (Central, 325.9), 10 p. m., Al Wiebe's Peerless dance orchestra.

WSB, Atlanta, Ga. (Central, 429), 5-6 p. m., Myers' Melody artists; 8-9, Rich's Mandolin club; Frank Wilson, pianist; 10:45, Tucker's entertainers orchestra.

WTAM, Cleveland, Ohio (Eastern, 390), 6 p. m., Guy Lombardo's Royal Canadians orchestra; 8, Windermere quartet, concert program; Mrs. Robert McKee, soprano; Grace Toy Davidson, contralto; Harvey Maretto, bass; C. C. Chatelet, tenor; Grace Gordon, pianist.

WVJ, Detroit, Mich. (Eastern, 352.7), 3 p. m., Detroit News orchestra; 7, Detroit News orchestra.

Tuesday, February 17

Tuesday, silent night for: CHNC, KFAE, KFKU, KFKX, KFMX, KFNW, KOA, KOB, KYW, PWX, WBBR, WCB, WEO, WEMC, WGST, WHA, WHAZ, WHO, WOC, WOI, WOO, WORO, WOS.

CFCA, Toronto, Can. (Eastern, 350), 8:15 p. m., "Chemistry Applied to Industry," J. W. Bain.

CKAC, Montreal, Can. (Eastern, 425), 7 p. m., Kiddies'

KTHS, Hot Springs National Park, Ark. (Central, 375), 8:30-10 p. m., "Versatility Concert," Charles L. Fisher and his Eastman hotel orchestra.

KYW, Chicago, Ill. (Central, 335.4), 6:35-7 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 8-8:30, musical program, Chicago Musical college; 8:20-8:45, American Farm Bureau federation; "Farmers at School," C. L. Kuttel; "Grain Market Review," J. W. Coverdale; 8:45-9, musical program; 10-11:30, evening at home program; "Applesauce" club, Ransom Sherman.

WBAP, Fort Worth, Texas (Central, 475.9), 7:30-8:30 p. m., musical program; 9:30-10:45, musical program, artists of Texas Woman's college.

WBAV, Columbus, Ohio (Eastern, 294), 8 p. m., Dispatch program, talent from Richwood, Ohio, J. J. Corbett in charge.

WGBM, Chicago, Ill. (Central, 266), 6-6:30 p. m., juvenile period, Luella Drew Wilson; 7-8, Mrs. Davidson Tague and affiliated artists; 8-8:30, Marie Wright, soprano; George Forsyth, boy tenor; Midway Dancing Gardens orchestra; 8:30-9, Walton School of Commerce program; 9-12, Midway Dancing Gardens orchestra; Axel Christensen, pianist; Will Rossiter's Melody Girls; F. H. McDonald, president Broadcast Listeners' association; Larry Loser, tenor; Finney

WEEI, Boston, Mass. (Eastern, 475.9), 6:30 p. m., big brother club, Uke band; 7:15, Lopez male quartet, Joseph E. Lopez, director; 8, New York program; 8:30, Gold Dust twins; 9, Eveready hour; 10, Goodrich Silvertown Cord orchestra.

WFAA, Dallas, Texas (Central, 475.9), 6:30-7:30 p. m., vesper recital, Blue Bonnet serenaders; 8:30-9:30, Schubert choral club recital; 11-12, Dwight Brown, organist.

WFI, Philadelphia, Pa. (Eastern, 395), 6:30 p. m., Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim; 8:30, Gold Dust Twins from WFAA; 9, Eveready hour; 10, Goodrich Silvertown cord orchestra.

WGN, Chicago, Ill. (Central, 370.2), 6 p. m., organ recital, Lyon and Healy; 6:30-7, dinner concert, Drake concert ensemble, Blackstone string quintet; 8-9, classical concert, Medinah Temple band; 10-11, Don Bestor Drake dance orchestra.

WGR, Buffalo, N. Y. (Eastern, 319), 11 a. m., tips for housewives, Katherine Norton Brit, manager of the Buffalo Home bureau; 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Radio Dealers' musical program; 6-7:30, dinner music, Halcyon string quartet; 8:30-9, the Gold Dust twins; 9-10, "Eveready Hour"; 10-11, Goodrich Silvertown Cord orchestra.

auspices of English Speaking union; 8:10-8:20, N. Y. U. Air college; 9-10, Brunswick music memory contest; 10-10:15, talk, Fravus Gildrist Wood, woman explorer; 10:15-10:30, Vassili Zavadsky, pianist.

WLBL, Stevens Point, Wis. (Central, 278), 8 p. m., musical program, auspices of the Stevens Point Chamber of Commerce.

WLIT, 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; 4:30, Florence Hall Quimby, soprano; 7:30, Dream Daddy's bedtime stories; 7:50, play review, Arnold Abbott.

WLS, Chicago, Ill. (Central, 344.6), 6:30 p. m., Ralph Emerson, organist; 6:50, Senate theater studio; 7, lullaby time, Ford and Glenn; 7-15, McGraves ladies' trio; 7:45, Anthony Wons' juvenile adventure; 8, Florence K. White, Grace Wilson, Kenneth Clark; 9, Nubs Allan; 9:10, Shakespearean drama, Anthony Wons; 9:30, Cicero male trio; 9:40, Senate syncopators; 10, Elizabeth Rushmore ensemble; 10:30, Isham Jones and his orchestra; 10:40, Ford and Glenn time; 11, Glenn's comhuskers; 11:10, Vaudeville nite, Carrell Vaudeville agency; 12, Broadway revue, Ralph Emerson, Isham Jones and his orchestra; Ford and Glenn.

WLW, Cincinnati, Ohio (Central, 423), 6 p. m., dinner hour concert, Selinsky Instrumental quintet; 7:30, program, Miami university; Miami university quartet; 10, concert program, Boathouse Coffee company; 10:40, songs, Marian Manship Schaeffer; Elizabeth Thuis, pianist; The Cincinnati Zither quartet; Ruth and Charles Hohe, A. Ruhrick and Louis Wegert; 11, Keefer-Koeker orchestra.

WOAI, San Antonio, Texas (Central, 394.5), 8:30 p. m., WOAI entertainers in a Bohemian program; 9:30, Jimmy Joy's Hotel St. Anthony orchestra.

WOAW, Omaha, Nebr. (Central, 526), 6 p. m., advice to lovers, Cynthia Grey; 6:25, dinner program, May Seer; 7, variety company; 9, concert, Moose band, J. J. Gilgoly, leader; 10:30, Frank W. Hodge, Jr., and his Omaha Nightingales.

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

WORO, Batavia, Ill. (Central, 275), 8 p. m., William Benson, tenor; 8:10, Evelyn Nelson, pianist; 8:20, Mrs. Lou McArthur, soprano; 8:30, Bible lecture, M. E. Woodley; 8:50, William Benson, tenor.

WQJ, Chicago, Ill. (Central, 448), 11-12 m., "Indoor Picnics," Agnes M. Olson; "Pictures and the Home Beautiful," Margery Curry; "Recipes for Using Sour Cream," Mrs. Margaret E. Borbesp; 3-4 p. m., "Round the World Recipes," Josephine Naylor; "Constipation," Dr. Lena K. Sadler; 7-8, Ralph Williams and his Rainbow Garden orchestra; Thora Martins, contralto; Tony Corcoran, tenor; Margaret Garrity, pianist; income tax talk; 10-2 a. m., Ralph Williams and his Rainbow skylarks; Eyer and Chellman, "Vodenville's Singing Act," "A Castilian Romance," Nubs Allen, contralto; Will Rossiter; Nate Caldwell, pianologist; University trio; Mack sisters; Rick Whalen and Gardner.

WRC, Washington, O. C. (Eastern, 469), 6:45 p. m., children's hour, Peggy Albion; 7, dinner music, New Willard orchestra; 8, show shopping, Leonard Hall; 8:10, Katherine Riggs, harpist; 8:30, "Political Situation in Washington Tonight," Frederick William Wile; 9, third Brunswick Memory contest; 10, George M. Ross, pianist; 10:15, Meyer Davis Leparadis band.

WROE, Lansing, Mich. (Eastern, 285.5), 8:15-9:45 p. m., Reo Motor Car company band; Reo Male glee club.

WSAI, Cincinnati, Ohio (Central, 325.9), 7 p. m., Hotel Gibson orchestra, R. M. Visconti, director; 7:30, chimes; 7:45, children's story; 8, Hotel Gibson orchestra; 9, University of Cincinnati speaker; 9:10, Oliver Plunkett, tenor; Ruth Dittman, soprano; John Drury, baritone.



Richard Miller (left), popular Buffalo tenor, will be featured Wednesday, February 18, at WGR. Charlotte Meyers (above) is the blues singer known throughout Detroit's Radio circles for her singing Tuesday evenings at the Red Apple club of WCX. Little Betty Sargent (four years old) broadcasts regularly from WGBS, WJZ and WFBH, New York city.

stories in French and English; 7:30, classical concert, Windsor hotel dining room; 8:30, studio variety program; 10:30, dance program, Windsor grill; 11:00, CKY, Winnipeg, Can. (Central, 450), 7:30 p. m., university lecture; 8:15, studio concert; 9, half-hour program, Capitol theater; 9:30, Roseland dance gardens.

CNRA, Moncton, Can. (Atlantic, 313), 8:30 p. m., Mrs. J. Clyde Stevens, soprano; Mrs. Fred Ward, pianist; Roy Metzler, tenor; James Sparanza, banjoist; duet, Mrs. H. N. Price, Roy B. Metzler; Mrs. H. N. Price, contralto; popular music, Joe Mazzio and his Rainbow Melody boys.

CNRR, Regina, Can. (Mountain, 420), 8 p. m., weekly bedtime travel tales; Saint Mary's concert choir.

KOKA, East Pittsburgh, Pa. (Eastern, 309.1), 6:15 p. m., dinner concert; 7:30, children's period; 8:30, concert; 11, Pittsburgh Post studio concert.

KFOM, Beaumont, Tex. (Central, 315.6), 8 p. m., musical program, members of Magnolia Petroleum company.

KFI, Los Angeles, Calif. (Pacific, 467), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, speaker; 7-8, program, Hills Bros., presenting dinner music; 8-9, Aeolian residence pipe organ studio, Dan McFarland, organist; 9-10, Examiner, Long Beach Municipal band; 10-11, Packard Ballad hour, Rhue Gill and Bess Rudisill, the melody girls.

KFOA, Seattle, Wash. (Pacific, 455), 6:45-8:15 p. m., Rhodes' Department store; 8:30-10, Times dance music; Toots Bates Pavilion orchestra; Harold Weeks, song composer; 10:05-11, Olympic hotel dance music.

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

KFSG, Los Angeles, Calif. (Pacific, 278), 6:30-7:30 p. m., children's hour with Harry James Beardsley (Cousin Jim); Eugene Lamb, pianist.

KGO, Oakland, Calif. (Pacific, 300), 8 p. m., Antonio de Grassi, violinist; Maxine Cox, pianist; 10-1 a. m., dance music, Henry Halstead's orchestra.

KGW, Portland, Ore. (Pacific, 492), 5 p. m., children's program, story, Uncle Dave; 8, Oregon Agricultural college extension service lecture; 8:30, concert, Mt. Angel College Jubilee minstrels; 10, Multnomah hotel strollers.

KHJ, Los Angeles, Calif. (Pacific, 404), 6-6:30 p. m., Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, little stories, American history, Prof. Walter Sylvester Hertzog; weekly visit of Queen Titania and Sandman from Fairyland, Uncle John and Louis F. Klein, harmonica and autoharp soloists; 7:45, "Income Tax," Capt. John T. Riley; 8-10, program, Julie Keller trio, Peerless Products company; 10-11, Earl Burnett's Biltmore hotel dance orchestra.

KIS, Los Angeles, Calif. (Pacific, 293), 8-9:30 p. m., vocal and instrumental program, Prof. J. B. Trowbridge.

KHX, Hollywood, Calif. (Pacific, 337), 5:45-6:15 p. m., Wurlitzer studio; sports talk, Sid Ziff; 6:20-7:30, dinner hour music, R. C. "Cliff" Durant; 8-9, program, First National and Pacific-Southwest banks; 9-10, KNX feature program; 10-12, movie night, Ambassador hotel, Town Orier, introducing celebrities over microphone, Abe Lyman's Cocomat Grove dance orchestra.

KOA, Denver, Colo. (Mountain, 322.4), 6-6:30 p. m., dinner music, News-Times.

KSAC, Manhattan, Kan. (Central, 340.7), 7:20 p. m., college bell and music; 7:30, "Fertilizing Alfalfa," R. I. Throckmorton; 7:40, music, Mrs. G. W. Salisbury, director; 7:50, "Operating the Incubator," L. F. Payne.

KSO, St. Louis, Mo. (Central, 545.1), 6 p. m., concert, Benjamin Rader's orchestra; 9, studio recital, Clarence H. Hogue, tenor; Paul Friess, pianist; "Interior Decorating as a Fine Art," Paul Valenti.

Briggs, humorist; Famous Four; Al Phillips, tenor; Joe Ward's Banjo Phinds, banjo sextet; Wally Johnson and Ed. Walsh; David Krueger, violinist; American trio; 12-1:30, Pirate Ship.

WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kay-bee; 7:45, special feature; 8:30, Gold Dust twins; 9, Eveready hour; 10, concert, Goodrich Silvertown Cord orchestra; 11, late concert.

WCAU, Philadelphia, Pa. (Eastern, 278), 7:30 p. m., concert, Snellenburg Choral society, direction Henry Gordon Thunder; 8, talk, Clara Zillesen; 8:15, talk, "Dry Cleaning"; 8:50, recital.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 5:30 p. m., children's hour, Gold Medal lady; 6:30, Original George Osborn's Nicollet hotel concert orchestra; 7:30, "Income Tax Returns," Charles Preston; 7:45, "Bankers' Hobbies," Emil A. Bole.

WCX, Detroit, Mich. (Eastern, 516.9), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program; 10, the Red Apple club.

WOAF, Kansas City, Mo. (Central, 365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; Radio piano lessons, Maudellen Littlefield; Trianon ensemble; 11:45-1 a. m., "Newman Nighthawk Night."

WOWF, Providence, R. I. (Eastern, 440.9), 9:30-10:30 p. m., Vincent Lopez Arcadia dance orchestra.

WEAF, New York, N. Y. (Eastern, 491.5), 11-11:15 a. m., Bee Lavinhurst, pianist; 4-4:15 p. m., Maude Killam, pianist; 4:15-4:30, Elizabeth Heslop, mezzo soprano; 4:30-5, Women's program; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:15, Esther Cadkin, soprano; 7:15-7:30, Theodore Lobmann, violinist; 7:30-7:45, Elsie Nesbit, soprano; 7:45-8, LeRoy Fisher, baritone; 8-8:15, talk, Bank of America; 8:30-9, Gold Dust Twins; 9-10, Eveready hour; 10-11, Goodrich Cord company.

WEAR, Cleveland, Ohio (Eastern, 390), 7 p. m., program arranged by the Cleveland News-Leader; bedtime story; Don Palmer, Radio talk cartoon, studio program.

WEBB, Chicago, Ill. (Central, 370.2), 7 p. m., Orlole orchestra; Dan Ruseo, Ted Florida; musical bits, Riviera theater; 9, Orlole orchestra; talk on personality, M. S. Szymczak; Dennis Sisters; Orlole orchestra; Loos Brothers; Nick Lucas.

WGY, Schenectady, N. Y. (Eastern, 375.9), 6:30 p. m., New Kenmore hotel orchestra; 7:30, Rice string quartet, Rose Mountain, contralto; 9, Brunswick hour of music; Third National music memory contest; 11:15, Stephen E. Bolsclair, organist.

WHAS, Louisville, Ky. (Central, 399.8), 7:30-9 p. m., concert, Carl Zoeller's melodists; chapter of the "Billy and Jane" stories, James Speed.

WHB, Kansas City, Mo. (Central, 365.6), 7-7:30 p. m., dinner hour concert, Music Masters, Gilbert Jaffey, director; 8-10, Indian musical program, Mary Red Eagle, Chief Standing Elk; "Meaning of an Education," Dr. James W. Field; Bill Lynch and his orchestra.

WHK, Cleveland, Ohio (Eastern, 390), 6:15 p. m., News items; 6:30, Emerson Gill's Bamboo Garden orchestra; 7:30 p. m., Al Dister's orchestra; Mrs. Miriam Ward, contralto; Alex Worth, tenor.

WIP, Philadelphia, Pa. (Eastern, 508.2), 6:05 p. m., songs, Mark Fisher, Joe Burke; 8:15, Harvey Marburger and his vaudeville orchestra; 7, Uncle Wip's bedtime stories; 8, dramatic review, Elliott Lester; 8:15, Philadelphia police band; 9, Grace Kuschner, pianist; 10:05, "Emo's Weekly Movie Broadcast," Eli M. Orowitz; 10:30, Harvey Marburger's vaudeville dance orchestra.

WJY, New York, N. Y. (Eastern, 405.2), 8:15-10 p. m., American Orchestral concert, direct from MacMillan theater at Columbia university; 10-10:15, talk, Prof. Emory Holloway of Doubleday Page.

WKAQ, San Juan, P. R. (Intercolonial, 340.7), 9-10:30 p. m., Euterpe jazz band.

WMAK, Lockport, N. Y. (Eastern, 265.5), 8 p. m., W. W. C. A. Girl reserves.

WMAQ, Chicago, Ill. (Central, 447.5), 6 p. m., Chicago theater organ; 6:25, Hotel LaSalle orchestra; 6:50, Daddy; 8, Bush Conservatory orchestra.

WMC, Memphis, Tenn. (Central, 499.7), 8 p. m., lecture, Goodwyn institute, Robert Parker Miles, director; 11, midnight frolic.

WNYC, New York, N. Y. (Eastern, 526), 7:35-7:45 p. m., sports talk, Thornton Fisher; 8:30-10, program under auspices of American Association of Engineers; 10:10-10:30, Board of Education Lecture service.

WJZ, New York, N. Y. (Eastern, 454.3), 4-4:15 p. m., Hazel Dudley, soprano; 4:15-5, Louis V. Tackel, tenor; 5-5:30, "Tuesday Afternoon" at the Plaza,

WSS, Atlanta, Ga. (Central, 429), 5-6 p. m., songs and bedtime story, Bonnie Barnhardt; 8-9, Vick Myers' Melody artists; 10:45, program, Bess-Merrill, mezzo-soprano, director.

WTAM, Cleveland, Ohio (Eastern, 390), 6 p. m., Maurice Spitalny's Hotel Statler orchestra.

WTAY, Oak Park, Ill. (Central, 250), 6:15-6:30 p. m., organ; Parkview theater; 9-9:30, Sandy Meek, baritone; Ray Kroc, pianist; Raynor Dalheim & company orchestra.

WVJ, Detroit, Mich. (Eastern, 352.7), 6 p. m., dinner concert; 7, soloists.

Wednesday, February 18

Wednesday, silent night for: CKAC, CHNC, CKY, KFD, KFKU, KFAA, KGO, KJS, KSD, WBAV, WCB, WOF, WFX, WFI, WFW, WGST, WHAZ, WJY, WLBL, WMAK, WMC, WQAW, WOAI, WOI, WORO, WIP, WROE, WSAI, WSUI.

CFCA, Toronto, Can. (Eastern, 350), 8:15 p. m., Toronto Oratorio society's Mendelssohn's "St. Paul."

CNRC, Calgary, Can. (Mountain, 450), 9 p. m., studio program, Augustine Arlidge and party; A. Phillips, violinist; dance program, Plaza cabaret.

CNRD, Ottawa, Ont. (Eastern, 435), 7 p. m., half-hour talk for boys and girls, Uncle Dick; 8, dinner concert, James McIntyre and his Chateau Laurier hotel orchestra; Elgar mixed quartet; Mrs. Frank Bird, pianist; Hawaiian orchestra; Mrs. Robertson, soprano; address, H. H. Melanson; J. L. Dodginton, tenor; James McIntyre and his Chateau Laurier hotel orchestra.

PNR, Ottawa, Ont. (Eastern, 400), 8:30 p. m., Band of the Cuban navy; Mrs. Caridad de Miguel and member of her academy.

KOKA, East Pittsburgh, Pa. (Eastern, 309.1), 6:15 p. m., dinner concert, Gregorio Scalzo, conductor; 7:30, children's period; 8:15, address, University of Pittsburgh studio; 8:30, concert.

(Continued on page 12)

FRANCIS MACMILLEN, AMERICAN

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 14: 6, WMAQ; 6:30, KDKA; 7, WBCN, WQJ; 7:20, WLS; 7:30, WNYC; 8, KYW, WBCN; 8:30, WCCO; 9, WBCN, WEBH, WJZ, WMAQ, WTAY; 9:15, WGBS, WJZ, WTAY; 9:35, WGBS; 10, KGO, WBCN; 10:30, WQJ; 10:45, WSB; 11, WBCN, WEBH, WQJ; 11:30, WQJ; 12, WBCN, WQJ; 1, KNX, WQJ.

Sunday, February 15: 6:20, WEBE; 7, WEBH; 8, WBCN; 9, WBCN; 9:30, WFAA; 10, KHJ; 11, KNX, WBAP, 12, WBCN.

Monday, February 16: 6:15, WFAF; 6:45, WOAW; 7, WBAP; 7:15, WGR; 7:30, WFAF, WHO; 8, WLW; 8:25, WNYC; 8:30, WCCO; 9, WGR, WOAW; 9:30, WBAP; 10, KFI, KNX, WOC, WOI; 11, KFI.

Tuesday, February 17: 6:15, WEBE; 6:30, WGY, WTAY; 7, WBAP; 7:30, WCAE, WFAF, WEBE, WFI, WNYC; 8, WBCN, WCAE, WFAF, WHB; 8:45, CFAC; 9, CKY, KFI, WBCN, WFAF, WEBH; 10, KHJ, KNX, KYW, WBCN, WQJ; 10:40, WLW; 11, KNX, WBCN, WEBH, WMC, WQJ; 12, KFI, KNX, WBCN, WQJ; 1, WQJ.

Wednesday, February 18: 6:45, WCAE; 7, WHB; 7:15, WGR, WLIT; 7:30, WBAP, WHO; 8, WBCN, WHO; 9, WBCN, WEBH, WEBE, WTAY; 9:30, KFI, WEBE, WTAY; 9:45, KYW, 10, KHJ, KNX, WQJ; 10:30, KYW, 12, WQJ; 12:15, WTAY; 12:30, KYW, 1, WQJ.

Thursday, February 19: 6:30, WTAY; 6:45, WCAE, WFAF; 7, AT9, WHB, WLW; 7:15, WIP; 7:30, WNYC; 8, KSD, WBCN, WFI; 8:15, WREO; 8:20, KYW; 8:30, WFAA; 9, CFCA, WBCN, WEBH; 10, KFI, KHJ, KYW, WGN, WQJ, WSAI; 10:30, WBCN; 11, KFI, KHJ, KNX, WEBH, WLW, WQJ; 11:30, WBCN; 12, WBCN, WQJ, 1, WQJ.

Friday, February 20: 6, WWJ; 6:30, WTAY; 7, WBCN, WFAF; 7:30, WFAF, WEBE, WHO, WJY; 8, WBCN, WCCO, WDAF, WFAF; 8:30, KTHS, 9, KYW, WCCO, WDAF, WEBH, WOAW; 10, KFI, WGN, WQJ; 11, KYW, WEBH, WMC, WQJ; 12, KNX, KYW; 12:20, WQJ; 1, KYW, WQJ.

Classical

Saturday, February 14: 6, KGO, WBCN, WGN, WLW; 6:15, WTAY; 6:30, CKAC, KDKA, KFNF, WBZ, WGN, WLIT, WTAY; 6:45, WOAW; 7, CNRO, KYW, WBBR, WEBH, WFAF, WGY, WNYC; 7:15, WBZ, WJZ; 7:25, WFAF; 7:30, CKAC, KDKA, KFI, PWX, WCAE, WHAS; 7:50, WFAF; 8, KHJ, KSD, WFAF, WGN, WMC, WSB; 8:05, WBZ; 8:30, KTHS, WFAA; 8:45, KFOA, WBBR, WFAF, WGBS; 9, WOAW; 9:05, WBZ; 9:30, KNX, WBZ, WFAF; 9:45, WFAF; 10, KFI, WIP; 10:15, WGY; 11, KFQX, WFAA; 11:30, KYW, WOAW.

Sunday, February 15: 6, WORD; 6:30, WGY; 7, KYW, WBBR, WBCN, WJZ, WLS; 7:30, WFAA; 7:45, WGY; 8, WCB, WNYC, WQJ; 8:10, WBBR; 8:20, WFAF; 8:30, KHJ, KTHS, WIP, WJZ; 9, KFSG, KGW, KHJ, KNX, WOAW, WQJ, WSUI; 9:05, WBBR; 9:15, WCCO; 9:30, KTHS, WOAI, WOC; 10, KFI, KNX; 12, KFSG.

Monday, February 16: 6, WGN, WMAQ, WOAW; 6:30, KFNF, WEBE, WFAA, WGN, WGY, WMAQ, WOAW; 6:45, WCAE, WNYC; 7, CHNC, KFNU, WBBR; 7:30, KDKA, KFI, WCAE, WCX, WLIT, WFAF; 7:40, WBBR; 7:45, WCAE; 8, CHNC, KFDM, WCAE, WCB, WGR, WHAZ, WHO, WJZ, WOC, WORD; 8:15, WEMC, WREO; 8:25, WLIT; 8:30, KNX, KTHS, WFAA, WMC; 8:45, KFOA, WORD; 9, KOA, KSD, WFAF, WGST; 9:30, KFQX; 10, KGW, WCAE; 10:30, KFOA; 11, KFOA; 11:15, WHO.

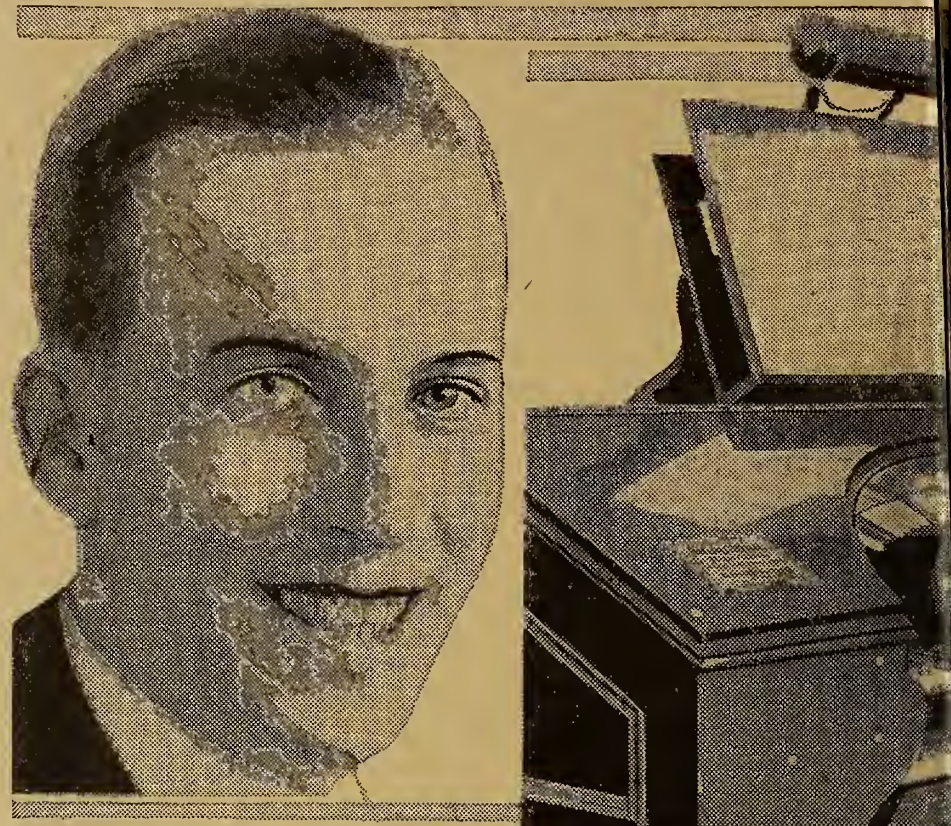
Tuesday, February 17: 6, KGO, KSD, WFAF, WGN, WLW, WMAQ, WRC, WWJ; 6:15, WTAY; 6:25, WOAW; 6:30, CKAC, WCAU, WCCO, WFAA, WGN; 6:45, WCAE, WFAF; 7, KYW, WBAP, WBCN, WEBH, WEBE, WHB, WQJ; 7:10, WRC; 7:15, WIP, WJY; 7:30, KDKA, WBAP, WCX, WHAS, WLW, WSAI; 8, KYW, WEBE, WFI, WGN, WGY, WIP, WJZ, WLBL, WMAK, WMAQ, WORD, WRC; 8:15, CKY; 8:30, KNX.

KTHS, WFAA, WOAI; 8:45, KFOA, KYW; 9, KSD, WCAE, WOAW, WRC; 9:10, WSAI; 9:15, WJZ; 9:30, WBAP; 10, KDKA, KFI, KGO, KHJ, WCAE, WLW; 10:15, WGY; 10:30, KGW; 11, KFI, KFQX, WFAA.

Wednesday, February 18: 6, KGO, WBAO, WGN, WKAQ, WLW, WMAQ; 6:30, KFNF, WFAF, WGN, WOO, WTAY; 7, KYW, WBCN, WEBH, WGY, WQJ; 7:15, WCAU, WFAF; 7:20, WFAF, WBAO; 7:30, KDKA, PWX, WCAE, WCX, WEBE, WHAS; 7:45, KNX, WCAU; 8, KHJ, KYW, WDAF, WEBE, WGN, WJZ, WLW, WOC; 8:15, WEMC; 8:30, KTHS, WMAQ; 8:45, CFAC, KFOA; 8:50, WEMC; 9, KFMY, KNX, KOA, KTHS, WCCO, WFAF, WHZ, WHO, WJZ; 9:20, WEMC; 10, KGW, WEBE; 10:15, WGY; 10:30, KFOA; 11, KFQX; 11:30, WCCO; 12, WTAY.

Thursday, February 19: 6, KGO, WGN, WLW, WMAQ, WORD; 6:15, WEBE, WTAY; 6:30, KFNF, WCCO, WFAA, WGN, WKAQ, WRC; 7, AT9, KDKA, KFNU, KYW, WBCN, WEBH, WEBE, WGST, WGY, WQJ; 7:15, WJY; 7:30, CHNC, KDKA, WBAP, WCX, WHAS; 7:40, WJZ; 7:45, KNX; 8, CKY, KHJ, WCB, WFAF, WGN, WHB, WIP, WMAQ; 8:15, WOI; 8:30, CNRM, KTHS, WJZ, WMC, WORD; 9, WCAE, WFAF, WHB, WOAW; 9:15, WMAQ; 9:30, KFQX, KTHS, WBAP; 10, CFAC, KDKA, KGO, KJS; 10:03, WLW; 10:30, KTHS; 11:15, KFSG; 12, KFI, KFSG.

Friday, February 20: 6, KGO, WGN, WMAQ; 6:15, WTAY; 6:30, KFNF, WCCO, WEBE, WFAA, WGN, WJY, WOAW, WOO; 6:45, WFAF; 7, KYW, WBAP, WEBH, WEBE, WHB, WQJ; 7:30, CNRT, KDKA, KFI, WBAP, WCAU, WCX, WHAS, KNYC, WOO; 7:45, KNX; 8, CFAC, KFDM, KHJ, WEBE, WGN, WHO, WOC; 8:15, CKY; 8:30, WCAE, WFAA; 8:45, KFI, KFOA; 9, WBCN, WEMC; 9:03, WOO; 9:15, WMAQ; 9:30, WBAP, WMC; 9:45, WEMC; 10, KNX, KOA; 11, KFI, KFQX; 11:15, KFSG; 12, KFI, KFSG.



Charlie Wellman (left), "The Prince of Jazz," directs the Saturday afternoon frolics of KHJ, Los Angeles, and is Chief Lost Angel of the midnight Lost Angels club of this same station. John Irwin, official organist of KPO, San Francisco, is shown at the console of the great Wurlitzer organ. Mrs. Ethel O. Hawes (right) has won so many kiddies' hearts through her bedtime stories at WEBH, Cleveland, that she receives many love letters from her tiny listeners.

WBAP, Fort Worth, Texas (Central, 475.9), 7:30-8:30 p. m., Jordan sisters, "Boots, Coots and Wren;" 9:30-10:45, dance program, Jim Riley's Texas hotel orchestra.

WBBR, New York, N. Y. (Eastern, 272.3), 8 p. m., Watchtower orchestra; 8:20, "The Earth to Be Made an Everlasting Paradise," H. H. Blomer; 8:45, Watchtower orchestra.

WBCN, Chicago, Ill. (Central, 266), 6-6:30 p. m., juvenile period, Luella Drew Wilson; 7-8, L. Christensen, Danish baritone; Julia Logan, contralto; Nina Campbell, soprano; Weber trio; 8-9, Amber Furniture company; Harry "Dream Daddy" Davis, baritone; Berger Webberg, tenor; Midway Dancing Gardens orchestra; Florence Tenney, blues singer; Southtown Harmonizers; 9-10, Englewood Overland company popular program; Midway Dancing Gardens orchestra; Les Cameron, tenor; Englewood string quintet; Harry J. Mapp; George Dell, baritone; "Big Boy" Yagle; 10-10:15, Midway Dancing Gardens orchestra.

WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, special feature; 8:30, one-act play and concert, students of Byron W. King's School of oratory.

WCAU, Philadelphia, Pa. (Eastern, 278), 6:30 p. m., Meyer Davis' Hotel Pennsylvania concert orchestra, direction Lon Chassy; 7:30, talk; 8:15, Breyer Leaf concert; 8:45, "N. B. T." boys' concert; 9:15, dance music, Southland seven.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 5:30 p. m., children's hour, Alpha Stalson; 6, sports talk; 7, Central Park M. E. church, Rev. W. C. Sainsbury, pastor; 9, Minneapolis Letter Carriers' band, J. M. Barrett, director; 10, the Original George Osborn's Nicollet hotel orchestra; 11:30, organ recital, Eddie Dunstetter.

WCK, Detroit, Mich. (Eastern, 516.9), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program.

WDAF, Kansas City, Mo. (Central, 365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; address, speaker, auspices Health Conservation association; address, speaker, Meat Council of Greater Kansas City; the Bell-Mc-Stay lady; music, Trianon ensemble; 8-9:15, varied musical program.

WEAF, New York, N. Y. (Eastern, 491.5), 12-12:30 p. m., chapel services, Columbia university; 4-4:40, Larry Funk and his Morl orchestra; 4:40-5, children's stories; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:30, services, United Synagogue of America; 7:30-7:50, Marie Thomas, Welsh contralto; 8:20-10, New York Philharmonic concert from Carnegie Hall; 10-10:40, Opera quartet; 11-12, Meyer Davis Lido Venice orchestra.

WEAO, Columbus, Ohio (Eastern, 294), 8 p. m., chimes concert, Prof. A. P. McManigal; 8:15, Radio talk, A. M. Rose; 8:20, musical program.

WEAR, Cleveland, Ohio (Eastern, 390), 7 p. m., Hotel Cleveland orchestra, Ivan Francis, director.

WEBH, Chicago, Ill. (Central, 370.2), 7 p. m., Oriole orchestra; talk on books of the day, Llewellyn Jones; H. J. Clement, bass; Elsie Clement, pianist; 9, Langdon Brothers, Hawaiian guitarists; Oriole orchestra; Marie Kelly, reader; Frederick Award, tenor; 11, Edna Solomon; Oriole orchestra; Langdon Brothers, Hawaiian guitarists; Nick Lucas; Marie Kelly, reader; Nubs Allen, soloist.

WEEI, Boston, Mass. (Eastern, 475.9), 6:30 p. m., big brother club; 7:15, program, Greater Boston Federation of churches; 7:45, Harry Einstein; 8, Traveler Shoe orchestra; 8:30, M. E. Coban's half-hour musicale; 9, Gillette Safety Razor opera company; 10, Mary Dyer and William Hughes; 10:30, Jack Griffith, Eddie McGinley; 11, Lloyd G. Del Castillo, organist.

WEMC, Berrien Springs, Mich. (Central, 285.5), 8:15 p. m., Arlene Burdick, violinist; 8:30, "Keeping That Schoolgirl Complexion," Dr. O. R. Cooper; 8:50, Louis P. Thorpe, saxophonist; 9:05, "Go Getters," Lyndon Skinner; 9:20, Martha Hutchinson, soprano.

WFI, Philadelphia, Pa. (Eastern, 395), 6:30 p. m., Meyer Davis' Bellevue Stratford concert orchestra; 7, Sunny Jim.

WGN, Chicago, Ill. (Central, 370.2), 6 p. m., organ concert, Lyon and Healy artists; 10-11, Don Bestor Drake dance orchestra.

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 Dealers' musical program; 6-7:30, dinner music; 8:15-10:15, musical specialties, including the N. Y. Philharmonic concert, jointly with WEAF; 11-1 a. m., supper-dance music, Vincent Lopez' Hotel Statler dance orchestra, Harold Gieser, director.

WGV, Schenectady, N. Y. (Eastern, 375.9), 6:30 p. m., children's program; 6:45, adventure story; 7, Strand theater orchestra.

WHA, Madison, Wis. (Central, 535.4), 9 p. m., University School of music, Sigma Alpha Iota; "Opportunities for Religious and Spiritual Culture at the University of Wisconsin," C. V. Hibbard.

WHAS, Louisville, Ky. (Central, 399.8), 7:30-9 p. m., Keith Kannard and his Kentucky ramblers; chapter of the "Billy and Jane" stories, James Speed.

WHB, Kansas City, Mo. (Central, 365.6), 7-8 p. m., musical program, Pekin cafe; original poem, Walt Flitkin; Rhea Sheldon, the lullaby lady, Harmony girls.

WHK, Cleveland, Ohio (Eastern, 273), 6:15 p. m., news items, music; bedtime story, Ethel O. Hawes.

WHO, Des Moines, Iowa (Central, 526), 6:30-9:45 p. m., Rocco-Dugos orchestra; music, "Elks' Carnival" Des

Moines theater symphonic orchestra, Leon A. Dashoff, director.

WIP, Philadelphia, Pa. (Eastern, 509.9), 6:05 p. m., Benjamin Franklin hotel concert orchestra; 7, Uncle Wip's bedtime stories.

WIZ, New York, N. Y. (Eastern, 454.3), 10:20-10:30 a. m., "Suppose Your Boy Were Homeless," New York Health Speaking service; 4-4:30 p. m., David H. Santrey, baritone; 9-10, New York university glea club; 10-10:15, Dr. H. D. Livingston, pianist.

WKAQ, San Juan, P. R. (Intercolonial, 340.7), 8-10 p. m., Municipal band.

WLIT, 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; 7:30, Dream Daddy's bedtime stories; 8:15, Atlantic City railroad band; 9:30, Cotton Pickers' dance orchestra; 10:05, Arcadia cafe dance orchestra.

WLS, Chicago, Ill. (Central, 344.6), 6:30 p. m., Ralph Emerson, organist; 6:50, Senate studio; 7, lullaby time, Ford and Glenn; 7:15, WLS Tribe Lone Scouts; 7:40, Thora Martins, contralto; 7:50, Bill Parks, pianist; 8, Ralph Emerson, organist; Ford and Glenn; 8:15, Nathaniel Christensen, artist from Norwegian opera; 9:10, dramatic hour, Wallace Bruea Amsbury; 9:30, Glenn's cornhuskers; 9:40, Senate symphony; 10, Garrett male quartet; 10:30, Isham Jones and his orchestra; 10:40, Ford and Glenn time.

WLW, Cincinnati, Ohio (Central, 423), 6 p. m., dinner hour concert, Selinsky instrumental quintet; 8, concert, Milnor trio; Clifford Lang, pianist; Cincinnati conservatory orchestra, Ralph Lyford, director; Formica orchestra, Walter Esberger, director.

WMAQ, Chicago, Ill. (Central, 447.5), 6 p. m., Chicago theater organ; 6:30, stories for the children, Georgene Faulkner; 8, weekly lecture, Northwestern university; 8:30, Madama Sturkow-Ryder, pianist; 9, WMAQ players.

WNYC, New York, N. Y. (Eastern, 526), 8:30-9:45 p. m., "Appreciation of Music," Dr. Henry T. Fleck at Hunter college; 9:45-10:30, dance program.

WOC, Davenport, Ia. (Central, 483.6), 7 p. m., sandman's visit, Val McLaughlin; 8, organ recital, B. J. Polmer residence, Erwin Swindell, Mr. McGregor, baritone.

WOO, Philadelphia, Pa. (Eastern, 509.9), 7:30 p. m., A. Candelori's ensemble from Hotel Adelphi; 8:15, concert from WEAF; 11, Vincent Rizzo's Hotel Sylvania dance orchestra.

WOS, Jefferson City, Mo. (Central, 440.9), 8 p. m., address, Russell Mumford, John Hombs; Nelson Memorial church.

WQJ, Chicago, Ill. (Central, 448), 11-12 m., "Should Homa Laundry Be a Drudgery or a Scientific Process?" Mrs. Wilbur E. Fribley; talk, Mary Hala Martin, home economics specialist; travel talk, Mrs. E. Tolman East; 3-4 p. m., "Seventh Lesson—Domestic Science Course," Helen Harrington Downing; "Butter and Eggs," Martha Logan; 7-8, dinner concert, Ralph Williams and his Rainbo Garden orchestra; Mace Gordon, soprano; Robert Metzler, Parisian pianist; 10-2 a. m., Ralph Williams and his Rainbo skyarks; Merrie Boyd Mitchell, soprano; James Mitchell, baritone; Rev. Karl Chworowski, pianist; Rogers boys, Larry and Billy; Clarence Thieders, tenor; Alfred Tweed, harmonica and guitar soloist; melodians, Laurie, Eddie, Bennie; George Little, Larry Shay, song writers; Fred A. Jacobson, monologist; Zelig sisters, Pauline, Sorab.

WSB, Atlanta, Ga. (Central, 429), 5-6 p. m., songs and bedtime story, Bonnie Barnhardt; 10:45, Ritz Harmony boys' dance orchestra.

WTAM, Cleveland, Ohio (Eastern, 390), 6 p. m., Guy Lombardo's Royal Canadians orchestra; 8, program arranged by the Cleveland Plain Dealer; "Another Night in Dixie"; Original Bessie Brown of plantation days; Maxwell quartet.

WTAY, Oak Park, Ill. (Central, 250), 6:30-7:30 p. m., Welcome Kirby, pianist; Petersen sisters; 9:9:15, organ, Parthenon theater, Al. Midgard, organist; 9:15-10, Nylphona Harmony kings; Melody girls; Laster Kelsey, tenor; Ray Kroe, pianist; 12-12:15 a. m., Parthenon theater organ; 12:15-1, popular program.

WVI, Detroit, Mich. (Eastern, 352.7), 6 p. m., dinner concert; 7, Detroit News orchestra.

Wednesday, February 18

(Continued from page 11)

KFI, Los Angeles, Calif. (Pacific, 467), 5:30-6 p. m., Examiner's musical half hour; 6:45-7:30, detective stories, Nick Harris; 7:30-8, program, Goodwin-Killger-Mekay company, presenting a male quartet; 8-9, Evening Herald, program, Dr. Marian Tracie Whiting; 9-10, Examiner, Wampus movie night, presenting many famous stars and baby stars; 10-11, Patrick Marsh's dance orchestra, Betty Marsh, soloist.

KFMX, Northfield, Minn. (Central, 336.9), 9 p. m., Carleton Girls' glee club; French horn quartet; Marie Sloss, pianist; Ernestine Donaldson, violinist.

KFNF, Shenandoah, Iowa (Central, 266), 6:30 p. m., Rathe brothers.

KFOA, Seattle, Wash. (Pacific, 455), 6:45-8:15 p. m., Hopper Kelly company studio program; 8:30-10, Orpheon society concert.

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

KFSG, Los Angeles, Calif. (Pacific, 278), 6:30-7:30 p. m., children's hour, with Helen Edwina and Mary Elizabeth Hughes, Mrs. Rose, pianist.

KGW, Portland, Ore. (Pacific, 492), 8 p. m., concert, Mu Phi Epsilon; 10, Multnomah hotel strollers.

KHJ, Los Angeles, Calif. (Pacific, 404), 12:30-1:30 p. m., Coy Barkley and his Palace ballroom orchestra; 2:30-3:30, matinee musicale, Pacific States Electric

company; 6-6:30, Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, stories, American history, Prof. Walter Sylvester Herzog; Dick Winslow, juvenile reporter; 8-10, program, American Society of Engineers; 10-11, Earl Burtrott's Biltmore hotel dance orchestra.

KNX, Hollywood, Calif. (Pacific, 337), 5:15-6:15 p. m., Wurlitzer pipe organ studio, Sid Ziffis, sports talk; 7-8, Ambassador hotel concert orchestra, Josef Rosenfeld, director; 8-9, program, Carson-Baruch Baking company; 9-10, program, Gordon and Harrison; 10-12, Hollywoodland dance orchestra.

KOA, Denver, Colo. (Mountain, 322.4), 8 p. m., dramatic sketch from "Madame Butterfly," one-act play, "A Trick of the Trade," KOA players; vocal solos, Mme. Elsa Weffing-Welker; Florence MacKay, pianist; Ella Blanchette, reader; "Avoiding Risks in Investments," Claude K. Boettcher.

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

KSAC, Manhattan, Kan. (Central, 340.7), 7:20 p. m., college bell and music; 7:30, "A Proposed Farm of Organization," L. E. Conrad; "Why Build of Permanent Materials," H. B. Wicher.

KTHS, Hot Springs National Park, Ark. (Central, 375), 8:30-9 p. m., Prof. Jack Renard, violinist; 9-10, Meyer Davis-New Arlington ensemble, Jack Renard, director; 10-11, Charles L. Fisher and his 11-piece Eastman hotel orchestra.

KYW, Chicago, Ill. (Central, 535.4), 6:35-7 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 8-8:30, Hazel O'Neil, soprano; William Hoke, tenor; James R. Keyes, baritone; Victor Hatfield, poet; Susie Hatfield, pianist; 8:30-8:45, around the town with KYW; "Income Tax," Archibald Harris; 9:45-1 a. m., midnight revue; 1-2, midnight sons, Coon-Banders Original nightawks;

PLINIST, RETURNS MONDAY TO KSD



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 14: 6, WDAF, WFAF, WQAW; 6:15, WBZ; 6:30, WFAF, WGY, WQAW; 6:45, KDKA, WGY; 7, WCAE, WJZ; 7:15, WFAF; 7:30, CNRO; 8, WCCO; 8:15, WBBR, WCCO; 8:30, KHJ, WGBS, WJZ, WMAQ; 8:45, KFI; 9:05, KYW; 9:15, KYW; 9:45, KFI, KHJ; 10, KNX.

Sunday, February 15: 8:20, KSAC; 8:35, WBBR; 8:45, KFI.

Monday, February 16: 6, WCCO, WDAF; 6:35, WNYC; 7, WFAF; 7:15, KDKA, KFKU; 7:20, WSAC, WBBR, WOC; 7:30, KDKA, KFKU, WHA; 7:45, KFKU, WGR, WJZ; 8, WCCO, WOS; 8:15, CFAC, WCCO; 8:30, KOB; 9:35, WNYC; 10, KGO.

Tuesday, February 17: 6, WDAF, WQAW; 6:50, WLIT; 7, WCAU, WIP, WRC; 7:10, WJZ; 7:15, WCAU; 7:30, CKY, KSAC, WCCO, WRC; 7:45, WCCO; 8, WMC; 8:20, KYW; 8:30, KHJ; 8:45, KFI; 9, WJZ, WSAJ;

Wednesday, February 18: 6, WCCO, WDAF; 6:30, WCAU, WGY; 6:35, WNYC; 6:45, WGY; 7:15, KDKA, WMAQ; 7:30, KSAC, WNYC; 8, WMAQ, WOS; 8:15, CFCA; 8:30, KHJ, KOB, KYW, WEMC; 8:45, KFI; 9, WMAQ; 9:05, WEMC.

Thursday, February 19: 6, WDAF; 6:30, WFAF, WGY, WRC; 6:45, WGY; 7, WDFW, WFAF, WIP; 7:20, WOC; 7:30, CKY, KSAC, WCCO, WFAF; 7:33, KYW; 7:45, WCCO; 8, WFAF, WCCO; 8:15, WCCO; 8:30, WBCN; 8:45, KFI, KHJ; 8:50, WMAQ; 9:15, KYW.

Friday, February 20: 6, WCCO, WDAF; 6:30, WCAU; 7, WDFW, WHE, WLIT; 7:10, WLIT; 7:15, KDKA, WQAW; 7:20, WOC; 7:30, CKY, KSAC, WCCO; 8, WMAQ, WOS; 8:30, KHJ, KOA, WMAQ; 10, KGW, KHJ.

Wurlitzer pipe organ studio, Sid Ziff; sports talk; 6:15-7:30, Ziegler's orchestra, sponsored by L. A. Society of Optometrists; 8-9, program, Davis Standard Broad company; 9-10, KNX feature; program; 10-11, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel.

KSAC, Manhattan, Kan. (Central, 340.7), 7:20 p. m., college bell and music; 7:30, "Treatment of Wall Surface," Araminta Holman; 7:40, music, Mrs. G. W. Salisbury; 7:50, "Catering to That Sweet Tooth," Margaret Ahlbin; 8:30, Songs and stories, Prof. P. P. Brainard, D. H. T. Hill.

KSQ, St. Louis, Mo. (Central, 545.1), 8 p. m., Alma C. Hollman, reader; Jesse Ward Meyers, violinist; Rev. B. L. Morris, baritone; "Milk Around the World," W. A. Foster.

KTSS, Hot Springs, National Park, Ark. (Central, 375), 8:30-11 p. m., special concert and frolic, Royal Peacock orchestra.

KYW, Chicago, Ill. (Central, 535.4), 6:35-7 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 7:30-7:59, "Grain Marketing and the Club Boys and Girls," Gray Silver; "Five New Facts About Corn," Arthur C. Page; 8-8:20, "Twenty Minutes of Good Reading," Rev. C. J. Perrin; 8:20-9:05, Mrs. Marvel Thoresen, soprano; Mrs. Neva Beck, accompanist; Edward J. Collins, tenor; Frances Sherman, pianist; Eunice Klewer, whistler; 9:15, "Safety First," Bert Vandervort; 10-11:30, evening at home.

WBAP, Fort Worth, Texas (Central, 475.9), 12:05-12:30 p. m., musical program; 7:30-8:30, musical program, J. W. Westbrook, director; 9:30-10:45, concert, artists of Texas Christian University, Prof. H. D. Guelick, director.

WBBR, New York, N. Y. (Eastern, 272.3), 9:10 p. m., Watchtower trio, Carl Park, Malcolm Carment, Chester Haugh; 9:25, Kay Macrae, coloratura soprano; 9:35, International Sunday school lesson, S. M. Van Sipma; 10, Kay Macrae, coloratura soprano; 10:15, Watchtower trio.

WBCN, Chicago, Ill. (Central, 266), 7-8 p. m., classical hour, Bethany Reformed Church of Roseland; 8-8:30, Billy Waldron, tenor; Archer Farrell, pianist; Midway Dancing Gardens orchestra; 8:30-9, Walton School of Commerce; 9-12, Elmer Jordan and company jamboree; Midway Dancing Gardens orchestra; Leona Fay, violinist; Larry Logan, tenor; Lindsay McPhail and Henrietta Holmes, pianist; Florence Eastman, mezzo-soprano; Madrid Duo; Mort Green and Ralph Norris; Louis Clark, tenor; Al Phillips, tenor; Rosemary Hughes, soprano; Elmer Jordan; 12-1, Wanda Worthington and Charles Cunningham, blues singers; Rosemary Hughes, soprano; Al Phillips, tenor; Merle Yagle, pianist; Louis Clark, tenor; Lindsay McPhail, pianist.

WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, special feature; 8, Moore's Cafeteria Radio review, E. R. Moores, manager; 9, concert, Atwater-Kent orchestra.

WCCO, Zion, Ill. (Central, 344.6), 8 p. m., J. D. Thomas, baritone; tenor and soprano solos, Mr. and Mrs. R. M. Steel; Mrs. Beem, contralto; Mrs. Crowe, contralto; G. W. Mason, cornetist; cornet and trombone duet, Mason and Mason; Mary Sweeney, soprano; tenor and baritone solo, Bull and Paxton; Mrs. Blanche Bishop, pianist.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 5:30 p. m., children's hour, Mrs. Charles Ramsdell; 6:30, concert, Dick Long's Nankin cafe orchestra; 7:30, lecture; 7:45, health talk; 8, "Beef Cattle Outlook," J. S. Montgomery; 8:15, "Feed Lot Problems," W. H. Peters; 10, Dick Long's Nankin cafe orchestra.

WCX, Detroit, Mich. (Eastern, 516.9), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program.

WOAF, Kansas City, Mo. (Central, 365.6), 6-7 p. m., piano tuning-in number on the Duo-Art, readings, Cecile Burton; address, series of book talks, Louis Mecker; bedtime story; music, Trianon ensemble; 11:45-1 a. m., Merry Old Chief, Plantation players.

WOWF, Providence, R. I. (Eastern, 440.9), 8 p. m., educational talks, Brown university.

WEAF, New York, N. Y. (Eastern, 491.5), 4-4:20 p. m., "These Eventful Years," Franklin H. Hooper; 4:20-4:35, Helen Muller, mezzo soprano; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:30, services, Federation of Greater New York churches; 7:30-7:45, Art talk; 7:45-8, Moeller trio; 8-8:20, Columbia university lecture course; 8:30-9, talk, Packard Motor Car company; 9-10, Atwater Kent Radio artists from Stations WEAF, WFEF, WJAR, WGB, WFL and WCAE; 10-10:15, Miriam Klyne, soprano; 10:15-10:30, Leon Kowick, baritone; 10:30-10:45, Harry Jentes, pianist; 11-12, Vincent Lopez and his Hotel Pennsylvania orchestra.

WEAR, Cleveland, Ohio (Eastern, 390), 7 p. m., Austin J. Hill's Golden-Thesam-Vocalion recording orchestra; 8, studio program, orchestral numbers.

WEBH, Chicago, Ill. (Central, 370.2), 7 p. m., Oriole orchestra; Margaret Fitzgerald, contralto; musical hits, Riviera theater; 9, Belle Forbes Cutter, soprano; John Stamford, tenor; Oriole orchestra; 11, Loos Brothers; Oriole orchestra; Banks Kennedy, pianist; Nick Lucas.

WEEL, Boston, Mass. (Eastern, 475.9), 6:30 p. m., big brother club; 7:15, Alpha ladies' trio; Mrs. Jessie Whitworth, soprano; 7:55, Pathe News flashes; 8, New York program.

WFAC, Dallas, Texas (Central, 475.9), 6:30-7:30 p. m., vespers recital, Jack A. Davis and his orchestra; 8:30-9:30, A. & M. College of Texas; 11-12, Frank Davenport and his orchestra.

WFI, Philadelphia, Pa. (Eastern, 395), 6:30 p. m., Meyer Davis' Bellevue Stratford concert orchestra; 7, Sunny Jim; 9, Atwater-Kent Radio artists.

WGN, Chicago, Ill. (Central, 370), 6 p. m., organ recital, Lyon and Healy; 6:30-7, Drake concert ensemble, Blackstone string quintet; 8-9, Mable Sharp Herdian, soprano; 10-11, Drake dance orchestra; Ned and Chess.

WGR, Buffalo, N. Y. (Eastern, 319), 12:30-1 p. m., Hotel Statler concert ensemble; 3:30-4:30, Radio Dealers' musical program; 7:30, dinner music, Hall-pryd string quartet; 8-9, Adam, Meldrum & Anderson concert; 9-10, Atwater-Kent concert with WEAF.

WGST, Atlanta, Ga. (Central, 270), 7-8 p. m., Frances Woodberry, soprano; Mrs. C. R. Prescott, contralto; Helen Schaid, pianist; Mrs. Mary Miller Trownsell, violinist; "Chivalry in the Old South," Edwin H. Folk.

WGY, Schenectady, N. Y. (Eastern, 375.9), 6:30 p. m., Hotel Ten Eyck orchestra; 7:30, new books, William F. Jacob; 7:45, "Manors of New York," Ernest C. Brown; 8, concert, Mendelssohn club, Dr. Frank Hill Rogers, director; 11:15, Stephen E. Bolsclair, organist.

WHAZ, Louisville, Ky. (Central, 393.3), 7:30-9 p. m., Happy Hoosier harmonists; four-minute digest of international Sunday school lesson; four-minute welfare talk.

WHB, Kansas City, Mo. (Central, 365.6), 7-7:30 p. m., dinner music, Pekin cafe; 8-10, old-time music program, M. R. Hays, director; "Past and Present," Dr. James V. Eiford.

WHK, Cleveland, Ohio (Eastern, 273), 6:15 p. m., news items, music; 7:30, farm hour; Al Dister's orchestra; Alex Worth, tenor; Mrs. Miriam Ward, contralto; Dean Smith, pianist; concert program arranged by the Cleveland Press.

WHO, Des Moines, Iowa (Central, 526), 11-12 midnight, Melo-Blue orchestra.

WIP, Philadelphia, Pa. (Eastern, 509.9), 6:05 p. m., Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtime stories; 8, "Health Work in the Schools," Dr. Walter S. Cornell; 8:15, Laserow quartet; 9, Philadelphia Quartet club concert; 11, Harvey Marburger and his vaudeville dance orchestra.

WJY, New York, N. Y. (Eastern, 405.2), 8:15-10 p. m., Mendelssohn Club Male chorus of Albany, from WGY, Schenectady; 10:15-11:15, Pierre's orchestra.

WJZ, New York, N. Y. (Eastern, 454.3), 4-5 p. m., The Melodians; 8:25-8:30, St. Paul's Cathedral address; 8:30-9:30, Pan-American program from WRC; 9:30-10:30, Church Club Annual dinner direct from Waldorf-Astoria.

WKAQ, San Juan, P. R. (Intercolonial, 340.7), 8:30-10 p. m., concert, Restaurant "La Cafetera."

WLIT, Philadelphia, Pa. (Eastern, 395), 4:30 p. m., Miriam J. Willico, soprano; Michael Luizzi, accompanist; Blanche Brunswick, pianist; 7:30, Dream Daddy's bedtime stories.

WLS, Chicago, Ill. (Central, 344.6), 6:30 p. m., Ralph Emerson, organist; 6:50, Senate studio artists; 7, lullaby time, Woodshed theater, Ford and Glenn; 7:20, Radio operetta.

WLW, Cincinnati, Ohio (Central, 423), 6 p. m., dinner hour concert, Selinsky instrumental quintet; 7, Golden Jubilee program, class of 1917, A. A. S. R. from Hotel Gibson; McMillan Masonic orchestra, soloists; Robert S. Alter, Vox-Ferro (hand saw); Prof. Frank Simon, George Dieterle, vocalist; A. K. Thomas, vocalist; Ed. G. Pfeifferle, pianist; address, A. L. Hehmer; 10, three-minute message, United States Civil Service department; 10:05, concert program, Cooper corporation, quartet, orchestra; 11, Doherty Melody boys; fourth in series of concert, Eta Chapter of Sigma-Franonian fraternity; vocal solos, John Crosby and Ieland Sheehy; Margaret Quinn, pianist; violin solos, Ray Baumgartner.

WMAK, Lockport, N. Y. (Eastern, 265.5), 12 midnight, Murray Whitman midnight serenades.

WMAQ, Chicago, Ill. (Central, 447.5), 6 p. m., Chicago theater organ; 6:25, Hotel LaSalle orchestra; 6:50, Daddy; 8, to be announced; 8:15, Boy Scout hour; 8:35, to be announced; 8:50, University of Chicago lecture; 9:15, program, Mrs. Louise H. Crum, soprano.

WMC, Memphis, Tenn. (Central, 499.7), 8:30 p. m., musical program, Bowers' Stores corporation.

WNYC, New York, N. Y. (Eastern, 526), 7:35-7:45 p. m., sports talk, Thornton Fisher; 8:30-9:30, program of music.

WOAW, Omaha, Nebr. (Central, 526), 6 p. m., every child's story hour, Grace Sorenson; 6:20, music; 6:45, Randall's Royal Fontenelle orchestra; 9, program, auspices Hannan-Van Brunt company, Ford and Lincoln dealers; 10:30, Frank W. Hodek, Jr., and his Omaha nightingales.

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

WOC, Oavenport, Ia. (Central, 483.6), 7 p. m., sandman's visit, Val McLaughlin; 7:20, educational lecture; 9, Schuster Sisters' California orchestra; 11, Louis Connor and his LeClare hotel orchestra; Jack Little and Paul Small, entertainers.

WOI, Ames Iowa (Central, 270), 8:15 p. m., music.

WOO, Philadelphia, Pa. (Eastern, 509.9), 4:45 p. m., organ recital, Mary E. Vogt.

WORO, Batavia, Ill. (Central, 275), 7 p. m., I. B. S. A. choral singers; 7:15, Florence Smith, pianist; 7:25, John T. Reed, bass; 7:35, I. B. S. A. choral singers; 7:50, lecture, Judge J. F. Rutherford; 8:30, Marvyl L. Lyon, soprano; 8:40, I. B. S. A. trio; 8:50, I. B. S. A. choral singers.

WQJ, Chicago, Ill. (Central, 448), 11-12 m., "Cheese for Lenten Meals," Erna Bertrams; "The New Styles for Spring," Mrs. Eleanor Chalmers; "Ice Cream Gossip," L. L. Jones; 3-4 p. m., "How They Cook It in Dixie," Josephine Naylor; "Light and Life," William Peulks; 7-8, dinner concert, Ralph Williams and his Rainbow Garden orchestra; Mrs. Lydia Lochner, contralto; Edith Buckmaster, accompanist; 10-2 a. m.,

Ralph Williams and his Rainbow skylarks; June Lee, comedienne; Axel Christensen, pianist; Hill, Hirsch, Gorney, Three Musketeers; Rosemary Hughes, soprano; James J. Malen, tenor.

WRC, Washington, D. C. (Eastern, 469), 6:45 p. m., children's hour, Peggy Albion; 7, Lee Rouse trio; 7:30, Latin American night, auspices Pan American union; address, Dr. Julius Klein, director; United States army band; Army band string quintet; Fred East, baritone; Ethel Holtzler Gawler, soprano; Estrella Amores, soprano; Asenelo Ralon, violinist; Madame Mertzaaga Hanenfeldt, pianist; 10:45, Club Deauville orchestra.

WREO, Lansing, Mich. (Eastern, 285.5), 8:15-9:45 p. m., Leo orchestra; Reo Male quartet; Raymond Lyon Bowers, tenor; Kenneth Buckingham, baritone.

WRSI, Cincinnati, Ohio (Central, 325.9), 10 p. m., Romany Reed and string quartet; Charles W. Partington, accordion soloist; Earl Whiting, clarinetist; Eugene Perazzo, violinist; David Brinkmoeller, pianist; Sam Pusateri, baritone; Ann Cockburn, pianist; Earl Whiting, clarinetist.

WSB, Atlanta, Ga. (Central, 429), 5-6 p. m., Vick Meyers' Melody artists; bedtime story, Bonnie Barnhardt; 8-9, Atlanta Music club chorus; 10:45, Dr. Charles A. Sheldon, organist.

WTAM, Cleveland, Ohio (Eastern, 390), 6 p. m., Guy Lombardo's Royal Canadians orchestra.

WTAY, Oak Park, Ill. (Central, 250), 6:15-6:30 p. m., Al Midgard, organist; 6:30-7:30, Ray Leuchter, baritone; Edward Barry, pianist; Thirza Mosher Farmer, soprano.

WVJ, Detroit, Mich. (Eastern, 352.7), 3 p. m., Detroit News orchestra; 6, dinner concert; 7, Detroit News orchestra; 10, dance music, Jean Goldkette's Victor Recording orchestra; 11:30, Detroit News orchestra.

Friday, February 20

Thursday, February 19

Thursday, silent night for: CHNC, KFAE, KFDM, KFMX, KFOA, KGW, KOA, KOB, PWX, WBAV, WCAU, WEO, WEMC, WHA, WHAZ, WHO, WJY, WLBL, WWO, WOS, WSUI.

AT9, Fort Bragg, N. C. (Eastern, 435), 8 p. m., program of old southern songs, McFadyen Music company; String band; harmonica and guitar solos, McFadyen and Smith; vocal solos, Lacy Graham; Lucy Currie, accompanist.

CHIC, Toronto, Can. (Eastern, 350), 8:30 p. m., Toronto conservatory trio, Frank Blachford, violinist; Leo Smith, cellist; Dr. Harvey Robb, pianist.

CKAC, Montreal, Can. (Eastern, 425), 8:30 p. m., Canadian National Railways.

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, Fort Garry hotel.

CNRC, Calgary, Can. (Mountain, 450), 9 p. m., bedtime travel tales; Aeolian quartet; David Morgan, tenor; George MacBeth, bass; C. A. Davis, pianist; M. W. Gill, flutist; J. T. Dunn, violinist; H. B. Davis, cellist.

CNRM, Montreal, Can. (Eastern, 425), 8:30 p. m., H. M. Canadian Grenadier Guards band; E. Mallet, cornetist; J. P. Livingstone, guitarist; address, H. H. Melanson.

CNRW, Winnipeg, Can. (Central, 450), 8:15 p. m., bedtime story, Margaret Sharpe, pianist; 8:30, Hazel Mills, soprano; Mrs. J. H. Waugh, contralto; Rev. R. Katsunoff, tenor; Ronald W. Gibson, pianist; Frank Redlich, cellist; F. D. Bradbrook, banjoist; "The Canadian Government Merchant Marine," 10, Frank Wright's Country club dance orchestra.

KDKA, East Pittsburgh, Pa. (Eastern, 309.1), 5 p. m., special concert being broadcast for South Africa; 6:15, KDKA Little Symphony orchestra, Victor Saudek, conductor; 7:30, children's period; 8, National Stockman and Farmer studio program; 8:30, concert; 11, Pittsburgh Post studio concert.

KFI, Los Angeles, Calif. (Pacific, 467), 5:30-6 p. m., Examiner's musical half hour; 6:45-7, Y. M. C. A. speaker; 7-8, dance orchestra; 8-9, Standard Oil company of California, presenting a musical comedy; 9-10, Examiner, program, League of American Penwomen; 10-11, all vocal recital.

KFKU, Lawrence, Kan. (Central, 275), 6:50 p. m., piano tuning-in numbers; 7, music; 7:15, "Planting for Winter Beauty," Prof. W. C. Stevens; 7:30, basketball game, K. U. vs. Drake U.; 8:30, "From Coal Tar to Dyes," Dr. Raymond Q. Brewster; 8:45, educational psychology, lesson VII, Dean E. A. Schwesler.

KFNF, Shenandoah, Iowa (Central, 266), 6:30 p. m., concert, Verden, Ben H. Schobor, director.

KGO, Oakland, Calif. (Pacific, 300), 8 p. m., program, San Francisco Chamber of commerce; address, Paul Shoup; Olga Petrova, stage and screen actress; address, Robert Newton Lynch; Charles F. Bulotti, tenor; Austin Sperry, baritone; Uda Waldron, pianist; music, California, Granada, Imperial, Low's Warfield theaters; 10-1 a. m., Henry Halstead's orchestra.

KFSG, Los Angeles, Calif. (Pacific, 278), 7:30-9:15 p. m., auditorium service and actrom, Almee Sempie McPherson, pastor; 9:15-10, studio program, Silver band, G. N. Nichols, director; 10-11, organ recital, Esther Fricke Green.

KHJ, Los Angeles, Calif. (Pacific, 404), 12:30-1:30 p. m., program, Loew's State theater; 2:30-3:30, program, Pacific States Electric company, Check Seal trio; 6-6:30, Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, stories American history, Prof. Walter Sylvester Hert; 7:05, bedtime story by Uncle John; 8-9, program, Morris, the tailor; 9-10, Piggly Wiggly girls' trio; 10-11, Earl Burntrott's Biltmore hotel dance orchestra.

KIS, Los Angeles, Calif. (Pacific, 293), 8-9:30 p. m., instrumental program of chamber music.

KNX, Hollywood, Calif. (Pacific, 337), 5:45-6:15 p. m.,

Wurlitzer pipe organ studio, Sid Ziff; sports talk; 6:15-7:30, Ziegler's orchestra, sponsored by L. A. Society of Optometrists; 8-9, program, Davis Standard Broad company; 9-10, KNX feature; program; 10-11, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel.

KSAC, Manhattan, Kan. (Central, 340.7), 7:20 p. m., college bell and music; 7:30, "Treatment of Wall Surface," Araminta Holman; 7:40, music, Mrs. G. W. Salisbury; 7:50, "Catering to That Sweet Tooth," Margaret Ahlbin; 8:30, Songs and stories, Prof. P. P. Brainard, D. H. T. Hill.

KSQ, St. Louis, Mo. (Central, 545.1), 8 p. m., Alma C. Hollman, reader; Jesse Ward Meyers, violinist; Rev. B. L. Morris, baritone; "Milk Around the World," W. A. Foster.

KTSS, Hot Springs, National Park, Ark. (Central, 375), 8:30-11 p. m., special concert and frolic, Royal Peacock orchestra.

KYW, Chicago, Ill. (Central, 535.4), 6:35-7 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 7:30-7:59, "Grain Marketing and the Club Boys and Girls," Gray Silver; "Five New Facts About Corn," Arthur C. Page; 8-8:20, "Twenty Minutes of Good Reading," Rev. C. J. Perrin; 8:20-9:05, Mrs. Marvel Thoresen, soprano; Mrs. Neva Beck, accompanist; Edward J. Collins, tenor; Frances Sherman, pianist; Eunice Klewer, whistler; 9:15, "Safety First," Bert Vandervort; 10-11:30, evening at home.

WBAP, Fort Worth, Texas (Central, 475.9), 12:05-12:30 p. m., musical program; 7:30-8:30, musical program, J. W. Westbrook, director; 9:30-10:45, concert, artists of Texas Christian University, Prof. H. D. Guelick, director.

WBBR, New York, N. Y. (Eastern, 272.3), 9:10 p. m., Watchtower trio, Carl Park, Malcolm Carment, Chester Haugh; 9:25, Kay Macrae, coloratura soprano; 9:35, International Sunday school lesson, S. M. Van Sipma; 10, Kay Macrae, coloratura soprano; 10:15, Watchtower trio.

WBCN, Chicago, Ill. (Central, 266), 7-8 p. m., classical hour, Bethany Reformed Church of Roseland; 8-8:30, Billy Waldron, tenor; Archer Farrell, pianist; Midway Dancing Gardens orchestra; 8:30-9, Walton School of Commerce; 9-12, Elmer Jordan and company jamboree; Midway Dancing Gardens orchestra; Leona Fay, violinist; Larry Logan, tenor; Lindsay McPhail and Henrietta Holmes, pianist; Florence Eastman, mezzo-soprano; Madrid Duo; Mort Green and Ralph Norris; Louis Clark, tenor; Al Phillips, tenor; Rosemary Hughes, soprano; Elmer Jordan; 12-1, Wanda Worthington and Charles Cunningham, blues singers; Rosemary Hughes, soprano; Al Phillips, tenor; Merle Yagle, pianist; Louis Clark, tenor; Lindsay McPhail, pianist.

WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, special feature; 8, Moore's Cafeteria Radio review, E. R. Moores, manager; 9, concert, Atwater-Kent orchestra.

WCCO, Zion, Ill. (Central, 344.6), 8 p. m., J. D. Thomas, baritone; tenor and soprano solos, Mr. and Mrs. R. M. Steel; Mrs. Beem, contralto; Mrs. Crowe, contralto; G. W. Mason, cornetist; cornet and trombone duet, Mason and Mason; Mary Sweeney, soprano; tenor and baritone solo, Bull and Paxton; Mrs. Blanche Bishop, pianist.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 5:30 p. m., children's hour, Mrs. Charles Ramsdell; 6:30, concert, Dick Long's Nankin cafe orchestra; 7:30, lecture; 7:45, health talk; 8, "Beef Cattle Outlook," J. S. Montgomery; 8:15, "Feed Lot Problems," W. H. Peters; 10, Dick Long's Nankin cafe orchestra.

WCX, Detroit, Mich. (Eastern, 516.9), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program.

WOAF, Kansas City, Mo. (Central, 365.6), 6-7 p. m., piano tuning-in number on the Duo-Art, readings, Cecile Burton; address, series of book talks, Louis Mecker; bedtime story; music, Trianon ensemble; 11:45-1 a. m., Merry Old Chief, Plantation players.

WOWF, Providence, R. I. (Eastern, 440.9), 8 p. m., educational talks, Brown university.

WEAF, New York, N. Y. (Eastern, 491.5), 4-4:20 p. m., "These Eventful Years," Franklin H. Hooper; 4:20-4:35, Helen Muller, mezzo soprano; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:30, services, Federation of Greater New York churches; 7:30-7:45, Art talk; 7:45-8, Moeller trio; 8-8:20, Columbia university lecture course; 8:30-9, talk, Packard Motor Car company; 9-10, Atwater Kent Radio artists from Stations WEAF, WFEF, WJAR, WGB, WFL and WCAE; 10-10:15, Miriam Klyne, soprano; 10:15-10:30, Leon Kowick, baritone; 10:30-10:45, Harry Jentes, pianist; 11-12, Vincent Lopez and his Hotel Pennsylvania orchestra.

WEAR, Cleveland, Ohio (Eastern, 390), 7 p. m., Austin J. Hill's Golden-Thesam-Vocalion recording orchestra; 8, studio program, orchestral numbers.

WEBH, Chicago, Ill. (Central, 370.2), 7 p. m., Oriole orchestra; Margaret Fitzgerald, contralto; musical hits, Riviera theater; 9, Belle Forbes Cutter, soprano; John Stamford, tenor; Oriole orchestra; 11, Loos Brothers; Oriole orchestra; Banks Kennedy, pianist; Nick Lucas.

WEEL, Boston, Mass. (Eastern, 475.9), 6:30 p. m., big brother club; 7:15, Alpha ladies' trio; Mrs. Jessie Whitworth, soprano; 7:55, Pathe News flashes; 8, New York program.

WFAC, Dallas, Texas (Central, 475.9), 6:30-7:30 p. m., vespers recital, Jack A. Davis and his orchestra; 8:30-9:30, A. & M. College of Texas; 11-12, Frank Davenport and his orchestra.

WFI, Philadelphia, Pa. (Eastern, 395), 6:30 p. m., Meyer Davis' Bellevue Stratford concert orchestra; 7, Sunny Jim; 9, Atwater-Kent Radio artists.

WGN, Chicago, Ill. (Central, 370), 6 p. m., organ recital, Lyon and Healy; 6:30-7, Drake concert ensemble, Blackstone string quintet; 8-9, Mable Sharp Herdian, soprano; 10-11, Drake dance orchestra; Ned and Chess.

WGR, Buffalo, N. Y. (Eastern, 319), 12:30-1 p. m., Hotel Statler concert ensemble; 3:30-4:30, Radio Dealers' musical program; 7:30, dinner music, Hall-pryd string quartet; 8-9, Adam, Meldrum & Anderson concert; 9-10, Atwater-Kent concert with WEAF.

WGST, Atlanta, Ga. (Central, 270), 7-8 p. m., Frances Woodberry, soprano; Mrs. C. R. Prescott, contralto; Helen Schaid, pianist; Mrs. Mary Miller Trownsell, violinist; "Chivalry in the Old South," Edwin H. Folk.

WGY, Schenectady, N. Y. (Eastern, 375.9), 6:30 p. m., Hotel Ten Eyck orchestra; 7:30, new books, William F. Jacob; 7:45, "Manors of New York," Ernest C. Brown; 8, concert, Mendelssohn club, Dr. Frank Hill Rogers, director; 11:15, Stephen E. Bolsclair, organist.

WHAZ, Louisville, Ky. (Central, 393.3), 7:30-9 p. m., Happy Hoosier harmonists; four-minute digest of international Sunday school lesson; four-minute welfare talk.

WHB, Kansas City, Mo. (Central, 365.6), 7-7:30 p. m., dinner music, Pekin cafe; 8-10, old-time music program, M. R. Hays, director; "Past and Present," Dr. James V. Eiford.

WHK, Cleveland, Ohio (Eastern, 273), 6:15 p. m., news items, music; 7:30, farm hour; Al Dister's orchestra; Alex Worth, tenor; Mrs. Miriam Ward, contralto; Dean Smith, pianist; concert program arranged by the Cleveland Press.

WHO, Des Moines, Iowa (Central, 526), 11-12 midnight, Melo-Blue orchestra.

WIP, Philadelphia, Pa. (Eastern, 509.9), 6:05 p. m., Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtime stories; 8, "Health Work in the Schools," Dr. Walter S. Cornell; 8:15, Laserow quartet; 9, Philadelphia Quartet club concert; 11, Harvey Marburger and his vaudeville dance orchestra.

WJY, New York, N. Y. (Eastern, 405.2), 8:15-10 p. m., Mendelssohn Club Male chorus of Albany, from WGY, Schenectady; 10:15-11:15, Pierre's orchestra.

WJZ, New York, N. Y. (Eastern, 454.3), 4-5 p. m., The Melodians; 8:25-8:30, St. Paul's Cathedral address; 8:30-9:30, Pan-American program from WRC; 9:30-10:30, Church Club Annual dinner direct from Waldorf-Astoria.

WKAQ, San Juan, P. R. (Intercolonial, 340.7), 8:30-10 p. m., concert, Restaurant "La Cafetera."

WLIT, Philadelphia, Pa. (Eastern, 395), 4:30 p. m., Miriam J. Willico, soprano; Michael Luizzi, accompanist; Blanche Brunswick, pianist; 7:30, Dream Daddy's bedtime stories.

WLS, Chicago, Ill. (Central, 344.6), 6:30 p. m., Ralph Emerson, organist; 6:50, Senate studio artists; 7, lullaby time, Woodshed theater, Ford and Glenn; 7:20, Radio operetta.

WLW, Cincinnati, Ohio (Central, 423), 6 p. m., dinner hour concert, Selinsky instrumental quintet; 7, Golden Jubilee program, class of 1917, A. A. S. R. from Hotel Gibson; McMillan Masonic orchestra, soloists; Robert S. Alter, Vox-Ferro (hand saw); Prof. Frank Simon, George Dieterle, vocalist; A. K. Thomas, vocalist; Ed. G. Pfeifferle, pianist; address, A. L. Hehmer; 10, three-minute message, United States Civil Service department; 10:05, concert program, Cooper corporation, quartet, orchestra; 11, Doherty Melody boys; fourth in series of concert, Eta Chapter of Sigma-Franonian fraternity; vocal solos, John Crosby and Ieland Sheehy; Margaret Quinn, pianist; violin solos, Ray Baumgartner.

WMAK, Lockport, N. Y. (Eastern, 265.5), 12 midnight, Murray Whitman midnight serenades.

WMAQ, Chicago, Ill. (Central, 447.5), 6 p. m., Chicago theater organ; 6:25, Hotel LaSalle orchestra; 6:50, Daddy; 8, to be announced; 8:15, Boy Scout hour; 8:35, to be announced; 8:50, University of Chicago lecture; 9:15, program, Mrs. Louise H. Crum, soprano.

WMC, Memphis, Tenn. (Central, 499.7), 8:30 p. m., musical program, Bowers' Stores corporation.

WNYC, New York, N. Y. (Eastern, 526), 7:35-7:45 p. m., sports talk, Thornton Fisher; 8:30-9:30, program of music.

WOAW, Omaha, Nebr. (Central, 526), 6 p. m., every child's story hour, Grace Sorenson; 6:20, music; 6:45, Randall's Royal Fontenelle orchestra; 9, program, auspices Hannan-Van Brunt company, Ford and Lincoln dealers; 10:30, Frank W. Hodek, Jr., and his Omaha nightingales.

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

WOC, Oavenport, Ia. (Central, 483.6), 7 p. m., sandman's visit, Val McLaughlin; 7:20, educational lecture; 9, Schuster Sisters' California orchestra; 11, Louis Connor and his LeClare hotel orchestra; Jack Little and Paul Small, entertainers.

WOI, Ames Iowa (Central, 270), 8:15 p. m., music.

WOO, Philadelphia, Pa. (Eastern, 509.9), 4:45 p. m., organ recital, Mary E. Vogt.

WORO, Batavia, Ill. (Central, 275), 7 p. m., I. B. S. A. choral singers; 7:15, Florence Smith, pianist; 7:25, John T. Reed, bass; 7:35, I. B. S. A. choral singers; 7:50, lecture, Judge J. F. Rutherford; 8:30, Marvyl L. Lyon, soprano; 8:40, I. B. S. A. trio; 8:50, I. B. S. A. choral singers.

WQJ

FRANCIS TRAMMELI, AN AMERICAN VIOLINIST, RETURNS HOME TO KANSAS



Francis Trammeli (left), "The Prince of Jazz," directs the Saturday afternoon follies of KKK, Los Angeles, and is Chief Lost Angel of the midnight Lost Angels club of this same station. John Irwin, official organist of KFO, San Francisco, is shown at the console of the great Wrutzler organ. Mrs. Ethel O. Hawes (right) has won so many kiddies' hearts through her bedtime stories at WEEB, Cleveland, that she receives many love letters from her tiny listeners.

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 14: 8, WMAQ; 6:30, KDKA; 7, WBCN, WQJ; 7:30, WLS; 7:30, WNYC; 8, KYW, WBCN; 8:30, WCCO; 9, WBCN, WEEB, WJZ; WMAQ, WTAY; 9:15, WGBS, WJZ; WTAY; 9:35, WGBS; 10, WGO; WBCN; 10:30, WQJ; 10:45, WGB; 11, WBCN; 11:30, WQJ; 11:30, WQJ; 12, WBCN, WQJ; 1, KNN, WQJ.

Sunday, February 15: 8:20, WEEB; 7, WEEB; 8, WBCN; 9, WBCN; 9:30, WFAA; 10, KHJ; 11, KNN, WBAF; 12, WBCN.

Monday, February 18: 8:15, WFAF; 7:30, WFAF, WHO; 8, WLS; 8:25, WNYC; 8:30, WCCO; 9, WGR, WQJ; 9:30, WBAF; 10, KFI, KNN, WOC; WOI; 11, KFI.

Tuesday, February 17: 8:15, WEEB; 8:30, WNY, WTAY; 7, WBAF; 7:30, WCAE, WFAF, WEEB, WFI, WQJ; 8, WBCN, WCAE, WFAF, WHR; 8:45, WFAA; 9, CKY, KFI, WGN, WFAF; 9:30, WNYC; 10, KFI, WBCN, WQJ; 10:40, WLS; 11, KNN, WBCN, WEEB, WFAF; 12, KFI, KNN, WBCN, WQJ; 1, WQJ.

Classical

Saturday, February 14: 6, KGO; WBCN, WGN, WLV; 8:15, WQJ; 8:30, CKAC, KFA, KFNE, WBZ; 9:30, WNYC, WLT, WTAY; 8:45, WQAW; 7, CNRO, KYW, WBBR, WEEB, WFAF, WGY, WNYC; 7:15, WZZ, WFAF; 7:25, WFAF, WCAE, WHAS; 7:30, WNYC; 8, KHJ, KSD, WFAF, WGN, WMC, WSA; 8:05, WFAE; 8:30, KTHS, WFAA; 8:45, KFOA, WBBB, WFAF, WGBS; 9, WQAW; 9:05, WBBZ; 9:30, KNN, WBEZ, WLS; 9:45, WFAF; 10, KFI, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Sunday, February 15: 6, WOPD; 8:30, WGY; 7, KYW, WBBR, WBCN, WJZ, WLS; 7:30, WLS; 7:45, WBBR; 8, WOPD; 8:30, WLS; 8:45, WBBR; 9:30, WFAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Monday, February 16: 8, WGN, WFAA, WGN, WGY, WMAQ, WQAW; 6:45, WCAE, WNYC; 7, CHNC, KFKU, WBBR; 7:30, KDKA, KFI, WCAE, WGN; 7:45, WLS; 7:45, WCAE; 8, CHNC, KDKA, WCAE, WCD, WGR, WJAZ, WIO, WJZ, WOC; 8:15, WNYC; 8:25, WNYC; 8:30, KNN, KTHS, WFAA, WMC; 8:45, KFOA, WOPD; 9, KOA, KSO, WFAF; 9:30, WFAA; 10, KGW, WCAE; 10:30, KFOA; 11, KFOA; 11:15, WIO.

Tuesday, February 17: 8, KGO, KSD, WFAF, WGN, WLS; 7:40, WNYC; 8:25, WQAW; 8:30, CKAC, WCAE, WFAF; 7, KYW, WBAF, WBCN, WEEB, WEEB, WIR, WQJ; 7:10, WRC; 7:15, WIP, WJZ; 7:30, KDKA, WFAF, WGBE, WFI, WGN, WLS; 8, KYW, WJZ, WLB, WMAK, WNYC; 8:30, KNN, WOPD.

Classical

Wednesday, February 18: 8:45, KFOA, KYW, RSO, WCAE, WQAW, WRC; 9:10, WSAI; 8:15, WJZ; 9:30, WBAF; 10, KDKA, KFI, KGO, KHJ, WCAE, WLS; 10:15, WQJ; 10:30, KGW; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Thursday, February 19: 8, KGO, WGN, WLS; 7:40, WQJ; 7:45, KNN; 8:30, WNYC; 8:45, WBBR, WFAF; 9:30, WFAA; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Friday, February 20: 6, WJZ; 6:30, WTAY; 7, WBCN, WFAF; 7:30, WFAF, WEEB, WHO, WJZ; 8, WBCN, WFAF, WOPD, WQJ; 8:30, KTHS; 9, KYW, WBAF, WBCN, WEEB, WQJ; 10:40, WLS; 11, KNN, WBCN, WEEB, WFAF; 12, KFI, KNN, WBCN, WQJ; 1, WQJ.

Classical

Saturday, February 14: 6, KGO; WBCN, WGN, WLV; 8:15, WQJ; 8:30, CKAC, KFA, KFNE, WBZ; 9:30, WNYC, WLT, WTAY; 8:45, WQAW; 7, CNRO, KYW, WBBR, WEEB, WFAF, WGY, WNYC; 7:15, WZZ, WFAF; 7:25, WFAF, WCAE, WHAS; 7:30, WNYC; 8, KHJ, KSD, WFAF, WGN, WMC, WSA; 8:05, WFAE; 8:30, KTHS, WFAA; 8:45, KFOA, WBBB, WFAF, WGBS; 9, WQAW; 9:05, WBBZ; 9:30, KNN, WBEZ, WLS; 9:45, WFAF; 10, KFI, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Sunday, February 15: 6, WOPD; 8:30, WGY; 7, KYW, WBBR, WBCN, WJZ, WLS; 7:30, WLS; 7:45, WBBR; 8, WOPD; 8:30, WLS; 8:45, WBBR; 9:30, WFAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Monday, February 16: 8, WGN, WFAA, WGN, WGY, WMAQ, WQAW; 6:45, WCAE, WNYC; 7, CHNC, KFKU, WBBR; 7:30, KDKA, KFI, WCAE, WGN; 7:45, WLS; 7:45, WCAE; 8, CHNC, KDKA, WCAE, WCD, WGR, WJAZ, WIO, WJZ, WOC; 8:15, WNYC; 8:25, WNYC; 8:30, KNN, KTHS, WFAA, WMC; 8:45, KFOA, WOPD; 9, KOA, KSO, WFAF; 9:30, WFAA; 10, KGW, WCAE; 10:30, KFOA; 11, KFOA; 11:15, WIO.

Tuesday, February 17: 8, KGO, KSD, WFAF, WGN, WLS; 7:40, WNYC; 8:25, WQAW; 8:30, CKAC, WCAE, WFAF; 7, KYW, WBAF, WBCN, WEEB, WEEB, WIR, WQJ; 7:10, WRC; 7:15, WIP, WJZ; 7:30, KDKA, WFAF, WGBE, WFI, WGN, WLS; 8, KYW, WJZ, WLB, WMAK, WNYC; 8:30, KNN, WOPD.

Classical

Wednesday, February 18: 8:45, KFOA, KYW, RSO, WCAE, WQAW, WRC; 9:10, WSAI; 8:15, WJZ; 9:30, WBAF; 10, KDKA, KFI, KGO, KHJ, WCAE, WLS; 10:15, WQJ; 10:30, KGW; 11, KFQX, WFAA; 11:30, KYW, WQAW.

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 14: 8, WDAF, WDAF, WQAW; 8:15, WBEZ; 8:30, WDAF, WGY, WQAW; 8:45, KDKA, WGY; 7, WCAE, WJZ; 7:15, WFAF; 7:30, CNRO; 8, WCCO; 8:15, WBBR, WCCO; 9:30, KFJ, WGBS; 9:15, WMAQ; 8:45, KFI, KTHS, WIP; 9:15, KYW; 9:45, KFI, KHJ; 10, KNN.

Sunday, February 15: 8:20, KSAC; 8:35, WBBR; 8:45, KFI.

Monday, February 16: 8, WCCO, WDAF; 8:35, WNYC; 7, WBAF; 7:15, KDKA; KFKU; 7:20, WSAE, WBBR; 7:45, WFAF; 8:30, KOKA, KFKU, WBA; 7:45, KFKU, WGR, WJZ; 8, WCCO, WOS; 8:15, CFAC, WCCO; 8:30, KOB; 8:35, WNYC; 10, KGO.

Tuesday, February 17: 8, WDAF, WDAF; 8:50, WLT; 7, WCAU, WIP, WRC; 7:10, WJZ; 7:15, WCAU; 7:30, CKY, KSAC, WCCO, WRC; 7:45, WCCO; 8, WMC; 8:20, KYW; 8:30, KHJ; 8:45, KFI; 9, WJY, WJZ, WSAI.

Wednesday, February 18: 6, WCCO, WDAF; 6:30, WCAU; 7, WDAF; 7:30, WCAU, WQAW; 8:15, WCCO, WNYC; 8:45, WGY; 7:15, KDKA, WBAO; 7:30, KSAC, WNYC, WNYC; 7:30, KSAAC, WCCO, WBAF; 7:30, KYW; 7:45, WCCO; 8, KYW, WCCO; 8:15, WCCO; 8:30, WBCN; 8:45, KFI, KHJ; 8:50, WMAQ; 9:15, KYW.

Thursday, February 19: 8, WDAF; 8:30, WDAF, WIP; 7:20, WQJ; 7:15, WCAU, WIP, WRC; 7:10, WJZ; 7:15, WCAU; 7:30, CKY, KSAC, WCCO, WRC; 7:45, WCCO; 8, WMC; 8:20, KYW; 8:30, KHJ; 8:45, KFI; 9, WJY, WJZ, WSAI.

Friday, February 20: 8, WCCO, WDAF; 8:30, WCAU; 7, WDAF; 7:30, WCAU, WQAW; 8:15, WCCO, WNYC; 8:45, WGY; 7:15, KDKA, WBAO; 7:30, KSAC, WNYC, WNYC; 7:30, KYW; 7:45, WCCO; 8, KYW, WCCO; 8:15, WCCO; 8:30, WBCN; 8:45, KFI, KHJ; 8:50, WMAQ; 9:15, KYW.

DANCING

(Central Time)

Thursday, February 19: 8:30, WNYC; 8:45, KDKA; 9:15, WJZ; 9:30, WBAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Friday, February 20: 8:30, WNYC; 8:45, KDKA; 9:15, WJZ; 9:30, WBAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Saturday, February 21: 8:30, WNYC; 8:45, KDKA; 9:15, WJZ; 9:30, WBAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Sunday, February 22: 8:30, WNYC; 8:45, KDKA; 9:15, WJZ; 9:30, WBAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Thursday, February 19

Thursday, February 19: 8:30, WNYC; 8:45, KDKA; 9:15, WJZ; 9:30, WBAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Friday, February 20: 8:30, WNYC; 8:45, KDKA; 9:15, WJZ; 9:30, WBAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Saturday, February 21: 8:30, WNYC; 8:45, KDKA; 9:15, WJZ; 9:30, WBAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Sunday, February 22: 8:30, WNYC; 8:45, KDKA; 9:15, WJZ; 9:30, WBAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Wednesday, February 18

(Continued from page 11)

HFI, Los Angeles, Calif. (Pacific, 467), 5:30-6 p. m., "Raminor" musical half hour; 6:45-7:30, "Theater of the Stars," radio play; 7:30-8:30, "Theater of the Stars," radio play; 8:30-9:30, "Theater of the Stars," radio play; 9:30-10:30, "Theater of the Stars," radio play; 10:30-11:30, "Theater of the Stars," radio play; 11:30-12:30, "Theater of the Stars," radio play.

KFO, Seattle, Wash. (Pacific, 238), 7:15-8 p. m., "Theater of the Stars," radio play; 8:30-9:30, "Theater of the Stars," radio play; 9:30-10:30, "Theater of the Stars," radio play; 10:30-11:30, "Theater of the Stars," radio play; 11:30-12:30, "Theater of the Stars," radio play.

HFG, Los Angeles, Calif. (Pacific, 278), 6:30-7:30 p. m., "Theater of the Stars," radio play; 7:30-8:30, "Theater of the Stars," radio play; 8:30-9:30, "Theater of the Stars," radio play; 9:30-10:30, "Theater of the Stars," radio play; 10:30-11:30, "Theater of the Stars," radio play; 11:30-12:30, "Theater of the Stars," radio play.

KFI, Los Angeles, Calif. (Pacific, 467), 5:30-6 p. m., "Raminor" musical half hour; 6:45-7:30, "Theater of the Stars," radio play; 7:30-8:30, "Theater of the Stars," radio play; 8:30-9:30, "Theater of the Stars," radio play; 9:30-10:30, "Theater of the Stars," radio play; 10:30-11:30, "Theater of the Stars," radio play; 11:30-12:30, "Theater of the Stars," radio play.

Friday, February 20

Friday, February 20: 8:30, WNYC; 8:45, KDKA; 9:15, WJZ; 9:30, WBAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Saturday, February 21: 8:30, WNYC; 8:45, KDKA; 9:15, WJZ; 9:30, WBAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

Sunday, February 22: 8:30, WNYC; 8:45, KDKA; 9:15, WJZ; 9:30, WBAF; 10, KFI, KTHS, WIP; 10:15, WQJ; 11, KFQX, WFAA; 11:30, KYW, WQAW.

(Continued on page 14)

WDAF;
5, WGY;
0, WOC;
WEAF;
1, KYW;
WBCN;
Q; 9:15,

WCCO,
WDWF,
R; 7:15,
C; 7:30,
Q, WOS;
J, KGW,

arks; June Lee,
Hill, Hirsch,
Hughes, soprano;
), 6:45 p. m.,
ee Rouse trio;
Pan American
director; United
quintet; Fred
awler, soprano;
Ralon, violinist;
t; 10:45, Club
), 8:15-9:45 p.
Raymond Lyon
baritone.
) 10 p. m.,
les W. Parting-
clarinetist; Eu-
moeller, pianist;
n, pianist; Earl
6 p. m., Vick
Bonnie Barn-
rus; 10:45, Dr.
, 6 p. m., Guy
3:15-6:30 p. m.,
y Luebt, bari-
sher Parmenter,
3 p. m., Detroit
Detroit New or-
ette's Victor Re-
chestra.

20

CHNC, KFKU,
WBRR, WBZ,
WHAZ, WIP,
WOL, WORD,

3:30 p. m., uni-
7:30 p. m.,
musical program,
C. H. Wright,
c. Joe Mazzeio
), 7:30 p. m.,
solos, pupils,
Lita Swain, so-
6:30-8 p. m.,
rd hotel concert
; Jessie Archer,
dress; 10:30-12,
rd hotel dance
) 6:15 p. m.,
7:30, children's
tsburgh studio;
8 p. m., Re-
5:30-6 p. m.,
Aeolian resi-
land, organist;
id's Syncopating
one; Juanita Russ,
one program, pupils
of Jay Plowe flute ensemble

KFI, Los Angeles, Calif. (Pacific, 467), 5:30-6 p. m.,
Examiner's musical half hour; 6:45-7, Y. M. C. A.
speaker; 7-8, dance orchestra; 8-9, Standard Oil com-
pany of California, presenting a musical comedy; 9-10,
Examiner, program, League of American Penwomen;
10-11, all vocal recital.
KFKU, Lawrence, Kan. (Central, 275), 6:50 p. m., piano
tuning-in numbers; 7, music; 7:15, "Planting for
Winter Beauty," Prof. W. C. Stevens; 7:30, basketball
game, K. U. vs. Drake U.; 8:30, "From Coal Tar to
Dyes," Dr. Raymond Q. Brewster; 8:45, educational
psychology, lesson VII, Dean R. A. Schwegler.
KFNF, Shenandoah, Iowa (Central, 266), 6:30 p. m.,
concert, Verden, Ben H. Schober, director.
KGO, Oakland, Calif. (Pacific, 300), 8 p. m., program,
San Francisco Chamber of Commerce; address, Paul
Shoup; Olga Petrova, stage and screen actress; address,
Robert Newton Lynch; Charles F. Bulotti, tenor; Austin
Sperry, baritone; Uda Waldron, pianist; music, Cali-
fornia, Granada, Imperial, Loew's Warfield theaters;
10-11 a. m., Henry Halstead's orchestra.
KFSG, Los Angeles, Calif. (Pacific, 278), 7:30-9:15
p. m., auditorium service and sermon, Almee Semple
McPherson, pastor; 9:15-10, studio program, Silver
band, G. N. Nichols, director; 10-11, organ recital,
Esther Fricke Green.
KHJ, Los Angeles, Calif. (Pacific, 404), 12:30-1:30
p. m., program, Loew's State theater; 2:30-3:30, pro-
gram, Pacific States Electric company, Check Seal
trio; 6-6:30, Art Hickman's Biltmore hotel concert
orchestra, Edward Fitzpatrick, director; 6:30-7:30,
stories American history, Prof. Walter Sylvester Hert-
zog; bedtime story by Uncle John; 8-9, program,
Morris, the tailor; 9-10, Plegby Wiggle girls' trio;
10-11, Earl Burnett's Biltmore hotel dance orchestra.
KJS, Los Angeles, Calif. (Pacific, 293), 8-9:30 p. m.,
Instrumental program of chamber music.
KNX, Hollywood, Calif. (Pacific, 337), 5:45-6:15 p. m.,

WCX, Detroit, Mich. (Eastern, 516.9), 4:15 p. m.,
musical program; 6, dinner concert, Book-Cadillac
hotel; 8:30, musical program.
WDAF, Kansas City, Mo. (Central, 365.6), 6-7 p. m.,
piano tuning-in number on the Duo-Art; readings,
Cecile Burton; address, series of book talks, Louis
Meeker; bedtime story; music, Trlanon ensemble; 11:45-
1 a. m., Merry Old Chief, Plantation players.
WDWF, Providence, R. I. (Eastern, 440.9), 8 p. m.,
educational talks, Brown university.
WEAF, New York, N. Y. (Eastern, 491.5), 4-4:20 p.
m., "These Eventful Years," Franklin H. Hooper;
4:20-4:35, Helen Muller, mezzo soprano; 6-7, dinner
music, Waldorf-Astoria hotel; 7-7:30, services, Feder-
ation of Greater New York churches; 7:30-7:45, Art
talk; 7:45-8, Moeller trio; 8-8:20, Columbia university
lecture course; 8:30-9, talk, Packard Motor Car com-
pany; 9-10, Atwater Kent Radio artists from Stations
WEAF, WEEL, WJAR, WGR, WFI, and WCAE;
10-10:15, Miriam Klyne, soprano; 10:15-10:30, Leon
Kowick, baritone; 10:30-10:45, Harry Jentes, pianist;
11-12, Vincent Lopez and his Hotel Pennsylvania
orchestra.
WEAR, Cleveland, Ohio (Eastern, 390), 7 p. m., Austin
J. Wylie's Golden Pheasant-Vocallon recording orches-
tra; 8, studio program, orchestral numbers.
WEBB, Chicago, Ill. (Central, 370.2), 7 p. m., Oriole
orchestra; Margaret Fitzgerald, contralto; musical bits,
Riviera theater; 9, Belle Forbes Cutler, soprano; John
Stamford, tenor; Oriole orchestra; 11, Loos Brothers;
Oriole orchestra; Banks Kennedy, pianist; Nick Lucas.
WEEI, Boston, Mass. (Eastern, 475.9), 6:30 p. m., big
brother club; 7:15, Alpha ladies' trio; Mrs. Jessie
Whitworth, soprano; 7:55, Pathe News flashes; 8, New
York program.
WFAA, Dallas, Texas (Central, 475.9), 6:30-7:30 p. m.,
vesper recital, Jack A. Davis and his orchestra; 8:30-
9:30, A. & M. College of Texas; 11-12, Frank Daven-
port and his orchestra.

8:35, to be announced; 8:50, University of Chicago
lecture; 9:15, program, Mrs. Louise H. Crum, soprano.
WMC, Memphis, Tenn. (Central, 499.7), 8:30 p. m., mu-
sical program, Bower's Stores corporation.
WNYC, New York, N. Y. (Eastern, 526), 7:35-7:45 p.
m., sports talk, Thornton Fisher; 8:30-9:30, program
of music.
WOAW, Omaha, Nebr. (Central, 526), 6 p. m., every
child's story hour, Grace Sorenson; 6:20, music; 6:45,
Randall's Royal Fontenelle orchestra; 9, program, aus-
pices Hannan-Van Brunt company, Ford and Lincoln
dealers; 10:30, Frank W. Hodek, Jr., and his Omaha
nightingales.
WOAI, San Antonio, Texas (Central, 394.5), 9:30 p. m.,
Jimmie Joy's Hotel St. Anthony orchestra.
WOC, Davenport, Ia. (Central, 483.6), 7 p. m., sand-
man's visit, Val McLaughlin; 7:20, educational lecture;
9, Schuster Sisters' California orchestra; 11, Louis
Connor and his LeClaire hotel orchestra; Jack Little
and Paul Small, entertainers.
WOL, Ames Iowa (Central, 270), 8:15 p. m., music.
WOO, Philadelphia, Pa. (Eastern, 509.9), 4:45 p. m.,
organ recital, Mary E. Vogt.
WORD, Batavia, Ill. (Central, 275), 7 p. m., I. B. S.
A. choral singers; 7:15, Florence Smith, pianist; 7:25,
John T. Read, bass; 7:35, I. B. S. A. choral singers;
7:50, lecture, Judge J. F. Rutherford; 8:30, Marvyl L.
Larson, soprano; 8:40, I. B. S. A. trio; 8:50, I. B. S.
A. choral singers.
WQJ, Chicago, Ill. (Central, 448), 11-12 m., "Cheese
for Lenten Meals," Erna Bertrams; "The New Styles
for Spring," Mrs. Eleanor Chalmers; "Ice Cream
Gossip," L. L. Jones; 3-4 p. m., "How They Cook
It in Dixie," Josephine Naylor; "Light and Life,"
William Faulks; 7-8, dinner concert, Ralph Williams
and his Rainbo Garden orchestra; Mrs. Lydia Lochner,
contralto; Edith Buckmaster, accompanist; 10-2 a. m.,

KFNF, Shenandoah, Iowa (Central, 266), 6:30 p. m.,
concert.
KFOA, Seattle, Wash. (Pacific, 455), 6:45-8:15 p. m.,
Sherman Clay and company; 8:30-10, Times studio pro-
gram, Nelle Duffy, Faith Rossiter; 10:05-11, Olympic
hotel dance music.
KFQX, Seattle, Wash. (Pacific, 238), 7:15 p. m., bed-
time story, Aunt Vivien; 8-9, Earl Gray and his
Hotel Butler orchestra; 9-10, concert hour; 10-11,
Earl Gray and his orchestra.
KFSG, Los Angeles, Calif. (Pacific, 278), 7:30-9:15
p. m., young people's night at Angelus temple, sermon,
Almee Semple McPherson, pastor; 9:15-10, concert,
Silver band, G. N. Nichols, director; talk on Radio,
N. E. Brown; 10-11, organ recital, Roy Reid Briggall.
KGW, Portland, Ore. (Pacific, 492), 8 p. m., lecture,
University of Oregon Extension division; 10:30, Hoot
Owl.
KHI, Los Angeles, Calif. (Pacific, 404), 12:30-1:30
p. m., Perry's orchestra; 2:30-3:30, matinee musicale,
Pacific States Electric company; 6-6:30, Art Hickman's
Biltmore hotel concert orchestra, Edward Fitzpatrick,
director; 6:30-7:30, little stories American history,
Prof. Walter Sylvester Hertzog; Richard Headrick,
screen starlet and Uncle John; 8-10, a trip through
Orange County, California, presented by Orange County
Farm bureau; 10-11, Earl Burnett's Biltmore hotel
dance orchestra.
KNX, Hollywood, Calif. (Pacific, 337), 5:45-6:15 p. m.,
Wurlitzer organ recital; sports talk, Sid Zitt; 6:30-
7:30, dinner hour music; 8-9, program, Columbia Out-
fitting company; 9-10, program, Eastern Outfitting com-
pany; 10-11, amateur hour; 11-12, Abe Lyman's Cocoa-
nut Grove orchestra from Ambassador hotel.
KOA, Denver, Colo. (Mountain, 222.4), 6:30 p. m.,
Book of Knowledge; 8, studio program, oratorio "St.
(Continued on page 14)

Friday, February 20

(Continued from page 13)

Paul, quartet, choir, orchestra, Grant Avenue Methodist Episcopal church, Milton P. Glvons, organist.

KOB, State College, N. M. (Mountain, 348.6), 7:30-8:30 p. m., readings, Mrs. Hugh M. Milton; popular science course, lesson 5, member of engineering faculty.

KSAC, Manhattan, Kan. (Central, 340.7), 7:20 p. m., college bell and quartet; 7:30, principles of insect control, J. W. McCulloch; 7:40, Radio college quartet; 7:50, "Control of Tomato and Cabbage Diseases," E. A. Stokdyk.

KTHS, Hot Springs National Park, Ark. (Central, 375), 8:30-10 p. m., minstrel show and frolic, Elks club.

KYW, Chicago, Ill. (Central, 535.4), 6:35-7 p. m., children's bedtime story, Uncle Bob; 7-7:30, dinner concert, Congress hotel; 8-10, midnight revue; 11-1 a. m., midnight revue; 1-2, "The Old Time, midnight revue; "Night Court" for the delinquents.

WBAP, Fort Worth, Texas (Central, 475.9), 7:30-8:30 p. m., Jim Riley's Texas hotel orchestra; 9:30-10:45, concert, Enterclub club.

WBAV, Columbus, Ohio (Eastern, 294), 8 p. m., old-time songs, Columbus Music bureau, arranged by R. C. Reither.

WBCN, Chicago, Ill. (Central, 266), 7-9 p. m., Becker, Ryan and company program; Will Rossiter, tenor; Eleanor Masquelet, blues singer; Zender and Robinson; Roy Miller, tenor; Casey and Gervais; Lee Darnelle, banjoist; Edna McGuffin, pianist; Midway Dancing Gardens orchestra; "Big Boy" Yagle, pianist; 9-10, W. G. Teetimer and company classical program; 10-10:30, Midway Dancing Gardens orchestra.

WCAE, Pittsburgh, Pa. (Eastern, 462), 6:30 p. m., dinner concert, Willam Penn hotel; 7:30, Uncle Kavbe; 8:30, program, talent knights of Pythias.

WCAU, Philadelphia, Pa. (Eastern, 278), 6:30 p. m., Meyer Davis' Hotel Pennsylvania concert orchestra, direction Lon Chassy; 7:30, talk; 8:30, recital.

WCCO, Minneapolis-St. Paul, Minn. (Central, 417), 5:30 p. m., children's hour, Court of Gold Medal; 6, sports talk; 6:30, Dick Long's Nankin cafe concert orchestra; 7:30, "Minnesota's Interest Bearing Debt," Ray P. Chase; 7:45, "Inverse Duplex," John Briggs; 8, musical program, Sigma Alpha Iota sorority; 9, the B. & R. family.

WCX, Detroit, Mich. (Eastern, 516.9), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program.

WDAF, Kansas City, Mo. (Central, 365.6), 6-7 p. m., piano tuning-in number on the Duo-Art; address, speaker, Kansas City Children's bureau; the Tell-Me-a-Story; 7:30, music, Arlanon ensemble; 8-10, popular program; 11:35, Merry Old Chief, Plantation players.

WDFW, Providence, R. I. (Eastern, 440.9), 8 p. m., lectures and talks of interest, faculty of Brown university.

WEAF, New York, N. Y. (Eastern, 491.5), 4-4:10 p. m., Mayne Anderson, soprano; 4:10-4:25, French lessons, Columbia university; 4:40-5, children's stories; 5-5:20, Milton Katz, pianist; 6-7, dinner music, Waldorf-Astoria hotel; 7:30-7:45, children's stories, G. R. Kinney shoe company; 7:45-8, Ruth Morgan, soprano; 8-8:30, Happiness Candy Boys; 8:30-9, Hohner Harmony Hour; 9-10, Spear and Company Home Entertainers; 10-11, Emerald Ball at Waldorf-Astoria hotel; 11-12, Meyer Davis' Lido, Venice orchestra.

WEAR, Cleveland, Ohio (Eastern, 390), 7 p. m., Vincent H. Percy, organist, recital from Cleveland Public Auditorium.

WEBH, Chicago, Ill. (Central, 370.2), 7 p. m., Oriole orchestra; Dan Russo, violinist; Ted Florito, cellist soloist; musical bits, Riviera theater; 9, Rita McFawn, soprano; Oriole orchestra; Frederick Agard, tenor; 11, Three Musketeers; Oriole orchestra; Nick Lucas.

WEEI, Boston, Mass. (Eastern, 475.0), 6:30 p. m., big brother club; 7:30, Charles W. Williams, tenor; Kathryn Sampson, accompanist; 8, program, Neapolitan Ice Cream company; 8:30, Gilchrist quartet; 9, All Saints' choir, George C. Phelps, organist.

WEMC, Berrien Springs, Mich. (Central, 285.5), 9 p. m., sacred music, Radio Lighthouse choir; Charles Garber, saxophonist; 9:30, Bible chat, H. B. Taylor; 9:45, Mrs. H. B. Taylor, soprano; Mrs. Gertrude Hanson, contralto.

WFAA, Dallas, Texas (Central, 475.9), 6:30-7:30 p. m., vesper recital, Lone Star five's orchestra; 8:30-9:30, Mrs. Bon Sory Robertson.

WFI, Philadelphia, Pa. (Eastern, 395), 1 p. m., Meyer Davis' Bellevue Stratford concert orchestra; 3, piano solos, Caroline Hoffman; 6:30, Meyer Davis' Bellevue Stratford concert orchestra; 7, Sunny Jim, the kiddies' pal.

WGN, Chicago, Ill. (Central, 370.2), 6 p. m., organ recital, Lyon and Healy; 6:30-7, dinner concert, Drake concert ensemble, Blackstone string quintet; 8-9, Illinois Bell Telephone company; 10-11, Don Bestor Drake dance orchestra.

WGP, Buffalo, N. Y. (Eastern, 319), 10:45 a. m., Gold Medal home service talks, Betty Crocker; 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Radio Dealers' musical program; 6-7:30, dinner music, Hallpryd string quartet; 8:30-8:55, recital by John F. Gunderman, Jr., and associates; 9-10, Knell's Tokyo dance orchestra; 10-11, the Larkin string orchestra, of twelve pieces, John Lund, director; 11-1 a. m., supper-dance music, Vincent Lopez' Hotel Statler dance orchestra, Harold Gieser, director.

WGY, Schenectady, N. Y. (Eastern, 375.9), 6:30 p. m., International Sunday school lesson; 7, Strand theater orchestra; 7:30, health talk; American trio; 7:45, "Some Common Faults in Spoken English," Theodore Baird; Gladys Tromb, cellist; WGY players; 8:15, drama, "Harvest," WGY players; WGY orchestra; 10:30, America trio, Lillian Rosenthal, soprano.

WHA, Madison, Wis. (Central, 535.4), 7:45 p. m., author's readings of the translations of the old English Beowulf verse, Prof. William Ellery Leonard.

WHAS, Louisville, Ky. (Central, 399.8), 7:30-9 p. m., Shawnee Melody makers; Mrs. Emos Noid Henderson, contralto.

WHB, Kansas City, Mo. (Central, 365.6), 7-8 p. m., Radio seance, Zenola the Mystic; musical program, Pekin cafe; 7-8, address, "Conservation of Vision," auspices of K. C. Optometric association.

WHK, Cleveland, Ohio (Eastern, 273), 6:15 p. m., news items, music; bedtime story, Ethel O. Hayes; Emerson Gil's Bamboo Garden orchestra; 7:40, Y. M. C. A. Radio extension course, Mr. Leatham, instructor; orchestra.

WHO, Des Moines, Iowa (Central, 526), 7:30-9 p. m., Williamson brothers; Mrs. Harry Trevillian, soprano; program, direction of Salvation army.

WIP, Philadelphia, Pa. (Eastern, 508.2), 1 p. m., Glimbel team orchestra; 4, talks, "Lectures," Queen People as an Alienist Secs Them," Dr. Chas. W. Burr; 6:05, songs, Mark Flsher and Joe Burke; 6:15, Harvey Marburger and his vaudeville dance orchestra.

WJY, New York, N. Y. (Eastern, 405.2), 7:30-8:30 p. m., Guarantee Trust choral society; 8:30-9:30, Philharmonic string quartet.

WJZ, New York, N. Y. (Eastern, 454.3), 4-4:15 p. m.; Doris Makstein, soprano; 8:10-8:20, "Psychology," N. Y. U. Air college; 8:30-9:30, Wanamaker program; 9:30-10:30, U. S. navy night.

WLIT, Philadelphia, Pa. (Eastern, 395), 7:30 p. m., Dream Daddy's bedtime stories; 8, book review, Arnold Abbott; 8:10, Sam Wingfield, humorist; "Historical Sidelights of United States Mint," Frank G. Stewart; 10:30, Arcadia cafe dance orchestra; Morning Glory club.

WLS, Chicago, Ill. (Central, 344.6), 6:30 p. m., Ralph Emerson, organist; 6:50, Seattle studio artists; 7, lullaby time, Ford and Glenn; 7:15, musical program, Walther Icaque; 8, Ann Williams, Kenneth Clark, Ford and Glenn; 9, Helen Wille Burkhardt; 9:10, Radio drama; 9:30, Sylvia Platt, pianist; 9:30, Senate symphony; 9:50, Glenn's contrabass; 10, Senate symphony; 10:10, Garfield Park mixed quartet; 10:30, Isham Jones and his orchestra; 10:40, Ford and Glenn time.

WMAQ, Chicago, Ill. (Central, 447.5), 6 p. m., organ recital, Chicago theater; 8:30, Hotel LaSalle orchestra; 8, weekly wireless club, Mrs. Frances M. Ford; 8:30, musical geography, Mr. and Mrs. Mary E. Oberdorfer; 9:15, musical program, Hyde Park Treble glee club.

WMC, Memphis, Tenn. (Central, 499.7), 8:30 p. m., concert, Brillling's Novelty orchestra, Frank Bracciante, director; 11, midnight frolic, University of Tennessee doctors.

WNYC, New York, N. Y. (Eastern, 526), 7:35-8 p. m., resume of meeting of Board of Estimate and Apportionment; 8:30-10, concert program, vocal and instrumental artists; 10-10:30, dance program.

WOAW, Omaha, Neb. (Central, 526), 6 p. m., story hour, Doris Claire Secord; 6:30, Harry Brader, violinist; Frank Blawie, pianist; 7, pianist; 7:15, current

sport events, Iran L. Gaddis; 9, program, Omaha College club, auspices Chicago, Burlington & Quincy Railroad company; "Seeing by Radio Territory Covered by the Burlington Route," Dr. G. E. Condro.

WOC, Davenport, Ia. (Central, 483.6), 7 p. m., sandman's visit, Vol McLoughlin; 7:20, "Farmer and Banker—Their Mutual Interest," Frank Yotter; 8, musical; R. C. Hainline, Congregational church quartet, Clinton, Ia.

WOO, Philadelphia, Pa. (Eastern, 508.2), 7:30 p. m., A. Candelori's ensemble from Hotel Adelphi; 8:30, recital, Harriette G. Ridley, pianist; 9, WOO orchestra; 10:03, organ recital, Mary E. Vogt; 10:30, Vincent Rizzo's dance orchestra.

WOS, Jefferson City, Mo. (Central, 440.9), 8 p. m., "Shorthorn Cattle in Missouri Since the Civil War," John Ashton; "Poems of Optimism," LeRoy H. Kelsey; musical program, School of Fine arts.

WQJ, Chicago, Ill. (Central, 448), 7-8 p. m., dinner concert, Ralph Williams and his Rainbo Gardens orchestra; Elsie Orr, soprano; Ann Burrows, accompanist; Herman J. Techantine, baritone; Edith Phillips Heller, pianist; 10-2 a. m., Ralph Williams and his Rainbo Gardens orchestra; Rogers boys, Larry, Billy; West brothers, steel guitarists; Nubs Allen, contralto; Zelig sisters, Pauline, Sarah; Louretta Giles, soprano; Monogram trio; Nate Caldwell.

WSB, Atlanta, Ga. (Central, 429), 5-6 p. m., garden talk, William B. Decker; songs and bedtime story, Bonnie Barnhardt; 8-9, Stanley trio; 10:45, Dr. and Mrs. Gibbs Fowler, the honeyaon duo.

WTAM, Cleveland, Ohio (Eastern, 390), 6 p. m., Maurice Sptalny's Hotel Statler orchestra.

WTAY, Oak Park, Ill. (Central, 250), 6:15-6:30 p. m., Al Mjldgard, organist; 6:30-8, Atlas night, Black Cat orchestra.

WVJ, Detroit, Mich. (Eastern, 352.7), 3 p. m., Detroit News orchestra; 6, dinner concert; 7, Detroit News orchestra; Anne Campbell, Detroit News poet.

EXPERIMENTAL REFLEX CIRCUITS

The circuit shown in figure 1 is ideal for those living more than ten miles from a large station. With a 43-plate condenser and a 35-turn honeycomb coil on a 100-foot aerial it will reach all wave lengths between 275 and 550 meters. A 23-plate condenser with a 35 and 50-turn coil will work well. This set is very stable and reliable and is very easy to operate, the condenser having complete control over the wave length, the variometer merely acting as a Radio frequency control.

Use a good crystal. The transformer may be any good make and ratio. I have tried about six makes ranging from 10 to 1 to a 3 to 1 and all work well. I have used 201-A, WD-12, WD-11 and 199 tubes, and for best results, combined with economy, the 199's have given me the most satisfactory.

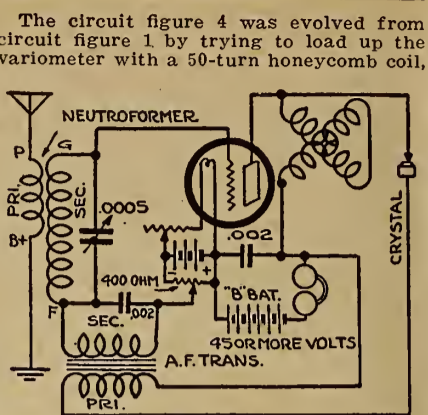


Figure 3

The circuit figure 4 was evolved from circuit figure 1 by trying to load up the variometer with a 50-turn honeycomb coil, as the volume on the higher wave lengths was less than on the lower wave lengths. The desired results were obtained thereby, and it was found that if placed in inductive relation with the coil in the aerial circuit the regenerative effect increased the volume quite perceptibly, in fact, a 199 tube would not carry it on semi-local stations, but also caused violent oscillations, even when brought 6 inches from the aerial coil. When placed about 8 inches away the results are very satisfactory. Anyone trying the circuit figure 1 should try placing a 35 or 50-turn coil between the plate terminal of the socket and the variometer.

Vernier and Shield Combined

The simple piece of apparatus shown in the illustration will no doubt meet the approval of any Radiophan who is troubled with body capacity effects; also it furnishes a vernier adjustment so that you can tune your set more sharply and get those long distant stations.

The device shown consists of a large brass gear, a little larger than the dial you wish to use, with fine teeth, also a small gear whose teeth mesh with those of the larger gear. A piece of fiber tubing is fastened to the shaft of the instrument you wish to attach the vernier adjustment onto (variometer, condenser, coupler). On the other end of the fiber tubing is fastened a short piece of brass rod to complete the shaft. The two shafts being connected in this manner must not make any electrical connection. Two set screws are used to fasten the two shafts to the fiber tube.

The small brass shaft extends through the panel and has the dial and knob at-

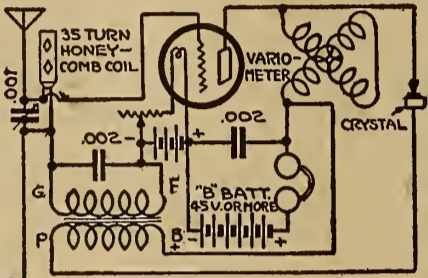


Figure 1

Anyone having a storage battery should use the 201-A tubes with 45 volts on the plate. Almost every fan has an extra variometer, a 23-plate or a 43-plate condenser and tube accessories around the home and I would advise them to get an audio transformer and try this circuit. I have used cheap parts as well as good parts and I find it invariably gives good results. Figure 2 shows the plan and panel layout.

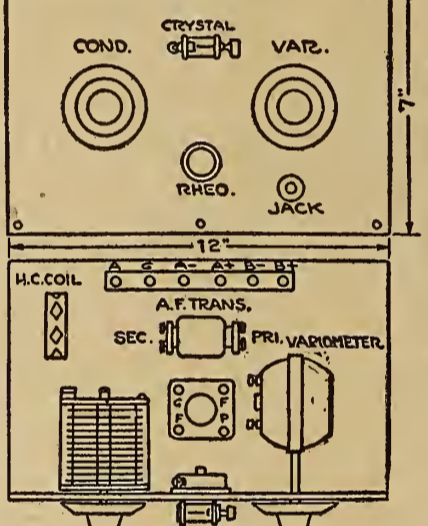
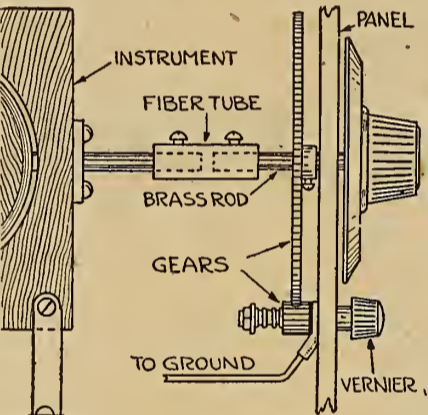


Figure 2

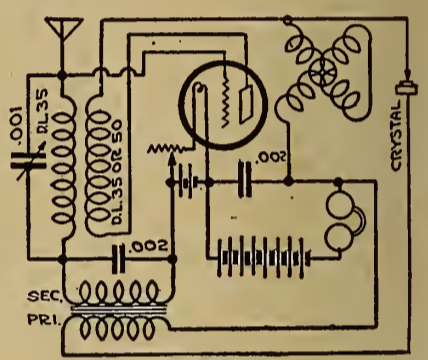


Figure 4

The circuit figure 5 combines selectivity and volume, but it is not quite so easy to operate, owing to its tendency to oscillate. The variable Radio frequency transformer in the plate circuit may be a neutroformer or a wound coil, such as described in circuit figure 3, wherein the aerial circuit with a 23-plate condenser across the secondary was described. It is best to use a potentiometer across the A battery for a stabilizer. I have never picked up distance with this circuit as I have with the others but it is very selective for nearby stations.

tached onto it. Just back of the panel the large gear wheel is fastened onto the same shaft. The smaller gear wheel is fastened stationary to another smaller shaft, and this is located so that the small gear meshes with the large one. Between the small gear and the panel is located a copper soldering lug a spring being arranged on the shaft to keep the small gear pressed against the lug so as to make an electrical connection with it. A wire is soldered to the copper lug and led to the ground lead so that the capacity effects will be grounded. The apparatus to work properly, the small knob on the vernier adjustment when turned should move the large dial very slowly.—Evermount Fisel, Lebanon Junction, Kentucky.

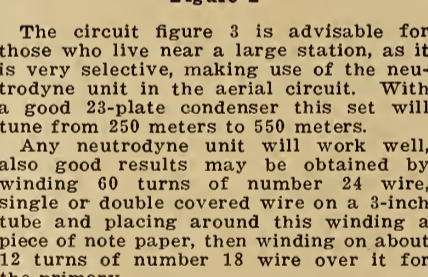


Figure 5

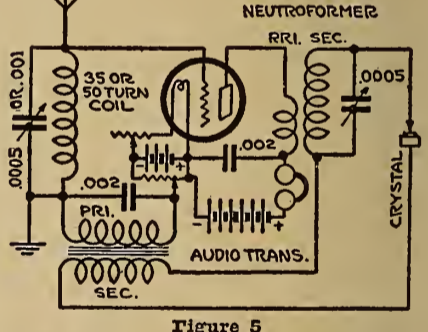


Figure 5

The same arrangement of parts on base and panel may be used in all of these circuits, only substituting the 23-plate condenser for the variometer in the circuit figure 5 and adding the neutroformer in place of the coil in the circuit figure 3.—Arthur Buesing, Chicago, Ill.

Cleaning Wire for Soldering

A simple, rapid and efficient way to clean enameled Litz wire, small oxidized copper parts and the like for soldering is as follows:

At the bottom of a wide mouth vial about 2 inches high by 1 inch in diameter place a 1/2-inch layer of absorbent cotton which has been moistened with wood alcohol. The vial is kept corked until needed.

Separate the strands of wire slightly, fan-wise, and heat gently in a gas flame until the enamel is burned off. At this point and while the wires are still a dull red, quickly insert the hot wires into the vial down close to the surface of the moist cotton, but not touching it. The fumes of alcohol will instantly reduce the oxidized surface to a clean metallic surface which is ready for soldering in the usual way. If the first trial is not successful, try again as there is no harm done by repeated treatments. When a clean surface is obtained, do not remove wires at once but allow a few seconds cooling in the vial.

Badly oxidized copper parts, such as lugs, etc., have been cleaned up in this manner without the great loss of time and metal incurred by the use of acids or abrasives.—F. J. Seiter, Chicago, Ill.

Crystal Set Hook-up

In my experience with crystal sets I have obtained the best results with the hook-up shown in the illustration. The parts required are a variometer, a variable condenser and a good detector. An ordinary fixed condenser can be used across the phones. With a good aerial and ground you will be surprised with results from this hook-up.—Garvin Mullins, Kemp, Texas.

A Battery Attention

The cost of operation can be cut if a few simple directions are followed with the A battery. Considerable power is lost in overcoming the resistance due to unclean corroded connections. The battery terminals may easily be kept clean by polishing them occasionally with fine sandpaper and the same should be done to the terminals of the battery leads. The top of the battery should be kept free from acid and water as the presence of either one will cause the current to leak from one cell to the other. Only distilled water should be used in filling the battery and enough should always be present to come at least 1/4 inch above the top of the plates.

Copper Wire Best Aerial

Number 12 enameled solid copper wire is as good as anything for aerials. Aluminum wire is not recommended.

Construction of the Six Tube Hetduogen

More Details About the Circuit

By C. E. Brush

FROM the letters which have come in it is clear that the writer was not explicit enough in describing the connections to be made to the oscillator coil. The symptoms described by the many readers in connection with unsatisfactory operation indicate that the oscillator has not been wired correctly to the rest of the set. In part two which was published in the January 3rd issue the writer was very careful to tell readers how to bring out the wires from the oscillator coil so that they would be in a convenient position when mounted as shown in figure 10 in the January 17th issue. When the oscillator coil is secured to the sub-panel it should be so rotated that the leads from the inductances L4 and L5 come out at the bottom and they should be connected as follows: The end of the coil L4 nearest the edge of the tube to the left in figure 10 is to be connected to the minus A terminal on the oscillator tube socket which is two or three inches to the left of the oscillator coil. The end of L4 nearest the center is to be connected to the G binding post on the oscillator tube socket which also goes to the stator plates on the seven plate condenser. The end of inductance L6 which is nearest the edge of the tube to the right connects to binding post Z which is the plus B. The end of L5 which is nearest the center connects to the P binding post on the oscillator tube socket and also to the rotor plates of the seven plate condenser. Connected in this way the tube will oscillate easily over the entire wave length range but if these connections should be re-

versed on either coil there may be no oscillation at all.

Binding Post Connection

There seems to be some doubt in the minds of readers as to the connections of binding posts U, V, W, X, Y and Z at the rear edge of the sub-panel. Binding post W is the negative A, X is the plus A, Y is the plus 45 B and Z is the plus 90 B. U and V are the antenna and ground connections.

Referring to figure 10 it will be noticed that there is a lead from the P binding post on the socket in the upper left hand corner to the secondary of the filter coupler and this connection is also not as clear as it possibly should have been. It was presumed that with figure 2 and figure 10 before them, readers would understand that this wire went to the threaded brass rod running through the filter coupler, as this rod is connected to the copper segment of the semi-variable condenser on the end of the filter secondary. As described under the construction of the filter coupler the tin foil segment connects to one end of the filter secondary so the copper must go to the plate of the second detector tube to secure regeneration.

A typical letter from the many coming in is as follows: "Radio Digest, I finished my hetduogen on Thursday last (Jan. 22nd) and got locals fine that evening. It was not until last evening (Jan. 24th) that I got on to the trick of tuning, and then, Oh, boy! how they came in. It has a much better tone quality than my neutrodyne and the third stage of audio

frequency amplification works O. K., much to my surprise. It is surely some trick to tune, but when you get it, you've got something."—E. T. B., Cleveland, Ohio.

Through typographical error in the list of parts, readers were asked to do the impossible and place an outfit 10 1/2 inches deep in a 10-inch cabinet. Several readers have called the writer's attention to the fact that 1 1/2 inches is to be left between the rear surface of the front panel and the front edge of the base panel and that the base panel is 9 inches wide; thus there must be 10 1/2 inches depth inside the cabinet. The list of parts specified a cabinet 10 inches deep and it is, of course, impossible to place a set built according to the above specifications in such a cabinet. The list of parts should have given the cabinet a 10 1/2-inch depth dimension but if readers have difficulty getting such a cabinet, no harm will be done by moving the base panel 1/2 inch to 3/4 inch nearer the front panel.

Battery Consumption

A battery on a 0.25-ampere tube operating to an end point of 1.0 volt under usual intermittent service will give over 100 hours of service; two batteries in parallel will give approximately 250 hours. In other words, two batteries connected in parallel will give more than double the service of a single battery.

Batteries are connected in parallel when the positive terminal of one is connected to the positive terminal of the other. This method of connecting batteries does not

change the voltage of the combination, but increases the energy delivered; or, in other words, the hours of service.

Batteries are connected in series when the positive terminal of one is connected to the negative terminal of another. When connected in this way the voltage of the combination is equal to the sum of the voltages of the individual batteries. Thus, a 4.5-volt A battery is composed of three individual A batteries connected in series, each cell having a voltage of 1.5.

Pigtail Connections

The connections to movable parts of a Radio set are made by either a pigtail or a friction contact. The latter consists of a bearing or a spring washer that will make contact to the shaft of the rotating member.

Pigtail connections are made by soldering a flexible wire to the movable part of the device. The pigtail connection is the most efficient method of making this type of connection because it is positive, whereas with the friction contact the bearing or washer begins to wear and in time it will become loose, therefore making a poor connection. If rotating parts of your receiver have friction contact it can be improved by soldering on a pigtail or flexible wire.

To cut a large circular hole in a panel drill a circle of holes, close, but not uncomfortably close together, with a number 27 drill, then drill out with a number 19 drill. Dress up with a half-round file.

For Circuit Supremacy—CIR-KIT and Supereflex

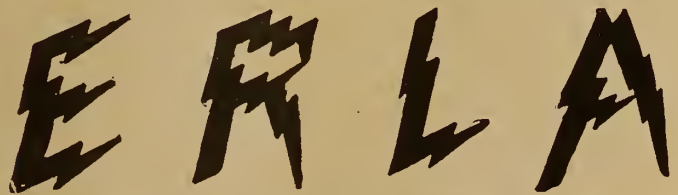


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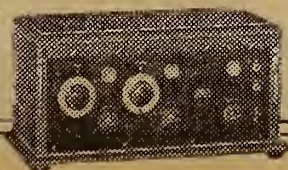
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Dept. A, 2500 Cottage Grove Ave., CHICAGO



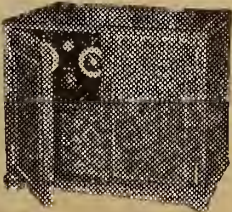
Erla complete radio instruments lift radio to the realm of art, with the same superiorities CIR-KIT brings.



Erla Floor Console

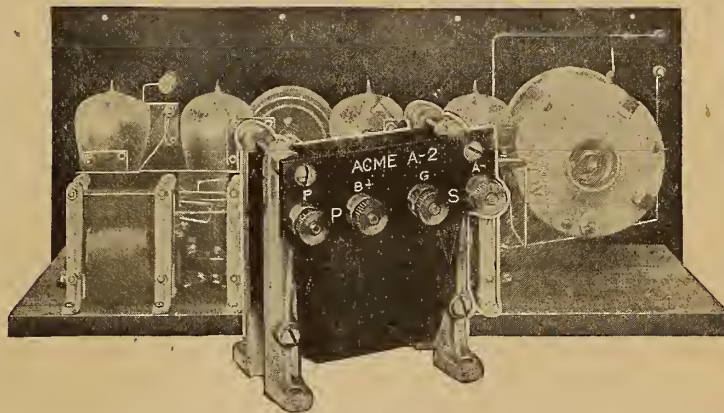


Erla Table Cabinet



Erla Table Console

You can give your set this big advantage—



Amplification without Distortion

How to make sure of getting everything loud and clear

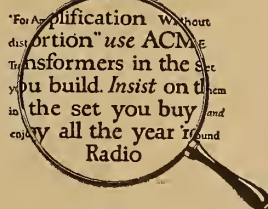
YOU can make your set so that it will reproduce clearly and distinctly without distortion. The real pleasure in radio comes when you can understand and enjoy what you hear—voices that are natural—music that is clear in tone. In order to hear clearly and distinctly you want to be sure that you are using amplifying transformers that amplify the sound without distorting it.

Give your set this big advantage—Amplification without Distortion. Whether you have a neutrodyne, superheterodyne, regenerative or reflex, the addition of the Acme A-2 Audio Amplifying Transformer will make it better.

The Acme A-2 has become famous among radio owners for increasing the volume of sound without distorting. If you are bothered by distortion, try an Acme A-2 and note the difference.

Each transformer is tested and carries a guarantee tag. If you want Amplification without Distortion use Acme Transformers in the set you build and insist on

them in the set you buy. (That's one of the big reasons why the Acme-flex Kit-set gives such good results—it uses Acme Transformers.) Send for our 40-page booklet which explains how to get the best results by proper amplification and also contains a number of valuable wiring diagrams. It will help you build a set. Mail the coupon with 10 cents.



The amplifying transformer is the Magnifying Glass of Radio

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Have the fun of making your own radio set

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Gentlemen: I am enclosing 10 cents (U. S. stamps or coin) for a copy of your book "Amplification without Distortion."
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Radio Digest

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Vol. XII Chicago, Saturday, February 14, 1925 No. 6

"The Machine Wreckers" Revised

By "Steve" Trumbull, Chief Announcer of KYW

ERNEST TOLLER, imprisoned German playwright, wrote a play called "The Machine Wreckers." The situation used in the piece was that of the alarm among the weavers when the first piece of machinery was brought into England.

Mass meetings were held in the dead of night. The machines would deprive all of their livelihood. There were bloody riots, and the first machines were destroyed.

That is the play of Herr Toller. But somehow, the years that followed saw readjustments. More machines came. The workers used them. The cries of alarm died away.

A 1925 version of that very same plot was staged just a few nights ago in New York. Theatrical producers, actors, stage hands, musicians and artists gathered in solemn assembly. The gauntlet was thrown down and open war declared upon the machines—upon Radio.

William A. Brady arose before the alleged-to-be-enlightened audience. Prefacing his remarks with the assertion that the theater, the phonograph, and the Radio were in combat to the death he added:

"Don't let our actors and actresses, by entertaining for nothing, aid the building up of a process that in the long run may prove their own destruction."

The multitude marveled. Down with the machines! Who wants to hear disembodied voices playing dramatic scenes?" demanded Louis Wolheim.

"Resist what will injure your livelihood," demanded Frank McGlynn. "That livelihood is hard enough to get now." Further, Mr. McGlynn pictured actors thrown from their jobs by this Radio demon, and chopping wood—actually chopping wood!

Perhaps there are cases where that misfortune would actually be hailed with relief by a suffering public—but this is beside the point. Let us rather, on a basis of plain facts and experience, tell what has been the experience of the Westinghouse station at Chicago with the theaters.

There are two theater pieces in Chicago that are in their second season, "No, No, Nanette," and "Abie's Irish Rose." Both have been broadcast.

Next in the line of long runs comes "Applesauce" and "White Cargo." Both of these have been microphoned by KYW.

Then there was the matter of the Duncan sisters, who threatened to become as permanent an institution in Chicago as the Art Institute. They fitted out a Radio studio at their own expense, and broadcast a regular program. There was never a hint of wood chopping around their box office!

Is all of this mere coincidence? Hardly that. At least the managers of these shows fail to believe it.

Frank P. Gozollo, veteran theatrical man, wrote to KYW following the broadcasting of "Abie":

"Never in my twenty-five years' experience as a theatrical manager have I known of a single venture bringing in such returns at the box office. In the forty-eight hours, by actual count, 2,876 people bought tickets who had heard the play from your station."

These are just a few of the facts. There is another angle, too. The Chicago Civic opera just announces a deficit of \$400,000 for the past season. The opera was not broadcast this year. Last year it was—and the deficit was nothing near as high as \$400,000.

Another coincidence, perhaps!

Just the other day there was a party of down-state callers in the KYW studio. Invited to return to witness the evening broadcasting, they replied that "they were going to take in a show."

"What show?" we asked.

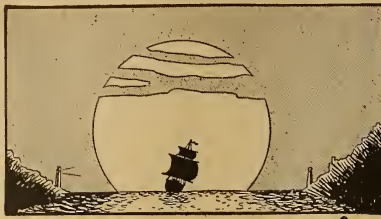
"Applesauce," was the answer, "We heard it down home on the Radio. We could even hear the audience laughing. It must be a funny show."

Just a few more facts, facts that might aid in answering the Messrs. Brady, McGlynn and Wolheim—and other 1925 "Machine Wreckers."

Radio rests its case. Let the jury of the public retire to deliberate.

RADIO INDI-GEST

Indi's Expedition Now on the High Seas



Due to the bravery of Capt. Oneoar, master of the good ship "Kanoofis," the long-heralded expedition originated by Indi-Hissel, is at last under way for the beautiful little island of Walla Walla.

As the ship was about to sail last week, mutiny broke out among the crew, but it was nipped in the bud by the Captain, who chased the mutineers off the ship. To give the readers of this column an idea of the initiative of Capt. Oneoar in a crisis of this sort, we will describe in detail just how he accomplished this unusual feat.

Standing in the middle of the ship, he hurled defiance at the crew and dared them to try and subdue him. Accepting the challenge, the crew rushed as one man towards him, but Capt. Oneoar had not sailed the seven seas for nothing and, using a trick which he picked up in the Fiji Islands, he slipped from them and ran ashore. The crew seeing the captain run off the ship, chased after him. They were soon lost from sight. About an hour later the captain came around the corner of one of the buildings with an entirely new crew. What happened to the other crew no one knew. But Capt. Oneoar promised to tell the story as soon as the ship had started on its way for Walla Walla.

Just as the sun was sinking in the West, the "Kanoofis" sailed down the bay and headed for the open sea, adventure, mystery and everything else you don't read about in this column. Each week a story will appear here telling the progress that the expedition is making. This will be an exclusive Indi-Gest feature. Be sure to order your copy of Indi-Gest each week so that you don't miss an installment of this thrilling, heart throbbing story.

And Tune in from Jail

Ray: "I hear WEZ is giving information on how to fill out your income tax report next March."
D. Owe: "But what if my set can't tune in WEZ?"
Ray: "Why—don't fill out a report!"

SPIDER WEBB.

May Blessings Rest Upon His Head

May blessings rest upon his head,
The man who keeps his signal down,
Though yet he lives and is not dead—
May blessings rest upon his head!

May blessings rest upon his head,
The man who keeps his set in place,
Who never lets her rant 'er tear—
Does not pollute his neighbor's air,
God bless his face!

May blessings steep his worthy dome,
Who's satisfied to hear from home,
Who's mit does not slap on the juice
In reaching out for something loose,
He's something great!

May blessings rest upon his head,
The man who keeps his signal down,
Though yet he lives and is not dead—
May blessings rest upon his head!

RUSSELL LEWIS.

No!—They Are Modest (in Walla Walla)

Dear Indi: If that proposed expedition is not for "Stags Only"—book first-class and ample reservations for my little typewriter and me.

In this day of boyish bobs and girlish giggles you men can't drag us around by the hair.

I want to be appropriately attired. Are shredded wheat skirts still being worn in the South seas?
MAMA HAYMES.

"Paging Eddie Squires!"

Dear Indi: For the last few months I've been listening on my Radio to nothing else but these "missing person" songs, such as "Where's My Sweetie Hiding?" and "I Wonder What's Become of Sally."

However, I have a more important question to ask you than either of them and it is, "Where the Heck is Eddie Squires gone to?" Eddie was one of KDKA's many announcers and he sure was the microphone's garters.

I ain't heard Eddie's voice for a long, long time, and I certainly would like to know where he vanished to. Maybe you or some of your pals (including Mrs. Partington) can solve this riddle.
GLOOMY GUS.

Indi's Non-Radio Eclipse Test Observations

Roosters that started crowing at dawn and ceased at totality of the eclipse, didn't have time to go to roost during the brief space of total obscuration of the sun, observers reported, and quickly resumed their crowing.

The great flock of seagulls which pass the winter days feeding along the Chemung river, near Elmira, N. Y., were fooled by the eclipse. As the moon blotted out the sun and darkness fell, the thousands of gulls rose from the river and started for Watkins, twenty-two miles distant, where they roost nightly.

Before they were out of sight of Elmira the shadow began to leave the sun and the gulls turned back to the river.

Why?



Condensed

By DIELECTRIC

If you sometimes feel that you would like a little Russian music other than the Song of the Volga Boatmen, tune in on some of the Los Angeles stations and try to locate the Calmon Lubovski Trio. This distinguished trio has found its Russian numbers meeting with great favor and they do play a few stringed trios can play. The dull throeb of the melancholy strains that you find in many of the Russian works, affects the Anglo-Saxon mind strangely and Mr. Lubovski knows how to bring the effect out with his magic bow. And if Claire Forbes Crane will only play a piano solo, the evening is complete.

There are dance orchestras and dance orchestras. Dance music wherever you turn. But do you ever listen to KNX broadcasting by remote control from the famous Coconut Grove at the Los Angeles Ambassador hotel? The Grove is the stamping ground for the movie colony and in addition to listening to the snappy music of Abe's famous Brunswick recording orchestra, you will hear him sing out many famous names of the screen as parties enter the Grove. Tuesday nights the Town Crier snatches many of them away from the dance floor and practically forces them to make short speeches between numbers. Truly a treat for the movie fan who is also a Radio bug!

There was one evening when WTAM was on the air with all of the old reliable tango and fox trot pieces—not one missing—and it's a sure bet they couldn't accommodate in their studio all those who were tripping the light fantastic to the music. On with the Radio dance!

More and more the greater singing artists are being heard by Radio until eventually, it is hoped, we may have them all listed. WOR put on a special concert presenting Spanish talent with the expectation of reaching Europe. The singing of Madame D'Alvarez was as natural as though she were on the concert stage, where it is well known.

While a goody number of us listeners have been hugging the warm spots in our homes while listening in, there came the comforting news of real warm weather from WMBF at Miami Beach. Much more than that has left the mike 'way down in Florida to give the rest of us pleasure: orchestras, soloists and the usual Radio features, but with the stamp of "choice" upon them. Everything, so far, has been of that class.

WHAM has the good fortune to include in their list of entertainers the Eastman orchestra, which is a well trained musical organization. They play equally well the heavier classical numbers and those in a lighter key. Following the usual evening concerts there is given a competent and pleasing resume of the works to be heard succeeding evenings. There is a feature never disappointing to the music lover.

To anyone with a predilection for harp music, a treat was presented through our school of chiropractic station, WOC. Mr. Baumgrass, the skillful harpist, presented selections of considerable merit in a way to please the most critical. Perhaps a return engagement can be arranged. Certainly a large audience was tuned to his playing.

In most cases we hear "Tommy Lad" sung by male voices, but WBAV offered that familiar song as rendered by a soprano. Both this number and others on her program were acceptable and aid in raising our esteem of this Ohio Radiocast station.

How to Make the Two Tube Knox Reflex

Part II—Assembly of Panel and Baseboard

By W. H. H. Knox

IN THE first article which appeared last week the data for winding coils was given so that the reader could construct his coils while waiting for the rest of the parts if it were necessary to order these by mail. Assuming that the parts given in the list included as part of the first article are now at hand, and the coils finished, we are ready to lay out the set. The panel drilling layout is shown in figure 5 and this is to be enlarged on a sheet of paper to full size so that it may be used as a drilling template. The small individual templates which accompany the front units to go on the panel are to be pasted on this full size template in their proper positions. The usual compass template shows one hole for the shaft and three for mounting the instrument itself, so it will be necessary to enter the shaft holes on the small templates exactly on the shaft holes indicated in the layout. The same is true of the coast templates as the average rheostat requires a shaft hole and two small holes for 6-32 machine screws. If a wooden baseboard is used, the three holes across the bottom of the panel as shown in figure 5 will be necessary, but if a kelite or hard rubber sub-panel is utilized, to be supported by angle brackets, the builder will have to figure out just where the holes should go for the brackets.

Identifying Panel Holes

The three .0005 mfd. variable condensers to be mounted behind the three holes on the horizontal line midway the height of the panel. It will be noted that there are two holes 1 3/4 inches from one end of the panel, which are for the midge condenser and the adjustable crystal detector. The detector goes in the hole to the right. The two holes exactly below these are for the rheostats. Slightly below these last two holes and nearer the center are two larger holes, one of which is the filament switch and the other the phone jack. The filament switch is to the left and the phone jack to the right. The full size drilling layout may now

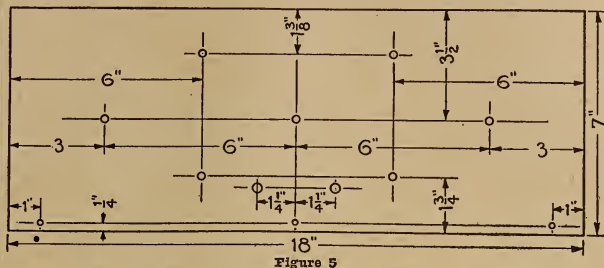


Figure 5

either be pasted or clamped to the panel and the holes center punched for drilling, after which the numerous holes can be

drilled with the proper size drills as indicated on the small templates which accompany the apparatus.

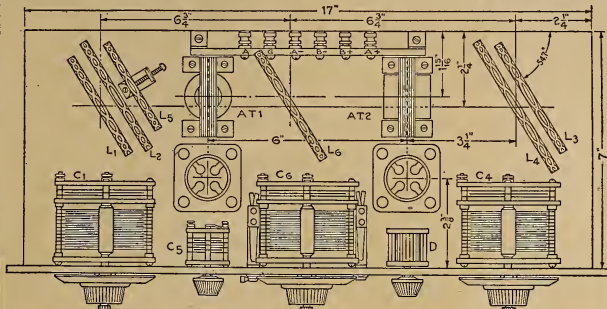


Figure 6

will be the same whether a wooden baseboard is used or one of bakelite or hard rubber. While slight deviation from the

layout shown may be done on most of the apparatus, the placing of the coils should not be altered from that shown. Other positions for the coils and other distances between them have been tried and it was found that best results were secured when the coils L1, L6 and L4 are centered as shown. Any method of supporting the coils on the baseboard which suits the builder's individual fancy or material on hand, may be used, with the single exception of L5, which requires a variable support shown in figure 7. This support may be constructed of a strip of heavy brass or aluminum 1/2 inch wide and 1 11/16 inches long. It is to be bent as shown 3/8 inch from one end. A threaded nut or washer is to be soldered near the top of the 3/8-inch length and is indicated as item B. A long machine screw indicated as item D is inserted through this washer or nut so that it will bear against the spring, item A. This spring is attached to the right angle strip by one of the screws which holds the strip to the baseboard. This spring may be either an old piece of clock spring or spring brass, and the other end of this spring is attached to a small piece of bakelite or hard rubber inserted into one of the openings in coil L5. L5 is to be varied in its relation to L2 only when a change of tube is necessary, as once this relation is adjusted for a tube it does not need to be changed.

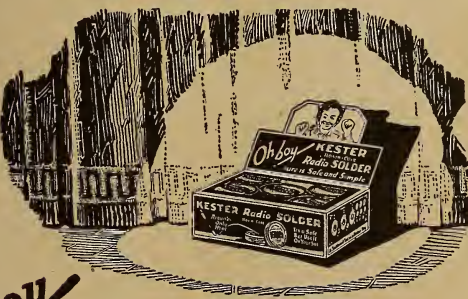
Coils L1 and L2 should be mounted so that their windings are in the same direction and they should be about 1/8 to 1/4 inch apart. Coil L5 is to be secured in such a way that its windings will be in the same direction as those of L2. Coils L3 and L4 should be so mounted that their windings are in the same direction and they should be 3/8 to 1/4 inch apart.

The binding post strip shown at the rear edge of the baseboard may be of a strip of bakelite or hard rubber 1/2 inch to 1 inch in width and 7 3/4 inches long. Its thickness can be 3/8 inch or 1/2 inch, depending on the material which the

(Continued on page 18)

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ROSIN-CORE



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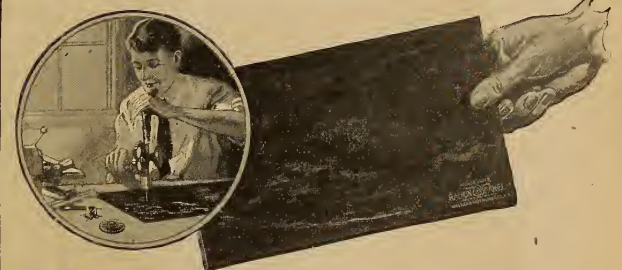
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2 TUBE KNOX REFLEX

(Continued from page 17)

builder may have on hand. It is supported vertically by means of two right angle brackets placed as shown at each end of the strip. The arrangement of binding posts shown, to be used as aerial, ground, A minus, B minus, B plus and A plus will be found convenient for the wiring. Their order may be changed to suit the individual builder, but the one shown is very convenient.

Assuming now that all of the parts

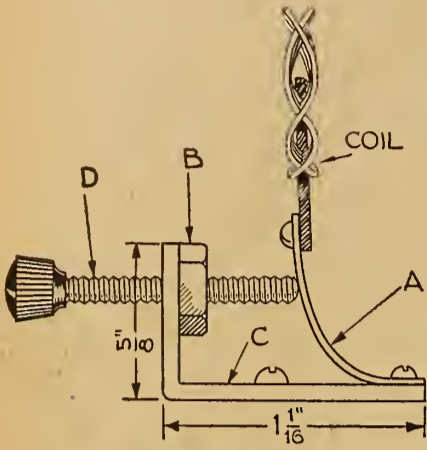


Figure 7

have been assembled on the panel and on the baseboard, and the baseboard attached to the panel either by screws or with brackets, we are ready to commence the wiring. The wiring diagram shown in figure 2 of part one is to be used, the only item not shown in that diagram being the filament switch. This is to be inserted in the circuit in the plus filament lead between the plus A binding post and the point about 1/2 inch above it where a wire branches off to the right going to the second filament. Bus bar will be found excellent for wiring this set as this receiver lends itself readily to the right angle method of wiring. Particular care should be taken in this work and the usual reflex precautions observed. Be especially careful that grid and plate leads are not parallel and are kept as far apart as possible. Be sure that all soldered connections are actually soldered and not just stuck together with soldering paste.

Coil Connection Important

The connections to the coils are as follows: The inside end of coil L1 connects to the antenna binding post and the outside end connects to the ground binding post. The inside end of coil L2 connects to the F minus end of the audio frequency transformer AT1 and the stator plates of C1; the outside end of coil L2 connects to the inside end of coil L5 and the minus A binding post. The inside end of coil L5 also connects to the rotor plates of the .0005 mfd. condenser C1. The outside end of L5 connects to rotor plates of

L6 connects to the P binding post of the primary side of AT2 and the outside end goes to the P binding post on the socket. By following the diagram the balance of the wiring will be found easy, but the connections of the coils must be adhered to strictly as described or the set will not work correctly.

When wiring this receiver it will be found an excellent plan to go over each wire on the diagram with a red or blue pencil, as that wire is placed in the set, so that no wires will be omitted nor the same connection made twice, which can very easily happen. The fixed mica condenser shunted across the secondary of

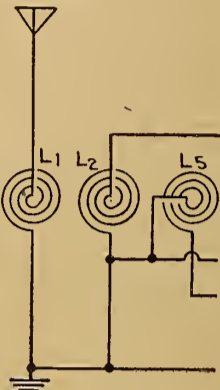
AT1 and labeled C2 has a capacity of .001 mfd., the condenser across the primary of AT2 and labeled C3 has a capacity of .006 mfd., the condenser across the primary of AT1 and labeled C7 has a capacity of .0005 mfd., while the condenser labeled C8 has a capacity of .0001 mfd.

(In the next issue Mr. Knox will go into the adjusting and tuning of this unusual reflex so that readers can duplicate the exceptional sharp tuning and strong volume which the author obtains in Los Angeles. —Editor's Note.)

See that the voltage of the charging device is higher than that of the battery.

Correction

The wiring diagram of the Knox Reflex was shown as figure 2 in Part 1 of this series of articles. No connection to ground was indicated in that diagram so this correction diagram is shown that readers may add the ground symbol and connection to figure 2.

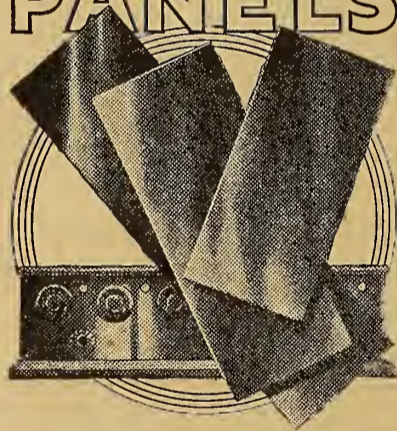


midget condenser C5. The inside end of coil L3 connects to the B plus post of the primary side of audio transformer AT2 and the outside end connects to the plus B battery binding post. The inside end of coil L4 connects to the rotor plates of C4 and the P binding post on the primary side of AT1, while the outside end connects to the stator plates of C4 and the crystal detector. The inside end of coil

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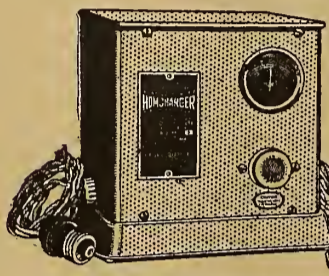
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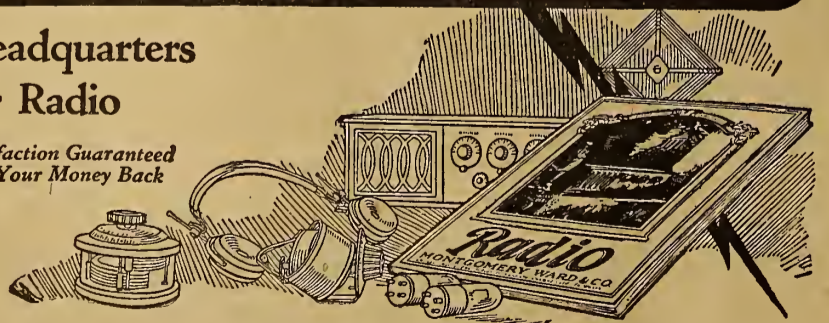
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Broadcast Listener's Reference Library

Part II—Distance and Reception Limitations

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

OF COURSE crystal set owners are not interested in questions such as these: How far can I receive? Facts about fading? What constitutes results? The truth about static. They very seldom ever bother about static because they are (necessarily) so close to the broadcasting station that the broadcaster's signals are more powerful than the static. But, to the broadcast listener making use of any other type of receiver, these are very vital subjects and are the things which he should know a little about.

There is an absolute need for a clear explanation regarding the facts which determine the distance a receiving set can pick up broadcast news, music and other interesting matter. With this in mind I will endeavor to bring to light the very factors upon which good reception depend.

To begin, it might be said that a receiving set itself cannot receive any further than the box or cabinet it is installed in. From this, it should be clear that the transmitted waves must reach the receiving station's antenna.

Sensitivity

Many have asked why it is that they could hear Pittsburgh or even Detroit several hundred miles distant and yet they could not hear another station operating but seventy-five miles away. The waves of the smaller stations operating seventy-five miles away did not reach their receiving antennas, consequently there was no reception to be had.

The foregoing conclusion brings up the question often asked regarding the sensitivity of a receiver. The larger the facilities of the manufacturer and the better the engineering skill, the more sensitive will the receiver be. Such a receiver is apt to respond to waves which barely reach the receiving antenna, while a less efficient one will not record the presence of the waves in that vicinity. This is the only difference between receiving sets today. Their inherent ability to pick up broadcast stations thousands of miles away is due to the skill, workmanship,

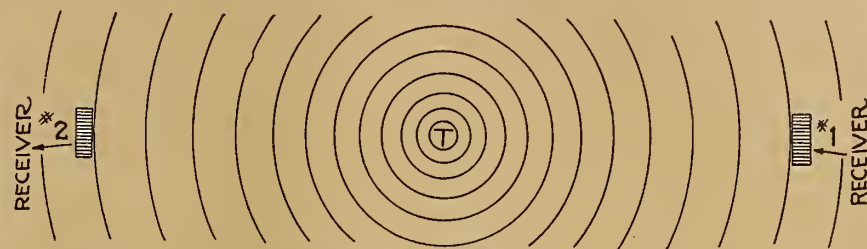


Figure 7

engineering ability and overall efficiency of the manufacturer or builder.

In figure 7 two receivers of different construction are shown. The waves from the broadcasting station T barely reach their antennas (this is the point of practically zero current) no response is had at receiving station number 1 even though the same number of tubes are in operation. At station number 2 reception is being had from the broadcast station because the receiver, while using the same number of vacuum tubes has been constructed along engineering lines, and every precaution was exercised to build an efficient receiving set.

Striking examples of the above come from inexperienced constructors who have built their own sets. They want to know why it is that they cannot receive as far as their neighbor who has in use a set manufactured by one of the large manufacturers, or a set he constructed himself along the lines mentioned.

Weather

Then, we also have the weather conditions to take into consideration. Consider that an efficient receiver is being employed for the reception of concerts being sent out by the most prominent and powerful stations in this country. We do not hear Memphis or St. Louis as loud as we had them last night. The first thing one is apt to think is that the receiver has gone wrong. Not so! A change in weather conditions will alter Radio receiving conditions and you must be governed accordingly.

Then there are the fading problems—when the signals walk in—and walk right out again. This condition cannot be helped at the receiving end—and as far as we know—not at the sending end either. Nothing that you can do to or with your receiver will help. It seems to be a condition due to change of atmospheric conditions between the sender and receiver. Therefore, if you have a certain station tuned in well, do not try resetting the dials when the station begins to weaken. You only make matters worse, simply because it is harder to tune in the station with diminished signal strength, and if the signal gets too weak you may lose the station entirely.

If "fading" is very pronounced on any particular station, try tuning in some station in another direction. Conditions between you and that station may be entirely different. That accounts for the variable results obtained each night from a given number of broadcasting stations.

Static—the misnomer—for it is not at "rest," and according to Webster. It is moving just a trifle too much for us. Several devices have been used to good advantage in eliminating a good portion of this interference—and for one the author's underground system. However, the real solution is very powerful broadcasting stations permitting detuning of the receiver, that is, losing the static and

still retaining the broadcasting station, because of its greater strength.

(Antennas and grounds, being a source of much of the discouraging results fans meet, are taken up next week by Mr. Jones.—Editor's note.)

Harmonics and Meters

Harmonics of a broadcasting wave are the higher frequencies, representing exact multiples of the fundamental frequency. For example, suppose a station is sending on a wave length of 600 meters, which is a frequency of 500 kilocycles. This is then the fundamental wave (for frequency). But if the antenna arrangements are bad, or for many other reasons, the wave actually sent out may contain also a frequency of twice 500 kilocycles, or 1000 kilocycles, which corresponds to 300 meters. This is the first harmonic. Similarly there might be also a frequency of 3 times 500 kilocycles, or 1500 kilocycles, corresponding to 200 meters. This would be the second harmonic. There would be a third at 2000 kilocycles or 150 meters, a fourth at 2500 kilocycles or 125 meters, and so on. Of course, all broadcasting stations try to keep their sending wave as "pure" as possible, that is, to avoid producing these harmonics.

Directional Properties of Loops

The directional properties of a loop are altered by the presence of magnetic materials situated near it. The steel framework of a building has a detrimental effect on the directions of a loop. The buildings have the characteristic of casting shadows across the loop aside from distorting the directional properties. This condition is particularly true of pancake loops.

It is wise to keep the loop away from metal stairways and radiators. It is poor practice to place the loop too near the receiver, because interaction may result. Then, again, placing the loop too far away from the set will also cause trouble.

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The Reader's View

Simplifying Station Call Letters

In a recent issue of your excellent magazine a contributor published an article on the need of simplifying Radiocast station call letters so they could be understood by listeners in, and suggested the substitution of a code, which he stated was used with success by the signal corps during the war in the transmission of Radio telegraphic communications.

I agree with the writer that there is a dire need of some arrangement whereby a fan may be able to distinguish between such letters as B, C, D, E, G, P, T, V, Z, when pronounced by the announcer of some small station and even the larger distant stations, but substitution of the code suggested would be impractical as it would simply mean that every purchaser of a set would first of all have to memorize the code.

A much simpler arrangement would consist of simply grouping the letters of the alphabet according to their sound, then eliminate all but one letter from each group and use just one letter representing each sound group. A division of the alphabet according to sound, would be as follows: A, H, J, K; B, C, D, E, G, P, T, Z; F, L, S, X; I, Y; M, N; O; Q, U; R; W.

Selecting the letters from these nine groups which are most distinct and which would probably carry best, we would have A, E, L, I, M, O, U, R, W.

Owing to the fact that the international agreement assigns the letters K and W to the United States and these two are used as the first initial of all broadcasting stations, it would be necessary to use K in this list instead of A, as the first letter of a call, but A could be used to better advantage than K as the second, third or fourth letter.

A few minutes with a pencil and a sheet of paper will reveal that the letters I suggest will give perhaps twice as many call letter combinations as there are Radiocast stations in this country, with no two combinations sounding anything alike.

In fact, I believe that by using K and W as the first letters of stations, as is now done, and designating one of the others to be used as a second letter in the call to represent the various Radio districts, the fans would be able to tell which district a station was in as soon as the call was heard.

For instance: WAAE, WAAL, WAAI, WAAM, WAAO, WAAU, WAAR, WAAW, WAEA, WAEI, WAEL, WAEM, WAEO, WAEU, WAER, WAEW, WALA, WALE, WALI, WALM, WALO, WALU, WALR, WALW, WAI, WAIE, WAI, WAIM, WAIU, WAIR, WAIW, WAMA, WAME, WAML, WAMI, WAMM, WAMO, WAMU, WAMR, WAMW, WAOA, WAOE, WAOI, WAOL, WAOM, WAOO, WAOU, WAOR, WAOW, WAUA, WAUE, WAUL, WAUM, WAUO, WAUR, WAUU, WAUW, WARA, WARE, WARI, WARM, WARO, WARU, WARR, WARW, WAWA, WAW, WAWL, WAWM, WAWO, WAWU, WAWR, WAWW, are four letter combinations representing Radio district number 1, for instance, and ten three letter combinations starting with WA can be added to this list, also quite a few four letter combinations which I have probably missed in running through the list.

Calls starting with WE could represent

Radio district number 2, and a similar number of combinations could be worked out for that district, and so on through combinations starting with WF for the third district, etc. Getting into western territory K could be used as the first letter, and another group of several hundred call letter combinations arranged, in fact there would be twice as many groups or combinations possible as there are Radio districts and if there are too many stations in one district for one distinctive letter to suffice, two letters, to be used as the second initial of the calls for that district, could be assigned.

This plan would of course necessitate the reassignment of call letters, which could be done very quickly by the department of commerce and which would cause confusion for but a very few days.—M. F. Hoyle, Hollister, Calif.

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Soldered Joints

Solder should be flowed on a joint, not brushed on. The equipment for doing a good soldering job is small—an electric or plain heat iron, some strip solder and a small quantity of flux is all that is necessary. But in order to make a perfect joint, there remain several things which are also necessary. First, the iron must be clean. Second, the iron must be hot, not warm; with a semi-warm iron you can hope for nothing more than a brushed-on solder job, which will not hold. One teaspoonful of powdered rosin to ten teaspoons of alcohol makes the ideal soldering flux for Radio work.



for the Ideal Radio Rheostat

The old story of big demand and quantity production making for price reduction has worked out for the Marshall-stat, the ideal radio rheostat. Its new price is \$1.50 now.

For your money you get the smoothest accurate adjustment rheostat on the market. It gives vernier precision throughout its entire range from 100 to 0.2 ohms. Yet there is only one adjustment to make—only one dial to turn.

In addition, it is compact (illustration above full size), requires only one hole in panel, and can be used with any tube or combination of tubes.

You can't go wrong with the Marshall-stat. MARSHALL ELECTRIC CO., 3231 Locust Boul. St. Louis, Mo.



Get the Marshall-stat at radio dealers everywhere. Write us for descriptive literature.

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.

ELGIN 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 Elgin Super-Reinartz, the set that gets the distant stations. They are free—no obligations, just a stamp for postage, please!

tear out this coupon—

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Send the FREE drawings of the Elgin Super-Reinartz at once. Also tell me how I save \$50.00 on this set. I enclose a stamp for postage.

Name.....
Address..... (Please PRINT in pencil)

Hansen "BIRD-CAGE" Radios



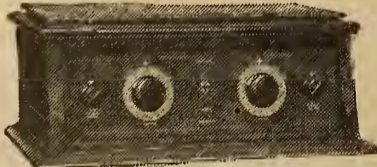
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NIGHTINGALE\$32.50
A wonderful little set.

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Easy to tune—long distance—selective.

4-Tube Receiver.
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AMERICAN CREST.....\$150.00
This we believe to be the best 6-Tube loop set on the market.

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 cannot offer anything better.

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



End 50% of your radio troubles with Ekko Clamps

The experience of set manufacturers and service stations shows that 50% of the trouble with radio sets comes from a faulty ground. It is not enough to wrap a piece of wire around a pipe. The contact must be firm and permanent. The Ekko Clamp insures a good ground. The half-moon shape makes it easy to attach anywhere and a turn of the screw fastens it securely. The hardened point bites through paint or rust. The connection is made tightly so corrosion cannot form and ruin it. Sold by radio dealers everywhere.

Price each, 25c

THE EKKO COMPANY
111 West Monroe Street • Chicago, Illinois

Effarsee Better than an Outdoor Aerial

Effarsee Portable Antennae—curtain shaped—solves the problem wherever it is difficult or impossible to put up an outdoor aerial. If you have an outside Antennae Effarsee connected in the Antennae circuit will greatly increase your volume. You can hang it anywhere indoors or out and install it in a minute.

It is better than an outdoor aerial because it brings in less static and noise and increases selectivity. It gives excellent volume on either local or distance, and can be used on any set—from an eight tube super-heterodyne to a crystal. Dealers find it excellent for demonstrating sets designed to work on outdoor aerials. It is much better than a loop.

Three Sizes \$1.00, \$1.50 and \$2.50

If your dealer can't supply you, order direct. Money back if not Satisfied.

The Fishwick Radio Company
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Cincinnati, O.



B Battery Read With 10-Volt Meter

High Voltage Read on Low Scale Instrument

It is a comparatively simple matter to adapt your A battery voltmeter to read your B battery voltage. All that is necessary is to add the proper resistance. A

WORKSHOP KINKS EARN A DOLLAR—

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

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

25-watt or 40-watt mazda lamp placed in series with one meter lead will give just about the right deflection of the meter on full B voltage.

The meter and lamp may be mounted on a small piece of panel, as shown in figure 1, and three binding posts provided so that either A or B voltages can be read, as desired.

To calibrate the meter, use the circuit shown in figure 2. A reasonably accurate voltmeter of proper scale can probably be temporarily secured to serve for the comparison voltmeter S. This is connected to one side of a double-pole double-throw switch, and the new meter connected to the other side. Leads from the blade contacts go to the B battery. The voltage of the latter is varied by changing the number of cells in the circuit and the two meters read for each value of the voltage

40-WATT MAZDA LAMP IN SERIES

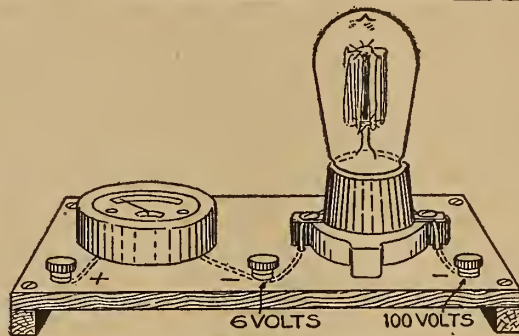


Figure 1.

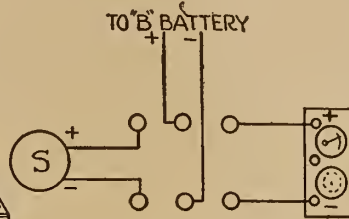


Figure 2.

which should cover most of the scale of the meter.

The readings taken are plotted in the form of a curve, which will be similar to that shown in figure 3. The values given

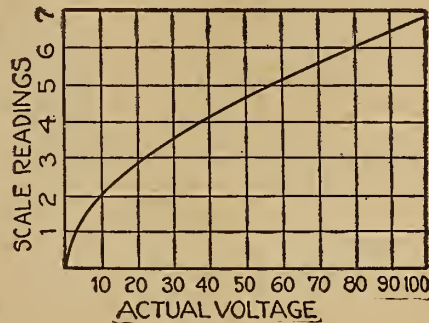


Figure 3.

there are those actually obtained in calibrating a meter such as is described here. By means of such a curve the actual voltage for any scale reading may easily be determined.—Louis L. Matson, Nela Park, Ohio.

Low Loss Apparatus

Low loss apparatus means coils and inductances free from great masses of dielectric surrounding them. If a tube or form on which the coil is wound must be used it should be very thin and non-absorbent. Closed metal paths should be avoided in the vicinity of inductances either as a part of the form, or of the mounting. Self-supporting coils don't mean anything where great daubs of "dope" are used. The wire itself can be heavy enough to give support and merely a thin layer of collodion used, if necessary anywhere, for protection against moisture.

Soft and Hard Tubes

A soft tube that contains a lower degree of vacuum is more sensitive as a detector in a Radio set. The hard tubes function best as amplifiers, however, while soft tubes are not as suitable for this use.

SOLVED!

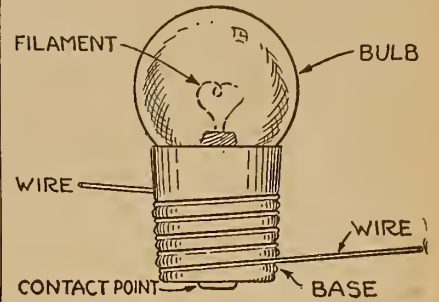
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Throw away your "B" Batteries and install a Kellogg Trans-B-former. It gives you "B" Battery current direct from your electric light socket at the trifling cost of one-fifth of a cent per hour. Gives better reception—no interferences. Write for details.

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SWITCHBOARD & SUPPLY CO.
Trans-B-Former
1066 W. Adams St., Chicago, Ill.

Flashlight Bulb Makes Dry A Battery Tester

Procure a small pocket flashlight bulb and wrap or solder a small piece of wire around the base as shown. Bus or aerial wire will do. To test a 1½-volt dry cell



press the contact point of the electric bulb on the positive or center post of the battery and the wire on the negative or outer post. If the batteries will not light the bulb they should be discarded.—O. J. Miller, Cleveland, Ohio.

Stop Loud Speaker from Rattling

To stop rattling in your loud speaker unit drop a bit of shellac on the pin joint in the middle of the diaphragm. A narrow disc of blotting paper placed inside the cap so it laps over the edge of the diaphragm also will help.

The Crystalstat

PRICE
\$2.50



The Ideal Reflex Detector but equally suitable for crystal sets. The Crystalstat embodies the following features: A super-sensitive crystal 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 give light but sure contact. The crystal is our wonderful Star-lite, the pick of the Earth's best crystal. The Crystalstat attaches through one 5/16" hole in the panel so that only the control knob shows on the face of the panel.

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Look for the name



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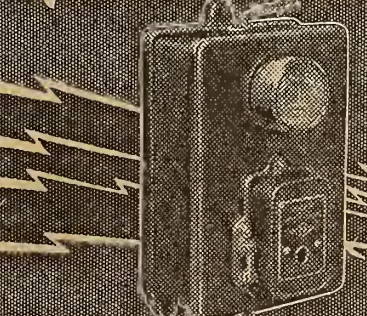
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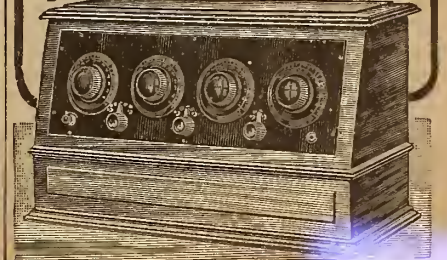
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Questions and Answers

Short Range Transmitter

(11711) RCP, Owen, Wis.
We are thinking of putting a small broadcast station in our church, and I have been asked to get some information on the cost of such an outfit. We would like a set with about a 200-mile average range, and as simple as possible.

Can power transformers be used for voice broadcast or would a motor generator have to be used? This for plate voltage.

We have 110-volt AC and can get 220-volt. If you have any hook-ups of something simple in a transmitter which would give good quality of phone transmission, we would be pleased to have them to look over.

A.—We must advise that there is no such thing as a 200-mile average range. The distance over which any transmitter can be heard varies every evening due to atmospheric conditions and the range is governed very largely by the sensitivity of the receiver. The smallest practical receiver today for reception around 200 miles is a single tube regenerative receiver and there are probably more of this type of set in use than any other. In order that these single tube sets might reliably hear programs every day over a distance of 200 miles it would be necessary to install a broadcasting station

Raulf Radio Consoles. The ideal radio cabinet, built in genuine mahogany or walnut. Send for descriptive circular. Raulf Manufacturing Company, 564 Vedder St., Chicago, Ill.

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.

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DX "mushy"?
FREE BOOKLET
On "Tube Control" tells how to bring in distant stations clear and loud. Just drop a post card to
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RADIO PRINTERS, Dept. 6412, MENDOTA, ILL.

rated at 500 watts output. This is the rating of most of the class B stations in use at this time, among these being WQJ, WHAS, WMC, WHO.

These transmitters are purchased from the Western Electric company, the price being about \$10,000, with additional charges for installation and decoration of studio. The average upkeep of these stations runs anywhere from \$25,000 to \$85,000 a year.

Power transformers cannot be used as the 50-watt tubes require 1,000 volts on the plates and the larger tubes require anywhere from 2,000 to 4,000 volts on the plates. It has been found much better to use a motor generator than to raise the voltage by means of a transformer and then attempt to rectify it.

We have plenty of hook-ups for low power transmitters which probably would be heard occasionally at a distance of 1,000 miles on a five tube set but which at the same time could not be heard dependably over a distance of 200 miles on

RADIO LOG BOOKS. Used with any set. Satisfaction guaranteed. Postpaid 25c. Dealers wanted. Roy Stacy, Rockford, Ill.

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New Long Distance Crystal Gives Remarkable Results
A recent invention in crystals is amazing Reflex and Crystal Set owners everywhere. It is stated that this marvelous Crystal gets distant stations loud and clear, and there is no disagreeable "hunting" for spots because the entire surface is sensitive. Many are finding it far superior for reflex work and claim it is the last word in mounted synthetic crystals.
A Trial Costs You Nothing
In order to introduce his invention, the owner, Mr. Hick, offers you two \$1.00 Crystals for the price of one. Sell one, and put the other on your own set without cost to you. Just send name and address to Mr. Hick, Dept. 12, 1013 S. Wabash Ave., Chicago. Pay postman \$1.00 (plus postage). Unless you are absolutely satisfied, write Mr. Hick, and money will be cheerfully refunded.

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The one piece stator makes for 100% efficiency. Eliminates leakage, resistance, broken contacts and soldered joints. In types 3 (plain) and 4 (all-vernier), CELDRON END PLATES; types 5 (plain) and 6 (all-vernier), METAL END PLATES.
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122 Mechanic St. Newark, N. J.
Manufacturers of Special Tools, Dies, Jigs, Automatic Machinery and Sub Presses.

a single tube set. We shall be glad to supply you with diagrams of 10, 20 and 100-watt transmitters if you decide to use one of such low power, but we want to make it clear that such transmitters cannot be heard regularly over 200 miles on the average set.

Glass awning rings are tough and will stand enough strain to make them good aerial insulators.

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All equipped with Solid Rubber Base.

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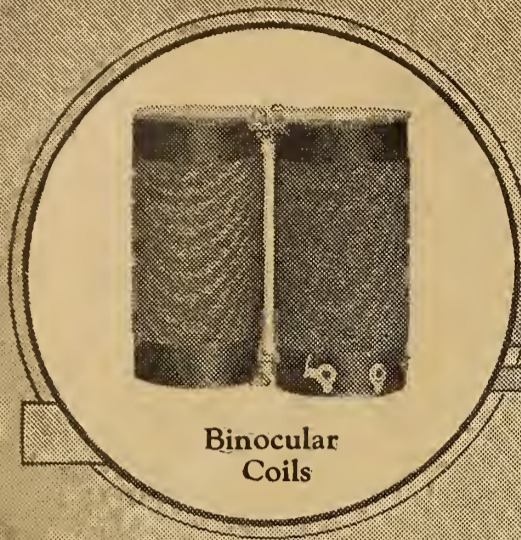
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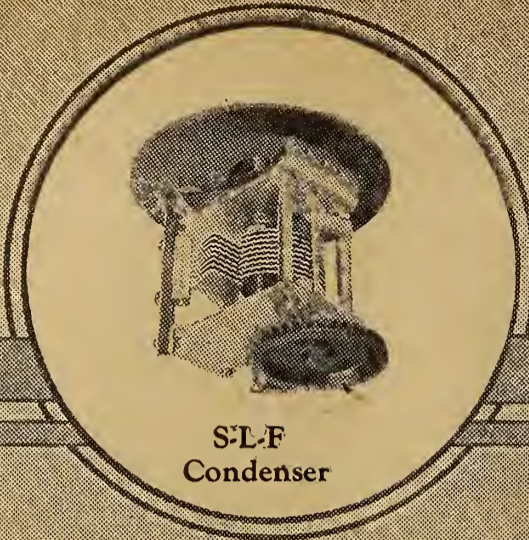
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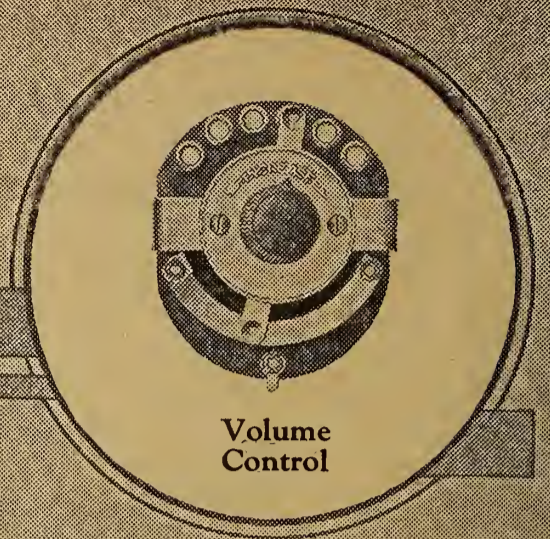
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That's the common expression of dry cell "B" batteries. Purchase the economy way and enjoy freedom from hissing and frying, clearer reception, and greater volume. Put together an everlasting "HAWLEY" rechargeable "B" storage battery. Nickel-iron alkaline type. No former experience or soldering necessary. Put up in both assembled and knock-down types. The knock-down units contain all actual material for building battery and are put up in 90 volts @ \$8.95; 100 volts, \$9.95; 120 volts, \$11.60; 135 volts, \$12.75; 150 volts, \$13.90; 200 volts, \$17.50. Guaranteed for 2 years with a 30-day trial offer of complete satisfaction or return of your money without any ifs nor ands. Complete sample cell 35c prepaid. 8-page illustrated folder of instructions showing simple putting together, making charger and charging free with all orders. Complete manufactured "B" battery charger \$2.75. Order direct or write for my literature, guarantee, and testimonials. Same day shipments.
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Binocular Coils



S-L-F Condenser



Volume Control

These Three Guarantee Unsurpassed Reception

THREE exclusive and fundamental features enable the Grebe Synchronphase to give reception that is unsurpassed:

Binocular Coils keep the set balanced against local interference and provide greater selectivity and sensitivity.

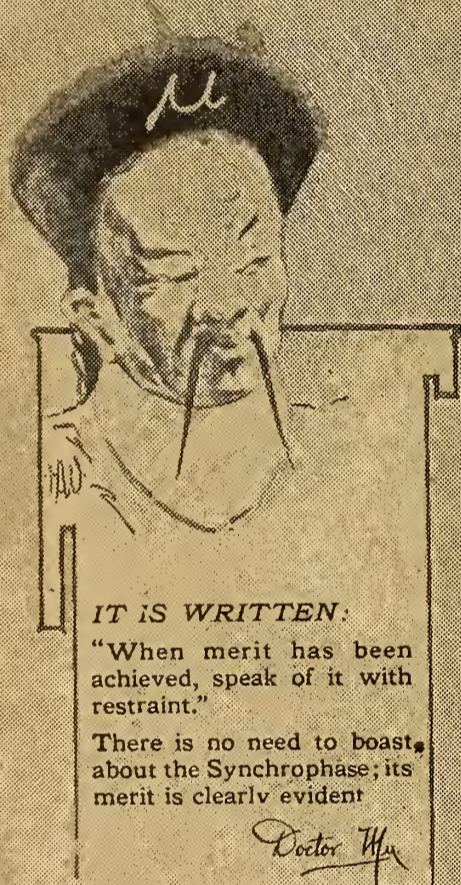
S-L-F (straight line frequency) Condensers make tuning-in quick, easy and positive. All stations are spaced at equal intervals around the dials; short-wave stations are not crowded onto the lower numbers.

Grebe Volume Control gives six graduations of sound without reducing tube current; thus maintaining the true character of every note.

Unlike sets made up of assembled parts, where the assembler has no control over their design and quality, every detail of the Synchronphase is designed and built in the Grebe factory. We control *rigidly* the quality and construction of all parts. As a consequence, they co-ordinate perfectly and this makes possible the unsurpassed performance of the Synchronphase.

This excellence extends also to the Synchronphase cabinet. It is beautifully designed and built of solid mahogany, highly polished and with delicately embossed gold escutcheons.

Compare all sets before you buy but be sure to have the Synchronphase demonstrated by your dealer.



IT IS WRITTEN:

"When merit has been achieved, speak of it with restraint."

There is no need to boast about the Synchronphase; its merit is clearly evident

Doctor Wu

Ask your dealer or write us for full information

A. H. Grebe & Co., Inc.

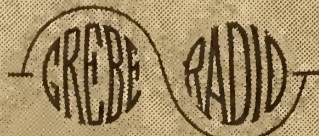
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Supplied also with base for batteries

The
GREBE
SYNCHROPHASE
— TRADE MARK —



All Grebe apparatus is covered by patents granted and pending

TRADE MARK
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This company owns and operates station WAHG