

See Page 10 for New and Important Improvements in Advance Programs; Broadcast Listener's Library; "Dos" and "Dont's" of Home Construction

Radio Digest

EVERY WEEK

PROGRAMS Illustrated

TEN CENTS

REG. U. S. PAT. OFF. & DOM. OF CANADA

Vol. XII

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SATURDAY, FEBRUARY 21, 1925

No. 7

LODGE SAYS EYE IS SET

PREDICTS ENDOWED AERIAL UNIVERSITY

H. V. KALTENBORN SEES BIG EDUCATIONAL FUTURE

Well-Known Editor Believes Broad-Visioned Philanthropist Will Grasp Great Opportunity

BROOKLYN, N. Y.—That the founding of an endowed Radio university in Brooklyn would soon take place was the prediction of H. V. Kaltenborn, associate editor of the Brooklyn Eagle, recently when he addressed the Magazine club of New York.

Mr. Kaltenborn suggested that the proposed Radio university would broadcast college education to the millions who have not had the opportunities offered by a formal education. College professors would be engaged to present their courses in the same fashion as they do now, according to the plan. The students, however, would be able to remain at home. The only expense to them would be the text books. The entire curriculum of the standard college would be covered.

"Before long some broad-visioned Amer-
(Continued on page 2)



SIR OLIVER IN TALK MAKES STATEMENT

Retina Emits Electrons

World-Famous Savant Declares Eye Works on Same Basis as Radio Receiver

LONDON, England.—"The eye was the first Radio receiving set employed by man," declared Sir Oliver Lodge, the world-famous scientist, during his presidential address here to the Radio Society of Great Britain recently. "It is like a receiving instrument for detecting Radio waves of extremely short and definite
(Continued on page 2)



COOLIDGE WOULDN'T OVERDO RADIOCASTS

WASHINGTON, D. C. — Asked what he thought about periodic Radio addresses, President Coolidge recently said that he did not believe it necessary for the president to address the country periodically as the newspapers are doing this very well.

Left, Elizabeth Frances Carlisle, soprano, who has been heard from Station WLW frequently. Above, Doris Kenyon, motion picture star, who gave eastern Radiophans a treat during a recent broadcast from Station WIP. Right, Emma Haig, favorite musical comedy star, who was heard recently through Station WLIT.

NEW "VOICE" AT WGR IS KENNETH FICKETT

BUFFALO, N. Y.—Behold! WGR has a new announcer. The perfect-speaking O. E. Becker is still at the station as chief announcer, but Robert "Bob" Munn, whose baritone voice and ivory-tickling facilities were so well known to WGR fans, has left the study to pursue his musical career more closely.



Kenneth M. Fickett

Bob Munn is succeeded by Kenneth M. Fickett. "Ken" speaks very clearly, although somewhat more rapidly than Mr. Becker. Ken is also inclined sometimes to interpolate things that are not absolutely necessary to the announcing, but none the less pleasing.

Mr. Fickett is young and not hard for the gentler sex to look upon. He is sparkling, not to say effervescent. He is witty, cultured, educated and in his brief span has traveled in China and other Far East points, in South America and Europe. He is blonde and slim and athletic. He likes baseball, soccer football, golf and tennis, as a participant rather than as a spectator. He admits that he is "single, but willing to change."

LODGE SAYS EYE IS SET

(Continued from page 1)

length. Vision is a photo-electric phenomenon.

"I make that rash statement, and say that the burden of proof and especially the burden of disproof, rests upon future experimenters."

Sir Oliver whose subject was "Matter and Radiation," continued: "Radiation is purely a phenomenon of the ether. There is no mechanical connection between ether and matter. The only link between them lies in electricity and magnetism; but neither an electric charge nor a magnetic field generates radiation. There must be both—an electric and a magnetic field superposed at right angles to each other. Then we have radiation, traveling with the velocity of light, at right angles to both.

Vision Rests on Electron Emission

"Atoms when jostled not only emit radiation; they emit electrons. There is something in the retina of the human eye which responds in this way, flinging away electrons at characteristic speed when it feels luminous tremors, and it is to this strange, unaccountable emission that vision is due. Electric tremors do not affect the nerves directly; they stimulate something specially adapted to respond to the vibrations. What stimulates the nerves is the shock of the electrons ejected by the atoms, which strike them with the speed of some thousands of miles a second. This is the theory of vision."

Dealing with the connection between radiation and matter, Sir Oliver said the electric units of which matter is composed consisted of protons and electrons. Whenever they approach each other, falling together, they radiate. It is not known that they ever clash and annihilate each other.

"But we can at least contemplate the process," he proceeded, "and ask what would happen if they did: the answer is clear enough. The two would vanish in a puff of radiation; all that would persist of them would be their energy. That energy would be no longer localized in specks of matter, but would be traveling across space with the speed of light—it would wholly belong to the ether.

Stars Yield Compressed Light

"This it is to which astronomers make appeal for the intense radiation from the stars and especially the unimaginable-intense radiation in their interior. It is compressed light. The pressure of light may become enormous, though on earth we have the utmost difficulty to detect it.

"Some special process must be imagined to account for radiation of this violence, enduring without perceptible loss for billions of years. But if units of matter thus clash and destroy each other, matter must be disappearing; there is conservation of energy; there is no conservation of matter. The sun loses 4,000,000 tons of matter every second; that is the rate at which it is radiating ether waves. Of that the earth receives about sixteen pounds a minute. But it makes no difference to the sun; it can go on expending itself at this rate for millions of centuries without apparent change. In time, of course, it must exhaust itself and fade, but that time is not yet.

"There is reciprocity about the process. While matter can turn itself into radiation, radiation turns into matter. I can imagine matter being generated in the far depths of space, which matter can then by gravitation fall together and re-

NEWS NOTES FROM FOREIGN LANDS

Reports from Bombay, India, state that an American station has been heard there. The call letters have not been ascertained.

The British Broadcasting company is soon to make an attempt to relay and broadcast the roar of water rushing over Niagara Falls.

Broadcasting his play in defiance of the Theater Managers' Association of London, Eng., Donald Calthrop reported the booking for the play had increased by 50 per cent.

The first all-American Radio program in Europe was recently broadcast from the "Petit Parisien" station, Paris, under the auspices of the New York Herald and the Chicago Tribune.

Broadcasting officials throughout Great Britain are hunting for a man who makes phonograph records of songs sung by famous singers before the microphone.

produce or keep in maintenance the whole material cosmos. I see no ultimate dissipation of energy in the universe, but energy passing from matter to ether and back again."

SEES RADIO UNIVERSITY

(Continued from page 1)

ican philanthropist will endow our first university of the air," said Mr. Kaltenborn. "Here is a great opportunity for some seer to achieve immortality. The project is so attractive, the possibilities so fascinating that I am sure it will be but a little while before some aerial Harvard will be making educational history.

"Education," the well-known editor continued, "comes more easily through the ear than through the eye. However, Radio requires its own technique. Millions of our countrymen who were deprived of the opportunity of attending a university would eagerly embrace the chance of obtaining a college education on the air."

He sells such pirated music much cheaper than the phonograph company, who have to pay large sums to the artists.

Rudyard Kipling is "mike" shy. Repeated attempts have been made to get him to broadcast, but without success. Recently he spoke at a dinner and, although other speeches were broadcast, he refused to allow his remarks to be transmitted.

Reports of Radiophans all over Great Britain are agreed that twenty minutes is quite enough of a play to broadcast at one time. A lengthy performance makes it difficult to distinguish between the hero, the villain and other characters, is the claim.

Burglars recently broke into Station 2LO, London. They took nothing, however. Officials are of the opinion that the miscreants were only keen Radiophans who wanted to see just what a broadcast studio was like.

Russian Radio, although practically unheard of abroad, has taken big strides during the past year. Many large stations under the control of the Union of Soviet Socialist Republic now broadcast regularly in both Russian and Esperanto.

The announcer at the Petit Parisien station, Paris, has evidently been impressed by the need for more than French. He now makes announcements in French first and later in English. His English, His English sometimes goes slightly astray, causing his British listeners to smile.

An unusual situation has arisen in Spain by the many requests of the listeners to have the various operas, or at least entire acts from them, broadcast direct from the theaters. The empress has objected strenuously to this, claiming that the state will show partiality to some theaters.

The well-known French government broadcaster, PTT, in Paris, recently celebrated their second anniversary on the air.

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Looking Ahead

The Mysteries of Regeneration and the proper use of a "tickler" coil are taken up next week by E. T. Jones as Part IV of the Broadcast Listener's Library. Like other well-known writers, he condemns the use of the whistle or beat-note method of tuning.

Winners of the \$1,000 Prize Contest will be announced in the coming issue. That every entry might have a fair test has necessitated giving each several hours of work with different tubes and aeri-als.

"The Merry Old Chief" and All the Nighthawk Crew will be featured next week in a page article illustrated with many pictures. How many listeners have turned the dials to WDAF in the "wee sma' hours" and listened to Leo Fitzpatrick at his best? Do it if you haven't!

Inductances and How to Wind Them to cover the broadcast range will be the subject of an excellent article by David B. Arnold. Having a four inch tube, some No. 24 double silk covered wire and a .00035 mfd. condenser, how many turns and how long the tube? Mr. Arnold gives the data on three tube diameters, six wire sizes and two types of condensers. You will want to save this.

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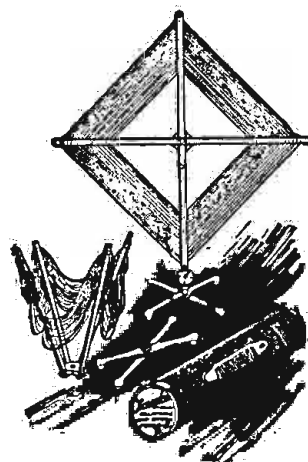
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STATION CHITCHATS AND NEWSY BRIEFS

KGO TO PUT ON "ELIJAH" SATURDAY, FEB. 21

WGN Has Series of "Evenings with the Composers"—WGBS Broadcasts Opera "Cavalleria Rusticana"

Mendelssohn's masterpiece, the oratorio "Elijah," will be broadcast from KGO, Oakland, Saturday evening, February 21. A brief talk will be given before the oratorio, and some of the important parts of it will be pointed out.

WGN, Chicago, will broadcast Sunday, February 22, "Old English Balladists." This will be followed the next week by "Creole Songs and Composers." These are among a series of lectures now being given entitled "Evenings with the Composers."

Country school children in the State of California are learning the geography of the great rivers of the world by Radio. The talks are broadcast every Monday morning at 9 a. m., Pacific time, from Station KGO, at Oakland, Calif.

The opera "Cavalleria Rusticana" was recently broadcast from Station WGBS, New York city. A full cast of operatic stars participated, accompanied by an orchestra of string and wind instruments.

Arranging parties appropriate to holidays and special occasions seems to be the latest. WQJ, at Chicago, is now transmitting suggestions for various parties, including the food. WCCO, the Gold Medal station at Minneapolis, has formed a girls' club for similar purposes.

Charles Wakefield Cadman's latest choral work, "The Sunset Trail," which had its world premiere only a few months ago, was broadcast from KOA, the new General Electric station at Denver.

The chamber of commerce of the Oranges and Maplewood, N. J., has made arrangements with Station WOR, Newark, to broadcast a series of weekly programs to advertise those sections of New Jersey.

A unique tribute to WSB in the form of a ten-page petition signed individually by listeners of Cumberland, Md., reached the Atlanta Journal station recently, asking for a special broadcast from WSB.

Radiophans listening to "Roxy's gang" on a recent Sunday night were surprised to hear Roxy announcing in a different and dignified style. It was rumored that Roxy had been "gagged" by the A. T. and T. company. Officials of the company, when questioned, refused to make any statement. Fans are in arms.

A large class attended the opening of the Radio correspondence courses of the University of Iowa on February 4. These courses are being broadcast every Wednesday from Station WSUI. A special program is broadcast from this station every Wednesday morning for the classes in the high schools.

John Lund, veteran orchestra leader, who had just started broadcasting a series of high grade orchestral productions from WGR, Buffalo, died recently in the Buffalo City hospital following an infection of the leg which developed into blood poisoning.

Station WGN, Chicago, was heard in Tasman, Nelson, New Zealand, recently by E. H. Scott. On February 4, WQJ, also in Chicago, was heard by Mr. Scott. WQJ uses half the power of WGN.

Being heard in New Zealand on the west and England on the East, KOA at Denver has successfully spanned the Pacific and Atlantic oceans and has established its record long distance for program reception.

CKY, Manitoba, Winnipeg, is now broadcasting special educational lectures at 4:15 p. m., central time, on Tuesday and Thursday afternoons. A number of schools are being equipped with receiving apparatus to take advantage of this service.

Admirers of the Vincent Lopez Hotel Statler (Buffalo, N. Y.) orchestra have probably missed this feature during the dinner hour. The orchestra is now on the air from WGR for a longer period, actually from 11 p. m. to 1 a. m., eastern time, on Mondays, Wednesdays and Fridays.

WGY, the Schenectady station of the General Electric company, joined with WJY, New York city in broadcasting the farewell recital by Marcel Dupre, the famous French organist from the Wanamaker auditorium Thursday evening, February 5.

Canada Rebroadcasts First U. S. Program

CKAC Relays WBZ Broadcast of Hockey Game

MONTREAL, Can.—The first rebroadcast in Canada of a transmission from the United States recently took place when the report of the game between the Canadians and the Boston Bruins of the International Hockey league sent out from WBZ, Springfield, Mass., was picked up and distributed through the La Presse station here, CKAC.

The report was announced by the widely known "Frankie" Ryan of Boston, and between periods the game was reviewed in French by Jacques N. Cartier, director of CKAC, who was in Boston for this purpose. The report was picked up at Montreal on a super-heterodyne and carried to CKAC over telephone wires.

While milking the cows after midnight, a fan in Wisconsin reports he listens in to WQJ, Chicago. He has extension wires from his set to the cow stable.

See Worldwide Chain of 500-Watt Stations

Western Electric Discloses Foreign Orders for Installations

NEW YORK.—A worldwide chain of broadcasting stations soon will be on the air as the result of operations of the Western Electric company, whose equipment is being used in most of the class B stations in America.

The latest undertakings of the company and its affiliated international branches will add stations in Persia, Japan, Italy, Norway and Switzerland.

The Italian government has recently granted a concession of Radiocasting to a group of companies, one of which is the Western Electric Italiana. A similar concession has been granted by Norway to a group including the Western Electric Norsk Aktieselskap, and equipment for a new station recently opened in Zurich, Switzerland, was supplied by the Bell Telephone Manufacturing company of Antwerp, which is associated with the International Western Electric company.

HOOVER TELLS NEED FOR LICENSING LAW

TOO MANY STATIONS AND NO WAY TO STOP THEM

Secretary of Commerce Reviews Situation—Sees No Monopoly—Denies Sales Tax Rumor

WASHINGTON.—That there is an absolute and immediate need for legislation giving the department of commerce the right to assign wave lengths and limit power is the summary of a recent statement issued by Secretary Herbert Hoover.

In it he points out that the present most difficult problem is the distribution of wave lengths among class B stations so as to prevent interference. There are now forty-seven of these available for the 108 500-watt or higher power stations. There is therefore an average of less than one wave length for each two stations. This means that operating time must be divided by the B stations.

In many cases, Secretary Hoover says, the broadcasters are unwilling to do this.

Department Has no Power

In Chicago and New York, his statement shows, such multiplication of stations has occurred as to lower the value of efficiency of the service of stations in these cities. But neither under the present law nor under the White Radio bill's provisions is there any word of limitation of the number of stations.

Mr. Hoover advises firms contemplating going into broadcasting to clearly understand that there is no assurance that they can be allotted a class B wave length and justice maintained to Radio listeners. The department of commerce cannot give what it hasn't got.

No Signs of Broadcast Monopoly

The secretary's statement goes on to say that there is no evidence of monopoly in broadcasting, or any sign of it, and that the interconnection of stations has made distinct progress in the last six months.

Mr. Hoover also asks to correct the mistaken impression that his department is in favor of a tax on the sale of Radio material for the provision of a national program. Such proposals were discussed at the recent Radio conference, but were abandoned. At the present moment, he points out, it seems evident from the vast increase in the number of stations that there is no need for a direct or indirect charge upon listeners in order to maintain service.

RADIO BILL GOES INTO COMMITTEE

White Bill Is Modified by Howell Rider—Question if It Passes Present Session

WASHINGTON, D. C.—Another Radio bill has been reported to the House committee on merchant marine and fisheries by Representative White of Maine, chairman of the subcommittee on Radio.

The new bill carries a modified form of the Howell bill providing for free ether, which passed the Senate at the first session of the present Congress. The bill also carries two sections in addition which are those suggested by Secretary of Commerce Hoover and already reported in full by Radio Digest. Those in a position to know say that these sections will never be included in the bill even if it should be reported to the House.

Whether or not any action will be taken at the present session of Congress depends upon the unanimity of action of the members of the committee. If the members cannot agree it is a foregone conclusion that the bill cannot be passed at the present session.

MAY SINGHI BREEN EVER POPULAR



Of all the eastern microphone performers May Singhi Breen is perhaps dearest to the hearts of more listeners than any other entertainer. Her effervescent manipulation of the banjo, uke, taropatch and tiple; her excellently balanced group of "girl syncopators," make the program directors of all metropolitan stations vie with one another for Miss Breen's services.

Lawyers May Sing But Not Talk of Cases Over Radio

CHICAGO.—That lawyers may sing, but may not discuss the merits of lawsuits they may be defending when in front of a Radio microphone, was the recent queer decision made in making jury tests for the Stokes case here.

Charles E. Erbstein, owner of Station WCEE and WTAS, near here, and who is the famous criminal and divorce attorney in the case representing Mrs. W. E. D. Stokes, created a problem when it came to challenging prospective jurors. Many of these had heard Mr. Erbstein sing and announce. The attorneys for Mr. Stokes maintained that Mr. Erbstein had broadcast his opinions about the affair. This was not found to be the case.

1923 Manufactures, \$44,176,298

WASHINGTON.—The bureau of the census of the department of commerce in making public its manufactures census for 1923 states that during that year the value of Radio apparatus manufactured amounted to \$44,176,298 as compared with \$9,549,649 as the value of Radio apparatus manufactured in 1921. The 1924 figures will be doubly interesting.

GIRL UKE ARTIST STIRS ETHERDOM

Aided by "Girl Syncopators," She Even Draws Applause from the White House

NEW YORK.—May Singhi Breen, wizard of the banjo, with her aggregation known as the "Girl Syncopators," are ever popular. This young lady who has leaped to fame via the ukulele and Radio route, has been heard from practically all the stations in and around New York city.

It is because of her versatility in relation to the ukulele that May Singhi Breen has become known to hundreds of thousands throughout the United States. She is a favorite with the broadcasters. Stations WEAJ, WEBJ, WOR, WHN, WJZ and others have featured May Singhi with her tiple, taropatch, guitar, drum, banjo and palno.

When May Singhi isn't keeping house, she's directing her Girl Syncopators—violin, saxophone, banjo and piano—or teaching the young how to play the uke. Her talent in relation to the composi-

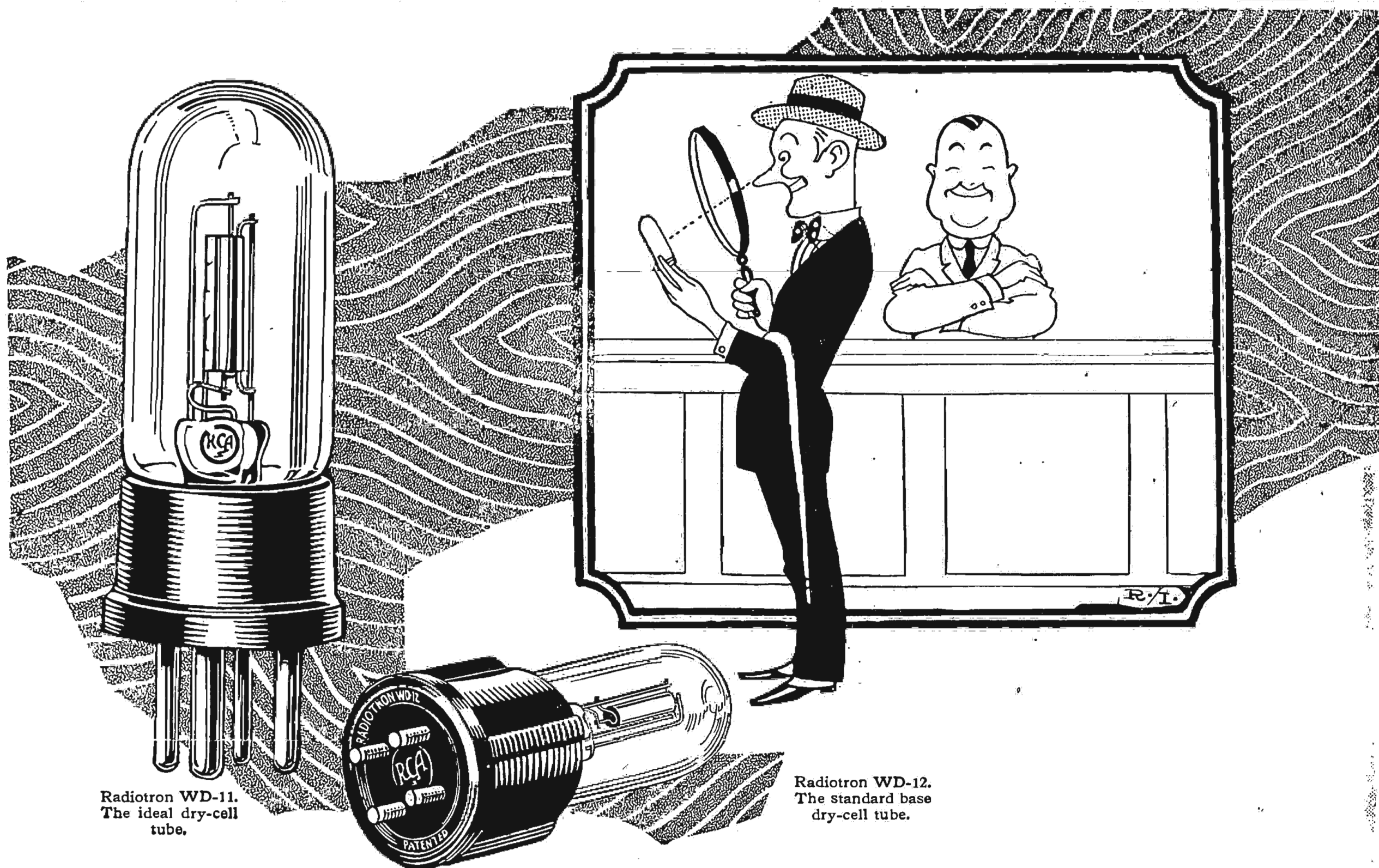
tion of numbers for the ukulele and the adaptation of songs to that instrument has increased sales and brought happiness to many.

What is a taropatch? Ask May Singhi. "It's a form of uke," she says. A uke is the instrument of strings and wood whose strains have haunted the Occident since Hawaii came into her own.

"So's the tiple," Miss Breen continued. Not long ago, Miss Breen received a letter of appreciation from the White House. She played her way into the heart of the nation's chief executive. Not infrequently she receives missives from native Hawaiians praising her ukulele playing and rendition of songs.

But when it comes to making a cake, well, as May Singhi Breen says—cooking and sewing are her best accomplishments. People who listen to her play the uke over the air are curious to taste her cooking and see some of the sewing that she does. Both are good though—no fooling.

A French amateur in Tonkin, China, has reported reception of the Eiffel Tower, using a one tube set.



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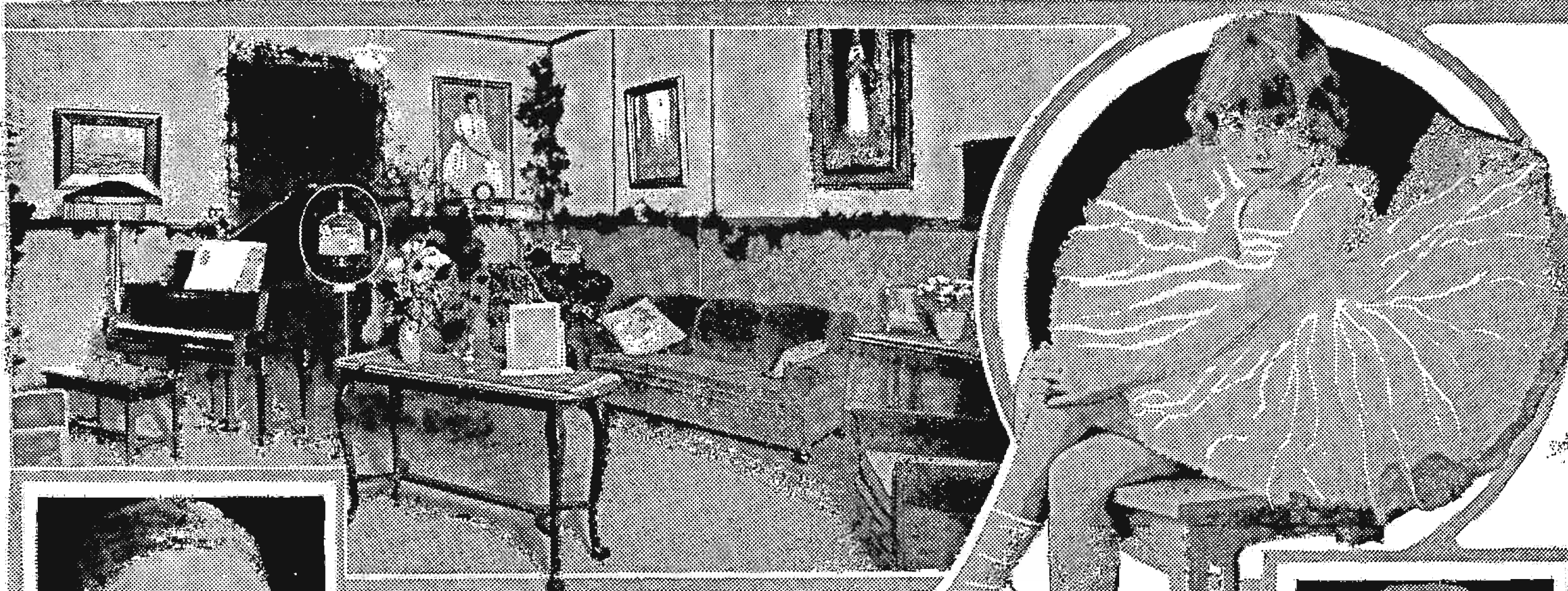


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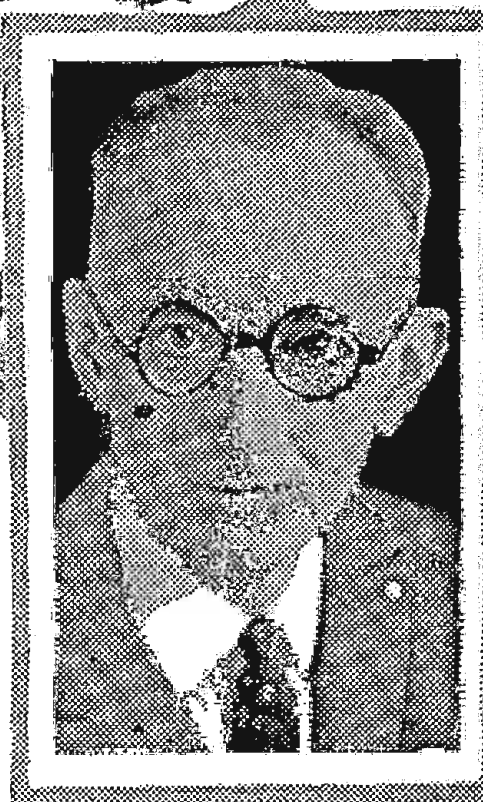
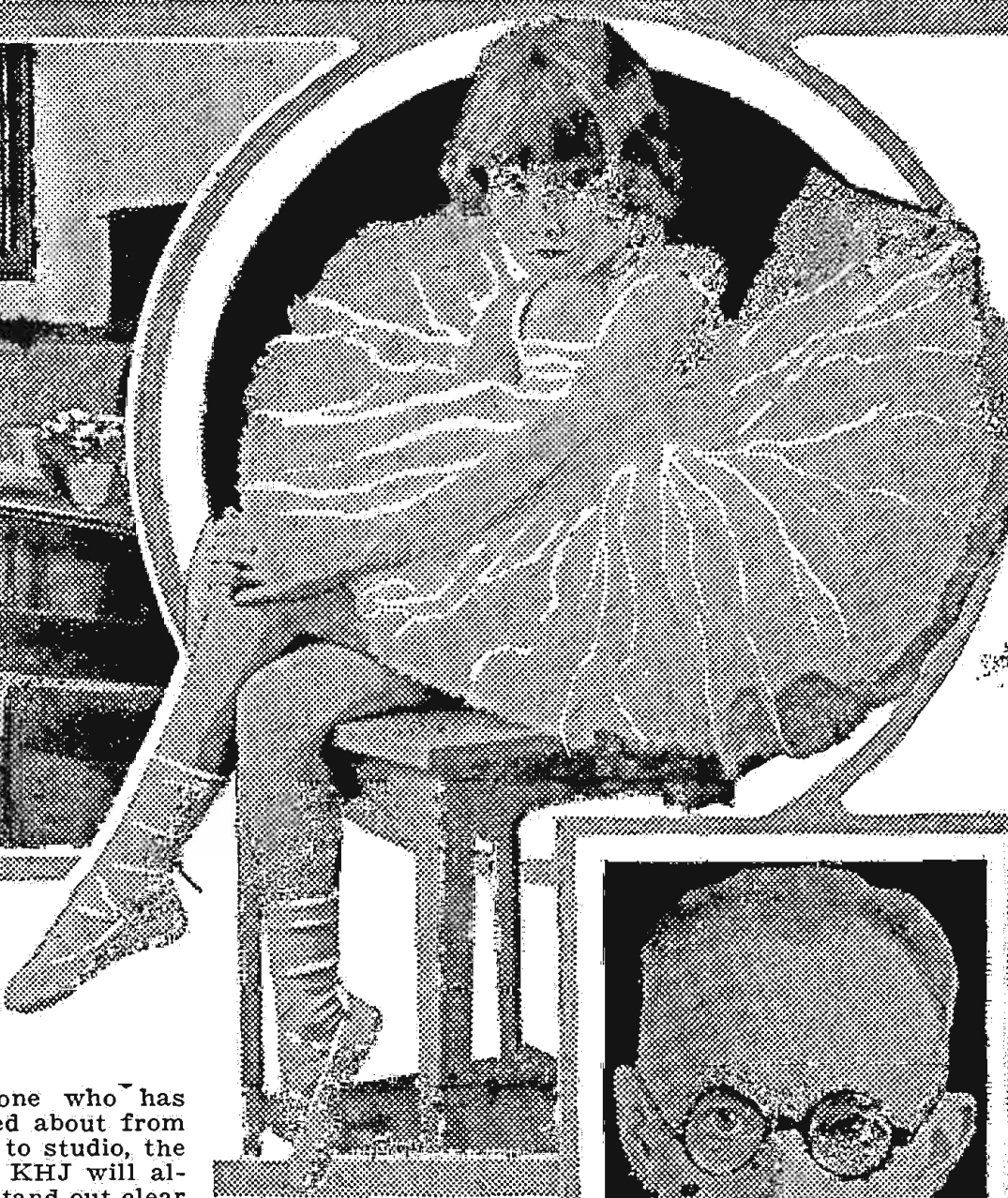
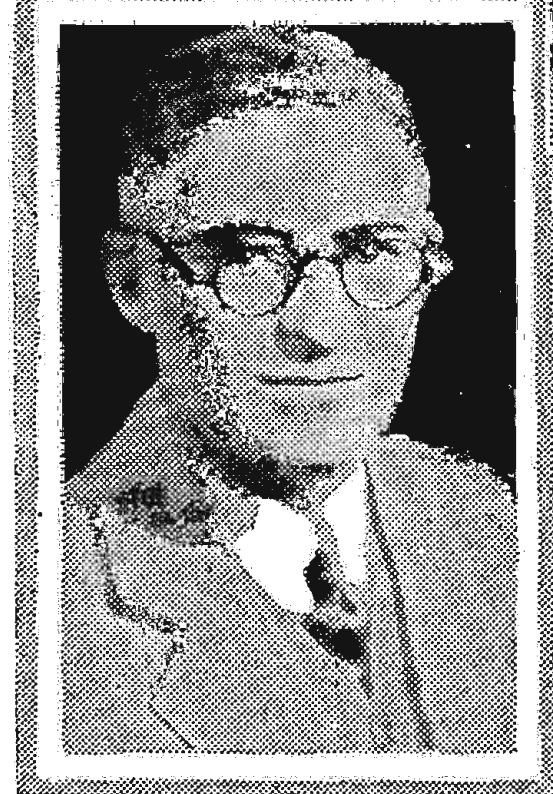
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KHJ—Home of Kindness, Happiness and Joy



Left, John S. Daggett, KHJ director. He is known throughout the country as Uncle John. Above, KHJ's studio. The absence of heavy drapes makes KHJ distinctive from many other stations. Incidentally, KHJ was one of the first stations to discard the microphone switch, leaving the "mike" open.



Above, Queen Titania of Fairyland. She is the Sandman's helper. Below, Uncle John's right hand man, Edward Murphey. He stands six feet four, and his voice goes all the way down.

To many, the children's hour at KHJ, so different in all its aspects from any other children's hour, is the most delightful part of the station's offerings. Queen Titania and the Sandman, who, by the way, is her father, have appeared at KHJ once a week for over a year with a specially written continuity to act out.

On the day KHJ came into being, John S. Daggett became KHJ's announcer and head. Uncle John, as he is known throughout Radioland and as he is addressed by everyone from janitor to the owner of the Times, is the chief and underlying cause for the tremendous popularity of KHJ.

Uncle John brought to his new position a fine college education and a lifetime of experience as a successful newspaperman. His attitude was, and still is, that of a minister to humanity and with such a serious conception of what a broadcast station should be, KHJ has marched steadily forward.

During the short life of the station, KHJ has been responsible for more innovations than any station on the Pacific coast, and judging from mail received from eastern listeners, this statement can be supplemented to include the whole country.

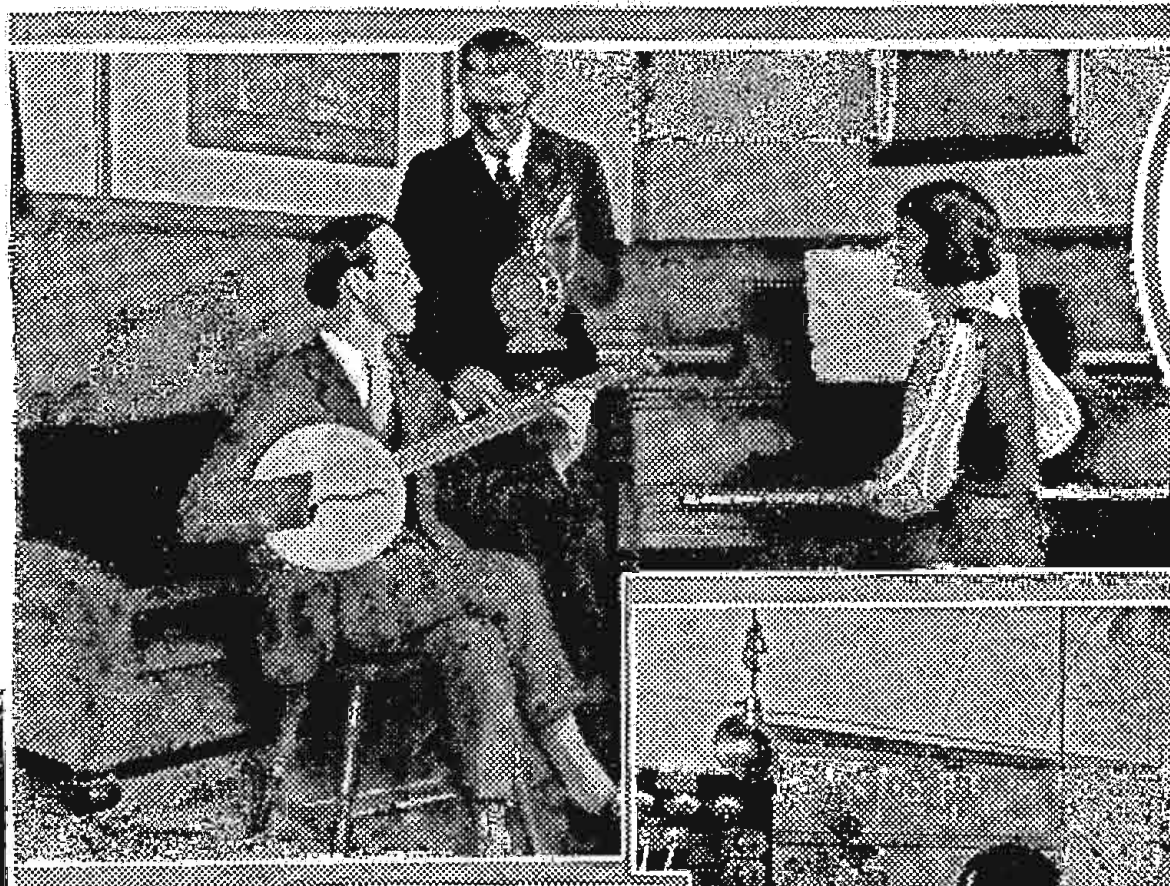
To one who has traveled about from studio to studio, the one at KHJ will always stand out clear cut. There is something unusual about it the moment you enter. Not so much that certain of the appurtenances are different—it is the undefinable atmosphere of the place. From the moment you enter you feel at ease. You're at home!

This spirit not only goes out on the air but is evident in the everyday dealings in the office of KHJ, where common sense must inevitably have its daily clashing with temperament. While in the office we run into J. Howard Johnson, who, while not officially connected with KHJ, is practically one of the family. He presents a great many of the programs from the station and is a sort of liason-officer between hard-headed business men who want to present programs, and artists who want to be on those programs.

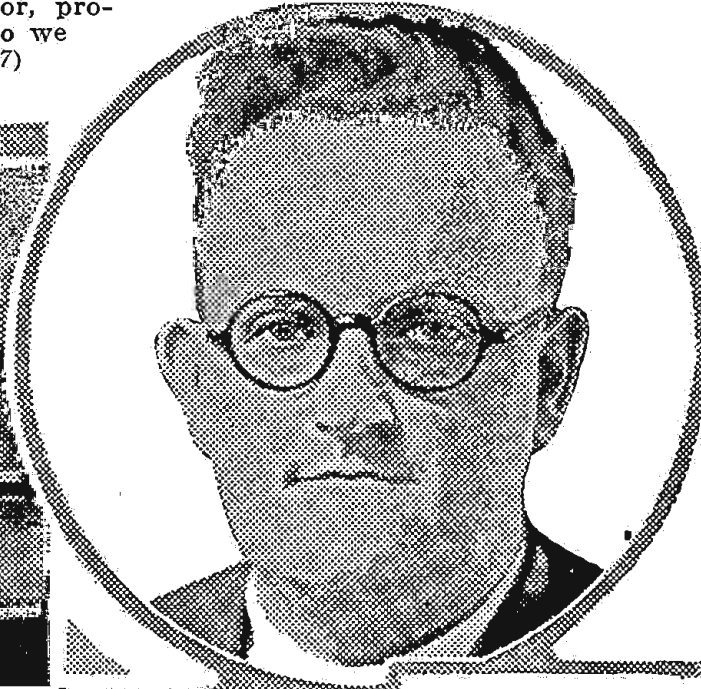
As the programs grew in size and frequency from that 13th day of April, 1922, Uncle John found it impossible to attend to the duties of announcer and director, program arranger and so on, and so we find Edward (Continued on page 7)

THE scene is not an unusual one. It may be laid in a ranch house in the upper corner of Wyoming, in the very shadow of the Three Tetons. In the living room stands a table with the Radio set and speaker sitting mutely. Grouped in a close circle is mother with the children while father is at the set, turning the dials patiently, slowly. At last he nods, takes the phones from his head and plugs in the speaker, tilting back in his chair while all listen eagerly.

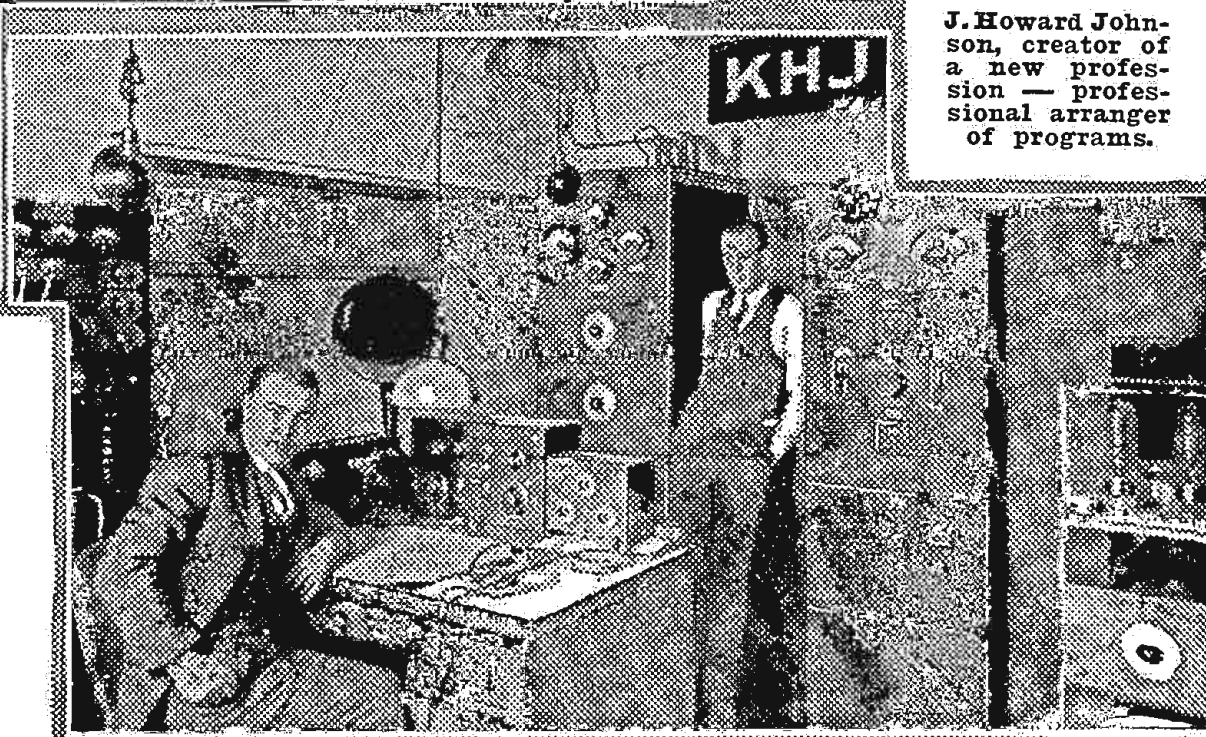
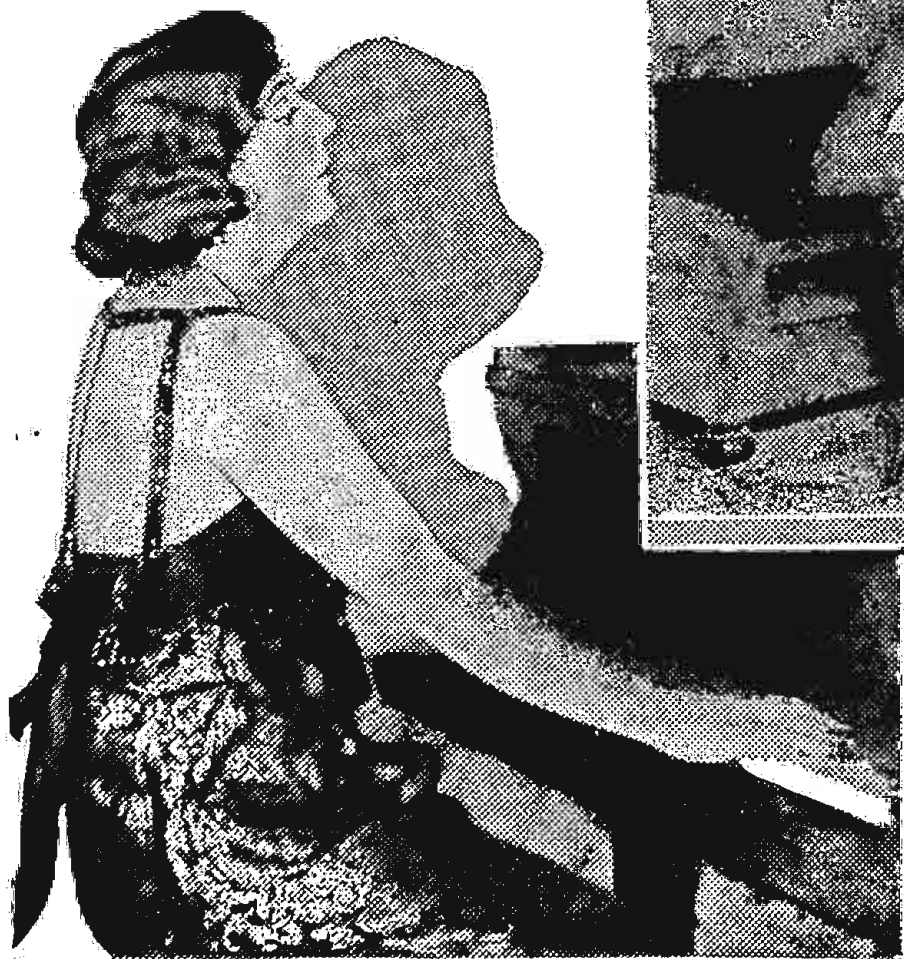
The carrier wave breaks. A friendly voice comes into the room. "KHJ, the Times, Loce Anghaylais, California!" Who can ever forget listening the first time to Uncle John pronouncing Los Angeles? Not like "angles" or "angels" but with a broad "a" and long "o" in the Spanish way. The voice of Uncle John continues. It is a sincere voice, with an electric sort of tingle in it, a voice full of kindness, overflowing with happiness and delivering joy to the whole world.



Left, Claire Forbes Crane, famous pianist, who is one of KHJ's star performers. Above, Hatch Graham, banjo; "Uncle John" Daggett and Edyth Petesch, accompanist. Right, operating room with the chief operator sitting at the desk.



J. Howard Johnson, creator of a new profession — professional arranger of programs.



CROSLEY AGAIN LOWERS PRICES

Big Reduction in Famous Trirdyn and other Radios



CROSLEY "50"
A one-tube radio that easily brings in distance with phones.

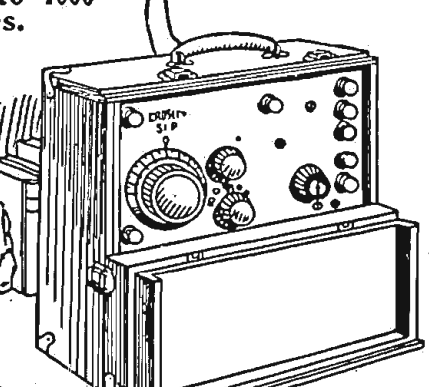
\$14.50

The biggest selling radio in the world



\$18.50 **CROSLEY "51"**

A two-tube set that gives loud speaker reception under fair conditions up to 1000 miles.

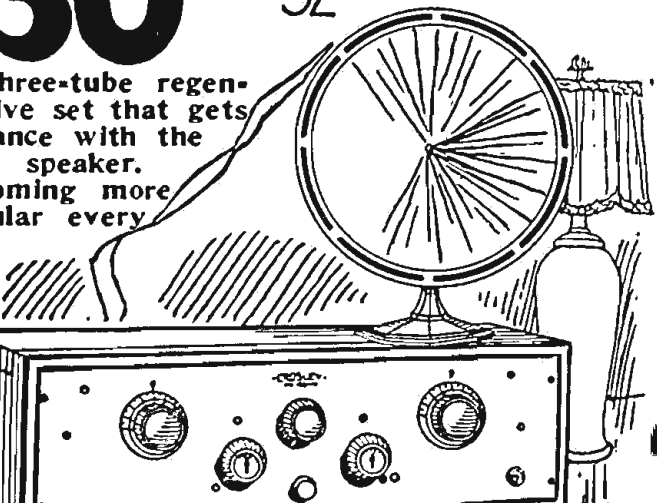


CROSLEY "51" Portable
The two-tube utility radio. Let your dealer hook it up in his store.

Now **\$23.50**

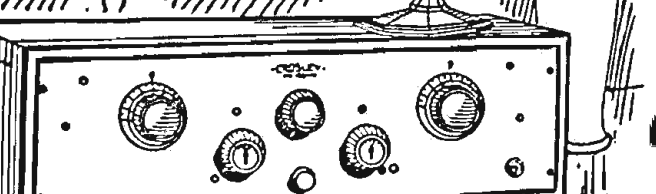
\$30 **CROSLEY "52"**

A three-tube regenerative set that gets distance with the loud speaker. Becoming more popular every day.



Now **\$50** **CROSLEY "TRIRDYN"**

The biggest selling high-grade radio on the market. Distant loud speaker reception under all conditions.



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 JUSTLY POPULAR

Only the less expensive Crosley Radios have exceeded the Trirdyn in sales. This deserved popularity of the entire Crosley line is the result of extraordinary performance at a very low price.

Crosley Radios cost less originally, use fewer tubes and consume much less battery current. At the same time they give results not equalled by receivers costing a great deal more and using two or three additional tubes.

The unique Trirdyn circuit—a combination of Armstrong Regeneration, Radio Frequency Amplification and Reflexed Audio Amplification—has proven beyond a doubt that the features of selectivity, volume and ease of operation can be obtained with three tubes better than heretofore has been possible with five or even six.

Hundreds of voluntary letters have come to us, telling of the unparalleled foreign reception during international test week with Trirdyns and all other Crosley Radios; even the little one-tube Crosley 50 at only \$14.50.

It is this continued remarkable performance that has created such a tremendous demand for Crosley Radios. And it is this great popularity that now allows us to decrease our production costs and pass this large saving along to you.

NEW CROSLEY MODELS

In order to allow even a greater selection, three new Crosley Radios have been added to our extensive line. Taking its place with the well known Crosley 50 and Crosley 50-P is the leatherette covered, one-tube 50 Portable, a utility set in which the dealer can quickly make the necessary connections and allow you to carry it home complete.

The New Crosley 51 Special, a two-tube receiver similar to the Model 51, is housed in a cabinet large enough to hold the necessary batteries and has a sloping panel.

Similar to the Crosley 52, but with sloping panel and cabinet to house the batteries is the new Crosley 52 Special.

These additional receivers make the Crosley line absolutely complete—A radio for all tastes and every pocket-book. See illustrations for prices.

No matter what appeals to you most in a radio, you will find that point outstanding in a Crosley.

Most good dealers handle Crosley Radios. You Will Make No Mistake in Buying One.

All Crosley Receivers contain the famous Armstrong Regenerative circuit, and are licensed under the Armstrong U. S. Patent No. 1,113,149.


As is customary prices shown do not include tubes, phones, loud speakers or batteries

Prices West of Rockies add 10 per cent.

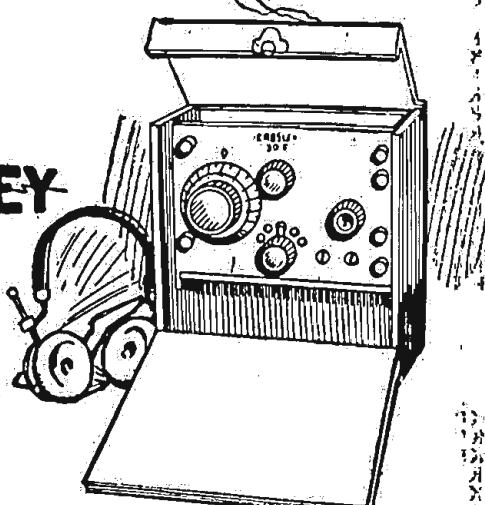
From a small beginning three and a half years ago, Crosley Radio has grown until it now produces more sets than any other concern in the world. The present production—nearly 5000 per day—is probably from two to three times as great as that of any other radio manufacturer.

Crosley owns and operates the new super power WLW Broadcasting Station located at Harrison, Ohio, remotely controlled from studios in one of three large Crosley owned manufacturing plants in Cincinnati.

3 Tubes do the work of 5



In a CROSLEY Trirdyn



CROSLEY "50P"

The new leatherette covered one-tube utility set. Will give the same results as the Crosley 50.

\$16



CROSLEY "51" Special

Same as 51 in new sloping panelled cabinet which houses all necessary batteries.

\$23.50



CROSLEY "52" Special

The Crosley 52 in new cabinet to house batteries. Has sloping panel.

\$35



CROSLEY Now "TRIRDYN" Special

Same as the Trirdyn in beautifully finished large cabinet to hold the batteries.

\$60

THE LOUD SPEAKER SHOWN IS THE WONDERFUL NEW CROSLEY LOUD SPEAKER THAT IS TO BE ANNOUNCED IN THE NEAR FUTURE

Write for Complete Catalog

THE CROSLEY RADIO CORPORATION

Powel Crosley, Jr., President

2493 Sassafras Street

Cincinnati, Ohio

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 schedules.

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: Meters Call, Meters Call, Meters Call, Meters Call, Meters Call, Meters Call. Lists stations ordered by wavelength.

NEW STATIONS AND CHANGES IN POWER

Station WCBD at Zion, Ill., plan to open their new 5,000-watt super station on Monday, February 23.

WOAI Southern Equipment company and San Antonio Express Evening News station at San Antonio, Texas, has been licensed to increase its power to 5,000 watts.

Another 5,000-watt station will soon be ready to serve the public. It will be located at Pontiac, Mich., and will be owned and operated by the Jewett Radio and Phonograph company.

Station WHT, located on the Wrigley building in Chicago, Ill., has announced plans to go on the air February 22, or a few days later. It is owned by several prominent Chicagoans, one of them being ex-Mayor William H. Thompson.

KFKX, Hastings, and WOC, Davenport, have been authorized to increase their power to 1,500 watts temporarily, with the understanding that they do not interfere with other stations.

The new list of class B wave allocations includes four station calls as yet unknown to many listeners. J. D. Vaughan is owner of WOAN, Lawrenceburg, Tenn., which will operate on 280.2 meters, KFRU is the call of the Ethereal studios at Bristow, Oklahoma, now operating on 296.9. Miami Beach gets the call WMBF for its new Fleetwood hotel and is transmitting on 384.4 meters. WDFW is the new call of Dutee W. Flint's station at Cranston, R. I., operating on 440.9.

A new studio is being erected atop the Nicollet hotel for the 5,000-watt super Gold Medal station, WCCO, at Minneapolis, Minn.

Broadcasting on a wave length of 348.6 meters, Station WTIC, Travelers Insurance company, Hartford, Conn., had its formal opening Tuesday evening, February 10.

The new office building of the Liberty bank of Buffalo has announced that the twin towers of the building will be surmounted by Radio masts for a new 500-watt station. To blend with the architecture of the building the masts will be built in the form of the lattice fighting masts of American battleships.

Milwaukee's first 500-watt station is now on the air. The call letters are WHAD and the wave length 275 meters.

KFI's old 500-watt transmitting set is now being erected in Hollywood. The call letters of the new station are KFK. It will operate on 252 meters.

Articles of incorporation for the Hellman's Broadcasting company were filed in Sacramento, Calif., recently. This is the first company of its kind in California. Its station will be in Los Angeles.

KHJ AT LOS ANGELES

(Continued from page 5) Murphey in the corner of the office, with his five feet sixteen inches propped up against the wall.

We next have to dive into the heart of the modern newspaper plant below to locate one whom we have long heard about. It is Claire Forbes Crane, the Radio editor of the Los Angeles Times, in whom KHJ boasts a pianist who has been soloist with such organizations as the Boston Symphony orchestra and the Los Angeles Philharmonic orchestra.

When the history of Radio broadcasting has been impartially written, the secret of KHJ's success will not be found in the excellent character of its music nor in its ingenuity to discover or create novelties, but the key of the explanation will be revealed in its willingness to be human, displaying no partiality and extending a hand of welcome to whomsoever enters its portals. Until a broadcasting station adopts such a creed its success will never be fully realized, even though its personnel, its equipment and its financial status be of the best. It is the spirit that rules and KHJ, named by a crippled lad who received his inspiration from the station itself, is the station of kindness, happiness and joy.

Wants Data with Complaints

WASHINGTON.—W. D. Terrell, chief Radio supervisor, has suggested that complaints sent to him by listeners in regarding interference contain more detailed information. He desires to know the type of set used, whether the correspondent has a new set to which he has not yet become accustomed, his location, and similar details.

BEST MUSIC AWAITS RADIOPHAN AT LAST

WORLD-FAMOUS ARTISTS NOW AT MICROPHONE

Excellent Brunswick, Victor and Chickering Recitals Do Much to Improve Broadcast Programs

NEW YORK.—Truly the best in music is to be had by Radiophans today. As the result of two large phonograph companies and one well-known piano manufacturer coming on the air in the past two months, listeners in now have at their command the services of the world's best musicians.

There is the Brunswick music hour, broadcast every Tuesday from Stations WJZ, WGY and WRC. Nine of these have been given already. The next will be on Tuesday, February 24, from 9 to 10 p. m., Eastern time. That recital will mark the fourth of a monthly series of the first national music memory contest. \$5,000 in prizes will be awarded at the end of each month to the Radiophans submitting the best list of names of the selections played and the artists playing. Much interest in better music is being developed as a result.

Victor and Chickering Programs

Then there is the Victor concert hour, given every two weeks from eight stations—WEAF, WCAP, WJAR, WFI, WDBH, WGR, WEEI, WCAE. On January 1, 15 and 29 and February 12 the Victor company has scored hits with listeners with its excellent programs.

The last recital marked the Radio debut of Emilio De Gorgorza, baritone, and Renee Chemet, French violinist, both world famous artists.

The next Victor concert will be given Thursday, February 26, from 9 to 10 p. m., Eastern time.

The last, but not the least attractive, addition to Radio programs of late is the Chickering studio programs broadcast from WOR, Newark. Madame Germaine Schnitzer, the greatest woman pianist in the world, thrilled fans with her playing on Wednesday, February 11. The Chickering artists series has made a place for itself already in the hearts of Radiophans.

Indeed, who can say that broadcast programs are not improving?

WESTINGHOUSE IS HIT BY DE FOREST

Pittsburgh Corporation Must Pay Millions of Dollars to "Father of Radio"

WILMINGTON, Del.—The Radio Corporation of America was enjoined recently in a sweeping decision by Federal Judge Hugh M. Morris, sitting in the district court of Delaware here, from the sale of Radio vacuum tubes manufactured by a subsidiary of the Westinghouse Electric and Manufacturing company that are alleged infringements of the patents of Dr. Lee De Forest, inventor of the vacuum tube, which patents have been assigned to the De Forest Radio company.

Charges of wholesale infringement and an accounting which it was said would involve many millions of dollars were joined in an application for an injunction made in a petition filed by the De Forest Radio company last September against the Radio corporation were upheld in Judge Morris' opinion. The court held that the extension by the Westinghouse interests to its subsidiary corporation, the Westinghouse Lamp company, of license to manufacture the De Forest type of "Audion" or Radio vacuum tube, was an infringement of the De Forest company's patent.

The Radio corporation, under an agreement with the General Electric company, of which it is a subsidiary sales organization, have 40 per cent of their tube requirements manufactured by the Westinghouse Electric and Manufacturing company. These are affected by the decision.

Pathe Film Depicts WSB's Leading Artists in Action

ATLANTA, Ga.—Close-ups of WSB's leading stars in action during a broadcast will be a feature of a current release of the Pathe News film to be seen in theaters throughout the world. Bonnie Barnhart, staff songstress and bedtime story teller; Ernest Rogers, the Atlanta Journal's singing reporter; "Fiddlin' John" Carson, Dixie champion fiddler; Warner's Seven Aces, popular WSB orchestra, and Lambdin Kay, famous director-announcer of the station, are in the picture and face the camera and microphone at the same time.

Operator Walter Tison and C. L. Daugherty are also seen manipulating the transmitter. February 5 was the date of the film's first showing.

“ Oh Boy!
It's easy to Build ”
the



**FRESHMAN
MASTERPIECE**



**Five Tube Tuned
Radio Frequency Set
when you use the
GENUINE**

Complete Knockdown Set

This wonder knockdown set contains every single part necessary to construct the FRESHMAN MASTERPIECE. Here's just what you get:

- 1 Genuine Bakelite Front Panel, completely drilled and engraved.
- 1 Genuine Bakelite Sub-Panel—with sockets, binding posts and grid condenser already in proper place. All mounting holes properly drilled.
- 3 Masterpiece Tuned Radio Frequency Units—perfectly matched and balanced.
- 3 Beautiful Genuine Bakelite 4-inch Dials.
- 1 Freshman Variable Grid Leak and .00025 M. F. Condenser.
- 1 Freshman 5 to 1 Audio Transformer.
- 1 Freshman 3 to 1 Audio Transformer.
- 1 Freshman .002 Fixed Mica Condenser.
- 1 Freshman .006 Fixed Mica Condenser.
- 2 Freshman Single Circuit Jacks.
- 1 Freshman Filament Control Switch.
- 1 Freshman 30-ohm Rheostat.
- 1 Freshman 6-ohm Rheostat.

and all
for only

\$39.50
Complete

and every bracket, screw, nut, bushing that you will require as well as an ample supply of spaghetti and bus bar. It certainly is

The Kit the Whole World's Been Waiting For!

A 24-page book of instructions packed with every kit. Seven full-page illustrations and many smaller ones explain every operation step by step. It is written in such simple, everyday language that even the most inexperienced can build a complete set and have it operating in a few hours.

When finished the unit can be used in many ways. You can put it in a cabinet and have a standard radio set, or it can be installed in a phonograph, in a writing desk, in a bookcase and even built right in the wall of your living room.

Every part in the Complete Knockdown Set is exactly the same as the corresponding one in the factory-built FRESHMAN MASTERPIECE. The set you build with this universal unit—provided our instructions are carefully followed—will duplicate every performance of the factory-made set. The same long distance—the same full-toned, true-to-life reception—the same selectivity—the same simplicity of operation will be yours.

Ask to see it at your dealer's

Look for our trademark and serial number riveted on the sub-panel. The kit is not guaranteed if number has been removed or tampered with.

Chas. Freshman Co. Inc.
Radio Receivers and Parts
FRESHMAN BUILDING
240-248 WEST 40TH ST.—NEW YORK, N.Y.

Beware of imitations and counterfeits. Insist upon the genuine.

WASHINGTON PROGRAM SUNDAY AT KHJ

Saturday, February 21

Saturday, silent night for: CFAC, CFCA, CKY, KFAE, KFOU, KFKU, KFKX, KFMX, KIS, KOB, KSAC, WBAP, WBAV, WCAU, WCB, WOF, WEEL, WEMC, WGST, WHA, WHAZ, WHB, WHO, WJY, WKAC, WMAK, WOAI, WOI, WOO, WORD, WOS, WSUI.

Eastern Time Stations

CFCA, Toronto, Can. (356), 8 p. m., vocal instrumental program, Shirley Walker, director.
CKAC, Montreal, Can. (425), 7 p. m., kiddies' stories in French and English; 8:30, studio variety program; 10:30, Windsor hotel grill room dance program.
CNRO, Ottawa, Can. (435), 7:30 p. m., bedtime story and lullaby, Aunt Agnes; 8, dinner concert, James McIntyre and his Chateau Laurier hotel orchestra; Orpheus male singers; Cliff McAdam, tenor; Hawaiian selections, L. Nani, T. Coulthart; Mrs. Harry Underwood, reader; "What We Owe to the Indians," W. J. Wintenberg; H. H. Clarke, bass; James McIntyre and his Chateau Laurier hotel orchestra.
KOKA, E. Pittsburgh, Pa. (309.1), 1:30 p. m., concert, Daugherty's orchestra; 6, dinner concert, Westinghouse band, T. J. Vastine, conductor; 7:30, Wimble, the Wanderer; 7:45, last minute helps to Bible school teachers, Carman Cover Johnson; 8:30, special program.
PWX, Havana, Cuba (400), 8:30 p. m., concert, Mrs. Caridad de Miguel.
WAHG, Richmond Hill, N. Y. (316), 12-2 a. m., special midnight program, Utopia dance orchestra.
WBBR, New York, N. Y. (272.3) 8 p. m., instrumental

WOR, Newark, N. J. (405), 6:15-7:30 p. m., Wallie Osborne's Chateau Baltusioi orchestra; 8:30-9, Mabelanna Corly, composer-pianist; 9:45-10:15, Mabelanna Corly, composer-pianist.
WPG, Atlantic City, N. J. (296), 9 p. m., Chsfonte-Haddon Hall trio; 10, studio program; 11, dance music.

WRC, Washington, D. C. (468.5), 6:45 p. m., children's hour, Midge Tucker; 7, dinner music, Hotel Washington-Irving Boernstein orchestra; 8, Bible talk; 8:15, Phyllis Howe Price, soprano; 8:30, "Our English Presidents," Morris Bien; 10:30, dance program, Astor hotel orchestra; 11:15, organ recital, Otto Beck.
WREO, Lansing, Mich. (285.5), 10-12 m., Frank Logan and his orchestra.
WWJ, Detroit, Mich. (352.7), 12:05 p. m., Jules Klein's Hotel Statler orchestra; 3, Detroit News orchestra; 6, dinner concert; 7, Detroit News orchestra.
WTAM, Cleveland, Ohio (389.4), 8 p. m., Guy Lombardo's Royal Canadians orchestra; 9 p. m., WTAM dance orchestra, Ev Jones, director; soloists.

Central Time Stations

KFNF, Shenandoah, Ia. (266), 6:30 p. m., Scotch program.
KSAC, Manhattan, Kans. (340.7), 12:30 p. m., questions and answers pertaining to Radio; 12:45, lecture on same phase of Radio.
KSO, St. Louis, Mo. (545.1), 8 p. m., concert, St. Louis Symphony orchestra, Rudolph Ganz, director.
KTHS, Hot Springs, National Park, Ark. (375), 8:30-10 p. m., concert, Ouchitta college; 10-11, Meyer Davis-New Arlington hotel orchestra, Jack Renard, director.
KYW, Chicago, Ill. (535.4), 7-7:30 p. m., dinner concert, Congress hotel; 8-8:55, Caroline Encell, soprano; Charlotte Benensohn, soprano; Lillian Joesel, accompanist; Edna Hopkins, violinist; Frances Allen, accompanist; Stephenson and Heather; 9:35-11:30, "Con-

gress Classic;" 12-1, Congress Carnival; 1-2, Night court for the delinquents.
WBCN, Chicago, Ill. (266), 6-6:45 p. m., dinner hour, Harold Rule's orchestra; Charlotte Linchoten, singer; 7-8, fireside hour, Geo. R. Cleveland, "The Hobby Club Man," Nate Caldwell; Giese Bros., harmony duo; Jack Heath & Eddie Downs, harmony duo; 8-1 a. m., popular program; Peggy O'Neil & Helen O'Brien, vocal duo; Hickey's Barn Dance trio; Midway Dancing Gardens orchestra; Marie Wright, soprano; James Darby, reader; Southtown Harmonizers, Harmony trio; Elizabeth Emmet Malone, soprano; Les Cameron, tenor; Triangle Entertainers; Englewood String orchestra; George Forsyth, tenor; Murphy Sisters, vocal duo; Florence Tenney, mezzo-contralto; Giese Bros., harmony duo; Drexel Male Quartet, vocal group; Jack Parker, tenor; Alvin Fry, tenor; Frank Solly, tenor; Clifton Newton Moore, "Harmonica King."
WCAL, Northfield, Minn. (366.9), 9:45 a. m., St. Olaf College chapel services; 12 midnight, WCAL trio, Herbert Hauge, saxophonist; Reuben Benson, banjoist and bass; Luther Noss, pianist.
WCCO, Minneapolis-St. Paul, Minn. (416.4), 2:30 p. m., matinee musicale; 8, "Fireside Philosophic," Rev. Roy L. Smith, pastor; 8:30, surprise program; 9:30, dance program, Joe Peysers St. Paul Athletic club orchestra.
WOAF, Kansas City, Mo. (365.6), 3:30-4:30 p. m., Star's Radio's orchestra; 6-7, School of the Air; piano tuning-in number on the Duo-Art; address; Tell-Me-a-Story Lady; Trilanon ensemble, Hotel Muehlebach; 8-10, popular program; 11:45-1 a. m., nighthawk frolic; Merry Old Chief, Plantation Players, Hotel Muehlebach.
WEBH, Chicago, Ill. (370.2), 7 p. m., Sunday School lesson, Dr. Herbert W. Virgin; Oriole orchestra; Riviera theater; 9, Oriole dance orchestra; Marie Kelly, reader; Eleanor Gilmore, soprano; Pat Barnes,

songs and stories; Langdon Brothers, Hawaiian guitarists; 11, Oriole dance orchestra; Banks Kennedy, songs; Loos Brothers, singers; Marie Kelly, readings; Ned and Chess, popular songs; Langdon Brothers, Hawaiian guitarists; Nick Lucas, songs; Wayne Meyers, stories.

WFAA, Dallas, Tex. (475.9), 12:30-1 p. m., musical program, Alex Hughes, pianist; 8:30-9:30, Southern Methodist University Alumni banquet; 11-12, entertainers, Capitol theater.
WGN, Chicago, Ill. (270.2), 1:40 p. m., luncheon concert, Drake concert ensemble, Blackstone string quintet; 3, rocking chair time; 5:30, Skeezix time for the children; 6, organ recital, Lyon & Healy; 6:30-7, dinner concert, Drake concert ensemble, Blackstone string quintet; 8-9, classical concert, Metropolitan glee club; 10-11, Don Bestor Drake dance orchestra, Jerry Conley Blackstone dance orchestra.
WHAS, Louisville, Ky. (399.8), 4-5 p. m., concert, Louisville Conservatory of Music; Alamo theater organ; readings; 7:30-9, concert, Dix Bluegrass Serenaders, Henry L. Dixon, director.
WLS, Chicago, Ill. (344.6), 7, "Lullaby Time," Ford and Glenn's trip to Australia; 7:20, National Barn Dance with Glenn's Cornhuskers, Harmony Girls, Nubs Ailin, Walter Peterson, Isham Jones, Ralph Emerson, Ford and Glenn; 11, Senate theater revue.
WLW, Cincinnati, Ohio (423), 6 p. m., dinner hour concert, Seinsky Instrumental quintet; isafone, E. D. Leonard.
WMAQ, Chicago, Ill. (447.5), 2 p. m., Union League club forum; 6, program; 8, LaSalle hotel orchestra; 8:30, Radio photogue, "Holland," Leroy D. Owen; 9, weekly Balaban & Katz Chicago theater revue.
WMC, Memphis, Tenn. (499.7), 12 m., musical program, O. K. Houck Piano company; 8:30, concert, Memphis Plectrum orchestra, R. L. Sharp, director.
WDAW, Omaha, Nebr. (526), 6 p. m., dramatic hour,



Zilpha Ruggles Jenkins (left), soprano soloist in the KGO organization which will present Mendelssohn's "Elijah," February 21. The Langdon Brothers (right) are popular guitar artists at WEBH, Chicago. Mrs. John Malloy has entertained often through WOC, Davenport. She will be heard this Wednesday.

music; 8:10, vocal selections; 8:15, Bible questions and answers; 8:45, vocal selections; 8:55, instrumental music.

WBZ, Springfield, Mass. (331.1), 6 p. m., Leo Reisman Hotel Lenox ensemble; 7:05, bedtime story for the kiddies; 7:15, sketches from United States Naval history, E. S. R. Brndt; 7:30, concert, Hotel Kimball trio; 8, Harvard vs. Dartmouth hockey game.
WCAE, Pittsburgh, Pa. (462), 2:30 p. m., tea-dansant music, 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, jamboree program, members of the Sequilla club.
WCX, Detroit, Mich. (516.9), 6 p. m., dinner concert, Book-Cadillac hotel.
WEAF, New York, N. Y. (492), 4-5 p. m., Willie Bruno's orchestra; 5-5:15, Katherine Penders, soprano; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:30, Pinewood trio; 7:30-7:50, stories for boys, Fred J. Turner; 7:50-8:35, Bruno Huhn and singers; 8:35-9:35, Mrs. Frank Southard, impersonator; 9-9:30, Waldorf-Astoria concert music; 9:30-9:45, Guy Hunter, blind entertainer; 10-10:20, Alfred Omer, tenor; 10:20-10:40, Herbert Ralph Ward, composer-pianist; 11-12, Vincent Lopez orchestra Hotel Pennsylvania.
WFI, Philadelphia, Pa. (395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3, Audrey Williams, soprano; Leonard Zspi, zither solos; New Century Club Brass quartet; 4, George Ragsas, Collegians dance orchestra; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim; 8, Henry Gurney, tenor.
WGBS, New York, N. Y. (316), 2:45-3 p. m., child welfare program; 3-3:20, interview, Major Stanley Washburn; 3:20-3:40, Dr. Stephen Wise; 3:40-4, John Dunbar, tenor; 6-6:30, Uncle Geebee; 6:30-7:30, Cameo Collegians; 9:30-9:45, Ssm Comly, "Inside Movie Chats"; 10:45-11, talk, Frank Sullivan; 11-12, Vincent Rose dance orchestra.
WGR, Buffalo, N. Y. (319), 12:30-1 p. m., Hotel Statler concert ensemble; 2:30-4:30, Radio desfers' musical program; 6-7:30, Hallpyrd string quartet.
WGY, Schenectady, N. Y. (379.5), 9:30 p. m., dance music, Phil Romano's orchestra.
WHK, Cleveland, Ohio (273), 12:30 p. m., Dean Smith, pianist, soloist; 6:15 p. m., News itema, music; 6:30 p. m., talk; "The Ohio Legislature Week by Week," by a member; 9 p. m., Carnival club program; McCrory's Entertainers, Billie Bugbee, Betty Booth, June Farley, Violet Owens, Bobbie and Dede Fitzpatrick, Ethel Rhode, Dean Smith, pianist; Emerson Gill's Bamboo Garden orchestra.
WHN, New York, N. Y. (360), 5-6 p. m., Broadway Melody Boys; 6:30-7:30, violin solos, Olcott Vail; 7:30-7:35, health talk, Dr. Landia; 7:35-8, Hotel Carlton Terrace orchestra; 8:30-9, Strand Roof orchestra; 9:10-9:45, Charlie Johnson's orchestra; 11:15-11:30, Jimmy Clarke and his entertainers; 11:30-12, Roseland dance orchestra.
WIP, Philadelphia, Pa. (509.9), 1 p. m., organ recital, Karl Bonawitz; 3, Tom Sneed's Ramblers dance orchestra; 4:15, recital, Yvonne Farr; 6:05, St. James hotel dance orchestra; 7, Uncle Wip's bedtime stories; 8:15, novelty, Phantom Dream; 9:15, band concert; 10, Harvey Marburgers' dance orchestra; 11, Karl Bonawitz, organist.
WJZ, New York, N. Y. (455), 11-11:30 a. m., American Orchestral concert, Aeolian hall; 1-2 p. m., Erdody's Park Lane orchestra; 2:15-2:30, talk, National Republican club; 4:30-5:30, Sherry's tea music; 7-8, Freddie Rich and Hotel Astor dance orchestra; 8-8:15, "Art for Layman," Walter M. Grant; 8:15-8:45, Jenny Lind program, Ida Davenport, soprano; 9-9:15, "Federal Meat Inspection—Aims and Results," Dr. Albert Long; 9:15-9:45, Washington Square Players; 9:45-10, popular songs, Sanchez and Mjstead; 10-10:30, Great Northern Trio; 10:30-11, Joseph Knecht's Waldorf-Astoria orchestra.
WLT, Philadelphia, Pa. (395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 2:30, Lillian Foster, soprano; 4:30, Cotton Pickera dance orchestra; 7:30, Arcadia cafe concert orchestra.
WNYC, New York, N. Y. (526), 7:30-7:35 p. m., police alarms; 7:35-8:30, Chateau Five; 8:30-8:45, police quartet; 9-9:15, song recital; 9:30-10, instrumental music; 10:10-10:30, "The Future of New York," Morris Debowler.
WOO, Philadelphia, Pa. (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.

Davis Studio of Expression; 6:30, to be announced; 6:45, dinner program, Brandels store restaurants; 9, program, Omaha Printing company; 11, Frank W. Hodek and his Nighthawks; 11:30, organ music, World theater, Arthur Hays.

WOC, Oavenport, Ia. (484), 7 p. m., sandman's visit; 7:30, International Sunday school lesson, Rev. M. A. Getzendaner; 9, Louis Connor and his LeClaire hotel orchestra.
WOI, Ames, Iowa (270), 12:30 p. m., college chimes; talk on engineering, Dean Marston.
WQJ, Chicago, Ill. (447.5), 7-8 p. m., dinner concert, Ralph Williams and his Rainbo Garden orchestra; Agatha Karien, reader; Henrietta Nolan, violinist; Otis Pike Jester, soprano; Mary Thrash House, pianist; 10-1, Ralph Williams and his Rainbo Sky-isrks; Jerry Sullivan; Harry Geise; Melodians, Laurie, Eddie, Bennie; Alfred Tween, harmonica and guitar soloist; Clarence Theders, tenor; Yukona Cameron; Rick, Whalen, Gardener, Harmony Singers; 1-2, Hotey Totsy hour with the Ginger Man and the Little Skyarks.
WSAI, Cincinnati, Ohio (325.6), 8 p. m., chimes; 8:15, Bicycle concert; 8:45, Harriet Gaines, violinist; 9, weekly news review, Allison F. Stanley; 9:15, Bicycle male quartet; 9:30, Edith Johnson, pianist; 9:45, Bicycle mixed quartet; 12, Roger Hill's Danceland orchestra.
WSB, Atlanta, Ga. (428.3), 12 m., Oglethorpe university orchestra; 5-6 p. m., songs and bedtime story, Bonnie Barnhardt; 8-9, Durette and Hutchins, steel guitarists; 10:45, Ed and Grace McConnell.
WSUI, Iowa City, Iowa (484), 12:30 p. m., "Current Social and Economics Problems," Theodore D. Yoder; 12:45, "Appreciation of Literature," Prof. Frank L. Mott; 1, "The American Constitutional System," Prof. Frank E. Horack.
WWJ, Oetroit, Mich. (352.7), 8 a. m., setting-up exercises, R. J. Horton; 9:30, tonight's dinner, Woman's Editor; 12:05 p. m., Jules Klein's Hotel Statler orchestra; 3, Detroit News orchestra; 6, dinner concert; 7, Detroit News orchestra.

Mountain Time Station

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

Pacific Time Stations

KFI, Los Angeles, Calif. (467), 5:30-6 p. m., 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, Downing Chamber of Commerce program from Examiner; 9-10, Electa Felt Perry, contralto, Mary Teitsworth soprano, Georgia Woodruff, soprano, Margaret Johnaton, violinist, Elizabeth Liddell Johnston, accompanist; 10-11, Packard Radio club, Ruth and Lilah Carlson, Barney Weber and others.
KFOA, Seattle, Wash. (453), 4-5:15 p. m., The Olympic hotel orchestra; recipe; 6:45-8:15, Rhodes' Department store program; Howe College of Music; 50 piece orchestra, J. B. Howe, director; Mrs. Reid, soprano; J. B. Carmichael, tenor; Miss Jernberg, accompanist; "How Banks Help a Community," C. L. LeSourd; 8:30-10, Times dance program; 10-11, Eddie Harkness and his orchestra.
KFSG, Los Angeles, Calif. (278), 10:30-11:30 a. m., sunshine hour; 3:30-4:30 p. m., Roy Ruptu Gray Studio program, G. N. Nichols, Roy Reid Brignall, and others; 7:30-9:30, auditorium service, special music and sermon on Divine Healing, Aimee Semple McPherson, pastor.
KGO, Oakland, Calif. (299.8), 1 p. m., luncheon concert, Pacific Electric company; 4-5:30, concert orchestra, Hotel St. Francis, Vinton La Ferrera, conductor; 8, "Elijah," Carl Anderson, director; Zilpha Ruggles Jenkins, soprano; Beatrice L. Sherwood, soprano; Ruth Waterman, contralto; Mabel Walsh, contralto; Gwymvi Jones, tenor; Robert E. Saxe, tenor; Henry L. Perry, bass; Richard L. Lundgren, bass; "Mendelssohn's Oratorios," Ray C. B. Brown; 10-1, dance music, Henry Halstead's orchestra.
KGW, Portland, Ore. (482), 10 p. m., Colburn's Melody Men.
KHJ, Los Angeles, Calif. (404), 10-12, a. m., class in Radio broadcasting; 12:30-1:30 p. m., Hi Milton and his orchestra; 2:30-5, Charlie Weisman's Saturday afternoon frolic; 6:30, Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 6:30-7:30, Prof. Walter Sylvester Hertzog, little stories, American history; Eleanor Borg, 10-year-old reader; Uncle John; 7:45, Capt. John T. Riley, "Income Tax"; 8-10, program, Radium Ore Navigator company, ar-

(Continued on page 10)

Headliners of the Week

SATURDAY the Orpheus male singers, well known to Radio-phans, will visit CNRO, Ottawa. You may dine to music with this station, enjoy a classical concert, and finish off the evening dancing. Washington's birthday will be celebrated Sunday by KHJ, Los Angeles. The Martin Music company, directed by G. J. Howard Johnson, will give the entire program. "Creole Composers" will be the title of the musical talk at WGN this evening. Monday the air will be filled with good lectures. Dr. H. A. Potter will talk on a vital subject, "Preventive Dentistry" at WEBH. KGO listeners will learn how to make maraschino cherries and to appreciate "The Ethics of Social Etiquette." Samuel Francis, a young Texas tenor who has found fame in New York, will return to KFDM to please the fans who heard him some time ago. Tune in Tuesday, February 24. The composition of Victor Herbert will be played at KTHS all evening.

Anyone who knows these charming melodies will appreciate this program. Do you have peculiar dreams which annoy or worry you? Dial for WEMC, Berrien Springs, Wednesday and you will learn the meaning of these queer nightmares. George Fox will talk on "Dreamland Travels." Songs and stories from all the nations will be the feature of KSAC, Thursday. Prof. P. P. Brainard will direct the music and Dr. H. T. Hill will give some of his entertaining stories. This same evening the WGY players, having played for some time on Broadway, via WJZ, will find their way into the heart of the national capital through WRC. "Our Neighbor, Mars," is the title of the talk given by A. M. Harding at KFMQ, Friday. Here is an opportunity to learn more about the mysterious canals of this planet. At midnight the University of Tennessee doctors will frolic at WMC, if anyone so dignified as a doctor may frolic.

TEXAS TENOR RETURNS TO KFD

Saturday, February 21

(Continued from page 9)

ranced by G. Allison Phelps; 10-11, Earl Burnett's Baltimore hotel dance orchestra; 11-2 a. m., The Lost Angels of KJH frolic.

KNX, Hollywood, Calif. (337). 10 a. m., Hired Hand's morning message; 10:30, Forbes W. Van Why, Radio technical talk; 11, news of 25 and 50 years ago; 12-1 p. m., Wurllitzer organ recital; 5:45-6:15, Wurllitzer organ studio, Sid Ziff, sports talk; 6:15-7, dinner hour music; 7:30-8, Wurllitzer pipe organ recital; 8-9, feature program; 9-10, program, Western Avenue Opening association; 10-11, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel; 11-12, June Pursell, the KXN girl, popular songs.

KPO, San Francisco, Calif. (429.5). 1-2 p. m., Rudy Selger's Fairmont hotel orchestra; 2:30-3:30, Navy Jazz band of Mare Island; 3:30-5:30, tea dansant, Gene James' Rose Room Bowl orchestra; 8-10, program, U. S. Army band; 10-12, dance music, Art Weidner's orchestra.

Sunday, February 22

Sunday, silent night for: CFAC, CKAC, CHNC, KFAE, KFD, KFKU, KFKX, KFOA, KOB, PWX, WBAV, WCAE, WDAF, WDFW, WEAQ, WEMC, WGST, WHA, WHAS, WHAZ, WHO, WJY, WKQA, WLBI, WLIT, WMAK, WMC, WOI, WOO, WOR, WSUI, WTV, WWJ.

Eastern Time Stations

CFCA, Toronto, Can. (356). 7 p. m., services, Timothy Eaton Memorial church, Dr. Trevor H. Davies.

CKAC, Montreal, Can. (425). 4:30 p. m., band of Quebec city; talk, Mayor of Quebec.

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

WBBR, New York, N. Y. (272.3). 9:10 p. m., instru-



When the Seed House bunch performs at KFNF, Shenandoah, Mrs. Hazel Simmons invariably takes part in these weekly meetings. Although she often sings solos, she also takes part when the whole group sings.

mental trio; 9:25, Carl Park, violinist; 9:35, "The World's Judgment Day to Last a Thousand Years," Harry Pincock; 10, Carl Park, violinist; 10:10, instrumental trio.

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

WCAU, Philadelphia, Pa. (278). 5:30 p. m., Bible talk, Rev. John B. Stockwell; 6, dinner concert, Meyer Davis' Hotel Pennsylvania orchestra, direction Lon Chassey.

WCX, Detroit, Mich. (516.9). 10:30 a. m., services, Central Methodist Episcopal church; 4:15 p. m., musical program.

WEAF, New York, N. Y. (492). 8:15-9:20 p. m., Roxy and his Gang, Capitol theater; 9:20-10:15, organ recital.

WEAR, Cleveland, Ohio (389.4). 1 p. m., Phillip Spitalny's Allen theater Symphony orchestra.

WEEI, Boston, Mass. (475.9). 3:45-5:30 p. m., men's conference, Bedford branch, Y. M. C. A.; 7:20-9:15, "Roxy and his Gang," New York Capitol theater; 9:15-10:15, organ recital, chapel at Columbia university.

WFI, Philadelphia, Pa. (395). 10:20 a. m., services, Arch Street Presbyterian church; 4:30, services, Central Y. M. C. A.; talk, "Vision," Dr. P. Whitehill Wilson.

WGBS, New York, N. Y. (316). 3:30-3:45 p. m., program, Piccadilly theater.

WGR, Buffalo, N. Y. (319). 3-4 p. m., vesper service, Rev. H. A. Reed, Elma, N. Y.; 4-5, John F. Gunderman, Jr., organist; 7:15, Central Presbyterian church service, William Wall Whitlitt, organist; Dr. Robert J. MacLaine, speaker.

WGY, Schenectady, N. Y. (379.5). 11 a. m., service, St. Peter's Episcopal church, Rev. Charles C. Harriman, rector; 3:35 p. m., WGY Symphony orchestra; Ben Franklin, tenor; Edward A. Rice, violinist; Giovanni Trombini, cellist; 5, Dr. Frank Hill Rogers, organist; 7:45, service, First Presbyterian church, address, Prof. Adna W. Risley; 8:45, symphony concert, Waldorf-Astoria orchestra, Joseph Knecht, conductor.

WHK, Cleveland, Ohio (273). 10:30 a. m., morning services, 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 a. m., Conn. Symphony orchestra, Ralph E. Story, director; solo numbers.

WNY, New York, N. Y. (360). 3-4 p. m., program, Queens County Christian Endeavor; 4:30-5, Collegiate dance club; 5:30, Rochdale dance orchestra; 5:30-6, "Meet Vall and his string trio; 10-10:45, Gem Razor entertainers; 11-11:30, Vanity club revue; 11:30-12, "The Inn revue; 12-12:30 a. m., Harry Richman and his entertainers; 12:30-1, El Fey club revue.

WPH, Philadelphia, Pa. (509.9). 4 p. m., services, "Anees Germantown Y. M. C. A."; 7:15, services, Holy Trinity church, Rev. Floyd D. Tomkins, D. D., rector; 9:30, Ben Staud's WIP Symphony orchestra; Art Bonowitz, organist.

WJZ, New York, N. Y. (455). 9-10 a. m., children's hour; 11-12, church services; 2:30-3:30 p. m., Radio Bible class, Federation of churches; 3:30-3:50, Edna Walter, pianist; 4:30-8:50, "George Washington," Gen. Oliver B. Briggeman; 10-10:20, Hampton Institute quartet.

WLIT, Philadelphia, Pa. (395). 2:30 p. m., Arcadia cafe concert orchestra, Perl Sarkov, director; 4, talk, "Washington," Dr. James Ferniman; 8:30, concert, Friends of Chamber Music from New Century club.

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

WOO, Philadelphia, Pa. (509.9). 10:30 a. m., services, Bethany temple; 2:30, opening exercises, Bethany temple, Sunday school; 6, organ recital, Lawrence K. Bawden.

WREO, Lansing, Mich. (285.5). 10 a. m., chimes; 10:30 service, Plymouth Congregational church, Dr. Edwin W. Bishop, pastor; Rev. E. Davis, organist; 7, service, First Baptist church, Dr. Ralph W. Hobbs, pastor; Helen Dodge Stack, choir director; Mrs. Henry C. Chambers, organist.

WWJ, Detroit, Mich. (352.7). 2 p. m., Detroit News orchestra; 7 p. m., services, St. Paul's Episcopal Cathedral.

Central Time Stations

CKY, Winnipeg, Can. (450). 7 p. m., service, St. Luke's Anglican church.

KFMX, Northfield, Minn. (336.9). 7 p. m., College vesper service, Rev. A. E. Kniekerbocker.

KFNF, Shenandoah, Iowa (266). 10:45 a. m., regular morning worship, First M. E. church; 2 p. m., patriotic concert, Relief Corps and G. A. R.; 3, religious services; 6:30, regular services, Golden Rule circle.

KSAC, Manhattan, Kans. (340.7). 8 p. m., piano, special sacred music; 8:10, prayer; 8:15, hymn; 8:20, "Common Folks," Walter Burr.

KTFS, Hot Springs National Park, Ark. (375). 11-12:15 p. m., services, Central Avenue Methodist church, Rev. J. J. Stowe, D. D., pastor; 8:30-10, De Luxe concert, Meyer Davis' New Arlington hotel orchestra, Jack Leonard, director; 10-11:15, Phil Baxter's singing orchestra.

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

WBAP, Fort Worth, Tex. (475.9). 11 a. m., complete services, St. Paul's M. E. church, Rev. C. D. Meade, pastor; Mrs. F. L. Jaccard, organist; 4 p. m., concert, Rialto theater; 11-12, midnight frolics, Ted Miller's Crazy hotel orchestra.

WBCN, Chicago, Ill. (266). 10:30-12 a. m., Rev. R. A. White, pastor, from People's Liheral church; 4-5 p. m., Latin & Son classical concert; 5:15-6:15, talk; vesper service, Emerald Avenue Presbyterian church, Rev. Richard D. Hughes, pastor; 7-8, classical hour, Windsor Park church; 8-10, popular program, Sears-Roebuck Y. M. C. A. artists, Washington's Birthday program; Midway Dancing Gardens orchestra; Mrs. Caldie Connell, soprano; R. S. Becktel, pianist; Dor-

terian church of Walnut Hills, Dr. Frederick McMillan; 8:30, Western and Southern orchestra, William Kopp, director; George Muhlhauser, tenor.

Mountain Time Stations

WMC, Memphis, Tenn. (499.7). 11 a. m., services, First Methodist church, Rev. C. G. Chappelle, pastor.

WOAI, San Antonio, Tex. (395.4). 11 a. m., services, First Presbyterian church; 7:30 p. m., services, Central Christian church; 9:30, WOAI entertainers give patriotic program.

WOAW, Omaha, Nebr. (526). 9 a. m., chapel service, Gospel tabernacle of the Christian and Allsionary alliance, Rev. R. R. Brown; 2:15 p. m., George Washington program, Stanley Jan Letovsky, composer-pianist; 6, Bible study period, Mrs. Carl R. Gray, director; 9, musical chapel service, Benson Methodist Episcopal church.

WOS, Jefferson City, Mo. (440.9). 7:30 p. m., religious service, Central Evangelical church, Rev. E. W. Berlekamp, pastor.

WOC, Davenport, Iowa (483.6). 8 p. m., church service, Methodist Episcopal church, Rev. J. C. Yemm; 9:30, the Palmer Little symphony, Erwin Swindell, conductor.

WOI, Ames, Iowa (270). 10:45 a. m., college chimes; 11, chapel services.

WQJ, Chicago, Ill. (447.5). 10:30 a. m., sermon and services, Peoples' church, Dr. Preston Bradley; 8-10, Ralph Williams and his Rainbo Garden orchestra; Clyde Keutzer, baritone; Rick, Whalen and Gardener, Harmony Singers.

WSAI, Cincinnati, Ohio (325.9). 3 p. m., sermonette; 3:10, sacred chime concert.

WSB, Atlanta, Ga. (423.3). 11 a. m., First Presbyterian church service; 3:30 p. m., Christian Science lecture, Lowes Grand theater; 5-6, sacred service, Baptist Tabernacle church choir; 7:30, Wesley Memorial church service.

WSUI, Iowa City, Iowa (484). 7 p. m., children's hour, direction of Mrs. Alce McLeod Mills; 9-9:30, familiar hymns, Clarence Woolridge, tenor.

Monday, February 23

Monday, silent night for: CFCA, CKAC, CKY, KFKX, KFSG, KGW, KJIS, PWX, WBCN, WCAU, WDFW, WEAQ, WEBH, WFI, WGN, WHAS, WJY, WKQA, WLBI, WLS, WMAK, WMAQ, WOAI, WQJ, WREO, WSUI, WTV, WTV.

Eastern Time Stations

CFCA, Toronto, Can. (356). 5:30-6 p. m., bedtime story, R. C. Seyring, piano accompanist.

CHNC, Toronto, Can. (350). 8-10 p. m., CHNC trio, Frank Blackford, violinist; Lionel H. Bilton, cellist; Simon Roy, pianist; Gerrard J. Kelly, tenor; Mrs. Genevieve Schreiner, soprano; Mrs. Irene Stevenson, contralto; Dwight Wilson, baritone.

CKAC, Montreal, Can. (425). 1:45 p. m., Windsor hotel trio; 4:30, 110 lessons.

KDKA, E. Pittsburgh, Pa. (309.1). 12:15 p. m., concert, Daugherty's orchestra; 6:15, concert, KDKA Little Symphony orchestra, Victor Saudek, conductor; 7:45, "Overcoming Racial Prejudice," Dr. John Ray Ewers; 8:15, address, University of Pittsburgh study; 8:30, concert.

WAHG, Richmond Hill, N. Y. (316). 8-8:15 p. m., Harrison Wickwire, baritone; 8:15-8:30, Viola Scherer, soprano; 8:30-8:45, Mrs. Birkhahn, pianist; 8:45-9, Adelaide DeLoce, contralto; 9-10:45, Synchronophase string trio; 9:45-10, Viola Scherer, soprano; 10-10:15, Norman Curtis, pianist; 10:15-10:30, Adelaide DeLoce, contralto; 10:30-11:30, Criterions Symphonie dauce musicale; 12-2 a. m., special midnight program.

WBAV, Columbus, Ohio (294). 8 p. m., WBAV orchestra, Frances Handbeau, directing.

WBBR, New York, N. Y. (272.3). 8 p. m., Herald quartet; 8:15, "The Masterpiece of God's Creation," R. H. Barber; 8:40, Herald quartet.

WCAE, Pittsburgh, Pa. (462). 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, special feature; 8:30, concert, artist-pupils, studios Mme. Lelia Wilson-Smith; 9, A. & P. Gypsy string ensemble; 10, music; 11, fight of the mythical dirgible, Press-Kaybee and concert, Blackstone theater orchestra.

Better Advance Programs

BEGINNING with this issue the presentation of Radio Digest's advance programs will be made in a new and different manner than heretofore. The change is being made because it is believed to be a distinct improvement that will provide Radiophans with an even more indispensable aid to the popular pastime of listening in. Briefly the change embraces:

1. Under each date heading the stations are classified first according to the time standard used at the station, then alphabetically. Thus all eastern time stations, grouped together, will come first. These will be followed by the central, mountain and Pacific time stations, in the order named.

2. The two index boxes, "Where to Hear Concerts" and "Where to Hear Talks," are now arranged according to the time standard in use at the stations, following the general arrangement of the stations as just explained.

The new presentation of the advance program material will make it much more valuable locally than heretofore. Eastern fans will find all of their closest stations, programs

and index tables in Eastern time. Listeners in the middle west will find their stations listed in Central time, the kind of time they use. Rocky mountain Radiophans will likewise find their stations and time tables expressed in the kind of time in use in their vicinity, Mountain time. Likewise, on the Pacific coast, listeners will find KHJ, KGO, KPO, KGW and other west coast stations presented in Pacific time.

At this time it might be wise to call attention to the breadth and scope of the advance programs carried by Radio Digest. Practically every station in the country transmitting with 500 watts or more power will be found to have its weekly program given in advance in these columns. The few absent stations are those which have been unable to schedule their artists sufficiently far in advance to make the listing of their programs possible.

The department of commerce states there are 104 of these larger stations. Radio Digest each week gives programs for an average of 100 of these. In no other medium will this material be found so complete. Radio Digest is the "National Broadcast Authority."

Mountain Time Stations

CFAC, Calgary, Can. (430). 11 a. m., Seven Day Adventists church.

KOA, Denver, Colo. (322.4). 11 a. m., service, Trinity Methodist Episcopal church, Rev. Loren M. Edwards, minister; Shad J. Tinsley, organist; Ina Rains, soprano; Lucile Fowler, contralto; Frank W. Farmer, tenor; Everett E. Foster, baritone.

Pacific Time Stations

KFI, Los Angeles, Calif. (467). 10-10:45 a. m., L. A. Church Federation service; 11-2:30 p. m., services, Temple Baptist church; 4-5, vesper musical hour, June Evans, soprano; 6:45-7, editorial talk; 7-8, orchestra and specialties of Metropolitan theater; 8-9, instrumental quartet; 9-10, Examiner, Clandella Ballroom orchestra of Long Beach; 10-11, Packard Eight orchestra, Bill Hennessy, director.

KFSG, Los Angeles, Calif. (278). 10:30-12:30 p. m., complete morning service of Angelus temple with sermon, Almee Semple McPherson, pastor-evangelist; Esther Fricke Green, organist; 3:30-4:30 p. m., afternoon auditorium service and sermon, Temple choir and Silver band; 7-9:45, regular evening services of the temple opening with special musical hour; 10-11, organ recital, Esther Fricke Green.

KGO, Oakland, Calif. (299.8). 11 a. m., service, First Presbyterian church, Rev. Frank M. Sisley; 3:30 p. m., KGO Little Symphony orchestra; Arthur S. Garbett, musical interpretative writer; 7:30, service, First Presbyterian church.

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

KHJ, Los Angeles, Calif. (404). 10 a. m., Rev. S. H. Hall, evangelist of Nashville, Tenn.; 10:30-12:30 p. m., complete morning services of First Methodist Episcopal church, E. E. Helms, pastor; Arthur Blakeley, organist; 8:30-7, Art Hickman's Biltmore hotel concert orchestra, Edward Fitzpatrick, director; 7-7:30, organ recital, First Methodist church, Arthur Blakeley, organist; 8-9, program, Martin Music company, arranged by J. Howard Johnson, presenting a patriotic program in honor of Washington's birthday.

KJIS, Los Angeles, Calif. (293). 10:45-12:30 p. m., services, Church of Open Door, Dr. French E. Oliver, pastor; 6-6:45, vesper musical hour with short scriptural talk, Rev. Pike; 7-9:30, complete evening services of the Church of Open Door, musical program and sermon, Dr. French E. Oliver, pastor.

KNX, Hollywood, Calif. (337). 5 p. m., Radio Sunset service, Rev. Cha. F. Aked and Dr. Frank Dyer, from theater of Ambassador hotel; 7:45, International Ass'n of Bible students' hour of music; 8-9, Ambassador note, concert orchestra, Josef Rosenfeld, director; 9-11, program, El Encanto apartments, Maude Felton Bolles, soprano; Lucille Bowley, soprano; Laurine Smith, soprano; Ivy May Travis, piano; Paul Finstein's KXN string quartet.

KPO, San Francisco, Calif. (429.7). 11:12 a. m., undenominational and nonsectarian church service, Rev. Louis J. Sawyer; 8:30-10, concert, Rudy Selger's Fairmont hotel orchestra.

Henry Field, the owner of KFNF, Shenandoah has a talented family. Faith Field Lowrey, who is one of the Seed House bunch is also one of Mr. Field's daughters and helps to keep up the standard of these weekly Monday meetings.



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

WCAU, Philadelphia, Pa. (278). 5:30 p. m., Bible talk, Rev. John B. Stockwell; 6, dinner concert, Meyer Davis' Hotel Pennsylvania orchestra, direction Lon Chassey.

WCX, Detroit, Mich. (516.9). 10:30 a. m., services, Central Methodist Episcopal church; 4:15 p. m., musical program.

WEAF, New York, N. Y. (492). 8:15-9:20 p. m., Roxy and his Gang, Capitol theater; 9:20-10:15, organ recital.

WEAR, Cleveland, Ohio (389.4). 1 p. m., Phillip Spitalny's Allen theater Symphony orchestra.

WEEI, Boston, Mass. (475.9). 3:45-5:30 p. m., men's conference, Bedford branch, Y. M. C. A.; 7:20-9:15, "Roxy and his Gang," New York Capitol theater; 9:15-10:15, organ recital, chapel at Columbia university.

WFI, Philadelphia, Pa. (395). 10:20 a. m., services, Arch Street Presbyterian church; 4:30, services, Central Y. M. C. A.; talk, "Vision," Dr. P. Whitehill Wilson.

WGBS, New York, N. Y. (316). 3:30-3:45 p. m., program, Piccadilly theater.

WGR, Buffalo, N. Y. (319). 3-4 p. m., vesper service, Rev. H. A. Reed, Elma, N. Y.; 4-5, John F. Gunderman, Jr., organist; 7:15, Central Presbyterian church service, William Wall Whitlitt, organist; Dr. Robert J. MacLaine, speaker.

WGY, Schenectady, N. Y. (379.5). 11 a. m., service, St. Peter's Episcopal church, Rev. Charles C. Harriman, rector; 3:35 p. m., WGY Symphony orchestra; Ben Franklin, tenor; Edward A. Rice, violinist; Giovanni Trombini, cellist; 5, Dr. Frank Hill Rogers, organist; 7:45, service, First Presbyterian church, address, Prof. Adna W. Risley; 8:45, symphony concert, Waldorf-Astoria orchestra, Joseph Knecht, conductor.

WHK, Cleveland, Ohio (273). 10:30 a. m., morning services, 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 a. m., Conn. Symphony orchestra, Ralph E. Story, director; solo numbers.

WNY, New York, N. Y. (360). 3-4 p. m., program, Queens County Christian Endeavor; 4:30-5, Collegiate dance club; 5:30, Rochdale dance orchestra; 5:30-6, "Meet Vall and his string trio; 10-10:45, Gem Razor entertainers; 11-11:30, Vanity club revue; 11:30-12, "The Inn revue; 12-12:30 a. m., Harry Richman and his entertainers; 12:30-1, El Fey club revue.

WPH, Philadelphia, Pa. (509.9). 4 p. m., services, "Anees Germantown Y. M. C. A."; 7:15, services, Holy Trinity church, Rev. Floyd D. Tomkins, D. D., rector; 9:30, Ben Staud's WIP Symphony orchestra; Art Bonowitz, organist.

WJZ, New York, N. Y. (455). 9-10 a. m., children's hour; 11-12, church services; 2:30-3:30 p. m., Radio Bible class, Federation of churches; 3:30-3:50, Edna Walter, pianist; 4:30-8:50, "George Washington," Gen. Oliver B. Briggeman; 10-10:20, Hampton Institute quartet.

WLIT, Philadelphia, Pa. (395). 2:30 p. m., Arcadia cafe concert orchestra, Perl Sarkov, director; 4, talk, "Washington," Dr. James Ferniman; 8:30, concert, Friends of Chamber Music from New Century club.

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

WOO, Philadelphia, Pa. (509.9). 10:30 a. m., services, Bethany temple; 2:30, opening exercises, Bethany temple, Sunday school; 6, organ recital, Lawrence K. Bawden.

WREO, Lansing, Mich. (285.5). 10 a. m., chimes; 10:30 service, Plymouth Congregational church, Dr. Edwin W. Bishop, pastor; Rev. E. Davis, organist; 7, service, First Baptist church, Dr. Ralph W. Hobbs, pastor; Helen Dodge Stack, choir director; Mrs. Henry C. Chambers, organist.

gram; 8:30-9, Cushman's Sons, Inc.; 9-10, A. & P. Gypsies; 10-10:15, Premier male quartet; 10:15-11:30, Ben Bernie's Hotel Roosevelt orchestra.

WEAR, Cleveland, Ohio (389.4). 1 p. m., Phillip Spitalny's Allen theater Symphony orchestra.

WEEI, Boston, Mass. (475.9). 3:45-5:30 p. m., men's conference, Bedford branch, Y. M. C. A.; 7:20-9:15, "Roxy and his Gang," New York Capitol theater; 9:15-10:15, organ recital, chapel at Columbia university.

WFI, Philadelphia, Pa. (395). 1 p. m., Meyer Davis' Bellevue Stratford concert orchestra; 3, "The Advantages of the Post Graduate Course in a Medical School," Dr. Leon Felderman; 4, Hasselburg Novelty orchestra; 6:30, Meyer Davis' Bellevue Stratford concert orchestra; 7, Sunny Jim, the kiddie's pal.

WGBS, New York, N. Y. (316). 3:30-3:45 p. m., interview, Beulah Louise Henry; 3:20-3:40, book review, John Cutting; 3:40-4, dancing lesson, Moss and Fontana; 4-4:15, Nancy Melrod, soprano; 6-6:30, Uncle Geebee; 6:30-7:30, Lew Krueger's Alladin dance orchestra.

WGR, Buffalo, N. Y. (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; 8:30-7:30, dinner music; 8:15-8:55, recital by Gertrude Hutchinson; 9-10, concert by Robertson-Catacart company; 10-11, concert by Troop I, Post 665, American Legion; 11-1 a. m., supper-dance music, Vincent Lopez' Hotel Statler dance orchestra, Harold Giesler, director.

WGY, Schenectady, N. Y. (379.5). 2 p. m., one-act play, "The Household Fairy," WGY matinee players; 8:20, sports talk, Harold Anson Bruce; 6:40, dinner music, "Evelyn" trio; 7:15, "Our Famous Neighbors," Mrs. G. Thomas Powell; 7:30, WGY orchestra; American trio; Rice string quartet; Peter Schmidt, clarinetist.

WHAZ, Troy, N. Y. (379.5). 9 p. m., Kensett Polytechnic institute students' night, Students' Symphony orchestra, glee club Campus serenaders; "Black Coal and White," Charles S. Ruffner.

WHK, Cleveland, Ohio (273). 6:15 p. m., news items, music; 6:45, bedtime story, Ethel O. Hawes; 7, Emerson Gillette Band Garden orchestra.

WHN, New York, N. Y. (360). 6:30-7:15 p. m., violin solos, Otocut Vail; 7:15-7:30, fashion chats, Mme. Belle; 7:30-7:35, health talk, Dr. Landis; 7:35-8, "Storage Batteries," H. B. Shontz; 8-8:30, Roseland dance orchestra; 8:50-9:20, Littmann's Employes orchestra; 9:30-10, Dan Gregory and his Crystal Palace orchestra; 10-11, Jack Shack; 12-12:30 a. m., Lou Holtz and his Club Wigwam revue; 12:30-1, Harry Rose and his Silver Slipper entertainers.

WIP, Philadelphia, Pa. (509.9). 1 p. m., Gimbel theater orchestra; 3, Combs Conservatory of music recital; 6:05, Hotel St. James dinner dance orchestra; 7, Uncle Wip's bedtime stories; dancing lessons, Miller Conservatory of dancing.

WJZ, New York, N. Y. (455). 10-10:20 a. m., Housewives' league menu, Mrs. Julian Heath; 10:20-10:30, shopper's guide, Mrs. Pauline Peck; 10:30-10:40, homo beautiful, Dorothy Ethel Walsh; 10:40-10:50, talk, John C. Cutting; 10:50-11, fashion talk, Eleanor Gunn; 1-2 p. m., Henry Vander Zanden's Hotel Ambassador trio; 2:30-3, Washington birthday celebration; 4:30-5:30, Fred Hall's Royal Terrace orchestra; 7-8, Bernhard Levittow's Hotel Commodore dinner concert; 8-8:30, Wall Street Journal review; 8:10-8:20, N. Y. U. Air college; 8-8:30, Union College Musical association concert; 10:45-11:45, Jacques Green and his Club Beauville orchestra.

WLIT, Philadelphia, Pa. (395). 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 3:30, Clara V. Cooke, soprano; 7:30, Dream Daddy's bedtime stories; 8, concert from Elk's new clubhouse; 10, Arcadia cafe dance orchestra; vaudeville features, Fay's Kalekrocker theater.

WNYC, New York, N. Y. (526). 7-7:30 p. m., dance program; 7:35-7:40, health talk; 7:45-8:15, dance

(Continued on page 11)

DOCTORS GIVE WMC FROLIC FRIDAY

Monday, February 23

(Continued from page 10)

program; 8:15-9:15, concert program; 9:25-10, Riesenfeld's Rialto program; 10:40-11, "Trend of the Times," Dr. Sydney N. Usher.

WOO, Philadelphia, Pa. (509.9), 11 a. m., organ recital, Mary E. Vogt; 12:02 p. m., Wanamaker crystal tea room orchestra, Robert E. Golden, director; 4:45, organ recital, Mary E. Vogt; 7:30, A. Candelori's Hotel Adelphi concert orchestra; 8, concert from WEAF; 10:03, organ recital, Mary E. Vogt; 10:30, Vincent Rizzo's dance orchestra.

WOR, Newark, N. J. (405), 2:45-3:45 p. m., talk, Y. M. C. A., New York city; 3:45-4, Charm magazines; 6:20-7:30, Dave Harman's Cinderella orchestra; 8:30-9:30, Perry and Russell, singing orchestra; 9:30-9:30, Al Reid's hour, Branford theater, Newark, N. J.; 9:30-9:45, "From Pouch Purse to Pocketbook," Dr. Frank H. Vizetelly, editor New Standard dictionary; 9:45-10:45, Dr. Spaeth's studio party; 10:45-11:15, Carolinians orchestra.

WRC, Washington, D. C. (468.5), 4 p. m., book reviews, auspices League of American Pen Women; 4:20, talk, National Geographic society; 4:30, tea music, Meyer Stein's New Willard hotel trio; 6, children's hour, Peggy Albion.

WTAM, Cleveland, Ohio (389.4), 6 p. m., Guy Lombardo's Royal Canadians orchestra; 8, Tall Godards band, Fred Dixon, director; Case school glee club; WTAM symphonic ensemble, Walter Logan, director.

WWJ, Detroit, Mich. (352.7), 12:05 p. m., Jules Klein's Hotel Statler orchestra; 3, Detroit News orchestra; 6, dinner concert; 8:30, Ray Seegar and his string quartet; Eugene Wilson, baritone; Margaret Foy, soprano.

Central Time Stations

KFKU, Lawrence, Kan. (275), 6:50 p. m., piano tuning-in program; 7, music; 7:15, "Permanent Benefits Derived from Basketball," Dr. E. C. Allen; 7:30, "Raising the Plane of Debate," Prof. B. A. Gilkinson; 7:45, elementary Spanish, lesson VIII.

KFKX, Hastings, Neb. (283.3), 9:30 p. m., program, auspices Sewart college, Prof. Paul E. Reuter, director.

KFNH, Shnandoah, Iowa (266), 6:30 p. m., concert, Henry Field Seed company.

KSAC, Manhattan, Kans. (340.7), 9 a. m., march, music lesson; 9:07, singing exercises; 9:15, inspirational talk; 9:20, callisthenics; 10, "Back Yard Gossip;" 10:10, "All Round the House;" 10:15, "Questions and Answers;" 10:20, today's meals, Amy Kelly; 12:30

Louise, Carl Kraemsr, pianists; Harmie Hottle Rasmussen, soprano; Laura Hottle Smith, contralto; the Boston Operatic quartet; 8-9, classical program, direction of Dean Holmes; 11:15-12, L. Carlos Meier, organist.

WLW, Cincinnati, Ohio (423), 8 a. m., physical exercises, Y. M. C. A., Wm. Stradtman, instructor; 12:15 p. m., noonday concert; 6, dinner hour concert, Sellinsky instrumental quintet; 8, chorus of 700 high school children, Gustav Clemens, director in connection with National School Superintendents' convention at Music hall; 8:30, Times Star program; Times Star orchestra, William Kopp, director; soloists: Howard Hafford, tenor; Robert Alter, Vox-Ferro (Hand Saw); Ary Van Leeuwen, flute.

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

WMC, Memphis, Tenn. (499.7), 12 m., O. K. Houck Piano company; 8:30 p. m., concert, Hotel Gayoso orchestra.

WOVA, Omaha, Neb. (526), 6 p. m., Arthur Hays, organist, World theater; 6:30, Edwin M. Kahn and his orchestra, pianists; 9, opera program, The Moellers-Herms and artist pupils.

WOC, Davenport, Iowa (483.6), 4 p. m., "Blue Devils" orchestra; 5:45, chimes.

WOL, Ames, Iowa (270), 12:30 p. m., college chimes; 10, program of popular music.

WOS, Jefferson City, Mo. (440.9), 8 p. m., "Why Physical Defects," Dr. Henry W. Curtis; address, R. O. Hardy; piano recital, James Giltenger.

WSAI, Cincinnati, Ohio (325.9), 6 p. m., Cincinnati Enquirer program.

WSB, Atlanta, Ga. (428.3), 5-6 p. m., Vick Myers Melody artists; bedtime story, Bonnie Barnhardt; 8-9, program, commemorating Frank L. Stanton and George Washington birthdays, Cousin Fred Houser, director; 10:45, Warner's Seven Aces.

WSUI, Iowa City, Iowa (484), 12:30-12:55 p. m., "The Master Singers," Prof. Charles Bunday Wilson; 7:30,

hotel orchestra; 8-9, Theodore J. Irwin, organist; 9-10, "Better Lighting," H. C. Bernard; 10-11, program, auspices, Edgar Thorp, Marie Ufford; Gene James' Roso Room Bowl orchestra.

Tuesday, February 24

Tuesday, silent night for: CHNC, KFAE, KFKU, KFKX, KFMX, KFNH, KOA, KOB, KYW, PWA, WBBB, WCBQ, WEAO, WEMC, WGST, WHA, WHAZ, WHO, WOC, WOI, WOO, WORO, WOS.

Eastern Time Stations

CFAC, Toronto, Can. (356), 8:15 p. m., "The Blue Stockings and Their Friends," Dr. E. J. Pratt.

CKAC, Montreal, Can. (425), 7 p. m., kiddies' stories in French and English; 7:30, Windsor hotel concert ensemble, Harry Salter, director; 8:30, special program; 10:30, Windsor hotel Red Jacket orchestra, Harold Leonard, director.

CNRA, Moncton, Can. (313), 7:30 p. m., program, entertainers of the J. A. Marvin Biscuit company; violin selections, Mrs. R. N. Benvie; William Elliott, saxophonist; J. W. Holder, baritone; Lans Retlaw, tenor; A. W. Walks, baritone; popular dance music, Joe Mazzio and his Rainbow melody boys.

KOKA, E. Pittsburgh, Pa. (309.1), 12:15 p. m., concert, Scalzo's orchestra; 6:15, dinner concert, Pittsburgh Athletic association orchestra; 7:30, children's period; 8, concert; 9, Brunswick hour of music; 11, concert, Pittsburgh Post studio.

WCAE, Pittsburgh, Pa. (462), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, special feature; 8, vocal selections, Edward L. Marsh, tenor; 8:30, Gold Dust twins; 10, Goodrich Silvertown Cord orchestra; 11, late concert.

WCAU, Philadelphia, Pa. (278), 7 p. m., Paul Specht

Gene Hogle; 8:15, Philadelphia police band; 9, talk, Rabbi Feldman; Oscar Langman, violinist; 10:05, "Emo's Weekly Movie Broadcast," Eli M. Orowitz; 10:30, Harvey Marburger's dance orchestra.

WJY, New York, N. Y. (405), 8:15-8:30 p. m., "Indians of the Southwest," Donald Cadzow; 8:30-8:45, Janet Beck, soprano; 10-10:15, Fred E. Hudler, bass-baritone.

WJZ, New York, N. Y. (455), 10-10:20 a. m., Housewives' League menu, Mrs. Julian Heath; 10:20-10:30, Vogues talks on "Etiquette;" 10:30-10:40, "Art for a Dime," Grace P. Nixon; 10:40-11, "What Does Electricity Cost," Geo. W. Alder; 1-2 p. m., Nathan Abas' Hotel Pennsylvania orchestra; 4-4:30, joint recital, Marie Muller, soprano, Anna Margaret Behrmann, pianist; 4:30-5:30, Bernhard Lsvitow's Hotel Commodore tea orchestra; 7-7:15, "Dogs," Frank Dole; 7:15-8, Joseph Strissof's Hotel Vandersbilt orchestra; 8-8:10, Wall Street Journal review; 8:10-8:20, N. Y. U. Air college; 9-10, Brunswick hour, music memory contest program.

WKAB, San Juan, P. R. (340.7), 8-9:30 p. m., "Home in Pasadena," "Mandalay," "San Juan Athletic," "Worried," Euterpe jazz band; "Pedagogical Value of Conference Nowadays," Celedonio Delgado; "Ausencia,"



Robert Ernest Derringer, tenor, (left) sings special requests at WEAO. He will sing with the Fort Hayes hotel trio, February 25. E. J. Dunstedter is the master organist of the State theater new Wuriltzer organ. He gives weekly recitals at WCO, the Gold Medal station. Elizabeth Henz as "Mary" in "The Passion Play" given at St. John's Hall, Cincinnati, by members of the St. John's Parish, broadcast by WLW.

"Modern English," Prof. Thomas A. Knott; 7:45, "Current Social and Economic Problems," Theodore D. Yoder; 8, pipe organ recital, Mrs. Preston Coak.

Mountain Time Stations

KOA, Denver, Colo. (322.4), 8 p. m., ten minutes of music, Fred Schmitt's Rialto orchestra; 8:10, studio program, Wilcox studios; "Romantique," KOA orchestra, Lewis H. Chernoff, director; "George Washington," Judge John T. Adams; "Where My Caravan Has Rested," "They Beaming Eyes," "Carmena," quartet; "Shadow Song from the Opera," Louette Milton, soprano; "Carol Turman, accompanist; "It Was Not So to Be," "The Two Grenadiers," Everett Foster, baritone; Mrs. Everette Foster, accompanist; vocal duet, from the "Opera Shanewis, Shanewis, Lionel Rhodes, Lucile Fowler, contralto; J. Allen Grubb, tenor; Carol Turman, accompanist; "Era Diavolo Overture," KOA orchestra; "Meet Me by Moonlight Alone," "O, Let Night Speak of Me," Forrest Fishel, tenor; "Woo Thou Sweet Music," "In the Time of Roses," quartet from the opera Rigoletto, Denver concert quartet; "Ave Maria," Mrs. J. A. Donery, soprano; violin obligato, Lewis H. Chernoff; "The Long Day Closes," double quartet selection, Denver concert and lyric quartets; "National Pencibles," KOA orchestra.

KOB, State College, N. M. (348.6), 7:30-8:30 p. m., "Safety First," Dr. McBride; College band.

Pacific Time Stations

KFAE, Pullman, Wash. (330), 7:30-9 p. m., Harry Isaacs, baritone, singing "Friend of Mine," "Sunrise and Sunset," "Kashmiri Song," "Give a Man a Horse He Can Ride," Beryl Squires, pianist; "Keeping Farm Stock Healthy," Dr. E. E. Wagner; "What Is Worth Seeing in London," Prof. Carl Brewster; "Planning Spring Pageants," Prof. M. L. Dagey; "February Farm Outlook," R. M. Turner; book reviews, Alice Lindsey Webb.

KFI, Los Angeles, Calif. (467), 5:30-6 p. m., Examiner's musical half hour; 7-8, Evening Herald Radiolians dance orchestra, Charlie Nelson, tenor; 8-9, program, Owl Drug company; 9-10, program, Walter M. Murphy Motors company; 9-11, Examiner, Ray West and his Alexandria Hotel dance orchestra.

KFOA, Seattle, Wash. (455), 4-5:15 p. m., studio music, talks, recipe; 6:45-8:15, Sherman, Clay & company program; 8:30-10, Timea studio program, Ethel Gordon.

KGO, Oakland, Calif. (299.8), 4-5:30 p. m., Henry Halstead's dance orchestra; 5:30-6, Aunt Betty stories, KGO kiddies' club; 8, music, Arion trio; "The Making of Maraschino Cherries," J. H. Irish; "A Lesson in English, Wilda Wilson, Church; "Ethics of Social Etiquette," Edith Stevens, Gilles; "Chats About New Books," Joseph Henry Jackson; 10-1 a. m., dance music program, Henry Halstead's orchestra.

KGW, Portland, Ore. (492), 5 p. m., children's program, story, Aunt Nell.

KHJ, Los Angeles, Calif. (404), 12:30-1:30 p. m., Carlyle Stevenson and his Bon Ton dance orchestra.

KLX, Oakland, Calif. (509.9), 6-7 p. m., organ recital; 8-9:30, educational programs; 9:30-10, American theater orchestra; 10, "Meeting of the Lake Merritt Ducks."

KNX, Hollywood, Calif. (337), 10 a. m., Hired Hand's morning message; 10:30, Mrs. Kate Brew Vaughn, home economics; 11, news and 25 and 50 years ago; 12-1 p. m., Wuriltzer pipe organ studio; 5, closing markets; 5:45-6:15, Wuriltzer pipe organ studio, Sid Ziff's sports talk; 6:15-7:30, dinner hour music; 8-9, program, Globe Ice Cream company; 9-10, program, Economic Press; 10-11, Silvertown Cord orchestra of B. F. Goodrich Rubber company, Lillyan May Chalenger, soprano; 11-12, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel.

KPO, San Francisco, Calif. (429.5), 1-2 p. m., Rudy Selger's Fairmont hotel orchestra; 4:30-5:30, child's hour stories, Big Brother; piano duet, Haruku Kanke, Yoshida Kanke; 6:30, "What Is Playing at the Local Theaters;" 7-7:30, Rudy Selger's Fairmont

and his dance orchestra; 7:30, recital, N. Snellenberg and company; 8, Cleve-Chandler Hawaiian; 8:15, talk, auspices Philadelphia Electric company; 8:20, Media Melodians; 8:40, Symphonic Surety orchestra; 9:10, recital.

WCX, Detroit, Mich. (516.9), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program; 10, the Red Apple club.

WEAF, New York, N. Y. (492), 4-4:15 p. m., Mr. Robitzels, pianist; 4:15-4:30, Marie Young, contralto; 4:30-5, women's program; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:15, Irving Firstenberg, pianist; 7:15-7:30, talk, Chas. C. Green; 7:30-8, Royal Eastern Electric Supply company; 8-8:15, talk, Bank of America; 8:15-8:30, Claire Lampman, contralto; 8:30-9, Gold Dust Twins; 9-10, Eveready hour; 10-11, Goodrich hour.

WEAR, Cleveland, Ohio (389.4), 7 p. m., program, arranged by Cleveland News-Leader; bedtime story, E. C. Bacon; Don Palmer, Radio cartoon talk; Ed Day's Belford Glens orchestra; Gladys Dante Beddoe, soprano; Gertrude Lance, pianist; studio program numbers.

WEBI, New York, N. Y. (233), 7-9 p. m., special program, Harlem Board of Commerce.

WEEI, Boston, Mass. (475.9), 2 p. m., Napoli four; 6:30, Big Brother club; 7:15, sports talk, William E. Mulhens; 7:25, Dok-Eisenburg and his Sinfonians; 8:15, New York programs; 8:30, Gold Dust twins; 9, Eveready hour; 10, Goodrich Silvertown Cord orchestra.

WFI, Philadelphia, Pa. (395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3, Russian program, Philadelphia Music club; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Boy Scouts; 8:30, Gold Dust Twins from WEAF; 9, Eveready hour; 10, Goodrich Silvertown Cord orchestra.

WGBS, New York, N. Y. (316), 3-3:15 p. m., interview, Genevieve Tobin; 3:20-3:40, talk, Julia Hoyt; 3:40-4:15, piano lesson, Dr. Alfred G. Robin; 4:15-4:30, music, Anton Razzilg and Hortense A. Jones; 6-6:30, Uncle Geehee; 6:30-7:30, Elite dance orchestra; 9:30-10, Herald-Tribune feature; 11-12, Vincent Rose orchestra.

WGR, Buffalo, N. Y. (319), 11 a. m., Katherine Norton Britt, the "Cherry Pie Lady," in household talks; 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; 8:30-9, the Gold Dust Twins, jointly with WEAF; 9-10, "Eveready hour," jointly with WEAF; 10-11, Goodrich Silvertown Cord orchestra, jointly with WEAF; 11-11:30, concert by the American Radiator company of Buffalo.

WGY, Schenectady, N. Y. (379.5), 2 p. m., talk, Mrs. Ralph Jecklin; 2:30, organ recital, Stephen E. Bolsclair; 6:30, dinner music, New Kenmore hotel orchestra; 7:30, "Personality," Sydney Ashe; 7:45, Paul Smith, pianist; John M. Ewack, baritone; Mary C. Nally, contralto; Raymond Zwack, violinist; Beatrice Zollinger, soprano; Raymond Becker, baritone; Mary C. Nally, contralto; Raymond Zwack, violinist; 9, Brunswick hour of music; 10, United States Navy band, WRC, WJZ; 11:15, organ recital, Stephen E. Bolsclair.

WHK, Cleveland, Ohio (273), 6:15 p. m., news items; 6:30, Emerson Gill's Bamboo Garden orchestra; 7, Al Dister's orchestra; Mrs. Mirlam Ward, contralto; Alex Worth, tenor.

WHN, New York, N. Y. (360), 12:30-1 p. m., Charles Strickland's Palais D'Or orchestra; 2:15-3:15, overture and vaudeville direct from stage of Loew's State theater; 6:30-7, Strand Roof orchestra; 7-7:15, "Personal Chats of the Stage and Screen," E. S. Colling; 7:30-7:35, health talk, Dr. Landis; 10-10:15, Loew's vaudeville headliner; 10:15-10:30, accordion solos, Marconi Brothers; 10:30-11, The New Rockwell Terrace revue; 11-11:30, Everglades revue; 11:30-12, Club Alabama orchestra; 12-12:30 a. m., Ted Lewis and his Parody club orchestra.

WIP, Philadelphia, Pa. (509.9), 1 p. m., Karl Bonawitz, organist; 3, Robert Herschach, violinist; 6:05, song, Mark Fisher and Joe Burke; 6:15, Harvey Morburger and his vaudeville dance orchestra; 7, Uncle Wip's bedtime stories; 8, timely talks for motorists;

"Oh, How I Love My Darling," "La Fiesta de la Raza," "Boll Weevil Blues," Euterpe jazz band.

WLIT, Philadelphia, Pa. (395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 2, Arcadia cafe concert orchestra; 2:30, Louise Broomell, soprano; Ruth E. Lovell, contralto; Marcela North, pianist; 7:30, Dream Daddy's bedtime stories; 7:50, play review, Arnold Abbott.

WNYC, New York, N. Y. (526), 7:30-7:35 p. m., police alarms; 7:35-7:55, sport talk, Thornton Fisher; 8:30-9:30, concert program; 10:10-10:30, "Louls Pasteur—The Dawn of a New Era in Science," Israel Weinstein, Sc. D.

WOO, Philadelphia, Pa. (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. (405), 3-3:15 p. m., Mae Jacobus Fleming, Bamberger's book reviewer; 6:15-6:30, Halsey Miller's orchestra; 6:30-6:45, man in the moon stories; 7-7:15, Halsey Miller's orchestra.

WRC, Washington, D. C. (468.5), 6:45 p. m., children's hour, Peggy Albion; 7, dinner music, Meyer Davis' New Willard hotel orchestra; 8, "Show Shopping," Leonard Hall; 8:10, music; 9, fourth memory contest, Brunswick hour of music; 10, United States Navy band; 11, dance music, Meyer Davis' Le Paradis band.

WTAM, Cleveland, Ohio (389.4), 6 p. m., Guy Lombardo's Royal Canadians orchestra.

WWJ, Detroit, Mich. (352.7), 12:05 p. m., Jules Klein's Hotel Statler orchestra; 3, Detroit News orchestra; 6, dinner concert; 8:30, Detroit News orchestra; Roy Strayer, tenor.

Central Time Stations

CKY, Winnipeg, Can. (450), 7:30 p. m., university lecture; 8:15, concert, "Toc H;" 9, half-hour program, Capitol theater.

KFOM, Beaumont, Tex. (315.6), 8 p. m., vocal numbers, Samuel Francis; Gladys Harned, violinist; Lena Milam, accompanist; Jewel Harned, pianist.

KFMQ, Fayetteville, Ark. (275), 9 p. m., community chorus, E. E. Stultz, director.

KSAC, Manhattan, Kans. (340.7), 9 a. m., march, music lesson, 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, today's meals, Amy Kelly; 12:30 p. m., readings, Osceola Burr; "Test, don't guess," A. J. Scoth; question box; "Landscaping with Native Materials," C. K. Sheed; 7:20, "Cultivating Alfalfa," S. C. Salmon; 7:30, basketball game, KSAC vs. KU; 8, "Care of the Machine During the Hatch," L. F. Payne; 8:15, program.

KSD, St. Louis, Mo. (545.1), 6 p. m., concert, Benjamin Rader's orchestra; 9, studio recital, Chester Merton, tenor.

KTHS, Hot Spring National Park, Ark. (375), 8:30-10 p. m., "Victor Herbert Night," Charles L. Fischer's Eastman ensemble.

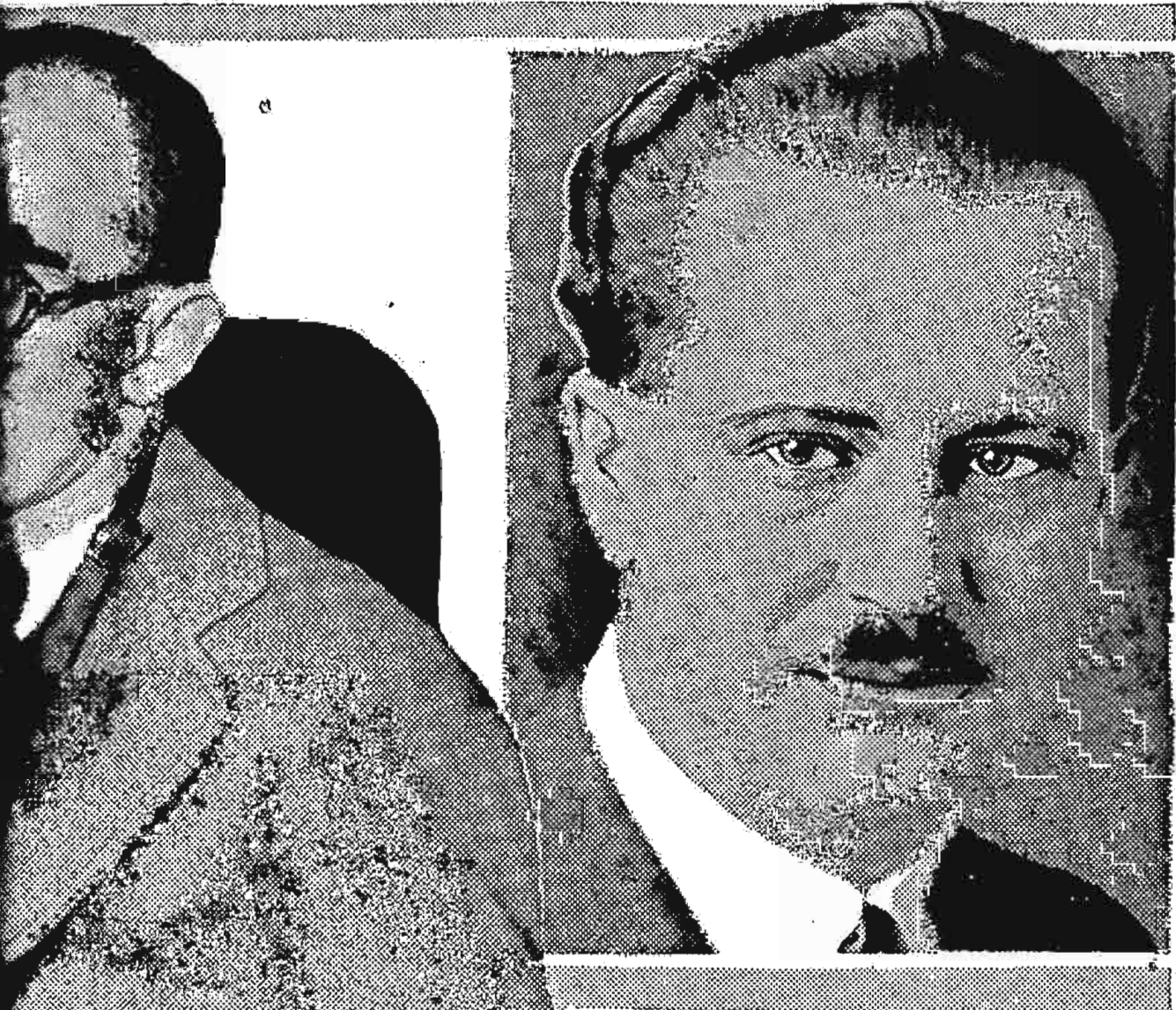
KYW, Chicago, Ill. (535.4), 7-7:30 p. m., dinner concert, Congress hotel; 8:20-8:45, American Farm Bureau federation; "The Farm as a Factory," H. M. Bilsback; "Monthly Analysis of Farm Markets," E. W. Moorhouse; 8:45-9:30, musical program; 10-11:30, evening at home; 1-2, "Insomnia Club."

WBAP, Fort Worth, Texas (475.9), 12:05-12:30 p. m., popular music, Montgomery Ward and company's "Trail Blazers;" 7:30-8:30, concert, Ina Gilliland, director; 9:30-10:45, musical program, Mrs. J. Edward Cooley.

WBCN, Chicago, Ill. (266), 6-6:30 p. m., Juvenile period, Luella Drew Wilson; 7-8, classical hour; program by Englewood evening school; 8-8:30, popular program, Marie Wright, soprano; Victoria Swanson, pianist; Midway Gardens orchestra; 8:30-9, Walton School of Commerce "Encyclopedia of the Air;" lectures on income tax and accountancy; 9-12, popular program, Axel Christensen, pianologist; F. H. McDonald, president of Broadcast Listeners' Ass'n; talk; George Forsyth, boy tenor; Finney Briggs, humorist;

(Continued on page 12)

IN "GOING SOME" THURSDAY AT WRC



John Hammond is the organist of the Piccadilly theater and takes part Sundays and Thursdays in the Piccadilly programs at WGBS, Gimbel Brothers, New York City.

Gardens orchestra; Harry J. Mapp, president, Englewood Overland company, auto talk.

WCAI, Northfield, Minn. (336.9), 7:30 p. m., Hemline-St. Olaf college basketball game.

WCCO, Minneapolis-St. Paul, Minn. (416.4), 10:45 a. m., "The Hidden Treasures from the Bible," Ellen Gould; 2:30, matinee musical; 4, studio players, Lawrence Brings, director; 5:30, children's hour, Alphe Stelson; 7, midweek church service, First Evangelical church, Rev. J. G. Heldinger, pastor; 9, program, MacPhell School of Music and Dramatic Art; 10, dance program, Arnold Frank's Casino orchestra; 11:30, Eddie Dunstetter, organist.

WDAF, Kansas City, Mo. (365.6), 3:30-4:30 p. m., Star's radio trio; 6-7, School of the Air: piano tuning-in number on the Duo-Art; address: Tell Me a Story lady; 8, Trianon ensemble, Hotel Muehlebach; 8-9-15, classical music, Star's Radio orchestra, soloists.

WEBB, Chicago, Ill. (370.2), 7 p. m., Orlole orchestra; 11:30, Jones, book talk; musical bits, Riviera theater; H. J. Clement, bass; 9, Orlole dance orchestra; talk, M. S. Szymczek; Lenndon Brothers, Hawellen gutters; Marie Kelly, readings; Frederick Kelly, readings; Frederick Agard, tenor; Bob Cogle, accompanist; 11, Orlole dance orchestra; Edne Solomon, songs; Nubs Allen, songs; Marie Kelly, readings; Nick Lucas, songs; Lanndon Brothers, Hawaiian guitarists.

WEMC, Berrien Springs, Mich. (285.5), 8:15 p. m., Mary Rossier, pianist; 8:20, weekly bird talk, Mary Lamson; 8:25, Tom Johnson, baritone; 8:30, "Dreamland Travels," George Fox; 8:40, Tom Johnson, baritone; 8:45, "Dreamland Travels," George Fox; 9, Mrs. H. B. Taylor, soprano; 9:15, "Dreamland Travels," George Fox.

WGN, Chicago, Ill. (270.2), 1:40 p. m., luncheon concert, Drake concert ensemble, Blackstone string quintet; 2:30, artist series, Lyon & Healy; 3, rocking chair time; 5:30, Skeezix time for the children; 6, organ recital, Lyon & Healy; 6:30-7, dinner concert, Drake concert ensemble, Blackstone string quintet; 8-9, Lyon & Healy classical artists; 10-11, Don Bestor Drake dance orchestra; Ned and Ches, WGN's Joy Boys.

WHA, Madison, Wis. (535.4), 9 p. m., "Gondollera," "Chant d'Amour," "Jardius sous la Pluie," "Fantasie," "Nocturne in F Sharp," "Scherzo in B Minor," Frances H. Landon, pianist; "Printemps Sul Commence," "L'olle's est sans fin," "Paysage Triste," "Les Yeux," "The Great Awakening," "Deffodill Gold," "The Golden Bird," "Morning," "To Welcome You," Jane E. Peterson, contralto.

WHAS, Louisville, Ky. (399.8), 4-5 p. m., Mrs. Jay Fay, vocal solos; Alamo theater organ; 7:30-9, concert, Kentucky & Indiana Terminal Railroad orchestra; Billy end Jane stories.

WHB, Kansas City, Mo. (365.6), 2-3 p. m., music hour, Sweeney Radio trio; 7-8, popular dance music, Pekin Cafe; fifteen minutes for the children, Lullaby Ledy, Rhea Sheldon.

WHO, Des Moines, Ia. (526), 8:30-7:30 p. m., Reese-Bughes orchestra; 7:30-8:30, Leonard Kirkwood, pianist; M. B. Handley, fiddler; Mrs. A. Geb, accompanist; Boston Operatic quartet; 8:30-9:30, Des Moines theater symphonic orchestra, Leon Deshoff, director; 9:45-11, Bankers Life Radio orchestra.

WLS, Chicago, Ill. (344.6), Noon: Bill Perks; 6:30, Ralph Emerson; 6:50, Senete theater studio artists; 7, "Lullaby Time," Ford and Glenn; 7:15, WLS Tribe of Love Scouts; 7:40, Agnes Karlson, contralto; 7:50, Bill Parks; 8, RFD program, Ralph Emerson, Ford and Glenn; 9, Glenn's Cornhuskers; 9:10, WLS theater presents Weltece Bruce Amstury; 9:30, Wlesner Sisters; 10, Senate theater symphony orchestra; 10:30, Isham Jones; 10:40, Ford and Glenn.

WLW, Cincinnati, Ohio (423), 8 a. m., physical exercises, Y. M. C. A., Wm. Stradmen, instructor; 12:15 p. m., program, Mu Phi Epsilon sorority; Ahaus Brunswick orchestra; 4, Shut-in program; 6, dinner hour concert, Selnsky Instrumental quintet; Howard Thurston; 8, The Minor Instrumental trio, Minor Electric company; Columbian quartet of Dayton; Clifford Lang; aesthetic dances, Marlen LaCour; 9, Formica orchestra, Walter Eberker, director; Lyric quar-

et; Russian songs, Mexin Kestyllic, Paul De Miller, accompanist.

WMAQ, Chicago, Ill. (447.5), 1 p. m., speeches, luncheon of the Association of Commerce; 4, beauty talk, Madame Earl; 4:30, musical program, pupils of Cosmopolitan school; 6, Chicago theater organ recital; 6:30, stories for the children, Georgene Faulkner; 8, weekly lecture, Northwestern university; 8:30, Meurice Rosenfeld, pianist; 8:45, Jesse Beers Steck, soprano; 9, WMAQ players.

WMC, Memphis, Tenn. (499.7), 12 m., music, O. K. Houck Pleno company.

WOC, Davenport, Iowa (483.6), 6:30 p. m., Sendmen's visit, Vel McLoughlin; 7, "History One Can See from WOC," Dr. A. E. Hender; 9, Erwin Swindell, organist; Mrs. John Melloy, soprano.

WOL, Ames, Iowa (270), 12:30 p. m., college chimes.

WOS, Jefferson City, Mo. (440.9), 8 p. m., "Feeding Baby Chik," Prof. H. L. Kempster; program of old songs, Mayme Armstrong.

WQJ, Chicago, Ill. (447.5), 3-4 p. m., domestic science course, Helen Herrington Downing; "Little Journeys Through Packing Town," Mertha Logan; 7-8, dinner concert, Ralph Williams and his Rainbo Garden orchestra; Merrie Boyd Mitchell, soprano; James Mitchell, baritone; Rev. Karl Chworowski, pianist; 10-1, Ralph Williams and his Rainbo Skylarks, Rogers Boys, Larry and Billy; Rick Whalen and Gardner, Harmony Singers; Clarence Theders, tenor; Alfred Tweed, harmonica and guitar soloist; The Melodians, Leurie, Eddie, Bennie; song writers, George A. Little, Leroy Shey; Fred A. Jacobson, reader; Zeligler Sisters; 1-2, Hotsy Totsy hour with the Ginger man and the little Skylarks.

WSAI, Cincinnati, Ohio (325.9), 10 p. m., Russel Dunham, tenor; male quartet; Richard Fluke, baritone; Cliff Lang, pianist; Fenton Pugh, tenor.

WSB, Atlanta, Ga. (428.3), 12 m., entertainment; 5-6 p. m., Georgians orchestra; bedtime story, Bonnie Barnhardt; 10:45, Woman's Division of the Chamber of Commerce.

WSUI, Iowa City, Iowa (484), 9-9:30 a. m., violin solos, Harry F. Larson, talk on "A Day on a Fiji Reef," Prof. C. C. Nutting; 12:30-12:55, readings, music; 7:30, "The American Constitutional System," Prof. Frank S. Horack; 7:45, "The Psychology of Learning," Prof. Frederick B. Knight; 8, "Appreciation of Literature," Prof. Frenk L. Mott.

Mountain Time Stations

CNRC, Calgary, Can. (450), 9 p. m., Jahas orchestra; versatile and dance program, Pieza cabaret.

KOA, Denver, Colo. (322.4), 12-12:30 p. m., Rialto theater organ; 8, ten minutes of music, Fred Schmitt's Rialto orchestra; 8:10, bend concert, El Jebel Temple; "March and Processional," "William Tell Overture," "After the Storm," E. Jebel Shrine band; contrelto solos, "Agnus Del," "Transformation," Mrs. Lloyd C. Fulewider; Mrs. Mergeret Day Grubb, accompanist; "Czardas," "Valse Lente," "Scene," "Mazurka," "Merch," bend; Arabian Night, band; "The Shrine," James C. Burger; "March, Jim Burger," bend; "Dedication and Benediction, Les Huguenots," "Frozen Bill," bend; "Drums and Bugles," El Jebel Drum Corps; "Sulte Romantique—A Day in Venice," band; "Indian War Dance," "L'Estudiantina," bend; "That Is the Lass for Me," "That's the Reason Noo I Wear the Kilts," Welter Tripp, baritone; Mrs. Walter Tripp, accompanist; "High Patrol—Wee McGreggor," "Idyl," "March, Nobles of the Mystle," band; "Pierrette," "Serenade," band; march, "Cock-a-Dooodle Doo," bend.

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

Pacific Time Stations

KFAE, Pullman, Wash. (330), 7:30-9 p. m., Treadwell's orchestra playing "Doo Wocke Doo," "All Alone," "Show Me the Way," "Take Me," "Sally"; "Pointers on Delfy Farming," Prof. E. V. Ellington; health talk, U. S. Public Health bureau; "Changing Farm Practices by the Printed Word," Lincoln Lounsbury; Radio talk, Dean Carpenter.

KFI, Los Angeles, Calif. (467), 5-5:30 p. m., Evening Herald, table talk, news; 5:30-6, Examiners' musical half hour; 6:45-7:30, Nick Harris, detective stories; 7:30-8, program, Goodwin-Kilger-Meckay company; 8-9, Evening Herald's all-star program; 9-10, Exeminer popular song hour; 10-11, Patrick-Mersh dance orchestra, Betty Patrick, soloist.

KFOA, Seattle, Wash. (455), 4-5:15 p. m., Olympic Hotel orchestra; reciple; Hopper-Kelly company studio program; 8:30-10, Plymouth Congregational chorus, soloists, Wallace McMurray, director.

KFSG, Los Angeles, Calif. (278), 10:30-11:30 a. m., sunshine hour program; 2:30-4:30 p. m., auditorium service and sermon on Divine Healing, Almee Semple McPherson, pastor; 6:30-7:30, children's hour, presenting Helen Edwina and Mary Elizabeth Hughes, Mrs. Ross, pianist.

KGW, Portland, Ore. (492), 12:30 p. m., concert; 5, children's program, story, Aunt Nell; 8, concert,

(Continued on page 14)

Index to Popular and Classical Concerts

TABULATED below is a time table of the stations giving classical and popular concerts next week. The concerts are divided into two classes, classical and popular. Stations are likewise divided into the four different standard times in use. The hours are given in the kind of time in use at each listed station. By using this table as an index and referring to the complete programs below, full information will be obtained.

Popular

Eastern Time Stations

Saturday, February 21: 7:30, KDKA; 8:30, WNYC; 10, WJZ; 10:15, WGBS, WJZ; 10:35, WGBS.

Sunday, February 22: 7:20, WEEL.

Monday, February 23: 7:15, WEAF; 8, WBAY; 8:15, WGR; 8:30, WEAF; 9:25, WNYC; 10, WGR.

Tuesday, February 24: 7:15, WEEL; 7:30, WGY; 8:30, WCAE, WEAF, WEEL, WFI, WNYC; 9, WCAE, WEAF; 9:45, CFAC; 10, WEAF.

Wednesday, February 25: 7:45, WCAE; 8:15, WCR, WLIT; 10, WEEL; 10:30, WEEL.

Thursday, February 26: 8:45, WCAE, WEAF; 8:15, WIP; 8:30, WNYC; 9, WFI; 9:15, WREO; 10, CFCA; 11, WSAI.

Friday, February 27: 7, WWJ; 8, WEAF; 8:30, WEAF, WEEL, WJY; 9, WEAF.

Central Time Stations

Saturday, February 21: 6, WMAQ; 7, WBCN, WQJ; 7:20, WLS; 8, KYW, WBCN; 9, WBCN, WEBB, WMAQ; 10:00, WBCN; 10:30, WQJ; 10:45, WSB; 11, WBCN, WEBB, WQJ; 11:30, WQJ; 12, WBCN, WQJ; 1, WQJ.

Sunday, February 22: 7, WEBB; 8, WBCN; 9, WBCN; 9:30, WFAA; 11, WBAP; 12, WBCN.

Monday, February 23: 6:45, WOAW; 7:30, WHO; 8, WLW; 8:30, WCCO; 9, WOAW; 9:30, WBAP; 10, WOC, WOI.

Tuesday, February 24: 6:30, WTAY; 8, WBCN, WHB; 9, CKY, WBCN, WEBB; 10, KYW, WBCN, WQJ; 10:40, WLW; 11, WBCN, WEBB, WMC, WQJ; 12, WBCN, WQJ; 1, WQJ.

Wednesday, February 25: 7, WWH; 7:30, WBAP, WHO; 8, WBCN, WHO; 9, WBCN, WEBB, WTAY; 9:30, WTAY; 9:45, KYW; 10, WQJ; 10:30, KYW; 12, WQJ; 12:15, WTAY; 12:30, KYW; 1, WQJ.

Thursday, February 26: 6:30, WTAY; 7, WHB, WLW; 8, KSD, WBCN; 8:20, KYW; 8:30, WFAA; 9, WBCN, WEBB; 10, KYW, WGN, WQJ; 10:30, WBCN; 11, WEBB, WLW, WQJ; 11:30, WBCN; 12, WBCN, WQJ; 1, WQJ.

Friday, February 27: 6:30, WTAY; 7, WBCN; WHO; 8, WBCN, WCCO, WDAF; 8:30, KTHS; 9, KYW, WCCO, WDAF, WEBB, WOAW; 10, WGN, WQJ; 11, KYW, WEBB, WMC, WQJ; 12, KYW; 12:20, WQJ; 1, KYW, WQJ.

Mountain Time Stations

Saturday, February 21: 7:45, CFAC; 8:30, KFOA.

Tuesday, February 24: 6, KOA; 10, CFAC.

Pacific Time Stations

Saturday, February 21: 8, KGO; 11, KNX.

Sunday, February 22: 8, KHJ, KNX.

Monday, February 23: 8, KFI, KNX; 9, KFI.

Tuesday, February 24: 7, KFI; 8, KHJ, KNX; 9, KNX; 10, KFI, KNX.

Wednesday, February 25: 7:30, KFI; 8, KHJ, KNX.

Thursday, February 26: 8, KFI, KHJ; 9, KFI, KHJ, KNX.

Friday, February 27: 8, KFI; 10, KNX.

Classical

Eastern Time Stations

Saturday, February 21: 7:30, CKAC, KDKA, WBZ, WLIT; 8, CNRO, WBBR, WEAF, WNYC; 8:15, WBZ, WJZ; 8:25, WEAF; 8:30, CKAC, KDKA, KFI, PWX, WCAE; 8:50, WEAF; 9, WEAF; 9:05, WBZ; 9:45, WBBR, WEAF, WGBS; 10, WBZ; 10:30, WBZ, WEAF; 10:45, WEAF.

Sunday, February 22: 7:30, WGY; 8, WBBR, WJZ; 8:45, WGY; 9, WNYC; 9:10, WBBR; 9:30, WIP, WJZ; 10:05, WBBR.

Monday, February 23: 7:30, WGY; 7:45, WCAE, WNYC; 8, CHNC, WBBR; 8:30, KDKA, WCAE, WCX, WLIT, WEAF; 8:40, WBBR; 8:45, WCAE, WGR, WHAZ, WJZ; 9:15, WREO; 9:25, WLIT; 10, WEAF, WGST; 11, WCAE.

Tuesday, February 24: 7, WEAF, WLW, WRC, WWJ; 7:30, CKAC, WCAU; 7:45, WCAE, WEAF; 8, WBAY, WEEL; 8:10, WRC; 8:15, WIP, WJY; 8:30, KDKA, WCX, WSAI; 9, WEEL, WFI, WGY, WIP, WJZ, WMAK, WRC; 9:15, CKY; 10, WCAE, WRC; 10:10, WSAI; 10:15, WJZ; 11, KDKA, WCAE; 11:15, WGY.

Wednesday, February 25: 7, WCAO, WKAQ; 7:30, WEAF, WOO; 8, WGY; 8:15, WCAU, WEAF; 8:20, WEAF, WCAO; 8:30, KDKA, PWX, WCAE, WCX, WEEL; 8:45, WCAU; 9, WEEL, WJZ; 9:45, CFAC; 10, WEAF, WJZ, WGY.

Thursday, February 26: 7:15, WEEL; 7:30, WRC; 8, KDKA, WEEL, WGST, WGY; 8:15, WJY; 8:30, CHNC, KDKA, WCX; 8:40, WJZ; 9, CKY, WIP; 9:30, CNRM, WJZ; 10, WCAE, WEAF; 11, CFAC, KDKA.

Friday, February 27: 7:15, WJY; 7:45, WEAF; 8, WEEL; 8:30, CNRT, KDKA, WCAU, WCX; 9, CFAC; 9:30, WCAE; 10:03, WOO.

Central Time Stations

Saturday, February 21: 6, WBCN, WGN, WLW; 6:15, WTAY; 6:30, KFNE, WGN, WTAY; 6:45, WOAW; 7, KYW, WEBB, WGY; 7:30, WHAS; 8, KSD, WGN, WMC, WSB; 8:30, KTHS, WFAA; 11, KFQX, WFAA; 11:30, KYW, WOAW.

Sunday, February 22: 6, WORD; 7, KYW, WBCN, WLS; 7:30, WFAA; 8, WCBD, WQJ; 8:30, KTHS; 9, WOAW, WQJ, WSUI; 9:15, WCCO; 9:30, KTHS, WOAI, WOC; 12, KFSG.

Monday, February 23: 6, WGN, WMAQ, WOAW; 6:30, KFNE, WFAA, WGN, WMAQ, WOAW; 7, KFKU; 8, KFDM, WCBD, WHO, WOC, WORD; 8:15, WEMC; 8:30, KTHS, WFAA, WMC; 8:45, WORD; 9, KSD; 9:30, KFQX; 11:15, WHO.

Mountain Time Stations

Tuesday, February 24: 6, KSD, WGN, WLW, WMAQ; 6:15, WTAY; 6:25, WOAW; 6:30, WCCO, WFAA, WGN; 7, KYW, WBCN, WEBB, WHB, WQJ; 7:30, WHAS; 8, KYW, WDAF, WGN, WLW, WOC; 8:15, WEMC; 8:30, KTHS, WMAQ; 8:45, CFAC; 8:50, WEMC; 9, KFQX, KTHS, WCCO, WHO; 9:20, WEMC; 11, KFQX; 11:30, WCCO; 12, WTAY.

Wednesday, February 25: 6, WGN, WLW, WMAQ; 6:30, KFNE, WGN, WTAY; 7, KYW, WBCN, WEBB, WQJ; 7:30, WHAS; 8, KYW, WDAF, WGN, WLW, WOC; 8:15, WEMC; 8:30, KTHS, WMAQ; 8:45, CFAC; 8:50, WEMC; 9, KFQX, KTHS, WCCO, WHO; 9:20, WEMC; 11, KFQX; 11:30, WCCO; 12, WTAY.

Thursday, February 26: 6, WGN, WLW, WMAQ, WORD; 6:15, WTAY; 6:30, KFNE, WCCO, WFAA, WGN; 7, KFQX, KYW, WBCN, WEBB, WQJ; 7:30, WBAP, WHAS; 8, KFDM, WGN, WGN, WHB, WMAQ; 8:15, WOI; 8:30, KTHS, WMC, WORD; 9, WHB, WOAW; 9:15, WMAQ; 9:30, KFQX, KTHS, WBAP; 10:03, WLW; 10:30, KTHS.

Friday, February 27: 6, WGN, WMAQ; 6:15, WTAY; 6:30, KFNE, WCCO, WFAA, WGN, WOAW; 7, KYW, WEBB, WHB, WQJ; 7:30, WBAP, WHAS; 8, KFDM, WGN, WHO, WOC; 8:15, CKY; 8:30, WFAA; 9, WBCN, WEMC; 9:15, WMAQ; 9:30, WBAP, WMC; 9:45, WEMC.

Pacific Time Stations

Saturday, February 21: 6, KHJ; 6:45, KFOA; 7:30, KNX; 8, KFI; 9, KFQX.

Sunday, February 22: 6:30, KHJ; 7, KFSG, KGW, KHJ, KNX; 8, KFI, KNX; 10, KFSG.

Monday, February 23: 6:30, KNX; 6:45, KFOA; 8:30, KFOA; 9, KFOA.

Tuesday, February 24: 6:30, KNX; 6:45, KFOA; 8, KFI, KGO, KHJ; 8:30, KGW; 9, KFI.

Wednesday, February 25: 6, KHJ; 6:45, KFOA; 7, KNX; 8, KGW; 8:30, KFOA; 9, KFQX.

Thursday, February 26: 6, KHJ; 8, KGO, KJS; 9:15, KFSG; 10, KFI, KFSG.

Friday, February 27: 6, KHJ; 6:45, KFI, KFOA; 8, KNX; 9, KFI; 9:15, KFSG; 10, KFI, KFSG.

WTAY;
WBCN;
9, KYW;
JAW; 10,
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y 21: 6, KHJ;
KNX; 8, KFI; 9,

KFQX.

Sunday, February 22: 6:30, KHJ;
7, KFSG, KGW, KHJ, KNX; 8, KFI,
KNX; 10, KFSG.

Monday, February 23: 6:30, KNX;
6:45, KFOA; 8:30, KFOA; 9, KFOA.

Tuesday, February 24: 6:30, KNX;
6:45, KFOA; 8, KFI, KGO, KHJ; 8:30,
KGW; 9, KFI.

Wednesday, February 25: 6, KHJ;
6:45, KFOA; 7, KNX; 8, KGW; 8:30,
KFOA; 9, KFQX.

Thursday, February 26: 6, KHJ; 8,
KGO, KJS; 9:15, KFSG; 10, KFI,
KFSG.

Friday, February 27: 6, KHJ;
6:45, KFI, KFOA; 8, KNX; 9, KFI;
9:15, KFSG; 10, KFI, KFSG.

Central Time Stations

Saturday, February 21: 6, WBCN,
WGN, WLW; 6:15, WTAY; 6:30,
KFNE, WGN, WTAY; 6:45, WOAW;
7, KYW, WEBH, WGY; 7:30, WHAS;
8, KSD, WGN, WMC, WSB; 8:30,
KTHS, WFAA; 11, KFQX, WFAA;
11:30, KYW, WOAW.

Sunday, February 22: 6, WORD;
7, KYW, WBCN, WLS; 7:30, WFAA;
8, WCBF, WQJ; 8:30, KTHS; 9,
WOAW, WQJ, WSUI; 9:15, WCCO;
9:30, KTHS, WOAI, WOC; 12, KFSG.

Monday, February 23: 6, WGN,
WMAQ, WOAW; 6:30, KFNE, WFAA,
WGN, WMAQ, WOAW; 7, KFKU; 8,
KFDM, WCBF, WHO, WOC, WORD;
8:15, WEMC; 8:30, KTHS, WFAA,
WMC; 8:45, WORD; 9, KSD; 9:30,
KFKX; 11:15, WHO.

Pacific Time Stations

KFAE, Pullman, Wash. (330), 7:30-9 p. m., Treadwell's
orchestra playing "Doo Wocka Doo," "All Alone,"
"Show Me the Way," "Take Me," "Sally"; "Pointers
on Dairy Farming," Prof. E. V. Ellington; health
talk, U. S. Public Health bureau; "Changing Farm
Practices by the Printed Word," Lincoln Lounsbury;
radio talk, Dean Carpenter.
KFI, Los Angeles, Calif. (467), 5-5:30 p. m., Evening
Herald, table talk, news; 5:30-6, Examiner's musical
half hour; 6:45-7:30, Nick Harris, detective stories;
7:30-8, program, Goodwin-Klinger-MacKay company;
8-9, Evening Herald's all-star program; 9-10, Examiner
popular song hour; 10-11, Patrick-Marsh dance or-
chestra, Betty Patrick, soloist.
KFOA, Seattle, Wash. (455), 4-5:15 p. m., Olympic
Hotel orchestra; recipe; Hopper-Kelly company studio
program; 8:30-10, Plymouth Congregational chorus,
soloists, Wallace McMurray, director.
KFSG, Los Angeles, Calif. (278), 10:30-11:30 a. m.,
sunshine hour program; 2:30-4:30 p. m., auditorium
service and sermon on Divine Healing, Almee Semple
McPherson, pastor; 6:30-7:30, children's hour, pre-
sented by Helen Edwina and Mary Elizabeth Hughes,
Mrs. Rose pianist.
KGW, Portland, Ore. (492), 12:30 p. m., concert; 5,
children's program, story, Aunt Nell; 8, concert.

(Continued on page 14)

Billy and Jane stories.
WBB, Kansas City, Mo. (365.6), 2-3 p. m., musical
hour, Sweeney Radio trio; 7-8, popular dance music,
Pekin Cafe; fifteen minutes for the children, Lullaby
Lady, Rhea Sheldon.
WHD, Des Moines, Ia. (526), 6:30-7:30 p. m., Reese-
Hughes orchestra; 7:30-8:30, Leonard Kirkwood, pian-
ist; M. B. Handley, fiddler; Mrs. A. Geb, accom-
panist; Boston Operatic quartet; 8:30-9:30, Des
Moines theater symphonic orchestra, Leon Dashoff,
director; 9:45-11, Bankers Life Radio orchestra.
WLS, Chicago, Ill. (344.6), Noon: Bill Parks; 6:30,
Ralph Emerson; 8:50, Senate theater studio artists;
7, "Lullaby Time," Ford and Glenn; 7:15, WLS Tribe
of Love Scouts; 7:40, Agnes Karlson, contralto; 7:50,
Bill Parks; 8, RFD program, Ralph Emerson, Ford
and Glenn; 9, Glenn's Cornhuskers; 9:10, WLS
theater presents Wallace Bruce Amsbury; 9:30, Wles-
ner Sisters; 10, Senate theater symphony orchestra;
10:30, Isham Jones; 10:40, Ford and Glenn.
WLW, Cincinnati, Ohio (423), 8 a. m., physical exer-
cises, Y. M. C. A., Wm. Stradtman, instructor; 12:15
p. m., program, Mu Phi Epsilon sorority; Ahaus
Brunswick orchestra; 4, Shut-in program; 6, dinner
hour concert, Sellinsky Instrumental quintet; Howard
Thurston; 8, The Milnor Instrumental trio, Milnor
Electric company; Columbian quartet of Dayton; Clif-
ford Lang; aesthetic dances, Marian LaCour; 9, For-
mica orchestra, Walter Esberger, director; Lyric quar-

Wednesday, February 25

(Continued from page 13)

Lucille Cummins; 10. Colburn's Melody Men; Sheffor's Novelty String quartet.
K.H.I., Los Angeles, Calif. (404), 12:30-1:30 p. m., Coy Barkley and his Palace Ballroom orchestra; 2:30-3:30, program, Pacific States Electric company; 6-6:30, Art Hickman's Baltimore hotel concert orchestra; 6:30-7:30, stories American history, Prof. Walter Sylvester Hert-zog; Dick Winslow, juvenile reporter; Baby Muriel MacCormac and Mickey McBan, screen juveniles; 8-10, program, Pacific Mutual Life Insurance company; 10-11, Earl Burnett's Baltimore hotel dance orchestra.
K.L.K., Oakland, Calif. (509.9), 6-7 p. m., organ recital; 8-10, studio program, overture, American theater or-chestra; 10-11:30, Sweet's ballroom.
KNX, Hollywood, Calif. (337), 8 a. m., morning prayer; 9, Hired Hand, news; 10, Hired Hand's morning message; 10:30, Mrs. Kate Brew Vaughn, home econ-omics; 11, news of 25 and 50 years ago; 12-1 p. m., Wurlitzer pipe organ studio program; 5, closing mar-kets; 5:45-6:15, Wurlitzer pipe organ recital; 6:15-7, El Moulton and his orchestra; 7-8, Ambassador hotel concert orchestra, Josef Rosenthal, director; 8-10, fea-ture program; 10-12, Hollywood dance orchestra.
K.P.O., San Francisco, Calif. (429.5), 1-2 p. m., Rudy Selger's Fairmont hotel orchestra; 2:30-3:30, matinee program; 4:30-5:30, Rudy Selger's Fairmont hotel or-chestra; 5:30-6:30, children's hour stories, Big Brother; 6:30, What is Playing at the Local Theaters; 7-7:30, Rudy Selger's Fairmont Hotel orchestra; 8-11, Gene James' Rose Room Howl orchestra; Harry J. Walters, saxophonist; Jack T. Bishop, harmonica solo-ist; talk on physical culture, Bernard Drury.

Thursday, February 26

Thursday, silent night for: CHNC, KFAE, KFDM, KFMX, KFOA, KOA, KOB, PWX, WBAV, WCAU, WEAO, WEMC, WHA, WHAZ, WHO, WJY, WLBL, WOO, WOS, WSUI.

Eastern Time Stations

CKAC, Montreal, Can. (425), 4:45 p. m., cabaret enter-tainment; 8:30, Frontenac Breweries.
AT9, Fort Bragg, N. C. (435), 8 p. m., Fifth Field Artillery band playing "Chicago Tribune," "Norma," "May Time," "Madame Sherry," "The Two Little Bull Finches," "Sergis, Corall and Lader, clarinetists; excerpts, Belle's opera, "The Bohemian Girl," "June Night," "Fifth Field Artillery March," band.
KOKA, East Pittsburgh, Pa. (309.1), 12:20 p. m., Lenten services, Trinity church; 6:15, concert, KDKA Little Symphony orchestra; 7:30, children's period; 8, farm program, National Stockman and Farmer; 8:30, concert; 11, concert, Pittsburgh Post studio.
W.B.B., New York, N. Y. (272.3), 9-10 p. m., Richard Franklin, pianist; 9:25, Hawaiian quintet; 9:35, Inter-national Sunday school lesson, S. M. Van Sipma; 9:55, Hawaiian quintet; 10:10, piano solos.
WCAE, Pittsburgh, Pa. (462), 6:30 p. m., dinner con-ert, William Penn hotel; 7:30, Uncle Kaybee; 7:45, special feature; 8, Victor artists; 10, Goodrich Silvertown Cord orchestra.
WCAU, Philadelphia, Pa. (278), 7:30, concert, Snellen-berg Symphony orchestra, director John A. Carroll; 8:15, recital; 8:45, "What We See and Hear in Music," by Maude Hanson Pettit; 9, Paul Specht and his dance orchestra; 10:20, Paul Specht and his dance orchestra.
WCX, Detroit, Mich. (516.9), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program.
WEAF, New York, N. Y. (492), 6-7 p. m., dinner music, Waldorf-Astoria hotel; 7-7:30, services, Ped-eration of church; 7:30-7:40, art talk; 7:40-8, Gui-seppe Di Benedetti, operatic tenor; 8-8:20, lecture course, Columbia university; 8:30-9, Packard Motor company; 9-10, Victor hour; 10-11, Silvertown Cord orchestra.
WEAR, Cleveland, Ohio (389.4), 8 p. m., studio pro-gram.
WEEI, Boston, Mass. (475.9), 2 p. m., "Your Boy and the Movies," Eleanor Baldwin, Cass; 2:15, dance or-chestra; 6:30, "Brother club; 7:15, sports talk, William E. Mullins; 7:25, program, Greater Boston Federation of churches; 7:55, Pathe News flashes; 8, New York program; 9, Victor concert; 10, Goodrich Silvertown Cord orchestra.
WF1, Philadelphia, Pa. (395), 1 p. m., Meyer Davis Bellevue Stratford concert orchestra; 3:05, Housewives' Radio exchange, direction Mabel Swint Ever; 6:30, Meyer Davis Bellevue Stratford concert orchestra; 7, Sunny Jim, the kiddies' pal; 8, concert from WEAF.
WGBS, New York, N. Y. (318), 8:15-8:30 p. m., inter-view, Betty Ross and Rita Weiman; 3:30-3:45, talk, Louise Rice; 4-4:15, Lillian Menেকে, soprano; 6-6:30, Uncle Geebee; 7:30-8:30, Armand Vecsey's Ritz-Car-leton concert orchestra; 8:30-9, "Footlight and Lamp-light," Oliver Saylor; 9:30-11, program, Piccadilly theater; 11-11:30, Macy and Scott; 11:30-1 a. m., Russian Eagle orchestra.
WGR, Buffalo, N. Y. (319), 12:30-1 p. m., Hotel Stat-ler concert ensemble; 2:30-4:30, Radio Dealers' musical program; 6-7:30, dinner music, Hallpryd String quartet; 8-9, "Variety Hour," jointly with WEAF; 9-10, Victor concert, jointly with WEAF; 10-11, Goodrich Silvertown Cord orchestra, jointly with WEAF.
WGY, Schenectady, N. Y. (379.5), 2 p. m., "Good Taste in Home Decoration," Alice St. John; 2:30, Stephen E. Boisclair, organist; 6:30, dinner concert, Hotel Ten Eyck orchestra; 7:30, "A Few Moments with New Books," L. L. Hopkins; WGY orchestra; 8:15, comedy, "Goin' Some," WGY players; 11:15, organ recital, Stephen E. Boisclair.
WHK, Cleveland, Ohio (273), 6:15 p. m., news items; Emerson Gill's Bamboo Garden orchestra; 8, program arranged by the Cleveland Press; Al Dister's orchestra Miriam Ward, Welsh contralto; Alex Worth, tenor.
WHN, New York, N. Y. (360), 12:30-1 p. m., Charles Strickland's Balkin D'Ore orchestra; 6:30-7, violin solos, Oleott Valt; 7-7:30, Harry Rose and his Silver Slipper Entertainers; 7:30-7:35, health talk, Dr. Landis; 8:30-9, Everglades revue; 9:35-10, O'Meara Gardens ballroom orchestra; 11-11:30, Connie's Inn revue; 11:30-12, Lou Holtz and his Wigwam club entertainers; 12-12:30 a. m., El Fey club revue.
WIP, Philadelphia, Pa. (509.9), 1 p. m., Gimbel tea room orchestra; 6:05, Irving Oppenheim's Benjamin Franklin concert orchestra; 7, Uncle Wip's bedtime stories; 8:15, concert by convicts from Eastern Peni-tentiary; 9:15, Income tax talk; 11, Harvey Mar-burger's vaudeville dance orchestra.
WJY, New York, N. Y. (405), 7:30-7:45 p. m., "In-come Taxes," Frank Shevitt; 7:45-8, Milscha Goodman, violinist; 8-8:20, "A Dicast of Outstanding Magazine Articles for March," Walter E. Gruening; 8:30, "Goin' Some," comedy by WGY players.
WJZ, New York, N. Y. (455), 10-10:20 a. m., House-wives' League menu, Mrs. Julian Heath; 10:20-10:30, Review of Reviews; 10:30-10:40, "Household Equip-ment," Ethel R. Peyser; 10:40-10:50, "Bride's Household Linen," Editor of Needle Art; 10:50-11, fashion talk, Eleanor Gunn; 12-1 p. m., Lenten ser-vice, Trinity church; 1-2, Nathan Ahas' Hotel Pennsylv-ania orchestra; 4-4:15, Katherine DeWitt Croes, soprano; 4-4:30, Highways of Travel, Wirt W. Barnitz; 4:30-5:30, Bernhart Leviton's Hotel Com-modore tea orchestra; 7-7:55, Bernhart Leviton's Hotel Commodore orchestra; 7:55-8:15, "News from Nowhere," John B. Kennedy; 9:30, Australian pro-gram.
WKAQ, San Juan, P. R. (340.7), 7:30-9 p. m., concert, restaurant, "La Cafetera."
WLIT, Philadelphia, Pa. (395), 11:45 a. m., dally almanac; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 12:30, Lenten services; 2, Arcadia cafe concert orchestra; 2:50, Caroline Wag-ner Green, soprano; Elsie Wagner, accompanist; 7:30, Ifram Daddy's bedtime stories.
WNYC, New York, N. Y. (526), 7:35-7:55 p. m., sport talk, Thornton Fisher; 8-8:15, "Timely Topics," Francis P. Bent; 8:20-9, vocal and instrumental pro-gram.
WOD, Philadelphia, Pa. (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. (405), 6:15-7:15 p. m., Tom Popper's orchestra.
WRC, Washington, D. C. (468.5), 6:45 p. m., children's hour, Peggy Albon; 7, dinner music, Shorclism Hotel orchestra; 8, talk, auspices American Automobile asso-ciation; 8:30, "Goin' Some," WGY players, WJZ and WGY; 10:30, dance program, Club Deauville orchestra.

WTAM, Cleveland, Ohio (389.4), 6 p. m., Guy Lom-bar-do's Royal Canadian orchestra.
WVJ, Detroit, Mich. (352.7), 12:05 p. m., Jules Klöhn's Hotel Statler orchestra; 3, Detroit News orchestra; 6, dinner concert, Detroit News orchestra; 7:30, Maud Homer Dubard, soprano; Gramie Gillies, bass; Jean Loughand, Theone Hubbard; 10, dance music; Jean Goldkette's Victor Recording orchestra; 11:30, Detroit News orchestra; Wilfred Head, composer-pianist.

Central Time Stations

CKY, Winnipeg, Can. (450), 7:30 p. m., lesson in French diction and conversation, A. C. De Lalande.
KFKU, Lawrence, Kan. (275), 6:50 p. m., piano tuning- in number; 7, music; 7:15, "Trees for Home, Park and Roadside," Prof. W. C. Stevens; 7:30, "Winning of Metals from Their Ores, Zinc, Prof. Edward D. Kinney; 7:45, educational psychology, lesson V111, Dean K. A. Schweiger.
KFKX, Hastings, Nebr. (288.3), 9:30 p. m., Burton family of Franklin.
KFMQ, Fayetteville, Ark. (275), 7:30 p. m., "Our Neighbor Mars," A. M. Harding; "Relation of Fire-blight to Growing of Apples and Peers in Ozark Re-gion," Y. H. Young; "Planning Buildings for Arkansas Farms," D. G. Carter.
KFNF, Shenandoah, Iowa (266), 6:30 p. m., concert, Vincent Young, director.
KSAE, Manhattan, Kans. (340.7), 9 a. m., march, music lesson, singing exercises; 9:15, inspirational talk; 9:20, callisthenics; 10, "Back Yard Gossip"; 10:05, "All Roun the House"; 10:10, "Questions and Answers"; 10:20, today's meals, Amy Kelly; 12:30 p. m., readings, Osceola Burr; "The Chick's First Feed," J. H. McAdams; question box; "Treat Seed Potatoes," E. A. Stokdyk; 7:20, college bell, music; 7:30, "Improving Your Work Shop"; 7:40, music; Mrs. G. W. Salsbury, director; 7:50, "The Cereals Family," Margaret Aliborn; 8, "All Nation-ality's Songs and Stories," Dr. H. T. Hill; music, Prof. P. P. Brainard, director.
KSO, St. Louis, Mo. (545.1), 4 p. m., home hour; 7, program, Hay's orchestra; 9, Mabel Hall, soprano; Mrs. H. J. Beckeneyer, contralto; Mrs. Memie Charles Towey, accompanist; address, Dr. L. D. LeGear.
KTHS, Hot Springs National Park, Ark. (375), 8:30-9 p. m., W. C. Brown, baritone; 9-10, concert, Ches. L. Fischer orchestra.
KW, Chicago, Ill. (535.4), 7-7:30 p. m., dinner con-ert, Congress hotel; 7:35-7:45, farm talks, "Some Stories of Livestock Club Boys in the Corn Belt," Don Smith; "Crop Prospects for this Season," D. C. Waterman; 8-8:20, "Twenty Minutes of Good Read-ing," Rev. C. J. Fernin; 8:20-9:05, Edna DeLee, soprano; Lewis Meehan, tenor; Thomas W. Carey, ben-joist; Thomas B. Stephenson; 9:15, "Good Roads"; 10-11:30, evening at home; 1-2, "Insomnia Club."
WBAP, Fort Worth, Texas (475.9), 12:05-12:30 p. m., musical program; 7:30-8:30, program, Mrs. A. M. Helper, director; 9:30-10:45, concert, classical music, Carolyn Bell, pianist.
WCAL, Northfield, Minn. (336.9), 9 p. m., Sylvania Sundahl, contralto; Olaf Christianson, baritone; Edith Hanson, pianist.
WCBO, Zion, Ill. (344.6), 8 p. m., mixed quartet; Miriam Hollingshead, Mrs. Hire, Mrs. Huth, flutist, violinist, harpist; Daniel Mason, trombonist; Mrs. Sedie Inman, soprano; Mr. and Mrs. Steel, tenor and so-prano; Miriam Hollingshead, flutist; Dorothy Sched, pianist; Mrs. Hulda Klammer, singer.
WCCO, Minneapolis-St. Paul, Minn. (416.4), 10:45 a. m., home service, "The Proof of the Pudding," Betty Crocker; 2 p. m., "The Popular Concert," Mrs. Agnes Fryberger; 4, magazine hour, "Steel Against Steel," Conrad Bersovick; 5:30, children's hour, Mrs. Charles L. Ramsdell; 6:30, dinner concert, Riley's concert orchestra; 7-8, National program, New York; 10, dance program, Arnold Frank's Casino orchestra.
WDAF, Kansas City, Mo. (365.6), 3:30-4:30 p. m., Star's Radio trial; 6-7, School of the Air; piano tur-ning-in number on the Due-Art; address, Tell-Me-a-Story Lady; Trio ensemble, Hotel Muehlebach; 11:45-1 a. m., nighthawk ruff; Merry Old Chief, Plantation Players, Hotel Muehlebach; Eddie Kuhn's K. C. Athletic club orchestra.
WEBB, Chicago, Ill. (370.2), 7 p. m., Oriole orchestra; Florence Flintfield; musical bits, Riviera theater; 9, Oriole orchestra; Belle Forbes Cutter, soprano; John Stamford, tenor; 11, Oriole dance orchestra; Banks Kennedy, songs; Harry Davis, singer.
WEBW, Beloit, Wis. (268), 7:30-8:30 p. m., band con-ert and quartet, Fairbanks, Morse company.
WGN, Chicago, Ill. (370.2), 1:40 p. m., luncheon con-ert, Drake concert ensemble, Blackstone string quin-tet; 2:30, artist series, Lyon & Healy; 3, rocking chair time; 5:30, Skeezix time for the children; 6, organ recital, Lyon & Healy; 6:30-7, dinner concert, Drake concert ensemble, Blackstone string quin-tet; 8-9, Mabel Sharp Herdick, soprano; 10-11, Don Restor Drake dance orchestra.
WGST, Atlanta, Ga. (270), 7-8 p. m., Mrs. Robert Daniel, contralto; "The Co-operative Plan of Educa-tion," E. H. Flath.
WHA, Madison, Wis. (535.4), 7:45 p. m., address, "Apples for Wisconsin Homes," Prof. J. G. Moore.
WHAS, Louisville, Ky. (399.3), 4-5 p. m., Evelyn Black, reader; Alamo theater organ; 7:30, mixed concert, J. W. Merrill, director; International Sunday school lesson, talk.
WHB, Kansas City, Mo. (365.6), 2-3 p. m., Mrs. Moore, organist; Sweeney Stringed trio; 7-7:30, dinner music, Muscle Masters; 8-10, Blevins and Scott quartet; Mrs. E. A. Frey, whistler.
WHO, Oes Moines, Iowa (526), 11-12 midnight, Coti-lion ballroom orchestra, Gale Fitch, director.
WLS, Chicago, Ill. (344.6), Noon, Nubs Allan; 6:30, Ralph Emerson; 6:50, Senate artists; 7, Ford and Glenn, Lullaby, Woodshed theater, "Gol-denlock"; 7:20, Kankakee Post No. 85, Bugle Corps and quartet.
WLW, Cincinnati, Ohio (423), 8 a. m., physical exer-cises, Y. M. C. A., William Stradtman, instructor; 12:15 p. m., concert; 4, French lesson, Madame Ida Teimplids; piano solos, Adelalde Apfel; 6, dinner hour concert, Selinsky instrumental quintet; 8, chorus of 70 high school students, Leonard B. Johnson and E. T. Wisnial, directors, in connection with National School Superintendents' convention at Music Hall; 10, three minute message, United States Civil Service department; 10:05, concert program, Cooper cor-poration, quartet, orchestra; Doherty Melody boys.
WMAQ, Chicago, Ill. (447.5), 4 p. m., household hour, Mrs. Elizabeth O. Hiller, director; 4:30, Illinois Fed-eration of Women's clubs; 6, Chicago theater organ recital; 6:25, Hotel LeSalle orchestra; 6:50, Daddy; 8, Edna J. C. Bartholt; 8:15, music; 8:35, music; 8:50, lecture, University of Chicago; 9:15, program, Ravens-wood Baptist church choir.
WMC, Memphis, Tenn. (499.7), 12 m., musical program, O. K. Houck Piano company; 8:30, Harry O. Nichols, organist.
WOAI, San Antonio, Texas (395.4), 9:30 p. m., Jimmie Joy's Hotel St. Anthony orchestra.
WOAW, Omaha, Nebr. (526), 12:30 p. m., horticultural program; 6, story hour, Grace Sorenson; 6:20, Mrs. Henry C. Cox, pianist; 6:45, program, Frank Bucking-ham, instructor of string instruments; 10:30, Frank Hodek, Jr., and his nightingales.
WOC, Davenport, Iowa (483.6), 6:30 p. m., Sandman's visit, Val McLaughlin; 9, Schuster Sister's California orchestra; 11, Lonis Conor and his LeClair hotel or-chestra; song and novelty numbers, Peter MacArthur.
WOI, Ames, Iowa (270), 12:30 p. m., college chimes; talk on automobiles, Prof. A. Shane; 8:15, musical program.
WQL, Chicago, Ill. (447.5), 3-4 p. m., "Dishes for Cold Days," Josephine Naylor; "Light and Glere," George A. Hill; 7-8, dinner concert, Ralph Williams and his Rainbo Garden orchestra; Laverne Hansen, pianist; Otto A. Moore, baritone; Lydia Lochner, con-tralto; Edith Buckmaster, accompanist; 10-1 a. m., Ralph Williams and his Rainbo akyllarks; Lew Butler; Ned and Ches; James J. Whalen, tenor; 1-2 Hotsey Totsiey hour.
WSB, Atlanta, Ga. (428.3), 12 m., Dr. Charles A. Shel-ton, organist; 5-6 p. m., Vick Myers Melody artists; bedtime story, Bonnie Barnhardt; 8-9, Ritz Hermony Boys; 10:45, Dr. Charles A. Sheldon, organist.
WSUI, Iowa City, Iowa (484), 12:30-12:55, talk; "Moun-tains, Past and Present," Ben B. Cox.
Mountain Time Stations
CNRC, Calgary, Can. (450), 9 p. m., Canadian National Railways symphony orchestra, Frank Anderson, director; Jeanette Honey, soprano; George Boothman, baritone.
KOA, Denver, Colo. (322.4), 12-12:30 p. m., Rialto theater organ; 3, "Forgotten," "Rose in the Bud," "My Liddle," Nan Johnson, soprano; talk, "The Garden," Mrs. J. H. Hekarty; "By the Waters of Minnetonka," "Even Song," "Souvenir," Mrs. Roger Wolcott, violinist.
KOB, State College, N. M. (348.6), 7:30-8:30 p. m., popular science course, lesson 8, member of engineering faculty; "How the National Forests of the Southwest Are Handled," Frank C. W. Pooler.
(Continued on page 18)



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"Dos" and "Don'ts" of Home Construction

Little Things That Are Important

By W. S. Standiford

LARGE numbers of new Radio enthusiasts are continually joining the ranks of those older ones who, through long experience, have found out what to do in constructing and operating receiving sets so that they will give the least amount of trouble when their outfits are in use. It is an axiom that, the less bother any person has during the working of a machine, the more enjoyment can be obtained from it. This applies with double force to Radio appliances, as they are more or less in their infancy and not perfected to the extent to be expected later on. However, very satisfactory progress is being attained by Radio engineers as well as some of the public.

The youth is rapidly becoming a giant, so great are the advances being made in this line. Most of the troubles encountered by Radio novices during operation of homemade receivers may be traced to their lack of knowledge on this subject; in the majority of instances, experience shows that the reason that home-built equipment fails to work, or operates in an unsatisfactory manner, is because its builder has incorporated some ideas of his own in the apparatus during building and this is the reason that such outfits will not give the excellent results obtained from one correctly built.

Follow Instructions

When you construct a receiver from printed instructions, always follow to the letter all designs given therein, and you will avoid a lot of worry afterwards. Unless you are an expert in Radio equipment design and know positively that your alterations will make a set having better working quality and efficiency, it is best to adhere strictly to the directions in making and wiring the various instruments in it. This is a very important matter which should be considered seriously by the home builder of Radio appliances.

Some amateurs who are making their first set and know very little about electricity and high frequency electromagnetic waves used in Radio broadcasting, substitute wood for their panels in order to keep the expenses down to a minimum instead of using hard rubber, bakelite or some of the other well-known dielectrics, and then wonder why it is that they have trouble in getting good results in the reception of broadcast programs sent out from different stations.

Even if all other constructional directions were rigidly followed, with the exception of having a wooden panel, the latter would by its electrical leakage make the instrument work badly. A broadcast current has such a high frequency that nothing but the very best materials ought to be used for panels. That's the reason why all manufacturers of Radio outfits equip their product with the highest grade of panels obtainable, as fine signal reception depends, to a large extent, upon good working parts.

Insulation on Wires

Another mistake made by some Radio enthusiasts is to use soft white or red rubber tubing for insulation over wiring of the receiver. There is a reason why this should not be done, but not from an insulation standpoint, as soft rubber tubing is a good insulator. Due to the action of the electric current, the sulphur contained in the rubber completely oxidizes and corrodes, in time, the joint and wire, with the result that the resistance is increased and trouble occurs. There is only one good kind of tube covering for wires in Radio equipment; that is an excellent grade of moisture-proof varnished cambric tubing, called "spaghetti." Both the yellow and black varieties are fine insulators, but the black kind resists higher voltages.

Another fault in our homemade sets is poor connections. Too great stress cannot be put on the importance of good, well-soldered connections or wire joints. Inspect your work and if you have the slightest doubt about any joint not being neatly and efficiently made, solder it over again. By doing all work well when building your set, you will be able to keep the repairs down to a minimum, as Radio outfits get out of order occasionally like all other machinery. The importance of having a good ground is not well understood by the rank and file of Radio recruits. See that your ground wire is soldered to a water pipe, as a poorly grounded receiving set loses more than 50 per cent of the signal strength (which is very weak at its best) that it would normally receive. It pays to inspect your ground wire connection at intervals to see if everything is intact. Those who have crystal sets will find that, owing to dust and handling, reception will go bad. In the majority of cases, touching the surface of the crystal with the fingers makes trouble. If a crystal has been touched by your fingers while placing it in posi-

tion, wash it in alcohol and handle with clean pliers or a pair of tweezers.

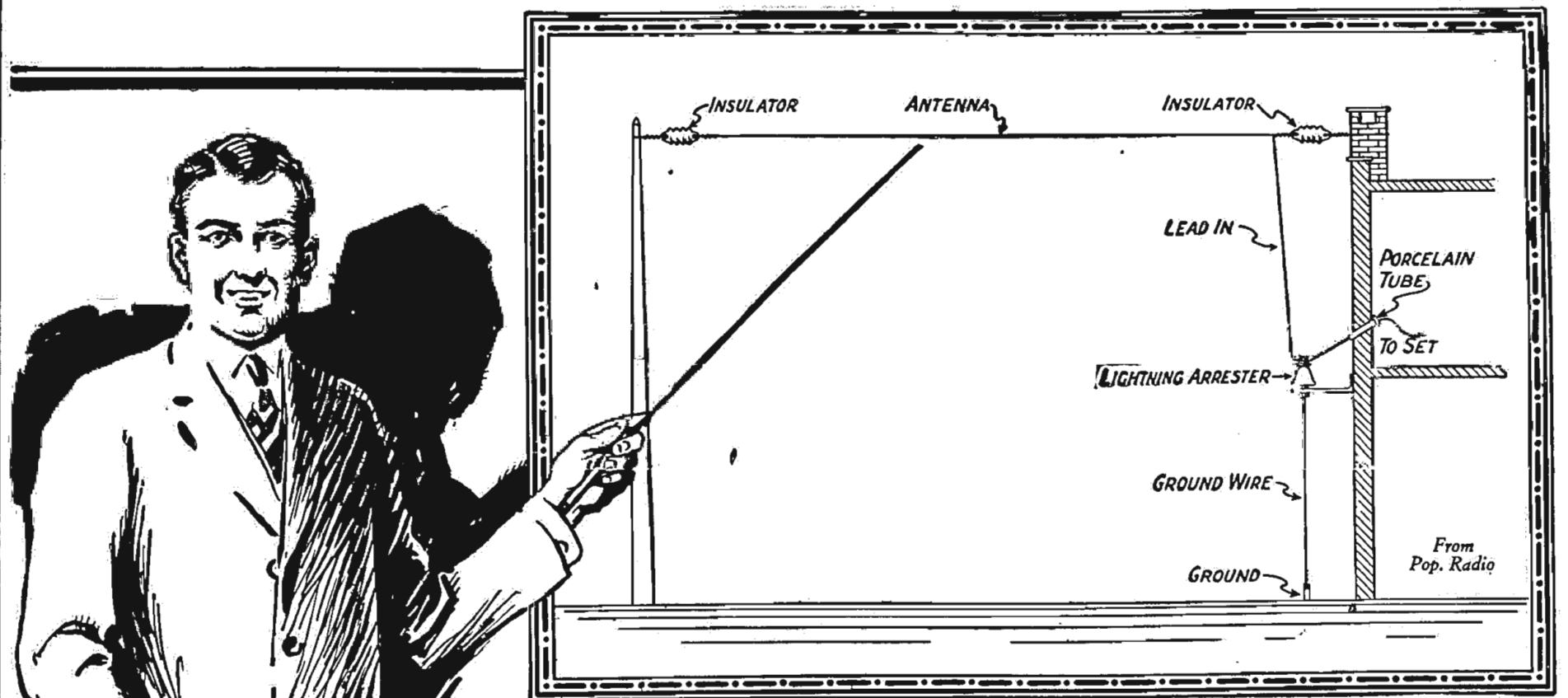
Use of a Crushed Crystal

Examine the "cat whisker" and see that its point is clean and fairly sharp; don't have it too sharp, however, as the point will burn off rapidly. If you are bothered much by vibration throwing the "cat whisker" off crystal while "listening in" to various broadcast concerts, try the following plan: Solder a small copper tube in an upright position in the cap of your detector (removing the old crystal first), arranging the "cat whisker" wire so that it will occupy the center of the tube. Pulverize a crystal, but not too finely. Put some of it in the tube surrounding the wire; don't pack it in, but let it press gently of its own weight against the

wire's sides, letting the point of the wire also touch the crushed galena. Any vibrations which take place simply shake the wire, but as the latter is always in contact with a number of pieces of the crystal's sensitive spots pressing against its sides, reception will continue.

Some Radio novices, new to the game, who are located more than twenty-five miles from a broadcasting station, purchase or build their first crystal set and blame the instruments as being defective when they receive nothing but code messages. The fact that code can be heard, whenever the outfit is operated, is proof that there is nothing radically wrong with the set. A tube set should be purchased in cases of the above kind. If nothing but a humming sound is heard, but no code

look for a broken wire in the tubing coil and try to pass the current of two dry batteries through its winding. If no current goes through, there is a broken wire. Extreme care should be taken in winding wire on coils to see that they do not get broken. If there is no broken wire, look for poor connections throughout your set. Try another piece of galena, as sometimes a more sensitive piece is all that is needed for good signal reception. If humming occurs on a crystal set located in a city where broadcasting is done, it is caused, in most cases, by the induction from a 60-cycle electric light line. There is no way to get rid of it, although it may be minimized by placing your aerial at a right angle to the line. Violet ray
(Continued on page 20)



Results will be better anyway. Power lines, in close proximity to an antenna cause a shadowing effect or an absorption effect and sometimes both.

Corroded Antenna Wire Causes Weak Signals

If your antenna has been up for a year or more the chances are that the surface of the antenna wire has become corroded due to the action of the weather. Radio frequency currents travel on the surface of the wire and often the weakening signals carried by them is due to this corrosion. This trouble is particularly prevalent in large cities where the atmosphere is contaminated with sulphur fumes and other chemicals from manufacturing plants.

Enameled wire is excellent for antennas as the enamel protects the surface of the copper from the gases and other corrosive elements in the atmosphere.

Clipping from Popular Radio



The Secret of a Good Aerial Is the Protective Enamel Coating

RADIO AUTHORITIES agree that ordinary bare aerial wire deteriorates rapidly when exposed to atmospheric fumes and moisture. High-frequency currents in the aerial always flow along the surface of the wire, and when this surface becomes corroded, the aerial current encounters great difficulty in reaching the radio set. This means considerable loss of range and volume.

Beldenamel Stranded Aerial Wire is made of bright, clean copper strands, each covered with a protective, baked-enamel coating. Atmospheric exposure, even for years, has no effect on Beldenamel and corrosion cannot take place to reduce signal strength. Follow the advice of acknowledged radio authorities, and replace your aerial with Beldenamel Aerial Wire. Do it now, and hear the difference.

For Best Results

the aerial and lead-in should be a continuous length of Beldenamel Aerial Wire. Use a 150-foot length furnished in standard Belden carton and avoid all joints.

Free Booklet



Belden Manufacturing Company
2310A S. Western Ave., Chicago

I want a real aerial for my set. Please send me your booklet describing Beldenamel Aerial Wire and other Belden Radio Products.

Name.....

Address.....

Belden
Manufacturing Company
2310A S. Western Avenue • Chicago

Radio Digest

PROGRAMS
Illustrated

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No Call Letters, No Reception

Announcers That Don't Announce Lose

A GAIN our attention is called to the fact that all announcers do not make known their call letters with enough frequency to satisfy those listening in to their programs. Here is a sample of the protests that have come to us.

"Why is it that certain stations put 'on dance programs and run a whole string of numbers, three, four or five with no announcement between identifying the sending station? A brief announcement of the station letters would suffice. As it is we switch to some other station where we do not need to guess who is sending. We can get the same stuff from other stations."

The bad feature about Radio is that you do not know if your audience is listening in to your program. The announcer who does not announce is not only at fault but he loses his listener for he tunes in on another station. There is no question but what the inefficient announcer gets the worst of it.

Don't Scoff at Market Reports

They Mean Much to Many Farmers

LISTENING in on his Radio receiving set installed in his farm home, George J. Wright, of Aberdeen, S. D., heard the best price of hogs for the season quoted, and started seventy of last year's pigs twenty miles to market. He came home with a check for \$1,394.50 in his pocket as a result of the information brought to him out of the ether by the latest essential equipment of the modern South Dakota farm.

Mr. Wright lives down the Missouri river. Instead of trying to truck his hogs to market he drove them up the river on the ice to his nearest shipping point at Moberge. The hogs averaged nearly \$20 apiece and sold at \$9.80 per hundred. Last fall the price was \$6.20, so he rejoices in an increase of \$3.60 per hundred.

The sale was made on a good market. Mr. Wright says that the reason he was able to do this was because he has a Radio receiving set to keep him posted. He is twenty miles from a post office and finds Radio a great convenience in keeping him in touch with the world. In this instance of a single marketing it meant a great many dollars to him on the price of his hogs.

City listeners impatient for musical programs grow caustic in their remarks about the reading of market reports on the air, but here is an instance of the practical use to which this information is put by the men to whom it means dollars in loss or gain. They are scattered all over the country in isolated farm houses listening in to learn what the day's quotation for their livestock or grain may be.

Refrigeration by Amplification

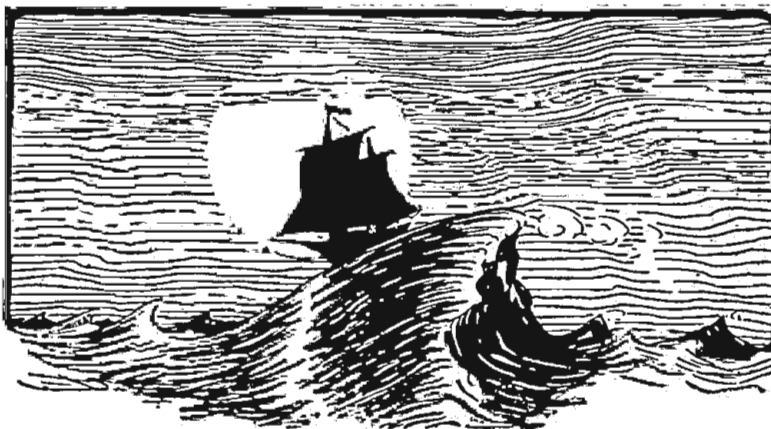
Cold Waves Sent Through the Cluttered Air

ANOTHER inventor has bobbed up from a secluded place and claims to have control over the bores in sending out Radio waves that will take the place of the ice box and refrigerator in the home. We have wrestled with the problem of sending motion pictures by Radio and have not fully absorbed the technicalities surrounding this mysterious bit of transmission; then comes along this new item which the ether waves can do and it knocks us flat. Just think of it to turn a dial and instead of receiving strains of music the butter will remain hard and the meats fresh and the milk sweet. We just wonder what kind of amplification is used to do this.

This is an age of discoveries, some of which are practical and some otherwise. There is no telling what new attributes Radio may develop, or what discoveries may be made along other lines of more or less practical value. It seems that at this time in the world's history anything may happen, but, even giving, Radio credit for all that is claimed for it, it would seem the part of wisdom to hold onto the photographer and the ice man for the present. Their value is not a speculative one. Radio or no Radio, they are both human necessities.

RADIO INDI-GEST

"Kanoofis" Bound for Walla Walla



AT SEA (via Radio)—The good ship S. S. Kanoofis is steadily plowing her way through the south Pacific, and will be due at Walla Walla about the middle of next month. Captain Oneoar, master of the schooner, sent the following Radio message:

"After leaving the United States we ran into dirty weather and the entire crew with the exception of the Third Trombone player and Indi himself went down with sea sickness. A number of the crew declared that they had been poisoned by the cook, Radio Jim. When questioned, Jim declared that he had eaten his own grub. This was conclusive proof that it was not poisoned. The crew were convinced and begged his forgiveness.

"A Radio message was received this morning, telling us to be on the lookout for pirates who were operating in the vicinity of where we are at the present time (lat. 49-20 south, long. 110 west). Any of our readers who are listening in, and catching these signals, would do us a favor by reporting same.

"The above photo was broadcast by Radio, and shows the 'Kanoofis' riding the waves in the proper manner. All those on board send their best regards and will send further details on the expedition when something unusual turns up on the sea." 73-CUL, Signed,

CAPT. ONEOAR.

(Do not miss this thrilling story of the Walla Walla expedition. Be sure to order your next week's copy now.—Ed.)

Radio Gospel

Give ear, Oh, gentle stranger,
Unto a tale of woe,
The preachers see a danger
That lurks in Radio.

It is the country preachers,
Who in their pulpits perch,
That constitute the teachers
Of peril to the church.

They say it spoils attendance
At church on Sabbath days,
And creates independence
Of certain saintly ways.

'Tis sad there is complaining,
For it is fine to get
One's spiritual training
From a good Radio set.

There's one redeeming feature,
Since there are folks, you know,
That never hear a preacher
Except by Radio.

The path of least resistance,
Aids these folk in their search
For gospel, from a distance,
Who will not go to church.
WILSON E. ROGERS.

That Would Be a Loud Speaker

Dear Indi:—Have you heard this one? A would-be Radiophan approached a dealer and asked to see a Radio set. The dealer says, "here's a nice little set using 199 tubes." "Oh," says the fan, "that is too many, about half of that would be enough."

CARRIE R. WAVE.

Blame It on "The Lady of the Lake"

Dear Indi:—Sir Walter Scott was a dial twister according to one of his poems, for does not Sir Walter say:

Twist ye, turn ye! even so
Mingle shades of joy and woe,
Hope and fear, and peace, and strife,
In the thread of human life.

STATIC.

WAHG Should Be in St. Louis

Indi:—Evidently the owners of broadcasting station WAHG intend to become "fellow citizens with the saints." First it was Saint Nicholas or the Radio Santa Claus. Then came Saint Valentine and in the offing there are rumblings of a Saint Patrick limerick contest. Paul in his epistle to the Romans said something about everybody being "called to be saints" and it is very evident the Grebe folks take Paul at his word.

M.A.C.

B-E-D Signing Off—Good Night

Dear Indi: When little Jack, who is fond of listening to the children's hour transmitted from one of the large stations, knelt down to say his prayers last night he finished in an unusual way.

At the close of the customary string of petitions he said: "This concludes our program, dear Jesus. Good night and Amen."

A. C. E.

Preparing for March 4



Condensed

By DIELECTRIC

With the changes in wave length and in the power of many of our Radiocasting stations, it keeps one on the jump to keep up. The first evening WLW used their increased power, fans sat up and took notice. If we may judge by the number of congratulatory messages received in the studio. Numbers appearing on that program were exceptionally well chosen, yet as always, there is one to stand out preeminent, which in this case was the playing of the "Nut Cracker Suite."

When we sat in at a concert given in the studio of WIP not long ago it was to hear the Stetson chorus. Our hats are off to these singers! Verily, they turn out a welcome sound as well as noted headgear. My dials never changed until they finished their work.

They had an amateur Radio convention in Pittsburgh which was put on the air through Station WCAE. From what was heard it would be guessed that the affair was an entire success. Some of the offerings might not draw a huge crowd, but others undoubtedly did please a large majority of those present and tuned in to this station.

After the popularity of the Silvertown orchestra was assured it seemed the natural sequence for a Goodyear program of some sort to make its appearance, which it has. About as pleasing as any pumber yet heard (exclusive of the great artists) was the violin rendition of "Deep River" by Hugh Wallace, from Station WEAR.

Early in the season there appeared no hope of hearing any of the leading opera companies by Radio. We did have a few of the operatic performances of the San Carlo company presented to us, which were very acceptable. More recently our sets have brought in several operas as sung by the Chicago Civic opera company, foremost of these being that familiar one, "Carmen," with "Our Mary." Many thanks to WNAC.

It has not become habitual, as yet, to turn way down on the dials when hunting for WWJ, but it is usually worthwhile doing so. Did you ever have the Virginia Five entertain you? They are quite adept at plucking harmony from their stringed instruments and were none the less so when heard at this Detroit station.

You never go wrong by tuning in WGY, unless your preferences do not include Radarios. Transmission is uniformly excellent and the artists selected to appear before their mike are first class. Just here it is my intention to hand a few orchids to the WGY orchestra. This organization is a close second to some of the more famous ones in the country and certainly performs with intelligence and unity.

I don't know whether WMBF covers a large part of the country as consistently as it does some sections, if so, then you are always sure of clear transmission, good announcing and attractive programs.

Not so long ago a new station was opened in Beaumont, Texas. I was pleased to hear our old friend at WSB extend Georgia's greetings on their premier performance. More recently KFDM had the services of the Beaumont entertainers and the studio appeared to be swamped with requests for them to play the Missouri Waltz. They played its graceful measures in a captivating style. Other portions of the program were acceptable.

How to Make the Two Tube Knox Reflex

Part III—Adjusting and Tuning

By W. H. H. Knox

WITH the receiver assembled and wired as described in Part II, the builder is now ready to adjust this reflex and tune in. The coil L5 should be adjusted to a point about one inch from L2, and condenser C5 should be turned to maximum capacity, that is, with the plates all the way in. The dials on condensers C1 and C4 should be turned together until a station is heard and adjusted for maximum volume. If signals are not heard, the crystal detector should be adjusted to locate a sensitive point and the dials on C1 and C4 revolved together for a station. When a station is located, it will be found that volume and clearness will both be increased by adjustment of the dial on condenser C6. This is the center of the three .0005 variables. 360-meter stations should come in at about 30 or 35 degrees on condenser C1 with the settings of C4 and C6 slightly above or below this point.

Should condenser C1 register lower than 30 degrees on a 360-meter station, decrease the number of turns on coil L2, while if it registers higher than 35, the number of turns on L2 should be increased. The wave length to which a circuit will respond is governed by the capacity and inductance so that if one is too low the other must be increased, while if the capacity is too high the inductance must be decreased. The small condenser C5 acts as an excellent volume control and, if more volume is desired, the plates of C5 should be rotated slightly toward minimum, which will increase the regeneration in the tube T1.

Should the builder hear a faint whistle of steady pitch when tuning or after a station is tuned in, it denotes that coil L5 is too closely coupled to L4 and should therefore be moved slightly away from it. This coupling varies according to the tube used and, as mentioned before, after the proper adjustment of this coupling is once found it will not have to be disturbed. The distance of this coil from L2 will probably be from 3/4 to 2 inches. When tuning in stations within 100 miles, the adjustment of C4 will make but little difference, but when tuning in distant

stations the setting of C4 will be found very important.

Using a Loop

There will probably be many who will wish to try out this set on a loop aerial instead of through the coils L1, L2 and L5, and the following suggestion is offered for those wishing to try this. A split loop will be necessary. There will of course be two ends of the loop and a center tap. Referring to figure 2, the wire which now leads from the F end of the transformer AT1 to the inner end of L2 should connect to the outer end of the loop antenna. The lead which now goes from the outer end of coil L2 to the negative A circuit should be replaced by a wire from the center tap of the loop to the negative A. Condenser C1 remains connected as shown, the stator plates to the F end of AT1 and the rotor plates to negative A. The inner end of the loop should be connected to the rotor plates of condenser C5. The loop circuit will then be regenerative similar to that shown by Mr. John G. Ryan in his recent series in Radio Digest on the "Simplest Super."

From the writer's experience with reflexes he believes that this is the most efficient reflex circuit today and the tone quality is remarkable. The range is exceptional, due to the presence of L6 and C6, while the selectivity is far greater than that on any other reflex due to regeneration reducing the resistance of the grid circuit of the first tube to its lowest possible minimum.

Results

Using the first tube only, without the second stage of audio frequency amplification, we have received concerts from KFKX, 1,125 miles, on the head phones, and KGO 350 miles away, several times on the loud speaker. The author is indebted to Mr. W. E. Ingham a local regenerative expert, for the assistance rendered in overcoming the problems presented in designing this set, who has most unwillingly become converted to reflex circuits. The writer will be very glad to help out those readers who may

build this set and run into difficulties and will acknowledge all letters addressed to him at 405, C. C. Chapman building, Los Angeles, Calif. We would also be glad to hear of the results which builders obtained from this set, and since there are many possibilities in variations from the circuit shown, we would also appreciate learning of any improvements that readers are able to work out, using this receiver as a basis or starting point.

While the writer uses the amplifier tubes of the UV-201A and C-301A type, there seems no reason why the dry cell tubes of either the 199, 299 or WD-11 types would not work equally well.

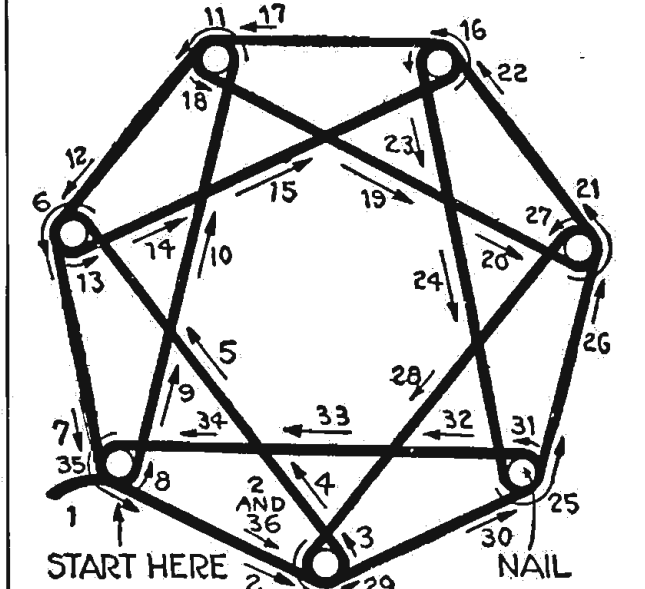
Coil Winding

Draw a circle on a piece of board the size of the coil you wish to make and divide this circle into an odd number of parts, such as five or seven. Drill holes for wood dowels, nails may be used, on the dividing lines. The dowels or nails must fit just loose enough to be readily pulled out. Use a wire of about number 18 dsc. Start by winding a couple of turns around one dowel to keep the wire from slipping as you wind. Run the wire under three dowels and back over the outside of two. Continue this method of winding until you have the desired number of turns.

When you have finished winding pull the dowels and run a piece of tape—I used ribbon—where the dowels made the opening. Mash the wire down compact and tie. This forms a coil that gives the

same results as the D winding which leaves enough room between turns to cut down the capacity.

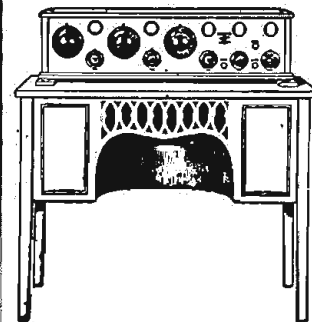
This makes a magnetic circuit with a central inductance in one direction and



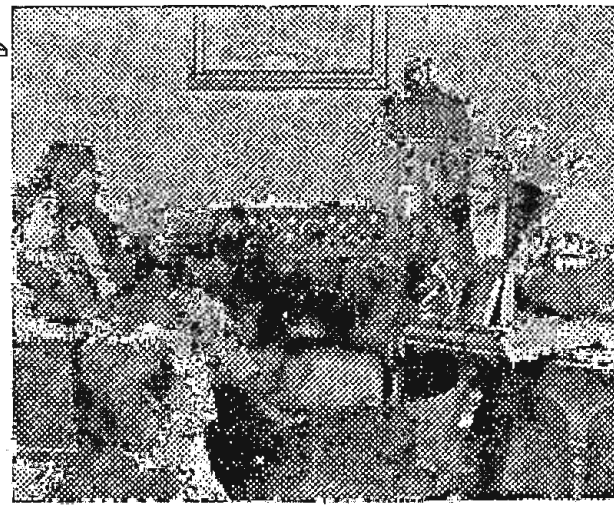
an odd number of small inductances of a reversed field. This coil will go a long way toward giving one which will not interact and make for oscillations in the Radio frequency.—Byron D. Allbaugh, Malvern, Ark.

Oil poured on the solution in the cells of your rechargeable B batteries will keep it from evaporating.

Radio Without the Horn

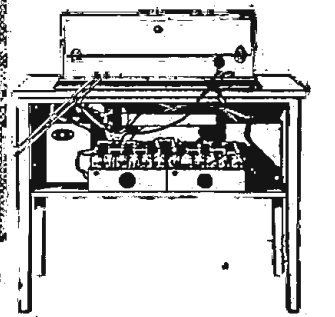


Goodbye to the Old-Fashioned Horn Speaker
A Vastly Better Reproduction With This New Radio Console!



"Our old horn speaker never gave tones like this! An artistic addition to the living room—everything in its place—it's a joy!"

New Console Has Its Own Perfect Loudspeaker!
Ample Space for All the Rest of Your Outfit!



HERE is something that enables you to enjoy radio in the home without the clutter of unsightly apparatus that plays havoc in the decorative scheme of your living room! The horn speaker is out of date and out of place in radio for the home. This console with its built-in loudspeaker is scientific and sightly.

A Truly Wonderful Tone

It does a good job of reproducing, for it has a good unit and its sound-box is of resonant wood instead of metal, fibre, or composition.

The appearance of a Windsor loudspeaker console is a delight. Its convenience is a joy. A piece of real living room furniture of pleasing lines and finish—and it accommodates all the miscellany of equipment which hitherto had no place except on table tops, shelves or floor. Ample space on top for any set, with plenty of elbow room in front. Nothing in sight but the console and receiving set. Everything else goes inside—from behind—in spaces cleverly designed to hold the largest batteries and outfit for home use—besides the self-contained loudspeaker—all unseen and protected from dust or disturbance.

Dealers!

The sale of these consoles has already reached extraordinary figures. They are selling in surprising quantities in even smallest stores where there is one in the window or on the floor. It is a convenience and a value not to be duplicated. Write us for discounts and particulars

You Need This Console Whatever Your Present Outfit Is

It makes no difference what kind of radio outfit you have—this console was designed for your use. The graceful exterior of this console gives no hint of its inner utility, for it is a simple and effective piece of furniture in every line. But a glance at the interior reveals a most ingenious arrangement of the in-built loudspeaker with space either side and in back. These spaces are ample for the largest A battery, and the largest wet B batteries and the largest charging outfit for home use. It is 38 in. long, 18 in. deep, and 29 in. high. Notice the artistic grill that conceals soundbox, and the provision for "knee room" beneath. Made in mahogany or walnut finish, and the price is only \$40! (West of the Rockies, \$42.50.)

INVESTIGATE!

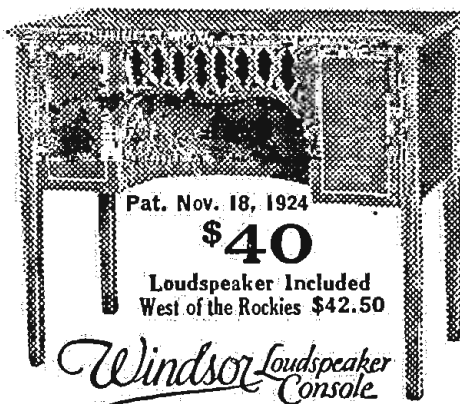
Dealers everywhere are now showing the Windsor loudspeaker console, and have them for immediate delivery to your home. If you haven't already seen this remarkable contribution to radio enjoyment and convenience, write us now for the name of a nearby store where you may view it. We will also send you complete information. Remember, this console gives you not alone a reproducing unit and sound box, but an altogether new beauty and utility in the provision for your entire radio outfit. Mail coupon or postal.

If you wish to use your own favorite unit, a deduction will be made for omission of unit.

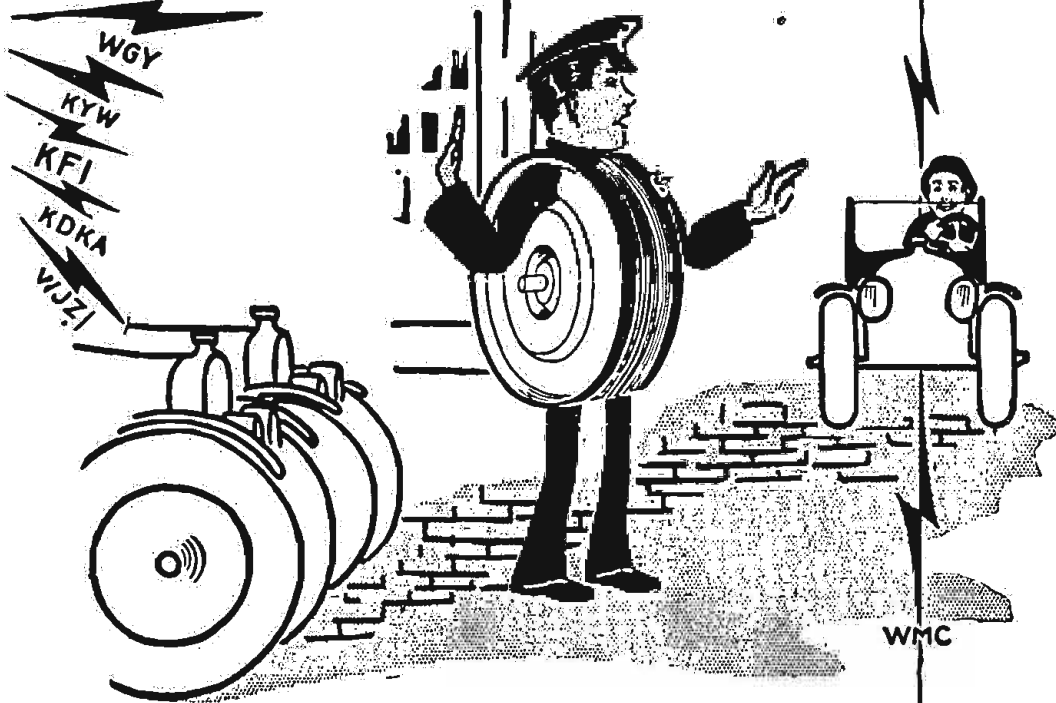
WINDSOR FURNITURE COMPANY 19
1422 Carroll Ave., Chicago.

Please furnish pictures and full details, also name of nearest dealer who has the new Windsor loudspeaker console.

Name.....
Address.....



If it isn't a FERBEND, it isn't a WAVE TRAP



The Traffic Cop of the Air

He arranges in orderly fashion the mass and jumble of broadcasting stations that are seeking entrance to your set, and brings 'em in, one at a time, so you can enjoy them! Never reduces, but nearly always increases volume. Add a Ferbend Wave Trap to your set and "police" your reception. Regulate the traffic!

Make every night silent night! Trap out the interference. Why pay \$50.00 to \$200.00 extra for increased selectivity, when for \$8.50 you can get a genuine Ferbend Wave Trap which will absolutely cut out any interfering station, no matter how loud, how close by or how troublesome.

Guaranteed to tune out any interfering station. The Ferbend Wave Trap is designed and manufactured completely by us, after years of careful experimenting. It is not to be confused with imitations, hastily assembled from ordinary parts. The price is \$8.50. Shipment is made parcel post C. O. D., plus a few cents postage. If you prefer, you can send cash in full with order, and we will ship postage prepaid. Clip and mail the COUPON today!

FERBEND ELECTRIC CO.
17 E. So. Water St., Chicago



Always look for this Trade Mark. It is your protection against misleading imitations and those who infringe on the registered name "Wave Trap" and its reputation.

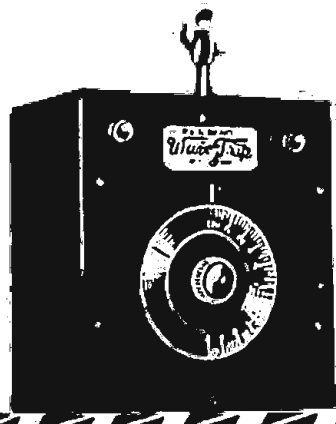
FREE

Valuable Booklet on Interference and how to eliminate it. We will gladly send it FREE. Just fill in, clip and mail coupon below.

FERBEND ELECTRIC CO.
17 E. So. Water St., Dept. 5
Chicago, Ill.

- Gentlemen—Please send me:
- WAVE TRAP. Send Postpaid. am enclosing (check, M. O., etc.) for \$8.50.
 - WAVE TRAP: Send C. O. D. I will pay Postman \$8.50, plus few cents postage, when it arrives.
 - FREE BOOKLET on Interference.

Name.....
Address.....
City..... State.....



Thursday, February 26

(Continued from page 14)

Pacific Time Stations

KFI, Los Angeles, Calif. (467), 5-5:30 p. m., Evening Herald, table talk, news; 5:30-6, Examiner's musical half hour; 6:15-7, Y. M. C. A. speaker; 7-8, dance orchestra; 8-9, Standard Oil company of California presenting play with music; 9-10, vocal and instrumental program of classical nature; 10-11, Examiner, program, Betty of the Examiner.
KFOA, Seattle, Wash. (455), 4-5:15 p. m., Olympic hotel orchestra; recite.
KGO, Oakland, Calif. (299.8), 4-5:30 p. m., concert orchestra, Hotel St. Francis; 8, "Seven Keys to Baldpate," KGO players; 10-1 a. m., dance music, Henry Halstead's orchestra.
KGW, Portland, Ore. (492), 12:30 p. m., concert; 5, children's program, story, Aunt Nell; 8, lecture, University of Oregon extension division; 10:30, Hoot Owls.
KHJ, Los Angeles, Calif. (404), 12:30 p. m., Loew's State theater program; 2:30-3:30, program, Pacific States Electric company; Check Sea; 3:30-4:30, children's program; 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; bedtime story, Uncle John; 8-9:30, program, Wiley B. Allen Music company; 9:30-10, Piggly Wiggly girls' trio; 10-11, Earl Burnett's Biltmore hotel dance orchestra.
KJS, Los Angeles, Calif. (293), 8-9:30 p. m., vocal and instrumental program arranged, Dr. Books.
KNX, Hollywood, Calif. (537), 8 a. m., morning prayer; 9, Hired Hand, news; 10, Hired Hand's morning message; 10:30, Mrs. Kate Brew Vaughn, home economics; 11, news of 25 and 50 years ago; 12-1 p. m., Wurlitzer pipe organ studio recital; 5:45-6:15, music from Wurlitzer studio; 6:15-7:30, dinner hour music, KNX string quartet; 8-9, program, B. H. Dyas company; 9-10, program, Paulais; 10-11, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel.
KPO, San Francisco, Calif. (429.5), 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; 7-7:30, Rudy Selger's Fairmont hotel orchestra; 8-9, Theodore J. Irwin, organist; 9-10, program, Mrs. Birmingham, soprano, director; 10-11, Gene James' Rose Room Bowl orchestra.

Friday, February 27

Friday, silent night for: CFCA, CKAC, CHNC, KFKU, KFKX, KFMX, KGO, KJS, KSO, PWX, WBBR, WBZ, WCBQ, WOLF, WEAO, WFI, WGST, WHAZ, WIP, WKAQ, WLBL, WVAL, WMAK, WOI, WORO, WSUI.

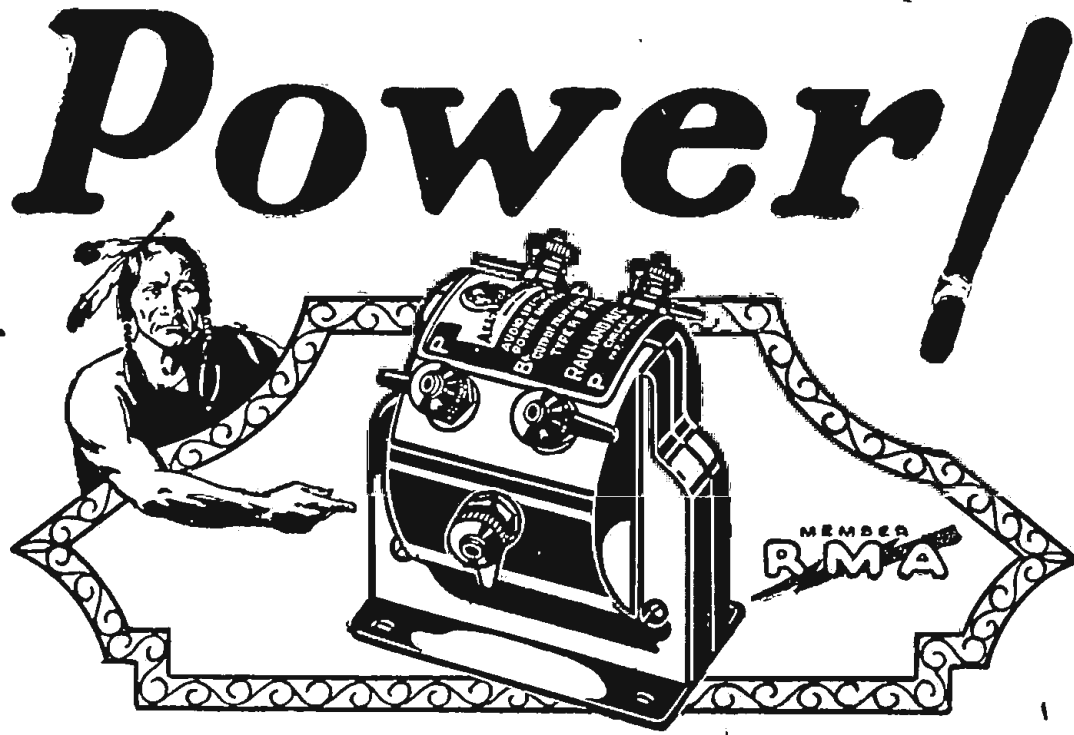
Eastern Time Stations

CNRA, Moncton, Can. (313), 6:30 p. m., bedtime story, Uncle Alf; 7:30, Mrs. W. F. Wheeler, pianist; Alfred Leker, tenor; Mrs. R. L. Algie, mandolinist; duet, Alfred Leger, Charles Dodge; Tom Kirby, bass; dance music, Joe Mazzeo and his Rainbow Melody boys.
CNRT, Toronto, Can. (350), 6:30 p. m., Luigi Romanelli and his King Edward hotel concert orchestra; 8:30, studio program, Pickwick room of the King Edward hotel; Queen City Novelty instrumental troupe; Albert Bates, saxophonist; Hawaiian guitar solo, Hugh Thomas; tenor banjo duet, Tom Pritchard, Paul Mullitt; 10:30, Luigi Romanelli and his King Edward hotel dance orchestra.
KOKA, E. Pittsburgh, Pa. (309.1), 6:15 p. m., dinner concert; 7:30, children's period; 8:15, address, University of Pittsburgh; 8:30, concert.
WAHG, Richmond Hill, N. Y. (316), 12-1 p. m., special program, Brooklyn Federation of churches; 8-8:15, Cooper Boyd, violinist; 8:15-8:30, Lynwich string trio; 8:30-8:45, Jack Shatter, tenor; 8:45-9, Michael Lambert, cellist; 9:30-9:45, Jack Shatter, tenor; 9:45-10, Lynwich string trio; 10-10:15, Wm. F. Diehl, talk.

Radio and Radio Question Box; 10:15-11:30, dance orchestra.
WBAV, Columbus, Ohio (294), 3 p. m., Dispatch program, with talent from Otterberrn university, Westerville, Ohio, A. H. Spessard in charge.
WCAE, Pittsburgh, Pa. (462), 6:30 p. m., dinner concert, William Penn hotel; 7:30, Uncle Kaybee; 8:30, Crinite brothers, Earl and Joe, dispensers of Hawaiian music; 9, Astor Coffee dance orchestra.
WGX, Detroit, Mich. (516.9), 4:15 p. m., musical program; 6, dinner concert, Book-Cadillac hotel; 8:30, musical program; 10, dance music, Arcadia auditorium.
WEAF, New York, N. Y. (492), 4:10-4:25 p. m., French lesson, Columbia university; 4:25-4:40, Estelle Myers, soprano; 4:40-5, children's stories; 6-7, dinner music, Waldorf-Astoria hotel; 7-7:15, Claf Frederick Hogregillus, baritone; 7:30-7:45, children's stories, G. R. Kinney company; 7:45-8, Jimmie Clark, pianist; 8-8:30, Happiness Candy boys; 9-10, B. Fischer and company's Astor Coffee orchestra; 10-10:30, Rudolph Luke string ensemble; 11-12, Lido Venice orchestra.
WEAR, Cleveland, Ohio (389.4), 7 p. m., Edwin Arthur Kraft, organ recital from Cleveland Public auditorium.
WEBJ, New York, N. Y. (233), 7-7:30 p. m., Blenheim ensemble; 7:45-8, songs, Sara V. Turits; 8-8:15, H. S. Owen, baritone; 8:15-9, Cliff Crest society orchestra.
WEEI, Boston, Mass. (475.9), 9 p. m., Happy Hawkins and his orchestra; 6:30, Big Brother club; 7, Haverhill, Massachusetts, night; 8, program, courtesy Neapolitan Ice Cream company; 8:30, U. S. Army band; 9:30, Jolly male quartet.
WGBS, New York, N. Y. (316), 6-6:30 p. m., Uncle Geebee; 6:30-7:30, Larry Funk's dance orchestra.
WGR, Buffalo, N. Y. (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; 6:30-7:30, dinner music, Buffalo Trust company; 8:35-8:55, address, Donald Hurley, "Auto Touring"; 9-10, Astor Coffee orchestra, jointly with WEAF; 10-11, Larkin string orchestra, Joseph Ball, director; 11-1 a. m., supper-dance music, Vincent Lopez' Hotel Statler dance orchestra, Harold Giesler, director.
WGY, Schenectady, N. Y. (379.5), 2 p. m., health hints, Dr. C. W. Woodall; 7, program, Strand theater orchestra; 7:30, health talk; WGY orchestra; 7:45, "The Dawes Plan and European Reconstruction," Dr. George Norman Derry; 8, Bell Record orchestra; xylophone solos, Mary Zoller; old-time favorites, WGY orchestra; 10:30, Edgion club quartet, 10, string orchestra; American trio; duet for clarinet and piano, Peter Schmidt, clarinetist; Ollie G. Yettr, pianist; Giovanni Trombini, cellist; Edison club male quartet; American trio; Rice string quartet; Edward A. Rice, violinist.
WJY, New York, N. Y. (405), 9 p. m., Genesee society dinner, Hotel Commodore.
WJZ, New York, N. Y. (455), 10-10:20 a. m., Housewives league menu, Mrs. Julian Heath; 10:20-10:40, "Books," Grace Isabel Colburn; 10:40-10:50, "Arts and Decorations," Mrs. Mary Roberts; 10:50-11, fashion talk, Eleanor Gunn; 1-2 p. m., Henry Vander Zanden's Hotel Ambassador trio; 4-4:20, Maddalena Houff, soprano; 7-7:30, Savarin ensemble; 8-8:10, Wall Street Journal review; 8:10-8:20, N. Y. U. Air college; 8:40-9:40, Amherst Musical club concert, New York alumni; 10:30-11:30, Duke Yeliman and his Irene Castle orchestra.
WLT, Philadelphia, Pa. (395), 11:45 a. m., daily almanac; 12:02 p. m., Stanley theater organ recital; Arcadia cafe concert orchestra; 12:30, Lenten services; 2, Arcadia cafe concert orchestra; 7:30, Dream Daddy's bedtime stories; 8, book review, Arnold Abbott; 8:10, "Fifteen Minutes of Humor," Sam Wingfield; 8:30, Trenton night, songs and instrumental selections; 10, Arcadia cafe dance orchestra; Morning Glory club concert.
WNYC, New York, N. Y. (526), 8-8:15 p. m., resume of meeting of board of estimate, P. J. McGowan; 8:30-9, concert program by vocal and instrumental artists.
WOP, Philadelphia, Pa. (508.9), 11 a. m., organ recital, Mary E. Vogt; 12:02 p. m., Wanamaker crystal tea room orchestra, Robert E. Golden, director; 4:45, organ recital, Mary E. Vogt; 7:30, A. Candelori's ensemble from Hotel Adelphi; 8:30, piano recital, Harriette G. Ridley; 9, WOO orchestra; 10:03, organ recital, Mary E. Vogt; 10:30, Vincent Rizzo's Hotel Sylvania dance orchestra.
WOR, Newark, N. J. (405), 6:15-6:30 p. m., Bluebird orchestra; 6:30-6:45, man in the moon stories; 7-7:15, Bluebird orchestra.

WRC, Washington, D. C. (468.5), 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.
WTAM, Cleveland, Ohio (389.4), 6 p. m., Guy Lombardo's Royal Canadians orchestra.
WJ, Detroit, Mich. (352.7), 12:05 p. m., Jules Klein's Hotel Statler orchestra; 3, Detroit News orchestra; 6, dinner concert; 8:30, Detroit News orchestra; Anne Campbell, Detroit News poet; Mrs. Claudine Secor, soprano; Norman Butterfield, baritone; the Three Knights of harmony.
Central Time Stations
CKY, Winnipeg, Can. (450), 7:30 p. m., university lecture.
KFO, Beaumont, Texas (315.6), 8 p. m., band concert.
KFNF, Shreveport, La. (266), 6:30 p. m., concert, John T. Hamm, director.
KTHS, Hot Springs National Park, Ark. (375), 8:30-9 p. m., piano specialties, Phil Wall; 9-10, concert, Meyer Davis' New Arlington hotel orchestra, Jack Renard, director.
KYW, Chicago, Ill. (535.4), 7-7:30 p. m., dinner concert, Congress hotel; 8-10, midnight revue; 11-1, midnight revue; 1-2, "Insomnia Club."
WBAP, Fort Worth, Texas (475.9), 12:05-12:30 p. m., popular music, Montgomery Ward and company's Trail Blazers; 4, educational lecture, "Girls' Home Demonstration," Mildred Horton; 7:30-8:30, dinner music, Jim Roney's Texas hotel orchestra; 9:30-10:45, musical program.
WCAL, Northfield, Minn. (336.9), 9:45 a. m., St. Olaf college chapel service; 8:30 p. m., "The Peasants," Dr. George Welda Spohn.
WCCO, Minneapolis-St. Paul, Minn. (416.4), 10:45 a. m., "The Story of Corn," Betty Crocker; 2 p. m., "Why Not Be Well," R. H. Coombs; 4, "Separation, Nella Gardner White; 5:30, children's stories, Dean Remick, pianist; 9, Oriole dance orchestra; Rita McFawn, soprano; Jack Penwell, songs; Sandy Meek, tenor; 11, Oriole orchestra; Three Musketeers, songs; Nick Lucas, songs; Jack Penwell, popular songs.
WGN, Chicago, Ill. (270.2), 1:40 p. m., luncheon concert, Drake concert ensemble, Blackstone string quintet; 2:30, artists series, Lyon & Healy; 3, rocking chair time; 5:30, Skeezix time for the children; 6, organ recital, Lyon & Healy; 6:30-7, dinner concert, Drake concert ensemble, Blackstone string quintet; 8-9, classical concert, Dunh Dillard School of music; 10-11, Don Bestor Drake dance orchestra.
WHO, Des Moines, Iowa (526), 7:30-8:30 p. m., program, Dean Raymond Carr, director; 8:30-9, William brothers, mandolin, guitar and banjo artists; J. W. Fletcher, tenor; Helen Birmingham, accompanist.
WLW, Cincinnati, Ohio (423), 8 a. m., physical exercises, Y. M. C. A., William Stradman, instructor; 12:15, Ahaus Brunswick orchestra; William Koch, director.
WMAQ, Chicago, Ill. (447.5), 4:30 p. m., pupils, Bush conservatory; 5, fashion talk, Jan Mowat; 6, organ recital, Chicago theater; 6:30, Hotel LaSalle orchestra; 8, weekly wide-awake club, Mrs. Frances M. Ford; 8:30, musical geography, Mr. and Mrs. Marx E. Oberdorfer; 9:15, musicale.
WMC, Memphis, Tenn. (499.7), 12 m., musical program, O. K. Houck Piano company; 8:30 p. m., Britling's Novelty orchestra, Frank Bracantini, director; 11, midnight frolic, University of Tennessee.
WOAW, Omaha, Neb. (526), 4 p. m., matinee program; 6, story hour, Doris Claire Secord; 6:20, announced; 6:30, Ray Muzzey's orchestra; 9, American college of music; 10:30, orchestra.
WOC, Gavenport, Iowa (483.6), 5 p. m., June Elnfeldt, reader; string trio, Herbert Silberstein, director; 6:30, Sandman's visit, Val McLaughlin; 7, "Rural School Progress," Hermine Schnekkoth; 9, old-time numbers, Frank Simmons, one-man band.
WOI, Ames, Iowa (270), 12:30 p. m., college chimes; talk on automobiles, Prof. A. Shane.

WQJ, Chicago, Ill. (447.5), 9-4 p. m., "The Children's Party," Dorothy McLean Dicken; "One Wonderful Trip on the St. Lawrence from Niagara to the Sea," Mrs. Harry T. Sanger; 7-8, dinner concert, Ralph Williams and his Rainbo skylarks; Otis Pike Jester, soprano; Mary Thrash House, pianist; 10-1 a. m., Ralph Williams and his Rainbo skylarks; Rogers boys, Larry and Billy; West brothers; Nubs Allen, contralto; Zeigler sisters, Pauline and Sarah; Lawretta Giles, soprano; Nate Caldwell; 1-2, Hotsy Totsy hour.
WSAI, Cincinnati, Ohio (325.9), 3 p. m., chimes; 8:15, Bicycle sextet; 9, weekly news review, Allison F. Stanley; 9:15, Bicycle male quartet; 12, Roger Hill's Danceland orchestra.
WSB, Atlanta, Ga. (428.3), 12 m., entertainment; 5-6 p. m., garden talk, William B. Decker; Bonnie Barnhart; 8-9, old time gospel program, Rev. Andrew Jenkins and family; 10:45, "Reminiscence Program," Sergt. George J. Ryan, Soldiers' trio.
WSUI, Iowa City, Iowa (484), talk; "The Handcart Brigade," Miss Ruth A. Gallahee; 7:30, play by "play reports of the Iowa-Illinois basketball game."
Mountain Time Stations
CNRE, Edmonton, Can. (517), 7:30 p. m., children's bedtime stories, Children's orchestra, Mrs. A. Hale, director; 8:30, special request program, Alberta College North mandolin, guitar and banjo orchestra, A. Hale, director.
KOA, Denver, Colo. (322.4), 12-12:30 p. m., Idaho theater organ; 3, "A Little Prayer for Me," "Slumber Sea," "Someone Worth While," Gord Klein, contralto; "Consolation," Philosophy, Iris Ruth Pavey, reader; "Serenade," "Prompty in E Flat Major," Gertrude Kinney; 6:40, Book of Knowledge program; 8, ten minutes of music, Fred Schmitt's Idaho orchestra; 8:10, "Reminiscences," KOA orchestra.
Pacific Time Stations
KFAE, Pullman, Wash. (330), 7:30-9 p. m., Hawaiian songs with ukuleles and guitars, Ted Lumley, Sigurd Johnson, Horace Trimble; vocal and piano solos, Frances Lockwood; "Where Our Weeds Come From," P. P. L. Johnson; "Height of Working Surfaces in Kitchens," Gladys Gallup; "Good Roads vs. Poor Roads," Prof. H. Phelps; book chat, Alice Lindsey Webb.
KFI, Los Angeles, Calif. (467), 5-5:30 p. m., Evening Herald, table talk, news; 5:30-6, Examiner's musical half hour; 6:45-7, editorial talk; 7-8, Examiner program, Florance Thompson, soprano; 8-9, Aeolian residence pipe organ recital Dan McFarland, organist; 9-10, Evening Herald, Kennedy Broadcasters of Long Beach dance orchestra, Herman E. Abrahamson, steel saw, Radio talk, A. L. Blodgett, president Southern California Radio Ass'n; 10-11, program by pupils of Myra Belle Vickers.
KFOA, Seattle, Wash. (455), 4-5:15 p. m., Olympic hotel orchestra, Wm. Hofmann, conductor; 6:45-8:15, Sherman, Clay & company program; 8:30-10, Times studio program, Mrs. H. C. Simpkin; 10:05-11, Olympic hotel dance music.
KGO, Oakland, Calif. (299.8), 4-5:30 p. m., concert, Hotel St. Francis.
KHJ, Los Angeles, Calif. (404), 12:30-1:30 p. m., Santa Monica Athletic club orchestra; 2:30-3:30, program, 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; Vyola Von and "Sir" Richard Headrick, screen juveniles, Uncle John; 7:30, better speech talk, Mrs. Joe Ballard Fuller; 8-10, program, Henley and Scott; 10-11, Earl Burnett's Biltmore hotel dance orchestra.
KLX, Oakland, Calif. (509.9), 6:57 p. m., organ; 7:45-9:45, studio program; 9:45-10:30, Sweet's ballroom.
KNX, Hollywood, Calif. (537), 8 a. m., morning prayer; 9, Hired Hand, news; 9:30, Estelle Lawton Lindsey, personal problems; 10, Hired Hand's morning message; 12-1 p. m., program from Wurlitzer pipe organ studio; 5:45-6:15, Wurlitzer pipe organ studio; 6:15-7:30, dinner hour music; 8-10, program, Peerless Products company, Maude Fenlon Bolman in operatic numbers; 10-11, amateur hour; 11-12, Abe Lyman's Coconut Grove dance orchestra from Ambassador hotel.
KPO, San Francisco, Calif. (429.5), 1:30-3 p. m., Rudy Selger's Fairmont hotel orchestra; 4:30-5:30, Rudy Selger's Fairmont hotel orchestra; 8-9, program, "Cleveland Six" orchestra; 9-10, one-act play, Theater Arts club, Talma Zetta Wilbur, director; 10-11, Gene James' Rose Room Bowl orchestra.



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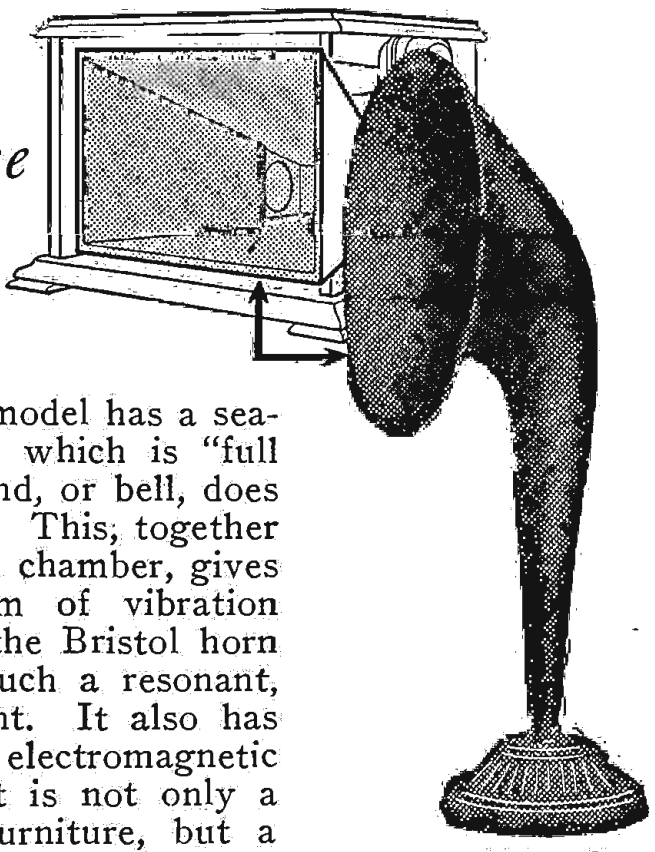
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Broadcast Listener's Reference Library

Part III—Antenna and Ground Requirements

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

A SINGLE wire antenna is best for receiving purposes. The lengths, in most cases is an "unknown quantity" for several reasons: First, the manufacturer knows best what length of antenna to use with his particular type of set; second, the owner of the set may not have the space available to erect the antenna specified by the manufacturer.

In general, I would say that a one wire antenna seventy feet in length is exceptionally good. If you cannot string a wire that long—string two fifty feet long. If not that much, make a four wire antenna thirty feet long—or string several wires in the attic thirty feet long, bringing them to a common connection, or lead-in, to the receiver.

Short Antenna Gives Best Results

Increased selectivity is obtained with a comparatively short, low antenna. This type of antenna will permit the selecting of stations desired and the weeding out of practically all others. An extremely long antenna increases the volume—but it is not so easy to tune out interfering stations, working on wave lengths slightly shorter or longer than the station you desire to listen to.

There is, of course, a happy medium, and in order to describe the antenna in a better way, your attention is directed to figure 8. A transmitting (broadcasting station) is shown at A. For the sake of simplicity let it be understood that the transmitter is broadcasting on a wave length of 100 meters (where stations broadcast on wave lengths ranging from 220 to 546). The antenna system comprises sixty per cent of the wave length or 60 meters and the remainder is made up in the tuning coil i. e., 40 per cent or 40 meters.

System Necessary

Now it is not absolutely necessary for us to have the same system installed at our home, that is, our antenna need not represent 60 per cent of the wave length. It is only necessary that we arrive at a total of 100 meters when tuning in to this station in order to pick it up. For example, a receiving set B at New Or-

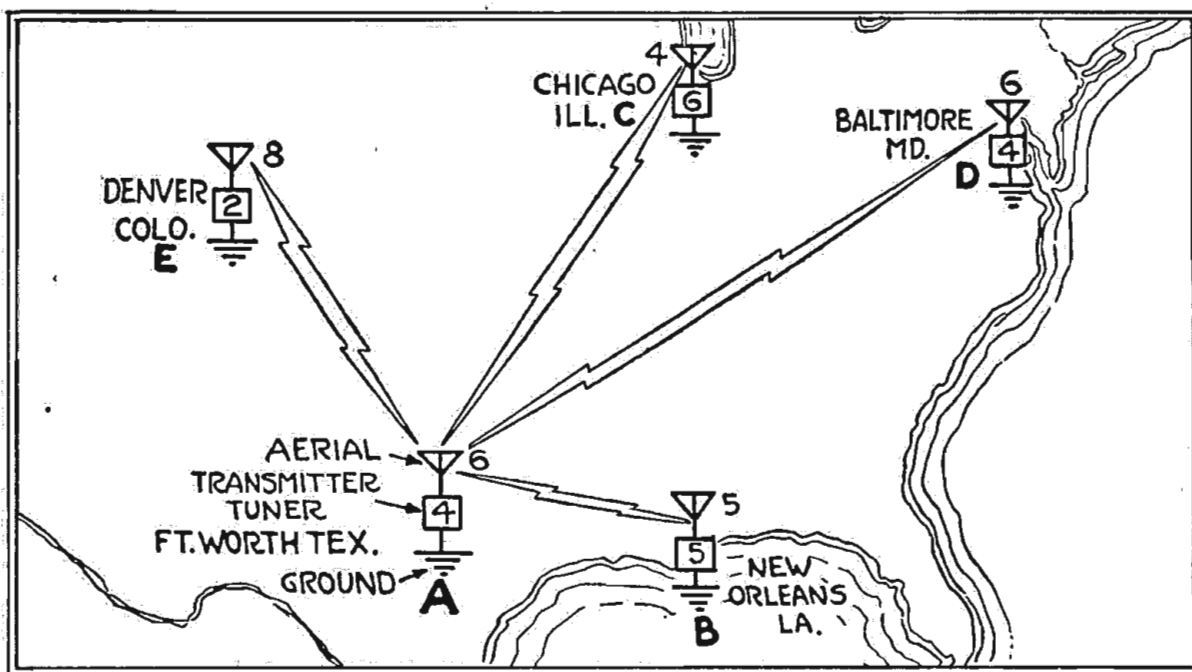


Figure 8.

leans, Louisiana, is using an antenna that accounts for 50 per cent of the wave length. The receiver is then adjusted until the additional 50 per cent is added to the antenna-ground system. In this position the receiver is in resonance with the transmitter at A. At C a party at Chicago, Illinois, is listening to station A. His antenna represents 40 per cent and his receiver had to be tuned to make up for the 60 per cent. The receiver at D has the same constants as the transmitting station. At E, Denver, Colorado, a broadcast listener is listening to station A. He is making use of an extremely long antenna. While he may get more volume, he will experience considerable trouble from interfering stations.

Dial Settings

If all these stations were using the same type of receiver—station B, would get station A at, let's say, 50 on his dial (antenna tuning). Then station C would have to tune higher, 60, while station D would set his dial at 40 and the party at

Denver would set his dial at 2. This will give you a better understanding as regards the relation between the antenna length and tuning.

Antenna height! Do not let that worry you. From fifteen to thirty feet will be plenty provided, of course, you are not surrounded by steel buildings.

The ground connection is as important as the antenna. The ground lead should always be soldered to the ground (water pipe) connection. Poor ground connections spell disaster, especially if you cannot install a very good antenna system. At times we hear from set owners who experience considerable trouble with noises in their sets. This is sometimes caused by electrolysis (current from trolley car rails leaking to and destroying water mains). In cases of this kind, a counterpoise as it is called, is used. A counterpoise is nothing more than another antenna wire strung near the ground and (if possible) directly under the antenna

wires. This wire is then substituted for the ground and no connection whatever is made to the ground.

It is well, however, to look for noises elsewhere in the set, batteries and tube sockets, before substituting this elaborate counterpoise system.

(Regenerative receivers have always been difficult to tune for the new Radio enthusiast as they do not "log" readily and the "oscillation point" is a constant bugaboo. Mr. Jones takes up the mysteries of regeneration in his next article.—Editor's Note.)

Use of Two Aerials

As I have been helped by many hints from your paper I thought perhaps your readers would be interested to know of results I have obtained by using two aerials. With the use of two aerials I have had excellent results. One is 98 feet inclusive of lead-in running nearly due east and west. The other is 50 feet including lead-in running north and south, and two feet above the former.

Both lead-ins terminate at one point at set about two inches apart—here I use a double rod single-throw switch.

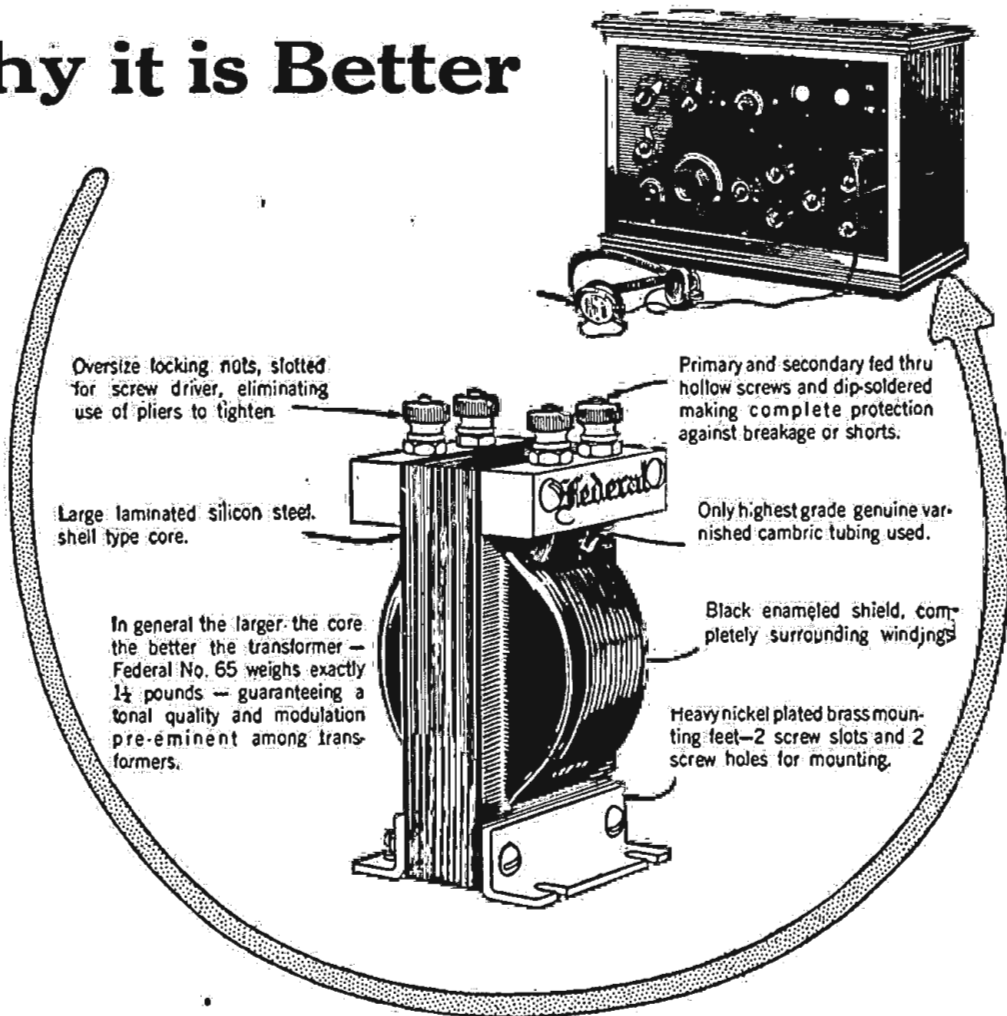
I find that on some stations, mostly the medium and low wave lengths, by using both aerials I obtain at least 25 per cent more volume and also in some of the ones higher up to 509 meters.

No fixed rule seems to work out. Some stations come in better on the short aerial; others better on the long aerial. Other stations come in best when using both aerials connected together. It is necessary to throw the switch in and out to determine the results.—E. C. Leinbaugh, Philadelphia, Pa.

Fixed Condensers

The fixed condensers in a receiving set should have mica dielectrics for best results. Do not use condensers in which the dielectric is paraffined paper. For the best operation of your set, it is important to use the condenser of the proper capacity for the part of the circuit it is in.

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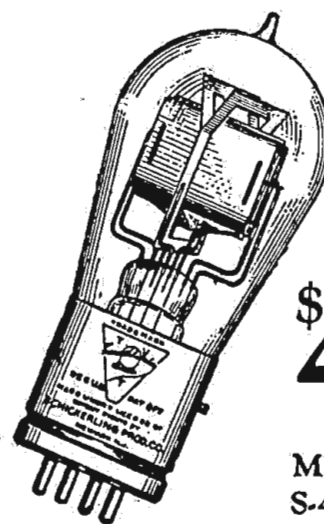
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HOME CONSTRUCTION

(Continued from page 15)

machines, which are so popular for curative purposes, also cause a humming sound when they are in operation. They can be detected for the distance of a city block from a Radio set. Doctor's X-ray machines also make a humming sound in the receiver.

Range of a Crystal Set

Enthusiasts who have bought or made their first crystal outfit, sooner or later try to operate a loud speaker with it, get disappointed at not being able to obtain good results and naturally think that something is wrong with a set's wiring. This causes them to spend a lot of time looking for the trouble, when as a matter of fact, there are really no additions to a crystal outfit that will give satisfactory service with a loud speaker. Persons about to purchase or construct a crystal receiver, should understand at the outset that they are only suitable for short range reception, say from fifteen to twenty-five miles and do not allow of listening in to long range broadcast concerts. For general, all around, long distance reception, vacuum tube sets are necessary.

In operating homemade tube sets, adjustments occasionally will have to be made to keep them in good working condition. When hissing and crackling sounds are heard in the head telephone, it is not always due to static disturbances as some persons suppose. Faulty or corroded connections frequently caused by the novice using an acid flux paste instead of rosin in soldering wire joints makes a lot of trouble. Defective or run down batteries are accountable for many such noises. In order to find out whether the sounds are made by static or defects in your set, open the aerial cut-out switch and if the sound still continues, look for trouble in the receiving circuit. Hissing and crackling noises are mostly due to defective B batteries. Put a voltmeter across its terminals. Should a drop of 20 per cent or more of its normal reading be shown, discard and replace with a new battery. Mushy, hissing noises indicate a run down storage battery, which is used to light the vacuum tube filaments. Recharge the A battery and these noises will usually disappear.

Defective separators in a storage battery will also cause noises to be heard in the telephones; this mostly occurs in storage cells that have had long usage,

Poor contact in automatic filament control jacks, and soldering flux lodged between their contact blades causes sounds. Clean the blades carefully. Sharp clicks heard when a rotating part of a receiver is moved, show poor sliding contacts; adjustment of the parts will eliminate them.

Loud frying noises may indicate that too high a B battery voltage is being used on the plate of the detector tube. Lower voltages in the plate circuit; also turn down the filament rheostat. Weak signals in homemade sets are frequently due to many amateurs using too small a gauge of wire for connecting the instruments together. For best results, nothing smaller than number 14 gauge should be employed. This size permits the weak electrical currents to flow through a minimum amount of resistance, which is most desirable in Radio work. Amateurs constructing regenerative receivers, should line the back of the panel and inside of cabinet with tin or copper foil. This shielding is desirable as it absorbs any stray electrical waves

which otherwise would find their way to the windings of the receiver and interfere with reception.

Rejuvenating Dry Cells

Radiophans using peanut tubes find their dry cell A batteries sometimes have a premature death. This is due to the active material in the cell becoming dried out through the pitch compound on top being loose or broken by jarring, excessive heat or cold, thus allowing the moisture to escape. In such instances break out the sealing compound, punch several deep holes into the black mixture surrounding the carbon rod and thoroughly soak with water to which a little sal-ammoniac or salt has been added. Melt the compound and pour it back, then test out cell and note the difference.—J. J. Langford, Manchester, Illinois.

Pencil Vernier

If you have no vernier condenser, the sharpest kind of tuning can be done by resting the rubber end of a long pencil between the edge of the dial and the panel and turning slowly.

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Embodies all proved principles of reproduction. Delicate shading, inflection and modulation of voice and musical instrument re-created with remarkable volume and clarity of tone, with astounding purity and faithfulness. Floods room with best that's in the set. Compares with loudspeakers selling for \$15 to \$25. Horn acoustically perfect. No battery needed—simply plug in like headphones. Handsome crystalline finish fibre horn approximately 22 inches high; heavy base prevents tipping. Polar indicating connecting cord included.

DEALERS The Majestic Speaker is made to please the buyer who wants a good loudspeaker at a low price. You simply can't "go wrong" in offering this "Big Buy" to your trade. You'll profit on each sale and on the satisfaction the Majestic gives. Send for details, prices and order test sample! TODAY.

RADIO FANS Sent direct, postage paid, if your dealer can't supply. Send no money. Simply pay postman.

James M. Davis Co., 30-A Euclid Arcade, Cleveland, O.

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 cut 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-ite, 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.

Packed in one dozen lots for dealers. Ask your dealer to supply you or you may send for one C. O. D. with your money back if not completely satisfied.

DEALERS and JOBBERS please get our catalog of crystals and detectors and our liberal distributing proposition.



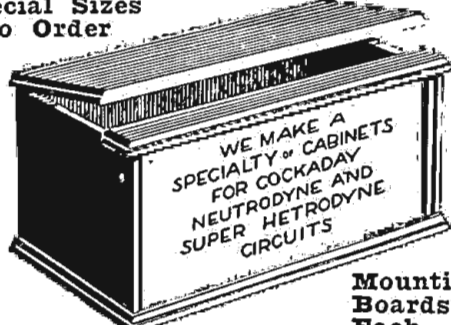
Campbell RADIO CABINETS

"From the Lumber to You"

PRICES—Cash with order, prepaid east of Missouri River; west, add 15 cents to quoted price. Send Post Office or Express Money Order.

Panel Sizes	Genuine	
	Walnut	Mahogany
7x10x7	\$ 3.00	\$ 4.75
7x14x7	3.30	5.50
7x18x7	3.82	6.75
7x24x7	5.25	9.00
7x26x7	6.05	10.00
7x28x8	7.25	11.50
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7x40x10	11.25	18.00

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Will not warp or crack. Made of No. 1 wood finished in either Mahogany or Walnut, bright or rubbed finish to match the finest of furniture.

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(References: Dun or Bradstreet's)

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COMPARISON is a stringent test—but MAGNATRONs have thrived on it. Comparison is the force behind the ever-increasing MAGNATRON popularity. Comparison has convinced thousands and thousands of radio fans that MAGNATRONs have no superiors in the field of vacuum tubes.

The DC-199, the DC-201A, and the DC-199 with large base, now list for only \$3.

Your dealer has them!

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BY MAIL ONLY
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RADIO TUBE
GUARANTEED SATISFACTORY

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

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

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Gee! We got 'em

Loud and Clear with the
Howe Radio Receiver
\$1.75

DO you know that you can listen to every radio broadcasting station in and around your city with a Howe Radio Receiver costing only \$1.75? Thousands of folks—young and old—all over the country are having many hours of solid enjoyment listening to the wonderful and varied programs—music, talks, sport and church services.

The Howe Radio Receiver is not a toy but a very sensitive, practical, radio set made of the best materials and furnished in a strong, steel case finished in a beautiful dark olive antique verde. It is fool and trouble proof. No Batteries to Buy. Guaranteed you can hear any broadcasting stations within 25 miles. One or more persons can "listen in" at the same time.

For perfect local reception use a Howe Radio Receiver crystal set.

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214 Euclid Arcade Annex Cleveland, Ohio

—Nothing Like It—

Convenient Station Directory File

Schedule Is Pasted to Paper Roll on Spools

There is a simple little apparatus that the Radio fan may construct in his own home that takes care of the long list of stations as printed in each successive

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

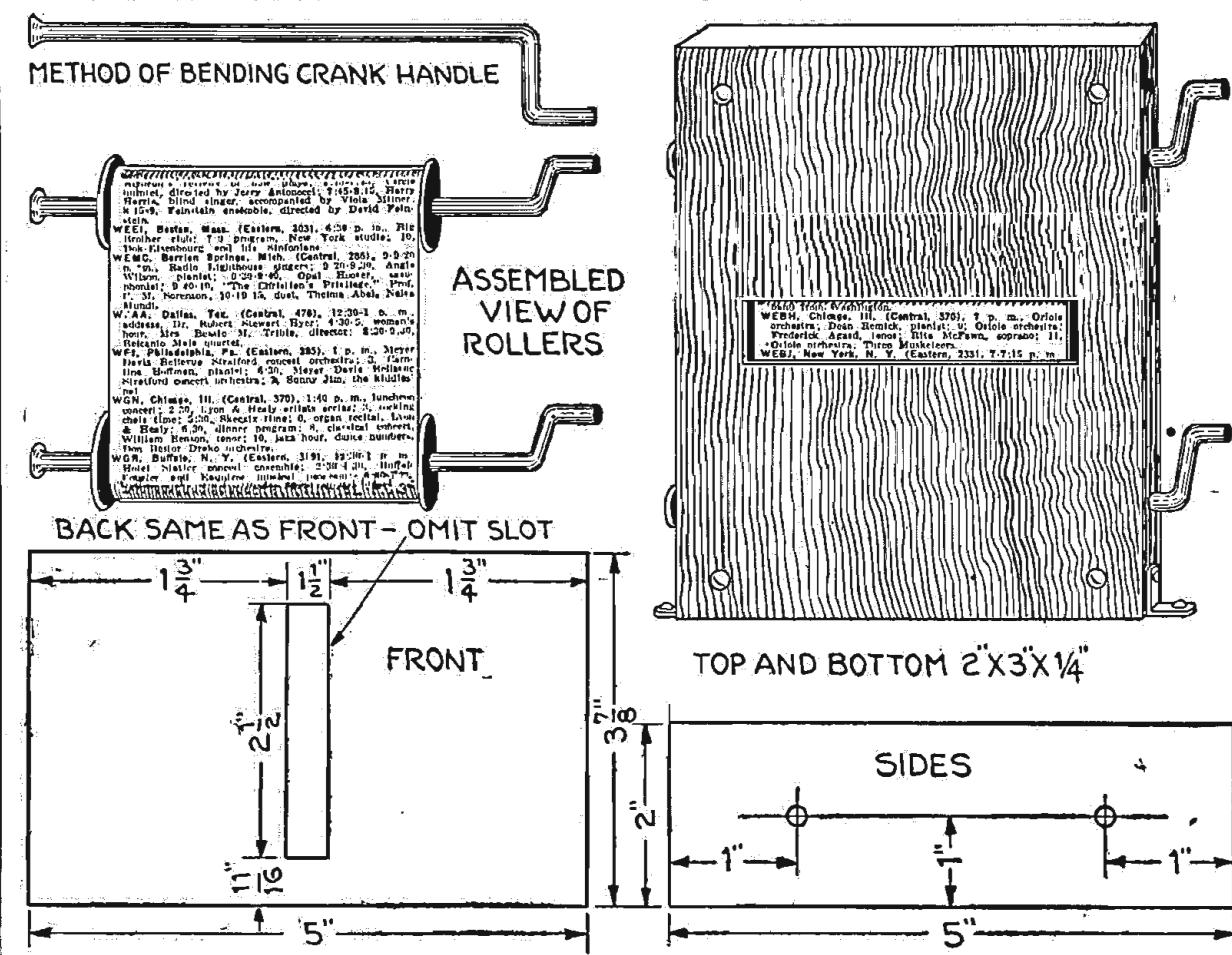
number of Radio Digest. This little apparatus places the station directory right on the Radio table for the operator's instant use and furthermore can be kept up to date.

Here are directions for constructing this little apparatus: Go to some kodak finisher and ask him for two spools on which the film comes wrapped. These should be from 3 to 3 3/4 inches in length and be sure to get a supply of the long red paper strips to fit the size of the spools obtained.

Take these spools and paper to the workshop and make a little box the following size: If the spools are 3 3/4 inches long the box should be 3 3/4 inches wide, 5 inches high and 2 inches deep. Securely fasten the sides and back together, leaving the front open. Make for the front face a piece the right size from thin wood or composition and cut a slot in the center 1/2 inch wide and 2 1/2 inches long. On each side of the box drill a hole 1 inch from the top and bottom to pass a number 6 wire. This makes two holes in each side piece, each 1 inch from the end and 3 inches apart.

Stretch one of the long strips of red paper out on the work table. Get all the copies of Radio Digest needed to supply a full directory and cut them out, each a column wide. Obtain some paste, flour paste is good, and beginning 6 inches

FILM SPOOLS USED FOR ROLLERS



from the end of the strip paste the first column of stations down the center of the red strip and so on down each column in order until the entire list is pasted on it.

Take a piece of number 6 wire and cut 2 pieces 1 inch long and 2 pieces 3 inches long from it. Take the 3-inch pieces and bend them into a crank handle shape as illustrated. Put the empty spools inside the box and insert the 1-inch pieces through the holes on one side into the spool holes, and the crank shaped handles into the other side. The wire should be made to fit into the spools tight so that by turning the handles the spools will turn.

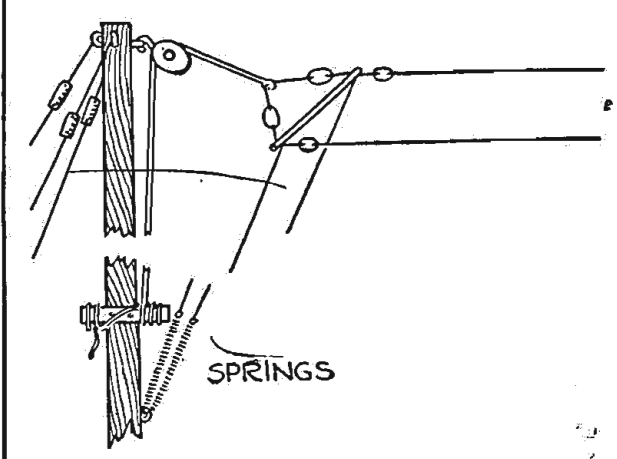
Load the spools with the list on the red paper the same way as loading a kodak.

Put the first stations in order into the top spool and wind the entire roll on it. Then insert the lower end into the bottom end spool and it will be found that when the lower crank is turned it will draw the upper spool backward and wind the list on itself and vice versa.

Fasten the front of the box on with screws, put two angles on the bottom of the box and screw it to the Radio table. Now when a station's call letters or information is desired, turning the handles either one way or the other will bring the information regarding this station before the slot in the front.

Tension Springs Placed on Double Line Aerial

Having trouble with my aerial breaking on account of the ropes contracting in the rain I devised the support as shown in the illustration. The aerial was the two-line type connected to a bar or yoke at each end. The yoke was drawn up with a rope and pulley, the latter being attached



to the top of the mast. The anchor or tightening means was also connected to the bar or yoke as shown, and springs from ordinary shade rollers were attached to the lower ends of the anchor ropes. The illustration clearly shows the construction.—Charles Moore, Marion, Ohio.

When new stations are installed, Radio Digest always gives all available information concerning them. By obtaining all the copies of this magazine and pasting the station on new pieces of red paper and loading the same as a kodak a complete revised list of stations can always be at hand.—David J. Morris, Wier, Texas.

Use of Hydrometer

Use a hydrometer for testing out your storage battery. You can get one at almost any Radio supply store. The directions furnished with the hydrometer will tell you how to test the battery.

SOMETHING WORTH KNOWING!

One reason that leading builders of fine sets use more Thordarsons than all competitive transformers combined is because EVERY Thordarson amplifies evenly over the entire musical scale. Thordarsons run absolutely uniform; always "match up" perfectly. And why shouldn't they? Aren't they made and unconditionally guaranteed by the world's oldest and largest exclusive transformer makers—transformer specialists for 30 years! For the finest amplification to be had at any cost, follow the lead of the leaders—build or replace with Thordarsons. A. F.: 2-1, \$5. 3 1/2-1, \$4. 6-1, \$4.50. Power Amp., pair, \$13. Interstage Power Amp., ea., \$8. All dealers. Thordarson Electric Mfg. Co., Chicago.

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HARMONY
AUDIOLA
GLOBE
SAAL AND
MANY OTHERS

Follow their lead
use
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PATENT APPLIED FOR
The Half-Moon Shape Fits Over the Pipe

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
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AMPLIFIER
5 VOLTS

Feel Its Pulse

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

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

Metropolitan Electric Co.
Des Moines, Iowa

MECO
RADIO TUBES

Increase the Efficiency of Your Reflex
by adding the Toroformer Attachment ahead of the Circuit.

The diagram above illustrates the Toroformer in use as a stage of tuned Radio frequency amplification.

Attachment furnished complete on Panel for.....\$22.00
Or in Kit form for.....\$18.00

A full size drawing of the separate Toroformer Attachment Unit is available for 25c postpaid.

The Toroformer
(A transformer for Tuned Radio Frequency Amplification)

Overcomes Local Interference
Gives Greater Distance
Increased Selectivity

Vastly improves any Reflex or Radio Frequency set, such as Acme, Murad, De Forest Reflex, Powr, Erla Loop Aerial Sets.

Does not pick up stray or unwanted signals, is unaffected by other parts of the circuit, and has no effect on other instruments.

Toroformer with printed diagrams and hook-ups.
Price \$5.00

At any First Class Radio Dealer or direct from us postpaid.

DEALERS wanted everywhere

THE SEARS MANUFACTURING CO.
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Mail this coupon for free folder

Please send me your free folder on the TOROFORMER.

NAME.....
ADDRESS.....

Questions and Answers

Resistance Coupled Amplification in Hetrodyne

(11375) CCP, Ottawa, Canada.

I do not like the idea of using three stages of audio frequency amplification as designated in the construction of the hetrodyne. Is it possible to use one audio and two resistance coupled amplification instead to avoid distortion?

Can dry cell tubes be used in the circuit?

A.—The accompanying diagram shows a way to use one stage audio and two stages of resistance coupled amplification in the hetrodyne circuit.

Regarding the use of dry cell tubes, they will work all right but you will find that they render no volume to speak of.

X Wire for Neutrodyne

(11710) G5, Salt Lake City, Utah.

I am very much interested in your X wire for neutrodyne which appeared in the Radio Digest of December 27, 1924. I have a neutrodyne set which I would like to add this X wire to, but I don't believe I get a clear enough idea from the diagram to do this.

Will you please send me a diagram that I can grasp the idea of just what I need to do to add this X wire?

A.—Unless your set has a tendency to oscillate on the lower wave lengths, we would discourage the idea of adding the X neutrodon. Also if your knowledge of Radio is not sufficient to grasp the diagram printed and its use we do not believe you should attempt to alter what is usually a very excellent receiver.

Interference Throws Tube Into Oscillation

(11707) HKM, Ft. Collins, Colo.

I am able to get all the distance I want

RADIO LOG BOOKS. Used with any set. Satisfaction guaranteed. Postpaid 25c. Dealers wanted. Roy Stacy, Rockford, Ill.

Radio Reception Stamp Album and Log. 240 stamp size, fancy brocade cover. 50c each. Henry Jorgensen, Minden, Nebr.

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

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.

Crystals—Make them yourself of cheap material, obtainable anywhere. Cost fraction of cent each. Easy to make. Very sensitive. Guaranteed instructions 50c. Fred Skinner, R 1, Box 22, Alton, Ill.

The Inverse Duplex and Tuned Radio Frequency booklet containing entirely new material by the man who inverse duplexed the neutrodyne, with a foreword by David Grimes. Fifty cents postpaid. John De Q. Briggs, 1716 Randolph Street, St. Paul, Minn.

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.

LOG for YOUR Radio

Holds 400 Stations

Send NO Money



64 pages, bound in beautiful GENUINE leather cover. Give call, city, wave lengths, etc. Spaces for 4 dial settings, remarks, etc. List by wave lengths of principal stations. List of stations alphabetical by states and cities. Valuable tuning suggestions. List of station owners. Trouble aids. So convenient. Other valuable information. Worth many times the small cost. With beautiful rippled cover 75c; genuine De Luxe leather cover, only \$1.00.

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Don't send a cent. Pay postman after log arrives. If pay with order we pay postage. You will enjoy this log. Order today—NOW. Postal will do.

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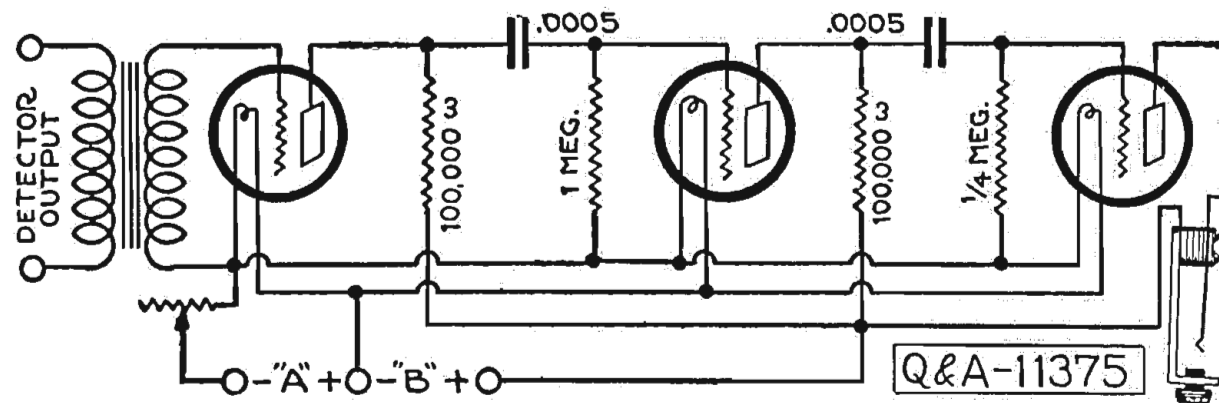
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We can make immediate delivery on Federal 141 Style Receivers.

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We specialize in Equipping New Dealers with entire stock—ADVICE FREE. Send for Our Radio CATALOG & BARGAIN LISTS Wholesale Only
MANHATTAN RADIO CO.
112 Trinity Place New York City



but when a stormy squealer (regenerative) crosses the wave the set blocks and the music stops and the howling begins. By wetting my finger and touching the grid of any intermediate amplifier tube or grid leak of detector the howl stops and music comes in again. (It needs a self starter.) How can I help this?

When I say it needs a self starter I mean just that, because I cannot start it unless I spit on my finger and touch some grid as above, and since Mr. Volstead got busy, I ain't got much spit.

A.—We presume that the grid returns

of your intermediate amplifiers are connected to the center tap on a potentiometer and when you are trying to get great range you bring the potentiometer too close to the oscillating point and a strong surge of energy such as would be caused by a nearby squealer throws the tubes into oscillation, and to bring the condition back to normal it is necessary for you to stop oscillation with your finger. If you do not now have a .5 fixed

PATENTS

Write for my free Guide Books "How to Obtain a Patent" and "Invention and Industry" and "Record of Invention" blank before disclosing inventions. Send model or sketch of your invention for instructions. Promptness assured. No charge for above information. Clarence A. O'Brien, Registered Patent Lawyer, 2007 Security Bank Building, directly across street from Patent Office, Washington, D. C.

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ESTABLISHED OVER 60 YEARS

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To get best results fix up your Antenna. Install a Keystone Radio Lightning Arrestor. Genuine Bakelite. \$1.50 at dealers. Electric Service Supplies Co. Phila., Pa.

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If you have a marketable idea, we have the necessary plant and facilities. Either royalty or outright purchase.
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Matched Transformers
For the Ultradyne Circuit
1 Input Transformer and 3 Intermediate Transformers \$20.00
Low Loss Tuning and Oscillating Coils, per pair \$ 4.00
Full instructions and Blue Prints furnished with each Kit. Absolutely guaranteed. These transformers are suitable for any Super-Heterodyne circuit. Put up in handsome Kit display box. Special discount to dealers. Prompt delivery. Write for special circular.
SYPPER MFG. CO., 1524 Fernwood, Toledo, O.

FREE "mushy"?
BOOKLET
On "Tube Control" tells how to bring in distant stations clear and loud. Just drop a post card to
UNITY MFG. CO.
232 North Halsted Street
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Approved
LIGHTNING ARRESTERS
Complete Protection

2 TUBE LOUD SPEAKING only \$29.50
FULLY GUARANTEED LONG DISTANCE RADIO
Users everywhere report Miraco Tuned Radio Frequency sets get programs coast to coast; outperform sets 3 times as costly. Send for proof they are radio's most amazing values. One tube guaranteed, completely assembled long distance outfit, only \$14.35. Three tube (above), \$29.50. Five tube \$75.
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437-X E. 8th St., Cincinnati, Ohio

Geared 80 to 1
Easy to tune—
New principle prevents all back lash, gives infinite tuning precision. Fits all standard condenser shafts.
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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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1066 W. Adams St., Chicago, Ill.

condenser from the center tap of your potentiometer to the minus filament lead, we suggest putting it in. As a second suggestion you will find that it pays to keep your potentiometer a degree or two farther from the oscillating condition.

In experimenting with a super-heterodyne there is nothing one can do except keep the potentiometer farther toward the positive side.

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Will help you increase sales
Send for FREE catalog giving counts and prices on thousands of classified names of your best prospective customers—National, State and Local—Individuals, Professions, Business Concerns.
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Thank You for the pleasing program heard between 8:30 and 9 A.M. on Oct. 11th. We have a winner! Excellent program. Very clear. We would appreciate bringing the Duncan Sisters
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has made a big hit with both set makers and set manufacturers because of its small size, its amazing volume and, most of all, because of its pure undistorted tone. It is half the size of other transformers, but its results are unsurpassed. Absolutely new and scientific design and construction. Ratios 1 to 3, 1 to 4, 1 to 5, \$3.50. Ratio 1 to 10, \$4.50.
SEND FOR BULLETIN No. 94. Read all the exclusive features of this and other Premier Parts. Tells how to get free hook up diagrams, beautifully printed in two colors.
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VARIABLE GRID LEAK
NEW! A BALL-BEARING Grid Leak That Stays Put
Screw adjustment, expansion contact and resistance unit that cannot wear or tear.
VOLT-X GRID LEAKS are positive and smooth in action with an accurate range of from one-half to fifteen megohms. Balancing Resistances for Super-Heterodyne and other circuits, 30,000-150,000 ohms. They fit any standard leak mounting, and get the absolute maximum from your tubes. They do not wear out.
Grid Leak.....\$1.00
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BURTON & ROGERS
125 Boylston St. Boston, Mass.

Radiophone Broadcasting Stations

Corrected Every Week—Part IV

FIND MISTAKES AND YOU'LL GET DOLLAR

ONE DOLLAR will be paid to the Radiophon 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 reallocation of 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 fourth part of the schedule list appears below. Part five appears next week.

WMAC, Cazenovia, N. Y. 275 meters. 100 watts. C. B. Meredith. No definite schedule.

WMAF, South Dartmouth, Mass. 360 meters. 500 watts. Round Hills Radio Corp. Slogan, "The Voice from 'Way Down East'."

WMAH, Lockport, N. Y. 266 meters. 500 watts. Norton Supply Co. Club, "Lincoln Hoot Owls." Mon, Thurs, 8 pm. Sat, 12, midnight owl program, music. Central.

WMAK, Lockport, N. Y. 266 meters. 500 watts. Norton Laboratories. Announcer, Carl E. Weisler. Daily ex Sun, 11 am, weather. Tues, 8-10 pm, Thurs, 12 midnight, Midnight Serenaders. Sun, 10:25 am, service. Eastern.

WMAN, Columbus, Ohio. 278 meters. 50 watts. First Baptist church. Announcer, Dr. D. F. Ritterhouse. Sun, 10:30-12 m, 7:30-9 pm, church services. Eastern.

WMAQ, Chicago, Ill. 447.5 meters. 500 watts. The Chicago Daily News. Announcer, Robert Whitney. Mon, Tues, Wed, Thurs, Fri, 4-7 pm. Daily ex Sun, 12-3 pm. Daily ex Sun, Mon, 8-10 pm. Central.

WMAY, St. Louis, Mo. 248 meters. 100 watts. Kings-highway Presbyterian church. Announcer, John H. McDowall. Slogan, "May Every By-Way Hear Kings-highway." Sun, 11 am, 7 pm, 8. Central.

WMAZ, Macon Ga. 261 meters. 100 watts. Mercer university. Announcer, Hillye Stratton. Mon, 10:30-11:45 pm, music. Tues, Thurs, 9-9 pm. Wed, Fri, 11-12 midnight. Thurs, 9-11 pm. Eastern.

WMBF, Miami Beach, Fla. 384.4 meters. 500 watts. Fleetwood Hotel. Daily 7:30-9 pm, dinner hour concert; 10:30-2 am, popular music. Central.

WMC, Memphis, Tenn. 499.7 meters. 500 watts. The Commercial Appeal. Announcer, G. L. Dearing. Slogan, "Batton WMC, Memphis." "Down in Dixie." Club, "Midnight Frolic." Daily ex Sun, 9:45 am, 12 m, weather, markets, music, 3, closing markets. Daily ex Sun, Wed, 8:30 pm, program. Tues, Fri, 11 pm, Midnight frolic. Sun, 11 am, church service. Central.

WMH, Cincinnati, Ohio. 422.3 and 325.9 meters. alternate months. 500 watts. Ainsworth-Gates Radio Co. Hotel Alms. Announcer, Arthur R. Ainsworth. Slogan, "The Station on the Hill." Mon, Wed, Thurs, 8-10 pm. Sat, 10-12 pm. Central.

WNAC, Boston, Mass. 280.2 meters. 500 watts. Shepard Stores. Announcer, John J. Fanning. Daily ex Sun, 10:30 am, 12-2 pm, 3-4, 8-10. Mon, Wed, Fri, 6-7:30 pm. Sat, 6:30-7:30 pm. Sun, 11-12 m, church services; 3-4 pm, concert; 7:30-9:30, church and concert. Eastern.

WNAD, Norman, Okla. 254 meters. 100 watts. Univ. of Okla. Announcer, C. E. Batha. Slogans, "Oklahoma," "Voice of Sooner Land." Daily 9:15 pm, weather, news. Wed, 8:30-9:30 pm, music. Central.

WNAL, Omaha, Neb. 258 meters. 50 watts. Omaha Central High School. Announcer, R. J. Rockwell. Slogan, "The Pioneer Station of Omaha." Fri, Sat, 7:30 pm. Mon, Tues, Thurs, 7:30 pm, alternate with KFCZ. Central.

WNAP, Springfield, O. 248 meters. 100 watts. Wittenberg College. Announcer, Lester Crowl. College activities. Fri, music.

WNAR, Butler, Mo. 231 meters. 20 watts. First Christian church. Announcer, Perry V. Riley. Sun, 11 am, 7:30 pm. Central.

WNAT, Philadelphia, Pa. 250 meters. 100 watts. Lennig Bros. Co. Announcer, Jess Brinton Young. Slogan, "The Little Broadcasting Station Around the Corner." Wed, 7:45 pm. Eastern.

WNAX, Yankton, B. D. 244 meters. 100 watts. Dakota Radio Apparatus Co. Daily ex Sun, 11:30-11:45 am, markets, weather; 5-6 pm, music. Central.

WNJ, Newark, N. J. 233 meters. 150 watts. Radio Shop of Newark, Inc. Announcer, W. A. Bingenheimer. Slogan, "The Voice of Newark." Tues, Wed, Fri, 8-6:30 pm, 10:30-12:30 am, dance music. Eastern.

WNYC, New York, N. Y. 526 meters. 1000 watts. New York Municipal Radio Station. Slogan, "Municipal Broadcasting Station of the City of New York." Daily 7:30 pm, 10:30, police, 8:30, entertainment; 10, sports, markets. Tues, 8:30-10:30 pm, Thurs, 9:30-10:30 pm, music; Sun, 11 am, church service; 7:30 pm, church services; 9:30-10:30, music. Central.

WOAF, Tyler, Tex. 360 meters. 10 watts. The Tyler Commercial College. Daily ex Sat, Sun, 12 m, weather, markets; 12:40 pm, concert; 4:25, sports; 8 pm, weather, sports codes; 10:15, U.S. Navy press. Sun, 11 am, 7:30 pm, church services. Central.

WOAI, San Antonio, Tex. 394.5 meters. 500 watts. Southern Equip. Co. (Evening News-Express). Announcer, J. G. Cummings. Slogan, "The Winter Playground of America, Where the Sunshine Spends the Winter." Daily ex Sun, 10:30 am, 12:15 pm, 3, markets; 6:15, sports, markets. Tues, 8:30-10:30 pm, Thurs, 9:30-10:30 pm, music; Sun, 11 am, church service; 7:30 pm, church services; 9:30-10:30, music. Central.

WOAN, Lawrenceburg, Tenn. 282.8 meters. 500 watts. James D. Vaughan.

WOAV, Erie, Pa. 242 meters. 50 watts. Pennsylvania National Guard. Announcer, Corp. Al McDannel. Slogan, "Wayne Rangers. Club, Neversleep Club." Tues, 8:30 pm. Thurs, 8 pm. Sun, 9:30 pm, music. Sun, 1-4 am, Milkman's matinee. Sun, 10:30 am, 7:45 pm, church services. Eastern.

WOAW, Omaha, Neb. 526 meters. 500 watts. Woodmen of the World. Announcer, "GR." Gene Rouse. Slogan, "The City Surrounded by the United States." Mon, Tues, Thurs, Fri, Sat, 6-7:30 pm, 9-11, concert. Tues, Thurs, 10:30-11 pm. Sat, 11:15-12 midnight. WOVL dance frolic. Sun, 9-11 am, Radio chapel; 2:15-4 pm, 6-7, Bible hour; 9-11. Central.

WOAX, Trenton, N. J. 240 meters. 500 watts. F. J. Wolff. Slogan, "The Voice from Trenton." Tues, 9:15-11 pm, orchestra. Fri, 9-11 pm, classic music. Daily, 11:15 am, 12:15 pm, weather, mid-weekly crop report. Eastern.

WOC, Davenport, Ia. 483.6 meters. 5,000 watts. Palmer

School of Chiropractic. Announcer, Stanley W. Barnett. Slogan, "Where the West Begins and in the State Where the Tall Corn Grows." Daily ex Sun, 12:57 pm, time; 1, weather; 2 (ex Sat), closing markets; 3 home hour; 5:45 pm, music; 7, sandman. Daily ex Sun, Mon, 7 pm, lecture. Tues, Fri, 8-9 pm. Wed, Thurs, Sat, 9 pm, Tues, 10-11 pm, Thurs, 11-12, Sun, 1 pm, orchestra; 8, church service; 9:30-11:30, music. Central.

WOCL, Jamestown, N. Y. 275.2 meters. 15 watts. Hotel Jamestown, Inc.

WOI, Ames, Ia. 270 meters. 500 watts. Iowa State College. Announcer, H. B. Deal. Daily ex Sun, 9:30 am, market, weather reports; 12:30 pm, market, weather, educational talks; 9:30, wester. Mon, 10 pm, informal program. Thurs, 8:15 pm, musical. Sun, 10:45 am, chimes. Central.

WOO, Philadelphia, Pa. 508.2 meters. 500 watts. John Wanamaker. Announcer, Jos. N. Nassau. Daily ex Sun, 11 am, organ recital; weather; 11:55, time; 12-1 pm, concert; 5:15 pm, organ recital; 7:30, sports, police reports; 9:55, time; 10:02, weather. Mon, Wed, Fri, 7:30-11 pm, music, concert. Sun, 2:30 pm, Sunday school; 6, organ; alternate am and pm services. Eastern.

WOQ, Kansas City, Mo. 278 meters. 500 watts. Unity School of Christianity. Announcer, Sam Adair.

WOR, Newark, N. J. 405.2 meters. 500 watts. L. Bamberg & Co. Announcer, J. M. Barnett. Daily ex Sun, 7 am, 2:30-4 pm; 6:15-7:30. Mon, Wed, Sat, 8-12 midnight. Wed, 6:15-7 pm. Eastern.

WORD, Bstavia, Ill. 275 meters. 500 watts. Peoples Pulpit association. Announcer, Fred E. Houston. Slogan, "Watchtower Station WORD." Mon, Tues, Thurs, 8-9 pm. Sun, 7-9 pm. Central.

WOS, Jefferson City, Mo. 440.9 meters. 500 watts. Missouri State Marketing Bureau. Slogan, "Watch Our State." Daily ex Sun, first 15 min. of every hour from 9 am-2 pm, markets. Daily ex Sat, Sun, 5 pm, markets. Mon, Wed, Fri, 8-10 pm, concert. Sun, 7:30-8:30 pm, church service. Central.

WOSC, State College, Pa. 261 meters. 500 watts. Pa. State College. Slogan: "The Voice of the Nittany Lion."

WPJA, New Haven, Conn. 268 meters. 100 watts. Doolittle Radio Corp. Mon, Thurs, 8 pm. Sun, 11 am. Eastern.

WPAK, Fargo, N. D. 275 meters. 50 watts. N. D. Agricultural College. Announcer, Gordon Laing. Daily 1 pm, weather. Mon, Wed, Fri, 7:30 pm, talks. Central.

WPAU, Moorhead, Minn. 258 meters. 10 watts. Concordia College. Announcer, G. Braatlin.

WPAC, Charleston, W. Va. 268 meters. 20 watts. West Virginia Radio Sales Corp. Tues, Fri, 7:30-8:30 pm. Eastern.

WPG, Atlantic City, N. J. 299.8 meters. 500 watts. Municipality of Atlantic City. Tues, Fri, 9 pm; 10, classics; 11, orchestra. Thurs, 8:15 pm, classical program; 10, dance music. Sat, 8:30 pm, concert; 10, Sun, 3:15 pm, organ; 10, trio; 10:45, recital. Eastern.

WQAA, Parkersburg, Pa. 220 meters. Watts, variable.

WQAC, Amarillo, Tex. 234 meters. 100 watts. Gish Radio Service. Irregular schedule.

WQAE, Springfield, Vt. 246 meters. 50 watts. Moore Radio News Station. Announcer, Ernest S. Newell. Slogan, "Among the Green Hills of Vermont." Sat, 7:30-8 pm, 11-1 am. Sun, 8:40-9:30 pm, address. Eastern.

WQAM, Miami, Fla. 268 meters. 100 watts. Electrical Equip. Co. Announcer, Frederick W. Mizer. Slogan, "It Is Always June in Miami." The Most Southern Radiocasting Station in U. S. Mon, 7:30-9 pm, hand. Sun, 9-11 pm, orchestra. Sun, 9-11 pm, music. First Sun of each month, 7:30-8:30 pm, sacred concert. Eastern.

WQAN, Scranton, Pa. 250 meters. 100 watts. Scranton Times. Announcer, T. V. Nealon. Slogan, "The Voice of the Anthracite." Daily ex Sun, 12:30-1 pm, 4:15-4:45, 7:30-8, news, reports, music. Tues, Fri, 8 pm, entertainment. Eastern.

WQAO, New York City, N. Y. 360 meters. 100 watts. Calvary Baptist Church. Announcer, R. E. Bogardus. Slogan: "The First Church Owned and Operated Broadcasting Station in the World." Sun, 11:30 am, 7:30 pm, church services. Eastern.

WQAS, Lowell, Mass. 252 meters. 100 watts. Prince-Walter Co.

WQJ, Chicago, Ill. 447.5 meters. 500 watts. Calumet Baking Powder company—Rainbow Gardens. Announcer, Jerry Sullivan. Daily ex Sun, 11-12 m, 3-4 pm, woman's hour. Daily ex Sun, Mon, 7-8 pm, 10-2 am, music. Sun, 10:30 am, church service; 8-10 pm, music. Central.

WRAA, Houston, Tex. 256 meters. 100 watts. The Rice Institute.

WRAB, La Porte, Ind. 224 meters. 15 watts. Radio Club, Inc. Announcer, Charles Middleton. Slogan, "The Voice of the Maple City." Mon, Thurs, Sun, 8:30 pm. Central.

WRAL, St. Croix Falls, Wis. 248 meters. 100 watts. Northern States Power Co. Announcer, D. H. Elebert. Slogan, "On the Dells of the St. Croix."

WRAM, Galesburg, Ill. 244 meters. 100 watts. Lombard College. Wed, 8-9:30 pm. Central.

WRAN, Waterloo, Ia. 236 meters. 10 watts. Black Hawk Electrical Co. Announcer, Hart Bowder. Slogan, "We Radiate All News." Temporarily off the air.

WRAO, St. Louis, Mo. 227 meters. 10 watts. St. Louis Radio Service Co. Mon, 7:30-9 pm, dance music. Sun, 3:30-5 pm, music. Central.

WRAV, Yellow Springs, O. 263 meters. 100 watts. Antioch College. Announcer, Charles Hoffman. Wed, 8 pm, music; 9, educational. Sun, 7 pm. Central.

WRAW, Reading, Pa. 238 meters. 10 watts. Avenue Radio & Elec Shop. Slogan, "The Schuylkill Valley Echo." Announcer, C. M. Chafey. Thurs, 9:30-11 pm. Eastern.

WRAX, Gloucester City, N. J. 268 meters. 100 watts. Flexon's Garage. Announcer, Anna D. Flexon. Mon, Wed, Fri, evenings, program. Eastern.

WRBC, Valparaiso, Ind. 278 meters. 500 watts. Immanuel Lutheran church. Announcer, Forrest Jones. Slogan, "World Redeemed by Christ." Mon, 7:30 pm. Sun, 7:30, church service. Central.

WRC, Washington, D. C. 468.5 meters. 500 watts. Radio Corp'n of America. Announcer, Meland Gannon. Slogan, "The Voice of the Capitol." Mon, Wed, Fri, 4-6:30 pm. Tues, Thurs, Sat, 7-11:30 pm. Eastern.

WREO, Lansing, Mich. 285.5 meters. 500 watts. Reo Motor Car Co. Announcer, Roy E. Davis. Slogan, "Watch Reo." Daily ex Sun, 10 pm, weather. Tues, Thurs, 8:15 pm, music. Sat, 10-12 midnight, orchestra. Sun, 10 am, 7 pm, services. Eastern.

WRHF, Washington, D. C. 256 meters, 50 watts. Washington Radio Hospital.

WRK, Hamilton, O. 270 meters. 200 watts. Doron Bros. Elec. Co. Slogan, "The Oldest Station in Existence." Fri, 8:15 pm, music, lecture. Sun, 10:15 am, 7:30 pm, church services. Central.

WRL, Schenectady, N. Y. 360 meters. 500 watts. Union college.

WRM, Urbana, Ill. 273 meters. 500 watts. Univ. of Ill. Irregular schedule. Broadcasts sports.

WRR, Dallas, Tex. 261 meters 200 watts. City of Dallas. Announcer, C. H. Garrett. Daily ex Sun, 11:30-12:30 pm, weather, music; 2:45-3:30, sports, markets, news; 7, police bulletins; 7:30-8:30 pm, music. Tues, Thurs, 8:30-9:30 pm. Sat, 12-2 am, organ. Sun, 11 am, church service. Central.

WRW, Tarrytown, N. Y. 272.6 meters. 500 watts. Tarrytown Radio Research Laboratory. Announcer, Frederick Koehn. Slogan, "Everything in Radio." Daily ex Sun, 9-11:30 pm. Mon, 7-8 pm. Sun, 8-9:10 pm, 10:30 11:30. Eastern.

WSAB, Cane Grardeau, Mo. 275 meters. 100 watts. Southeast Mo. State Teachers College. Mon, Wed, 3:30 pm, lecture; 9, concerts. Central.

WSAC, Clemson College, S. C. 336.9 meters. 500 watts. Clemson Agri. College. Announcer, H. E. Gaffney. Wed, 8 pm. Eastern.

WSAD, Providence, R. I. 256 meters. 100 watts. Finsters-Jewellers. Daily ex Sun, 2:30-4 pm. Mon, Wed, Fri, Sat, 8-9 pm, Tues, 6-6:30 pm, Thurs, 8:30-11 pm. Eastern.

WSAG, St. Petersburg, Fla. 266 meters. 500 watts. Gospel tabernacle.

WSAI, Cincinnati, O. 325.9 meters. 500 watts. United States Playing Card Co. Announcer, P. A. Green. Mon, 10-12 m. Tues, 7-10 pm. Thurs, 10-12 m. Sat, 8-10; 12-1:45 am. Sun, 3-4 pm. Central.

WSAJ, Grove City, Pa. 229 meters. 250 watts. Grove City College. Announcer, H. W. Harmon. College activities. Wed, 7:30-9 pm, music. Sat, football. Eastern.

WSAN, Allentown, Pa. 229 meters. 10 watts. Allentown Call Pub. Co. Announcer, R. J. D. Hawes. Tues, Thurs, 8 pm. Eastern.

WSAP, New York, N. Y. 263 meters. 250 watts. City Temple. Announcer, Richard Weed. Thurs, 8-9:30 pm. Sat, 10:45-12 m. Sun, 7:30-9:30 pm. Eastern.

WSAR, Fall River, Mass. 254 meters. 100 watts. Doughty & Welch Elect. Co., Inc. Announcer, Charles McCarthy. Daily ex Sun, 12-1 pm. Wed, 8-10 pm. Sun, 10:30-12 m, 4:30-6 pm. Eastern.

WSAU, Chesham, N. H. 229 meters. 10 watts. Camp Marientield.

WSAV, Houston, Texas. 360 meters. 100 watts. Clifford W. Vick Radio Const. Co.

WSAX, Chicago, Ill. 268 meters. 20 watts. Chicago Radio Lab.

WSAZ, Pomeroy, Ohio. 244 meters. 50 watts. Chase Elec. Shop. Announcer, Glenn E. Chase. Daily ex Sun, 5:30 pm, weather. Tues, Thurs, Sat, 5 pm, music. Central.

WSB, Atlanta, Ga. 428-3 meters. 750 watts. Atlanta Journal. Announcer, Lambdin Kay. Slogan, "The Voice of the South." Daily ex Sun, 12-1 pm, music, weather; 2:30, reports; 5, orchestra, time story; 8-9, concert (ex Wed) 10:45-12, concert. Sun, 5-6, 7:30-9:15, church services. Central.

WSL, Utica, N. Y. 273 meters. 100 watts. J. & M. Elec. Co. Daily ex Sat, Sun, 11-11:30 am, 5-6 pm, music, news. Mon, Wed, Sat, 8-9 pm. Sun, 10:30-12 m, 7:30-9 pm. Church services. Eastern.

WSM, Milwaukee, Wis. 246 meters. 100 watts. School of Engineering of Milwaukee. Announcer, O. W. Meisner. Slogan, "In the Land of the Sky-blue Waters." Daily ex Sat, Sun, 9-10 am, lecture, 5:30-6:30 pm, concert. Mon, Fri, 9-12 mid, music. Tues, Thurs, Sat, 7:30-9 pm, music. Sun, 12:30-1:30 pm, concert; 7:30-8:30, services. Central.

WSRF, Broadlands, Ill. 233 meters. 10 watts. Harden Sales & Service Radio Co.

WSRO, Hamilton, Ohio. 252 meters. 5 watts. Harry W. Fahrlander.

WSUI, Iowa City, Ia. 483.6 meters. 500 watts. Univ. of Iowa. Announcer, Carl Menzer. Tues, 8-9:30 pm. Sun, 9-9:30 pm; 4 pm, once each month. Mon, Tues, Wed, Thurs, Fri, 12:30-1 pm. Wed, 9-9:30 am; 4:30-5 pm. Occasionally Thurs, 7-9:30 pm; Sat, 12:30-1:15 pm; 7:30-9 pm. Sun, 7 pm. Occasionally 10:45 am. Central.

WTA, Auburn, Ala. 250 meters. 500 watts. Alabama Polytechnic Institute.

WTAB, Fall River, Mass. 266 meters. 100 watts. Fall River Daily Herald. Tues, Thurs, 8-10 pm. Eastern.

WTAC, Johnstown, Pa. 209.7 meters. 100 watts. Penn. Traffic Co. Announcer, D. B. Cole. Tues, Thurs, 7 pm. Eastern.

WTAF, New Orleans, La. 268 meters. 10 watts. Louis J. Gallo. Slogan, "The Bayou Station." Daily, 6:45-7 pm, police, hsehall, weather. Tues, Sat, 9-10:30 pm; Thurs, 10:30-11:30 pm; Sun, 10-12 midnight, revue. Central.

WTAL, Toledo, Ohio. 252 meters. 10 watts. Toledo Radio & Elec. Co. Announcer, E. R. Frank. Slogan: "The Gateway to the Sea." Mon, 8 pm. Tues, Thurs, Sat, 8:30 pm. Eastern.

WTAM, Cleveland, Ohio. 389.4 meters. 1,500 watts. Willard Storage Battery Co. Announcer, A. R. Herske. Slogan: "The Voice from the Storage Battery." Daily ex Sun, 6-7 pm, dinner program. Mon, Wed, 8-10:30 pm, concert. Sat, 9-12 midnight, dance. Eastern.

WTAP, Cambridge, Ill. 242 meters. 50 watts. Cambridge Radio & Elec. Co. Announcer, A. McIntosh. Tues, Sat, 12:15-1:15 pm, 9:30-10:15. Central.

WTAQ, Osseo, Wis. 254 meters. 100 watts. S. H. Van Gorden & Son. Announcer, Mrs. C. S. Van Gorden. Slogan: "The Voice of the Wilderness." Daily ex Sun, 10:30 am, 12:15 pm, 6:15, weather, markets; 6:30, code. Fri, Sun, 7:30 pm. Central.

WTAR, Norfolk, Va. 261 meters. 100 watts. Reliance Electric Co. Announcer, J. K. Bohannon. Slogan: "Down in Old Virginia." Daily ex Sun, 12:30-1:30 pm, 5-6, Tues, 7:30-12 midnight. Fri, 9:30-12 midnight. Eastern.

WTAS, Elgin, Ill. 302.8 meters. 1,000 watts. Chas. E. Erbstein. Announcer, Charles E. Erbstein. Slogan, "Willie, Tommie, Annie and Sammie." Daily ex Sun, Thurs, 8-11 pm. Thurs, Sun, 7-12, music. Central.

WTAT, Boston, Mass. 244 meters. 100 watts. Edison Elec. Illuminating Co. (portable). Announcer, E. Lewis Dunham.

WTAU, Tecumseh, Neb. 242 meters. 10 watts. Ruegg Battery & Elec. Co. Tues, 8:30 pm. Central.

WTAW, College Station, Tex. 270 meters. 250 watts. Agricultural and Mechanical College of Texas. Announcer, J. F. Longley. Wed, Fri, 8 pm. Sun, 11 am, special basketball games. Central.

WTAX, Streator, Ill. 231 meters. 50 watts. Williams Hardware Co. Radio Division. Announcer, N. B. Williams. Slogan: "Tappa Kegga Nails." Mon, 9-11 pm. Thurs, 12-1 am. Central.

WTAY, Oak Park, Ill. 250 meters. 500 watts. Oak Leaves. Announcer, H. B. Marshall. Slogan: "Something for Everybody." Daily ex Sun, Mon, 6:15-8:30 pm. Wed, Sat, 9-10 pm, music. 12-1. Central.

WTAZ, Lambertville, N. J. 261 meters. 15 watts. Thomas J. McGuire. Mon, 8-10 pm, music. Eastern.

WTG, Manhattan, Kan. 273 meters. 50 watts. Kan. State Agri. College. Daily, 9:55 am, 4 pm, weather. Central.

WTIC, Hartford, Conn. 348.6 meters. 500 watts. The Travelers Insurance Company.

WWAD, Philadelphia, Pa. 250 meters. 100 watts. Wright & Wright, Inc. Announcer, H. W. Feyhl. Slogan, "Penn City Station." Mon, 7:45 pm. Thurs, 7:45 pm. Eastern.

WWAE, Joliet, Ill. 242 meters. 500 watts. Lawrence J. Crowley. Alamo Ball Room. Announcer, Harry B. Ohlaver.

WWAD, Houghton, Mich. 244 meters, 250 watts. Michigan College of Mines. Announcer, M. G. Sateren. Daily ex Sun, 12-12:45 pm, music, news, weather, markets. Tues, Thurs, 8-10 pm, concert. Central.

WWI, Dearborn, Mich. 266 meters. 250 watts. Ford Motor Co. Wed, 8-10 pm, music, lectures. Eastern.

WWJ, Detroit, Mich. 352.7 meters. 500 watts. The Detroit News. Announcers, E. L. Tyson, C. W. Kirby. Daily ex Sun, 8-8:30 am, setting-up exercises; 9:30-9:45, household hints; 9:45-10:25, health talks; 10:25-10:30, weather; 11:55-12, time; 12:05-12:45 pm, music; 3:30-3:50, music; 3:50-4:15, markets; 5-6, sports. 6-7 dinner concert. Dec. 14 and every other week, 8:30-10 pm, concert. Sat, 7-8:30 pm, concert. Thurs, 10-12 pm, "midnight special"; Sun, Fill in weeks, 7-8:30 pm, concert; Sun, 11 am, 7:30 pm, church services; 2-3 pm, concert. Eastern.

WWL, New Orleans, La. 275 meters. 50 watts. Loyola Univ. Announcer, O. L. Abell. Sat, 8-9 pm. Central.

Argentina

B-I, Buenos Aires, Argentina. Francisco J. Brusa.

LOR, Buenos Aires, Argentina. 350-410 meters. 500 watts. Cia Radio Argentina.

LOW, Buenos Aires, Argentina. 325 meters. 500 watts. Grand Splendid Theater. Announcer, Luis Diaz.

LOX, Buenos Aires, Argentina. 375 meters. Radio Cuitara.

LOY, Buenos Aires, Argentina. Radio Nacional.

TCR, Buenos Aires, Argentina. 325-300 meters. 100 watts. Francisco J. Brusa.

Australia

2FC, Sydney, Australia. 1,100 meters. 5,000 watts. Farmer & Co., Ltd.

2AB, Melbourne, Australia. 480 meters. 250 watts. Associated Radio Co., Ltd.

2BL, Sydney, Australia. 380 meters. 500 watts. Broadcasters Limited.

6WF, Perth, Australia. 1,250 meters. 500 watts. West Australian Farmers, Ltd.

Adelaide, Australia. 480 meters. South Australia Broadcasters Limited.

Austria

OHW, Vienna, Austria. 600 meters. Radio Hekaphon. Vienna Austria. 700 meters. 100 watts. "Radio Wien," Technologische Gewerhmuseum.

Vienna, Austria. 530 meters. Ravag.

Brazil

Bahia, Brazil. Radio Sociedade do Bahls. Bahia Horizontales, Brazil. 500 watts. National Telegraph Service.

Rio de Janeiro, Brazil. 500 watts. Praia Vermelha. Rio de Janeiro, Brazil. 6,000 watts. Marconl (Radio Sociedade do Rio de Janeiro).

Sao Paulo, Brazil. 10,000 watts. Radio Bonderantes.

British West Indies

Curacao, British West Indies. Department of Finance.

Canada

(The power ratings of the following Canadian stations are given in "input" watts, rather than watts output—the method in which American stations are rated. A 2000-watt Canadian station is thus approximately equivalent to a 500-watt American station.)

CFAC, Calgary, Alta., Can. 430 meters. 2,000 watts. Calgary Herald. Announcer, Fred Carleton. Daily ex Sun, 1 pm, news, markets, music. Daily ex Sat, Sun, 3:30-4:30 pm, music. Mon, 10-12 midnight dance. Tues, 7:45-8:45 pm, songs. Wed, 7:45-8:45 pm, music. Thurs, 9-11 pm, music. (CNRC). Fri, 7-8 pm, organ; 11-12, test. Sun, 11 am, 7:30 pm, church services. Mountain.

CFCA, Toronto, Ont., Can. 400 meters. 2,000 watts. Toronto Star. Announcer, E. J. Bowers. Daily ex Sun, 12 m., weather, news, stocks; 5:30-6 pm, news, bedtime story. Daily ex Sun, Fri, 8-9 pm. Thurs, 10-11:30 pm, popular program. Fri, 8-9 pm, (CNRT). E. J. Jackson, announcer. Sun, 11 am, 7 pm, church services. Eastern.

CFCF, Montreal, P. Q., Can. 440 meters. 2,000 watts. Marconl Wireless Telg. Co., Ltd. Announcer, C. Walter Darling. Daily ex Sun, 1-1:30 pm, stocks, music. Mon, Fri, 7:30-8 pm, 8-9, reports, music. Eastern.

CFCH, Iroquois Falls, Ont., Can. 400 meters. 250 watts. Abitibi Paper & Paper Co., Ltd. Slogan, "The Call of the North." Experimental station for forest protection.

CFCK, Edmonton, Alta., Can. 410 meters. 250 watts. Radio Supply Co. Ltd. Daily ex Sun, 8-8:30 pm, music. Sun, 3:30-4:30 pm, Concert. Mountain.

CFCL, Victoria, B. C., Can. 400 meters. 500 watts. Centennial Methodist church.

CFCN, Calgary, Alta., Can. 440 meters. 1000 watts. W. W. Grant. Slogan, "Voice of the Prairies." Thurs, 8 pm. Sat, 10-12 pm, dance music. Sun, 11 am, church service. Test program, Sat after midnight. Mountain.

CFCV, Vancouver, B. C., Can. 450 meters. 40 watts. Radio Specialties, Ltd. Daily 4:30-5:30 pm. Music. Pacific.

CFCR, Sudbury, Ont., Can. 410 meters. 200 watts. Laurentide Air Service, Ltd. Daily ex Sun, 1 pm, 8 pm, stocks, financial news. Wed, 8:30 pm. Eastern.

CFCT, Victoria, B. C., Can. 410 meters. 500 watts. Victoria City Temple. Slogans, "Follow the Birds to Victoria," "Canada's First." Tues, Thurs, 7-8 pm, music. Wed, Fri, 8-9:30 pm, concert. Sun, 11 am, 7:30 pm, church services. Pacific.

CFCU, Hamilton, Ont., Can. 410 meters. 20 watts. Jack V. Elliott.

CFCW, London, Ont., Can. 430 meters. 600 watts. London Radio Co. Irregular schedule.

CFDC, Nanaimo, B. C., Can. 430 meters. 50 watts. Sparks Co. Announcer, Stanley M. Goard. Mon, Wed, Fri, 7:30-8:30; Sun, 4-5 pm. Pacific.

CFHC, Calgary, Alta., Can. 440 meters. 1,000 watts. Henry Birks & Sons, Ltd.

CFKD, Thorold, Ont., Can. 295 meters. 150 watts. D. J. Fendell.

CFLE, London, Ont., Can. 430 meters. 100 watts. Charles Guy Hunter.

CFLO, Saskatoon, Sask., Can. 400 meters. 200 watts. The Electric Shop, Ltd. Announcer, D. F. Streb. Slogan, "The Hub City of the West Where No. 1 Northern Hard Wheat Grows." Daily ex Sun, 1:15-2 pm, markets, reports, music. Thurs, 7:45-9 pm, address, music. Fri, 9-11:30 pm, dance program. Sun 11 am, church service. Mountain.

CFRC, Kingston, Ont., Can. 450 meters. 1,500 watts. Queen's University. Discontinued temporarily.

CFXC, New Westminster, B. C. 400 meters. 50 watts. Westminster Trust Co. and Hume & Rumble, Ltd. Announcer, F. Sterling. Slogan: "Voice of the Fraser River." Mon, Wed, Fri, 7:30-8:30 pm. Pacific.

CFYC, Vancouver, B. C. 400 meters. 20 watts. Victor W. Odium.

CHBC, Calgary, Alta., Can. 410 meters. 500 watts. The Calgary Albertan. Daily ex Thurs, Sat, Sun, 8:45-9 pm, news, stock quotations, music. Thurs, 7:45 pm, Mountain.

CHCE, Victoria, B. C., Can. 400 meters. 20 watts. Western Canadian Radio Supply, Ltd. Slogan: "The Voice of the Island."

CHCM, Calgary, Alta., Can. 440 meters. 1,000 watts. Riley & McCormick, Ltd. Slogan, "Western Canada's Leading Leather Goods Store." Thurs, 8-9 pm. Mountain.

CHCS, Hamilton, Ont., Can. 410 meters. 2,000 watts. Hamilton Spectator. Announcer, H. Earnshaw. Daily ex Sun, 6:45 pm, news, markets, baseball. Sat, 10-12 midnight, dance. Sun, 11 am, 7 pm. Eastern.

CHIC, Toronto, Can. 350 meters. 500 watts. Northern Electric Company. Sat, 7:30-8:30 pm, classical program; 9:30-11, popular and dance program. Eastern.

CHNC, Toronto, Can. 350 meters. 500 watts. Toronto Radio Research society. Announcer, R. H. Combs. Mon, 8:30 pm, concert. Programs CHIC, CNRT through this station. Eastern.

CHUC, Saskatoon, Sask., Can. 400 meters. 200 watts. International Bible Students' association.

CHXC, Ottawa, Ont., Can. 435 meters. 1,200 watts. J. R. Booth, Jr.

CHYC, Montreal, Que., Can. 341 meters. 2,000 watts. Northern Elec. Co. Announcer, N. S. Richards. Wed, 8:30 pm. Sun, 7 pm. CNRM programs occasionally. Eastern.

CJBC, Toronto, Ont., Can. 312 meters. 4,000 watts. Jarvis Street Baptist church.

CJCA, Edmonton, Alta., Can. 450 meters. 500 watts. Edmonton Journal, Ltd. Announcer, R. A. Rice. Slogan: "The Sunniest Spot in Sunny Alberta." Club, "Igloo Hut." Daily ex Sun, 12-30 pm, weather, markets. Mon, Tues, Fri, Sat, 7:30-8 pm, children's half hour, news. Mon, 8:30-9:30 pm, organ. Wed, 8:30-9 pm, news, reports. Thurs, 9:30-11 pm, Igloo Hut meetings. Fri, 8:30-10:30 pm, CNRE program. Sat, 9-11 pm, orchestra. Sun, 7:30 pm, services. Mountain.

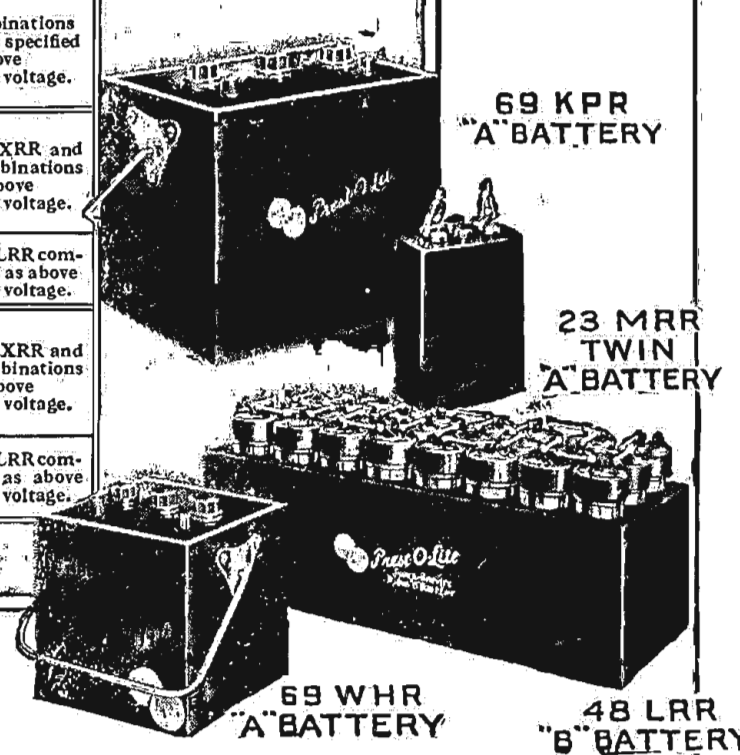
CJCD, Toronto, Ont., Canada, 410 meters. 100 watts. T. Eaton Co. Mon, Wed, Fri, 4-4:30 pm, music. Eastern.

(The above listings complete the stations in the United States and part of the foreign broadcasters. Part V consists of a complete location index of stations. The remainder of the foreign list. This appears next week.)

Prest-O-Lite

RADIO CHART

Voltage of Tubes	No. of Tubes	Type of Tubes (see foot-note)	Total Rated Amperes Drain	Recommended Prest-O-Lite "A" Batteries		Recommended Prest-O-Lite "B" Batteries			
				Order by following Types	Days between Charge	Set Manufacturer's Specific Voltage	Order by following Types		
5-Volt Tubes <small>C-300 and UV-200 are interchangeable C-301A, DV-2 and UV-201A are interchangeable</small>	1	UV-200	1	69 WHR OR 67 WHR	22 16	22½-24	One 24 XRR		
	2	UV-201A	½	67 WHR	33			45-48	One 48 XRR
	2	1 UV-200 1 UV-201A	1¼	611 WHR OR 69 WHR	22 19	90-96	Two 48 XRR		
	3	UV-201A	¾	69 WHR OR 67 WHR	27 22			45-48	One 48 XRR
	3	1 UV-200 2 UV-201A	1½	611 RHR OR 69 WHR	21 14	67-72	One 24 XRR One 48 XRR		
	4	UV-201A	1	69 WHR OR 67 WHR	22 16			90-96	Two 48 LRR
	4	1 UV-200 3 UV-201A	1¾	613 RHR OR 611 WHR	22 15	45-48	One 48 LRR		
	5	UV-201A	1¼	611 WHR OR 69 WHR	22 17			67-72	One 24 LRR One 48 LRR
	5	1 UV-200 4 UV-201A	2	613 RHR OR 611 WHR	19 13	90-96	Two 48 LRR		
	6	UV-201A	1½	611 RHR OR 69 WHR	21 14			45-48	Use combinations of LRR as specified above for same voltage.
	8	UV-201A	2	69 KPR OR 67 KPR	21 15	67-72	90-96		
	For sets using current at a rate higher than 2 amperes.			2¼	69 KRL OR 67 KPR			22 13	90-96
			2½	69 KRL OR 69 KPR	19 16				
3-Volt Tubes	1	UV-199 C-299 DV-1 DV-3	.06	One 43 MRR	100	22½-24	Use same XRR and LRR combinations as above for same voltage.		
	2		.12		50			45-48	
	3		.18	Two 43 MRR in Parallel	43½	45-48	90-96	Use same LRR combinations as above for same voltage.	
	4		.24		25				67-72
	5		.30	140	33	45-48	67-72	90-96	
	6		.36						23
1.1-Volt Tubes	1	WD-11 WD-12 C-11 C-12 215A 215N	¼	One 23 MRR Twin	48	22½-24	Use same XRR and LRR combinations as above for same voltage.		
	2		½		23			45-48	
	3		¾	23 MRR Twins in Parallel	23	45-48	67-72	90-96	
	4		1						23
	5		1¼	Three 23 MRR Twins in Parallel	23	29	45-48	67-72	90-96
	6		1½						



Write today for this free booklet

Whether you have a one-tube set or most advanced multi-tube outfit, you'll find a fund of interesting information in our booklet, "How to fit a storage battery to your set—and how to charge it."

This booklet gives you the complete Prest-O-Lite Radio Chart—technically accurate recommendations covering both "A" and "B" storage batteries for every type of set.

In addition, there is much vitally important data on battery care and upkeep—information that any radio fan will find of real value in keeping his set at its maximum efficiency. Write for your copy right now.

What size batteries will work best in your set?

SELECTING storage batteries of the right size and capacity is necessary, not only for the best reception, but also to arrange the time between chargings to suit your convenience.

The Prest-O-Lite Chart now makes this easy. Illustrated above is the master chart showing Prest-O-Lite Radio "A" Storage Batteries for all sets. You will find, in the fifth column, the Prest-O-Lite "A" Battery that fits your set exactly. Two sizes are recommended, but the larger capacity battery will be found more desirable unless facilities for frequent and easy charging are provided. (The days between chargings are based on an average use of your set of three hours a day.)

Use the "B" Battery combinations that give the plate voltage recommended for your set. These batteries will serve

two to four months without recharging.

You'll prefer Prest-O-Lite Storage Batteries because of their special features designed for better radio reception. Improved separators and plates insure steady, unvarying current and years of life. They're easy to recharge. Handsomely finished to go well with the finest sets. Prest-O-Lite Batteries offer you truly remarkable savings. Though standard in every respect, they are priced as low as \$4.75 and up.

Let the Prest-O-Lite Chart guarantee you batteries scientifically correct for your set. It is endorsed by the world's largest electro-chemical battery research laboratories. See it at your dealer's—or write for our interesting booklet, "How to fit a storage battery to your set—and how to charge it."

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