

THE APRIL 1929 EDITION

RADIO INDEX

"THE TUNING BOOK"



"I JUST Love MR. McNAMEE"

RADEX shows the frequency to which set is tuned as dials are turned, gives exact location of dials for any station in America and identifies programs received without announcement. For any dial and any set.

Use Your RADEX Properly

AND it will add tremendously to your pleasure and success in tuning your radio set. RADEX is so simple a child can use it and yet we find that many people are not using it properly. If you will follow these simple directions, RADEX will do for you the following things:

Show you the wave length and frequency to which your set is tuned whenever you place your dials.

Tell you where to set your dials for any station in America, even those you have never received.

Identify programs received the instant you hear them without waiting for announcements.

All stations in America are listed in RADEX in three tables:

- 1st By Frequencies
- 2nd By Call Letters
- 3rd By States and Cities

The Index by Frequencies is the one to be used, the other two are merely supplementary.

Let us assume you have just bought your first RADEX. Proceed as follows:

Tune in some station — any station that comes in. Tune it sharply, turning down your rheostats (volume control) until we find the marks on your dials at which it comes in most clearly and with greatest volume.

Let us assume that the station we are hearing is WEAF in New York. First we must ascertain the frequency for this station. Look it up under WEAF in the Index by Call Letters or under New York in the Index by States and Cities. In either of these indexes we find that the frequency of WEAF is 660. Now we turn to 660 kilocycles in the Index by Frequencies and Dial Numbers. Here we find that WEAF is one of the two stations which have been assigned the 660 keys. frequency by the Federal Radio Commission. We also find that it has a power of 50,000 watts, that it is located in New York City and is owned by the National Broadcasting Co., Inc.

INDEX BY FREQUENCIES AND DIAL NUMBERS

KILO cycles	508.2 meters	76 74
HRO	1000 Spokane, Wash.	London, Ontario
WCAJ	500 Lincoln, Neb.	Norfolk, Va.
WELF	500 Omaha, Neb.	Omaha, Neb.
WOW	1000 Omaha, Neb.	Woodsburg, Mo.
WESG	1000 Warren Springs, Mich.	Worldwide Ministry College
600 kilocycles 499.7 meters		75 73
CFCH	250 Iroquois Falls, Ont.	Abilene Power & Paper Co.
RFSD	250 Laramie, Wyo.	Bishop N. S. Thomas
WFO	500 San Diego, Calif.	African Radio Corp.
WFO	250 Baltimore, Md.	Monumental Radio Co., Inc.
WLAN	250 Hartford, Wt.	Beloit College
WGAN	500 Louisville, Tenn.	Vaughan School of Music
WJAC	250 Memphis, Tenn.	WREK, Inc.
WTIC	250 Hartford, Conn.	Travelers Insurance Co.
610 kilocycles 491.5 meters		74 72
EFRC	1500 San Francisco, Calif.	Davis, Inc.
WDAF	1000 Kansas City, Mo.	Kansas City Star Co.
WFLAN	500 Philadelphia, Pa.	Scraper Broadcasting Co., Inc.
WFO	1000 Philadelphia, Pa.	Chapel Bros., Inc.
		Unity School of Christianity
620 kilocycles 483.6 meters		73 71
RFAP	500 Phoenix, Ariz.	Electrical Equipment Co.
WJAC	1000 Portland, Ore.	Oregonian Publishing Co.
WDRB	1000 Orlando, Fla.	Tampa Publishing Co.
WLEZ	500 Dover, Del.	Rollins College, Inc.
WTMJ	1000 Milwaukee, Wis.	Stimpson L. Guernsey
		Wisconsin Journal
630 kilocycles 475.9 meters		72 70
CFCT	500 Victoria, B. C.	Victoria Broadcasting Ass'n.
WYCK	500 Yorkton, Sask.	Winning Coin Exchange
CHIA	500 Miami, N. D.	Canadian National Exchange
WFLA	500 Tampa, Fla.	Clearing House
WFLR	500 Tampa, Fla.	Clearing House
WVCP	500 Erie, Pa.	Edinboro College
WVAL	250 Washington, D. C.	Radio-Phon on the Air, Inc.
WOS	500 Jefferson City, Mo.	M. A. Jones Co.
		State Marketing Bureau
640 kilocycles 468.5 meters		
RFV	500 Los Angeles, Calif.	Earle C. Anthony, Inc.
WALU	500 Columbus, Ohio	American Insurance Union
650 kilocycles 461.3 meters		70 68
WSM	500 Nashville, Tenn.	National Life & Accident Ins. Co.
660 kilocycles 454.3 meters		69 67
WAAW	500 Omaha, Neb.	Omaha Grain Exchange
WEAF	50000 New York City	National Broadcasting Co., Inc.
670 kilocycles 447.5 meters		68 66
WMAO	500 Chicago, Ill.	Chicago Daily News, Inc.
680 kilocycles 440.9 meters		67 65
KFO	5000 San Francisco, Cal.	Hale Bros. & The Chronicle
WFTF	500 Raleigh, N. C.	Durham Life Lorraine Co.

In the blanks for dial numbers opposite 660 kilocycles (which is the wave length of 454.3 meters) enter the dial readings of your set. It is immaterial whether your set has one, two or three dials. Use as many of the three spaces provided as you need. The set used in the illustration had two dials. In this case we entered the dial readings for 660 kilocycles as 69-67.

Let us now tune in some other station. We repeat the same procedure in tuning and find that we are hearing, let us say, WOS at Jefferson City. Proceed as before in ascertaining the frequency of WOS. This we find to be 630 keys. We turn to 630 in the Index by Frequencies and enter our dial readings for this band which on the set we are using was 72-70.

We have now found that the dial numbers for 630 keys. are 72-70 and the dial numbers for 660 keys. are 69-67. If we now will set our dials for 70-68 it is obvious we will have our set tuned for 650 keys. We listen carefully and if they are on the air and within range of our set we will tune in the dial readings for WSM opposite 650 keys. Now it is clear that if we reset our dials at

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RADIO INDEX



FRED C. BUTLER, Editor

FIFTH YEAR

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All-Electric Receivers

Locating and Curing Troubles

By E. R. HAAN

BESIDES the possibility of troubles arising from a number of sources common to both battery-operated and all-electric receivers, there are a few additional sources of trouble in the latter. The most common trouble encountered in all-electric receivers is a 60-cycle hum, and although it cannot be entirely eliminated, it can be greatly minimized so that it is barely perceptible. In case of excessive hum, however, reception is seriously interfered with, and the tone quality of the receiver is impaired considerably. Very often the cause of excessive hum is found in a poor wiring job, an overloaded B-supply, proximity of the B-supply to the receiver, and unshielded a. f. transformers, or those of poor design. Only in a few cases is a hum caused by heating of the tube filaments with alternating current.

Induction from wires carrying a. c. in the receiver often cause an annoying hum. This is especially true when a switch controlling the 110-volt input to the B-eliminator and the filament transformer is mounted on the panel of the receiver, and the leads carrying such a high-potential current are laid in close proximity to the wiring of the receiver. The grid leads of the receiver are the ones that pick up the disturbance caused by the electromagnetic field about the switch leads, and when this is amplified by the tubes a very unpleasant hum results. It is preferable, therefore, to install this switch at least one foot away from the receiver, unless the leads to the switch are thoroughly shielded. This can be accomplished by running it through a metal tube, either rigid or flexible, and connecting the tube to the ground line of the receiver. In wiring a receiver with leads for carrying 1.5, 2.5 and 5-volt currents, care should be taken to avoid getting them close or parallel to grid leads. It has always been standard practice to make the grid leads as short as possible, and not to run them parallel to plate leads. In all-electric receivers this practice is of still greater importance, and care should also be taken to prevent parallel wiring of grid and filament leads.

An overloaded B-supply is one of the most frequent causes of excessive hum, and this is

particularly true in case of homemade receivers, where use is made of a B-eliminator previously used on a battery-operated set. The addition of a power tube in an all-electric receiver increases the load of plate current that the B-eliminator must supply, and the result is that the unit is sadly overloaded, which causes a hum in reception. Although a B-eliminator can furnish a current slightly above its rated capacity, it has been found that as the maximum drain is approached, the filtering unit ceases to operate as efficiently as it does on a minimum drain, due to the magnetic saturation of the choke coils. The result is an overloading of the rectifier unit and of the filter condensers, which greatly decreases the smoothness of the current delivered by the unit, which is evident from the hum. It is therefore highly advisable to equip the receiver with a B-supply that will provide more current than is actually needed. If the total load required from the B-eliminator is equal to about two-thirds of its maximum capacity, little trouble will be had in respect to a hum caused by an overloaded unit. The unit should be well-shielded, the shield being connected to the ground line of the receiver to prevent inductive effects. Unshielded a. f. transformers, and those of inferior type, which are often inadequately shielded, pick up a 60-cycle hum, and cause trouble. Better results can be obtained by using well made and properly shielded a. f. transformers. If, after the above-mentioned precautions have been taken there is still a perceptible hum, try the following method. Connect two 2-mfd. fixed condensers in series across the filament lines of the receiver, supplying the detector tube, and connect the center point between the condensers to the ground line.

Another source of trouble in all-electric receivers is the fluctuation of 110-volt house-lighting current. Although theoretically the voltage delivered by the power company is 110 volts, with a permissible variation of 5 per cent above and below this figure, actual tests have disclosed the fact that the voltage in many cases often varies between 90 and

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Movies in the Air

Jenkins Radio Television

THE Jenkins Radio Movies are broadcast three evenings each week, on Monday, Wednesday and Friday from 8 to 9 p. m., from station W3XK, operating on 46.72 meters, located in Washington, D. C. As soon as the number of those equipped with television receivers warrants it, however, the pictures will be sent out six times weekly. They are broadcast simultaneously on two wavelengths, a short-wave channel serving the distant "lookers-in," and a regular broadcast channel being employed for the benefit of the television enthusiasts of Washington and its immediate vicinity. At the present time, only simple picture subjects and picture stories in silhouette are being transmitted.

These are much easier for the amateur to pick up at first and, in addition, may be transmitted in a rather narrow wave band, thus allowing greater latitude in the choice of subjects. However, just as soon as the Federal Radio Commission grants Mr. Jenkins a satisfactory radio channel, he will install a new transmitter which he has developed and which is capable of handling half-tone pictures.

Let us now briefly examine the Jenkins Radio Movies from the standpoint of both transmission and reception.

Early in his experiments, Mr. Jenkins realized the difficulties inherent in picking up his television subjects directly. After struggling with the limitations imposed by the crude scanning disk, the supersensitive photo-electric cell, the small dimensions of the television stage itself, the critical lighting conditions and last but not least the apparent dearth of subjects suitable for televising, Mr. Jenkins fell back upon the motion picture for a satisfactory solution. In brief, he decided to record his subjects on a motion picture film. From the negative of this film, any number of positive prints may be made up and distributed to those broadcasters who are equipped with the Jenkins transmitting device. It is thus obvious that Mr. Jenkins has already disposed of one of television's most serious problems.

The positive print of the film is placed in the Jenkins transmitting device, a machine that resembles the ordinary motion picture projector. As the film moves through the gate of the projector, it is sharply bent to form an absolutely straight plane, and it is this plane that is ingeniously scanned by a narrow pencil of light which sweeps across it line by line. Passing through the more or less transparent film, this beam of light falls upon the photo-electric or light sensitive cell which converts the varying transparency of the film at any given point into varying electrical impulses. These impulses are amplified and impressed on the outgoing waves of a broadcast transmitter.

At the receiving end, Mr. Jenkins has likewise scored comparable and, indeed, noteworthy progress. As a matter of fact, there is little in common between the Jenkins receiving system and other television reception systems beyond the broad basic principles of the art. These principles are generally known and need not be repeated here in detail. Suffice it to say that a variable light spot is converted into a series of parallel and overlapping lines within a fraction of a second so that, because of the slowness of the human eye to respond to changes of scene, the illusion of an animated image is created. At any given instant, however, the television image is nothing more than a single point of light.

Some of the present-day television experimenters are still working with the giant, whirling scanning disk which, in conjunction with the powerful but electrically inefficient single-plate neon lamp, produces a tiny image about $1\frac{1}{4}$ inches square. Inasmuch as this image can be viewed by but one person at a time, it is obviously little more than a laboratory toy in the hands of most of those who are seeking to perfect it. Jenkins, however, long since discarded these crude devices, and his latest home television receiver incorporates a novel scanning drum, a four-plate or multiple target neon lamp of modest current re-

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Catching Bandits by Radio

State-wide Burglar Alarm Systems

RADIO is now a foe to banditry in several States — notably, Iowa, Illinois, Indiana, Minnesota, Michigan, Kansas, Wisconsin, Oklahoma, and California. The Radio section of the *New York Sun* tells us that vigilance committees have been organized in these States, and that when information of a bank robbery is spread by radio or other avenues of communication, these give a practical demonstration of their plan of attack—"organized surprise and regulated violence." This means, says *The Sun*, that corn-belt citizens, armed with sawed-off shotguns, awe the bandits into surrender without firing a shot. It goes on:

"The role of radio in flashing information relative to a bank robbery is similar to that performed by wireless communication in furnishing data concerning the iceberg menace in the North Atlantic Ocean. Bandits operating in these States where vigilance organizations are maintained, upon being detected, are the subjects of descriptions by radio—outlining their location, the course of their retreat, and other details.

"For example, WHO, broadcasting station of the Bankers Life Company of Des Moines, Iowa, upon receipt of information that a bank robbery has been perpetrated, immediately gives the alarm by radio. During the last year or so, a number of bank hold-ups have occurred in the State, and station WHO has gone 'on the air' immediately, upon receipt of information concerning the hold-ups, with a warning."

A State-wide radio burglar-alarm system was tried by station WHO by the sounding of a gong into the microphone of this station and a bell or light attached to radio receiving sets. The project was not found feasible, and was abandoned. We read further:

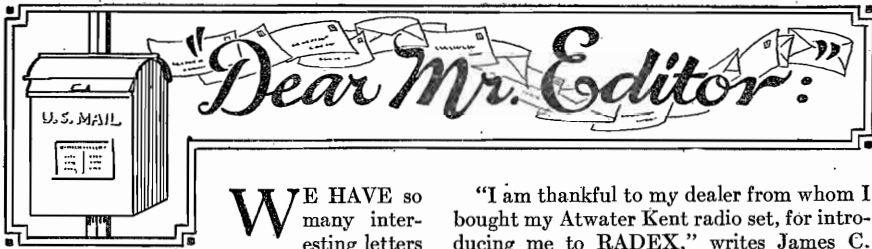
"The default of this radio burglar-alarm system does not necessarily rob this form of communication of its virtue as an aid in apprehending bandits when simply disseminating information concerning the presence of bank robbers. This is attested when we are told that the vigilance committees of Iowa and other States have enlisted radio-broadcasting stations together with secret

telegraph-wire systems and telephone lines for spreading burglar alarms. Fortunately the invisible radio waves are not subject to the slashing efforts of bandits—and attempts to sever radio communication facilities are futile compared with the usual success of robbers in cutting telephone and telegraph wires.

"The broadcasting station as a veritable alarm in the wake of the criminal—from the petty offense of stealing an automobile to a hold-up resulting in the loss of life—is finding increasing usefulness. The mother who recently heard through her radio loud-speaker of a broadcast description of her sons in the role of bank robbers may have been an example of cruel vindication of justice, at least to that mother, but it was likewise testimony to the effect that criminal news by radio does not travel with leaden feet. There are numerous broadcasting stations engaged in daily dissemination of information concerning stolen automobiles, and where this service is not maintained by the station, persons who are victims of car thefts employ radio as a sort of newspaper 'stolen' column. The Federal Government is using radio in its efforts to detect and suppress rum smuggling, and several large municipalities are resorting to city-owned radio stations as a means of quickly flashing news of a crime in efforts to apprehend the perpetrators."

When a Signal Fades

One may have noticed, when a distant station is tuned in on a receiver, that the signal varies in volume, sometimes becoming almost or entirely inaudible, but finally coming back again to its original volume. This is called "fading," and it is caused by varying atmospheric conditions between the receiver and the broadcasting stations. Sometimes the signal strength of the station varies, and this is mistaken for fading. When fading is noticed, do not attempt to increase the filament current of the tubes beyond their proper operating point, nor attempt to retune the dials, for the signal may then be lost entirely. E. R. H.



WE HAVE so many interesting letters from readers this month that it will be impossible to find space for them all. First is one from Francis E. Cobb, State Forester and President of the North Dakota School of Forestry at Bottineau, N. Dak., who writes: "I have now recorded 241 stations since the reallocation on November 11th and very seldom do any DXing before ten o'clock in the evening and many evenings I am away and do none. RADEX is surely of wonderful assistance in locating stations especially the smaller ones. When one does not have a list of call letters for a particular waveband, a station call is very easily misunderstood. I think RADEX is gotten up in most convenient size and form. I would not be without one and am only sorry they are not issued at least bi-monthly during the summer."

EVERY MONTH NOW

Now here is some good news for Mr. Cobb and many others who have regretted that RADEX is published only during the winter. From this time on RADEX will be published monthly throughout the year with the exception of the months of July and August. The new subscription price will be \$1.75 for the ten issues.

We are under real obligations to Mr. Norris McElya, a prominent attorney of Miami, Florida, for his suggestion that we tab the Index by Frequencies like a dictionary so that the desired frequency may be turned to instantly. We will try to incorporate this idea in either this or the next issue. Users may then cut the margins along the dotted lines and in two minutes tab their index—a feature we are sure that will be greatly appreciated. Mr. McElya makes the further suggestion that a space or two be left at the bottom of each column in the Index by Call letters in which new stations may be added. This idea we are also planning to put into practice.

"I am thankful to my dealer from whom I bought my Atwater Kent radio set, for introducing me to RADEX," writes James C. Hannan of 1225 Summer St., Philadelphia. "I want to tell the thousands of other radio owners that their enjoyment is not and will not be complete until they secure a copy of RADEX or subscribe to this little gold-mine of radio information. I am backing up this assertion with the enclosed subscription for RADEX and one of the leatherette covers."

WHICH TO BUY

We are often asked to recommend a particular make of radio set or accessory. Obviously we cannot do this. We might as well try to recommend some particular motor car. Edwin E. Humphries, 2014 Columbia Ave., Swissvale, Pa., writes to ask which of several makes of tubes we would recommend. In the first place, one will do well to use the tubes recommended by the manufacturer of the set for he knows best what the set requires. Where there are several different makers of that type of tube, one can usually be best guided by the price. In these days of sharp competition, we usually get just what we pay for. If we use dollar tubes we get a dollar's value as compared with tubes costing three or four times that much. There are a number of large and responsible manufacturers whose tubes are well-known and ordinarily it is best to buy the product of such firms rather than those made by firms unknown. The firm that spends large amounts advertising its product must be very jealous of its good name for it has cost many thousands of dollars to establish it. The unknown firm merely needs to adopt a new name if it gets a bad reputation under the old one. This same rule of course applies to sets and speakers and all other accessories as well as to tubes.

"I now have 410 stations listed on my RCA 60," writes Burton D. White, of 108 Meigs Ave., Clarksburg, W. Va. "You have the best book that is on the market in which to log stations and keep a correct record."

David A. Murray of 37 Cornwall Street, Halifax, Nova Scotia, is another who was puzzled by finding a station on 840 kcys. whose announcer spoke in both Spanish and English. "I know it is on 840," writes Mr. Murray, "because my RADEX shows me that it comes exactly between Denver, 830, and Shreveport, 850. Your plan of logging stations by frequencies is excellent and I find I can locate any station without any trouble. RADEX is the clearest and most complete book I have ever seen."

Here is a record that will be hard to beat. A friend from Elizabeth City, N. C., who asks us not to use his name, writes us about it: "On the evening before Thanksgiving Day and just a couple of weeks after all wave lengths had been reallocated by the Commission, I sat down with the intention of logging some stations that night. I did not care what time I finished the job as the next day was a holiday and I could then sleep. So at 8:15 I got to work. Before 5:45 A. M. I logged 101 stations, covering the Atlantic to the Pacific coasts and from Canada to Cuba. I could not have gotten all of these stations without my RADEX. Since the reallocation I have logged 237 stations with the help of RADEX. I have an old five-tube Crosley "5-50" which has always given me excellent results BUT I never was able to get as good results from my set in the past without RADEX as I am now getting with it."

NOW SHOWING POWER

"I like the suggestion that you give the power of the station in the Index by Locations," writes W. M. Johnson of Grayville, Ill. "I am always glad to get the new RADEX for my old one gets worn out about the time a new one comes. By the way, I helped a friend locate some trouble in his set the other day. The service man could not locate it—I did, but I first looked up the trouble in my RADEX." Thousands of other users have found Mr. Haan's articles on Radio Troubles to be immensely helpful. In this issue we have another article for the multitude of new users of All-Electric sets.

As was noticed, we are incorporating in the Index by Locations this month, the power in watts as well as the frequency. If you want to get into touch with some particular city now you can see at a glance which sta-

tion in that city has the greatest power. If you receive a station from that city and do not catch the call letters, the power rating will help you to identify it.

PUZZLING STATIONS

Our Mail Box is helping to locate many stations heard by users and this month we have a number of requests for aid which we feel sure some of our good friends will be able to answer. George C. Shoemaker, Jr., of 1415 Longfellow St., N. W., Washington, D. C., writes to ask what station he could have heard on Friday morning, February 8th about 1:00 a. m. "It sure has me guessing," he says. "It does not seem to be listed in RADEX. The station was broadcasting on about 320 to 330 meters. It wasn't KPRC but the call letters sounded exactly like KTTT or KTTC. The announcer mentioned something about 10 o'clock and from this I have a hunch I had a very distant station. Perhaps it is a new station; I would sure appreciate it if you could give me any information concerning it."

Several readers report that CJRM and CJRW are received at 600 kcys instead of at 1010 as listed. The very last list issued by the Canadian government shows 1010 as the proper listing. We are trying to ascertain the correct frequencies for these two stations in time to include them in this issue. WEMC is also reported as being received on 680 instead of 590 as listed.

"Is KMBC in Kansas City or Independence? My RADEX says Independence but the announcer says Kansas City," writes Roland Miller of 311 Courtland, Topeka, Kans. The official list from the Radio Commission gives Independence as the correct location but it must be remembered that in many instances the station is located at one point and the studio at another. We always endeavor to give the studio location but lacking correct information on this point, we play safe and use the Radio Commission data

WHO KNOWS DAN?

"Early Sunday morning, January 20th," writes C. S. Lenderman, of 305 Lore Ave., Wilmington, Del., we had a station whose call letters were DAN or BAN or CAN. The program was almost entirely personal messages from members of the Byrd's Expedi-

tion to their relatives and friends back in the States and in two cases to Germany. The announcer made frequent references to "The City of New York" and another ship which is either "Evelyn" or "Eleanor." At one stage of the broadcast they gave a short instrumental number. In signing off the announcer stated that it was then 1:30 p. m. but according to eastern standard time, it was exactly 4:00 a. m. Can you give me any information regarding this station?" If any of our readers can throw any light on this inquiry, we will be glad to receive it and pass it on to Mr. Lenderman. The same correspondent also heard a station at 4:30 a.m. Sunday, January 27th but could not get the call letters other than the last two which were either IO or YO. The announcer continually used the expression, "The Top of the World on Mount———" He also referred to telegrams and requests from points in the northwestern states.

Miss C. A. Brinkerhoff of 317 Clinton Ave., Oak Park, Ill., calls our attention to the fact that CZE is now XFX. She wants to know why we give WFBL and WTIC two frequencies. The answer is that these stations have in addition to the regular license a construction permit for larger power on another frequency. As they may make the shift at any time, we have been showing both frequencies.

A number of stations seem to be changing their call letters either without notifying the Radio Commission or the latter is failing to make the change public. For instance, E. O. Johnson of Atlanta, Ga., writes that he receives WJET at 760 or 770, WHSB at Cicero, Ill., at 1320 or 1330, WHOS at Forest Park, Ill., at 1470 and WJT at the same place at 1480. Joseph Nuszkowski, 2317 W. Cullerton St., Chicago, writes us that WHT is now WSOA at 1480 and at Forest Park, Ill., and that WJJD is now on 1140 instead of 1180. He also asks as do others, if WIL at St. Louis has shifted from 1420 to 1210. The Radio Commission list of Feb. 1st shows WIL still at 1420. Who can advise us about these stations? Mr. Nuszkowski writes: "I sure am glad there is such a book as RADEX. It is the best there is and I ought to know as I have tried them all. It is 99½% accurate and that is 60% more than any other. I cannot say enough to praise it. It has helped me to get 220 DX stations with verifi-

cation of more than 150 of the farthest ones and that is going some in this burg as you know that Chicago stations are very powerful."

Time to go to press. Au revoir until next month.

An Artist Announcer

I DON'T know how the genius of a radio announcer should be described. Should he be called literary or eloquent?

Graham McNamee is a wonder. I have listened to this man at baseball and football games, prize fights, political conventions, and great doings everywhere. His skill in bringing dramatic moments into clear focus, so that one may enjoy them to the utmost, is uncanny. I would rather hear McNamee report a prize fight than witness an encounter from a \$20 seat. I have tried both and that is my decision.

McNamee realizes that what the listener wants is drama. We are less interested in technical accuracy than in thrills. Instead of waiting until a play is completed, or until a blow is struck, or until a poll is announced, he broadcasts the moment of suspense. His personality and the quality of his voice are perfect for this purpose. He communicates the feeling that he is having a good time, is alive, and, as everyone knows, delight is the soul of art.

If McNamee has any weakness it is his vocabulary. He often reaches for words that he cannot find. But that is splitting hairs. He completes his sentences, and does not offend by resorting to vulgarisms.

I rank McNamee among the great artists, equal to any contemporary in any field of creative activity. The spontaneity of his wit and the flashing speed of his observation and expression have made present life richer and more joyous.—*William Feather.*

Patents & Trade Marks!

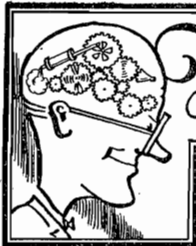
Protect your most valuable assets.
Superior service. Prompt attention.

LESTER L. SARGENT

Registered Patent Attorney

1115-K St.

Washington, D. C.



The EDITOR THINKS-

that radio manufacturers who are still using meters on their

dials ought to wake up for the use of wave lengths fortunately became passe several years ago. It is some convenience to have dials marked with kilocycles but unfortunately in the great majority of cases, the markings are inaccurate. A dial can be marked correctly for frequencies only after it has been attached to a particular set and that set calibrated. This is of course not practical. The best markings for dials is the decimal system, 0 to 100. Such notation, however, should read from right to left or counterclockwise in order that the progression of dial numbers will be the same as that of kilocycles. In other words, 0 should indicate that the plates of the condenser are entirely in mesh and 100 that they are out. Then both dial numbers and kilocycles will progress in the same direction.

that set manufacturers ought to discontinue the annoying practice of quoting prices on their receivers less this and less that. When anyone is considering the purchase of a radio set he wants to know what that set is going to cost him with the music coming in. He is not interested in knowing the price of the set before the tubes and batteries and speakers and dials and other necessary do-funnies are in place.

that any commission that is controlled by our beloved Congress can never be more than ten per cent. efficient. The Radio Commission never had a chance. In the first place some men were appointed to it who didn't know a wave length from a dynamic speaker. Then instead of choosing one of their number to be a real chairman and deciding matters by majority vote, they divided the country into districts and made each member a sort of crown-prince over that territory. Thereafter each member naturally thought in terms of his district instead of the country as a whole. Congress then saddled upon the Commission the impossible requirement that

frequencies must be divided among the districts and among the states in proportion to population. If therefore only two firms wanted stations in any one state, no other state must have more than two for the same population. New York with its great number of stations could of course have only three or four clear waves and now this restriction threatens the whole radio situation.

that WGY started a fire when they went to court over their allocation that it will be difficult to put out. Most people's sympathies were with WGY when they found that station required to divide time even with another station belonging to the same company. WGY certainly was one of the three outstanding stations in New York and should have been given a clear wave rather than WHAM, a comparative newcomer. But even so, WGY made a big mistake when they went to court and now that a decision has been rendered in their favor, their mistake looms just as large. If the courts hold that the Schenectady station has a property right to its wave because of priority of use, then down goes the whole radio structure. It seems unbelievable that a company so greatly and directly interested in radio should threaten to break down the building because it wasn't assigned the room it wanted.

that there is altogether too much orchestra music in the air. Turn your dials almost any evening and you will find some orchestra or other on about seven out of eight channels. Only one band has had a regular place on the weekly evening programs and its announcer unfortunately is suffering from an inferiority complex(?) and insists upon talking four-fifths of the time when listeners-in are anxious to hear the band. We would think more kindly of the sponsor when we buy shoes if they would give us more band and less announcer. *that* we, for one, are fond of Hawaiian music and don't care who knows it. We think that string instruments of any sort come in exceptionally well over the radio. We like

instrumental solos of almost any sort, trombone, trumpet, violin—even the jew's-harp. Some day we would like to hear an old-fashioned parlor organ. Say what you will there is nothing that quite touches the sentimental spot like the “songs my mother used to sing.” We’d tune out the ordinary orchestra any night to listen to an old parlor organ and some of the good old ballads.

Radio on the Farm

FEW city-dwellers can realize what a God-send radio was to the people on the farms. Not many years ago, I. W. Dickerson, writing in The Oklahoma Farmer-Stockman, points out, the farm family practically hibernated during the winter months. It was a time which especially to the farm women, was a long nightmare of loneliness and discontent. But now:

“The telephone with its chance for neighborly conversation and gossip, its possibilities for spreading quickly really important news and summoning help in cases of sickness or emergency; the rural free delivery of mail in all times except when roads and weather are the very worst, with its daily papers and better contact with markets and news; and the rapid development of the automobile and better roads, with a chance to come and go quickly and easily—all these have done a great deal in breaking up farm isolation and making farm life more enjoyable.

“However, it has been radio which has really pulled back the curtains of isolation and put the farm family at once closely in touch with the best of everything in the way of entertainment, education, travel, and religion. During the long winter days when farm work is slack and the weather and roads are the worst, radio is at its best; and the farm family can sit comfortably before a cheerful fire and listen to sermons on religion and the better life, talks on citizenship and the affairs of state, or on science and education. Maybe the family tires of one speaker or program. If so, a turn of the dial will bring music by a great violinist a thousand miles away. The radio is even greater than the telephone in annihilating distance.

“The radio is already one of the great factors in keeping the young folks satisfied with farm life. Some sort of radio entertainment

is usually available, nearly always good, and varied enough to meet almost any demand. The radio furnishes good dance music, and the only preparation necessary for dancing is to push back the table and roll up the rugs. For those interested in sports there are the broadcasts of baseball, football, and basketball games, play by play, and of the scores of all important games.”

Radio also has several practical phases of interest to the farmer, Mr. Dickerson reports. One is the daily broadcasting of market reports. Before the farmers had radio, the local shipper received telegraphic reports each morning, and it was quite common on receiving news of a rise in the market to buy up a car-load of live stock before the farmer received news of the advance. Now any farmer with live stock ready to market keeps close tab on the market reports, which he receives as promptly as the buyer does. Farmers have in this way saved enough in a few shipments to more than pay the entire cost of the radio. To quote further:

“Another important radio service is the broadcasting of weather predictions. If rain is called for, the farmer knows better how much alfalfa to cut down, whether to start threshing, or whether it is advisable to start on a long automobile trip over dirt roads. Frost predictions are also valuable to truck growers and fruit raisers. Now that the combine is becoming common and the moisture content of the combined grain must be closely watched, these weather predictions will be even more valuable. Even the women use them, and listening to the weather predictions can tell whether to wash Monday morning or not.”

How to Start the Evening Wrong : : : : : By BRIGGS



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Electric Receivers

(Continued from page 2)

130 volts, this being due to variations in load, improper regulation, poorly-designed feeders, etc. This condition which is so prevalent in many vicinities, is not only annoying to the radio owner, but it also shortens the life of the tubes. When the 110-volt current drops or rises 20 volts from normal, the voltage applied to the tube filaments drops or rises a proportional amount, which in this case is over 20 per cent. As the filaments of UX 226 tubes operate at 1.5 volts filament current, a 20 to 30 per cent overload makes them burn more brightly and consequently shortens their life. The UY 227 detector tube is especially sensitive to overloads, and for this reason it is a good idea to connect a 6-ohm rheostat in one of the filament lines and adjust it so that $2\frac{1}{4}$ volts are delivered to the tube instead of 2.5 volts. There are, however, automatic voltage regulators obtainable, which are designed to provide a constant 110-volt current to the receiver regardless of whether the input is 90 or 130 volts. If the line voltage is constantly 10 to 20 volts above the normal rating, a power rheostat can be cut in one of the lines supplying the receiver current, and this is adjusted so that the voltage is reduced to normal. An A. C. voltmeter is, of course, necessary for taking the readings. Still another method, which is claimed to be satisfactory for controlling the voltage and current variations to which the tubes are subjected, is the provision of Amperites, one of these being wired in series with each tube. These units resemble ballasts in appearance. They are claimed to be self-adjusting rheostats, which automatically and instantaneously compensate for the variations in line voltage, providing a steady current at a definite voltage for the tube. The method of connecting them is fully illustrated in the manufacturer's circular which can be obtained. The Amperites used for UX 226 and UY 227 tubes are No. 226 and 227 respectively.

The large amount of heat produced by power tubes and by rectifying tubes of power devices, makes it necessary to provide adequate ventilation in the receiver to prevent trouble. It is true that fire seldom results from heat produced by these tubes, but the insulation of the transformer windings may be weakened, and the filter condensers, if

they have waxed-paper insulation, may also be damaged. Besides, the tubes themselves will last longer if they are kept as cool as possible by means of proper ventilation.

When looking for trouble in all-electric receivers, or when adjusting any of the units, turn off the power because a high voltage is involved and accidental short-circuit might blow out the tubes. Taking a tube out of a socket while the power is on and the tubes are lighted is bad practice, as the other tubes in the set receive a temporary overload by doing this. The best method of locating trouble in all-electric sets is by elimination. First find out whether all the tubes light. If this is not the case, substitute another tube of the same kind for the one not lighting. If this tube does not light, test for a break or a loose connection in its filament leads. Perhaps the secondary of the transformer is open. Use an A. C. voltmeter for making tests across a. c. lines. The plate voltage supplied by the B-eliminator can be carefully checked by means of a high-resistance D. C. voltmeter. Examine the wiring of the grid circuits, and determine whether the tubes are making good contact in their sockets. Also look over the aerial and ground connections.

THE WONDERS OF SCIENCE

[Punch (Copyright)]



Miss Lavinia (hearing radio for the first time): "Jane, I've got a band in mine. What have you got in yours?"

Movies in the Air

(Continued from page 3)

quirements and exceptionally high electrical efficiency, and an ingenious magnifying optical system which enables a group of persons to view the image at the same time.

Each of the four plates of the special neon lamp illuminates only one quarter of the total screen, and each plate is flashed in rotation, much after the manner of the spark plugs of a gasoline engine. This ingenious device has enabled Mr. Jenkins to attain enormous illumination with an ordinary amplifier. Special light-conducting rods, made of quartz, are employed between the targets and the slits in the scanning drum, thus effecting a maximum conservation of light. The slits in the scanning drum sweep laterally line by line across an opening, translating the varying intensity of the glowing target of the neon lamp into successive dots of varying intensity. Due to the persistence of human vision, these dots appear as a line whose light gradations are a faithful replica of the object televised at the transmitting end.

The sum total of these lines, swiftly and deftly woven by the scanning drum, produces the illusion of a complete and animated picture. This picture is passed through an ingenious optical system so that it appears to be about one foot square.

Yet Jenkins is still not satisfied. With the idea of making the television presentation available to still larger groups of people, he has developed a scanning disk with matched lenses by means of which it is possible to project the image on a fair-sized screen. And with this same end in view, he is even now working on a powerful checkerboard light which will make the television image visible to entire theater audiences. In addition, he is experimenting with a television camera for outside work. Capable of amazing detail and scope, this camera bids fair to hasten the day when we shall be able to televise direct from the scene of action.

From Radio Retailing.

Keep Oil Out of Radio

My radio set had been functioning perfectly for over a year. Then I noticed that there was a gradual decrease in volume and finally the set was entirely dead. I disconnected the batteries, speaker, aerial and ground wires and proceeded to examine every wire and every soldered joint carefully as I suspected corrosion at a joint. But the wiring was OK so the next step was to have the tubes tested for I had heard that a decrease in volume resulting in total inaudibility was often caused by poor tubes. Every tube registered well at the test. As a last resort I took a strip of emery cloth, stretched it over the end of a flat stick about 6 in. long and carefully cleaned all the socket prongs and also the tube tips. Confident of having eliminated the trouble I hooked the set up only to find it dead as before. While inserting the tubes my finger accidentally rubbed over the shaft of a condenser and I noticed some grease. All of a sudden I realized what the trouble was. Some time before I had applied some lubricating oil on the condenser shafts, and this formed a film of perfect insulation between the plates and the rotor connection on the frame, electrical contact being made between the two through the shaft. It was a laborious task to remove the condensers, take them apart, that is, separate the rotor plates from the assembly, but it had to be done. All traces of oil were removed, the condensers put back in place and the trouble was over. Moral: Never oil your condenser shafts. E. R. H.

Directional Qualities

It has been found that aerials manifest a slight directional tendency, which is more pronounced the longer and the lower the aerial is erected. The pick-up value is greatest for broadcasting stations directly in line with the aerial, and toward which the lead-in end of the aerial points. If one desires to use this tendency of aerials to advantage in reception, two or more aerials, pointing in different directions, should be erected. If only two aerials are used in this way, the lead-in wires are connected to a single-pole, double-throw knife switch. If more than two aerials are used, the lead-in wires can be connected to switchpoints. E. R. H.

In Front of the "Mike"

Interesting Stories of the Studio

Chief Roaring Thunder and the U. S. Indian Reservation Band, making a vaudeville tour on their way home from the inauguration, were broadcast in the Radio-Keith-Orpheum Hour over the NBC System, Tuesday night, March 12.

The Chancellor Dance Orchestra made its bow to radio listeners of the midwest when Vincent Lopez struck up the band for a new series of rhythmic broadcasts over the National Broadcasting Company's System, Wednesday night, March 13.

The new dance band directed by one of New York's most famous orchestra leaders will go on the air each Wednesday night hereafter at the same hour.

From the hills and fastnesses of North Carolina has arisen an earnest band of pioneers, who, under their leader, Frederick Koch, have been privileged to spread a wider influence than perhaps any group of amateurs in the country. The secret of their success lies largely in the fact that they are writers and producers of folk drama, drama of their own country—a country that they know and love. The Carolina Playmakers write their own plays, act them, design, build and paint their own scenery. As a result, their representations ring true, and their audiences are swept along on a wave of sincerity.

Few people outside the industry realize the great wire mileage which is required to connect even a comparatively small number of stations for the broadcasting of a program. A study of the wire facilities necessary was recently undertaken by engineers of the National Broadcasting Company for the gathering of statistics on the Atwater Kent programs, which are broadcast by 30 stations. It was found that a total of 35,410 miles of wire were required, 17,916 miles being specially prepared telephone wire used in the actual broadcasting while 17,494 miles of telegraph wire were used to connect the stations directly with each other for such communication as may be necessary during the program.

Old Man Donaldson is back.

Old Man Donaldson, in case you don't know, is the Trader Horn of radio. Only some people say he's better than Trader Horn and his experiences haven't been confined to Africa. Several years ago—long before Trader Horn became an international figure—Old Man Donaldson's yarns were heard every week from WJZ. Then the Old Man left the radio studios and went, presumably, in search of more adventures. This time he returns not to WJZ alone but to a group of stations of the NBC System.

The new series of the adventures of Old Man Donaldson were inaugurated Friday night, March 1. His yarns will be heard locally through WJZ and a network of NBC stations.

Theatergoers throughout the United States will select their own favorite artists for the Radio-Keith-Orpheum Hour over the National Broadcasting Company System April 2. The program on that night will be chosen by the listeners themselves from among the star attractions at Radio-Keith-Orpheum Theaters all over the country.

Balloting has already begun in vaudeville houses from Boston to San Francisco and Ottawa to New Orleans, and early returns indicate that one or more of the headliners on that night will have to enter the program from the far west.

It is a unique experiment in building radio programs, and was decided upon by officials of Radio-Keith-Orpheum and the National Broadcasting Company after a deluge of requests to hear certain favorite singers and entertainers.

When the voice of Herbert Hoover was carried to the farthestmost corners of the earth through the NBC System as he delivered his Inaugural address on March 4 his own prediction was fulfilled.

Four years ago as radio broadcasters prepared for the experiment of a coast-to-coast broadcast of the Coolidge Inaugural ceremonies Secretary of Commerce Hoover saw the coming of the world-wide radio program.

"The day is almost at hand when a voice in Washington will be heard all over the world," he predicted.

It is a coincidence that Mr. Hoover was the central figure in the most pretentious world-wide broadcast yet attempted.

Frederic William Wile, veteran Washington political writer and broadcaster, who has just joined the Columbia System as its chief broadcaster on national and international politics, faced the microphone on March 4, 1929 for the second successive inaugural occasion. His first appearance was on March 4, 1925, when Calvin Coolidge became the thirtieth president of the United States. Wile's talk on that day was an event that will take its place in history because of its utterly unique and unprecedented character.

For the preceding year and a half Mr. Wile had been talking politics for the Radio Corporation of America's WRC station at Washington, originating the weekly feature, "The Political Situation in Washington Tonight," which he will henceforth, beginning Tuesday, March 5th at 8 p. m. E. S. T., deliver regularly from Station WMAL Washington.

A weekly radio forum for the discussion of outstanding political questions of the hour by speakers of national prominence has been arranged by the Washington Star with the co-operation and sponsorship of the Columbia Broadcasting System and will be heard by millions of the American public through a large nation-wide network of broadcasting stations every Saturday night. Senator William E. Borah, of Idaho, Chairman of the Foreign Relations Committee of the Senate, inaugurated the radio discussions March second. At that time, two days before the inauguration of Herbert Hoover, Mr. Borah spoke on inaugurations and their significance in the life of America.

A short musical program by the United States Army Band will open and conclude each broadcast in this series. The hour, which is to be devoted to the National Forum every Saturday evening, will be about evenly divided between the band and the speakers.

Other speakers of national prominence will follow Senator Borah.

Three thousand feet above New York City Leslie Joy, production supervisor of the NBC and a veteran announcer, Friday (Feb. 22) afternoon spoke into a microphone. From the plane his words were transmitted on short waves to a receiver at 711 Fifth Avenue, New York headquarters of the NBC, where they were amplified and sent to the homes of thousands of radio listeners in New York and on the Atlantic coast via the NBC System.

The broadcast was a part of a radio program arranged by the NBC and called "Over and Under New York in an Hour." The broadcast was actually that. Within sixty minutes radio listeners heard the announcer describe New York from the air and heard another announcer describe conditions 65 feet under the East river where "sand hogs" are driving a tunnel under an air pressure of 25 pounds to the square inch. The broadcast went on the air at 2:15 o'clock Friday afternoon and lasted an hour. It was heard locally through WEAF.

As the plane headed back to the Newark landing field the broadcast was switched to the new tunnel being driven under the East River at the foot of Fulton Street. Here, 400 feet from shore and 65 feet below the surface of the river Edmund B. Ruffner, an NBC announcer, took up the story. He described conditions under the river and told of the difficulties of working under the excessive air pressure of 25 pounds per square inch. Then Ruffner introduced various members of the New York Board of Transportation and others connected with the construction of the tunnel. Their remarks, though brief, were dramatic and gave a perfect picture of the tunnel's end.

Radio broadcasting has added its bit to the traditions surrounding the President of the United States. Tradition ordains that the retiring President shall take with him the chair he occupied at cabinet meetings. Now comes a new custom which provides that the President also take with him the microphone manuscript stand used in official broadcasts.

President Calvin Coolidge was formally presented with the "President's microphone stand" by officials of the National Broadcasting Company in Washington. The microphone stand, built three years ago by the NBC especially for the use of the Presi-

dent, went with him when he retired from the White House.

A similar stand now is being constructed for the exclusive use of President-elect Herbert Hoover.

President Coolidge, now considered one of the veteran radio speakers of the world, always has been particular about the arrangement of his manuscript before the microphone. In order to have the "mike" at the proper distance from his lips and in order to have the manuscript at the preferred distance from his eyes the special stand was built to order. When the President spoke in the Washington studios of the NBC the stand was available. On broadcasts from his study in the White House or from public buildings in Washington and elsewhere, the stand went along as part of the essential equipment for the broadcast. When not in use it was kept carefully shrouded in a green cloth in the studios of WRC in Washington. Once when the President had a short address to make though not into a microphone, he sent a White House attache to the radio studios to borrow the stand.

The stand has an iron base and has a wooden top. It resembles a music stand though it is built to accommodate a microphone as well as a manuscript.

A new page of history was written across the skies March 4th when invisible radio waves flashed the voices of three American Presidents to the entire world.

An inaugural crowd of 35,000 in the city of Washington crushed clothing and dispositions to see President Hoover raise his right hand as he faced former President Taft on the steps of the Capitol. Not half of them heard his words "I do!"

Yet his clear, resolute tones signalled his inception as the most powerful ruler in the world to the farthest ends of the earth, in an epoch-making broadcast that was heard by an estimated audience of 63,000,000 in North and South America, Great Britain, Europe, Asia, northern Africa, Australia and New Zealand.

While thousands of eye-witnesses in Washington strained to keep up with the progress of events, the world-wide audience was admitted by the National Broadcasting Company to all the privileged places; skipping with NBC announcers along the corridors

of the Treasury Building, into the solemn chambers of the Senate, through the Blue and Red rooms of the White House, to the Capitol and vantage points on Pennsylvania Avenue including the President's own reviewing stand.

They went by radio where they could not have gone by actually attending the ceremonies. They witnessed the final departure of President Coolidge from the White House, watched him at his desk in the Capitol for the last time, and heard his simple farewell at Union Station as he left for Northampton, Mass., once more a private citizen.

Scattered NBC announcers gave them the effect of following all the movements of the Presidential party with colorful glimpses of the celebration taking place in Washington along the festooned streets.

At intervals they soared above the streets, to obtain an eagle's eye view of the proceedings. There the hum of an airplane motor accompanied their description of the scene below.

They saw through the eyes of NBC observers the simple garb of Presidents' wives, and frequently encountered great statesmen. The doings of Charles G. Dawes, retiring Vice President, and his successor, Charles Curtis, all passed before the eyes of alert radio reporters. Justices of the Supreme Court, Senators and Representatives were met with on the way.

Listeners in Japan and Algiers heard the hearty laugh of Chief Justice Taft within the sacrosanct portals of the Senate Chamber, and loudspeakers in Germany and Great Britain crashed with the crack of the gavel that George Washington used to convoke the first Continental Congress more than two hundred years ago.

"WHILE-YOU-WAIT" REACTIVATION

Reactivation of tubes by the "while-you-wait" method is not recommended, for in such cases the work is usually done very quickly, sometimes within 10 minutes, and higher voltages than those given in the table above are used. This procedure materially shortens the life of the tubes, and tubes reactivated in this way soon fall back to their minimum emission value. Besides, the use of higher voltages greatly increases the percentage of tubes burned out. E. R. H.

Schedule of the Best Short-Wave Programs

Station Call Letters	Wave- Length (Meters)	Schedule in Eastern Standard Time						
		Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
W2XAD Schenectady, N. Y., U. S. A.	19.56	5:30 P.M. to 10:30 P.M.	2:00 P.M. to* 4:00 P.M. 5:00 P.M. to P. 11:00 P.M.		5:00 P.M. to P. 11:00 P.M.	2:00 P.M. to* 4:00 P.M.	5:00 P.M. to P. 11:00 P.M.	
5sw Chelmsford, England	25.53		7:30 A.M. to 8:30 A.M. 2:00 P.M. to 7:00 P.M.	7:30 A.M. to 8:30 A.M. 2:00 P.M. to 7:00 P.M.	7:30 A.M. to 8:30 A.M. 2:00 P.M. to 7:00 P.M.	7:30 A.M. to 8:30 A.M. 2:00 P.M. to 7:00 P.M.	7:30 A.M. to 8:30 A.M. 2:00 P.M. to 7:00 P.M.	
W8XK Pittsburgh, Pa., U. S. A.	25.4	11:00 A.M. to 12:00 A.M. 2:00 P.M. to 10:30 P.M.	2:00 P.M. to* 4:00 P.M. 5:00 P.M. to P. 10:30 P.M.	5:00 P.M. to P. 10:30 P.M.	5:00 P.M. to P. 10:30 P.M.	2:00 P.M. to* 4:00 P.M. 5:00 P.M. to P. 10:30 P.M.	5:00 P.M. to P. 10:30 P.M.	5:00 P.M. to 11:00 P.M.
PCJJ Eindhoven, Hol- land	31.2		6:00 P.M. to 9:00 P.M.	6:00 P.M. to 9:00 P.M.		6:00 P.M. to 9:00 P.M.		
W2XAF Schenectady, N. Y., U. S. A.	31.48		5:00 P.M. to P. 11:00 P.M.	5:00 P.M. to 11:00 P.M.		5:00 P.M. to 12:00 P.M.		6:00 P.M. to 12:00 P.M.
W2XE Richmond Hill, N. Y., U. S. A.	58.5	7:00 P.M. to 11:00 P.M.	7:00 P.M. to 11:00 P.M.	7:00 P.M. to 11:00 P.M.	7:00 P.M. to 11:00 P.M.	7:00 P.M. to 11:00 P.M.	7:00 P.M. to 11:00 P.M.	7:00 P.M. to 11:00 P.M.
W8XK Pittsburgh, Pa., U. S. A.	63.5	8:00 P.M. to 10:30 P.M.	2:00 P.M. to* 4:00 P.M. 8:00 P.M. to P. 10:30 P.M.	8:00 P.M. to P. 10:30 P.M.	8:00 P.M. to P. 10:30 P.M.	2:00 P.M. to* 4:00 P.M. 8:00 P.M. to P. 10:30 P.M.	8:00 P.M. to P. 10:30 P.M.	8:00 P.M. to 11:00 P.M.
CJRX Winnipeg, Canada	25.6	5:30 P.M. to 10:30 P.M.	5:30 P.M. to 10:30 P.M.	5:30 P.M. to 10:30 P.M.	5:30 P.M. to 10:30 P.M.	5:30 P.M. to 10:30 P.M.	5:30 P.M. to 10:30 P.M.	5:30 P.M. to 10:30 P.M.

*N.B.C. Red Network programs relayed to British Broadcasting Company, England.

P—During 9:00 P.M. 10:30 P.M. period the N.B.C. Red Network program comes through all 4 waves. Other periods have separate programs. At 7:00 P.M. you can set your watch by "Big Ben" from London, England. *From Radio Broadcast.*

Those very interesting and helpful articles by E. R. Haan in the last few numbers of RADEX, have now been published in book form. In addition to these articles there is a vast amount of other information profusely illustrated. The book is written in non-technical vein so that any radio user can easily comprehend it. If radio is to you something more than a pleasant pastime and if you are one of those anxious to really know this intriguing subject, be sure to send for a copy of Radio Trouble Shooting. You will find the book fully described on the inside cover page of this issue of RADEX.

Whiteman Takes to the Air

Paul Now a Radio Enthusiast

"What interests me most about my extended broadcast venture is what the public is going to teach me about music. Let's have a nation-wide jury of music critics when I start my series of concerts over the Columbia Broadcasting System in the Old Gold-Paul Whiteman Hour on Tuesday nights," said Whiteman in discussing his new venture. "I want the verdict of a jury of at least 10,000,000 persons. It will have far more value than the opinion of a few highbrow critics.

"When it is all over I want to know more about what the American public likes than anyone has ever known before. To that end I will appreciate having listeners who tune in on any one of the 43 Columbia stations send me their musical criticisms. One result will be to make possible a comparative study of the musical tastes of various sections of the country that ought to be illuminating. In broadcasting it takes much longer, of course, to discover what reaction you have inspired, and it is true that I will miss feeling the immediate result, but I am sure the answer is going to be worth waiting for.

"Feeling this way about radio, people will doubtless ask why I have waited so long to do regular and sustained broadcasting. The answer is a simple one. I have been terribly interested in radio from its start, mine was the first band to broadcast over WJZ, but I have never before been able to afford sustained broadcasting. My orchestra, living up, I hope, to my aim to have it the best of its kind, both individually and collectively, is a very expensive one to maintain, and, to do this, we have spent the past years filling engagements all over the country. Now, however, discover-

ing that I was planning to stay in New York, the Old Gold cigarette people, through their interest, have made it possible for me to broadcast weekly under their auspices, and I am glad at last to be able to devote not only my talents but also a good deal of my time to radio.

"Now, for a moment, I would like to consider this question from the point of view of the listener, or, in other words, the radio public. Hundreds of musical programs are presented nightly on the air, and the choice of orchestra and type of music to be heard is a large one. I do believe that the radio public is willing to receive jazz with an unprejudiced mind, but, in most cases, classical programs on the radio have been more successful, due to the fact that the individual musicians are better able to play old and well-known pieces that they have played for many years. I do not for a moment wish to under-rate the value of classical music, but I do think that jazz and rhythmic harmonies if well presented, would find as receptive a radio audience, and I propose, by means of an orchestra on which I have spent years of training, and which I do not think it an exaggeration to call the best of its kind in the world, to present jazz and rhythms in such a way as to make universal appeal to my unseen audience.

"In concluding, I merely wish to say that I am very much excited about my new role as a regular broadcaster, and I only hope that all who listen in will give me their cooperation and will be as glad to hear me as I am to play for them."

Prehistoric Radio of 1909

Reminiscences of Dr. Lee DeForest

It is the general opinion that radio broadcasting really started when the first broadcasting station began regular service. Practically all of the current histories of radio broadcasting began at that time. However, there was much work to be done by the pioneers prior to the establishment of the first regular broadcasting studio. Dr. Lee De Forest, known as the "Father of Radio," reminiscing on early broadcasting, revealed the following facts regarding early, or "prehistoric" broadcasting:

"I cannot help thinking of that Irishman who was looking for a job and entered a store to ask for work. The man to whom he applied said, 'You'll have to see Mr. Jones; he's on the second floor just now.'

"'All right,' said Paddy; 'where are the stairs?'

"'You don't need to go up the stairs,' said the clerk; 'you can use the speaking tube.' And he told Paddy how to use the tube. The Irishman whistled, and Mr. Jones answered.

"'Is that you, Mr. Jones?' asked Paddy.

"'Yes.'

"'Well, will you plaze stick yer head out of the second story winder? I want to ask ye for a job.

"'In other words, I feel guilty for having created this speaking tube for reaching out to you in your homes. Yet, like Paddy, I would much prefer to speak to you face to face, but realize that it is quite impossible when talking to millions of friends. Hence I must be content with speaking to myself, so it seems, before the mute microphone.

"I must ask you to turn back the hands of time to 1907, when I was designing and manufacturing radio tele-

phone sets for the U. S. Navy ships that were to sail around the world under the command of the late Admiral "Fighting Bob" Evans. My shop was in the old Parker Building at 19th Street and Fourth Avenue, in New York City. Incidentally, the Audion or present-day three-element vacuum tube was born in that same building. At that early date, however, I was compelled to utilize the Poulson arc for generating the radio carrier wave. This arc consisted of a pair of carbon electrodes between which played the flickering electric arc in an atmosphere of hydrogen.

"Now in order to test these radio telephones, I made use of a phonograph which played directly into the mouth-piece of my transmitter. Then, in another room, I listened not so much to what the radio waves were saying, as to how they were saying it.

"At the time George Davis was Chief Electrician at the Brooklyn Navy Yard, just a few miles away as radio waves travel. Davis heard me testing, and he became greatly excited over the idea of transmitting music through the air. Until then, of course, there was nothing on the air but the incessant dots and dashes of radio telegraphy. Other wireless operators around New York City heard these radio telephone concerts, if they can be dignified with that name, and likewise became greatly excited. It was their opinion, rather than my own at the time, which forced me to the conclusion that here was a means of providing entertainment to many scattered listeners. At the time the marine radio field was the most highly developed in the commercial sense, so I immediately thought of radio telephony

as a means of supplying programs and news directly to the passengers on ship-board. I even entertained visions of transmitting operatic performances directly from New York to ships in mid ocean.

"In short, I changed my views on radio telephony from a means of point-to-point or private communication to a means of mass communication.

"March of 1908 found me in Paris ready to demonstrate my wireless telephone system to the French Government with a view to equipping ships of the French Navy. At first I was permitted to use an antenna reaching up to just the first balcony of the lofty Eiffel Tower. Later, however, I was permitted to utilize an antenna reaching to the top of that tallest structure in the world, to see just what I might do in the way of long-distance communication. With everything in readiness for the tests, word was sent to French radio stations and vessels to listen in on our radio telephone transmission. The results were more than satisfactory. We succeeded in reaching Mery-sur-Mer, near Marseilles on the Mediterranean, or a distance of some 550 miles. I was still using the arc generator. My microphone took the form of a battery of four microphones arranged in a sound chamber of funnel shape so as to have a small mouthpiece into which the speaker could shout. The microphones were connected in parallel.

"Early in 1909 I was back once more in the States, still following my radio telephone hobby. I received permission to install a radio telephone transmitter in the attic of the Metropolitan Opera House in New York, as well as microphones on the stage. In order to secure sufficiently sensitive microphones to pick up music and voices at a distance I had to use the acousticon microphones, such as are employed for the deaf. These microphones were operated by a

battery, and their output led to a receiver in the attic, pressed against the microphone of the radio telephone transmitter. We did not have the audion amplifier in those days. Our transmitter microphone was placed in the ground lead of the sending apparatus, carrying the full force of our transmitted energy. Obviously, we spent much time and money replacing microphones.

"My long-sought opportunity to attain the heights of air showmanship came when the late Enrico Caruso sang "Siciliana" in the opera *Cavalleria Rusticana*. This song, as you know, is sung behind the scenes, before the rise of the curtains, making it peculiarly effective for the audience out front and even more so at the time for our audience out back. We were permitted to move our microphones close up to Caruso, as he sang behind the scenes, and to remove our apparatus just as the curtain went up. Technically, we could say we broadcast from the stage; actually, we picked up the song under almost studio conditions. I have always felt that a confession was in order, and now I feel relieved that I have made it. Our attempts at picking up the stage performance with the distant microphones were far more satisfactory. The microphones were crude, and we had no amplifying means at our disposal.

"Many heard our Caruso broadcasting. It was the first and, so far, the last time that the Metropolitan Opera company has participated in such broadcasting. Whether this is complimentary or otherwise, I do not profess to know.

"Later the same year, or in 1909, I began with the broadcast studio idea, firmly convinced that talent should be brought to our microphones, with ideal operating conditions, rather than to take our microphones to the talent. Our studio was at 103 Park Avenue, while our transmitting tower was on the roof of that building. At the time,

Oscar Hammerstein was competing with the Metropolitan Opera Company; and profiting by this little argument, I secured Madame Mazarin, a noted French contralto, for our microphones. She came to our studio, where she rendered the well known Habanera from the opera Carmen, for the entertainment of those who might be tuned in.

"Yet my artistic ambitions, so it seemed, were far in advance of the technical means at my disposal. The arc generator was very crude, inefficient, and unreliable. The microphones were not capable of picking up sounds unless virtually on top of the sound source. There was no suitable means of magnifying or amplifying the weak electric currents of the microphones so that these might be properly impressed on the outgoing carrier wave. And so I was forced to abandon my broadcasting efforts until the day when better technical means could be placed at my disposal.

"By 1916 we had the oscillion or oscillating audion, capable of generating high-frequency current suitable for the carrier wave of radio telephony. We also had the audion amplifier, or satisfactory means of coupling one circuit with the next in building up sound values. We were then building $\frac{1}{4}$ kilowatt audions for use as oscillators or transmitting tubes.

"I succeeded in interesting the Columbia Phonograph Company in broadcasting the latest Columbia records, with the result that a radio telephone transmitter was installed in their New York recording studio. Three afternoons each week the latest Columbia records were put on the air. Desiring more space for larger transmitting equipment, we moved to our High Bridge plant. There we inaugurated a nightly broadcasting service, consisting mostly of new phonograph records. Between records, we announced the products of

the De Forest Radio Company, mostly the radio parts, with all the zeal of our catalogue and price list. Our operating staff consisted of engineers and others of the organization selected or, might we say, drafted, for the necessary overtime. Broadcasting was not considered any special honor for those who had to stay and do the work.

"My recollection of the first radio dance goes back to those days, when we put on a program of dance records in order that a dance might be held at Elizabeth, N. J. The weak-voiced loudspeakers of that time, intended to relieve the radio operator of wearing headphones when not handling traffic but standing-by for a call, were used in furnishing music for the dancers.

"The first election returns to be broadcast were those of the Hughes-Wilson contest in 1916, sent out from our High Bridge station in 1916. We had wire lines into our office so as to have the up-to-the-minute reports. I served as one of the announcers. At 11:00 o'clock that night, we signed off, after assuring our invisible audience that Hughes had been elected. The next morning we learned of our slight error—Wilson, rather than Hughes, had won the election. However, ours was a pardonable error. Many newspapers had kept us company in our premature decision.

"And then came the ban on wireless with America's entry into the World War. We waited until 1919, when radio activities were sanctioned once more. I hastened to resume my broadcasting efforts, beginning my transmission from High Bridge but moving shortly after to the World Tower Building in New York, sharing the lofty antenna with Emil J. Simon who was attempting an inter-city radio telegraph service. We were on the air as per schedule. Among our microphone stars was none other than Vaughn de Leath,

who is more popular than ever today as the Radio Girl, and who may be termed the oldest—in point of service, not age, of course!—radio star.

“And then we encountered a stroke of hard luck. The radio inspector of our district became greatly incensed over our radio telephone concerts. He stated in no uncertain terms that there was no room on the air for entertainment. Furthermore, we had committed the unpardonable crime of moving our transmitter without proper legal formalities. We should have applied for a new license or something or other. At any rate, our station was ordered off the air. I gave up broadcasting in the East.

“Shortly after, I went to San Francisco, where I hoped the atmosphere might be more kind to my struggling hobby. There I erected an antenna from the top of the Humbolt Bank Building to the roof of the California Theatre. My microphones were suspended over the orchestra, in the flies. Thus I secured the theatre music every afternoon, and a symphony orchestra concert on Sunday mornings. The service proved most popular and was received as far east as St. Paul, and by ships on the Pacific as far as a day out from Honolulu. This station continued in service until 1922, when broadcasting was firmly established.

“Aside from my own broadcasting efforts, I was called upon to furnish various pioneer broadcasters with equipment, among them the Detroit News, which was the first newspaper to go on the air, the famous WOR station at Newark, a station in Baltimore, and others.

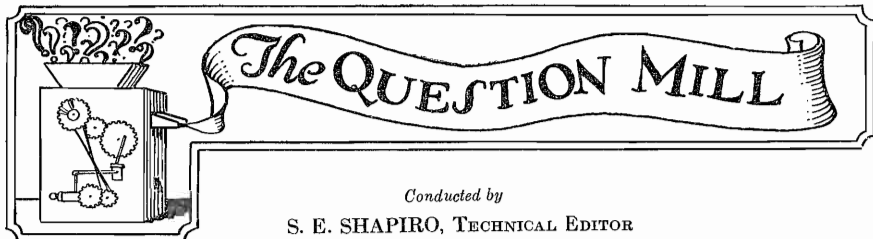
“With the proper interest at last aroused in broadcasting, this institution grew by leaps and bounds, as mass production produced the necessary equipment for the listeners-in, and the

increasing number of listeners-in created a greater demand for broadcasting stations. In 1921 I went to Germany for the purpose of developing my talking picture system or Phonofilm. Returning a year or so later, I was astounded at the progress which broadcasting had made, using my oscillating audions, amplifiers and audio detectors.

“Once more I am returning to broadcasting, my old hobby. After a critical examination of what has been accomplished, I am convinced the audion or vacuum tube remains the heart of the entire broadcasting art from microphone to loud-speaker. Broadcasting is simply a bridge of audions or vacuum tubes. With this fact confronting me, I have returned to research and development work on my original invention, with the feeling that I should contribute once more to the progress of the broadcasting art. I have been fortunate in gathering together a staff of vacuum tube specialists, as well as a most efficient production staff. The first results of our efforts are now available in the form of improvements and refinements in the standard types of tubes. However, we hope to develop new and original types of vacuum tubes as well, based on our studies of the very fundamentals of the radio art.”

Shielding Steel Structures

Sometimes it is impossible, in a certain location, to get reception on a receiver which has been found to work elsewhere, and in such cases it is possible that the particular location of the receiver is shielded from external electrical impulses, and hence the receiver cannot pick up radio signals. This is usually the case when a loop-operated set is installed in a steel constructed building. The steel absorbs most of the energy and grounds it. Similar blanketing effects are often evidenced when receiving apparatus is located in the vicinity of large deposits of metal in the earth. E. R. H.



The QUESTION MILL

Conducted by

S. E. SHAPIRO, TECHNICAL EDITOR

Can tubes now used in sets operating from eliminators be used in the new AC sets? If not, why not?

They cannot be used. The reason for this is obvious. The old type tubes were at relatively low voltage and correspondingly lower current values. The new AC tubes are made with a filament operating at still lower voltages of from $1\frac{1}{2}$ to $2\frac{1}{2}$ volts but drawing a heavier current. For this reason alone they are not interchangeable.

Of what value are the new super-power Amplifier tubes, such as the UX-250 Type, to the average set owner?

Used in a properly designed and built amplifier of which there are a great number on the market, they give very much improved tone and room volume on all but the most distant reception.

What is the ordinary life which may be expected from an AC Detector tube, Type 227?

This depends entirely upon too many variable factors to admit of a definite answer, however, if this tube is operated at the specified voltages in properly designed and constructed equipment, it will give a thousand hours service which is approximately one year of normal use.

We have noticed when it rains that a peculiar buzzing sound interferes with radio reception. What can be done about this?

This trouble is no doubt due to defective insulation somewhere in the vicinity that breaks down in wet weather. If after a careful checking of your own installation you have not located this leak, it is suggested that you communicate with the company furnishing elec-

tric light and power and whose overhead wire lines are in the vicinity of your house. A case is on record where this trouble was caused by a bad insulating bushing on a corner arclight.

I am having considerable trouble locating stations to which I formerly was accustomed to listen? What remedy is there?

In the event that your set covers the whole band from the lowest to the highest wave length station, it is simply a matter of locating and indentifying stations. For such purpose RADEX is invaluable.

I have a portable set which is used with dry batteries contained in the cabinet. Can I operate this set on eliminators? I believe it would be more economical.

It will only be necessary to procure A & B eliminators of the proper voltage and connect in place of the batteries. These will not fit into the set but may be used outside next to the set.

Can an inside aerial be used on a two tube set? We have moved to an apartment where outside aerials are not allowed.

Yes, an inside aerial will give satisfactory results on local reception. However, with a two tube set, very little but local will be received on an inside aerial. It might be well to try a light socket antenna plug, as in some cases this works very satisfactorily.

I have a reflex set which is now three years old. I have always used it with batteries. Can I use A & B eliminators?

There is no question but what an A eliminator will work satisfactorily. The B presents a more difficult problem. I would suggest you borrow a B elimina-

tor and try it on your set. If a standard make will not work satisfactorily, one can be constructed especially for the set which will do so.

How can I improve my ground connection? I have it now on a steam radiator.

A connection to the water main on the street side of the water meter is generally the best ground possible. If such a connection is not available, a metal pipe to which the ground wire has been soldered securely should be driven in the ground from six to ten feet and the earth around it kept moist. Under a rain spout or drain makes a good location.

I have exactly the same make and type of set that our neighbor has next door. Outside of locals, I get only Cincinnati and Pittsburgh. I have personally tuned in 36 stations on my neighbor's set. What can be the reason?

The two sets being of the same make and type and operated in the same locality should give practically the same results. It is possible, however, that the slight difference in location, aerial and ground connections might account for some of this, however, it is also reasonable to believe that there is something wrong with the set itself. A thorough checking of both the sets and tubes is advisable.

Is it due to a faulty radio that I can get most distant stations excepting the one that I most desire to listen to which happens to be in the same locality as the other stations which I receive?

No, this is no doubt due to the lower power of the station which can not be received at the same distance. The power of the station governs the range over which it can transmit irrespective of the efficiency of the receiver. Then again it may be that some station located on the same or a nearby frequency is interfering with the desired station.

Having bought a perfectly good and expensive radio and being promised all distant stations by the dealer, I find myself in-

capable of getting any outside stations excepting when our service man calls. He seems to have no trouble tuning in distant stations that are broadcasting at that time. How do you account for this?

It would seem that this is merely a matter of learning to tune this set properly. This is particularly true if the set has a number of variable controls, however, if it is a single dial set, the setting of this single dial is very important. The best receiving sets have certain limitations and this is particularly true when used in some locations within a city. The fact that the service man is able to operate the set satisfactorily, would indicate that it is merely a matter of tuning.

What suggestions can you make to eliminate the clicks in my radio as we live in an apartment and if we walk by the set, it seems to have that effect.

The action of walking by the set causing the clicks indicates a faulty connection within the set itself or its connecting wires or possibly faulty housewiring which may be located under the flooring. It would almost be necessary to hear and experience this condition to give a definite answer. A thorough check-up should be made of all connections both inside and outside of the set.

Why is it that my set has good volume but the tone quality is poor? I have had it for almost a year.

You do not state whether or not the tubes in the set are a year old or not however, we believe that they are and that the condition you mention is due to the tubes being old. It is possible however, that some defect has developed in the set or its power equipment. If a test of tubes reveals that they are all right, it would indicate that the trouble is in the set.

Why is it that I get very satisfactory local reception on my radio and out of town reception is positively intolerable?

Since the local reception is good, it is reasonable to believe that the set is all

right. You do not state why reception is intolerable, whether it is noisy, faint or unsteady. It is possible that the conditions locally are bad and when you turn up the volume control for out of town reception, the local disturbances are greater in strength than the broadcasting programs which you may receive. A service man familiar with the type of set and its equipment can quickly determine your trouble after hearing your set.

Is there any reason to believe that radio reception should be better in the winter than in the summer?

Yes, because atmospheric disturbances of all kinds are less, particularly the absence of electrical storms during the winter season. For this reason static which is a subject of general conversation is less bothersome in cold weather. The absence of these elements which interfere with good reception account for the well-founded belief that conditions being favorable, the summer time is as good or better. There is no reason why your radio should not be entirely satisfactory during the entire year.

Why is it that I can receive well from stations in Nashville, Tenn., Toronto, Canada, New York, etc. and can not hear the station at Youngstown, Ohio, which is so much nearer?

The answer to this question is very simple if one inquires the power of the stations mentioned. Briefly, the stations you receive from a distance have sufficient power to broadcast over the greater distance while the nearby station does not have sufficient power. For example, the station a thousand miles away may have power to broadcast within a range of two thousand miles. You will receive it when you are unable to receive a station only one hundred miles away which has only sufficient power to broadcast fifty miles.

What tubes are the best to buy for my set? It is a new set but I don't believe the tubes in it are the best.

This question does not admit of a definite answer. Generally speaking however, all reliable dealers will stand by the products which they sell. Tubes as a rule are covered by manufacturer's guarantee against defects in workmanship and material providing they are operated in accordance with the specifications given in the data sheet accompanying the tube. The best rule to follow is to purchase and use the tubes with which the general public is familiar and which the dealer and manufacturer of the set that you have recommend.

Why can't the average service man give you a definite reason for faulty operation of a set instead of a lot of apopleuse?

The question itself is not quite clear. A competent service man with the proper equipment is able to localize trouble, determine its cause and remedy it. The average radio listener is unwilling to believe, however, that trouble may be experienced from many of the sources from which it really originates. I have on record a case where a party placed a flasher button used for flashing electric lights in a socket to which his electric radio is attached. It seems that three different service men were unable to locate this trouble. I do not hesitate to state that this was due to incompetence on the part of these men, as no equipment would be necessary to locate such a condition and remedy it. It is well to remember, however, that the average man calling a doctor does not question his decisions and this is a good guide of conduct towards a radio service man coming from an established and reliable dealer.

What is your opinion of the ball antenna?

The ball antenna in my opinion is no better than the old standby, that is the common ordinary 14 gauge copper wire, stranded or solid. The only prac-

tical use of the ball antenna would be in a very crowded district of the city.

What is the difference between the 171-A power tube and the 250 power tube?

To start with, let us compare filament voltages, the 171-A using 5.0 volts while the 250 uses 7.5 volts. Now we will continue with the 171-A alone. The recommended plate voltage for this tube is 135 volts. The maximum plate voltage to be used is 180 volts. The negative grid bias consumed when used with a maximum plate voltage is $40\frac{1}{2}$ volts. Now for the 250 tube. This tube has a plate maximum voltage of 450 volts, on this voltage the negative grid bias consumption is 84 volts. The maximum undistorted output of this tube is 4650 milliwatts.

What is the difference between radio and audio frequency amplification?

Radio frequency amplification is amplification applied to radio waves before they reach the detector. Audio frequency amplification is amplification applied after the waves have passed through the detector. They might well be compared to a telescope and a microscope, the microscope applying to the audio frequency amplification.

Approximately how much air is there left in a vacuum tube after manufacture?

The amount of air left in the vacuum tube, is better known as an impurity. This impurity is measured in microns, the micron representing one millionth part of the atmospheric pressure, which is about $17\frac{3}{4}$ pounds per square inch. Therefore, perfect vacuum would be zero microns. The closest any tube manufacturers have reached zero microns, is approximately three microns. The old reliable mercury pump is probably the best for coming closest to zero microns.

How many different types of battery chargers are there, and which do you prefer?

There are four general types of

chargers on the market today. They are the mechanical, chemical, metallic oxide rectifier and the tube type. Of these, the tube type seems to be the most popular with radio fans. Probably the safest arrangement is the trickle charger. This saves battery ruination and constant worry.

When using the new all-electric receiver, may tubes be inter-changed in order to obtain the best results? I have found with my present six-tube battery set that some types worked better in certain sockets than in others.

Yes. Providing the set is disconnected from the wall socket. Turning off the switch will do but it is far better to disconnect it entirely and eliminate the possibility of damaging a tube. Care must be taken to interchange only tubes of the same type. These are distinguished by numbers stamped in the base of each tube.

Why is it that lightning and other electrical disturbances cannot be tuned out?

Lightning is an electrical Phenomenon of a very high voltage. It is quite similar to the radio waves that you hear broadcast every day. The only difference between these two, is that lightning has no characteristic frequency or wave length. It operates on all channels. That is what makes it so difficult to eliminate.

Should my radio set, which is a new A.C. Job, fail to operate? What would be the best method of procedure?

First of all find out if your set is receiving power from your base receptacle. Then carefully observe your tubes, and see that they all light, paying special attention to your 280 Rectifier tube. If these tests prove O. K., make sure your tube contacts on receiving plate and grid-voltages (it is customary to sandpaper your tube contacts to insure a good connection). If your set does not operate after these tests, call a radio service man who you are sure is a good reliable mechanic.

WHAT'S ON THE AIR TONIGHT?

A WEEKLY CALENDAR

Leading Features of the Network Programs

Time is given by Eastern Standard. For Central Time, subtract one hour, for Mountain Time, two hours and for Pacific Time, three hours.

Station lists beginning with WFAF and WJZ are the National Broadcasting Co. Inc., while those beginning with WABC and WOR are the Columbia Broadcasting System.

Daily (Except Saturday and Sunday)

6:45-8:00 Tower Health Exercises

WFAF WEEI WFI WRC WGY
WGR WCAE

8:00-8:15 Rastus' Musical Menagerie

WFAF WEEI WGY

8:15-8:30 Morning Devotions

WFAF WRC WGY WGR

8:30-8:50 Cheerio

WFAF WEEI WRC WGY

10:00-10:30 Dr. Royal S. Copeland

WJZ WBZ WBZA WHAM KDKA
WLW WJR KFKX WREN WRC

10:00-10:30 Ida Bailey Allen

WABC WCAU WNAC WEAN WFBL
WKBW WCAO WJAS WADC WGHF
WBBM WOWO KMOX KMBC KOIL
WSPD WHK WMAL

10:30-11:30 The Blue Birds

WJZ KFKX WREN WJR KWK

11:15-11:30 Radio Household Institute

WFAF WEEI WTIC WIAR WTAG
WCSH SLIT WRC WGY WGR
WCAE WTAM WWJ WSAI KSD
KSTP WTMJ KVOO

12:45-1:45 Luncheon Music

WFAF WWJ WRC KSD

1:00-1:45 Montgomery Ward Hour

KFKX KSTP WHO WOW KOA
KWK WDAS WHAS WSM WMC
WSB KVOO WFAA WOAI KDKA

1:15-1:30 Department of Agriculture

KDKA KFKX KWK WDAF KSTP
WHAS WSM WMC WSB KVOO
WFAA WOAI KOA WHO WOW
WRC

6:00-7:00 Dinner Music

WFAF WTAG WOW WRC WCAE

Sunday

1:30-2:00 Peerless Reproducers

WFAF WLIT WWJ WOW WTMJ
WEEI WRC WSAI WDAF WTIC
WGY KSD KVOO WSM WJAR
WGR WOAI WFAA WTAG WCAE
KYW KPRC WCSH WTAM WSB
KSTP WMC WOC WHAS WHO

2:00-3:00 Roxy Symphonic Concert

WJZ WBZ WBZA WBAL KYW
KDKA WJR WTMJ WREN WLW
WEBC WKY

2:00-2:30 Biblical Drama

WFAF WTIC WCAE KSD WOW
WDAF KVOO WFAA WHAS WHO
WGY KPRC

3:00-4:00 Symphonic Hour

WABC WOWO WSPD WNAC WCAO
WKRC KMOX WHK WEAN WJAS
WGHP KMBC WCAU WFBL WADC
WMAO KOIL WLBW WMAL WKBW
WCCO WISN

3:00-4:00 Young People's Conference

WJZ WLW KWK WBT WBAL
WSB KVOO KSTP WREN WTMJ

3:00-4:00 Dr. Stephen S. Wise

WFAF WTIC WJAR WRC WSAI
WGR WHO

4:00-5:00 Cathedral Hour

WABC KMOX WHK WNAC WCAO
WKRC KMBC WMAO WEAN WJAS
WGHP KOIL WCAU WFBL WADC
WOWO WSPD WLBW WMAL WKBW
WCCO

4:00-5:00 Dr. S. Parkes Cadman

WFAF WEEI WTIC WJAR WTAG
WHAS WCSH WLIT WGY WBT
WGR WCAE WSAI WSB WFAA
WOW KVOO WSM KOA WKY
WHO

4:30-5:00 McKinney Musicians

WJZ WBZ WBZA WBAL WHAM
KDKA WJR WLW KYW KWK
WREN KSTP

5:30-6:00 Dr. Harry Emerson Fosdick

WJZ WBZ WBZA WBAL WLW
KWK WREN WHAM

5:30-6:00 Rev. Donald Grey Barnhouse

WABC WCAU WNAC WEAN WFBL
WJAS WADC WKRC WGHF WMAO
WOWO KMOX KOIL WMAL WLBW
WKBW KMBC

5:30-6:00 Twilight Voices

WFAF WRC WGY WCAE WTAM
KSD WKY KOA WOC

6:00-6:30 The Stetson Parade

WEAF	WTIC	WJAR	WTAG	WCSH
WFI	WRC	WGY	WGR	WCAE
WTAM	WWJ	KSD	WEEI	WGN
WOW	WDAF	KVOO	WOC	KPRC
WOAI	WHAS	WSM	WMC	WTMJ
KSTP	KOA	WHO	WBT	

6:30-7:00 Acousticon Hour

WEAF	WEEI	WRC	WGY	WDAF
WCAE	WTAM	WWJ	WOW	WCSH
WFI	WGR	KSD	WTIC	WJAR
WTAG	WHO	WOC		

6:30-7:00 Whittall Anglo-Persians

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WLW	WJR	KYW	KWK
WREN	KOA	WTMJ	KSTP	WBC
KSL	KPO	KGO	KFI	KGW
KOMO	KHQ			

7:00-7:30 Old Company's Program

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WFI	WRC	WGY	WGR

7:30-8:00 At the Baldwin

WJZ	WBZ	WBZA	WBAL	WHAM
WJR	WLW	KWK	WREN	KOA
WHAS	WSM	WSB	WFAA	KPRC
WOAI	KYW	WKY		

7:30-9:00 Major Bowes' Family

WEAF	WTIC	WRC	WJAR	WGY
WCAE	WTAM	WHAS	WMC	WSB
WKY	WWJ	WHO	KSD	

8:00-8:15 The Enna Jettick Melodies

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WTMJ	WJR	KYW	KWK
WREN	WSB	WHAS	WSM	WKY
WFAA	WOAI	KSTP	KPRC	WMC
KOA				

8:00-8:30 Sonatron Program

WABC	WCAU	WEAN	WFBL	WCAO
WJAS	WADC	WKRC	WOWO	KMOX
KMBC	KOIL	WHK	WLBW	WMAL
WCCO	KLZ	KDYL	KMTR	KYA
KEX	KJR	KGA		

8:15-9:15 Colliers Radio Hour

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WJR	WLW	KYW	KWK
WREN	KOA	KSTP		

8:30-9:00 La Palina Hour

WABC	WFBL	WADC	WOWO	WSPD
WNAC	WKRC	WGHP	KMBC	KMOX
WEAN	WJAS	KOIL	WFBM	WCAU
WCAO	WBBM	WLBW	WMAL	WCCO
WISN				

9:00-9:15 David Lawrence

WEAF	WTIC	WJAR	WFAA	WSB
WTAG	WCSH	WRC	WOW	WGR
WCAE	KSD	KVOO	WHAS	WGY
WHO	WOAI	WBT	WTMJ	WKY
WMC				

9:00-10:00 Majestic Theatre of the Air

WABC	WMAK	WKRC	KMOX	WNAC
WCAO	WGHP	KMBC	WEAN	WJAS
WOWO	KOIL	WHK	WFBL	WADC
WSPD	KGA	WMAL	WBBM	WLBW
WCAU	KYA	KMTR	KEX	KJR
WCCO	WTAR	WWNC	WDOD	WBR
WREC	KLZ	KDYL	KFJF	KTSA
WISN	WDSU	KLRA	WDBJ	KRLD
KFH				

9:15-9:30 Utica Jubilee Singers

WJR	WJZ	KDKA	KWK	WHAM
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9:15-10:15 Atwater Kent Radio Hour

WEAF	WEEI	WRC	WGR	KSD
WCAE	WWJ	WGN	WGY	WHO
WOAI	WFI	WTAM	WOW	KVOO
WFAA	KPRC	WSM	WSB	WBT
KOA	KPO	KGO	KFI	KGW
KOMO	KHQ	WKY	KSL	WMC
WOC	KSTP			

9:45-10:00 El Tango Romantico

WJZ	KDKA	KWK	WBZ	WBZA
WHAM				

10:00-10:30 De Forest Audions

WABC	WCAU	WNAC	WEAN	WFBL
WMAK	WCAO	WJAS	WADC	KMOX
WKRC	WGHP	WBBM	WOWO	WHK
KMBC	KOIL	WSPD	WLBW	WMAL
KLZ	KEX	KDYL	KJR	KMTR
KGA	KYA			

10:15-10:45 Studebaker Champions

WEAF	WTIC	WJAR	WTAG	WCSH
WFI	WRC	WGR	WCAE	WGR
WTAM	WWJ	WHO	WOW	KSTP
WTMJ	WBC	WHAS	WSM	WMC
WSB	WBT	WRVA	WFAA	KPRC
WOAI	WKY	KOA	KPO	KFI
KOMO	KHQ	KGW	KGO	WGN
WOC	WJAX			

10:30-11:00 Around the Samovar

WABC	WCAU	WNAC	WEAN	WFBL
WMAK	WCAO	WJAS	WADC	KMOX
WKRC	WGHP	WSPD	WOWO	WHK
KMBC	KOIL	WLBW	WMAL	WMAQ
WISN				

Monday**4:00-5:00 U. S. Marine Band**

WJZ	KWK	WRC	WJR	WBZ
WBZA				

7:30-8:30 Roxy and his Gang

WJZ	WBZ	WBZA	WHAM	KDKA
KWK	WJR	WSM	WSB	WBAL
WREN	WBT	WRC	WLS	WBC
WIOD				

7:45-8:00 The Piano Twins

WEAF	WOW	WKY
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8:00-8:30 School Daze

WOR	WNAC	WEAN	WFBL	WMAK
WJAS	WADC	WKRC	WMAQ	KMOX
KMBC	KOIL	WMAL	WHK	WLBW
WCAU	WISN	WCAO	WGHP	WDBJ
WTAR	WWNC			

8:00-8:30 Voice of Firestone

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WLIT	WRC	WGY	WGR
WCAE	WWJ	KSD	WOW	WDAF
KVOO	WFAA	KPRC	WOAI	WBC
WTMJ	KYW	WHAS	WSM	WSB
WBT	WRVA	WJAX	WTAM	KSTP
WOC	WKY	WIOD	WMC	

8:30-9:00 Ceco Couriers

WOR	WNAC	WEAN	WFBL	WMAK
WCAO	WJAS	WADC	WKRC	WGHP
WMAQ	KMOX	KMBC	KOIL	WCAU
WHK	WSPD	WMAL	WGL	WLBW
WCCO				

8:30-9:30 A. & P. Gypsies

WEAF	WTIC	WJAR	WCSH	WLIT
WGY	WCAE	WTAM	WWJ	WGN
KSD	WDAF	WRC	WTAG	WGR
WEEI	WOC			

8:30-9:00 Automatic Duo Disc Duo

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WLW	KYW	KWK	WREN
KOA	WJR			

9:00-9:30 Physical Culture Magazine

WOR	WCAU	WNAC	WEAN	WFBL
WMAK	WCAO	WJAS	WADC	WKRC
WGHP	WMAQ	KMOX	KMBC	WSPD
WHK	WLBW	KOIL	WMAL	WGL

9:30-10:30 General Motors Party

WEAF	WEEI	WJAR	WCSH	WLIT
WTAG	WRC	WGY	WGR	WCAE
WTAM	WWJ	WGN	WTMJ	KSD
WOW	WDAF	WFAA	KPRC	WOAI
WHAS	WSM	WSB	WBT	WJAX
KHQ	KGO	KFI	KGW	KSTP
KOA	KSL	KPO	KOMO	WKY
WTIC	WOC	WIOD	WMC	

9:30-10:00 Vitaphone Jubilee

WOR	WCAU	WNAC	WEAN	WFBL
WMAK	WCAO	WJAS	WADC	WKRC
WGHP	WMAQ	KMOX	KMBC	WSPD
WHK	WLBW	KOIL	WMAL	WGL
KLZ	KDYL	KYA	KEX	KJR
KGA	KMTR	KFWB		

9:30-10:00 Real Folks

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WJR	WLW	KYW	KWK
WREN				

10:00-10:30 Robert Burns Panatellas

WOR	WCAU	WNAC	WEAN	WFBL
WMAK	WCAO	WJAS	WADC	WKRC
WGHP	WMAQ	KMOX	KOIL	WSPD
WHK	WLBW	WMAL	WOWO	KMBC

10:30-11:00 Empire Builders

WEAF	WEEI	WJAR	WTAG	WCSH
WLIT	WRC	WGY	WGR	WCAE
WTAM	WWJ	KYW	KSD	WOC
WOW	KSTP	WTMJ	WBC	WHAS
WSB	WBT	WFAA	KPRC	WOAI
WKY	KOA	KSL	KPO	KFI
KGO	KGW	KOMO	KHQ	WTIC
WDAF	WBC	WHAS	WSB	WBT
WFAA	WMC			

10:30-11:00 United Choral Singers

WOR	WCAU	WNAC	WEAN	WFBL
WMAK	WCAO	WJAS	WADC	WKRC
WGHP	WMAQ	WOWO	KMOX	KMBC
KOIL	WSPD	WHK	WLBW	WMAL

11:00-11:30 National Grand Opera

WEAF	WGR	WWJ	KSD	WRC
WFAA	WRVA	WJAX	WKY	WIOD
WHAS	WGY			

Tuesday**10:30-11:00 Jewel Radio Hour**

WABC	WFBL	WCAO	WJAS	WADC
WGHP	WBBM	KOIL	WHK	WMAL
WKBW	WOWO	KMOX	WSPD	WLBW

10:45-11:00 Harriet Wilson Food Club

WEAF	WTIC	WJAR	WTAG	WCSH
WFI	WRC	WGY	WGR	WTAM
WWJ	WSAI	KYW	KSD	WOC
WOW	WDAF	WTMJ	WHAS	WMC
WSB	WBT	KVOO	KPRC	WOAI

11:00-11:30 Radio School of Cookery

WJZ	WBZ	WBZA	WHAM	KDKA
WLW	WJR	KWK		

4:30-5:00 Auction Bridge Game

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WLIT	WRC	WGY	WGR
WCAE	WTAM	WWJ	WSAI	WGN
WTMJ	KSD	KOA	WOW	WDAF
KVOO	WFAA	KPRC	WOAI	WHAS
WSM	WSB	WBT	WOC	WMC

7:00-7:30 Voters Service

WEAF	WTIC	WJAR	WTAG	WCSH
WFI	WRC	WGY	WCAE	KSD
WOW	WDAF	KOA	WHAS	WBT
WFAA	WTMJ	WMC		

7:30-8:00 Soconyland Sketches

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WGY	WGR		

7:30-8:00 Fundamentals of the Law

WJZ	WHAM	WRVA	WKY	KWK
KOA	WHAS	WOAI	WMC	

8:00-8:30 Genia Fonarivova, Soprano

WEAF	WFI	WRC	KSD	WOW
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7:30-8:00 MOBO Entertainers

WCAU	WABC	WNAC	WEAN	WFBL
WCAO	WJAS	WLBW	WKBW	WMAL

8:00-8:30 Stromberg-Carlson Sextet

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WIR	KYW	KWK	WREN
WMC	KSTP	KVOO	WFAA	KPRC
WOAI	WHAS	WSB	WBT	KOA
WKY	WSM			

8:00-9:00 Frederic William Wile

WABC	WFAN	WNAC	WEAN	WFBL
WKBW	WCAO	WJAS	WADC	WOWO
KMOX	KOIL	WHK	WLBW	WMAL
WCCO				

8:30-9:00 Prophylactic Program

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WFI	WRC	WGY	WGR
WCAE	WWJ	KSD	WOW	WDAF
WHO				

8:30-9:00 Michelin Hour

WJZ	WBZ	WBZA	WBAL	WHAM
KVOO	WFAA	KPRC	WOAI	WJR
KDKA	KYW	KWK	WREN	

9:00-9:30 Three-In-One-Theatre

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	KYW	KWK	WREN	WLW

9:00-10:00 Eveready Hour

WEAF	WEEI	WJAR	WFI	WRC
WGY	WGR	WCAE	WTAM	WWJ
WGN	KSD	WMC	WSB	WDAF
WHAS	WSM	KOMO	KHQ	KVOO
WOAI	KGO	KFI	KGW	KOA
KPO	WHO	KSTP	WEBC	KSL

9:00-10:00 Old Gold—Paul Whiteman

WABC	WBW	WNAC	WEAN	WFBL
WCAO	WJAS	WADC	WKRC	WGHP
WOWO	KMOX	KMBC	KOIL	WSPD
WHK	WMAL	WKBW	WLWB	WBBM
WCCO	WDBJ	WTAR	WREC	KFJF
WISN	WDSU	KLRA	KEX	KJR
KGA	WCAU	KTSA	WWNC	WLAC
WDOD	WBRC	WRR	KLZ	KDYL
KYA	KMTR			

9:30-10:00 Dutch Masters Minstrel

WJZ	WTMJ	WBZ	WBZA	WBAL
WHAM	KDKA	WLW	KYW	WREN
WJR	KWK			

10:00-10:30 Clicquot Club Eskimos

WEAF	WEEI	WTIC	WJAR	WCSH
WFI	WRC	WGY	WCAE	WTAM
WWJ	WTMJ	KSD	WMC	WDAF
WFAA	KPRC	WOAI	WHAS	WSM
WSB	WBT	KOA	WTAG	WGR
KYW	WOW	KSTP	WHO	KSL
KPO	KGO	KFI	KGW	KOMO
KHQ	WJAX	WRVA	WKY	

10:00-10:30 Williams Syncomatics

WJZ	WBAL	WHAM	KDKA	WJR
WLW	KWK	WREN	WGN	

10:00-11:00 Voice of Columbia

WABC	WFAN	WNAC	WEAN	WFBL
WCAO	WJAS	WADC	WKRC	WGHP
WOWO	KMOX	KOIL	WSPD	WMAL
WKBW	WLWB	WBBM	KLZ	KYA
KMTR	KJR	KEX	KGA	WISN
WHK	WCCO	KDYL		

10:30-11:00 The Contraltones

WEAF	WFI	WCAE	WHO	WRVA
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10:30-11:00 Orchestradians

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WJR	KYW	KWK	WREN
KSTP	KOA	KSL	KGO	KPO
KGW	KFI	KOMO	KHQ	

11:00-12:00 Wrigley—Guy Lombardo

WABC	WNAC	WEAN	WFBL	WCAO
WJAS	WADC	WCAU	WGHP	WBBM
WOWO	KMOX	KMBC	KOIL	WSPD
WHK	WKBW	WLWB	WMAL	KLZ
KDYL	KYA	KMTR	KJR	KEX
KGA	WKRC			

11:00-12:00 Radio Keith-Orpheum

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WFI	WRC	WGY	WGR
WCAE	WTAM	WWJ	KYW	KSD
WHO	WDAF	KSTP	WTMJ	WEBC
WJAX	WHAS	WSM	WSB	WMC
WBT	WRVA	WFAA	KPRC	WOAI
WKY	KOA	KSL		

Wednesday**10:00-11:00 National Home Hour**

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WRC	WGR	WGY	WCAE
WEAR	WWJ	WSAI	WTMJ	KFKX
WHO				

11:00-11:15 Parnassus Trio

WEAF	WRC	WGY	KFKX
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11:00-11:30 Radio School of Cookery

WJZ	WBZ	WBZA	WHAM	KDKA
KWK	WJR	WREN		

4:00-5:00 Pacific Vagabonds

WEAF	WRC	WMO	WOW	KGO
KGW	KHQ	KHO		

4:00-5:00 U. S. Navy Band

WJZ	WRC	WBZ	WBZA
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7:30-8:00 La Touraine Tableaux

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WGY	WGR	WCAE	WWJ
WTAM	WHAS	WSB	WMC	

7:45-8:00 The Political Situation

WRC	WJZ	WBAL	KDKA	WLW
KWK				

8:00-8:30 Sunkist Serenaders

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WLIT	WRC	WGY	WGR
WCAE	WWJ	KSD	WOC	WOW
WDAF				

8:00-8:30 Mobiloil Orchestra

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WJR	WLW	KYW	WREN
KSTP	WTMJ	KOA	KVOO	WFAA
KPRC	WOAI	WEBC	KWK	

8:00-9:00 Show Boat

WCAU	WOR	WNAC	WEAN	WFBL
WKBW	WJAS	WADC	WMAQ	KMOX
WMAL	KOIL	WLWB	WCCO	WISN
WHK				

8:30-9:00 Kremlin Echoes

WEAF	WTIC	WRC	WCAE	KSD
WOC	WKY	WTAG	WCSH	WLIT
WMC				

8:30-9:00 Sylvania Foresters

WJZ	KDKA	WBZ	WBZA	WBAL
WHAM	WLW	WJR	KWK	KYW
WREN	KRVA			

9:00-9:30 Van Heusen Program

WOR	WNAC	WEAN	WFBL	WMAK
WJAS	WADC	WMAQ	KMOX	KOIL
WLWB	WMAL	WCAU	WCAO	WKRC
WGHP	WOWO	KMBC	WHK	WSPD

9:00-9:30 Smith Brothers

WJZ	WBZ	WBZA	WBAL	WHAM
WJR	KYW	KWK	WREN	KDKA

9:00-9:30 Ingram Shavers

WEAF	WEEL	WTIC	WJAR	WTAG
WCSH	WRC	WGY	WGR	WCAE
WTAM	WWJ	KPRC	WOAI	WHAS
WSM	WSB	WBT	KOA	WMC
KSD	WOW	WDAF	WBAP	WGN
KSTP	WOC	KVOO	WTMJ	

9:30-10:00 La Palina Smoker

WOR	WCAU	WNAC	WEAN	WFBL
WMAK	WCAO	WJAS	WADC	KMOX
WKRC	WGHP	WMAQ	WOWO	KOIL
KMBC	WSPD	WHK	WMAL	WLBW
WCCO	WEAN	WISN		

9:30-10:30 Palmolive Hour

WEAF	WJAX	WSM	WBT	WEEL
WRC	WTIC	WGY	WGN	WDAF
WJAR	WGR	KSD	KVOO	WTAG
WCAE	KPRC	WFAA	WTMJ	WTAM
WOAI	KOA	WLIT	WMI	WOW
WTMJ	WHAS	KSTP	WOC	KPO
KGO	KFI	KGW	KOMO	KHQ
KSL	WCSH	WWJ	WLIT	WOW
WHAS	WMC	WSB		

9:30-10:00 The Cabin Door

WJZ	KDKA	WJR	WBZ	WBZA
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10:00-10:30 Kolster Radio Hour

WOR	WFBL	WADC	WOWO	WHK
WCAU	WMAK	WKRC	KMOX	KOIL
WNAC	WCAO	WGHP	KMBC	WMAL
WEAN	WJAS	WMAQ	WSPD	WLBW
WCCO	KLZ	KDYL	KYA	KEX
KJR	KGA	KMTR		

10:30-11:00 Gold Strand Orchestra

WEAF	WEEL	WTIC	WJAR	WTAG
WCSH	WLIT	WRC	WGY	WGR
WCAE	WTAM	WWJ	WOC	KSD
WOW	WBT	KOA	WHAS	WSM
WMC	WSB	WFAA	WOAI	KPRC
KSL	KSTP	WKY	KYW	KPO
KGO	KFI	KOMO	KHQ	KGW

10:30-11:00 Daguerrotypes

WOR	WMAK	WFBL	WOWO	WSPD
WCAU	WCAO	WKRC	KMOX	WHK
WNAC	WJAS	WGHP	WLBW	WEAN
WADC	WMAQ	WMAL	WCCO	WISN

11:00-12:00 Hal Kemp's Orchestra

WEAF	KSD	WOW	WKY	WCAE
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Thursday**10:00-10:15 Harry Merker's Orchestra**

WEAF	WGR	WOC
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10:30-11:00 Rit Program

WABC	WCAU	WFBL	WKBW	WCAO
WJAS	WADC	WGHP	WBBM	WOWO
WHK	WMAL	WNAC	WEAN	KOIL
WLBW	WISN	WRHM		

11:00-11:30 Radio School of Cookery

WJZ	WBZ	WBZA	WHAM	KDKA
WLW	WJR	KWK	KFKX	

4:00-5:00 U. S. Army Band

WJZ	WRC	WJR	WREN	KWK
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7:30-8:00 Coward Comfort Hour

WEAF	WEEL	WTIC	WJAR	WTAG
WCSH				

8:00-8:30 The Song Shop

WEAF	WTIC	WJAR	WTAG	WCSH
WFI	WRC	WGY	WGR	WCAE
WTAM	WWJ	WTMJ	WOW	WDAF
KOA	WEEL	KSD	WHO	KSTP

8:00-8:30 Lehn and Fink Serenade

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WOAI	WLW	WJR	WFAA
KYW	KWK	KPRC	WREN	WKY

8:00-8:30 Sweethearts

WABC	WNAC	WEAN	WFBL	WJAS
KMOX	KOIL	WLBW	WMAL	WKBW
WCAO				

8:30-9:00 Then and Now

WABC	WNAC	WEAN	WFBL	WKBW
WCAO	WJAS	KMOX	KOIL	WLBW
WMAL				

8:30-9:00 Hoover Sentinels

WEAF	WEEL	WTAM	WFI	WRC
WGY	WCAE	WWJ	KSD	WHAS
WSM	WOW	WSB	WFAA	WDAF
WGN	WGR	WHO	WKY	KSTP

8:30-9:00 Champion Sparkers

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WLW	WREN	KWK	KYW
WJR				

9:00-9:30 Seiberling Singers

WEAF	WEEL	WTIC	WJAR	WTAG
WCSH	WFI	WRC	WGY	WGR
KPO	WWJ	KFI	KSD	KHQ
KOA	WBT	WOW	WDAF	WFAA
KPRC	WHAS	WSM	WMC	WSB
WTMJ	KGO	KGW	WTAM	KYW
WHO	WJAX	KSTP	KOMO	WKY

9:00-9:30 Aunt Jemima

WABC	WCAU	WNAC	WEAN	WFBL
WCAO	WJAS	WADC	WKRC	WGHP
WBBM	WOWO	KMOX	KMBC	KOIL
WSPD	WHK	WLBW	WMAL	WKBW

9:30-10:00 Rapid Transit

WEAF	WTIC	WCSH	WRC	WCAE
WJAR	WFI			

9:30-10:00 Sonora Phonograph Hour

WABC	WCAU	WNAC	WEAN	WFBL
WMAL	WJAS	WADC	WKRC	WBBM
WGHP	WOWO	KMOX	KMBC	WSPD
WKBW	WHK	WLBW	KOIL	WCAO
WCCO	KEX	KJR	KFJF	KRLD
KLZ	KDYL	KMTR	KYA	KGA
WTAR	WNNC	WLAC	WDOD	WRRC
KLRA	KTSA	WDSU	WISN	WDBJ
WBRC	WIBW			

9:30-10:00 Maxwell House Hour

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WLW	WJR	KYB	KSD
WHO	WDAF	WBAP	KPRC	WHAS
WSM	WSB	WBT	KOA	WQW
WEBC	WJAX	WTMJ	KSTP	WRVA

10:00-10:30 Columbians

WABC	WFAN	WEAN	WNAC	WFBL
WJAS	WADC	WKRC	WGHP	WMAL
WOWO	KMOX	KMBC	WSPD	WKBW
WHK	WLBW	KOIL	WCAO	WBBM
KLZ	WTAR	WWNC	WLAC	WDOD
WREC	KLRA	KFJF	KRLD	KTSA
WDSU	WISN	WDBJ	WBRC	WIBW

10:00-10:30 Halsey Stuart Hour

WEAF	WEEL	WTIC	WJAR	WTAG
WCSH	WFI	WRC	WGY	WGR
WCAE	WTMJ	KSD	WOW	KVOO
WFAA	WOAI	WHAS	WBT	KOA
WSB	WWJ	KYW	WHO	KPRC
KSTP	WJAX	WMC	WRVA	KPO
KGO	KOMO	KHQ	KGW	KFI

10:30-11:00 Musical Episode

WABC	WFAN	WNAC	WEAN	WCAO
WKRC	WGHP	KMBC	WSPD	WHK
WLBW	WMAL	WJAS	WADC	WOWO
KMOX	KOIL	WKBW	WFBL	WBBM
WISN				

10:30-11:30 Concert Bureau Hour

WEAF	WEEL	WTIC	WTAG	WLIT
WCAE	WWJ	KSD	WGR	WCSH
WRC	WKY	WRVA	WOW	

Friday**10:00-11:00 National Home Hour**

WEAF	WEEL	WTIC	WTMJ	KSD
WJAR	WTAG	WCSH	WFI	WRC
WGY	WGR	WCAE	WWJ	WSAI
WEAR	KFKX	WHO		

11:00-12:00 RCA Educational Hour

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WJR	WLW	WOW	WDAF
KVOO	WFAA	KPRC	WOAI	KOA
WTMJ	WHAS	WSM	WSB	WRVA
WBT	KFKX	WRC	WHO	KSTP
WJAX				

12:00-12:15 Jean Carroll

WOR	WCAU	WNAC	WEAN	WFBL
WMAK	WCAO	WJAS	WADC	WKRC
WGHP	WHK	WMAL	WBBM	WOWO
KOIL	KMBC	WLBW		

12:00-12:15 Teeth and Health

WEAF	WEEL	WTIC	WCSH	WLIT
WRC	WOW	WCAE	WWJ	WGY
WEAR	KFKX	KSD	KSTP	WHO
WSAI				

4:00-5:00 U. S. Marine Band

WJZ	WBZ	WBZA	WLW	WJR
KWK	KOA	WRC		

4:00-5:00 Pacific Little Symphony

WJZ	WBZ	WBZA	WBAL	WJR
WLW	KWK	WREN	KOA	KGO
KOMO	WLS			

5:00-5:30 Florida Citrus Growers

WEAF	WEEL	WTIC	WJAR	WTAG
WCSH	WRC	WGY	WGR	WCAE
WTAM	WWJ	WSAI	KYW	KSD

6:30-7:00 Raybestos Twins

WEAF	WTIC	WJAR	WTAG	WCSH
WFI	WRC	WGY	WGR	WCAE
WTAM	WWJ	KSD	WOW	WDAF
WOC	KOA	KSL	KPO	KGO
KFI	KGW	KOMO	KHQ	

6:45-7:00 Enna Jettick Melodies

WABC	WCAU	WNAC	WEAN	WFBL
WMAK	WJAS	WADC	WBBM	WOWO
KMOX	KOIL	KMBC	WHK	WLBW
WMAL	WRHM			

7:15-7:30 Squibbs Health Talk

WJZ	WBZ	WBZA	WHAM	KDKA
WJR	WLW	KYW	KWK	WREN
KSTP	WTMJ	KOA		

7:30-8:00 Dixies Circus

WJZ	WBZ	WBZA	WBAL	KDKA
WJR	WLW	KYW	WBT	WSB
WSM	WHAS	WMC		

8:00-8:30 Close-Ups

WOR	WNAC	WEAN	WFBL	WJAS
WMAQ	KMOX	KOIL	WLBW	WMAL
WADC	WCAO	WHK	WDBJ	WTAR
WWNC	WLAC	WDOD	WBRC	WREC
KLRA	KFJF	KRLD	KFH	WDSU

8:00-9:00 Cities Service Orchestra

WEAF	WEEL	WLIT	WRC	WDAF
WCAE	WTAM	WWJ	KSD	WOW
WFAA	KOA	KYW	WOC	WKY
KSTP	WGR			

8:30-9:00 The Armstrong Quakers

WJZ	WBAL	WJR	KWK	WSB
WBZ	WHAM	WLW	WREN	WBZA
KDKA	WBT	WHAS	WSM	WLS
WMC				

8:30-9:00 Veedol Vodevil

WOR	WCAU	WNAC	WEAN	WFBL
WMAK	WJAS	WMAQ	KMOX	KOIL
WLBW	WMAL	WCCO	WADC	WHK
WCAO	WGHP	WOWO	KMBC	WHCC
WDBJ	WTAR	WWNC	WLAC	WDOD
WBRC	WREC	KLRA	KFJF	KRLD
KTSA	KFH	WDSU		

9:00-9:30 An Evening in Paris

WEAF	WEEL	WTIC	WRC	WGR
WCAE	WWJ	WCSH	WDAF	KSD
WJAR	WTAG	WGN	WLIT	WGY
WOW	WOC			

9:00-10:00 True Story Hour

WOR	WMAK	WOWO	WSPD	WLBW
WCAU	WCAO	WKRC	KMOX	WMAL
WNAC	WJAS	WGHP	KMBC	WFBL
WEAN	WADC	WMAQ	KOIL	WHK

9:00-10:00 Wrigley Review

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WLW	WJR	KYW	WREN
WHAS	WSM	WSB	WBT	WRVA
WJAX	KGO	WFAA	WOAI	KPO
KFI	KGW	KOMO	KHO	KPRC
KOA	KSTP	WMC	KWK	WKY

9:30-10:00 Schradertown Brass Band

WEAF	WEEI	WDAF	WTIC	WJR
WTAG	WCSH	WLIT	WGY	WGR
WCAE	WWJ	WOC	KSD	WOW

9:30-10:00 Philco Hour

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WLW	WJR	KYW	KWK
WREN	WFAA	KPRC	WOAI	WHAS
WSM	WSB	WBT	WTMJ	KSTP
WMC	WKY	KOA	KSL	KPO
KGO	KFI	KGW	KOMO	KHQ

10:00-10:30 Kodak Hour

WOR	WFBL	WADC	WMAQ	WSPD
WCAU	WMAK	KOIL	WHK	WNAC
WCAO	WKRC	KMOX	WLWB	WEAN
WJAS	WGHP	KMBC	WMAL	WCCO
WISN	WOWO	KLZ	KDYL	KMTR
KYA	KEX	KJR	KGO	WDBJ
WTAR	WWNC	WLAC	WDOD	WBRC
WREC	KLRA	KFJF	KRLD	WIBW
KTSA	WDSU			

10:00-10:30 Hudson-Essex Challengers

WJZ	WBZ	WBZA	WBAL	WHAM
WRVA	KDKA	WLW	WJR	KYW
KWK	WREN	KVOO	WFAA	KPRC
WOAI	WHAS	WBT	WTMJ	KSTP
WEBC	KOA	KSL	KPO	KFI
KGW	KOMO	KHQ	WKY	WSB
WJAX	WMC	WIOD		

10:00-10:30 Palais d'Or Orchestra

WEAF	WFI	WWJ	WRVA	WTIC
WGY	WEO			

10:30-11:00 Half Hours with the Senate

WHAS	WMC	WJAX	KVOO	WFAA
WOAI	WKY	KSL	KPO	KGO
WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WLIT	WRC	WGY	WGR
WCAE	KYW	KSD	WOC	WOW
WTMJ	WIOD	KGW	KHQ	

10:30-11:00 Phil Spitalny's Music

WJZ	WBZ	WBZA	WREN	WIOD
WMC	WJAX			

10:30-11:00 Night Club Romances

WOR	WCAU	WNAC	WEAN	WFBL
WMAK	WCAO	WJAS	WADC	WKRC
WGHP	WMAQ	KMOX	KMBC	KOIL
WSPD	WEH	WLWB	WMAL	WISN
WDBJ	WTAR	WWNC	WDOD	WREC
KFJF	KRLD	WIBW	KTSA	KLZ
KDYL	KMTR	KYA	KEX	KJR
KGA				

Saturday**8:00-8:30 Lew White Organ Recital**

WEAF	WTIC	WCAE	WWJ	KSD
WHO	WRC	WKY	KOA	KSL
KPO	KGO	KGW	KHQ	KOMO
KFI	WFAA	WEEI		

8:30-9:00 Mildred Hunt, Contralto

WEAF	WGY	WGR	KYW	KFI
WCAE	WWJ	KSD	WHO	WTIC
WJAR	WTAG	WRC	KSL	KOA
KPO	KGO	KOMO	KHQ	WEEI

9:15-9:30 Harry Merker's Orchestra

WEAF	WEEI	WRC
------	------	-----

9:30-10:30 U. S. Army Band

WEAF	WRC	WEEI	WGR	WOC
KDKA				

3:30-4:30 RCA Demonstration Hour

WBZ	WBZA	WJZ	WHAM	KDKA
WLW	WJR	KYW	KWK	WOAI
WHAS	WSB	KPRC	WFAA	KVOO
WDAF	WRC	WBT	WOC	

6:30-7:00 Gold Spot Orchestra

WJZ	WBZ	WBZA	KDKA	WLW
-----	-----	------	------	-----

6:30-7:00 White House Dinner Music

WEAF	WEEI	WTIC	WJAR	WSB
WTAG	WCSH	WFI	WRC	WGY
WGR	WCAE	WTAM	WWJ	WLS
WBT	WTMJ	KSTP		

7:00-7:30 Phil Spitalny's Music

WEAF	WFI	WRC	WGY	WSB
------	-----	-----	-----	-----

7:30-8:00 Romance Isle

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH				

7:45-8:00 The World's Business

WJZ	WBAL	WSM	KDKA	KWK
KOA	WFAA	WTMJ	WRC	WHAS

8:00-8:30 Pure Oil Band

WJZ	WBAL	WHAM	KDKA	WJR
WLW	KYW	WKW	WREN	WTMJ
WHAS	WMC	WSB	WBT	WRVA
WJAX	WEBC	KSTP		

8:30-9:00 Interwoven Entertainers

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WJR	WLW	KYW	KWK
WREN	WHAS	WMC	WSB	WBT
WFAA	KPRC	WOAI	WKY	

9:00-9:30 Pan-Americana

WJZ	WBZ	WBZA	WBAL	KDKA
-----	-----	------	------	------

9:00-10:00 General Electric Hour

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WFI	WRC	WGY	WGR
WCAE	WTAM	WWJ	KSD	WHO
WOW	WDAF	WTMJ	KOA	WHAS
WMC	WSB	WBT	WFAA	KPRC
WKY	WJAX	WRVA	WEBC	KSL
KPO	KGO	KHQ	KGW	KOMO
KFI	WLS	KSTP		

10:00-11:00 Lucky Strike Orchestra

WEAF	KOA	WRC	KSD	WEEI
WGR	KPO	WTMJ	KSL	WCAE
WOW	KHO	WJAR	WTAM	WDAF
KGO	WTAG	WWJ	KVOO	KFI
WCSH	WFAA	WSB	KGW	WFI
WGN	KPRC	WBT	KOMO	WGY
WHO	WOAI	WJAX	KSTP	WKY
WHAS	WIOD	WMC		

11:00-11:15 Wright Sisters

WEAF	WFI	WCAE	WWJ	KSD
WHO	WKY	WIOD		

11:15-12:00 Ben Pollack's Orchestra

WEAF	WCAE	WWJ	KSD	WHO
WDAF	WKY			

71R-LINE DISTANCES

FROM/TO	Albuquerque, N. Mex.	Atlanta, Ga.	Baltimore, Md.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Buffalo, N. Y.	Chicago, Ill.	Cincinnati, Ohio	Cleveland, Ohio	Denver, Colo.	Des Moines, Iowa	Detroit, Mich.	El Paso, Tex.	Fargo, N. Dak.	Fort Worth, Tex.	Galveston, Tex.	Hastings, Nebr.	Hot Springs, Ark.	Houghton, Mich.	Jacksonville, Fla.	Kansas City, Mo.	Los Angeles, Calif.	
Albuquerque, N. Mex.	-----	1273 1670	774 1967	636 1577	1126 1248	1417 332	833 1360	228 968	561 803	588 773	1252 1492	1717 663												
Atlanta, Ga.	1273 ----	-----	575 1830	933 960	695 583	368 550	1208 738	595 1293	1112 510	1208 738	595 1293	1112 510	1239 1434	1154 964	1408 286	675 1935								
Baltimore, Md.	1670 575 ----	575 ----	-----	2055 358	1525 273	603 423	305 1505	913 398	1750 1143	1239 1434	1154 964	1408 286	675 1935	1263 1545	1154 964	1408 286	675 1935							
Boise, Idaho	774 1830 2055 ----	2055 358	1525 273	-----	2266 1610	1872 1453	1663 1754	637 1155	1671 969	975 1239	1545 1384	1384 1607	2098 1158	663 675	1935 1263									
Boston, Mass.	1967 933 358 2266 ----	1881 398	849 737	550 1766	1159 1159	613 2067	1304 1766	1159 613	2067 1304	1574 1598	1415 1302	922 1015	1250 259											
Brownsville, Tex.	838 960 1525 1610 1881	-----	1575 1234	1184 1402	1047 1102	1398 638	1445 1047	1102 1398	638 1445	471 287	1013	650 1543	1025 923	1374										
Buffalo, N. Y.	1575 695	273 1872	398 1975	-----	454 392	175 1369	762 218	1690 912	1221 1289	1019	956 560	860 662	1925											
Chicago, Ill.	1126 583	603 1453	849 1254	454 ----	249 307	518 1047	1102 1398	638 1445	471 287	1013	650 1543	1025 923	1374											
Cincinnati, Ohio	1248 368	423 1663	737 1184	392 249	-----	218 1090	509 234	1333 818	839 897	742 569	589 628	541 1892												
Cleveland, Ohio	1417 550	305 1754	550 1402	175 307	218 ----	-----	1223 617	94 1521	838 1043	1116 871	787 518	768 700	2044											
Denver, Colo.	332 1208	738 595	1293 1112	-----	607 1153	554 642	643 265	353 749	574 440	544 808	-----	513 1277	1178											
Des Moines, Iowa	1239 1434	1154 964	1408 286	675 1935	1263 1545	1154 964	1408 286	675 1935	1263 1545	1154 964	1408 286	675 1935	1263 1545	1154 964	1408 286	675 1935								
Detroit, Mich.	637 1155	1671 969	975 1239	1545 1384	1384 1607	2098 1158	663 675	1935 1263	1545 1384	1384 1607	2098 1158	663 675	1935 1263	1545 1384	1384 1607	2098 1158								
El Paso, Tex.	1766 1159	613 2067	1304 1766	1159 613	2067 1304	1574 1598	1415 1302	922 1015	1250 259															
Fargo, N. Dak.	1574 1598	1415 1302	922 1015	1250 259																				
Fort Worth, Tex.	561 803	588 773	1252 1492	1717 663																				
Galveston, Tex.	750 688	901 498	947 286	675 1935																				
Hastings, Nebr.	1263 1545	1154 964	1408 286	675 1935																				
Hot Springs, Ark.	1043 1116	871 787	518 768	700 2044																				
Houghton, Mich.	643 265	353 749	574 440	544 808	-----	513 1277	1178																	
Jacksonville, Fla.	471 287	1013 650	1543 1025	923 1374																				
Kansas City, Mo.	1013 650	1543 1025	923 1374																					
Los Angeles, Calif.	1043 1116	871 787	518 768	700 2044																				

Use Your RADEX Properly

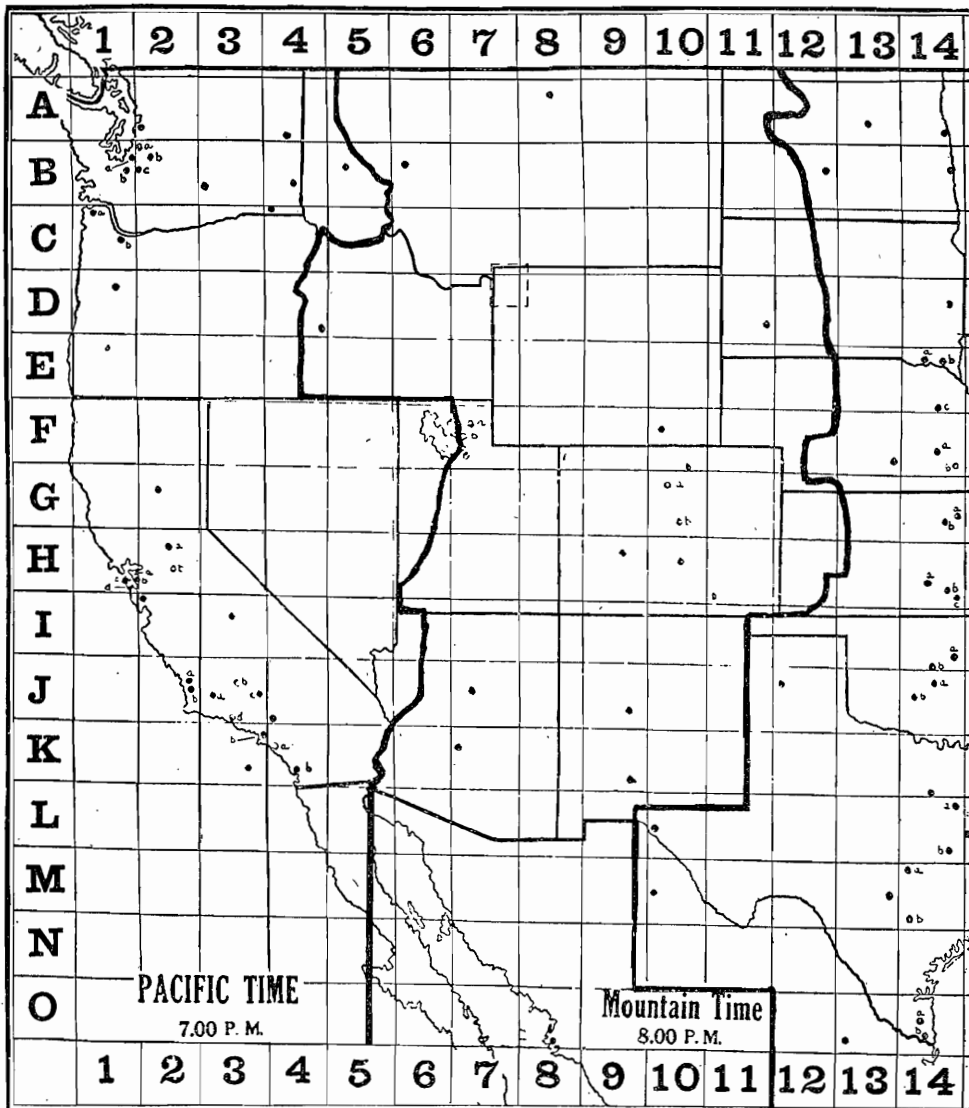
(Continued from Inside Cover)

71-69 our set will be tuned to 640 keys. and at that point KFI of Los Angeles will be heard, always assuming of course that it is on the air and within range of our particular set.

Now we tune in some other station, proceeding as before, until after an evening or two, we have blanks filled on every page. We are now able to set our dials for any frequency we desire and consequently any sta-

tion we may want whether we have ever received it before or not.

Our Index now becomes of great value to us in identifying programs. Let us say that we hear music at 67-65 on our dials. We refer to our Index by Frequencies and Dial Numbers and we find that we are in tune to 680 kilocycles. On this wave there are two stations: KPO at San Francisco and WPTF at Raleigh, N. C. Both of these stations have 5000 watts in power. But knowing which is the closer to our set, we can tell almost invariably which station we are hear-



The Radex Press,
P. O. Box 143, Cleveland, Ohio.

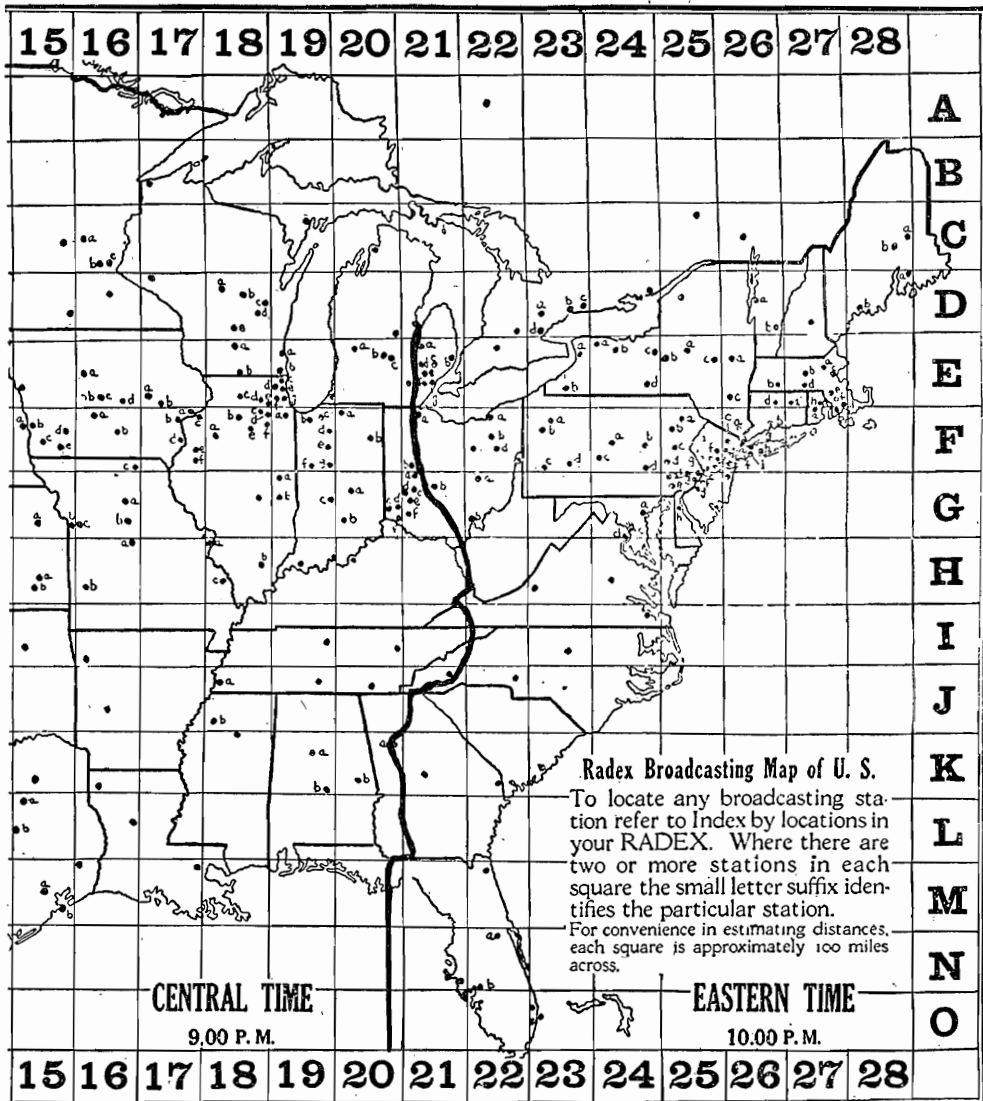
Begin With No. 28 Renewal or
 29 New Subscription

Please enter my subscription for one year (ten issues) for which I enclose \$1.75. Also send me the leatherette cover for which I enclose 50c. (Cross out if not wanted).

Write Name Plainly.....

Street and No.....

City and State.....



RADEX is published monthly throughout the year with the exception of July and August. The price is 25c per copy or \$1.75 for the year of ten issues. If you desire to be up-to-date in radio and to be kept informed of the frequent changes in stations, please fill in the coupon on this page and mail it at once.

In answer to many requests we have had prepared a beautiful leatherette cover stamped in gold. This cover is not only an ornament to even the finest set but it protects your RADEX from wear and gives a solid backing for making entries. The price of this cover is 50c or we will send one free for two yearly subscriptions. Send your own and a friend's subscription and we will send you one of these beautiful covers free.

INDEX BY FREQUENCIES AND DIAL NUMBERS

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540 kilocycles 555.6 meters

CKX 500 Brandon, Manitoba

Manitoba Telephone System		

550 kilocycles 545.1 meters

CYY 100 Merida, Mexico
 KFDY 500 Brookings, S. D.
 KFBU 500 St. Louis, Mo.
 KFYZ 500 Bismarck, N. D.
 KSD 500 St. Louis, Mo.
 KTAB 500 Oakland, Cal.
 WEAN 250 Providence, R. I.
 WEAO 750 Columbus, Ohio
 WGR 1000 Buffalo, N. Y.
 WKRC 500 Cincinnati, Ohio

Socialist Party S. D. State College Concordia Theological Seminary Hoskins-Meyer Pulitzer Publishing Co. Associated Broadcasters The Shepard Stores Ohio State University Radio Station WGR Inc. Kodel Radio Corp.		

560 kilocycles 535.4 meters

KFDM 500 Beaumont, Texas
 KFEO 2500 St. Joseph, Mo.
 KLZ 1000 Denver, Colo.
 KOAC 1000 Corvallis, Ore.
 WDGY 500 Minneapolis, Minn.
 WFI 500 Philadelphia, Pa.
 WHDI 500 Minneapolis, Minn.
 WLIT 500 Philadelphia, Pa.
 WMBF 500 Miami Beach, Fla.
 WNOX 1000 Knoxville, Tenn.
 WOI 3500 Ames, Iowa

Magnolia Petroleum Co. Scroggin & Co. Bank Reynolds Radio Co., Inc. State Agricultural College Dr. George W. Young Strawbridge & Clothier Wm. Hood Dunwoody Indus. Institute E. C. Brothers Fleetwood Hotel Corp. Sterchi Bros. Iowa State College		

570 kilocycles 526.0 meters

KGKO 250 Wichita Falls, Tex.
 KMTR 1000 Hollywood, Cal.
 KPLA 1000 Los Angeles, Cal.
 KUOM 500 Missoula, Mont.
 KXA 500 Seattle, Wash.
 WHA 750 Madison, Wis.
 WIBO 1000 Chicago, Ill.
 WKBN 500 Youngstown, Ohio
 WMAC 250 Cazenovia, N. Y.
 WMCA 500 New York City
 WNAX 1000 Yankton, S. D.
 WNYC 500 New York City
 WPCC 500 Chicago, Ill.
 WSMK 200 Dayton, Ohio
 WSYR 250 Syracuse, N. Y.
 WWNC 1000 Asheville, N. C.

Wichita Falls Brdcstg. Co. KMTR Radio Corp. Pacific Development Radio Co. University of Montana American Radio Tel. Co. University of Wisconsin Nelson Bros. Bond & Mfg. Co. W. P. Williamson, Jr. Clive B. Meredith Greeley Square Hotel Co. Dakota Radio Apparatus Co. Dept. of Plants and Structures North Shore Congregational Church Stanley M. Krohn, Jr. Clive B. Meredith Citizens Brdcstg. Co.		

580 kilocycles 516.9 meters

CHMA 250 Edmonton, Alta.
 CHNC 500 Toronto, Ont.
 CJBC 500 Toronto, Ont.
 CJCA 500 Edmonton, Alta.
 CJSC 500 Toronto, Ont.
 CKCL 500 Toronto, Ont.
 CKNC 500 Toronto, Ont.
 CKUA 500 Edmonton, Alta.
 CNRE 500 Edmonton, Alta.
 KGFX 200 Pierre, S. D.
 KSAC 500 Manhattan, Kans.
 WOBW 250 Charleston, W. Va.
 WSAZ 250 Huntington, W. Va.
 WSUI 500 Iowa City, Iowa
 WTAG 250 Worcester, Mass.

Christian and Missionary Alliance Radio Research Society Jarvis Street Baptist Church The Edmonton Journal The Evening Telegram The Dominion Battery Co. Canadian National Carbon Co. University of Alberta Canadian National Railways Dana McNeil State Agricultural College Charleston Radio Brdcstg. Co. McKellar Electric Co. University of Iowa Telegram Publishing Co.		

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590 kilocycles 508.2 meters

KHQ 1000 Spokane, Wash.
 WCAJ 500 Lincoln, Nebr.
 WEEL 1000 Boston, Mass.
 WOW 1000 Omaha, Nebr.
 WEMC 1000 Berrien Springs, Mich.

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Louis Wasmer, Inc.
 Nebraska Wesleyan University
 Edison Elec. Illuminating Co.
 Woodmen of the World
 Emmanuel Missionary College

600 kilocycles 499.7 meters

CFCH 250 Iroquois Falls, Ont.
 CHRC 25 Quebec, Que.
 CJRM 500 Moose Jaw, Sask.
 CJRW 500 Fleming, Sask.
 CKCI 22.5 Quebec, Que.
 CKCV 50 Quebec, Que.
 CNRO 50 Quebec, Que.
 KFSD 500 San Diego, Cal.
 KWYO 500 Laramie, Wyo.
 WCAC 250 Storrs, Conn.
 WCAO 250 Baltimore, Md.
 WEBW 350 Beloit, Wis.
 WOAN 500 Lawrenceburg, Tenn.
 WREC 500 Memphis, Tenn.
 WTIC 250 Hartford, Conn.

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Abitibi Power & Paper Co.
 E. Fontaine
 Jas. Richardson & Sons
 Jas. Richardson & Sons, Ltd.
 LeSoleil
 G. A. Vandry
 Canadian National Railways
 Airfan Radio Corp.
 Bishop N. S. Thomas
 Conn. Agricultural College
 Monumental Radio Co., Inc.
 Beloit College
 Vaughan School of Music
 WR&C, Inc.
 Travelers Insurance Co.

610 kilocycles 491.5 meters

KFRC 1000 San Francisco, Cal.
 WDAF 1000 Kansas City, Mo.
 WFAN 500 Philadelphia, Pa.
 WIP 500 Philadelphia, Pa.
 WOQ 1000 Kansas City, Mo.

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Don Lee, Inc.
 Kansas City Star Co.
 Keystone Broadcasting Co., Inc.
 Gimbel Bros., Inc.
 Unity School of Christianity

620 kilocycles 483.6 meters

KFAD 500 Phoenix, Ariz.
 KGW 1000 Portland, Ore.
 WDAE 1000 Tampa, Fla.
 WDBO 1000 Orlando, Fla.
 WJAY 500 Cleveland, Ohio
 WLBZ 250 Bangor, Me.
 WTMJ 1000 Milwaukee, Wis.

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Electrical Equipment Co.
 Oregonian Publishing Co.
 Tampa Publishing Co.
 Rollins College, Inc.
 Cleveland Radio Brdcstg. Corp.
 Maine Brdcstg. Co.
 Milwaukee Journal

630 kilocycles 475.9 meters

CFCT 500 Victoria, B. C.
 CJGX 500 Yorkton, Sask.
 CNRA 500 Moncton, N. B.
 CYR 250 Mazatlan, Mex.
 KFRU 500 Columbia, Mo.
 WGBF 500 Evansville, Ind.
 WMLA 250 Washington, D. C.
 WOS 500 Jefferson City, Mo.

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Victoria Broadcasting Association
 Winnipeg Grain Exchange
 Canadian National Railways
 Castulo Llamas
 Stephens College
 Evansville on the Air, Inc.
 M. A. Leese Co.
 State Marketing Bureau

640 kilocycles 468.5 meters

KFI 5000 Los Angeles, Cal.
 WAIU 500 Columbus, Ohio

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Earle C. Anthony, Inc.
 American Insurance Union

650 kilocycles 461.3 meters

WSM 5000 Nashville, Tenn.

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National Life & Accident Ins. Co.

660 kilocycles 454.3 meters

WAAW 500 Omaha, Nebr.
 WEAF 50000 New York City

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Omaha Grain Exchange
 National Broadcasting Co., Inc.

670 kilocycles 447.5 meters

WMAQ 5000 Chicago, Ill.

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Chicago Daily News, Inc.

INDEX BY FREQUENCIES AND DIAL NUMBERS

680 kilocycles 440.9 meters

KPO 1000 San Francisco, Cal.
 WPTF 1000 Raleigh, N. C.

Hale Bros. & The Chronicle
 Durham Life Insurance Co.

690 kilocycles 434.5 meters

CFAC 500 Calgary, Alta.
 CFCN 1800 Calgary, Alta.
 CHCA 250 Calgary, Alta.
 CJCJ 250 Calgary, Alta.
 CKCO 100 Ottawa, Ont.
 CNRC 500 Calgary, Alta.
 CNRO 500 Ottawa, Ont.
 NAA 1000 Arlington, Va.

The Calgary Herald
 W. W. Grant, Ltd.
 The Western Farmer
 Albertan Publishing Co., Ltd.
 Dr. G. M. Geldert
 Canadian National Railways
 Canadian National Railways
 U. S. Navy

700 kilocycles 428.3 meters

KFVD 250 Culver City, Cal.
 WLW 50000 Cincinnati, Ohio

Auburn Fuller Co.
 Crosley Radio Corp.

710 kilocycles 422.3 meters

CYO 100 Mexico City
 WOR 5000 Newark, N. J.

M. T. Zetina
 L. Bamberger & Co.

720 kilocycles 416.4 meters

WGN 25000 Chicago, Ill.
 WLIB 25000 Chicago, Ill.

Chicago Tribune
 Liberty Weekly, Inc.

730 kilocycles 410.7 meters

CHLS 50 Vancouver, B. C.
 CHYC 750 Montreal, Que.
 CKAC 1200 Montreal, Que.
 CKDC 50 Vancouver, B. C.
 CKFC 50 Vancouver, B. C.
 CKMO 50 Vancouver, B. C.
 CKWX 100 Vancouver, B. C.
 CNRM 1650 Montreal, Que.

W. G. Hassell
 Northern Electric Co.
 La Presse Publishing Co.
 Vancouver Daily Province
 United Church of Canada
 Sprott-Shaw Radio Co.
 A. Holstead & Wm. Hanlon
 Canadian National Railways

740 kilocycles 405.2 meters

KMMJ 1000 Clay Center, Neb.
 WSB 10000 Atlanta, Ga.

The M. M. Johnson Co.
 Atlanta Journal Co.

750 kilocycles 399.8 meters

CYJ 2000 Mexico City
 CYL 500 Mexico City
 WCX 5000 Detroit, Mich.
 WJR 5000 Detroit, Mich.

R. Ascarraga
 Detroit Free Press
 WJR, Inc.

760 kilocycles 394.5 meters

WEW 1000 St. Louis, Mo.
 WJZ 30000 New York City

St. Louis University
 Radio Corp. of America, Inc.

770 kilocycles 389.4 meters

KFAB 5000 Lincoln, Nebr.
 WBBM 25000 Chicago, Ill.

Nebraska Buick Automobile Co.
 Atlas Investment Co.

780 kilocycles 384.4 meters

CJCB 50 Sydney, N. S.
 CKY 5000 Winnipeg, Manitoba
 CNRW 500 Winnipeg, Manitoba
 KELW 500 Burbank, Cal.
 KTM 500 Santa Monica, Cal.
 WBSO 250 Wellesley Hills, Mass.
 WMC 500 Memphis, Tenn.
 WPOR 500 Norfolk, Va.
 WTAR 500 Norfolk, Va.

N. Nathanson
 Manitoba Telephone System
 Canadian National Railways
 Earl L. White
 Pickwick Brdcstg. Corp.
 Babson's Statistical Organization
 Memphis Commercial-Appeal
 WTAR Radio Corp.
 WTAR Radio Corp.

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790 kilocycles 379.5 meters

KGO	7500	Oakland, Cal.
WGY	50000	Schenectady, N. Y.
6KW	1500	Tuinucu, Cuba

General Electric Co. General Electric Co. Frank H. Jones		

800 kilocycles 374.8 meters

CYH	100	Mexico City
KTHS	10000	Hot Springs, Ark.
WBAF	50000	Fort Worth, Tex.
WSAI	5000	Cincinnati, Ohio

C. de Tarnava Chamber of Commerce Carter Publications, Inc. Crosley Radio Corp., Lessee		

810 kilocycles 370.2 meters

WCCO	15000	Minneapolis-St. Paul
WPCB	500	Hoboken, N. J.

Washburn-Crosby Co. Eastern Broadcasters, Inc.		

820 kilocycles 365.6 meters

WHAS	5000	Louisville, Ky.
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Courier-Journal & Times		

830 kilocycles 361.2 meters

HHK	1000	Port au Prince, Haiti
KOA	12500	Denver, Colo.
WHDH	1000	Gloucester, Mass.

Republic of Haiti General Electric Co. Matheson Radio Co., Inc.		

840 kilocycles 356.9 meters

CPCA	500	Toronto, Ont.
CHCT	1000	Red Deer, Alta.
CJBC	1000	Toronto, Ont.
CKLC	1000	Red Deer, Alta.
CKOW	500	Toronto, Ont.
CMC	500	Havana, Cuba
CNRT	500	Toronto, Ont.

Star Publishing & Ptg. Co. G. F. Tull & Ardern, Ltd. Jarvis Street Baptist Church Alberta Pacific Grain Co. Nestle's Food Co. Cuban Telephone Co. Canadian National Railways		

850 kilocycles 352.7 meters

KWKH	20000	Shreveport, La.
WWL	5000	New Orleans, La.

W. K. Henderson Loyola University		

860 kilocycles 348.6 meters

KFOZ	250	Hollywood, Cal.
WABC	5000	New York City
WBOQ	5000	New York City
XFX	500	Mexico City
2OK	100	Havana, Cuba
7SR	500	Elia, Cuba

Leslie E. Taft Atlantic Broadcasting Corp. Atlantic Broadcasting Corp. Department of Education Merio G. Velez Salvador Rionda		

870 kilocycles 344.6 meters

WENR	50000	Chicago, Ill.
WLS	5000	Chicago, Ill.

Great Lakes Brdcstg. Co. The Prairie Farmer		

880 kilocycles 340.7 meters

CHCS	10	Hamilton, Ont.
CHML	50	Hamilton, Ont.
CKOC	100	Hamilton, Ont.
KFKA	500	Greeley, Colo.
KLX	500	Oakland, Cal.
KPOF	500	Denver, Colo.
WCOC	500	Columbus, Miss.
WGBI	250	Scranton, Pa.
WQAN	250	Scranton, Pa.

The Hamilton Spectator Maple Leaf Radio Co. Wentworth Radio Supply Co. State Teachers College Tribune Publishing Co. Pillar of Fire, Inc. Crystal Oil Co. Scranton Broadcasters, Inc. Scranton Times		

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890 kilocycles 336.9 meters

CFBO	50	St. John, N. B.
CYC	50	Vera Cruz, Mex.
KFNF	500	Shenandoah, Iowa
KGJF	250	Little Rock, Ark.
KUSD	500	Vermillion, S. D.
WGST	250	Atlanta, Ga.
WILL	250	Urbana, Ill.
WJAR	250	Providence, R. I.
WKAQ	500	San Juan, P. R.
WMAZ	250	Macon, Ga.
WMMN	250	Fairmont, W. Va.

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C. A. Munro, Ltd.
M. A. Fernandez
Henry Field Seed Co.
Church of the Nazarene
University of South Dakota
Georgia School of Technology
University of Illinois
The Outlet Co.
Radio Corp. of Porto Rico
Mercer University
Holt Rowe Novelty Co.

900 kilocycles 333.1 meters

KGBU	500	Ketchikan, Alaska
KHJ	1000	Los Angeles, Cal.
KSEI	250	Pocatello, Idaho
WFBL	750	Syracuse, N. Y.
WFLA	750	Clearwater, Fla.
WKY	1000	Oklahoma City
WLBL	2000	Stevens Pt., Wis.
WMAK	750	Buffalo, N. Y.
WSUN	750	St. Petersburg, Fla.

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Alaska Radio & Service Co.
Don Lee, Inc.
KSEI Broadcasting Association
The Onondaga Co., Inc.
Chamber of Commerce
WKY Radiophone Co.
Wisconsin Dept. of Markets
WMAK Brdcstg. Station, Inc.
Chamber of Commerce

910 kilocycles 329.6 meters

CFQC	500	Saskatoon, Sask.
CJGC	500	London, Ont.
CJHS	250	Saskatoon, Sask.
CNRS	500	Saskatoon, Sask.

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The Electric Shop
Free Press Printing Co.
Radio Service, Ltd.
Canadian National Railways

920 kilocycles 325.9 meters

CYX	500	Mexico City
KOMO	1000	Seattle, Wash.
KPRC	1000	Houston, Tex.
WAAF	500	Chicago, Ill.
WWJ	1000	Detroit, Mich.

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El Excelsior
Fisher's Blend Station
Houston Printing Co.
Drovers Journal Publishing Co.
The Detroit News

930 kilocycles 322.4 meters

CHNS	500	Halifax, N. S.
CKIC	50	Wolfville, N. S.
CYO	100	Tampico, Mex.
KFWI	500	San Francisco, Cal.
KFWM	500	Oakland, Cal.
KGBZ	500	York, Nebr.
KMA	500	Shenandoah, Iowa
WBRC	500	Birmingham, Ala.
WDBJ	250	Roanoke, Va.
WIBG	50	Elkins Park, Pa.

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Halifax Herald
Acadia University
Cipriano Sagaon S. en C.
Radio Entertainments, Inc.
Oakland Educational Society
George R. Miller
May Seed & Nursery Co.
Birmingham Broadcasting Co.
Richardson-Wayland Elec. Corp.
St. Pauls P. E. Church

940 kilocycles 319.0 meters

KFEL	250	Denver, Colo.
KFXF	250	Denver, Colo.
KGU	500	Honolulu, Hawaii
KOIN	1000	Portland, Ore.
WCSH	500	Portland, Maine
WFIW	1000	Hopkinsville, Ky.

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Eugene P. O'Fallon, Inc.
Pikes Peak Broadcasting Co.
Marion A. Mulrony
KOIN, Inc.
Congress Square Hotel Co.
The Acme Mills, Inc.

950 kilocycles 315.6 meters

KFWB	1000	Los Angeles, Cal.
KGHL	500	Billings, Mont.
KLDS	500	Independence, Mo.
KMBC	500	Independence, Mo.
KPSN	1000	Pasadena, Cal.
WHB	500	Kansas City, Mo.
WRC	500	Washington, D. C.
2RK	20	Havana, Cuba

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Warner Bros. Broadcasting Corp.
Northwestern Auto Supply Co.
Church of Latter Day Saints
Midland Broadcasting Co.
Pasadena Star-News
Sweeney Automobile School
Radio Corp. of America
Raoul Karman

INDEX BY FREQUENCIES AND DIAL NUMBERS

960 kilocycles 312.3 meters

CFCY	100	Charlottetown, P. E. I.
CFRB	1000	Twp. of King, Ont.
CHCK	30	Charlottetown, P. E. I.
CHWC	500	Regina, Sask.
CJBC	5000	Toronto, Ont.
CJBR	500	Regina, Sask.
CKCK	500	Regina, Sask.
CKGW	5000	Bowmanville, Ont.
CNRR	500	Regina, Sask.
CYU	100	Puebla, Mex.

The Island Radio Co. Standard Radio Mfg. Corp. W. E. Burke R. H. Williams & Sons Jarvis St. Baptist Church Cooperative Wheat Producers Leader Pub. Co. Gooderham & Worts Canadian Nat'l. Railways A. del P. Zaonz		

970 kilocycles 309.1 meters

CZF	250	Chihuahua, Mex.
KJR	5000	Seattle, Wash.
WCFL	1500	Chicago, Ill.

State of Chihuahua Northwest Radio Service Co. Chicago Federation of Labor		

980 kilocycles 305.9 meters

KDKA	50000	Pittsburgh, Pa.
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Westinghouse Elec. & Mfg. Co.		

990 kilocycles 302.8 meters

WBZ	15000	Springfield, Mass.
WBZA	500	Boston, Mass.

Westinghouse Elec. & Mfg. Co. Westinghouse Elec. & Mfg. Co.		

1000 kilocycles 299.8 meters

CYA	500	Mexico City
KGFB	250	Glendale, Cal.
WHO	5000	Des Moines, Iowa
WOC	5000	Davenport, Iowa

E. R. Gomes Frederick Robinson Bankers Life Co. Palmer School of Chiropractic		

1010 kilocycles 296.8 meters

CFLC	50	Prescott, Ont.
CKOR	50	Brantford, Ont.
CKSH	50	St. Hyacinthe, Que.
KGGF	500	Picher, Okla.
KOW	500	San Jose, Cal.
WHN	250	New York City
WNAD	500	Norman, Okla.
WPAP	250	Cliffside, N. J.
WOAO	250	Cliffside, N. J.
WRNY	250	New York City
WSIS	250	Sarasota, Fla.

Radio Association John Patterson City of St. Hyacinthe D. L. Connell, M. D. First Baptist Church Marcus Loew Booking Agency University of Oklahoma Palisades Amusement Park Calvary Baptist Church Experimenter Publishing Co. Chamber of Commerce		

1020 kilocycles 293.9 meters

KFKX	5000	Chicago, Ill.
KYW	5000	Chicago, Ill.
KYWA	500	Chicago, Ill.
WRAX	250	Philadelphia, Pa.

Westinghouse Elec. & Mfg. Co. Westinghouse Elec. & Mfg. Co. Westinghouse Elec. & Mfg. Co. Berachah Church, Inc.		

1030 kilocycles 291.1 meters

CFCF	1650	Montreal, Que.
CJOR	50	Sea Island, B. C.
CNRV	500	Vancouver, B. C.

Canadian Marconi Co. G. C. Chandler Canadian Nat'l Railways		

1040 kilocycles 288.3 meters

KRLD	10000	Dallas, Texas
WFAA	5000	Dallas, Texas
WKAR	500	East Lansing, Mich.
WKEN	1000	Buffalo, N. Y.
KTUS		Hot Springs, Ark.

KRLD, Inc. Dallas Morning News Michigan Agricultural College Radio Station WKEN, Inc.		

1050 kilocycles 285.5 meters

KFKB	5000	Milford, Kansas
KNX	5000	Hollywood, Cal.
2MG	20	Havana, Cuba

KFKB Broadcasting Association Western Broadcast Co. M. y G. Salas		

INDEX BY FREQUENCIES AND DIAL NUMBERS

1060 kilocycles 282.8 meters

KWJJ 500 Portland, Ore.
 WEAL 10000 Baltimore, Md.
 WJAG 500 Norfolk, Nebr.
 WTIC 5000 Hartford, Conn.

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Wilbur Jerman
 Consolidated Gas, Elec. & Pwr. Co.
 Norfolk Daily News
 Travelers Insurance Co.

1070 kilocycles 280.2 meters

WAAT 300 Jersey City, N. J.
 WCAZ 50 Carthage, Ill.
 WDJ 100 Tuscola, Ill.
 WEAR 1000 Cleveland, Ohio
 WTAM 3500 Cleveland, Ohio

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Bremer Broadcasting Corp.
 Carthage College
 James L. Bush
 WTAM and WEAR, Inc.
 WTAM and WEAR, Inc.

1080 kilocycles 277.6 meters

WBT 5000 Charlotte, N. C.
 WGBD 5000 Zion, Ill.
 WMBI 5000 Chicago, Ill.

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C. C. Coddington
 Wilbur Glenn Voliva
 Moody Bible Institute

1090 kilocycles 275.1 meters

CYB 500 Mexico City
 KMOX 5000 St. Louis, Mo.
 ZUF 10 Havana, Cuba

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J. J. Reynosa
 Voice of St. Louis
 Benito V. Ferro

1100 kilocycles 272.6 meters

KGDM 50 Stockton, Cal.
 WLWL 5000 New York City
 WPG 5000 Atlantic City, N. J.

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E. F. Pfeffer
 Missionary Society of St. Paul
 Municipality of Atlantic City

1110 kilocycles 270.1 meters

KSOO 2000 Sioux Falls, S. D.
 WRVA 1000 Richmond, Va.
 2TW 20 Havana, Cuba

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Sioux Falls Broadcast Assn.
 Larus & Bros. Co., Inc.
 Roberto E. Ramirez

1120 kilocycles 267.7 meters

CFJC 15 Kamloops, B. C.
 CFRG 500 Kingston, Ont.
 CHGS 25 Summerside, P. E. I.
 CJOC 50 Lethbridge, Alta.
 CKPR 50 Midland, Ont.
 KFSG 500 Los Angeles, Cal.
 KMIC 500 Inglewood, Cal.
 KRSC 50 Seattle, Wash.
 KUT 500 Austin, Texas
 WCOA 500 Pensacola, Fla.
 WDEL 250 Wilmington, Del.
 WHAD 250 Milwaukee, Wis.
 WISN 250 Milwaukee, Wis.
 WTAW 500 College Station, Texas

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N. S. Dalgleish & Sons
 Queen's University
 R. T. Holman, Ltd.
 J. E. Palmer
 E. O. Swan
 Echo Park Evang. Assn.
 James R. Fouch
 Radio Sales Corp.
 KUT Broadcasting Co.
 City of Pensacola
 WDEL, Inc.
 Marquette University
 Evening Wisconsin Co.
 Agricultural & Mech. College

1130 kilocycles 265.3 meters

CYF 100 Oaxaca, Mex.
 KSL 5000 Salt Lake City
 WJJD 20000 Mooseheart, Ill.
 WOV 1000 New York City

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F. Zonillo
 Radio Service Corp. of Utah
 Loyal Order of Moose
 International Brdcstg. Corp.

1140 kilocycles 263.0 meters

KVOO 5000 Tulsa, Okla.
 WAPI 5000 Birmingham, Ala.

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Southwestern Sales Corp.
 Alabama Polytechnic Institute

1150 kilocycles 260.7 meters

KJBS 100 San Francisco, Cal.
 WHAM 5000 Rochester, N. Y.
 6BY 200 Cienfuegos, Cuba

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Julius Brunton & Sons Co.
 Stromberg-Carlson Tel. Mfg. Co.
 Jose Gandux

INDEX BY FREQUENCIES AND DIAL NUMBERS

1160 kilocycles 258.5 meters

WOWO 10000 Ft. Wayne, Ind.
 WWVA 5000 Wheeling, W. Va.

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Main Auto Supply Co.
 West Virginia Brdcastg. Corp.

1170 kilocycles 256.3 meters

KEJK 500 Los Angeles, Cal.
 KTNT 5000 Muscatine, Iowa
 WCAU 1000 Philadelphila, Pa.
 ZOL 100 Havana, Cuba

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R. S. MacMillan
 Norman Baker
 Universal Broadcasting Co.
 Oscar C. Orta

1180 kilocycles 254.1 meters

KEX 5000 Portland, Ore.
 KOB 10000 State College, N. M.
 WGBS 500 New York City

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Western Broadcasting Co.
 College of Agriculture
 General Broadcasting System

1190 kilocycles 252.0 meters

WICC 500 Bridgeport, Conn.
 WOAI 5000 San Antonio, Texas

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Bridgeport Broadcasting Station
 Southern Equipment Co.

1200 kilocycles 249.9 meters

KFHA 50 Gunnison, Colo.
 KFJB 100 Marshalltown, Iowa
 KFKZ 15 Kirksville, Mo.
 KFWC 100 Ontario, Cal.
 KFWF 100 St. Louis, Mo.
 KGCU 100 Mandan, N. D.
 KGDE 50 Fergus Falls, Minn.
 KGDY 15 Oldham, S. D.
 KGEK 50 Yuma, Colo.
 KGEW 100 Fort Morgan, Colo.
 KGFK 50 Hallock, Minn.
 KGY 10 Lacey, Wash.
 KMJ 100 Fresno, Cal.
 KPPC 50 Pasadena, Cal.
 KSMR 100 Santa Maria, Cal.
 KVOS 100 Bellingham, Wash.
 KWG 100 Stockton, Cal.
 KXO 100 El Centro, Cal.
 WABI 100 Bangor, Maine
 WABZ 100 New Orleans, La.
 WBBW 100 Norfolk, Va.
 WBBY 75 Charleston, S. C.
 WBBZ 100 Ponca City, Okla.
 WCAT 100 Rapid City, S. D.
 WCAX 100 Burlington, Vt.
 WCLO 100 Kenosha, Wis.
 WEPS 100 Gloucester, Mass.
 WFBC 50 Knoxville, Tenn.
 WFBE 100 Cincinnati, Ohio
 WHBC 10 Canton, Ohio
 WHBY 100 West De Pere, Wis.
 WIBX 100 Utica, N. Y.
 WIL 100 St. Louis, Mo.
 WJBC 100 La Salle, Ill.
 WJBL 100 Decatur, Ill.
 WJBW 30 New Orleans, La.
 WKBE 100 Webster, Mass.
 WKJC 100 Lancaster, Pa.
 WLAP 30 Louisville, Ky.
 WLBG 250 Petersburg, Va.
 WMAY 100 St. Louis, Mo.
 WMT 100 Waterloo, Iowa
 WNBO 15 Washington, Pa.
 WNBW 5 Carbondale, Pa.
 WNBX 10 Springfield, Vt.
 WPRC 100 Harrisburg, Pa.
 WQBJ 65 Clarksburg, W. Va.
 WRAF 100 La Porte, Ind.
 WRBL 50 Columbus, Ga.
 WWAE 100 Hammond, Ind.
 2BB 15 Havana, Cuba

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Western College of Colorado
 Marshall Electric Co.
 State Teachers College
 James R. Fouch
 St. Louis Truth Center, Inc.
 Mandan Radio Association
 Jarden Drug Co.
 J. Albert Loesch
 Beehler Elec. Equipment Co.
 City of Fort Morgan
 Kittson County Enterprise
 St. Martin's College
 The Fresno Bee
 Pasadena Presbyterian Church
 Santa Maria Valley R. R. Co.
 L. Kessler
 Portable Wireless Tel. Co.
 E. R. Irely and F. M. Bowles
 First Universalist Church
 Coliseum Place Baptist Church
 Ruffner Junior High School
 Washington Light Infantry
 C. L. Carrell
 State School of Mines
 University of Vermont
 C. E. Whitmore
 Matheson Radio Co., Inc.
 First Baptist Church
 Park View Hotel
 St. John's Parish
 St. Norbert's College
 WIBX, Inc.
 WIL Broadcasting Corp.
 Hummer Furniture Co.
 Wm. Gushard Dry Goods Co.
 Charles C. Carlson, Jr.
 K. & B. Electric Co.
 Kirk Johnson & Co.
 American Brdcastg. Corp. of Ky.
 Robert Allen Gamble
 Kingshighway Pres. Church
 Waterloo Broadcasting Co.
 John Brownlee Spriggs
 Home Cut Glass & China Co.
 First Congregational Church
 Wilson Printing & Radio Co.
 John Raikes
 The Radio Club, Inc.
 R. E. Martin
 Hammond-Calumet Brdcastg. Co.
 Bernardo Barrie

INDEX BY FREQUENCIES AND DIAL NUMBERS

1210 kilocycles 247.8 meters

CFCO	25	Chatham, Ont.
CFNB	50	Fredericton, N. B.
CHWK	5	Chilliwack, B. C.
CKMC	15	Cobalt, Ont.
CKPC	25	Preston, Ont.
KDLR	100	Devils Lake, N. D.
KFOR	100	Lincoln, Nebr.
KFVS	100	Cape Girardeau, Mo.
KGCR	100	Watertown, S. D.
KPCB	100	Seattle, Wash.
KPO	100	Seattle, Wash.
KWEA	100	Shreveport, La.
WBAX	100	Wilkes-Barre, Pa.
WCBS	100	Springfield, Ill.
WCOH	100	Greenville, N. Y.
WCRW	100	Chicago, Ill.
WDWF	100	Cranston, R. I.
WEBE	100	Cambridge, Ohio
WEBO	50	Harrisburg, Ill.
WEDC	100	Chicago, Ill.
WGBB	100	Freeport, N. Y.
WCGM	100	Gulfport, Miss.
WHBF	100	Rock Island, Ill.
WHBU	100	Anderson, Ind.
WIBA	100	Madison, Wis.
WINR	100	Bay Shore, N. Y.
WJBI	100	Red Bank, N. J.
WJBU	100	Lewisburg, Pa.
WJBY	50	Gadsden, Ala.
WLBY	100	Mansfield, Ohio
WLCI	50	Ithaca, N. Y.
WLSI	100	Cranston, R. I.
WMAN	50	Columbus, Ohio
WMBC	100	Richmond, Va.
WMBR	100	Tampa, Fla.
WOCL	25	Jamestown, N. Y.
WOMT	100	Manitowoc, Wis.
WPAW	100	Pawtucket, R. I.
WRBO	100	Greenville, Miss.
WRBU	100	Gastonia, N. C.
WSBC	100	Chicago, Ill.
WSIX	100	Springfield, Tenn.
WTAX	50	Streator, Ill.
WTAZ	15	Richmond, Va.

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Western Ontario "Better Radio" Club
 James S. Neill & Sons
 Chilliwack Brdcastg. Co., Ltd.
 R. L. MacAdam
 Wallace Russ
 Radio Electric Co.
 Howard A. Shuman
 Hirsch Battery & Radio Co.
 Cutler's Radio Brdcastg. Service
 Pacific Coast Biscuit Co.
 Archie Taft & Louis Wasmer
 William E. Antony
 John H. Stenger, Jr.
 H. L. Dewing & Chas. Messter
 Westchester Brdcastg. Corp.
 Clinton R. White
 Dutee W. Flint
 Roy W. Waller
 First Trust & Savings Bank
 Emil Denemark, Inc.
 Harry H. Carman
 Gulf Coast Music Co.
 Beardsley Specialty Co.
 Citizens Bank
 Capital Times-Strand Theatre
 Radiotel Mfg. Co., Inc.
 Robert S. Johnson
 Bucknell University
 Electric Construction Co.
 Mansfield Broadcasting Assn.
 Lutheran Assn. of Ithaca
 The Lincoln Studios, Inc.
 W. E. Heskitt
 Havens & Martin, Inc.
 F. J. Reynolds
 A. E. Newton
 Francis M. Kadow
 Shartenburg & Robinson
 J. Pat Scully
 A. J. Kirby Music Co.
 World Battery Co., Inc.
 638 Tire & Vulcanizing Co.
 Williams Hardware Co.
 W. Reynolds & T. J. McGuire

1220 kilocycles 245.8 meters

KFKU	1000	Lawrence, Kans.
WCAD	500	Canton, N. Y.
WCAE	500	Pittsburgh, Pa.
WREN	1000	Lawrence, Kans.

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University of Kansas
 St. Lawrence University
 Kaufman & Baer Co.
 Jenny Wren Co.

1230 kilocycles 243.8 meters

KFIO	100	Spokane, Wash.
KFQD	100	Anchorage, Alaska
KYA	1000	San Francisco, Cal.
WBIS	500	Boston, Mass.
WFBM	1000	Indianapolis, Ind.
WNAC	500	Boston, Mass.
WPSC	500	State College, Pa.
WSBT	500	South Bend, Ind.

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North Central High School
 Anchorage Radio Club
 Pacific Broadcasting Corp.
 The Shepard Stores
 Indianapolis Power & Light Co.
 The Shepard Stores
 Pennsylvania State College
 South Bend Tribune

1240 kilocycles 241.8 meters

KTAT	1000	Ft. Worth, Texas
WGHP	750	Detroit, Mich.
WIOD	1000	Miami Beach, Fla.
WJAD	1000	Waco, Texas
WOAM	1000	Miami, Fla.
WRBC	500	Valparaiso, Ind.

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Texas Air Transport Brdcast. Co.
 American Brdcastg. Corp.
 Isle of Dreams Brdcastg. Co.
 Frank P. Jackson
 Miami Brdcastg. Co.
 Immanuel Lutheran Church

INDEX BY FREQUENCIES AND DIAL NUMBERS

1250 kilocycles 239.9 meters

KFMX 1000 Northfield, Minn.
 KFOX 1000 Long Beach, Cal.
 KIDO 1000 Boise, Idaho
 KXL 500 Portland, Ore.
 WAAM 2000 Newark, N. J.
 WCAL 1000 Northfield, Minn.
 WGCP 250 Newark, N. J.
 WGMS 1000 St. Paul-Minneapolis
 WLB 1000 Minneapolis, Minn.
 WODA 1000 Paterson, N. J.
 WRHM 1000 Minneapolis, Minn.

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Carleton College
 Nichols & Warinner, Inc.
 Boise Brdcastg. Station
 KXL Broadcasters
 WAAM, Inc.
 St. Olaf College
 May Radio Broadcast Corp.
 University of Minnesota
 University of Minnesota
 Richard E. O'Dea
 Rosedale Hospital Co., Inc.

1260 kilocycles 238.0 meters

KOIL 1000 Council Bluffs, Iowa
 KRGV 500 Harlingen, Texas
 KWWG 500 Brownsville, Texas
 WJAX 1000 Jacksonville, Fla.
 WLBW 500 Oil City, Pa.

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Mona Motor Oil Co.
 Valley Radio-Electric Corp.
 Chamber of Commerce
 City of Jacksonville
 Petroleum Telephone Co.

1270 kilocycles 236.1 meters

KFUM 1000 Colorado Spgs., Colo.
 KGCA 50 Decorah, Iowa
 KOL 1000 Seattle, Wash.
 KTW 1000 Seattle, Wash.
 KWLC 100 Decorah, Iowa
 WASH 250 Grand Rapids, Mich.
 WDSU 1000 New Orleans, La.
 WEAI 500 Ithaca, N. Y.
 WFBR 250 Baltimore, Md.
 WOOD 500 Grand Rapids, Mich.

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W. D. Corley
 Charles W. Greenley
 Seattle Brdcastg. Co.
 First Presbyterian Church
 Luther College
 Baxter Laundries, Inc.
 Joseph H. Uhalt
 Cornell University
 Baltimore Radio Show
 Walter B. Stiles, Inc.

1280 kilocycles 234.2 meters

WCAM 500 Camden, N. J.
 WCAP 500 Asbury Park, N. J.
 WDAY 1000 Fargo, N. D.
 WDOD 1000 Chattanooga, Tenn.
 WEBC 1000 Superior, Wis.
 WOAX 500 Trenton, N. J.
 WRR 500 Dallas, Texas
 2LR 50 Havana, Cuba

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City of Camden
 Radio Industries Broadcast Co.
 WDAY, Inc.
 Chattanooga Radio Co., Inc.
 Head of Lake Brdcastg. Co.
 Franklin J. Wolff
 City of Dallas
 Jose Lara

1290 kilocycles 232.4 meters

KDYL 1000 Salt Lake City
 KFUL 500 Galveston, Texas
 KLCN 50 Blytheville, Ark.
 KTSAs 1000 San Antonio, Texas
 WJAS 1000 Pittsburgh, Pa.
 WNBZ 10 Saranac Lake, N. Y.

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Intermountain Brdcastg. Corp.
 Will H. Ford
 C. L. Lintzrnich
 Lone Star Broadcast Co.
 Pittsburgh Radio Supply House
 Smith & Mace

1300 kilocycles 230.6 meters

KFH 500 Wichita, Kansas
 KFJR 500 Portland, Ore.
 KGEF 1000 Los Angeles, Cal.
 KTBI 750 Los Angeles, Cal.
 KTBR 500 Portland, Ore.
 WBBR 1000 Rossville, N. Y.
 WEVD 500 Woodhaven, N. Y.
 WHAP 1000 New York City
 WHAZ 500 Troy, N. Y.
 WIBW 1000 Topeka, Kansas

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Hotel Lassen
 Ashley C. Dixon & Son
 Trinity Methodist Church
 Bible Institute of Los Angeles
 M. E. Brown
 Peoples Pulpit Association
 Eugene V. Debs Memorial Fund
 Defenders of Truth Society, Inc.
 Rensselaer Polytechnic Institute
 Topeka Brdcastg. Assn.

1310 kilocycles 228.9 meters

KFBK 100 Sacramento, Cal.
 KFQO 100 Boone, Iowa
 KFIU 10 Juneau, Alaska
 KFJY 100 Ft. Dodge, Iowa

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Jas. McClatchy Co.
 Boone Biblical College
 Alaska Elec. Light & Power Co.
 C. S. Tunwall

INDEX BY FREQUENCIES AND DIAL NUMBERS

KFPL	15	Dublin, Texas
KFFM	15	Greenville, Texas
KFUP	100	Denver, Colo.
KFXJ	50	Edgewater, Colo.
KFXR	100	Oklahoma City
KGEZ	100	Kalispell, Mont.
KGFI	15	San Angelo, Texas
KGHG	50	McGehee, Ark.
KMED	50	Medford, Ore.
KRMD	50	Shreveport, La.
KTSL	50	Shreveport, La.
KWCR	100	Cedar Rapids, Iowa
WAGM	50	Royal Oak, Mich.
WBOW	100	Terre Haute, Ind.
WBRE	100	Wilkes-Barre, Pa.
WCLS	100	Joliet, Ill.
WDAH	100	El Paso, Texas
WEBR	100	Buffalo, N. Y.
WEHS	100	Evanston, Ill.
WFBG	100	Altoona, Pa.
WFDF	100	Flint, Mich.
WFKD	50	Philadelphia, Pa.
WGAL	15	Lancaster, Pa.
WGH	100	Newport News, Va.
WHBP	100	Johnstown, Pa.
WHFC	100	Chicago, Ill.
WIBU	100	Poynette, Wis.
WJAK	50	Marion, Ind.
WKAV	100	Laconia, N. H.
WKBB	100	Joliet, Ill.
WKBC	100	Birmingham, Ala.
WKBI	50	Chicago, Ill.
WKBS	100	Galesburg, Ill.
WLBC	50	Muncie, Ind.
WLBO	100	Galesburg, Ill.
WMBL	100	Lakeland, Fla.
WNAT	100	Philadelphia, Pa.
WNBH	100	New Bedford, Mass.
WNBJ	50	Knoxville, Tenn.
WOBT	15	Union City, Tenn.
WOL	100	Washington, D. C.
WRAW	100	Reading, Pa.
WRK	100	Hamilton, Ohio
WSAJ	100	Grove City, Pa.
WSPD	100	Salisbury, Md.

1320 kilocycles 227.1 meters

KGHB	250	Honolulu, Hawaii
KGHF	250	Pueblo, Colo.
KGIO	250	Twin Falls, Idaho
KID	250	Idaho Falls, Idaho
WADC	1000	Akron, Ohio
WSMB	500	New Orleans, La.

1330 kilocycles 225.4 meters

CYM	1500	Torreón, Mexico
KSCJ	1000	Sioux City, Iowa
WDRG	500	New Haven, Conn.
WTAQ	1000	Eau Claire, Wis.

1340 kilocycles 223.7 meters

KFPW	50	Siloam Springs, Ark.
KMO	500	Tacoma, Wash.
KVI	1000	Des Moines, Wash.
WSPD	500	Toledo, Ohio

1350 kilocycles 222.1 meters

KWK	1000	St. Louis, Mo.
WBNY	250	New York City
WCDA	250	Brooklyn, N. Y.
WKBO	250	New York City
WMSG	250	New York City

C. C. Baxter
The New Furniture Co.
Fitzsimmons General Hospital
R. G. Howell
Exchange Ave. Baptist Church
Flathead Broadcasting Assn.
San Angelo Broadcasting Co.
Chas. W. McCollum
W. J. Virgin
Robert M. Dean
Bates Radio & Electric Co.
H. E. Paar
Robert L. Miller
Banks of Wabash Brdcstg. Assn.
Louis G. Baltimore
WCLS, Inc.
Trinity Methodist Church
H. H. Howell
Victor C. Carlson
Wm. F. Gable Co.
Frank D. Fallain
Foulkrod Radio Engineering Co.
Lancaster Electric Supply Co.
Virginia Brdcstg. Co., Inc.
Johnstown Automobile Co.
Goodson & Wilson, Inc.
William C. Forrest
Marion Brdcstg. Co.
Laconia Radio Club
Sanders Bros.
R. B. Broyles Furn. Co.
Fred L. Schoenwolf
Permil N. Nelson
Donald A. Burton
Fred A. Trebbe, Jr.
Benford's Radio Studios
Lenrig Bros. Co.
New Bedford Broadcasting Co.
Lonsdale Baptist Church
Tittsworth's Radio & Music Shop
American Broadcasting Co.
Avenue Radio & Electric Shop
S. W. Doron & J. C. Slade
Grove City College
Tom F. Little

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Radio Sales Co.
C. P. Ritchie & J. E. Finch
Stanley M. Soule
Jack W. Duckworth, Jr.
Allen T. Simmons
Saenger Theatre & Maison Blanche

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Perkins Bros. Co.
Doolittle Radio Corp.
Gillette Rubber Co.

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Rev. Lannie W. Stewart
KMO, Inc.
Puget Sound Brdcstg. Co.
Toledo Broadcasting Co.

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Greater St. Louis Brdcstg. Corp.
Baruchrome Corp.
Italian Educ. Brdcstg. Co.
Standard Cahill Co., Inc.
Madison Square Garden

INDEX BY FREQUENCIES AND DIAL NUMBERS

1360 kilocycles 220.4 meters

KFBB	500	Havre, Mont.
KGB	250	San Diego, Cal.
KGIR	250	Butte, Mont.
WGES	500	Chicago, Ill.
WJKS	500	Gary, Ind.
WLEX	500	Lexington, Mass.
WMAF	500	S. Dartmouth, Mass.
WQBC	300	Utica, Miss.

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F. A. Buttery Co.
 Pickwick Brdcstg. Corp.
 Symons Broadcasting Co.
 Oak Leaves Broadcasting Corp.
 Johnson-Kennedy Radio Corp.
 Lexington Air Stations
 Round Hills Radio Corp.
 Chamber of Commerce

1370 kilocycles 218.7 meters

KCRC	100	Enid, Okla.
KFBL	50	Everett, Wash.
KFEC	50	Portland, Ore.
KFJI	50	Astoria, Ore.
KFJM	500	Grand Forks, N. D.
KFJZ	100	Ft. Worth, Texas
KFLX	100	Galveston, Texas
KFUR	50	Ogden, Utah
KGAR	100	Tucson, Ariz.
KGBX	100	St. Joseph, Mo.
KGCI	100	San Antonio, Texas
KGDA	50	Dell Rapids, S. D.
KGER	100	Long Beach, Cal.
KGFG	100	Oklahoma City
KGFL	50	Raton, N. M.
KGGM	100	Albuquerque, N. M.
KGKL	100	San Angelo, Texas
KGRC	100	San Antonio, Texas
KKP	15	Seattle, Wash.
KOH	100	Reno, Nevada
KOOS	50	Marshfield, Ore.
KRE	100	Berkeley, Cal.
KVL	100	Seattle, Wash.
KWKC	100	Kansas City, Mo.
KZM	100	Hayward, Cal.
WBBL	100	Richmond, Va.
WCBM	100	Baltimore, Md.
WELK	100	Philadelphia, Pa.
WFBJ	100	Collegeville, Minn.
WGL	100	South Bend, Ind.
WHBD	100	Bellefontaine, Ohio
WHBQ	100	Memphis, Tenn.
WHDF	100	Calumet, Mich.
WIBM	100	Jackson, Mich.
WJBK	50	Ypsilanti, Mich.
WJBO	100	New Orleans, La.
WMBO	100	Auburn, N. Y.
WRAK	50	Erie, Pa.
WRBT	50	Wilmington, N. C.
WRJN	100	Racine, Wis.
WSVS	50	Buffalo, N. Y.

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Champlin Refining Co.
 Leese Bros.
 Meier & Frank Co.
 George Kincaid
 University of North Dakota
 Henry C. Allison
 George Roy Clough
 Peery Building Co.
 Tucson Motor Service Co.
 Foster-Hall Tire Co.
 Liberto Radio Sales
 Home Auto Co.
 C. Merwin Dobyns
 Faith Tabernacle Assn.
 Hubbard & Murphy
 Jay Peters
 KKKL, Inc., Opr. by Ragsdale Auto Co.
 Eugene Roth
 City of Seattle
 Jay Peters
 H. H. Hanseth
 First Congregational Church
 Arthur C. Dailey
 Wilson Duncan Brdcstg. Co.
 Leon P. Tenney
 Grace Covenant Presbyterian Church
 Baltimore Brdcstg. Corp.
 Howard R. Miller
 St. John's University
 Fred C. Zieg
 First Presbyterian Church
 Broadcasting Station WHBQ, Inc.
 Chas. C. MacLeod
 C. L. Carrell
 James F. Hopkins
 Valdemar Jensen
 Radio Service Laboratories
 C. R. Cummins
 Wilmington Radio Association
 Racine Broadcasting Corp.
 Seneca Vocational School

1380 kilocycles 217.3 meters

KQV	500	Pittsburgh, Pa.
KSO	1000	Clarinda, Iowa
WCSS	500	Springfield, Ohio
WKBH	1000	La Crosse, Wis.

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Doubleday-Hill Electric Co.
 Berry Seed Co.
 Wittenberg College
 Callaway Music Co.

1390 kilocycles 215.7 meters

KFPY	500	Spokane, Wash.
KLRA	1000	Little Rock, Ark.
KOW	500	Denver, Colo.
KOY	500	Phoenix, Ariz.
KUOA	1000	Fayetteville, Ark.
KWSC	500	Fullman, Wash.
WHK	1000	Cleveland, Ohio

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Symons Investment Co.
 Arkansas Broadcasting Co.
 Associated Industries, Inc.
 Nielson Radio Supply Co.
 University of Arkansas
 State College of Washington
 Radio Air Service Corp.

INDEX BY FREQUENCIES AND DIAL NUMBERS

1400 kilocycles 214.2 meters

WBAA	500	Lafayette, Ind.
WBBC	500	Brooklyn, N. Y.
WCGU	500	Coney Island, N. Y.
WCMA	500	Culver, Ind.
WKBF	500	Indianapolis, Ind.
WLTH	500	Brooklyn, N. Y.
WSGH	500	Brooklyn, N. Y.

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Purdue University
 Brooklyn Broadcasting Corp.
 U. S. Broadcasting Corp.
 Culver Military Academy
 Noble Butler Watson
 The Voice of Brooklyn, Inc.
 Amateur Radio Specialty Co.

1410 kilocycles 212.6 meters

KFLV	500	Rockford, Ill.
KGRS	1000	Amarillo, Texas
WDAG	250	Amarillo, Texas
WHBL	500	Sheboygan, Wis.
WBGM	500	Bay City, Mich.

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A. T. Frykman
 Gish Radio Service
 J. Laurence Martin
 Press Pub. Co. & C. L. Carrell
 James E. Davidson

1420 kilocycles 211.1 meters

KFIF	100	Portland, Ore.
KFIZ	100	Fond du Lac, Wis.
KFOU	100	Holy City, Cal.
KFOW	100	Seattle, Wash.
KFXD	50	Jerome, Idaho
KFXV	100	Flagstaff, Ariz.
KFYU	100	Abilene, Texas
KGCN	50	Concordia, Kansas
KGCX	10	Vida, Mont.
KGFF	100	Alva, Okla.
KGFJ	100	Los Angeles, Cal.
KGFV	50	Ravenna, Neb.
KGGC	50	San Francisco, Cal.
KGHD	50	Missoula, Mont.
KGIW	100	Trinidad, Colo.
KGKX	15	Sand Point, Idaho
KICK	100	Red Oak, Iowa
KOCW	100	Chickasha, Okla.
KORE	100	Eugene, Ore.
KTAP	100	San Antonio, Texas
KTUE	5	Houston, Texas
KXRO	75	Aberdeen, Wash.
WAAD	25	Cincinnati, Ohio
WEDH	30	Erie, Pa.
WHDL	10	Tupper Lake, N. Y.
WHIS	100	Bluefield, W. Va.
WHPP	10	New York City
WIAS	100	Ottumwa, Iowa
WIBR	50	Stuebenville, Ohio
WKBP	50	Battle Creek, Mich.
WLBK	100	Kansas City, Mo.
WLBH	30	Patchogue, N. Y.
WLEY	100	Lexington, Mass.
WMBC	100	Detroit, Mich.
WMBH	100	Joplin, Mo.
WMRJ	10	Jamaica, N. Y.
WOBZ	60	Weirton, W. Va.
WSRO	100	Middletown, Ohio
WSSH	100	Boston, Mass.
WTBO	50	Cumberland, Md.

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Benson Polytechnic Institute
 Commonwealth-Reporter
 W. E. Riker
 KFOW, Inc.
 Service Radio Co.
 Mary M. Costigan
 T. E. Kirksey
 Concordia Broadcasting Co.
 First State Bank
 Earl E. Hampshire
 Ben S. McGlashan
 Otto F. Sothman
 Golden Gate Brdcstg. Co.
 Elmore-Nash Broadcasting Corp.
 Trinidad Creamery Co., Inc.
 C. E. Twiss
 Red Oak Radio Corp.
 College for Women
 Eugene Broadcasting Station
 Aiamo Brdcstg. Co.
 Uhalt Electric
 KXRO, Inc.
 Ohio Mechanics Institute
 Erie Dispatch-Herald
 George Franklin Bissell
 Daily Telegraph
 Bronx Broadcasting Co.
 Poling Electric Co.
 Thurman A. Owings
 Enquirer-News Co.
 Everett L. Dillard
 Joseph J. Lombardi
 Lexington Air Station
 Michigan Broadcasting Co., Inc.
 Edwin Dudley Aber
 Peter J. Prinz
 J. H. Thompson
 Harry W. Fahrlander
 Tremont Temple Baptist Church
 Cumberland Electric Co.

1430 kilocycles 209.7 meters

WBAK	500	Harrisburg, Pa.
WBRL	500	Manchester, N. H.
WCAH	250	Columbus, Ohio
WBBC	500	Memphis, Tenn.
WMBS	500	Lemoyne, Pa.
WNBR	500	Memphis, Tenn.

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Penna. State Police
 Booth Radio Laboratories
 Commercial Radio Service Co.
 First Baptist Church
 Mack's Battery Co.
 John Ulrich

1440 kilocycles 208.2 meters

KLS	250	Oakland, Cal.
WABO	500	Rochester, N. Y.
WCBA	250	Allentown, Pa.
WHCC	500	Rochester, N. Y.

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Warner Bros.
 Lake Ave. Baptist Church
 B. B. Musselman
 Hickson Electric Co.

INDEX BY FREQUENCIES AND DIAL NUMBERS

WMBD 500 Peoria Heights, Ill.
WNRC 500 Greensboro, N. C.
WOKO 500 Peekskill, N. Y.
WSAN 250 Allentown, Pa.
WTAD 500 Quincy, Ill.

Peoria Heights Radio Laboratory
 Wayne M. Nelson
 Harold E. Smith
 Allentown Call Publishing Co.
 Ills. Stock Medicine Brdcastg. Corp.

1450 kilocycles 206.8 meters

KSBA 1000 Shreveport, La.
WBMS 250 Union City, N. J.
WFJC 500 Akron, Ohio
WIBS 250 Elizabeth, N. J.
WKBO 250 Jersey City, N. J.
WNJ 250 Newark, N. J.
WSAR 250 Fall River, Mass.
WTFI 500 Toccoa, Ga.

Elliott & Steere
WBMS Broadcasting Corp.
 W. F. Jones Broadcast, Inc.
 New Jersey Broadcasting Corp.
 Camith Corp.
 Radio Investment Co.
 Doughty & Welch Electric Co.
 Toccoa Falls Institute

1460 kilocycles 205.4 meters

KSTP 10000 St. Paul, Minn.
WJSV 10000 Washington, D. C.

National Battery Brdcastg. Co.
 Independent Publishing Co.

1470 kilocycles 204.0 meters

KFJF 5000 Oklahoma City
KGA 5000 Spokane, Wash.
WKBW 5000 Buffalo, N. Y.
WRUF 5000 Gainesville, Fla.

National Radio Mfg. Co.
 Northwest Radio Service Co.
 Churchill Evangelistic Assn.
 University of Florida

1480 kilocycles 202.6 meters

WCKY 5000 Covington, Ky.
WJAZ 5000 Chicago, Ill.
WORD 5000 Batavia, Ill.
WSOA 5000 Chicago, Ill.

L. B. Wilson
 Zenith Radio Corp.
 People's Pulpit Association
 Radiophone Brdcastg. Corp.

1490 kilocycles 201.2 meters

KPWF 5000 Westminister, Cal.
WBAW 5000 Nashville, Tenn.
WLAC 5000 Nashville, Tenn.
WFBL 1000 Syracuse, N. Y.

Pacific Western Brdcastg. Fed.
 Waldrum Drug Co.
 Life & Casualty Insurance Co.
 The Onondaga Co.

1500 kilocycles 199.9 meters

KDB 100 Santa Barbara, Cal.
KGDR 15 San Antonio, Texas
KGKB 100 Brownwood, Texas
KGHI 100 Little Rock, Ark.
KGHX 50 Richmond, Texas
KPJM 100 Prescott, Ariz.
KUJ 10 Longview, Wash.
KWBS 15 Portland, Ore.
KWTC 100 Santa Ana, Cal.
WAFD 100 Detroit, Mich.
WALK 50 Willow Grove, Pa.
WCLB 100 Brooklyn, N. Y.
WHBW 100 Philadelphia, Pa.
WIBZ 15 Montgomery, Ala.
WILM 100 Wilmington, Del.
WKBV 100 Brooklyng, Ind.
WKBZ 50 Ludington, Mich.
WLBX 100 Long Island City, N. Y.
WLOE 100 Chelsea, Mass.
WMBA 100 Newport, R. I.
WMBJ 100 Wilkinsburg, Pa.
WMBQ 100 Brooklyn, N. Y.
WMES 50 Boston, Mass.
WMPC 100 Lapeer, Mich.
WNBF 50 Binghamton, N. Y.
WPSW 50 Philadelphia, Pa.
WRBJ 10 Hattiesburg, Miss.
WRRL 100 Woodside, N. Y.

Santa Barbara Brdcastg. Co.
 KGDR Brdcastg. Co.
 Eagle Publishing Co.
 Berean Bible Class
 Ft. Bend County School Board
 Frank Wilburn
 Columbia Valley Brdcastg. Co.
 Schaeffer Radio Co.
 Pacific Broadcasting Foundation
 Albert B. Parfer Co.
 Albert A. Walker
 Arthur Faske
 D. R. Kienzle
 Alexander D. Trum
 Delaware Brdcastg. Co.
 Knox Battery & Electric Co.
 K. L. Ashbacker
 John N. Brahy
 Boston Brdcastg. Co.
 LeRoy Joseph Beebe
 Rev. John W. Sproul
 Paul J. Gollhofer
 Mass. Educational Society
 First M. E. Church
 Howitt-Wood Radio Co.
 School of Wireless Telegraphy
 Woodruff Furniture Co.
 Wm. H. Reuman

INDEX BY LOCATIONS WITH MAP KEY

ALABAMA				Santa Monica K-3	500	KTM	780
Birmingham K-19-a	5000	WAPI	1140	Stockton H-2-b	50	KGDM	1100
	100	WBRG	930		100	KWG	1200
	10	WBCB	1310	Westminster	50000	KPWF	1490
Gadsden K-20-a	50	WJBY	1210	COLORADO			
Montgomery K-19-b	15	WIBZ	1500	Colo. Springs H-10	1000	KFUM	1270
ALASKA				Denver G-10-b	250	KFEL	940
Anchorage	100	KFOD	1230		100	KFPV	1310
Juneau	10	KFIU	1310		250	KFXF	940
Ketchikan	500	KGBU	900		1000	KLZ	560
ARIZONA					12500	KOA	830
Flagstaff J-7	100	KFXY	1420		500	KOW	1390
Phoenix K-7	500	KFAD	620	Edgewater G-10	50	KFXJ	1310
	500	KOY	1390	Fort Morgan G-11	100	KGWJ	1200
Prescott J-6	100	KPJM	1500	Greeley F-10	500	KFKA	880
Tucson L-7	100	KGAR	1370	Gunnison H-9	50	KFHA	1200
ARKANSAS				Pueblo H-11	250	KGHF	1320
Blytheville I-18	50	KLCN	1290	Trinidad H-10	100	KGIW	1420
Fayetteville I-16	1000	KUOA	1390	Yuma G-11	50	KGEK	1200
Hot Springs J-16	10000	KTHS	800	CONNECTICUT			
Little Rock J-17	100	KGHI	1500	Bridgeport F-26	500	WICC	1190
	250	KGJF	890	Hartford E-26-d	5000	WTIC	1060
	1000	KLRA	1390	Mansfield E-27-1	250	WCAC	600
McGehee K-17	50	KGHG	1310	New Haven F-26-b	500	WDRC	1330
Siloam Springs I-16	50	KFPW	1340	DELAWARE			
CALIFORNIA				Wilmington G-25	250	WDEL	1120
Berkeley H-1-a	100	KRE	1370		100	WILM	1500
Burbank J-4	500	KELW	780	DISTRICT OF COLUMBIA			
Culver City K-3	250	KFVD	700	Washington G-24-c	250	WMAL	630
El Centro K-5	100	KXO	1200		500	WRC	950
Fresno I-3	100	KMJ	1200		10000	WJSV	1460
Glendale K-3	250	KGPH	1000		100	WOL	1310
Hayward H-2	100	KZM	1370	FLORIDA			
Hollywood K-3	250	KPOZ	850	Clearwater N-21	750	WFLA	900
	1000	KMTR	570	Gainesville M-21	5000	WRUF	1470
Holy City I-2	100	KFOU	1420	Jacksonville M-22	1000	WJAX	1260
Inglewood K-4	500	KMIC	1120	Lakeland N-22	100	WMBL	1310
Long Beach K-4-a	1000	KFOX	1250	Miami O-23	1000	WQAM	1240
	100	KGEB	1370	Miami Beach O-23	1000	WIOD	1240
Los Angeles K-3-b	500	KEJK	1170		500	WMBF	560
	500	KFI	640	Orlando N-22	1000	WDBO	620
	500	KFSG	1120	Pensacola L-19	500	WCOA	1120
	1000	KFWB	950	Sarasota N-22	250	WSIS	1010
	1000	KGEF	1300	St. Petersburg N-21	750	WSUN	900
	100	KGfJ	1420	Tampa N-22-b	1000	WDAE	620
	1000	KHJ	900		100	WMBR	1210
	5000	KNX	1050	GEORGIA			
	1000	KPLA	570	Atlanta K-20-a	250	WGST	890
Oakland H-1-b	750	KTBI	1300		10000	WSB	740
	500	KFWM	930	Columbus K-20	50	WRBL	1200
	7500	KGO	790	Macon K-21	250	WMAZ	890
	250	KLS	1440	Toccoa J-21	500	WTFI	1450
	500	KLX	880	HAWAII			
	500	KTAB	550	Honolulu	250	KGHB	1320
Ontario	100	KFWC	1200		500	KGU	940
Pasadena J-4	50	KPPC	1200	IDAHO			
	1000	KPSN	950	Boise D-4	1000	KIDO	1250
Sacramento H-2-a	100	KFPB	1310	Idaho Falls D-7	250	KID	1320
San Diego K-4-b	500	KFSD	600	Jerome E-5	50	KFXD	1420
	250	KGB	1360	Pocatello E-7	250	KSEI	900
San Francisco H-1-c	1000	KPRC	610	Sand Point	15	KGKX	1420
	500	KPWI	930	Twin Falls E-5	250	KGIQ	1320
	50	KGGC	1420				
	100	KJBS	1100				
	1000	KPO	680				
	1000	KYA	1230				
San Jose I-2	500	KQW	1010				
Santa Ana K-4	100	KWTC	1500				
Santa Barbara J-3	100	KDB	1500				
Santa Maria J-2-b	100	KSMR	1200				

INDEX BY LOCATIONS WITH MAP KEY

ILLINOIS

Batavia F-18-c	5000	WORD	1480
Carthage F-17-e	50	WCAZ	1070
Chicago E-19-g	5000	KFKX	1020
	5000	KYW	1020
	500	KYWA	1020
	500	WAAF	920
	25000	WBBM	770
	1500	WCFL	970
	100	WCRW	1210
	100	WEDC	1210
	50000	WENR	870
	500	WGES	1360
	25000	WGN	720
	100	WHFC	1310
	1000	WIBO	570
	5000	WJAZ	1480
	50	WKBI	1310
	25000	WLIB	720
	5000	WLS	870
	5000	WMAQ	670
	5000	WMBI	1080
	500	WPCC	570
	100	WSBC	1210
	5000	WSOA	1480
Decatur G-18	100	WJBL	1200
Evanston E-19	100	WEHS	1310
Galesburg F-18-a	100	WKBS	1310
	100	WLBO	1310
Harrisburg H-18-b	50	WEBO	1210
Joliet E-19-f	100	WCLS	1310
	100	WKBB	1310
	100	WJBC	1200
La Salle F-18-d	20000	WJJD	1130
Mooseheart E-18-e	500	WMBD	1440
Peoria Heights G-18	500	WTAD	1440
Quincy G-17	500	KFLV	1410
Rockford E-18-c	100	WHBF	1210
Rock Island F-17-c	100	WCBS	1210
Springfield G-18	50	WTAX	1210
Streator F-18-e	100	WDZ	1070
Tuscola G-19-b	250	WILL	890
Urbana G-19-a	5000	WCBD	1080
Zion E-19-c			

INDIANA

Anderson G-20-a	100	WHBU	1210
Brookville G-20	100	WKBV	1500
Culver F-19-d	500	WCMA	1400
Evansville H-19	500	WGBF	630
Fort Wayne F-20-b	100	WGL	1370
	10000	WOWO	1160
Gary F-19	500	WJKS	1360
Hammond F-19	100	WVAE	1200
Indianapolis G-19-c	1000	WFBM	1230
	500	WKBF	1400
Lafayette F-19-f	500	WBAA	1400
La Porte F-19-c	100	WRAF	1200
Marion	50	WJAK	1310
Muncie G-20	50	WLBC	1310
South Bend F-20-a	500	WSBT	1230
Terre Haute G-19	100	WBOW	1310
Valparaiso F-19-b	500	WRBC	1240

IOWA

Ames E-16-c	3500	WOI	560
Boone E-16	100	KFGQ	1310
Cedar Rapids E-17-a	100	KWCR	1310
Clarinda E-15-c	1000	KSO	1380
Council Bluffs F-15-b	1000	KOIL	1260
Davenport F-17-a	5000	WOC	1000
Decorah D-17	50	KGCA	1270
	100	KWLC	1270
Des Moines F-16-a	5000	WHO	1000
Fort Dodge E-16-a	100	KFJY	1310
Iowa City E-17-b	500	WSUI	580
Marshalltown E-16-d	100	KFJB	1200

Muscatine F-17-b	5000	KTNT	1170
Ottumwa F-17	100	WIAS	1420
Red Oak F-15	100	KICK	1420
Shenandoah F-15-c	500	KKNF	890
	500	KMA	930
Sioux City E-15	1000	KSCJ	1330
Waterloo F-17	100	WMT	1200

KANSAS

Concordia G-14	50	KGCN	1420
Lawrence G-15-a	1000	KFKU	1220
	1000	WREN	1220
Manhattan G-14-a	500	KSAC	580
Milford G-14	5000	KFKB	1050
Topeka G-14	1000	WIBW	1300
Wichita H-14-a	500	KFH	1300

KENTUCKY

Covington	5000	WCKY	1480
Hopkinsville I-19	1000	WFIW	940
Louisville H-20	5000	WHAS	820
	30	WLAP	1200

LOUISIANA

New Orleans M-17	100	WABZ	1200
	1000	WDSU	1270
	100	WJBO	1370
	30	WJWB	1200
	500	WSMB	1320
	5000	WRL	850
Shreveport K-16	50	KRMD	1310
	1000	KSBA	1450
	50	KTSL	1310
	100	KWEA	1210
	20000	KWKH	850

MAINE

Bangor C-28-b	100	WABI	1200
	250	WLBZ	620
Portland D-28-b	500	WCSH	940

MARYLAND

Baltimore G-24-a	10000	WBAL	1060
	250	WCAO	600
	100	WCBM	1370
	250	WFBR	1270
Cumberland G-23	50	WTBO	1420
Salisbury G-25	100	WSMD	1310

MASSACHUSETTS

Boston E-27-c	500	WBIS	1230
	500	WBZA	990
	1000	WEEI	590
	50	WMES	1500
	500	WNAC	1230
	100	WSSH	1420
Chelsea E-27	100	WLOE	1500
Fall River E-27	250	WSAR	1450
Gloucester E-27	100	WEPS	1200
	1000	WHDH	830
Lexington E-27	500	WLEX	1360
	100	WLEY	1420
	100	WNBH	1310
New Bedford E-27-g	500	WMAF	1360
S. Dartmouth E-27	15000	WBZ	990
Springfield E-26-b	100	WKBE	1200
Webster E-27-d	250	WBSO	780
Wellesley Hills E-27	250	WTAG	580
Worcester E-27-b	250		

MICHIGAN

Battle Creek E-20	50	WKBP	1420
Bay City D-21	500	WBCM	1410
Berrien Spgs. E-19	1000	WEMC	590
Calumet B-18	100	WHDF	1370

INDEX BY LOCATIONS WITH MAP KEY

Detroit E-21-g	100	WAFD	1500
	5000	WCX	750
	750	WGHP	1240
	5000	WJR	750
	100	WMBC	1420
	1000	WWJ	920
East Lansing E-20-b	500	WKAR	1040
Flint E-21-a	100	WDFD	1310
Grand Rapids E-20-a	250	WASH	1270
	500	WOOD	1270
Jackson E-20	100	WIBM	1370
Lapeer E-21	100	WMPC	1500
Ludington D-19	50	WKBZ	1500
Royal Oak E-21-e	50	WAGM	1310
Ypsilanti E-21-f	50	WJBK	1370

MINNESOTA

Collegeville C-15	100	WFBJ	1370
Fergus Falls B-15	50	KGDE	1200
Hallock A-14	50	KGFK	1200
Minneapolis C-16-B	15000	WCCO	810
	500	WDGY	560
	1000	WGMS	1250
	500	WHDI	560
	1000	WLB	1250
	1000	WRHM	1250
Northfield D-16	1000	KFMX	1250
	1000	WCTP	1250
St. Paul C-16-c	10000	KSTD	1460
	15000	WCCO	810
	1000	WGMS	1250

MISSISSIPPI

Columbus K-18	500	WCOC	880
Greenville K-17	100	WRBO	1210
Gulfport M-18	100	WGCM	1210
Hattiesburg L-18	10	WRBJ	1500
Utica L-17	300	WQBC	1360

MISSOURI

Cp. Girardeau H-18-c	100	KFVS	1210
Columbia G-16-b	500	KFRU	630
Independence G-16-c	500	KLDS	950
	500	KMBC	950
Jefferson City H-16-a	500	WOS	630
Joplin H-16	100	WMBH	1420
Kansas City G-15-b	100	KWKC	1370
	1000	WDAF	610
	500	WHB	950
	100	WLBf	1420
	1000	WQQ	610
Kirksville F-16-c	15	KFKZ	1200
St. Joseph G-15	2500	KFEQ	560
	100	KGBX	1370
St. Louis H-18-a	500	KFUO	550
	100	KFWF	1200
	5000	KMOX	1090
	500	KSD	550
	1000	KWK	1350
	1000	WEW	760
	100	WIL	1200
	100	WMAy	1200

MONTANA

Billings C-8	500	KGHL	950
Butte C-7	250	KGIR	1360
Havre A-8	500	KFBB	1360
Kalispell A-5	100	KGEZ	1310
Missoula B-6	50	KGHD	1420
	500	KUOM	570
Vida B-10	10	KGcX	1420

NEBRASKA

Clay Center G-14	1000	KMMJ	740
Lincoln F-14-b	5000	KFAB	770
	100	KFOR	1210
	500	WCAJ	590
Norfolk E-14-c	500	WJAG	1060
Omaha F-15-a	500	WAAW	660
	1000	WOW	590
Ravenna F-13	50	KGFw	1420
York F-13	500	KGBZ	930

NEVADA

Reno G-3	100	KOH	1370
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NEW HAMPSHIRE

Laconia D-27	100	WKAV	1310
Manchester E-27	500	WBRL	1430

NEW JERSEY

Asbury Park G-26	500	WCAP	1280
Atlantic City G-25	5000	WPG	1100
Camden F-25-f	500	WCAM	1280
Cliffside F-26	250	WPAP	1010
	250	WQAO	1010
Elizabeth F-26-h	250	WIBS	1450
Hoboken F-26	500	WPCB	810
Jersey City F-26-d	300	WAAT	1070
	250	WKBO	1450
Newark F-25-h	2000	WAAM	1250
	250	WGCP	1250
	250	WNJ	1450
	5000	WOR	710
Paterson F-26-c	1000	WODA	1250
Red Bank G-26	100	WJBI	1210
Trenton F-25	500	WOAX	1280
Union City F-26	250	WBMS	1450

NEW MEXICO

Albuquerque	100	KGGM	1370
Raton I-11	50	KGFL	1370
State College K-9	10000	KOB	1180

NEW YORK

Auburn E-24	100	WMBO	1370
Bay Shore F-26-h	100	WNR	1210
Binghamton E-25	50	WNBf	1500
Brooklyn F-26-f	500	WBBC	1400
	250	WCDA	1350
	100	WCLB	1500
	500	WLTH	1400
	100	WMBO	1500
	500	WGB	1400
Buffalo E-23-a	100	WBR	1310
	1000	WGR	550
	5000	WKBW	1470
	1000	WKEN	1040
	750	WMAK	900
	50	WSV	1370
Canton D-25	500	WCAD	1220
Cazenovia E-25-b	250	WMAC	570
Coney Island F-26	500	WCGU	1400
Freeport F-26-1	100	WGBB	1210
Greenville E-26	100	WCOH	1210
Ithaca E-24-d	500	WEAT	1270
	50	WLCl	1210
Jamaica F-26-f	10	WMRJ	1420
Jamestown E-23-b	25	WOCL	1210
Long Island City F-26	100	WLBX	1500

INDEX BY LOCATIONS WITH MAP KEY

New York City F-26	5000	WABC	850
	250	WBNY	1350
	5000	WBOO	860
	50000	WEAF	660
	500	WGBS	1180
	1000	WHAP	1300
	250	WHN	1010
	10	WHPP	1420
	30000	WJZ	760
	250	WKBO	1350
	5000	WLWL	1100
	500	WMCA	570
	250	WMSG	1350
	500	WNYC	570
	1000	WOV	1130
	250	WRNY	1010
	30	WLBH	1420
Patchogue			
Peekskill F-26-a	500	WOKO	1440
Rochester E-24-b	500	WABO	1440
	5000	WHAM	1150
	500	WHEC	1440
Rossville F-26	1000	WBBR	1300
Saranac Lake D-26	10	WNBZ	1290
Schenectady E-25-c	50000	WGY	790
Syracuse E-24-c	750	WFBL	900
	250	WSYR	570
Troy E-21-a	500	WHAZ	1300
Tupper Lake D-25	10	WHDL	1420
Utica E-25-a	100	WIBX	1200
Woodhaven F-26	500	WEVD	1300
Woodside F-26	100	WWRL	1500

NORTH CAROLINA

Asheville J-21	1000	WWNC	570
Charlotte J-22	5000	WBT	1080
Gastonia J-22	100	WRBU	1210
Greensboro I-22	500	WNRC	1440
Raleigh I-23	1000	WPTF	680
Wilmington J-24	50	WRBT	1370

NORTH DAKOTA

Bismarck B-12	500	KFYR	550
Devils Lake A-13	100	KDLR	1210
Fargo B-14	1000	WDAY	1280
Grand Forks A-14	500	KJFM	1370
Mandan B-12	100	KGCU	1200

OHIO

Akron F-22-b	1000	WADC	1320
	500	WFJC	1450
Bellefontaine G-21-a	100	WHBD	1370
Cambridge F-22	100	WEBE	1210
Canton F-22-d	10	WHBC	1200
Cincinnati G-20-e	25	WAAD	1420
	100	WFBE	1200
	500	WKRC	550
	50000	WLW	700
	5000	WSAI	800
Cleveland F-22-a	1000	WEAR	1070
	1000	WHK	1390
	500	WJAY	620
	3500	WTAM	1070
Columbus G-21-b	500	WAIU	640
	250	WCAH	1430
	750	WEAO	550
	50	WMAN	1210
	200	WSMK	570
Dayton G-21-e	100	WRK	1310
Hamilton G-20-d	100	WLBV	1210
Mansfield F-21	100	WSRO	1420
Middletown G-20	100	WSRO	1420
Springfield G-21-c	500	WCSD	1380
Steubenville F-22	50	WIBR	1420
Toledo F-21-a	500	WSPD	1340
Youngstown F-22	500	WKBN	570

OKLAHOMA

Alva I-13	100	KGFF	1420
Chickasha J-14-b	100	KOCW	1420
Enid I-14	100	KCRC	1370
Norman J-14-a	500	WNAD	1010
Oklahoma I-14-b	5000	KFJF	1470
	100	KFXR	1310
	100	KGFG	1370
	1000	WKY	900
Picher I-15	500	KGGF	1010
Ponca City I-14	100	WBBZ	1200
Tulsa I-15	5000	KVOO	1140

OREGON

Astoria C-1-a	50	KFJI	1370
Corvallis D-1	1000	KOAC	560
Eugene D-1	100	KORE	1420
Marshfield E-1	50	KOOS	1370
Medford E-1	50	KMED	1310
Portland C-1-b	5000	KEX	1180
	50	KFEC	1370
	100	KFIF	1420
	500	KFJR	1300
	1000	KGW	620
	1000	KOIN	940
	500	KTBR	1300
	15	KWBS	1500
	500	KWJJ	1060
	500	KXL	1250

PENNSYLVANIA

Allentown F-25-c	250	WCBA	1440
	250	WSAN	1440
Altoona F-24-c	100	WFBG	1310
Carbondale F-25	5	WNBW	1200
Elkins Park G-25-c	50	WIBG	930
Erie E-23	30	WEDH	1420
	50	WRAK	1370
Grove City F-23-b	100	WSAJ	1310
Harrisburg F-24-d	500	WBAK	1430
	100	WPRC	1200
Johnstown F-23-d	100	WHBP	1310
Lancaster G-25-a	15	WGAL	1310
	100	WKJC	1200
Lemoyne G-24	500	WMBS	1430
Lewisburg F-24-b	100	WJBU	1210
Oil City F-23-a	500	WLBW	1260
Philadelphia G-25-d	1000	WCAU	1170
	100	WELK	1370
	500	WPAF	610
	500	WFI	560
	50	WPKD	1310
	100	WHBW	1500
	500	WIP	610
	500	WLIT	560
	100	WNAT	1310
	50	WPSW	1500
	250	WRAX	1020
Pittsburgh F-23-c	50000	KDKA	980
	500	KOV	1380
	500	WCAE	1220
	1000	WJAS	1290
Reading F-25-d	100	WRAW	1310
Scranton F-25-a	250	WGBI	880
	250	WQAN	880
State College F-24-a	500	WPSC	1230
Washington F-23	15	WNBO	1200
Wilkes-Barre F-25-b	100	WBAX	1210
	100	WBRE	1310
Wilkesburg F-23	100	WMBJ	1500
Willow Grove G-25	50	WALK	1500

INDEX BY LOCATIONS WITH MAP KEY

PORTO RICO				San Antonio M-14-a				100	KGCI	1370
San Juan	500	WKAQ	890	15	KGDR	1500				
RHODE ISLAND				100	KGRC	1370				
Cranston F-27-a	100	WDWF	1210	100	KTAP	1420				
Newport F-27	100	WLSI	1210	1000	KTSA	1290				
Pawtucket E-27	100	WMBA	1500	5000	WOAI	1190				
Providence E-27-1	250	WPAW	1210	1000	WJAD	1240				
	250	WEAN	550	250	KGKO	570				
		WJAR	890	UTAH						
SOUTH CAROLINA				Ogden F-7-b	50	KFUR	1370			
Charlestown K-23	75	WBBY	1200	Salt Lake City F-7-c	1000	KDYL	1290			
SOUTH DAKOTA					5000	KSL	1130			
Brookings D-14	500	KFDY	550	VERMONT						
Dell Rapids D-14	50	KGDA	1370	Burlington D-26-a	100	WCAX	1200			
Oldham D-14	15	KGDY	1200	Springfield D-26-b	10	WNBX	1200			
Pierre D-12	200	KGFX	580	VIRGINIA						
Rapid City D-11	100	WCAT	1200	Arlington G-24-d	1000	NAA	690			
Sioux Falls D-14	2000	KSOO	1150	Newport News	100	WGH	1310			
Vermillion E-14-b	500	KUSD	890	Norfolk I-24	100	WBBW	1200			
Watertown	100	KGCR	1210		500	WFOR	780			
Yankton E-14-a	1000	WNAX	570		500	WTAR	780			
TENNESSEE					250	WLBG	1200			
Chattanooga J-20	1000	WDOD	1280	Petersburg I-24	250	WBBL	1370			
Knoxville I-20	50	WFBC	1200	Richmond H-24	100	WMBG	1210			
	50	WNBJ	1310		100	WRVA	1110			
	1000	WNOX	560		15	WTAZ	1210			
Lawrenceburg J-19	500	WOAN	600		250	WDBJ	930			
Memphis J-18-a	500	WGBG	1430	WASHINGTON						
	100	WHBQ	1370	Aberdeen B-1	75	KXRO	1420			
	500	WMC	780	Bellingham A-1	100	KVOS	1200			
	500	WNRB	1430	Des Moines B-1	1000	KVI	1340			
	500	WREC	600	Everett A-2	50	KFBL	1370			
Nashville I-19	5000	WBAW	1490	Lacey B-2-b	10	KGY	1200			
	5000	WLAC	1490	Longview B-1	10	KUJ	1500			
	5000	WSM	650	Pullman B-4	500	KWSC	1390			
Springfield I-19	100	WSIX	1210	Seattle B-2-a	100	KFQW	1420			
Union City I-18	15	WOBT	1310		5000	KJR	970			
TEXAS					15	KKP	1370			
Amarillo J-12	1000	KGRS	1410		1000	KOL	1270			
	250	WDAG	1410		1000	KOMO	920			
Austin L-14-b	500	KUT	1120		100	KPCB	1210			
Beaumont M-16	500	KFDM	560		100	KPQ	1210			
Breckenridge K-13	100	KFYD	1420		50	KRSC	1120			
Brownsville O-14-b	500	KWWG	1260		1000	KTW	1270			
Brownwood L-13	100	KGKB	1500		100	KVL	1370			
College Sta. M-13	500	WTAW	1120		500	KXA	570			
Dallas L-15-a	10000	KRLD	1040		100	KFIO	1230			
	5000	WFAA	1040	Spokane A-4	500	KFPY	1390			
	500	WRR	1280		5000	KGA	1470			
Dublin K-14	15	KFPL	1310		1000	KHQ	590			
El Paso L-10	100	WDAH	1310		500	KMO	1340			
Fort Worth L-14-a	100	KFJZ	1370	TACOMA B-1-a						
	1000	KTAT	1240							
	50000	WBAP	800	WEST VIRGINIA						
Galveston M-15-b	100	KFLX	1370	Bluefield	100	WHIS	1420			
	500	KFUL	1290	Charleston H-22	250	WOBV	580			
Greenville K-15	15	KPPM	1310	Clarksburg G-22	65	WQBJ	1200			
Hurlingen O-14	500	KRGV	1260	Fairmont G-23	250	WMMN	890			
Houston M-15-a	1000	KPRC	920	Huntington G-22	250	WSAZ	580			
	5	KTUE	1420	Weirton G-22	60	WQBZ	1420			
Richmond M-15	50	KGHX	1500	Wheeling G-22	5000	WVVA	1160			
San Angelo M-12	15	KGFI	1310	WISCONSIN						
	100	KGKL	1370	Beloit E-18-b	350	WEBW	600			
				Eau Claire D-17	1000	WTAQ	1330			
				Fond du Lac D-18-d	100	KFIZ	1420			
				Kenosha E-19	100	WCLO	1200			
				La Crosse E-17	1000	WKBH	1380			
				Madison E-18-2	750	WHA	570			
				Manitowoc D-19	100	WIBA	1210			
					100	WOMT	1210			

INDEX BY LOCATIONS WITH MAP KEY

Milwaukee E-19-a	250	WHAD	1120	Toronto	500	CFCA	840
	250	WISN	1120		500	CFCL	580
	1000	WTMJ	620		500	CHNC	580
Poynette D-18-e	100	WIBU	1310		500	CJBC	580
Racine E-19	100	WRJN	1370		1000	CJCB	840
Sheboygan C-18	500	WHBL	1410		5000	CJBC	960
Stevens Pt. D-18-b	2000	WLBL	900		500	CJSC	580
Superior B-17	1000	WEBC	1280		500	CKCL	580
West De Pere D-19	100	WHBY	1200		500	CKNC	580
					500	CKOW	840
					500	CNRT	840
WYOMING				PRINCE EDWARD ISLAND			
Laramie F-10	500	KWYO	600	Charlottetown	100	CFCY	960
CANADA					30	CHCK	960
ALBERTA				Summerside	25	CHGS	1120
Calgary	500	CFAC	690	QUEBEC			
	1800	CFCN	690	Montreal	1650	CFCF	1030
	250	CHCA	690		750	CHYC	730
	250	CJ CJ	690		1200	CKAC	730
	500	CNRC	690		1650	CNRM	730
Edmonton	250	CHMA	580	Quebec	25	CHRC	600
	500	CJCA	580		22	CKCI	600
	500	CKUA	580		50	CKCV	600
	500	CNRE	580		50	CNRO	600
Lethbridge	50	CJOC	1120	St. Hyacinthe	50	CKSH	1010
Red Deer	1000	CHCT	840	SASKATCHEWAN			
	1000	CKLC	840	Fleming	500	CJRW	600
BRITISH COLUMBIA				Moose Jaw	500	CJRM	600
Chilliwack	5	CHWK	1210	Regina	500	CHWC	960
Kamloops	15	CFJC	1120		500	CJBR	960
Sea Island	50	CJOR	1030		500	CKCK	960
Vancouver	50	CHLS	730		500	CNRR	960
	50	CKGD	730	Saskatoon	500	CFOC	910
	50	CKFC	730		250	CJRS	910
	50	CKMO	730	Yorkton	500	CJGX	630
	100	CKWX	730	HAITI			
	500	CNRV	1030	Port au Prince	1000	HHK	830
Victoria	500	CFCT	630	MEXICO			
MANITOBA				Chihuahua	250	CZF	970
Brandon	500	CKX	540	Mazatlan	250	CYR	630
Winnipeg	5000	CKY	780	Merida	100	CYY	550
	500	CNRW	780	Mexico City	500	CYA	1000
NEW BRUNSWICK					500	CYB	1090
Fredericton	50	CFNB	1210		100	CYH	800
Moncton	500	CNRA	630		2000	CYJ	750
St. John	50	CFBO	890		500	CYL	750
NOVA SCOTIA					100	CYO	710
Halifax	500	CHNS	930		500	CYX	920
Sydney	50	CJCB	780		500	XFX	860
Wolfville	50	CKIC	930	Oaxaca	100	CYF	1130
ONTARIO				Puebla	100	CYU	960
Bowmanville	5000	CKGW	960	Tampico	100	CYO	930
Brantford	50	CKCR	1010	Torreón	1500	CYM	1330
Chattham	25	CFCO	1210	Vera Cruz	50	CYC	890
Cobalt	15	CKMC	1210	CUBA			
Hamilton	10	CHCS	880	Cienfuegos	200	6BY	1150
	50	CHML	880	Elia	500	7SR	860
	100	CKOC	880	Havana	500	CMC	840
	250	CFCH	600		15	2BB	1200
Iroquois Falls	100	CKOC	960		50	2LR	1280
King Twp.	1000	CFRB	960		20	2MG	1050
Kingston	500	CFRC	1120		100	2OK	860
London	500	CJGC	910		100	2OL	1170
Midland	50	CKPR	1120		20	2RK	950
Ottawa	100	CKGO	690		20	2TW	1110
	500	CNRO	690		10	2UF	1090
Prescott	50	CFLC	1010	Tuinucu	1500	6KW	790
Preston	25	CKPC	1210				

CFAC 690	CJOR 1030	CNRV 1030
Calgary, Alta.	Sea Island, B. C.	Vancouver, B. C.
CFBO 890	CJRM 600	CNRW 780
St. John, N. B.	Moose Jaw, Sask.	Winnipeg, Man.
CFCA 840	CJRW 600	CYA 1000
Toronto, Ont.	Fleming, Sask.	Mexico City
CFCF 1030	CJSC 580	CYB 1090
Montreal, Que.	Toronto, Ont.	Mexico City
CFCH 600	CKAC 730	CYC 890
Iroquois Falls, Ont.	Montreal, Que.	Vera Cruz, Mex.
CFCN 690	CKCD 730	CYF 1130
Calgary, Alta.	Vancouver, B. C.	Oaxaca, Mex.
CFCO 1210	CKCI 600	CYH 800
Chatham, Ont.	Quebec, Que.	Mexico City
CFCT 530	CKCK 960	CYJ 750
Victoria, B. C.	Regina, Sask.	Mexico City
CFCY 960	CKCL 580	CYL 750
Charlottet'n, P.E.I.	Toronto, Ont.	Mexico City
CFJC 1120	CKCO 690	CYM 1330
Kamloops, B. C.	Ottawa, Ont.	Torreon, Mex.
CFLC 1010	CKCR 1010	CYO 710
Prescott, Ont.	Brantford, Ont.	Mexico City
CFNB 1210	CKCV 600	CYQ 930
Fredericton, N. B.	Quebec, Que.	Tampico, Mex.
CFQC 910	CKFC 730	CYR 630
Saskatoon, Sask.	Vancouver, B. C.	Mazatlan, Mex.
CFRB 960	CKGW 960	CYU 960
Twp. of King, Ont.	Bowmanville, Ont.	CYX 960
CFRC 1120	CKIC 930	CYB 920
Kingston, Ont.	Wolfville, N. S.	CYC 920
CHCA 690	CKLC 840	Mexico City
Calgary, Alta.	Red Deer, Alta.	CYD 550
CHCK 960	CKMC 1210	Merida, Mex.
Charlottet'n, P.E.I.	Cobalt, Ont.	CZE 970
CHCS 880	CKMO 730	Chihuahua, Mex.
Hamilton, Ont.	Vancouver, B. C.	EHK 830
CHCT 840	CKNC 580	PortauPrince, Haiti
Red Deer, Alta.	Toronto, Ont.	KDB 1500
CHGS 1120	CKOC 880	Santa Barbara, Cal.
Summerside, P.E.I.	Hamilton, Ont.	KDKA 980
CHLS 730	CKOW 840	Pittsburgh, Pa.
Vancouver, B. C.	Toronto, Ont.	KDLR 1210
CHMA 580	CKPC 1210	Devils Lake, N. D.
Edmonton, Alta.	Preston, Ont.	KDYL 1290
CHML 880	CKPR 1120	Salt Lake City
Hamilton, Ont.	Midland, Ont.	KEJK 1170
CHNC 580	CKSH 1010	Los Angeles, Cal.
Toronto, Ont.	St. Hyacinthe, Que.	KELW 780
CHNS 930	CKUA 580	Burbank, Cal.
Halifax, N. S.	Edmonton, Alta.	KEB 1180
CHRC 600	CKWX 730	Portland, Ore.
Quebec, Que.	Vancouver, B. C.	KFAB 770
CHWC 960	CKX 540	Lincoln, Nebr.
Regina, Sask.	Brandon, Man.	KFAD 620
CHWK 1210	CKY 780	Phoenix, Ariz.
Chilliwack, B. C.	Winnipeg, Man.	KFBB 1360
CHYC 730	CMC 840	Havre, Mont.
Montreal, Que.	Havana, Cuba	KFBK 1310
CJBC 580-840-960	CNRA 630	Sacramento, Cal.
Toronto, Ont.	Moncton, N. B.	KFBL 1370
CJBR 960	CNRC 690	Everett, Wash.
Regina, Sask.	Calgary, Alta.	KFDM 560
CJCA 580	CNRE 580	Beaumont, Texas
Edmonton, Alta.	Edmonton, Alta.	KFEC 1370
CJCB 780	CNRM 730	Portland, Ore.
Sydney, N. S.	Montreal, Que.	KFEL 940
CJCJ 690	CNRO 690	Denver, Colo.
Calgary, Alta.	Ottawa, Ont.	KFEQ 560
CJGC 910	CNRQ 600	St. Joseph, Mo.
London, Ont.	Quebec, Que.	KFGQ 1310
CJGX 630	CNRR 960	Boone, Iowa
Yorkton, Sask.	Regina, Sask.	KFH 1300
CJHS 910	CNRS 910	Wichita, Kansas
Saskatoon, Sask.	Saskatoon, Sask.	KFHA 1200
CJOC 1120	CNRT 840	Gunnison, Colo.
Lethbridge, Alta.	Toronto, Ont.	KFI 640
		Los Angeles, Cal.

KFIF 1420
Portland, Ore.
KFIO 1230
Spokane, Wash.
KFIU 1310
Juneau, Alaska
KFIZ 1420
Fond du Lac, Wis.
KFJB 1200
Marshalltown, Ia.
KFJF 1470
Oklahoma City
KFJI 1370
Astoria, Ore.
KFJM 1370
Grand Forks, N.D.
KFJR 1300
Portland, Ore.
KFJY 1310
Fort Dodge, Ia.
KFJZ 1370
Ft. Worth, Texas
KFKA 880
Greeley, Colo.
KFKB 1050
Milford, Kansas
KFKU 1220
Lawrence, Kans.
KFKX 1020
Chicago, Ill.
KFKZ 1200
Kirksville, Mo.
KFLV 1410
Rockford, Ill.
KFLX 1370
Galveston, Texas
KFMX 1250
Northfield, Minn.
KFNF 890
Shenandoah, Iowa
KFOR 1210
Lincoln, Nebr.
KFOX 1250
Long Beach, Cal.
KFPL 1310
Dublin, Texas
KFPM 1310
Greenville, Texas
KFPW 1340
Siloam Spgs., Ark.
KFPY 1390
Spokane, Wash.
KFQD 1230
Anchorage, Alaska
KFOU 1420
Holy City, Cal.
KFOW 1420
Seattle, Wash.
KFOZ 860
Hollywood, Cal.
KFRC 610
San Francisco, Cal.
KFRU 630
Columbia, Mo.
KFSD 600
San Diego, Cal.
KFSG 1120
Los Angeles, Cal.
KFUL 1290
Galveston, Texas
KFUM 1270
Col. Spgs., Colo.
KFUO 550
St. Louis, Mo.
KFUP 1310
Denver, Colo.

KFUR 1370
Ogden, Utah
KFVD 700
Culver City, Cal.
KFVS 1210
Cape Girardeau, Mo.
KFWB 950
Los Angeles, Cal.
KFWC 1200
Ontario, Cal.
KFWF 1200
St. Louis, Mo.
KFWI 930
San Francisco, Cal.
KFWM 930
Oakland, Cal.
KFXD 1420
Jerome, Idaho
KFXF 940
Denver, Colo.
KFXJ 1310
Edgewater, Colo.
KFXR 1310
Oklahoma City
KFXV 1420
Flagstaff, Ariz.
KFYO 1420
Abilene, Texas
KFYR 550
Bismarck, N. D.
KGA 1470
Spokane, Wash.
KGAR 1370
Tucson, Ariz.
KGB 1360
San Diego, Cal.
KGBU 900
Ketchikan, Alaska
KGBX 1370
St. Joseph, Mo.
KGBZ 930
York, Nebr.
KGCA 1270
Decorah, Iowa
KCRC 1370
Oklahoma City
KGCI 1370
San Antonio, Texas
KGCN 1420
Concordia, Kans.
KGCR 1210
Watertown, S. D.
KGCU 1200
Mandan, N. D.
KGCK 1420
Vida, Mont.
KGDA 1370
Dell Rapids, S. D.
KGDE 1200
Pergus Falls, Minn.
KGDM 1100
Stockton, Cal.
KGDR 1500
San Antonio, Texas
KGDY 1200
Oldham, S. D.
KGEF 1300
Los Angeles, Cal.
KGEK 1200
Yuma, Colo.
KGER 1370
Long Beach, Cal.
KGEW 1200
Fort Morgan, Colo.
KGEZ 1310
Kalispell, Mont.

KGFF 1420
Alva, Okla.
KGFG 1370
Oklahoma City
KGFH 1000
Glendale, Cal.
KGFI 1310
San Angelo, Texas
KGFI 1420
Los Angeles, Cal.
KGFK 1200
Hallowell, Minn.
KGFL 1370
Raton, N. M.
KGFW 1420
Ravenna, Nebr.
KGFX 580
Pierre, S. D.
KGGC 1420
San Francisco, Cal.
KGGF 1010
Picher, Okla.
KTSL 1310
Shreveport, La.
KGGM 1370
Albuquerque, N. M.
KGHB 1320
Honolulu, Hawaii
KGHD 1420
Missoula, Mont.
KGHF 1320
Pueblo, Colo.
KGHG 1310
McGehee, Ark.
KGHI 1500
Little Rock, Ark.
KGHL 950
Billings, Mont.
KGHX 1500
Richmond, Texas
KGIO 1320
Twin Falls, Ida.
KGIR 1360
Butte, Mont.
KGIW 1420
Trinidad, Colo.
KGJF 890
Little Rock, Ark.
KGKB 1500
Brownwood, Texas
KGKL 1370
San Angelo, Texas
KGKO 570
Wichita Falls, Tex.
KGKX 1420
Sand Point, Idaho
KGO 790
Oakland, Cal.
KGRC 1370
San Antonio, Texas
KGRS 1410
Amarillo, Texas
KGU 940
Honolulu, Hawaii
KGW 620
Portland, Ore.
KGy 1200
Lacey, Wash.
KHJ 900
Los Angeles, Cal.
KHQ 590
Spokane, Wash.
KICK 1420
Red Oak, Iowa
KID 1320
Idaho Falls, Idaho

KGFF 1420
Alva, Okla.
KGFG 1370
Oklahoma City
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San Angelo, Texas
KGFI 1420
Los Angeles, Cal.
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KGKX 1420
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KGO 790
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KGRC 1370
San Antonio, Texas
KGRS 1410
Amarillo, Texas
KGU 940
Honolulu, Hawaii
KGW 620
Portland, Ore.
KGy 1200
Lacey, Wash.
KHJ 900
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Shreveport, La.
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McGehee, Ark.
KGHI 1500
Little Rock, Ark.
KGHL 950
Billings, Mont.
KGHX 1500
Richmond, Texas
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Twin Falls, Ida.
KGIR 1360
Butte, Mont.
KGIW 1420
Trinidad, Colo.
KGJF 890
Little Rock, Ark.
KGKB 1500
Brownwood, Texas
KGKL 1370
San Angelo, Texas
KGKO 570
Wichita Falls, Tex.
KGKX 1420
Sand Point, Idaho
KGO 790
Oakland, Cal.
KGRC 1370
San Antonio, Texas
KGRS 1410
Amarillo, Texas
KGU 940
Honolulu, Hawaii
KGW 620
Portland, Ore.
KGy 1200
Lacey, Wash.
KHJ 900
Los Angeles, Cal.
KHQ 590
Spokane, Wash.
KICK 1420
Red Oak, Iowa
KID 1320
Idaho Falls, Idaho

KIDO 1250		KPQ 1210		KVL 1370	
Boise, Idaho		Seattle, Wash.		Seattle, Wash.	
KJBS 1150		KPRC 920		KVOO 1140	
San Francisco, Cal.		Houston, Texas		Tulsa, Okla.	
KJR 970		KPSN 950		KVOS 1200	
Seattle, Wash.		Pasadena, Cal.		Bellingham, Wash.	
KKP 1370		KQV 1380		KWBS 1500	
Seattle, Wash.		Pittsburgh, Pa.		Portland, Ore.	
KLCN 1290		KQW 1010		KWCR 1310	
Blytheville, Ark.		San Jose, Cal.		Cedar Rapids, Ia.	
KLDS 950		KPWF 1490		KWEA 1210	
Independence, Mo.		Westminster, Cal.		Shreveport, La.	
KLRA 1390		KRE 1370		KWG 1200	
Little Rock, Ark.		Berkeley, Cal.		Stockton, Cal.	
KLS 1440		KRGV 1260		KWJJ 1060	
Oakland, Cal.		Harlingen, Texas		Portland, Ore.	
KLX 880		KRLD 1040		KWK 1350	
Oakland, Cal.		Dallas, Texas		St. Louis, Mo.	
KLZ 560		KRMD 1310		KWKC 1370	
Denver, Colo.		Shreveport, La.		Kansas City, Mo.	
KMA 930		KRSC 1120		KWKH 850	
Shenandoah, Iowa		Seattle, Wash.		Shreveport, La.	
KMBC 950		KSAC 580		KWLC 1270	
Independence, Mo.		Manhattan, Kans.		Decorah, Iowa	
KMED 1310		KSBA 1450		KWSC 1390	
Medford, Ore.		Shreveport, La.		Pullman, Wash.	
KMIC 1120		KSCJ 1330		KWTC 1500	
Inglewood, Cal.		Sioux City, Iowa		Santa Ana, Cal.	
KMJ 1200		KSD 550		KWWG 1260	
Fresno, Cal.		St. Louis, Mo.		Brownsville, Texas	
KMMJ 740		KSEI 900		KWYO 600	
Clay Center, Nebr.		Pocatello, Idaho		Laramie, Wyo.	
KMO 1340		KSL 1130		KXA 570	
Tacoma, Wash.		Salt Lake City		Seattle, Wash.	
KMOX 1090		KSMR 1200		KXL 1250	
St. Louis, Mo.		Santa Maria, Cal.		Portland, Ore.	
KMTR 570		KSO 1380		KXO 1200	
Hollywood, Cal.		Clarinda, Iowa		El Centro, Cal.	
KNX 1050		KSOO 1110		KXRO 1420	
Los Angeles, Cal.		Sioux Falls, S. D.		Aberdeen, Wash.	
KOA 830		KSTP 1460		KYA 1230	
Denver, Colo.		St. Paul, Minn.		San Francisco, Cal.	
KOAC 560		KTAB 550		KYW 1020	
Corvallis, Or.		Oakland, Cal.		Chicago, Ill.	
KOB 1180		KTAP 1420		KYWA 1020	
State College, N. M.		San Antonio, Texas		Chicago, Ill.	
KOCW 1420		KTAT 1240		KZM 1370	
Chickasha, Okla.		Ft. Worth, Texas		Hayward, Cal.	
KOH 1370		KTBI 1300		NAA 690	
Reno, Nevada		Los Angeles, Cal.		Arlington, Va.	
KOIL 1260		KTBR 1300		WAAD 1420	
Council Bluffs, Ia.		Portland, Ore.		Cincinnati, Ohio	
KOIN 940		KTHS 800		WAAF 920	
Portland, Ore.		Hot Springs, Ark.		Chicago, Ill.	
KOL 1270		KTM 780		WAAM 1250	
Seattle, Wash.		Santa Monica, Cal.		Newark, N. J.	
KOMO 920		KTNT 1170		WAAT 1070	
Seattle, Wash.		Muscataine, Iowa		Jersey City, N. J.	
KOOS 1370		KTSA 1290		WAAW 660	
Marshfield, Ore.		San Antonio, Texas		Omaha, Nebr.	
KORE 1420		KTUE 1420		WABC 860	
Eugene, Ore.		Houston, Texas		New York City	
KOW 1390		KTW 1270		WABI 1200	
Denver, Colo.		Seattle, Wash.		Bangor, Maine	
KOY 1390		KUJ 1500		WABO 1440	
Phoenix, Ariz.		Longview, Wash.		Rochester, N. Y.	
KPCB 1210		KUOA 1390		WABZ 1200	
Seattle, Wash.		Fayetteville, Ark.		New Orleans, La.	
KPFM 1500		KUOM 570		WADC 1320	
Prescott, Ariz.		Missoula, Mont.		Akron, Ohio	
KPLA 370		KUSD 890		WAFD 1500	
Los Angeles, Cal.		KUT 1120		Detroit, Mich.	
KPO 680		Austin, Texas		WAGM 1310	
San Francisco, Cal.		KVI 1340		Royal Oak, Mich.	
KPOF 360		Des Moines, Wash.		WAIU 640	
Denver, Colo.				Columbus, Ohio	
KPPC 1200					
Pasadena, Cal.					

WALK 1500	WCAT 1200	WEAF 660
Willow Grove, Pa.	Rapid City, S. D.	New York City
WAPI 1140	WCAU 1170	WEAI 1270
Birmingham, Ala.	Philadelphia, Pa.	Ithaca, N. Y.
WASH 1270	WCAX 1200	WEAN 550
Gr. Rapids, Mich.	Burlington, Vt.	Providence, R. I.
WBAA 1400	WCAZ 1070	WEOA 550
Lafayette, Ind.	Carthage, Ill.	Columbus, Ohio
WBAK 1430	WCBA 1440	WEAR 1070
Harrisburg, Pa.	Allentown, Pa.	Cleveland, Ohio
WBAL 1060	WCBD 1080	WEBC 1280
Baltimore, Md.	Zion, Ill.	Superior, Wis.
WBAP 800	WCBM 1370	WEBE 1210
Fort Worth, Texas	Baltimore, Md.	Cambridge, Ohio
WBAW 1490	WCBS 1210	WEBQ 1210
Nashville, Tenn.	Springfield, Ill.	Harrisburg, Ill.
WBAX 1210	WCCO 810	WEBR 1310
Wilkes-Barre, Pa.	Minneapolis-St. Paul	Buffalo, N. Y.
WBBC 1400	WCDA 1350	WEBW 600
Brooklyn, N. Y.	Brooklyn, N. Y.	Beloit, Wis.
WBBL 1370	WCFL 970	WEBC 1210
Richmond, Va.	Chicago, Ill.	Chicago, Ill.
WBBM 770	WCGU 1400	WEDH 1420
Chicago, Ill.	Coney Island, N. Y.	Erie, Pa.
WBCM 1410	WCKY 1480	WEEL 590
Bay City, Mich.	Covington, Ky.	Boston, Mass.
WBBR 1300	WCLE 1500	WEHS 1310
Rossville, N. Y.	Brooklyn, N. Y.	Evanston, Ill.
WBBW 1200	WCLO 1200	WELK 1370
Norfolk, Va.	Kenosha, Wis.	Philadelphia, Pa.
WBBY 1200	WCLS 1310	WEMC 590
Charleston, S. C.	Joliet, Ill.	Berrien Spgs., Mich.
WBBZ 1200	WCMA 1400	WENR 870
Ponca City, Okla.	Culver, Ind.	Chicago, Ill.
WBIS 1230	WCOA 1120	WEPS 1200
Boston, Mass.	Pensacola, Fla.	Gloucester, Mass.
WBMS 1450	WCOC 880	WEVD 1300
Union City, N. J.	Columbus, Miss.	Woodhaven, N. Y.
WBNY 1350	WCOH 1210	WEW 760
New York City	Greenville, N. Y.	St. Louis, Mo.
WBOQ 860	WCRW 1210	WFAA 1040
New York City	Chicago, Ill.	Dallas, Texas
WBOW 1310	WCSH 940	WEAN 610
Terre Haute, Ind.	Portland, Maine	Philadelphia, Pa.
WBRC 930	WCOS 1380	WEBC 1200
Birmingham, Ala.	Springfield, Ohio	Knoxville, Tenn.
WBRE 1310	WCX 750	WEBE 1200
Wilkes-Barre, Pa.	Detroit, Mich.	Cincinnati, Ohio
WBRL 1430	WDAE 620	WEBG 1310
Manchester, N. H.	Tampa, Fla.	Altoona, Pa.
WBSO 780	WDAF 610	WEBJ 1370
Wellesley H'ls, Mass	Kansas City, Mo.	Collegeville, Minn.
WBT 1080	WDAG 1410	WEBL 900-1490
Charlotte, N. C.	Amarillo, Texas	Syracuse, N. Y.
WBZ 990	WDAH 1310	WEFM 1230
Springfield, Mass.	El Paso, Texas	Indianapolis, Ind.
WBZA 990	WDAY 1280	WEFR 1270
Boston, Mass.	Farro, N. D.	Baltimore, Md.
WCAC 600	WDBJ 930	WFD 1310
Storrs, Conn.	Roanoke, Va.	Flint, Mich.
WCAD 1220	WDBO 620	WFI 560
Canton, N. Y.	Orlando, Fla.	Philadelphia, Pa.
WCAE 1220	WDEL 1120	WFIW 940
Pittsburgh, Pa.	Wilmington, Del.	Hopkinsville, Ky.
WCAH 1430	WDGY 560	WFJC 1450
Columbus, Ohio	Minneapolis, Minn.	Akron, Ohio
WCAJ 590	WDOD 1280	WFKD 1310
Lincoln, Nebr.	Chattanooga, Tenn.	Philadelphia, Pa.
WCAL 1250	WDRG 1330	WFLA 900
Northfield, Minn.	New Haven, Conn.	Clearwater, Fla.
WCAM 1280	WDSU 1270	WGAL 1310
Camden, N. J.	New Orleans, La.	Lancaster, Pa.
WCAO 600	WDWF 1210	WGBB 1210
Baltimore, Md.	Cranston, R. I.	Freeport, N. Y.
WCAP 1280	WDZ 1070	WGBC 1430
Asbury Park, N. J.	Tuscola, Ill.	Memphis, Tenn.

WGBF 630
 Evansville, Ind.
 WGBI 880
 Scranton, Pa.
 WGBS 1180
 New York City
 WGCM 1210
 Gulfport, Miss.
 WGCP 1250
 Newark, N. J.
 WGES 1360
 Chicago, Ill.
 WGH 1310
 Newport News, Va.
 WGHP 1240
 Detroit, Mich.
 WGL 1370
 Ft. Wayne, Ind.
 WGMS 1250
 St. Paul-Minneap.
 WGN 720
 Chicago, Ill.
 WGR 550
 Buffalo, N. Y.
 WGST 890
 Atlanta, Ga.
 WGY 790
 Schenectady, N. Y.
 WHA 570
 Madison, Wis.
 WHAD 1120
 Milwaukee, Wis.
 WHAM 1150
 Rochester, N. Y.
 WHAP 1300
 New York City
 WHAS 820
 Louisville, Ky.
 WHAZ 1300
 Troy, N. Y.
 WHB 950
 Kansas City, Mo.
 WHBC 1200
 Canton, Ohio
 WHBD 1370
 Bellefontaine, Ohio
 WHBF 1210
 Rock Island, Ill.
 WHBL 1410
 Sheboygan, Wis.
 WHBP 1310
 Johnstown, Pa.
 WHBQ 1370
 Memphis, Tenn.
 WHBU 1210
 Anderson, Ind.
 WEBW 1500
 Philadelphia, Pa.
 WEBY 1200
 West De Pere, Wis.
 WEDF 1370
 Calumet, Mich.
 WHDH 830
 Gloucester, Mass.
 WHDI 560
 Minneapolis, Minn.
 WHDL 1420
 Tupper Lake, N. Y.
 WHEC 1440
 Rochester, N. Y.
 WHFC 1310
 Chicago, Ill.
 WHIS 1420
 Bluefield, W. Va.
 WHK 1390
 Cleveland, Ohio
 WHN 1010
 New York City

WHO 1000
 Des Moines, Iowa
 WHPP 1420
 New York City
 WIAS 1420
 Ottumwa, Iowa
 WIBA 1210
 Madison, Wis.
 WIBG 930
 Elkins Park, Pa.
 WIBM 1370
 Jackson, Mich.
 WIBO 570
 Chicago, Ill.
 WIBR 1420
 Steubenville, Ohio
 WIBS 1450
 Elizabeth, N. J.
 WIBU 1310
 Poynette, Wis.
 WIBW 1300
 Topeka, Kansas
 WIBX 1200
 Utica, N. Y.
 WIBZ 1500
 Montgomery, Ala.
 WICC 1190
 Bridgeport, Conn.
 WIL 1200
 St. Louis, Mo.
 WILL 890
 Urbana, Ill.
 WILM 1500
 Wilmington, Del.
 WINR 1210
 Bay Shore, N. Y.
 WIOD 1240
 Miami Beach, Fla.
 WIP 610
 Philadelphia, Pa.
 WISN 1120
 Milwaukee, Wis.
 WJAD 1240
 Waco, Texas
 WJAG 1060
 Norfolk, Nebr.
 WJAK 1310
 Marion, Ind.
 WJAR 890
 Providence, R. I.
 WJAS 1290
 Pittsburgh, Pa.
 WJAX 1260
 Jacksonville, Fla.
 WJAY 620
 Cleveland, Ohio
 WJAZ 1480
 Chicago, Ill.
 WJBC 1200
 La Salle, Ill.
 WJBI 1210
 Red Bank, N. J.
 WJBK 1370
 Ypsilanti, Mich.
 WJBL 1200
 Decatur, Ill.
 WJBO 1370
 New Orleans, La.
 WJBU 1210
 Lewisburg, Pa.
 WJBW 1200
 New Orleans, La.
 WJBY 1210
 Gadsden, Ala.
 WJJD 1130
 Mooseheart, Ill.

WJKS 1360
 Gary, Ind.
 WJR 750
 Detroit, Mich.
 WJSV 1460
 Washington, D. C.
 WJZ 760
 New York City
 WKAQ 890
 San Juan, P. R.
 WKAR 1040
 East Lansing, Mich.
 WKAV 1310
 Laconia, N. H.
 WKBB 1310
 Joliet, Ill.
 WKBC 1310
 Birmingham, Ala.
 WKBE 1200
 Webster, Mass.
 WKBF 1400
 Indianapolis, Ind.
 WKBH 1380
 La Crosse, Wis.
 WKBI 1310
 Chicago, Ill.
 WKBN 570
 Youngstown, Ohio
 WKBO 1450
 Jersey City, N. J.
 WKBP 1420
 Battle Creek, Mich.
 WKBO 1350
 New York City
 WKBS 1310
 Galesburg, Ill.
 WKBV 1500
 Brookville, Ind.
 WKBW 1470
 Buffalo, N. Y.
 WKBZ 1500
 Ludington, Mich.
 WKEN 1040
 Grand Island, N. Y.
 WKJC 1200
 Lancaster, Pa.
 WKRC 550
 Cincinnati, Ohio
 WKY 900
 Oklahoma City
 WLAC 1490
 Nashville, Tenn.
 WLAP 1200
 Louisville, Ky.
 WLB 1250
 Minneapolis, Minn.
 WLCB 1310
 Muncie, Ind.
 WLBF 1420
 Kansas City, Mo.
 WLBG 1200
 Petersburg, Va.
 WLBH 1420
 Patchogue, N. Y.
 WLBL 900
 Stevens Point, Wis.
 WLBQ 1310
 Galesburg, Ill.
 WLBV 1210
 Mansfield, Ohio
 WLBW 1260
 Oil City, Pa.
 WLBX 1500
 L. I. City, N. Y.
 WLBZ 620
 Bangor, Me.

WLCI 1210		WMT 1200		WPAW 1210	
Ithaca, N. Y.		Waterloo, Iowa		Pawtucket, R. I.	
WLEX 1360		WNAC 1230		WPCC 570	
Lexington, Mass.		Boston, Mass.		Chicago, Ill.	
WLEY 1420		WNAD 1010		WPCH 810	
Lexington, Mass.		Norman, Okla.		Hoboken, N. J.	
WLIB 720		WNAT 1310		WPG 1100	
Chicago, Ill.		Philadelphia, Pa.		Atlantic City, N. J.	
WLIT 560		WNAX 570		WPOR 780	
Philadelphia, Pa.		Yankton, S. D.		Norfolk, Va.	
WLOE 1500		WNBF 1500		WPRC 1200	
Chelsea, Mass.		Binghamton, N. Y.		Harrisburg, Pa.	
WLS 870		WNBH 1310		WPSC 1230	
Chicago, Ill.		Wew Bedford, Mass.		State College, Pa.	
WLSI 1210		WNBK 1310		WPSW 1500	
Cranston, R. I.		WNBK 1310		Philadelphia, Pa.	
WLTH 1400		WNBK 1310		WPTF 680	
Brooklyn, N. Y.		WNBK 1310		Raleigh, N. C.	
WLW 700		WNBK 1310		WQAM 1240	
Cincinnati, Ohio		WNBK 1310		Miami, Fla.	
WLWL 1100		WNBK 1310		WQAN 880	
New York City		WNBK 1310		Scranton, Pa.	
WMAC 570		WNBK 1310		WQAO 1010	
Cazenovia, N. Y.		WNBK 1310		Cliffside, N. J.	
WMAF 1360		WNBK 1310		WQBC 1360	
S. Dartm'th, Mass.		WNBK 1310		Utica, Miss.	
WMAK 900		WNBK 1310		WQB 1200	
Buffalo, N. Y.		WNBK 1310		Clarksburg, W. Va.	
WMAL 630		WNBK 1310		WQBZ 1420	
Washington, D. C.		WNBK 1310		Weirton, W. Va.	
WMAN 1210		WNBK 1310		WRAF 1200	
Columbus, Ohio		WNBK 1310		La Porte, Ind.	
WMAQ 670		WNBK 1310		WRAK 1370	
Chicago, Ill.		WNBK 1310		Erie, Pa.	
WMAY 1200		WNBK 1310		WRAW 1310	
St. Louis, Mo.		WNBK 1310		Reading, Pa.	
WMAZ 890		WNBK 1310		WRAX 1010	
Macon, Ga.		WNBK 1310		Philadelphia, Pa.	
WMBA 1500		WNBK 1310		WRBC 1240	
Newport, R. I.		WNBK 1310		Valparaiso, Ind.	
WMBC 1420		WNBK 1310		WRBJ 1500	
Detroit, Mich.		WNBK 1310		Hattiesburg, Miss.	
WMBD 1440		WNBK 1310		WRBL 1200	
Peoria Heights, Ill.		WNBK 1310		Columbus, Ga.	
WMBF 560		WNBK 1310		WRBQ 1210	
Miami Beach, Fla.		WNBK 1310		Greenville, Miss.	
WMBG 1210		WNBK 1310		WRBT 1370	
Richmond, Va.		WNBK 1310		Wilmington, N. C.	
WMBH 1420		WNBK 1310		WRBU 1210	
Joplin, Mo.		WNBK 1310		Gastonia, N. C.	
WMBI 1080		WNBK 1310		WRC 950	
Chicago, Ill.		WNBK 1310		Washington, D. C.	
WMBJ 1500		WNBK 1310		WREC 600	
Wilkinsburg, Pa.		WNBK 1310		Memphis, Tenn.	
WMBL 1310		WNBK 1310		WREN 1220	
Lakeland, Fla.		WNBK 1310		Lawrence, Kansas	
WMBO 1370		WNBK 1310		WRHM 1250	
Auburn, N. Y.		WNBK 1310		Minneapolis, Minn.	
WMBQ 1500		WNBK 1310		WRJN 1370	
Brooklyn, N. Y.		WNBK 1310		Racine, Wis.	
WMBR 1210		WNBK 1310		WRK 1310	
Tampa, Fla.		WNBK 1310		Hamilton, Ohio	
WMBBS 1430		WNBK 1310		WRNY 1010	
Lemoyne, Pa.		WNBK 1310		New York City	
WMC 780		WNBK 1310		WRR 1280	
Memphis, Tenn.		WNBK 1310		Dallas, Texas	
WMCA 570		WNBK 1310		WTRUF 1470	
New York City		WNBK 1310		Gainesville, Fla.	
WMES 1500		WNBK 1310		WRVA 1110	
Boston, Mass.		WNBK 1310		Richmond, Va.	
WMMN 890		WNBK 1310		WSAI 800	
Fairmont, W. Va.		WNBK 1310		Cincinnati, Ohio	
WMPC 1500		WNBK 1310		WSAJ 1310	
Lapeer, Mich.		WNBK 1310		Grove City, Pa.	
WMRJ 1420		WNBK 1310		WSAN 1440	
Jamaica, N. Y.		WNBK 1310		Allentown, Pa.	
WMSG 1350		WNBK 1310			
New York City		WNBK 1310			

WSAR 1450		WSUN 900		WWL 850	
Fall River, Mass.		St. Petersburg, Fla.		New Orleans, La.	
WSAZ 580		WSVS 1370		WWNC 570	
Huntington, W. Va.		Buffalo, N. Y.		Asheville, N. C.	
WSB 740		WSYR 570		WWRL 1500	
Atlanta, Ga.		Syracuse, N. Y.		Woodside, N. Y.	
WSBC 1210		WTAD 1440		WWVA 1160	
Chicago, Ill.		Quincy, Ill.		Wheeling, W. Va.	
WSBT 1230		WTAG 580		XFX 860	
South Bend, Ind.		Worcester, Mass.		Mexico City	
WSGH 1400		WTAM 1070		2BB 1200	
Brooklyn, N. Y.		Cleveland, Ohio		Havana, Cuba	
WSIS 1010		WTAQ 1330		2LR 1280	
Sarasota, Fla.		Eau Claire, Wis.		Havana, Cuba	
WSIX 1210		WTAR 780		2MG 1050	
Springfield, Tenn.		Norfolk, Va.		Havana, Cuba	
WSM 650		WTAW 1120		2OK 860	
Nashville, Tenn.		College Sta., Tex.		Havana, Cuba	
WSMB 1320		WTAX 1210		2OL 1170	
New Orleans, La.		Streator, Ill.		Havana, Cuba	
WSMD 1310		WTAZ 1210		2RK 950	
Salisbury, Md.		Richmond, Va.		Havana, Cuba	
WSMK 570		WTBO 1420		2TW 1110	
Dayton, Ohio		Cumberland, Md.		Havana, Cuba	
WSOA 1480		WTFI 1450		2UF 1090	
Chicago, Ill.		Toccoa, Ga.		Havana, Cuba	
WSPD 1340		WTIC 600-1060		6BY 1150	
Toledo, Ohio		Hartford, Conn.		Cienfuegos, Cuba	
WSRO 1420		WTMJ 620		6KW 790	
Middletown, Ohio		Milwaukee, Wis.		Tuinucu, Cuba	
WSSH 1420		WWAE 1370		7SR 860	
Boston, Mass.		Hammond, Ind.		Elia, Cuba	
WSUI 580		WWJ 920			
Iowa City, Iowa		Detroit, Mich.			

Television Stations

		Kcs.
W9XAG	Aero Products, Inc., 1768 Wilson Ave., Chicago, Ill.	4700-4900
W2XBT	Frank L. Carter, 3978 Bliss St., Long Island City, N. Y.	8195
WCFI	Chicago Federation of Labor, Ft. of Grand Ave., Chicago	620
W9XAA	Chicago Federation of Labor, Ft. of Grand Ave., Chicago	4460-4660
W1XAY	J. Smith Dodge, Adams St., Lexington, Mass.	4800-4900
W6XN	General Electric Co., 5555 E. 14th St., Oakland, Cal.	2052-4560
W3XK	Jenkins Laboratories, 1519 Connecticut Ave., Washington	4900-5000
W6XBW	P. S. Lucas, 422 Holland Ave., Los Angeles	2140-4280
6XAM	Ben S. McGlashan, Wash. and Oak Sts., Los Angeles	2000-2100
W6XC	Robert B. Parrish, 5155 S. Grammercy Place, Los Angeles	4500-4600
W2XAL	Hotel Roosevelt, 45th and Madison Ave., New York	3091-9700
W2XBS	Radio Corp. of America (Portable), 70 Van Cortlandt Park, S. Bronx, New York, N. Y.	2100-330
W2XBV	Radio Corp. of America (Portable)	4500-4600
W2XBW	Radio Corp. of America (Portable), Initial location: River Road, Bound Brook, N. J.	15100-15200
W6XF	Calvin J. Smith, 334 N. Serrano Ave., Los Angeles	4700-4900
W2XBV	Harold E. Smith, Beacon, N. Y.	4700-4900
W8XAV	Westinghouse Electric Mfg. Co. E. Pittsburgh, Pa.	4700-4800
W4XA	WREC, Inc., Whitehaven, Tenn.	15100-15200
WIBO	Nelson Bros. Bond & Mfg. Co., Milwaukee Ave., at Ballard Rd., Chicago, Ill.	2400-2500
		570

Mexican Short-Wave Stations

Call Letters	Owner	Power Watts	Call Letters	Owner	Power Watts
CYL	Raul Azcarraga, Mexico, D. F.	500	CYY	Partido Socialista del Sureste, Merida, Yuc.	105
CYB	"El Buen Tono," Mexico, D. F.	500	CYS	Efrain R. Gomez, Mexico, D. F.	250
CYR	C stulo Llamas, Mazatlan, Sin.	500	CYH	Miguel S. Castro, Mexico, D. F.	105
CYX	Pablo Langarica, Mexico, D. F.	500	CYO	Martinez y Zetina, Mexico, D. F.	101
CYM	Roberto Reyes, Monterrey, N. L.	200	CZE	Secretaria de Educacion Publica, Mexico, D. F.	500
CYF	F. Zorilla, Oaxaca, Oax.	100			

*All stations are licensed to operate on wavelengths between 350 and 550 meters.

The Short Wave Stations

For the information of those who are exploring the short-wave field, the following list of stations known to be broadcasting between 26.3 and 109.0 meters, is given. The definite wave length used by each station cannot be given as the experiments are being carried on at different frequencies. These frequencies are too high for the ordinary receiver and special instruments must be built

in order to receive these stations. Most of the programs in this field are the same as those in the broadcast bands merely being duplicated at high frequencies in order that they may carry farther and reach distant lands. The stations are designated by the initial letter X with a numeral preceding which indicates the radio district in which the station is located.

Call	Station	Owner	City and State	Meters	Watts
1 XAA	WRAH	Stanley N. Read	Providence, R. I.		7.5
1 XAE	WBZ	Westinghouse Elec. & Mfg. Co.	Springfield, Mass.	70.0	
1 XAF	WEEI	Edison Elec. Illuminating Co.	Boston, Mass.		
1 XAG		Edison Elec. Illuminating Co.	Boston, Mass.		
1 XY	WBRL	Booth Radio Laboratories	Tilton, N. H.	105-109	250
2 XA	WRMU	Yacht "MU-1" Grebe Co.	New York		
2 XAC	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAD	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAE	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAF	WGY	General Electric Co.	Schenectady, N. Y.	32.7	
2 XAG	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAH	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAK	WGY	General Electric Co.	Schenectady, N. Y.		
2 XAL	WRNY	Experimenter Pub. Co.	New York	30.91	500
2 XAO		Atlantic Broadcasting Co.	New York	105.9	100
2 XAQ	WOR	L. Bamberger Co.	Newark, N. J.	65.4	50
2 XAW	WGY	General Electric Co.	Schenectady, N. Y.		
2 XBA	WAAM	WAAM, Inc.	Newark, N. J.	65.18	50
2 XBH		Chas. G. Ungar.	Coney Island, N. Y.	54.02	150
2 XE	WABC	Atlantic Broadcasting Co.	Richmond Hill, N. Y.	21.1	50
2 XZ		National Broadcasting Co.	Bellmore, L. I.	49.15	50000
3 XK		C. Francis Jenkins Labs.	Washington, D. C.		
3 XL		Radio Corp. of America	Bound Brook, N. J.	59.96	30000
3 XN		Bell Telephone Laboratory	Whippany, N. J.		
4 XE		William Justice Lee	Winter Park, Fla.	200.	250
6 XA	KNX	Los Angeles Express	Los Angeles, Cal.	107.1	100
6 XAF	KNRC	Clarence B. Juneau	Santa Monica, Cal.	108.2	100
6 XAI	KGGM	Los Angeles Radio Club	Los Angeles, Cal.	66.04	50
6 XAK	KFWH	F. W. Morse	Chico, Cal.	108.2	50
6 XAL	KFQZ	L. E. Taft	Hollywood, Cal.	66.04	50
6 XAN	KRLO	Freeman Lang	Los Angeles, Cal.	105.9	250
6 XAR	KJBS	J. Brunton & Sons	San Francisco, Cal.	32.	50
6 XAU	KHJ	Times-Mirror Co.	Los Angeles, Cal.	104.1	50
6 XAZ		Nelson Radio Co.	San Diego, Cal.	106.	50
6 XBA	KFSG	Air-Fan Radio Corp.	Los Angeles, Cal.	108.2	250
6 XBE	KFBC	W. K. Azbill	San Diego, Cal.		
6 XBF	KFQV	W. E. Riker	Holy City, Cal.	31-106	50
6 XBR	KFWB	Warner Bros. Picture Studios	Los Angeles, Cal.	40-105	50
6 XBX	KFVD	McWhinnie Elec. Co.	Venice, Cal.	105.	50
6 XAB	KFPY	Symons Investment Co.	Spokane, Wash.	105.9	
7 XAO	KWJJ	Wilbur Jerman, Inc.	Portland, Ore.	53-54	100
7 XC	KJR	Northwest Radio Service	Seattle, Wash.		
7 XO		Northwest Radio Service	Seattle, Wash.		
8 XAC	WHAM	Stromberg-Carlson Tel. Mfg. Co.	Rochester, N. Y.		
8 XAL	WLW	Crosley Radio Corp.	Cincinnati, Ohio	52.05	500
8 XAO	WJR	WJR, Inc.	Detroit, Mich.	32.	75
8 XF	WHK	Radio Air Service Corp.	Cleveland, Ohio	66.04	500
8 XJ	WEAO	Ohio State University	Columbus, Ohio	54.02	250
8 XK	KDKA	Westinghouse Elec. & Mfg. Co.	Pittsburgh, Pa.	62.5	40000
8 XP	KDKA	Westinghouse Elec. & Mfg. Co.	Pittsburgh, Pa.	10-150	500
9 XAB	WNAL	R. J. Rockwell	Omaha, Nebr.	105.	500
9 XU	KOIL	Mona Motor Oil Co.	Council Bluffs, Ia.	61.06	500

PRINCIPAL FOREIGN STATIONS

Call Letters	Location	Wave Length	Call Letters	Location	Wave Length
AGC	Nauen, Germany	17.2	JB	Johannesburg, S. Africa	32.0
PCLL	Kootwijk, Holland	18.0	PCLL	Kootwijk, Holland	32.0
WOWO	Fort Wayne	22.8	3LO	Melbourne, Australia	32.0
5SW	Chelmsford, England	24.0	2XAJ	Newark	43.0
2XAB	New York	24.0	WJSV	Mt. Vernon, Va.	56.0
2FC	Sydney, Australia	28.5	AJG	Nauen, Germany	56.7
2ME	Sydney, Australia	28.5	GC	Paris, France	60.0
PCJJ	Hilversum, Holland	30.2	CJRX	Winnipeg, Manitoba	25.6

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9. Internal Troubles in Radio Receivers
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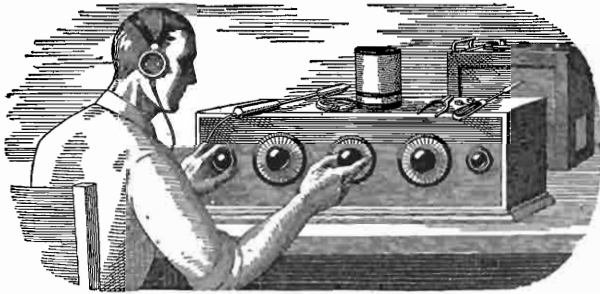
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If all the Radio sets I've "fooled" with in my time were piled on top of each other, they'd reach about halfway to Mars. The trouble with me was that I thought I knew so much about Radio that I really didn't know the thing. I thought Radio was a plaything — that was all I could see in it for me.

I Thought Radio Was a Plaything

But Now My Eyes Are Opened, and I'm Making Over \$100 a Week!

\$50 a week! Man alive, just one year ago a salary that big would have been the height of my ambition.

Twelve months ago I was skimming along on starvation wages, just barely making both ends meet. It was the same old story—a little job, a salary just as small as the job.

If you'd told me a year ago that in twelve months time I would be making \$100 and more every week in the Radio business—whew! I know I'd have thought you were crazy. But that's the sort of money I'm pulling down right now—and in the future I expect even more. Why, only today—

But I am getting ahead of my story. I was hard up a year ago because I was kidding myself, that's all—not because I had to be.

When broadcasting first became the rage, I first began dabbling with Radio. There's a fascination—something that grabs hold of a fellow—about twirling a little knob and suddenly listening to a voice speaking a thousand miles away!

Up to a year ago, I was just a dabbler—I thought Radio was a plaything. I never realized what an enormous, fast-growing industry Radio had come to be—employing thousands and thousands of trained men. I usually stayed home in the evenings after work, because I didn't make enough money to go out very much.

And as for the idea that a splendid Radio job might be mine, if I made a little effort to prepare for it—such an idea never entered my mind. When a friend suggested it to me one year ago I laughed at him.

"You're kidding me," I said.

"I'm not," he replied. "Take a look at this ad."

He pointed to a page ad in a magazine I'd seen many times but just passed up. This time I read the ad carefully. It told of many big opportunities for trained men to succeed in the great new Radio field. With the advertisement was a coupon. I sent the coupon in, and in a few days received a handsome 64-page book, telling about the opportunities in the Radio field and how a man can prepare quickly and easily at home to take advantage of these opportunities. Well, it was a revelation to me. I read the book carefully, and when I finished it I made my decision.

What's happened in the twelve months since that day, seems almost like a dream to me now. For ten of those twelve months, I've had a Radio business of my own. At first, of course, I started it as a little proposition on the side, under the guidance of the National Radio Institute. It wasn't long before I was getting so much to do that I quit my measly little clerical job, and devoted my full time to my Radio business.

Since that time I've gone right on up. They would have given me just as much help, too, if I had wanted to follow some other line of Radio besides building my

own retail business—such as broadcasting, manufacturing, experimenting, sea operating, or any one of the scores of lines they prepare for you. And to think that that day I sent for their eye-opening book, I'd wailing, "I never had a chance!"

Now I'm making, as I told you before, over a week. And I know the future holds even more Radio is one of the most progressive, fastest businesses in the world today. And it's like—work a man can get interested in.

You may not be as bad off as I was. But think it over—are you satisfied? Are you making enough money at work that you like? Would you sign a contract to stay where you are now for the next ten years—making the same money? If not, you'd better be doing something about it.

This new Radio game is a live-wire field of golden rewards. The work is fascinating, absorbing, well paid. The National Radio Institute—oldest and largest Radio home-study school in the world—will train you inexpensively in your own home to know Radio from A to Z.

Take another tip—No matter what your plans are, no matter how much or how little you know about Radio—clip the coupon below and look their free book over. It is filled with interesting facts, figures, and photos, and the information it will give you is worth a few minutes of anybody's time. You will place yourself under no obligation—the book is free, and is gladly sent to anyone who wants to know about Radio. Just address J. E. Smith, President, National Radio Institute, Dept. 9Q91, Washington, D. C.

J. E. SMITH, President,
National Radio Institute, Dept. 9Q91,
Washington, D. C.

Dear Mr. Smith:—Please send me your 64-page free book, giving all information about the opportunities in Radio and how I can learn quickly and easily at home to take advantage of them. I understand this request places me under no obligation, and that no salesman will call on me.

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Town.....

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