JUNE — JULY — AUGUST

RADIO INDEX

The Non-Technical Radio Magazine

The Talking Pillow

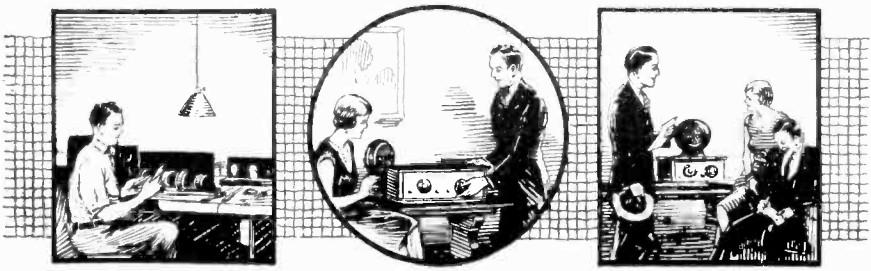
RADEX shows the frequency to which set is tuned as dials are turned, gives exact location of dials for any station in America and identifies programs received without announcement. For any dial and any set.

No. 30 "WHAT'S ON THE AIR TONIGHT" NSE

WANTED! 3,000 Men in 3,000 Towns

As an R.T.A. member in your town, you can earn $3.00 an hour, full time or spare time, serving as "radio doctor," installing and servicing sets for dealers, building sets to sell at less-than-retail prices.

$3.00 an hour
In Your Spare Time



BECOME a member of the Radio Training Association of America. We will train you to install, repair, build all kinds of sets—help you secure a better paying position — train you for the $3,000 to $10,000 business even though you have no capital.

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Gentlemen: Dept. RI-6

Please send me details of your Special Membership Plan, and also a copy of your new Radio Handbook.

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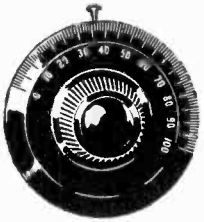

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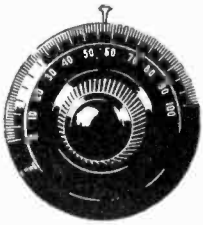

FRED C. BUTLER, Editor

FIFTH YEAR

Contents

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THE RADEX PRESS

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The ABC of Radio Tubes

How They Work and How to Use Them

By E. R. Haan

EFFICIENT operation of radio receivers depends to a great extent on the kind of tubes used and their condition. Many owners are of the opinion that a radio vacuum tube is like an incandescent lamp, and remains in good condition as long as its filament lights. Vacuum tubes are much more complicated than incandescent lamps, and even if they light up perfectly, they may still have defects that will prevent them from operating properly, or even from operating at all. As tubes may cause considerable trouble, the radio owner should provide himself with the best tubes he can obtain in order to avoid this. Using cheap tubes is inviting trouble, and the loud advertisements of many "bootleg" tubes, promising superior tone quality and increased volume and range, should be discredited.

How Tubes Operate

A radio vacuum tube consists of a gas-filled glass bulb containing three elements: a filament, a grid, and a plate. (Filament-heated A. C. Tubes have an additional element but this will be taken up in a later paragraph.) Each of these elements is connected to a tip extending from the base, the filament being connected to two tips. In operation, the plate element of a tube is charged with a high potential from a source of direct current, such as a battery, or a socket-power device, this supply being called the B-supply. The filament circuit of a receiver is connected to the negative side of the B-supply, so that a minute current, called the plate current, will flow in the vacuum between the filament and the plate when the filament is heated, which is done by means of a low-voltage current called the A-supply. The exact rate of the plate current flow depends on several factors: the voltage of the B-supply, the amount of heat generated by the filament, the electron-emitting capacity of the filament, and the amount of voltage impressed on the third element of the tube—the grid. This is a small screen which is interposed between the filament and the plate elements. The grid is the secret of the vacuum tube; this element makes radio telephony possible. The tiny fluctuation or variations of voltage which are applied to the grid, allow either a small or a large amount of plate current to flow between the filament and the plate, and the grid thus acts as a valve or gate. A negative voltage on the grid restricts plate current, and a positive voltage allows a considerable amount to pass. Thus a small grid voltage, such as is picked up by the aerial of a receiving set, controls a comparatively large current in the tube, and in this way the minute fluctuating radio-frequency waves can be amplified many times. After the first tube in a receiver has amplified the original radio-frequency signal, the output of the tube is applied to the grid of the next tube, which amplifies the signal still more. This is radio-frequency amplification. A detector then transforms the inaudible trains of radio-frequency vibrations to lower frequencies, which are passed through one or more vacuum tubes and a reproducer, so that they become audible to the human ear.

Operating Conditions

Tubes are specially designed for definite operating conditions. For instance, the filament may be of a 1½, 2½, 3, or a 5-volt type, and the tube is constructed to permit certain plate and grid voltages, which can be varied within limits. These voltages must correspond to each other in certain proportions and according to the design of the tube. Usually the plate and grid voltages of a tube or set of tubes in a receiver are fixed, especially in case B-batteries are used, but the filament voltage is variable, being controlled by means of a rheostat.

Use of Rheostats—A rheostat is a variable resistance having a movable slider which can be rotated by a knob in order to get any variation of resistance desired. Rheostats are inserted in series with the tubes, so that all the filament current must pass through them. The average radio fan assumes that the rheostat must be operated for volume and therefore tends to advance it too far permitting too much current to pass through

(*Continued on page 17*)

A Radio Home

By H. W. BAUKAT

Reprinted from "Radio Retailing"

THAT a modern home should be completely equipped with radio as well as household electrical appliances was foremost in the mind of Harry Hearnen, radio distributor of Trenton, N. J., in building his new home.

Altogether there are eight rooms completely wired, each one having a large radio wall plate, the size of three single ordinary house-lighting switch plates. Each plate has provision for aerial and ground, properly marked and terminating in the center on tip jacks, a speaker circuit using an open circuit jack, and a double outlet for 110 volts.

The aerial and ground and also the speaker circuits are carried in parallel from room to room and terminate downstairs in the den. Here the aerial and ground are connected to the entire system, through a double-pole single-throw switch. This arrangement is unusually satisfactory as it leaves four wires going through the entire house which can instantaneously be made available should it be desired to use these circuits for other purposes.

Hearnen is an Atwater Kent distributor and in the den is an Atwater Kent Number 45 receiver placed in a desk. This set is usually connected to the entire speaker system operating the reproducers in the various rooms. The volume on each reproducer is controlled by the use of a volume control plug. A power amplifier is also located in the den to which is connected, by means of a double-pole double-throw switch, either an electric phonograph, or a microphone. This enables Hearnen to play phonograph records on the entire system or to speak to people in other parts of the house from the den.

Located in the living room is another set, this one with the speaker built-in. This is operated separately from the set in the den. In order to do this the aerial connection on the wall plate in the living room is so arranged that a separate antenna is run down through the wall to feed this receiver.

On the sun porch there is an outlet where a magnetic speaker is used. In the kitchen is located another outlet with a magnetic speaker. A set may also be operated at this point, if desired.

Upstairs there are four bedrooms wired for radio, three of which are simply equipped with speakers, but the fourth one, which is the master bedroom, has a separate receiving set with a separate speaker.

The aerial and ground wires through the building are carried out by the open wiring method and spaced one foot apart. Number 14 rubber-covered wire is used with porcelain knobs and tubes. All wires are carefully kept away from all BX and metal pipes. The other circuits are wired with Number 12 BX and the 110-volt circuits are connected on the general house wiring at convenient points. All the wiring was done while the house was in course of construction.

As mentioned before, the speaker circuit and the aerial and ground circuit can be disconnected in the den. This is sometimes very useful. Take, for instance, the case where a person is sick but it is impossible for someone to be in attendance at all times. In such emergencies, the aerial and ground circuit can be disconnected downstairs, the power amplifier turned on and connected to the speaker system and the microphone taken upstairs to the sickroom. Here it is placed on the aerial and ground circuit which goes to the amplifier input, returning on the speaker circuit.

Condenser Faults

The punch-press method of production of condenser plates entails some troubles; sometimes a slight burr is left on the edge of the plates, forming a hair-like projection, which, after the condenser is assembled, may touch an adjacent plate and permit a short circuit. Such a hair-like projection is sometimes almost invisible, but may nevertheless cause considerable trouble, which is evidenced by rasping noises in the receiver when the condenser is rotated, and sometimes by complete inaudibility of signals. To remedy this trouble take a small nail file and run it over the edges of the plates until such projections are removed.

"Station 2LO Announcing"

You Will Hear It Soon

WITHIN the year 1929 — probably by Fall — American audiences will be hearing regularly, via radio, the thundering hoofbeats of the Derby race-horses, or the Prince of Wales dedicating a new London bridge. M. H. Aylesworth, president of the National Broadcasting Company, and Sir John Reith, managing director of the British Broadcasting Company, are now completing arrangements for the regular exchange of radio programs from both sides of the Atlantic.

At first no effort will be made to broadcast symphony orchestras or other musical events because of possible defects in transmission. Affairs of state, however, as well as all kinds of sporting contests, will be regular radio features.

Americans are gradually playing more important parts in the diplomatic, commercial and financial affairs of Europe and the activities of such men as Charles E. Hughes, Owen D. Young, Hugh Gibson and Gilbert Parker serve to center the interest of the American public on the World Court, the League of Nations, the Reparations Commission, and so on. Broadcasts of European occasions of state therefore will find, and arouse, plenty of interest on this side of the water.

As regards the sporting attractions, one need only mention the Wimbledon tennis tournaments, the contests for the "open" golf championships in which an American team led by Bobby Jones is participating at this very time, and the classic Derby and Steeplechase.

Referring to popular interest in programs coming from Europe, Mr. Aylesworth said:

"We are two peoples who not only speak the same language, but understand each other better than any others in the world. Therefore, it is natural that if King George or the Prince of Wales address the English people, we would like to listen in. And we have been told that the British public would like to hear our public men and our sporting events." It will only be a matter of time then, before we will be listening to broadcasts from other European cities as well.

Engineers of the National Broadcasting Company have been experimenting with apparatus for rebroadcasting for the past six months. The idea of exchanging English and American programs was first considered back in 1927, when Captain P. P. Eckersly visited the United States to confer with American officials. Technical problems, however, made it difficult, at that time, to bring about a reliable transmission service.

Programs will be sent across the ocean by short-wave transmitters and will be picked up by short-wave receivers and then rebroadcast for ordinary reception. A short-wave beam transmitter is now in readiness at Rocky Point, Long Island, and it is capable of being received in England with sufficient intensity for rebroadcasting. A receiver has also been installed at Riverhead, Long Island, and it has already been used on several occasions for rebroadcasting programs coming from London. England has a short-wave transmitter at Chelmsford, twenty miles from London.

One question which will be settled by the London conference of radio executives is whether the British Broadcasting Company will permit advertising programs to be broadcast there. The English broadcasting system is operated by the government and radio listeners are taxed for its support. All artists and entertainers are paid by the broadcasting company and air advertising is not permitted. There is no doubt, however, that this will be settled to the satisfaction of both the English and American companies. Practically every American company employing broadcasting as an advertising medium has requested the privilege of being the first to have its program relayed to England.

From "RADIO RETAILING"

Milla Dominguez is the correct spelling of the latest Major Bowes protege. She has won three voice contests, two scholarships, and the Frank La Forge gold medal for singing. She is also an accomplished pianist. They say she looks like a magazine cover girl.

Boy Trappers and Radio

By HENRY H. GRAHAM

THE winter wind moaned dismally outside the little mountain log cabin, whistling through the snow-laden pines and whirling the falling flakes into deep drifts. Black night shrouded the valley with its impenetrable cloak. To venture out into that terrific storm would have meant certain death in the biting cold of the white wilderness.

A faint glow from a kerosene lamp peeked from an uncurtained window of the cabin.

Presently a voice announced, "You have just listened to the conclusion of the second act of 'Ice Fast,'" a stirring drama of the North woods. There will now be a brief pause for station announcements after which the play will continue. There followed the announcement from a prominent Rocky Mountain broadcasting station and then the play went on.

Within the cabin a boy was preparing his evening meal. His pal on the trap line was busy dousing some traps in a solution of hemlock bark and water to disguise man scent so that the animals would not be suspicious. And though the two lads were twenty miles from even a road they were being as royally entertained as though located in a big city. Radio goes everywhere, bringing pleasure to those who are shut in, bedridden and isolated. No longer are there any drab, lonely days and nights for those who are unfortunate or who live deep in the trackless wilderness.

I have a young friend who traps each winter far up one of the lonely gulches in the Idaho hills, living there the year round in a cabin built with his own hands. He is a keen student of Nature and likes nothing better than to be by himself where he can think and work to his heart's content. No matter how cold the weather he always feels that he is connected with the outside world as he has a battery-operated radio set, which runs almost constantly from the time he returns from his trap line each evening until sleep overcomes him.

"You just cannot imagine what radio means to me," he said during one of our many conversations. "I feel that I have the whole world right at my door. No matter what sort of entertainment I want it is always available by turning the dial.

"News events come to me regularly from various stations each evening, keeping me as well-informed as though a paper were delivered at the door of my wilderness cabin every day. And sport events, too. I listen to big football and basketball games whenever they take place, receiving a most graphic description of play.

"Recipes are among the most valuable things that come over the radio as far as I am concerned. Before I started to jot down recipes in a little note book my menu varied little from day to day because I lacked the knowledge to prepare the tempting dishes of which I am very fond. No longer does that condition exist, however, I now have cake, pie, macaroni au gratin or anything I crave. I even enjoy ice cream in the dead of winter. Whenever I hear a woman's voice saying anything like, 'And now beat up two eggs,—' I get out my note book and prepare to copy delicious recipes.

"When I return from my trap line I start supper, switch on the radio and enjoy myself to the utmost. Sometimes I become so wrapped up in the program that my spuds burn or my coffee boils over, but that doesn't matter. At night while a storm rages outside and the earth is covered with three feet of snow I throw a fresh log on the fire, grab an interesting magazine and listen to dreamy, beautiful music from far-away places, or perhaps to a lecture on an interesting subject. Sometimes I climb into bed, attach the head phones and have a wonderful evening. I have often gone to sleep with sweet melodies ringing in my ears, waking up when the station signed off. My aerial is fastened to two stalwart pines on opposite sides of the creek; thus there is no danger of it ever falling down."

Another boy trapper told me he had the greatest thrill of his life over the radio. While he was listening to music from a nearby station the following message was broadcasted: "Grave fears for the safety of a boy hunter who is lost in Spruce Canyon since last night are entertained, especially in

(*Continued on page 9*)

More Cross Words

"This was certainly a good puzzle and took some work. Let's have some more of these good ones. RADEX still leads!" writes O. E. Krenz of Cresson, Pa.

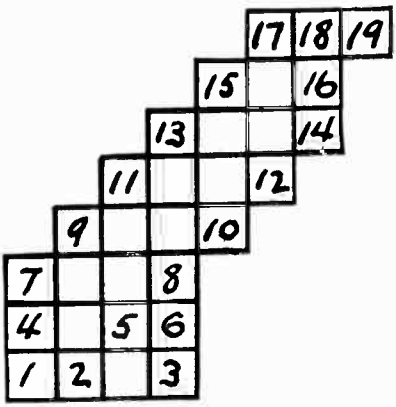
Only six readers succeeded in solving last month's puzzle correctly and leatherette covers have been mailed to Dr. Lawrence Leonard, Troy, N. Y., George W. Boofer, Montclair, N. J., Rev. O. E. Krenz, Cresson, Pa., W. H. Howe, Leominster, Mass., and Alan Barnes Walker of New Canaan, Conn.

Following is the solution to last month's cross-word:

```
        K W K
      W J R
    W E B C
  W H A S
K G A R
W R H M
W S P D
J C M C
```

This was of course a much harder problem than the ordinary cross-word puzzle wherein two or more letters of any word give a key to the whole word.

Let's try again. Remember that each of the first five successful contestants receives one of those beautiful blue, leatherette covers for their RADEX and all others solving the problem successfully will receive a copy of the September RADEX.



Horizontal

1-3 An university station (reversed).
4-6 On 1310.
7-8 Ditto.
9-10 On the Mississippi.
11-12 Way down in Dixie.
13-14 A newspaper station.
15-16 In the Rockies
17-19 Where the beauties go.

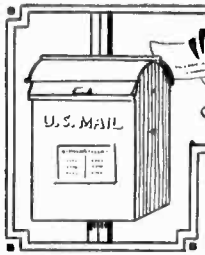
Vertical

7-1 A Catholic school.
9-2 Television too.
11-5 A voice from Texas.
13-8 Oak leaves.
15-10 Out in 'Frisco.
17-12 An agricultural college.
18-14 By which we set our watches.

Indoor Aerials

As radio waves penetrate walls of buildings, there is practically just as much pick-up on an aerial, which is erected in the attic of a frame building, as there is on an aerial erected outdoors. But the objectionable feature of such an installation is that the aerial cannot usually be strung in a straight line. The pick-up value of inside aerials located in buildings having considerable steel framework is, however, much less than that of outdoor aerials, owing to the shielding effect and absorption of the steel framework. Inside aerials are particularly adapted for use with radio-frequency and neutrodyne receivers.

ATTIC INSTALLATIONS—The advantage of an inside aerial is that no lightning arrestor is necessary, and the aerial is protected from soot and corrosion caused by smoke and weather conditions. When making an attic installation, the shape and size of the attic must be taken into consideration. The end-to-end type of attic aerial consists of a stranded wire, looped through the eyes of insulators which are attached to the walls at both ends of the attic. The wire is pulled up tight and fastened to the end insulators, and the lead-in wire is soldered on. The total length of the aerial and the lead-in wire must be that which is most suitable for the receiver. The lead-in wire should be No. 14 stranded, insulated wire. It can be brought down through the partition to the location of the receiver, and a neat wall installation can be made at the receiver end. Split, porcelain knobs used for electric-wiring purposes can also be used for holding the aerial in place, and they can be obtained at any electrical store. E. R. H.



"Dear Mr. Editor:"

THE first letter this month will be Exercise A for our Spanish students. From Santa Clara, Cuba, comes the following: "Muy senores muestros, Las presentes lineas son para que me hagan el favor de informarme en que forma venden Udes. una guia de Radio denominada RADEX el cual me han dicho de que es muy util para el fanatico. Quisera de que me enviaran una muestra de el RADEX dandoles las gracias po anticipado y sin otro particular me reitero de Udes. Atto y S. S. Giraldo Valdes, Maceo No. 6, Santa Clara, Cuba." In other words, our good friend, Senor Valdes, understands that we publish a book called RADEX which he has been informed is very good for the radio "fanatico," and wants to know just how he may obtain it.

Unscrambling the Eggs

"C. A. B." of Oak Park, Illinois writes to inquire regarding a device which will really separate one station from another. "I have a five-tube Cascade — a fine radio and selective—but I cannot cut through some stations and get DX in the same channel," she writes. Probably she does not mean the *same* channel but rather adjacent channels for there is no possible device that will unscramble two stations on the same frequency which come in with equal power. That would be like the set which, the owner bragged, was so selective he could tune the soprano out of a quartet! But wave-traps may be bought from any radio dealer (or easily made) which will *help* to tune out interfering stations and bring in those on near-by channels. Your dealer can furnish such a trap or secure it for you.

Looping the Antenna

"In the May issue I notice a fan asks how to hook up his Radiola 28 to an outside aerial," writes E. D. Elton, of Buffalo Gap, S. Dak. "I have sold and installed fifteen of these sets here this past winter and got the antenna coil and plugs for several before I found a much better way. I take some insulated wire similar to that used on the loop. I attach one end of this wire to the lead-in, carry the wire to the loop, knot it around the loop frame and follow one wire around the loop once, tying it to the opposite loop post and then carry the free end to the ground lead. You will get from this method greater all around distance and volume in the daytime than any other way I have ever seen. At night one can just unhook the antenna and ground leads and use the set with loop alone. With this arrangement I can tune in WLW, 800 miles away, with great volume any time of day." Mr. Elton adds as a postscript "I have several coils and plugs that I will give to anyone that sends postage."

What Mr. Elton is achieving, of course, is to transfer the signal circuit from the aerial to the loop by induction, thereby adding it to the current picked up by the loop itself. Mr. Haan, in his helpful and interesting book "Radio Trouble Shooting" describes the same plan as follows: "Loop receivers can readily be adapted for use on outside aerials by making a few simple changes. The simplest method of doing this is to wind the lead-in wire around the loop a few turns, attaching the end to the ground and to the negative filament line of the receiver."

Another Suggestion

From L. S. Moore, Highland Park, Mich., comes the following: "I have used RADEX with all the satisfaction one could desire and expect to have it every month as it is a real necessity to anyone who wants to know what he can get, when and how. But I suggest that you provide a space opposite each program feature in "What's on the Air Tonight" in which to record the one station over which that particular feature is received best. Then the listener can see at a glance what station he should tune in for his favorite feature." This is a good suggestion but unfortunately we are pressed for space, the weekly calendar now requiring eight pages due to the great

growth of chain programs. We suggest that the same idea can be carried out by drawing a circle around the station in the list which comes in best.

Improving the Dials

"I would like a little further explanation of the article in the April RADEX under "The Editor Thinks." You state that the dials should be worked counter-clockwise. One of our city radio men stated to me that it made no difference at what position you set your dials on your condenser shafts." Thus writes A. N. Wilson, of Charleston, W. Va. It is probable the Editor did not make himself clear in his comment. We have therefore written Mr. Wilson as follows and others will be interested in this further explanation.

"At the present time stations with the higher frequencies are received on the low end of the dial, while stations of the lower frequencies are received on the high end of the dial. This is confusing and it would be very much better if the dial numbers ran in reverse progression from the way they do now. The present system of numbering dials was adopted when wave lengths were used and, of course, the numbers ran in the same progression as the wave lengths but this is in opposite progression to frequencies.

"Nothing can be done to correct this where the numbers read completely around the circumference of the dials. Neither can it be corrected with the present straight-line frequency condensers as these condensers will not make a complete turn but only one-half of a circle.

"With the old condensers, however, which were mounted in the center of the semi-circular plates, the matter can be corrected merely by loosening the dial on the shaft and resetting it just opposite, that is with 0 where the 100 was before.

"We believe it would simplify radio-thinking greatly if manufacturers would have their dials read counter-clockwise, that is from right to left instead of from left to right, so that both dial numbers and frequencies would progress in the same direction."

Another Idea

"Some stations have reception stamps and some do not," comments G. B. Lawson of 1984 Madison Ave., New York City. "I think if you would inquire which stations send stamps and then put an asterisk opposite the call letters of such stations, it would save the DX'ers sending their dimes to stations which do not have stamps." We will also give this suggestion careful consideration for use in future.

"I have discarded all other radio books that I have used, for RADEX," writes A. J. Currey of Clarksburg, West Virginia. "With RADEX as my guide I enjoy the evening programs with my eight-tube Air Line."

"I want to correct a mistake—I did not receive 38 short wave stations as you had it in a recent issue. I received 38 stations in the *shorter* wave lengths. An analysis of my log shows that between 199.9 and 222.1 where there are 184 stations, I got 38. From 447.5 to 545.1 where there are 102 stations, I also get 38. Between 256.3 and 305.9 where there are 75 stations, I get 33." Thus writes C. M. Falconer of Guilford, Baltimore, Md.

A World DXer

Here is an interesting letter from one who is "out for the world's record for the most verified reception of stations all over the world," and who states "I do not believe there is anyone anywhere that can show more verifications than I can."

Ollie Ross, of Sanger, California, writes: "As a steady user and reader of RADEX I think it is unquestionably the most complete and satisfactory method used in logging radio stations. I have used many different kinds but as yet have not found any that will compare with RADEX. I take great pride in recommending RADEX to the many visitors who come to listen to programs from various foreign countries at my home.

"In three months I 'played' a radio for 1452 hours—sometimes as much as 22 hours a day. I am sending you a few verifications and pictures of foreign stations from different parts of the world. Sometime this summer I expect to take a trip East and will certainly stop at Cleveland and visit the home of RADEX."

Letters verifying reception are enclosed from Shanghai, China; Kiel and Frankfurt Am Main, Germany; Tokio and Kumamoto, Japan; Innsbruck, Austria, and other far-off places.

The Kiel station writes (and here is one for our German students) "Als Beantwortung Ihrer werten Zeilen v. 29 Jan. danken wir Ihnen fur Ihre interessanten Beobachtungen.

Wir erwidern Ihre Grusse und Wunsche herzlichst u. fugen einige Photos des Rundfunksenders-Kiel wunschgemass bei. Mit Hochachtung!"

And now au revoir until September. May every reader have a pleasant vacation.

Boy Trappers and Radio

(*Continued from page 5*)

view of the terrible mountain storm now in progress. This boy is 24 hours overdue now and searching parties are being mobilized to hunt for him."

The young trapper turned off the radio and put on his mittens and machinaw. Spruce Canyon was located just over the hogback from his cabin. It was a wild, snowy canyon where no one lived and which was visited by few people even in summer. That lost boy needed help—immediately. The trapper put on his snowshoes and trudged off through the heavy storm. He dipped over the hogback that lay between him and Spruce Canyon and soon was moving up the draw. After two hours of searching he stumbled onto an unconscious form in the deep snow. It was a boy. The trapper rubbed snow in his face and when the lad recovered consciousness forced some strong, black coffee to his lips. Together they wormed their way to the trapper's cabin wbere first aid was administered. The next day the lost boy was as well as ever. The trapper guided him to town where he was united with grief-stricken parents. Radio proved by this incident that it could be a source of help in emergency as well as a means of entertainment.

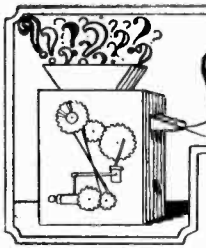
Far up lonely East Fork gulch in the Sawtooth Mountains of Idaho lives a well-known writer, Answorth Rutherford, who has produced two interesting boys books, "Squawberry Canyon" and "Hidden Island." With Mrs. Rutherford this writer spends every winter there, acting as watchman at the isolated Mascot Mine. There he finds the solitude that is so necessary in the writing of good fiction. There is no ranch within miles of the mine, but the Rutherfords feel that they are intimately connected with the outside world by means of their radio and telephone. Once in awhile Mr. Rutherford makes a trip to town on skiis in the dead of winter. No people find their way to the Mascot Mine in winter. Occasionally a coyote serenades them from a safe distance or a porcupine wanders close enough to chew the bark off young pines. Aside from this there is little activity. Radio reception is wonderful in this far-away place as there is little static and absolutely no interference from electrical machines or power lines.

Gone are the lonely days and nights in the wilderness. In the old days men grew to fear the sound of their own voice while feuds flared up in case several were living in the same cabin. One who has not gone through a siege of this winter loneliness can scarcely imagine what radio has meant to those living in hermit-like solitude. Fresh, new voices and beautiful music keep the mind from growing stale by providing mental relaxation. Life in the woods is now much sweeter than it used to be.

More Volume in A. C.

"I have an eight-tube A. C. set which gets distance but not with the volume I would like. The set has two stages tuned r. f., one stage untuned r. f., one tuned r. f., detector stage, two stages of transformer-coupled audio-frequency, and one stage of bass-reproducing, push-pull power amplification using power tubes, one type X 280 rectifier tube in power plant. I know the tubes are OK as are the condenser compensators. Tube outlay: three 226 UX, one 227 UX, two 226 UX, two 171 AUX and one rectifier tube X 280 in power plant. Could I use one UX 250 with one 171A or two UX 250? Would I have to change rectifier tube X 280 to UX 281? How can I get more volume? The speaker is dynamic." This from Arthur J. Barbe of Pittsfield, Mass.

Mr. Haan answers this inquiry as follows: Do not use UX 250 power tubes in a push-pull amplifier designed for 171A tubes. I suggest that you provide a long outdoor aerial if you desire more volume on distant stations and be sure that your ground connection is perfect. Make a ground to a cold-water pipe. Your variable condensers may be just a trifle out of step. Some of these are provided with "trimming" condensers to compensate for such inaccuracies. These adjustments should, however, be made by a service man of the concern from whom you purchased the receiver. Do not change rectifier tube for one of another type.



The QUESTION MILL

Conducted by

S. E. SHAPIRO, TECHNICAL EDITOR

My set is a console type battery job using five tubes. At the beginning of my experience with this set I could receive stations anywhere between New York and California. Now I cannot receive anything beyond my home city. I have tried complete new sets of tubes in vain. I have tested the voltage of my A, B, and C Batteries and they all check O. K. Another point that I wish to bring up is the fact that after using my set continuously, for not more than an hour, my voltage drops and signals finally die away. Then, on observing my A Voltage, I find that it shows full charge on the A cell indicator.

The logical reason for your loss in voltage may be one of your cells in the A-supply. Although your indicator shows a full supply of filament power from one cell, the other cell may not be functioning properly.

I tune in WHK around 26 on my dial, but I also get them at 87, 103 and 122 and several places beyond those numbers. I have a superheterodyne, however, people having neutrodynes are having the same trouble with WHK. I am having the same trouble with WJAY. I can only get WTAM on its exact wave and one place below; that is it dials at 54 and its harmonic comes in at 34 which sounds O. K. What I can't understand is why the scale of WHK's harmonic should run upward instead of downward.

Your trouble comes under one heading. That is "Harmonics." You will probably find that your set is oscillating to a great extent. I would advise cutting it down somewhat. It is true that stations do sometimes go off their wave slightly, but this rarely happens.

I have a seven tube A. C. Set and have received fairly good results except on certain spots. I have been thinking of purchasing one of these filters which is placed on the aerial and ground to operate before waves enter the receiver. Would you think that this would eliminate interference on certain stations and clear up reception in general as claimed by the manufacturers of these articles? My aerial is about 90 feet long with a ground measuring 30 feet. I cannot get any stations around 1300 and 1400 kilocycles, everything in this area seems to be in an uproar.

If you are bothered very much by interference, I would advise shortening your aerial considerably. Also keep your ground as short as possible, 30 feet is much too long. As for interference eliminators, we find them still an experiment. There is nothing made that will eliminate interference. You say that your concerts are ruined between 1300 and 1400 kilocycles. This may be due to an interference in the neighborhood that is broadcasting on or near that wave. It may be due to transformers on light poles, defective wiring, etc. If your interference is due to line noise, there is an eliminator made for this. It consists of choke coils and condensers. There are many of these on the market.

I have a five tube battery set of the radio frequency type. I am using two 112-A's as R. F. amplifiers and one 112-A for detector with excellent results, but with more difficulty in control. I am using two 171-A's for audio amplifiers. One is used as a power amplifier using 135 plate volts and the conventional seven volts negative grid bias. The other 171-A is employing 90 volts. When 4½ volts negative grid bias is used on this tube, I find it gives more volume than when using the called for 16½ volts negative grid bias. Will this practice, if continued, be of any harm to the tube? Of what advantage is the use of a 500,000 OHM resistance across the secondary of the first stage 5 to 1 Audio Transformer?

You will find it profitable to use 4½ volts negative grid bias on your last audio stage. This practice will not harm your tube. Hard

control may be due to excessive plate voltage in the radio frequency circuit. The only time you will have to worry about absolutely correct C voltage is when using very high plate voltages. A 500,000 ohm resistance across the secondary of the first stage audio transformer will classify tone quality very much. It serves to by pass any stray R. F. currents that get past the primary windings of the transformer.

I have a Victoreen Super which I am operating with a powerizer, which is a B Eliminator and a super amplifier. This instrument was built to use a 216B Tube as a rectifier and a 210 Power Tube. Some time ago the 216-B tube burned out and I replaced it with a new 281 tube, which I found much better. Now I would like to confirm the use of a 250 power tube instead of the 210. I have been told that this could not be done but for the sake of experiment I purchased a 250 tube and found that it really gives better results than the called for 210 tube. But I am not quite sure that I am gaining the full value of this new tube. I am aware that there is a great difference in the negative grid bias of these tubes as well as the milliamperage draft. Therefore my mind would be very much enlightened as to whether my powerizer can be adapted to the 250 tube.

You did well when you replaced your 216-B with the new 281. They do give much better results. It is also safe to use 250 tube in your powerizer. The C bias will be taken care of by the plate voltage as they usually take care of their own balance. Therefore you may safely continue the supposedly impossible with no eminent danger whatsover.

We have a seven tube all-electric set and have much trouble in separating stations. I would like to know if it is possible to replace the variable condensers in our set.

I would not change the variable condensers. Your set may be slightly unbalanced; in this case I would advise you to have it properly taken care of by a radiotrician, one who knows his business. If your trouble in separation comes in on the lower part of the dial, you will just have to let it go at that. Because you will then be one of the few thousand people having this trouble.

I have a late model A. C. Set and have found it very satisfactory up to the present time. It now seems to have a peculiar hum and whistle during reception. When dialing above 64 degrees there seems to be more static than music.

First my advice is to let a competent radio man do the work. The set is undoubtedly very much out of balance. This probably causes the whistle and static. The peculiar hum you describe is probably due to a grid resistor. After this set has been checked and balanced, and if it still persists in being noisy above dial number 64, you may trace the trouble to local interference.

We have had an A. C. Set since August. It seems somewhat difficult to get distant stations without them fading. I will admit that some distant stations will fade away, but I can't hold any distant stations at all. I have about 25 foot of aerial wire. Do you think this is sufficient? My set is a six tube type.

The first place to look for trouble would be the detector tube. It would probably be weak. I do advise lengthening your aerial. The longer the aerial, the better D. X. reception will be, but static and interference will also be amplified.

I have a long lead-in measuring eighty feet. My aerial is about sixty feet long. Do you think this is practical? The lead-in comes down in back of the house under the basement and then to the set. My ground is long also measuring twenty feet. Is this too long? Is a lightning arrestor necessary? Is it true that the higher and shorter the aerial, the less static one will receive? My set has a whistle and doesn't sound natural or clear. Can you tell me what is wrong?

A sixty foot aerial is permissible, but your lead-in is much too long. For least static and good D. X. reception I would suggest an aerial measuring not more than 40 to 60 feet including the lead-in. I would also run my lead-in to the window nearest the set and insulate it well. As to the ground wire, try to keep it as short as possible. It is a good idea to sink a pipe in the ground as near your set as possible then run your lead-in to it. A lightning arrestor should be attached to every antenna. It does not lessen radio signals and offers very good insurance for your home as well as your set. The higher your aerial the better your reception will be; also keep in mind that the shorter you make it, the less distance you will receive. If your set

whistles continuously, it is probably unbalanced; however if it only whistles on a few stations, the trouble is due to interference.

I have an electric model neutrodyne set which is now a year old. Up till a month ago, this set operated perfectly but I am now experiencing considerable trouble with my speaker and adjuster on the set. When I tune with the adjuster knob, it re-acts on the speaker. And since this has been happening, the speaker itself has acquired a dribbling sound during reception. This dribble becomes a hissing sound on certain spoken syllables. The adjuster knob also acts as a switch, by that I mean it completely cuts out all reception when in certain positions. The instruction book specifies that only RCA or Cunningham tubes should be used, but I have been advised that the Standard tube will suffice, so accordingly, I have inserted one. Do you think this would cause my trouble?

The adjuster you refer to is evidently bad. I would advise having it replaced. The dead spot on it is where the windings are broken. The hissing in the speaker is probably due to the set not being neutralized. Every time a tube is replaced in your set, the set should be balanced to the tube you are using. About the use of certain tubes, I think you will do far better to follow the advice of your instruction book.

Will there ever be a time when it will be necessary to make use of shorter waves for the regular broadcast band? If so is there any allowance made in the sets being built at the present time to receive these channels?

If broadcasting stations continue to increase it may be necessary to use the short wave band. However this situation does not exist at present. Should it come true, short wave adapters will make it possible to take care of it. The sets being built today can only take care of the band from 200 to about 550 meters. The Radio Commission is probably doing all it can to relieve the situation but you must take into consideration that the Commission has quite a job on its hands, therefore it will take some time before everybody can be made happy.

I wish you would kindly settle a dispute for me so that I can prove to various persons who doubt my word of which I am positive. I have an eight tube AC receiver. One morning at 4:15 A. M. at a dial reading of 30 I pulled in KFEL Denver, Colorado. My RADEX states that this station has an output of 250 watts which seems rather small. That's why my friends doubt me. They say that if you state that it is possible they will believe me.

Hoping that this will help you, I do hereby declare it possible for your set to pick up KFEL on more than one occasion, especially at an early hour in the morning. In order to make this proof complete I would write to the station for a confirmation. However, your dial setting was correct to receive this station.

I have an eight tube AC Set and when I turn it on a peculiar whistle comes through the speaker. This lasts for a while and finally dies off. What would the cause of this be? My set is not quite a year old and I have burned out two sets of tubes and am now using my third set. I would like to know why they burn out so frequently as I always buy good tubes. I am supposed to use a UX199 tube but my dealer sold me a CX299. I would like to know if these two tubes are the same. My aerial is 80 feet long.

The whistle you have described is a characteristic common with many sets during the warming up process. The reason for your set burning out tubes so often is due undoubtedly to an excess of filament voltage. The UX199 and CX299 are the same tube and either one can be used without danger. If interference is bad, I would advise cutting your aerial down to about forty or sixty feet including the lead-in.

I have an eight tube all electric radio set, and am troubled with noises that are not the same as static and other electrical interferences. The set will be playing perfectly and then suddenly sputter and ruin a program generally. Where do you think the trouble would be?

When intermittent noises start and stop with antenna disconnected you may be positive that there is an open circuit in your set. Such trouble usually starts in the antenna circuit or is due to an awfully poor tube. In such cases all antenna connection both indoor and out should be checked thoroughly for corrosion. If they are found to be corroded, it is best to clip the wire and make a clean new soldered connection. The antenna should be checked from stem to stern thoroughly as this is a cause of trouble in recep-

tion. If however, it proves to be a tube, you should proceed checking by testing each tube. The bad one will cause a rushing noise through your speaker. This is due to a loose or faulty element caused in construction of the tube. Also clean your tube prongs and socket connections.

I have a late model AC set using four 226 tubes, one 250, one 227, and one 281. This set has always seemed to have an excess of hum. What if anything can I do to eliminate this?

One possibility is that your speaker connections may be reversed. Changing line voltages and differences in radio tubes may cause an excessive hum in your dynamic speaker. In order to correct this, try reversing your line extension cord to obtain minimum hum. If this fails, you will find two hum suppressors on the right side of the back of the chassis. Insert a screw driver in the upper adjustment and turn slightly until you have reached a point giving minimum hum. Then repeat the action on the lower suppressor. This I believe will clear up your set to satisfaction.

What should the proper plate emission of a 250 tube be when using 400 plate volts.

The correct reading on this plate voltage should be 55 milliamperes.

Radio Burglar

An observing second-story worker with a flair for radio and humor pulled a "fast one" on the Chicago detective bureau which is employing the radio to direct its touring squads to the scene of crime.

On receipt of a message from a woman that she had seen a burglar enter an apartment on Prairie avenue, the detective bureau directed the following message to its radio-equipped squad cars:

"Detective squads attention. There's a burglar on the third floor at 5737 Prairie avenue."

Lieut. Walter Storm's squad answered the call and entered the apartment with drawn revolvers. The apartment had been ransacked, the radio was "tuned in" and between the dials was the following note:

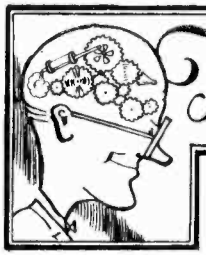
"Dear Radio Man: Thanks a lot for the tip-off. You're a swell announcer. I am now signing off." XYZ

Screen Grid Tubes

I am very much interested in the new 222 or screen grid tube. Will you kindly tell me something about this new member of the radio family? Can they be used either for D. C. or A. C. Current? I am using a 222 tube as a detector on my five tube radio-frequency battery-set. Will the tube be injured by such practice?

The screen grid tube was designed for use as a radio-frequency amplifier in circuits especially planned to take advantage of its high voltage amplification, and low-feedback capacity between plate and control grid. This tube cannot be used with three-element tubes nor can it replace them in this case. The 222 can also be used as a space charge grid tube, its extra element being operated at a positive potential to increase the mutual conductance of the tube. . . .It is also useful for experimental circuits where a double-grid, four-element tube is required. By the way, the recommended filament voltage is 3.3 volts. The maximum recommended plate voltage is 135. However, the tube does not require a critical filament voltage adjustment. When used with a battery set, using five volt tubes, a fifteen-ohm resistor tapped in series with its negative filament lead is required. The resistor and filament may then be connected directly in parallel with the five-volt filaments of other tubes and operated from the same rheostat. In calculating rheostat resistance, two 222 tubes with resistors draw almost the same current as one 201-A. When this tube is used in dry-cell sets no resistors are required. Internal shielding by the screen grid makes neutralization of the plate to grid capacity unnecessary. However, every precaution must be taken to shield the control grid circuit from other circuits. This shielding may best be accomplished by shielding the grid coils and condensers by placing grounded metallic shields around them. Shielding is aided by keeping the control grid lead spaced from other circuit elements, and by arranging the set so that the connection is as short and direct as possible. In some cases, it may be necessary to surround the grid lead by a grounded metal sheath.

Station WFJC, Akron, raises the NBC chain to a total of 67 stations. It broadcasts at 1450 kilocycles.



The Editor Thinks~

that the matter of advertising in radio programs is one of the most pressing and at the same time most difficult problems facing the industry. If a sponsor gets too little advertising for his money, he gives up broadcasting. If he gets too much, the listeners give up listening. And there you are. How much is just enough? We think that the public should be very patient in the matter for the advertiser is the goose that lays the golden egg although he won't be flattered with the simile.

that Atwater Kent has so far managed to hit a very happy medium in the matter and that other advertisers ought to be wise and take their cue from him. Mr. Kent has not only furnished the very best of programs by artists it is a real pleasure to hear, but he has shown wise tolerance in the matter of advertising. With the mention necessarily given Atwater Kent products, we think no reasonable person can possibly find fault. As a matter of fact, with due intelligence the statements regarding the sponsor's products can be made almost as interesting as the program itself. General Motors also are solving this problem and their brief descriptions of their products are as interesting as their printed advertising in the magazines.

that the Radio Manufacturers Association took a long step forward when it adopted the following resolution:

WHEREAS, the listening public has clearly indicated to the radio industry its disapproval of details of advertising matter and reiteration thereof in announcing radio programs, and

WHEREAS, the good will of the public is of interest alike to the industry and to the sponsors of radio programs.

RESOLVED, that the board of directors of the Radio Manufacturers Association recommends, in the interest of the listening public, that broadcasters confine announcements to the names of the sponsors of the broadcasting program and to a brief statement of the products marketed, without details or other advertising matter.

that we would like to urge again upon designers of new sets, the advisability of having their dial numbers read in the same direction as the frequencies. At present when one thinks of a low frequency station he has to go through a mental process of reversing the progression to think of that station in terms of dial numbers. Many of the new sets have the dial turn up and down and it is just as easy to have 100 at the top as to have 0 there and it would simplify thinking of locations of stations very greatly.

that President Hoover has demonstrated his well-advertised acumen in naming two radio engineers to the Radio Commission. General Saltzman was chief of the Signal Corps, the chief signal officer of the Army, a military engineering post. Mr. Starbuck has long specialized in radio-patent work. Radio is a highly technical matter and it is well to have men on the Commission who know what the engineers are talking about.

that the proper way to reduce the number of broadcasting stations is to set and maintain high standards of broadcasting and then eliminate those stations which through carelessness or ignorance send out signals of varying frequency and inferior reproduction. The old Commission has been altogether too tolerant with inefficient broadcasters. Four stations were this month refused renewal of licenses—WHBW, WSMD, WSRO and WAAD—and fourteen wobblers were given 46 days in which to correct their performance.

that the cigarette people have shown the lowest possible limit of good taste in seeking to advance their own sales by specifically naming other industries which listeners are urged to avoid. The business which can be built up only by tearing down another, is a pretty poor business.

that the newspapers will make a mistake if they oppose or try to curtail the giving of news flashes by radio. In the nature of things such announcements must be very brief and they serve rather to whet one's desire for a newspaper with a full account, rather than to satisfy.

Lightning Arrestor

Although almost every radio article in magazines and newspapers dealing with aerial installations stresses the importance of a lightning arrestor, and the same advice is usually given in the manufacturers' instruction sheets accompanying most receivers, many owners neglect to install this apparatus. Approved lightning arrestors are so cheap and easily installed that there is no excuse for not having one. Besides, the arrestor will not only protect the receiver in case of a lightning discharge, but it may also aid in obtaining payment of insurance, if a fire occurs. The usual error made when connecting a lightning arrestor is to connect it in series with the aerial and the receiver. Such an installation makes it impossible to obtain reception, and the trouble is often blamed to the lightning arrestor. The correct method of installing it is to connect it to the aerial and ground on the outside of the building.

Keeping Battery Charged

For the most efficient operation of a storage-battery receiver the battery should always be kept in a well-charged condition, and the charge should not be allowed to run down below 1,200. The first symptom of a run-down battery is a loss of selectivity on an otherwise sharp receiver. Considerable interference may then be evidenced, and reception from distant stations will become an impossibility. As the battery approaches a discharged condition, the volume of reception will get weaker and the rheostats on the receiver will have to be advanced to restore the volume. But this helps only temporarily, and finally the tubes become dim, and no signals can be heard at all. To bring the battery back to normal considerable recharging is necessary, depending on the size of the battery. The charger should be kept going continuously until the hydrometer shows that the battery is again fully charged. E. R. H.

Making Good Grounds

Water is the best conductor for the ground return of a radio set, provided, of course, it is connected with the earth. A good ground can be had by making a connection with the water in a well or cistern, with a cold-water pipe, or with a metal rod or pipe driven down into moist earth. A metal rod driven into dry surface soil makes a poor ground connection. When a ground connection is made to a radiator, to a water pipe, or to the conduit of an electric-wiring installation, a separate ground connection should be provided outside of the building for the lightning arrestor. It is absolutely necessary, when using clamps to make a ground attachment to a water pipe, to brighten the pipe by scraping or filing at the point where the clamp is to be attached, for if there is a film of corrosion, rust, or paint on the pipe there will be a high-resistance joint, which will materially decrease the efficiency of a receiver. A poor ground connection may even prevent reception entirely. E. R. H.

The New Radio

Last night I went home in a gay mood. I had received word that the radio I purchased the day before had been installed. We have had a radio for a couple of years but it never worked just right. This was a new model.

So I put on a pair of slippers and a flannel shirt, dined, drank two cups of coffee, and then settled down along-side a coal fire, with a cigar, books and magazines.

Meanwhile, the boy had been twisting the dial, trying to locate stations stretching from Boston to Davenport. It was pretty terrible. At 8 o'clock a first-class program was scheduled in New York, so he was sharply ordered to sit down and let 'er come.

The evening turned out pleasantly for all. After the children were in bed, we interrupted our reading to do a dance. Then we had a couple of bottles of ginger ale with cheese and crackers. At 11:15 we turned the switch and called it a night.

There may be more useful inventions than the radio, but nothing has ever come into our house that brought as much pleasure for the entire family, and that includes everything except the open fireplace and the books.

WILLIAM FEATHER.

Radio Brings a Mob

Radio broadcasting of crime over a station any set will tune in keeps Chicago police stations and rifle squads touring the city, informed, but it has its drawbacks.

It frequently happens that when the police arrive they find the streets blocked by curious citizens who beat them in search of thrills.

In many instances important clews have been destroyed—footprints, finger prints and similar clews exterminated by the throng.

Last night the radio, and not a short wave such as is used in Detroit, conveyed in the quietest manner to the Oak Park zone squad the confidential information that a burglar was operating in a residence near the Lake Street "L" station.

Nobody heard the message—that is, nobody much except the radio-equipped squad car and the population of Chicago, Oak Park, River Forest, Western Springs, Elgin, Evanston, Wilmette, Dubuque and possibly Denver.

A squad car touring in the Cicero area sped to the designated point. At the same time about 700 other cars were being hastily backed out of garages in the neighborhood and people who heard the message tumbled in.

The call had come at 9 and by 9:15 the roads were blocked for two squares. This necessitated calls for traffic squads to clear the streets so the rifle squad could get to the house where the burglar was supposed to be working.

In half an hour, after much argument and worming in and out of alleys, the rifle squad car reached the house. A rear window was broken and the squad entered cautiously, arresting K. T. Olson.

"I'm certainly glad you came," said Mr. Olson fervently. "I have been trying to get the police station for half an hour. I came in here at 7 to hang some paper and a thousand or more hoodlums in automobiles are all around the house threatening me."

Mr. Olson was directed to continue his work. Police squads dispersed the citizenry.

Read and Weep!

According to the press department of Earl C. Anthony, Inc., owners of station KFO, Los Angeles, one F. L. Nelson, of 1110 Hillsboro Avenue, Pittsburgh, has a receiver on which he brings in the Pacific Coast's most generally heard wave at virtually any time of the day or night, when it is on the air. In addition, Mr. Nelson, presumably living in the heart of a big manufacturing city not famed for its lack of interference, is said to have logged 541 other stations.

Mr. Nelson's record slightly surpasses that of G. Edward Elwell, of Bloomsburg, Pa., in the number of stations logged. But Mr. Elwell still retains his 1927 record of receiving KFI for 208 consecutive nights.

But neither of these gentlemen really has anything to brag about. On a farm in Rhode Island lives a school boy with a record of nearly 700 stations logged. His list includes stations in Japan, Australia and all the European countries, as well as South America and South Africa. His strongest station is a 250-watter in Cuba. And he uses a set employing two peanut-tubes, animated by dry cells. Duplicates of this set sold a couple of years ago in Detroit, for 89 cents!

ABC of Radio Tubes

(*Continued from page 2*)

the tubes. This practice, however, shortens the life of the tubes considerably, for they will soon lose their electron-emitting capacity when their filament is burned too high. This can be avoided by not turning the rheostats so high. If a tube has been overloaded by burning it too high, it can sometimes be restored to its normal operating by reactivation, which will be explained later. However, reactivation will not always remedy the condition, and if this is the case, the tube must be replaced with a new one. Too low a filament temperature, if continued for any length of time, is also injurious to the filament, as it then becomes brittle and may break under vibration.

Proper Grid Biasing—By grid biasing is understood the voltage applied to the grid of a tube to hold it either negative or positive, which makes the tube stable in its operation and helps to prevent it from breaking into oscillation. If no separate battery is used for this purpose, the biasing voltage for the grid is obtained from the filament circuit, and in A. C. receivers it is supplied by the step-down transformer furnishing filament current.

The exact amount of grid voltage necessary for certain tubes depends to some extent on the amount of voltage applied to the plate. The higher the plate voltage applied to a tube, the higher must be the grid voltage to get a balanced bias. Grid voltage required for different tubes, at various plate potentials, is given on the carton in which the tube is packed.

It should be remembered that the lower the negative grid voltage on the audio tubes, the lower will be the internal impedance of the tube, which is the resistance to the passage of current between the filament and the plate. A comparatively low impedance in a tube means better tone quality in the receiver. On the other hand, a high grid voltage increases the internal impedance of a tube and, if excessively high, harsh-toned and distorted reception may result. A high grid voltage means less consumption of plate current, and this in turn assures a longer life of the B-batteries than is the case with a low grid bias.

Adjusting Grid Bias — The most satisfactory method of adjusting the grid bias is to insert a 0 to 10-reading milliammeter in the plate line to the tube that is to be adjusted. The plate and grid voltages are then adjusted so that when the receiver is set in operation the milliammeter needle will not fluctuate, even when strong signals are reproduced. If the needle of the milliammeter deflects toward zero when a specially strong signal is reproduced, the C-voltage on the grid is too high, and if it deflects in the opposite direction the C-voltage is too low. When the grid and plate voltages are correct, there should be no appreciable fluctuation of the needle, when a station is tuned in or out. Ordinarily, it will be found that the use of correct C-voltages as recommended by manufacturers will give satisfactory results. However, to adjust the C-voltage accurately, connect a variable resistance in series with the C-battery and the grid of the tube.

Life of Tubes

All tubes depreciate with use, and their life is usually estimated in the number of hours that they will give good service under normal operating conditions. Although the average life of tubes may be estimated, manufacturers do not, as a rule, guarantee them for any definite length of time, for excessive voltage and current will shorten their life considerably. It is claimed that the average life of most popular tubes varies from 1,000 to 1,500 hours, which represents about two years of service to the average radio owner. However, tubes have been found to last much longer than this, while others give out more quickly.

Paralyzed Tubes Caused by Constant Overloading — Most tubes have thorium-impregnated filaments, and when tubes are burned too high the surface layer of the thorium is gradually lost and the emission capacity is greatly decreased, which results in weak signals and failure to get distant reception. When this occurs, the rheostats are usually turned up still higher and the tubes, thus overloaded, become paralyzed. In most cases paralyzed tubes can be restored to a great extent by a process called reactivation, but sometimes the paralyzed condition cannot be remedied and the tube must be discarded.

Paralyzed Tubes Due to Accidental High Voltage—Many radio owners tinker in their receivers with screwdrivers or other metal

tools to tighten up loose connections, adjust condensers, etc., without first disconnecting the batteries and removing the tubes. This should never be done, for the tool may accidentally be touched on some metal and a short circuit may then result, which allows the high-voltage B-battery current to get on the filament lines. Tubes are often burned out in this way, but sometimes they can still be lighted afterwards. It will be found, however, that such exposure has paralyzed them considerably, decreasing the volume of reception or causing total inaudibility. If this has happened, take the tubes out and test them. Most likely they will need reactivation, but in many cases this will not improve their condition. Such accidents can be prevented by disconnecting the B-supply while the adjustments are being made inside of the receiver. Periodically the tubes of a receiver should be taken to a neighborhood radio dealer, who will usually test them as a matter of courtesy.

Grounded Power Lines

In case a power line is partly grounded, crackling noises will be heard in the receivers in the entire vicinity. Grounded conditions are frequently caused by the branches of trees touching the power lines. Whenever this happens, there may be a leakage of current at this point, accompanied by sparking or arcing. As a rule such grounds are intermittent, due to the branches swaying in the wind and touching power line occasionally, and for this reason, the source of the trouble is often difficult to locate. It is a good idea to go around the vicinity to look for such tree grounds, while the trouble is being experienced. A large percentage of external interference evidenced by crackling sounds in the receiver is caused in this way. Intermittent grounds of a similar nature can also be caused by wet insulators. This usually results in a steady buzz in the receivers. Faulty transformers are sometimes to blame for grounded conditions, but as a rule these are kept in good condition by the power companies. E. R. H.

A New York station runs a local feature of which, by direction of the sponsor, only 15 seconds is commercialized.

Light Line Aerial

"I have purchased a model 72 Majestic set with dynamic speaker and since December have had to change five tubes. And I cannot get over six or seven stations on this set. Can you advise me how it can be bettered?" So writes Stephen Chato, of Trenton, N. J.

The receiver mentioned in your letter is one that uses the house-lighting system as an aerial. The wiring in some houses is frequently poorly adapted to this use, the wires being either shielded or causing a loop effect which blankets the signal. A hundred-foot outdoor aerial, suitably high, should be provided and the lead-in wire connected to the light-socket antenna or direct to the aerial terminal in the receiver if such is provided. If you are not acquainted with the hookup and are unable to trace the aerial circuit, it will be advisable to call the service department of the concern selling your receiver. They have undoubtedly met with similar cases before and will remedy the trouble. E. R. H.

Solder and Flux

The purpose of flux is to clean the joint and permit the solder to adhere to it. Ordinary solid wire solder can also be used, but this requires the application of flux. A paste or a rosin-solution flux will be found convenient and non-injurious to parts of the receiver. Never use an acid flux in a radio receiver under any circumstances, for it will gradually eat away the metal parts including the wires, and will cause considerable corrosion, even long after the soldering has been completed. In some cases wires have been completely eaten away by acid flux. A good flux to use, which can be applied with a small camel's-hair brush, is a solution of powdered rosin and alcohol.

Rosin-core solder is also handy to use, as it contains its own flux, but it must be used properly for good results. The joint to be soldered must first be heated by holding the iron on it, until the heat of the joint itself will melt the solder. Rosin-core solder should never be applied directly to the tip of the iron as the heat will evaporate the fluxing element in the rosin before it has a chance to reach the joint. Always touch the end of the solder to one side of the joint and the tip of the iron to the other side. E. R. H.

"Listen to the Birdie"

Canaries Appear in Daily Program

"BIG BOY," who is just a youngster, is slightly obstreperous and chops on occasion, particularly when he resents a change in the theme of a composition. He is also inclined to continue singing after the orchestra has stopped playing. Not so with Blue Boy. His sense of an artistic rendition is very much keener. He starts when the orchestra starts, or perhaps half a note later. When Blue Boy is familiar with the music he comes in right on the beat. It is only when he does not know the composition that he lags behind.

So keen is Blue Boy's ear that he can follow the orchestra through a composition that he has never heard before. Sometimes he goes off, losing the thread of the melody. However, on such occasions he never flats, but rather sings the harmonies, sort of tenoring the orchestra.

The mechanics of putting the birds on the air are a little difficult and extremely droll. Neither Blue Boy or Big Boy would perform if the orchestra were visible. Their curiosity is such that they would feel impelled to examine every strange face. The problem has been solved by draping their cages on three sides and turning the open side to the microphone.

Blue Boy, like the virtuoso he is, is a "microphone hog." He puts his head out of the cage and all but pokes it into the "mike." It would be too much to say that he is motivated in this by the tempermental jealousy of the human artist. Rather, he is convinced that the music of the hidden orchestra is coming out of the microphone. And originally schooled with a phonograph he gets up close in order to hear better. Just a victim of a delusion poor Blue Boy. But it is a fortunate delusion that produces excellent results through the loud speaker. His liquid voice comes through with amazing clarity.

And Big Boy? He is rather outclassed, it must be admitted. He has an excellent voice, but he is very young and still a student—a rather incorrigible one at that. He still is intent upon volume rather than quality of voice and is kept farther from the microphone in order not to drown our Blue Boy's more artistic efforts. Big Boy is a mezzo soprano, while Blue Boy is distinctly a colortaura. But Big Boy thinks he is every bit as good as the virtuoso and often displays professional jealousy much to the dismay of Miss Freeman. When a number is ended and Cheerio, in whose program the birds appear, begins to talk, Big Boy protests his superiority by singing with furious vigor a song all his own.

Blue Boy's best piece is "The World is Waiting for the Sunrise." He sings it flawlessly. He knows dozens of others, almost as well. In all, he is familiar with three hundred musical compositions, including arias from Faust and other operas.

The training of the birds is another story. It is the story of a woman's tireless efforts and superhuman patience. Miss Freeman has been tutoring Blue Boy for three years. With a repeater on her phonograph she has kept a record going for a day or more at a time. When he sings a false note she stops him. Like all good teachers she knows the importance of not letting him acquire bad habits. It was a terrific task and Miss Freeman persevered only through her affection for her pupils. Her accomplishment is really staggering. In fact, there are probably many who read this who don't believe a word of it. Neither did this reporter until a performance by these winged artists was more than convincing.

These educated creatures have a routine of living as demanding as that of a modern baby, under the care of a modern baby doctor. They have a certain diet, with foods alternated for variety. At a certain hour of the day they have their sun bath; at another hour their real bath. A special time of the day for perfecting their pitch with a tuning pipe. And finally when their bright little eyes begin to droop they must be put to bed.

Miss Freeman understands her birds so well she can almost converse with them. In any case, they have no difficulty in making their wants known. If Blue Bird "eeps" one way, Miss Freeman responds with: "My goodness, I forgot to give him his water!" If he "eeps" another way, he is clamoring for his bath, although he may have had it. At

such a time, Miss Freeman refuses to be cajoled into an extra bath. "You can't fool me," she chides him, "You've had your bath already."

The birds are this extraordinary woman's whole life. When she first heard them in audition she very frankly cried, because it was the happiest moment of her life.

Blue Boy and Big Boy go on the air every day over NBC with Cheerio at 8:30 in the morning, and with the Parnassus Trio at 8:50.

Incidentally, a word should be added about their family life. Both birds have wives and Blue Boy has an offspring that will come under Miss Freeman's tutelage when he is old enough. In the meantime, Mrs. Blue Boy, Mrs. Big Boy and the youngster all listen in at home while their lords and masters are performing in the NBC studios.

Aerial and Ground

"I have an Atwater Kent eight-tube radio receiving set," writes R. E. Wildt of Paducah, Kentucky "For a ground I have taken a short lead pipe. I crawled under the house and right under my set I buried this pipe first taping a piece of insulated wire to the pipe, making a good, tight connection. In the hole I drove the pipe about three feet in the ground. I then pushed the dirt back in the hole covering the pipe completely. I then bored a hole in the floor and ran the wire straight up to the set, thinking that I must have a good ground. It was. But it is much better as an aerial. I have put this wire on my aerial post and the programs come in with much greater volume than when I attach my aerial and ground leads to their proper posts. The distant stations come in very much better when I use my ground for an aerial.

"Please explain this to me. Am I harming the set by doing this? No one here knows what it is all about?"

In the first place, the very best possible ground is a cold water pipe with ground lead connected by a screw clamp after filing a smooth, clean place on the pipe. We would much rather have such a ground even if the lead had to be longer, connecting it to the pipe at the point it enters the earth. If such a pipe is not available then a piece of metal imbedded in the earth is the best substitute. We would prefer copper to lead and the lead wires should be bound or twisted to the pipe as tightly as possible. This pipe should be buried several feet deep into the earth in a moist spot preferably under an eave-spout or on the north side of the house and again we would prefer the longer lead to burying this pipe in a dry spot.

Second, reversing the leads on the set does not necessarily mean that you are getting your signals from the ground. That may or may not be true. The signal circuit which is infinitesimal in strength merely flows through the set, just as a stream of cold water flows through the furnace heating pipes. Just as it makes no difference in which direction the water flows through the pipe, so it makes no difference if the aerial and ground connections are reversed. Sometimes they work better with the signal current flowing in one direction and sometimes in the other. Try them both and if one gives clearer signals than the other, use that method.

Some sets will work satisfactorily especially on local stations without a ground, some will work without an aerial and some will work without either, the wiring of the set acting as an antenna.

Power Line Hum

Power lines are frequently a source of interference. *Aerials erected parallel* to power lines intercept the *electromagnetic* field, which exists around a power line, and this induces current in the aerial at the same frequency as that in the power lines. The current thus induced in the aerial is transferred to the receiver and is amplified, producing a steady and annoying *hum in the loudspeaker*. The cure is to erect the aerial at right angles to the offending power line. Obviously, loop receivers are not subject to this trouble as much as aerial receivers, but nevertheless, if the loop or the receiver is placed in close proximity to *electric-lighting wires or extension cords on lamps*, the same trouble may result. Such interfering currents can also be picked up by the coils in the receiver. Shielding the coils often helps to eliminate the trouble. Inductive effects similar to those caused by power lines may also be caused by *telephone and telegraph lines*, and *by street-car and interurban-trolley lines*. In such cases, however, the effect in the loudspeaker may be different; the noise may be more irregular, depending on the time when these lines are used. *Loud buzzing and crackling sounds* may then be evident. E. R. H.

Weak Eliminator

"I am a reader of the RADEX magazine which I buy regularly at the news stands. I am a radio experimenter and I have built an eight-tube set that has not been giving me very good reception on account of my "B" supply," writes David Stewart of Akron, Ohio.

"I am using a B-eliminator that has a weak voltage distributor that is susceptible to burning out under the strain of the high voltages. Temporarily I have connected all of the B terminals together and have it connected through a Clarostat to the positive terminal of 180 volts. How could I connect the resistor so that I could still maintain the proper ratio of voltages? I can connect it either outside or inside the eliminator."

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 so efficiently as it does on a minimum load, due to the magnetic saturation of the choke coils, and the result is an overloading of the rectifier unit and of the choke coils. This greatly decreases the smoothness of the current delivered by the unit which is evident from the hum. One method of remedying your trouble is to get a B-eliminator of greater output. Eliminating every trace of hum in a B-eliminator is impossible but one make may be better than another. Sometimes it helps to connect by-pass condensers across the output terminals of the eliminator. If your resistance unit in the eliminator is defective, send the eliminator back to the manufacturer for repairs. If you wish to get various drops of voltage from the 180 terminal, cut a resistance such as a Clarostat in each line connected to this terminal. One resistance will not control more than one voltage drop. E. R. H.

Remote Speakers

One correspondent writes us to ask if there is any reason why he cannot put his speaker in a different room than that in which the set is located. This is being done frequently; in fact, some have speakers in a number of different rooms and many new houses are being built with concealed wiring leading to plugs in the walls so that portable speakers can be instantly connected in any room in the house.

If it is desired to have the speaker in a room adjacent to the set then all that is needed is a speaker extension cord. This is a flexible two-conductor cable with tips or terminals at one end suitable for connection to the output of a receiver and at the other end, suitable means for attaching to a loud speaker. These cords are usually twenty feet or more in length and allow the speaker to be used in any room adjacent to the set.

The writer has two sets of wires leading to the speaker terminals of his set. One pair of wires goes to the cone-speaker which is installed in the set. The other pair go down into the basement and along the ceiling and up into the phonograph where connection is made by a phonograph attachment. The second pair also lead to a jack in the floor of the front porch so that a speaker can be plugged in on summer evenings when the family lives more or less on the porch.

In a former set the speaker leads ran direct to a two-way jack so arranged that when the plug was in the jack the music came from the speaker in the set and when the plug was pulled out, the signals were automatically transferred to the phonograph circuit in another part of the house.

Rotate B-Batteries

The battery used to supply detector plate voltage is usually the first to become exhausted, because of the greater plate-current draw of the detector circuit in a receiver not equipped with a power tube. This battery or section of a battery will drop down to the low-voltage limit before the other batteries, and therefore it is a good idea to disconnect the batteries and rearrange them, placing the one having a low reading on the amplifier side, and using the battery which previously was the second one, for the first. When this one has become exhausted, rearrange the batteries again, using the third battery, in case there are three, for the detector voltage. By this practice the drain on the batteries is more evenly distributed, and it will be found that the period of their service can be increased from 10 to 20 per cent. E. R. H.

Rev. Hugh Thompson Kerr preaches weekly in Pittsburgh. Commander Byrd and his men, 11,000 miles away in the Antarctic, attend.

Broadcasting Stations of the World

A List of the Principal Foreign Stations

We suggest that you cut this list out and save it as it will not appear regularly

SOUTH AMERICA

		Meters	Watts
Argentina			
Buenos Aires	LOJ	270	1000
	LOL	236	2000
	LON	210	5000
	LOO	252	1000
	LOQ	261.8	3000
	LOR	344.8	1000
	LOS	291.2	5000
	LOT	400	1000
	LOV	361.5	1000
	LOW	303	1000
	LOX	380	1000
	LOY	315.2	1000
	LOZ	330	1000
La Plata	LOP	425	1000
Brazil			
Rio de Janeiro	SQAA	400	2000
Sao Paulo	SQBO	225.4	1000
	SQAG	360	1000
Chile			
Concepcion	CMAI	345	1500
Santiago	CMAD	320	1000
Peru			
Lima	OAX	360	1500
Uruguay			
Montevideo	CWOA	428.4	1000
Venezuela			
Caracas	AYRE	375	1000

EUROPE

Austria			
Vienna	ORV	517.2	14000
Belgium			
Brussels	BAV	508.5	1500
Czechoslovakia			
Brunn	OKB	441.2	2400
Kosice	OKK	263	2000
Prague	OKP	384.9	5000
France			
Lyon	YN	480	1000
	YR	290	5000
Paris	FL	500	20000
	FPTT	458	1000
Toulouse	MRD	260	1000
Germany			
Berlin	AFT	2900	8000
Hungary			
Budapest	MTI	555.6	2000
Irish Free State			
Cork	6CK	400	1000
Dublin	2RN	319.1	1500
Italy			
Milan	IMI	315.8	7000
Naples	INA	333.3	1500
Rome	IRO	449	3000
Latvia			
Riga	KCX	526.3	2000
Netherlands			
Hilversum	HDO	1060	1000
Spain			
Barcelona	EAJ1	344.8	1000
	EAJ13	462	1000
Bilboa	EAJ9	434.8	1000
Cadiz	EAJ3	400	1000
Cartagena	EAJ16	330	1000
Madrid	EAJ7	375	1200
San Sebastian	EAJ8	297	3000
Sweden			
Motala	SASG	1380	30000
Stockholm	SASA	454.5	1000
Switzerland			
Zurich	H9XD	500	1500
United Kingdom			
Aberdeen	2BD	500	1500
Belfast	2BE	306.1	1500
Birmingham	5IT	326.1	1500
Bournemouth	6BM	491.8	1500
Cardiff	5WA	353	1500
Daventry	5XX	1600	16000
Glasgow	5SC	405.4	1500
London	2LO	361.4	3000
Manchester	2ZY	384.6	1500
Newcastle	5NO	312.5	1500

EUROPE-ASIA

Russia			
Artemovsk	RA56	790	1200
Astrakhan	RA26	700	1000
Baku	RA45	750	4000
Erivan	RA49	1050	1200
Gomel	RA39	925	1200
Kharkov	RA43	475	4000
Kiev	RA45	775	1200
Koursk	RA34	575	1000
Krasnodar	RA38	513	1000
Leningrad	RA42	1000	10000
Minsk	RA18	860	1200
Moscow	RA1	1450	40000
Nizhni-Novgorod	RA13	840	1800
Novorossisk	RA32	1117	4000
Odessa	RA40	975	1200
Orenburg	RA25	640	1000
Petrozavodsk	RA46	765	2000
Rostov-on-Don	RA14	820	4000
Samara	RA22	900	1200
Stalino	RA77	730	1200
Stavropol	RA20	550	1200
Tashkent	RA27	715	2000
Tiflis	RA11	870	4000
Tver	RA44	690	1200
Vladivostok	RA17	480	1500
Vologda	RA41	875	1200

ASIA

China			
Mukden	COMK	425	2000
Chosen			
Seoul	JODK	357	1000
Hong Kong			
Victoria	GOW	300	1500
Shanghai	KRC	329	5000
India			
Bombay	7BY	357.1	3000
Calcutta	7CA	370.4	3000

Japan		Meters	Watts
Dairen	JQAK	395	1000
Hiroshima	JOFK	353	10000
Keijo	JODK	366	1000
Nagoya	JOCK	370	1000
Osaka	JOBK	400	10000
Sapporo	JOIK	361	10000
Sendai	JOHK	390	10000
Tokio	JOAK	345	10000
Kwangtung			
Dairen	JQAK	395	5000

OCEANIA

		Meters	Watts
Australia			
Adelaide	5CL	392	1000
Brisbane	4QG	385	1000
Hobart	7ZL	525	3000
Melbourne	3LO	371	1000
Perth	6WF	1250	1000
Sydney	2BL	353	1000
	2FC	442	2000
	2GB	326	1500

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 each 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.	105-409	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 XBH	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
7 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.	50
9 XU	KOIL	Mona Motor Oil Co	Council Bluffs, Ia.	61.06	500

WHAT'S ON THE AIR TONIGHT?

A WEEKLY CALENDAR

Leading Features of the Network Programs

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

Station lists beginning with WEAF 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
WEAF WEEI WFI WRC WGY
WGR WCAE

8:15-8:30 Morning Devotions
WEAF WRC WGY WGR WCAE

8:30-8:50 Cheerio
WEAF WEEI WRC WGY WCAE
WHO

8:50-9:00 Parnassus String Trio
WEAF WEEI WRC WCAE

9:15-10:00 Three Little Maids
WJZ KWK WREN

10:00-10:15 Harry Merker's Orchestra
WEAF WRC WEEI WCAE

10:00-10:30 Dr. Royal S. Copeland
WJZ WBZ WBZA WHAM KDKA
WLW WJR KFKX WREN WRC
WBAL KWK

10:00-10:30 The Blue Birds
WJZ KFKX WREN WJR KWK

11:00-11:30 Ida Bailey Allen
WABC WCAU WNAC WEAN WFBL
WKBW WCAO WJAS WADC WGHP
WBBM WOWO KMOX KMBC KOIL
WSPD WHK WMAL WLBW

11:15-11:30 Radio Household Institute
WEAF WEEI WTIC WJAR WTAG
WCSH WKY WRC WGY WGR
WCAE WTAM WWJ WSAI KSD
KSTP WTMJ KVOO WLIT KFKX
WHO WDAF WEBC WBT

12:00-12:30 Parnassus String Trio
WEAF WWJ KFKX WTAG

12:45-1:45 Luncheon Music
WEAF WWJ WRC KSD WTAG

2:00-2:45 Montgomery Ward Hour
KFKX KSTP WHO WOW KOA
KWK WDAF WHAS WSM WMC
WSB KVOO WFAA WOAI KDKA
WOC

2:15-2:30 Department of Agriculture
KDKA KFKX KWK WDAF KSTP
WHAS WSM WMC WSB KVOO
WFAA WOAI KOA WHO WOW
WRC WOC

6:00-7:00 Dinner Music
WEAF WTAG WOW WRC WCAE

Sunday

12:30-12:55 Pro-Art String Quartet
WJZ WBAL WRC

1:00-2:00 Concert Artists' Hour
WJZ WBAL WJR WRC

1:30-2:00 Marimba Band
WEAF WCAE WWJ WHO WGR
KSL

2:00-2:30 Old Man Sunshine
WEAF WTIC WCAE WWJ WOC
KSL

2:00-3:00 Roxy Symphonic Concert
WJZ WBZ WBZA WBAL KYW
KDKA WJR WTMJ WREN WLW
WEBC WKY

2:45-3:00 Bagby-Romilli Moments
WEAF WEEI WJAR WCSH WRC
WGY WCAE WTAM WWJ WSAI
WHO WOW KSD

3:00-3:30 The Balladeers
WEAF WTIC WRC WGR KSD
WOW

3:00-4:00 The Ballad Hour
WABC WOWO WSPD WNAC WCAO
WKRC KMOX WHK WEAN WJAS
WGHP KMBC WCAU WFBL WADC
WMAQ KOIL WLBW WMAL WKBW
WCCO WISN

3:00-4:00 Young People's Conference
WJZ WLW KWK WBT WBAL
WSB KVOO KSTP WREN WMC

3:30-4:00 Riviera String Quartet

WEAF WTIC WRC WGR WOW
WTAM

4:00-5:00 Cathedral Hour

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

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

WEAF WEEI WTIC WJAR WTAG
WHAS WCSH WJAX 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 WGHP WMAQ
WOWO KMOX KOIL WMAL WLBW
WKBW KMBC

5:30-6:00 Twilight Voices

WEAF WRC WGY WCAE KSD
WKY KOA

6:00-7:00 The Continentals

WEAF WTIC WTAG WTAM WCAE
WRC KSD KOA WOC WHAS

6:30-7:00 Whittall Anglo-Persians

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

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

WEAF WEEI WTIC WJAR WTAG
WCSH WRC WGY WGR WLIT

7:00-7:30 Howard Fashion Plates

WABC WNAC WEAN WFBL WJAS
WFAN

7:00-8:00 Chicago Symphony Orchestra

WGN WTMJ WOC WHO WOW
WDAF KSD KSTP WEBC

7:05-7:30 The Nomads

WJZ WBAL KWK WREN WHAS

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 WLW KWK
WREN WSB WHAS WSM WKY
WFAA WOAI KSTP KPRC WMC
KOA

8:00-8:30 La Palina Hour

WABC WFBL WADC WSPD KMOX
WKRC KMBC KOIL WFBM WCAU
WEAN WJAS WMAL WCCO WLBW
WCAO WISN WMAK

8:15-9:15 Colliers Radio Hour

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

8:30-9:00 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 WBBM WNAC
WGHP WMAK WSPD

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 Theater

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

9:15-9:45 Tone Pictures

WJZ KDKA KYW WREN WBAL
WJR WHAM KWK

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

9:45-10:15 Rapid Transit

WEAF	WTAG	WFI	WMC	WGY
WCAE	WWJ	WKY	KOA	KSL
KPO	KGW	KOMO	KHQ	KSD
WOW	WRC	WGR		

9:45-10:15 Utica Jubilee Singers

WJR	WJZ	KDKA	KWK	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	WGY	WGR	WCAE
WTAM	WWJ	WHO	WOW	KSTP
WTMJ	WEBC	WHAS	WSM	WMC
WSB	WBT	WRVA	WFAA	KPRC
WOAI	WKY	KOA	KPO	KFI
KOMO	KHQ	KGW	KGO	WGN
WJAX				

10:15-11:15 National Light Opera

WJZ	KDKA	WREN

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				

10:45-11:15 Sunday at Seth Parker's

WEAF	WRC	WHO	WOW	WHAS
WJAX	WKY	KSTP	WCAE	

Monday

7:00-7:30 Uncle Don

WOR	WADC	WGHP	KMBC	WFBM
WCCO	KMOX	WKRC		

7:00-7:30 South Sea Islanders

WJZ	WBAL	KWK

7:00-7:30 Ben Pollack's Orchestra

WEAF	WTIC	WCAE	WSAI	WFJC
WSM	WTAG			

7:30-7:45 The World Today

WEAF	WSAI	WOC	WKY	WFJC
WGR				

7:30-8:30 Roxy and his Gang

WJZ	WBZ	WBZA	WHAM	KDKA
KWK	WJR	WSM	WSB	WBAL
WREN	WBT	WRC	WEBC	WIOD
WCFL	WSMB			

8:00-8:30 Musical Vignettes

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

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	WEBC
WTMJ	KYW	WHAS	WSM	WSB
WBT	WRVA	WJAX	WTAM	KSTP
WOC	WKY	WIOD	WMC	WSMB
KOA				

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	WHEC			

8:30-9:00 White House Concert

WJZ	WBZ	WBZA	WBAL	WJR
WLW	KWK	WREN	WHAM	KDKA
KYW	WBT	WIOD	WRVA	WJAX

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

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

9:00-9:30 Edison Program

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

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	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 Songs of Yesteryear

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

10:30-11:00 Empire Builders

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

10:30-11:00 Night Club Romances

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

11:00-11:30 National Grand Opera

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

11:00-12:00 Slumber Music

WJZ WLW WHAM KDKA

Tuesday

10:30-10:45 Duco Decorators

WJZ WBZ WBZA WHAM KDKA
WJR KWK WREN WTMJ WHAS
WSM WMC WSB WBT KVOO
WFAA KPRC WOAI KFKX WEBC
WRVA WJAX WIOD KTHS WAPI
WKY

10:30-11:00 Jewel Radio Hour

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

2:15-3:15 Gotham String Trio

WEAF WRC KYW

2:45-3:00 Theronoid Health Talk

WABC WCAU WFBL WKBW WCAO
WJAS WADC WKRC WOWO KMOX
KOIL WSPD WHK WLBW WMAL

5:00-5:30 Rudy Vallee's Orchestra

WEAF WRC WSM KOA

6:30-7:00 Savannah Liners' Orchestra

WJZ WBZ WBZA

7:00-7:30 Voters Service

WEAF WTIC WJAR WTAG WCSH
WFI WRC WGY WCAE KSD
WOW WDAF KOA WHAS WBT
WFAA WMC WGR KSL KPO
KGO KOMO KGW KFI KHQ

7:30-8:00 Soconyland Sketches

WEAF WTIC WGR WRC WCFL
WOW WDAF WTAM WWJ KSD
WHO

8:00-8:30 Genia Fonariova, Soprano

WEAF WFI WRC KSD WCAE

8:00-8:30 Stromberg-Carlson Sextet

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

8:00-8:15 Frederic William Wile

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

8:15-9:00 U. S. Navy Band

WABC WFAN WNAC WEAN WFBL
WKBW 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 WLS

8:30-9:00 Michelin Hour

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

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

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	WEBC	

10:00-10:30 Williams Syncomatics

WJZ	WBAL	WHAM	KDKA	WJR
WLW	KWK	WREN	WGN	WBZ
WBZA				

10:00-11:00 Voice of Columbia

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

10:30-11:00 Orchestradians

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

11:00-12:00 Slumber Music

WJZ	WHAM	KDKA	KWK	WREN

11:00-12:00 Guy Lombardo

WABC	WNAC	WEAN	WFBL	WCAO
WJAS	WADC	WCAU	WGHP	WBBM
WOWO	KMOX	KMBC	KOIL	WSPD
WHK	WKBW	WLBW	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	WOW	KPO
KGO	KOMO	KHQ	KGW	KFI

Wednesday

10:00-11:00 National Home Hour

WEAF	WJAR	WGY	WCAE	WHO
WFI	WEEI	WTIC	WTAG	WCSH
WRC	WGR	WTAM	WWJ	WSAI
KYW				

11:00-11:15 Your Child

WEAF	WRC	WBT	WCSH	WLIT
WGY	WOW	KSD	WTMJ	KSTP
WJAX	WHAS	WSM	KVOO	WKY
KSL	WTAG	KPRC	WFAA	

2:15-3:15 Gotham String Trio

WEAF	WRC	WGR	WOW	WHO

4:00-5:00 Pacific Vagabonds

WEAF	WRC	WHO	WOW	KGO
KGW	KHQ	KSL	KOMO	WCFL

7:30-8:00 La Touraine Concert

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 Mobiloil Concert

WEAF	WEFI	WTIC	WJAR	WTAG
WCSH	WLIT	WRC	WGR	WCAE
WWJ	WSAI	KSD	WOC	WOW
WDAF	WFJC	KOA	WTAM	

8:00-8:30 The Yeast Foamers

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

8:00-9:00 Show Boat

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

8:30-9:00 Happy Wonder Bakers

WEAF	WTIC	WTAG	WCSH	WLIT
WRC	WCAE	KSD	WOW	WMC
WKY	WJAR	WGR	WTMJ	KPRC
WOC	WWJ	WOA	KVOO	WFAA
WEEI				

8:30-9:00 Sylvania Foresters

WJZ	KDKA	WBZ	WBZA	WBAL
WHAM	WLW	WJR	KWK	KYW
WREN	WRVA	WBT		

9:00-9:30 Van Heusen Program

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

9:00-9:30 Ipana Troubadors

WEAF	WEEI	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	WLIT

9:00-9:30 Flit Soldiers

WJZ	WBZ	WBZA	WHAM	WBAL
KDKA	WJR	KYW	KWK	WREN
WLW				

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	WISN			

9:30-10:30 Palmolive Hour

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

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		

10:00-10:30 ABA Voyagers

WJZ	KWK	WJR	WBZ	WBZA
WBAL	WHAM	KYW	WREN	KDKA

10:30-11:00 Gold Strand Orchestra

WEAF	WEEI	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 Kansas Frolickers

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

11:00-11:30 Chancellor Orchestra

KSD	WOC	WOW	WDAF	KSTP
KOA	WFAA	KPRC	WOAI	KSL
WKY	WEBC			

11:00-12:00 Rudy Vallee's Orchestra

WEAF	WDAF	WKY	KSD	WWJ

11:00-12:00 Slumber Music

WJZ	WRC	WHAS	KDKA

Thursday

2:15-3:15 La Salle String Quartet

WEAF	WRC	WGY	WGR

4:30-4:45 Theronoid Health Talk

WABC	WCAU	WFBL	WKBW	WCAO
WJAS	WADC	WKRC	WOWO	KMOX
KOIL	WSBD	WHK	WLBW	WMAL

5:00-5:30 Rudy Vallee's Orchestra

WJZ	KSL	WREN

6:00-6:30 Grennan Bakers' Club

KYW	WLW	WFAA	WMC	KSTP
KDKA	KWK	KVOO	WREN	KPRC

7:00-7:30 Mid-Week Hymn Sing

WEAF	WCSH	WRC	WKY	KOA

7:15-7:30 May Singhi Breen

WJZ	KWK	WREN	WSM	WKY

7:30-8:00 Coward Comfort Hour

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH				

7:30-8:00 Retold Tales

WJZ	WREN	KOA	KSL	KWK
WKY				

7:30-8:00 Nickel Cinco-Paters

WABC	WNAC	WCAU	WHK	WJAS
WMAL	WGHP	WFBL	WADC	KMOX

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 Buck and Wing

WEAF	WTAG	WFI	WCAE	KSD
WHO	KOA	WRC		

8:00-8:30 1001 Nights

WABC	WNAC	WEAN	WFBL	WJAS
KMOX	KOIL	WLBW	WMAL	WKBW
WCAO	WISN			

8:30-9:00 Mennen Men

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WJR	WLW	KYW	KWK
WREN				

8:30-9:00 U. S. Marine Band

WABC	WNAC	WEAN	WFBL	WKBW
WCAO	WJAS	KMOX	KOIL	WLBW
WMAL	WFBM			

8:30-9:00 Hoover Sentinels

WEAF	WEEI	WTAM	WFI	WRC
WGY	WCAE	WWJ	KSD	WHAS
WSM	WOW	WSB	WFAA	WDAF
WGN	WGR	WHO	KSTP	WBT
WMC				

9:00-9:30 Seiberling Singers

WEAF	WEEI	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
WCAE				

9:00-9:30 True Detective Mysteries

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

9:00-9:30 Veedol Program

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WJR	WLW	WCFL	KWK
WREN				

9:30-10:00 Sonora Phonograph Hour

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

9:30-10:00 Maxwell House Hour

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

10:00-10:30 Halsey Stuart Hour

WEAF	WEEI	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
WSMB	KSL			

10:00-11:00 George Olsen Hour

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

10:30-11:00 Palais d'Or Orchestra

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	WJR	WLW	KYW	

10:30-11:30 Concert Bureau Hour

WEAF	WTIC	WTAG	WCAE	WWJ
WGR	WRC	WKY	WRVA	WHO
WFI	WGY	WSMB	WMC	KPRC

11:30-12:00 Dave Bernie's Orchestra

WEAF	WGR	WWJ	WHO	WRVA

Friday

10:00-11:00 National Home Hour

WEAF	WJAR	WFI	WGY	WCAE
WEAR	WHO			

12:00-12:15 Jean Carroll

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

4:00-5:00 Pacific Little Symphony

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

6:30-7:00 Raybestos Twins

WEAF	WTAG	WCSH	WGY	WCAE
WTAM	WWJ	WLS		

7:15-7:30 Squibbs Health Talk

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

7:30-8:00 Dixies Circus

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

8:00-9:00 Songs

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
WCCO	WFBM	KTSA		

8:00-9:00 Cities Service Orchestra

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

8:10-8:30 Old Man Donaldson

WJZ	KDKA	WMC

8:30-9:00 The Armstrong Quakers

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

9:00-9:30 An Evening in Paris

WEAF	WEEI	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
WHEC				

9:00-9:30 Interwoven Pair

WJZ	WBZ	WBZA	WBAL	WHAM
KDKA	KYW	WREN	WHAS	WSM
WSB	WBT	WRVA	WJAX	KGO
WFAA	WOAI	KPO	KFI	KGW
KOMO	KHQ	KPRC	KOA	WMC
KWK	WKY	KSL	WAPI	WSMB
KTHS	WIOD			

9:30-10:00 Schradertown Brass Band

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

9:30-10:00 Philco Hour

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

10:00-10:30 Kodak Hour

WOR	WFBL	WADC	WMAQ	WSPD
WCAU	WMAK	KOIL	WHK	WNAC
WCAO	WKRC	KMOX	WLBW	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	WREC		

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		

10:30-11:00 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	KPRC
WTMJ	WIOD	KGW	KHQ	

10:30-11:00 Doc West

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

11:00-11:30 The Skellodians

WOC	WOW	KOA	KSD	WDAF
KVOO	WLS	KSTP		

11:00-12:00 Hotel St. Regis Orchestra

WEAF	WWJ	KSD	WOC	WDAF

Saturday

10:00-11:00 U. S. Army Band

WEAF	WRC	WGR	WOC	KFKX
WOW				

3:30-4:30 RCA Demonstration Hour

WBZ	WBZA	WJZ	WHAM	KDKA
WLW	WJR	KYW	KWK	WOAI
WDAF	WRC	WBT	WOC	WMC
WOW	WTMJ	KSTP	KOA	

4:30-5:00 Rudy Vallee's Orchestra

WJZ	WLW	WCFL	KSL	

6:30-7:00 Gold Spot Orchestra

WJZ	WBZ	WBZA	KDKA	WLW

7:15-7:30 Universal Safety Series

WEAF	WRC	WGY	WTIC	WAJR
WTAG	WCAE	WHO	WGR	WCSH
WDAF	KSTP	WHAS	KOA	KSL
KGO	KFI	KGW	KOMO	

7:20-7:45 Hotel St. Regis Orchestra

WJZ	KWK	KOA	WRC

7:30-8:00 Phil Spitalny's Music

WEAF	WFI	WRC	WGY	WSB

8:00-8:30 Pure Oil Band

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

8:30-9:00 The Pickard Family

WJZ	WBAL	KDKA	WREN	WHAS
WSM	WRVA	WJR	WLW	WLS
WPTF				

9:00-10:00 General Electric Hour

WEAF	WEEI	WTIC	WJAR	WTAG
WCSH	WFI	WRC	WGY	WOAI
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		

10:00-10:30 National Forum

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

10:00-11:00 Lucky Strike Orchestra

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

10:30-11:00 George Olsen Music

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

11:00-11:15 Enna Jettick Melodies

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

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.	Louisville, Ky.	Memphis, Tenn.	Miami, Fla.	Minneapolis, Minn.	Missoula, Mont.
1273	1670	774	1967	838	1577	1126	1248	1417	332	833	1360	228	968	561	803	588	773	1252	1492	717	663	1174	938	1710	980	895
-	575	1830	933	960	695	583	368	550	1208	738	595	1293	1112	750	688	901	498	947	286	675	1935	317	335	610	905	1790
	-	2055	358	1525	273	603	423	305	1505	913	398	1750	1143	1239	1245	1154	964	808	682	962	2313	498	792	958	948	1947
		-	2266	1610	1872	1453	1663	1754	637	1155	1671	969	975	1263	1538	934	1384	1367	2098	1158	663	1623	1506	2368	1140	[illegible]
			-	1881	398	849	737	550	1766	1159	613	2067	1304	1574	1598	1415	1302	922	1015	1250	2590	823	1133	1258	1125	2124
				-	1575	1234	1184	1402	1047	1102	1398	688	1445	471	287	1013	650	1543	1025	923	1370	1093	777	1100	1335	1706
					-	454	392	175	1368	762	218	1690	923	1221	1289	1019	956	560	880	862	2195	483	802	1184	733	1740
						-	249	307	918	310	236	1249	571	820	954	566	585	367	861	413	1741	268	481	1190	356	1348
							-	218	1090	509	234	1333	818	839	897	742	569	589	628	541	1882	92	410	957	603	1578
								-	1223	617	94	1521	838	1046	1116	871	787	518	768	700	2044	309	627	1088	632	1640
									-	607	1153	554	642	643	925	353	749	970	1468	555	828	1035	878	1732	699	670
										-	545	980	397	640	851	256	488	458	1024	180	1433	477	485	1338	235	1074
											-	1475	745	1018	1111	600	761	427	832	643	1976	315	621	1156	542	1552
												-	1161	543	723	757	802	1422	1481	836	702	1253	978	1662	1156	1115
													-	973	1218	440	875	393	1400	548	1426	818	882	1721	219	819
														-	283	544	273	1093	943	460	1212	751	448	1150	870	1312
															-	808	375	1277	799	677	1423	807	492	941	1087	1595
																-	513	666	1178	226	1177	693	591	1468	399	891
																	-	901	728	326	1437	480	176	983	722	1385
																		-	1216	633	1787	636	830	1545	272	1208
																			-	952	2153	595	591	328	1192	2070
																				-	1352	480	370	1247	413	1117
																					-	1825	1602	2355	1522	910
																						-	319	923	605	1550
																							-	878	700	1483
																								-	1516	2359
																									-	1010
																										-

How To Use Your RADEX

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.

INDEX BY FREQUENCIES AND DIAL NUMBERS

590 kilocycles 508.2 meters [76 | 74 |]

KHQ	1000	Spokane, Wash.	Louis Wasmer, Inc.
WCAJ	500	Lincoln, Nebr.	Nebraska Wesleyan University
WEEI	500	Boston, Mass.	Edison Elec. Illuminating Co.
WOW	1000	Omaha, Nebr.	Woodmen of the World
WEMC	1000	Berrien Springs, Mich.	Emmanuel Missionary College

600 kilocycles 499.7 meters [75 | 73 |]

CFCH	250	Iroquois Falls, Ont.	Abitibi Power & Paper Co.
KFBU	500	Laramie, Wyo.	Bishop N. S. Thomas
KFSD	500	San Diego, Calif.	Airfan Radio Corp.
WCAO	250	Baltimore, Md.	Monumental Radio Co., Inc.
WEBW	250	Beloit, Wis.	Beloit College
WOAN	500	Lawrenceburg, Tenn.	Vaughan School of Music
WREC	500	Memphis, Tenn.	WREC, Inc.
WTIC	250	Hartford, Conn.	Travelers Insurance Co.

610 kilocycles 491.5 meters [74 | 72 |]

KFRC	1000	San Francisco, Calif.	Don Lee, Inc.
WDAF	1000	Kansas City, Mo.	Kansas City Star Co.
WFAN	500	Philadelphia, Pa.	Keystone Broadcasting Co., Inc.
WIP	500	Philadelphia, Pa.	Gimbel Bros., Inc.
WOO	1000	Kansas City, Mo.	Unity School of Christianity

620 kilocycles 483.6 meters [73 | 71 |]

KPAD	500	Phoenix, Ariz.	Electrical Equipment Co.
KGW	1000	Portland, Ore.	Oregonian Publishing Co.
WDAE	1000	Tampa, Fla.	Tampa Publishing Co.
WDBO	1000	Orlando, Fla.	Rollins College, Inc.
WLBZ	500	Dover-Foxcroft, Me.	Thompson L. Guernsey
WTMJ	1000	Milwaukee, Wis.	Milwaukee Journal

630 kilocycles 475.9 meters [72 | 70 |]

CFCT	500	Victoria, B. C.	Victoria Broadcasting Ass'n.
CJGX	500	Yorkton, Sask.	Winnipeg Grain Exchange
CNRA	500	Moncton, N. B.	Canadian National Railways
CYR	250	Mazatlan, Mex.	Castulo Llamas
KFRU	500	Columbia, Mo.	Stephens College
WGBF	500	Evansville, Ind.	Evansville on the Air, Inc.
WMAL	250	Washington, D. C.	M. A. Leese Co.
WOS	500	Jefferson City, Mo.	State Marketing Bureau

640 kilocycles 468.5 meters [| |]

KFI	5000	Los Angeles, Calif.	Earle C. Anthony, Inc.
WAIU	5000	Columbus, Ohio	American Insurance Union

650 kilocycles 461.3 meters [70 | 68 |]

WSM	5000	Nashville, Tenn.	National Life & Accident Ins. Co.

660 kilocycles 454.3 meters [69 | 67 |]

WAAW	500	Omaha, Nebr.	Omaha Grain Exchange
WEAF	50000	New York City	National Broadcasting Co., Inc.

670 kilocycles 447.5 meters [68 | 66 |]

WMAQ	5000	Chicago, Ill.	Chicago Daily News, Inc.

680 kilocycles 440.9 meters [67 | 65 |]

KPO	5000	San Francisco, Cal.	Hale Bros. & The Chronicle
WPTF	5000	Raleigh, N. C.	Durham Life Insurance Co.

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.

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 WSM of Nashville at this point. We then enter the dial readings for WSM opposite 650 keys. Now it is clear that if we reset our dials at 71-69 our set will be tuned to 640 keys. and at that point KFI of Los Angeles will be

IN STATUTE MILES

Nashville, Tenn.	New Orleans, La.	New York, N. Y.	Norfolk, Va.	Oklahoma, Okla.	Omaha, Nebr.	Philadelphia, Pa.	Phoenix, Ariz.	Pittsburgh, Pa.	Portland, Me.	Portland, Oreg.	Richmond, Va.	St. Louis, Mo.	Salt Lake City, Utah	San Francisco, Calif.	Schenectady, N. Y.	Seattle, Wash.	Shreveport, La.	Spokane, Wash.	Springfield, Mass.	Vermillion, S. Dak.	Washington, D.C.	
217	1030	1810	1696	518	718	1748	330	1498	2015	1107	1628	938	483	893	1823	1178	764	1028	1889	742	1648	Albuquerque, N. Mex.
218	427	747	507	753	815	663	1592	520	1022	2172	470	467	1580	2133	840	2180	548	1960	863	917	542	Atlanta, Ga.
597	1001	170	167	1173	1026	90	2002	194	446	2367	128	731	1858	2451	278	2341	1064	2110	282	1083	33	Baltimore, Md.
631	1713	2153	2137	1138	1044	2113	733	1863	2282	349	2060	1389	292	516	2120	405	1433	290	2196	973	2045	Boise, Idaho
341	1359	188	467	1490	1280	268	2295	478	100	2553	471	1036	2099	2696	150	2508	1410	2279	79	1314	392	Boston, Mass.
352	536	1695	1465	659	1061	1614	1023	1424	1961	1944	1428	975	1317	1675	1770	2015	510	1852	1805	1161	1493	Brownsville, Tex.
526	1087	291	435	1117	883	278	1904	178	438	2167	375	662	1701	2298	249	2130	1080	1900	325	916	290	Buffalo, N. Y.
394	831	711	696	689	432	664	1451	411	892	1765	618	259	1260	1855	702	1743	725	1514	774	479	594	Chicago, Ill.
239	708	568	474	755	620	501	1578	258	802	1987	399	308	1450	2037	605	1974	688	1746	659	694	403	Cincinnati, Ohio
456	922	404	429	946	738	343	1745	115	603	2063	353	490	1567	2162	408	2035	904	1804	478	785	303	Cleveland, Ohio
918	1079	1628	1562	503	485	1575	585	1320	1803	985	1488	793	372	946	1618	1020	799	827	1692	468	1490	Denver, Colo.
523	825	1023	983	469	122	972	1154	718	1197	1479	905	270	952	1547	1012	1470	624	1243	1085	187	895	Des Moines, Iowa
468	938	483	522	905	666	444	1685	208	657	1975	445	452	1490	2087	467	1945	891	1715	540	705	397	Detroit, Mich.
469	986	1902	1755	578	875	1834	347	1592	2126	1286	1695	1033	689	993	1930	1373	752	1238	1990	920	1726	El Paso, Tex.
000	1221	1813	1258	786	390	1186	1225	952	1313	1348	1180	658	865	1447	1157	1206	1002	976	1240	284	1141	Fargo, N. Dak.
543	470	1398	1226	188	590	1324	858	1097	1642	1612	1170	568	977	1454	1445	1658	209	1470	1495	689	1210	Fort Worth, Tex.
566	288	1415	1195	456	828	1335	1065	1140	1678	1885	1154	697	1249	1693	1487	1938	233	1753	1524	938	1214	Galveston, Tex.
397	870	1275	1216	357	135	1222	901	967	1454	1271	1142	455	708	1297	1267	1288	615	1061	1340	167	1139	Hastings, Nebr.
370	358	1125	955	260	490	1051	1094	825	1371	1733	897	325	1116	1648	1175	1759	142	1552	1824	605	936	Hot Springs, Ark.
760	1187	849	946	926	547	827	1550	630	924	1638	870	591	1242	1833	776	1588	1043	1360	860	510	813	Houghton, Mich.
802	511	838	548	988	1098	758	1800	703	1113	2442	953	755	1840	2375	960	2450	733	2239	957	1203	647	Jacksonville, Fla.
172	678	1097	1009	293	165	1037	1045	784	1300	1397	937	238	922	1500	1107	1505	326	1286	1173	280	943	Kansas City, Mo.
777	1695	2446	2352	1182	1312	2388	357	2135	2631	825	2283	1585	577	345	2445	956	1420	939	2515	1291	2295	Los Angeles, Calif.
153	623	650	528	675	579	580	1518	345	892	1953	457	242	1400	1983	695	1945	598	1720	745	663	473	Louisville, Ky.
95	358	953	778	482	529	878	1264	660	1205	1852	722	242	1250	1800	1010	1867	279	1652	1055	642	763	Memphis, Tenn.
321	681	1095	802	1233	1402	1023	1998	1014	1357	2716	831	1067	2098	2603	1229	2740	950	2528	1210	1510	927	Miami, Fla.
395	1050	1019	1047	692	391	985	1279	745	1145	1435	968	464	988	1585	975	1403	859	1173	1056	238	936	Minneapolis, Minn.
482	1733	2030	2045	1168	978	1997	932	1754	2133	430	1967	1331	435	762	1978	395	1457	170	2060	887	1940	Missoula, Mont.
—	470	758	586	602	604	683	1445	472	1015	1970	526	253	1390	1958	820	1973	470	1752	863	704	567	Nashville, Tenn.
	—	1173	932	575	845	1090	1318	923	1445	2063	899	599	1433	1923	1259	2098	280	1898	1287	960	968	New Orleans, La.
		—	293	1324	1144	83	2142	313	277	2455	287	873	1972	2568	142	2419	1230	2190	120	1189	204	New York, N. Y.
			—	1186	1095	220	2027	316	565	2458	79	771	1925	2510	426	2440	1037	2211	411	1166	145	Norfolk, Va.
				—	405	1256	843	1013	1550	1488	1122	456	862	1386	1354	1523	897	1324	1412	502	1150	Oklahoma, Okla.
					—	1094	1032	837	1318	1373	1020	352	833	1425	1133	1372	617	1149	1205	115	1012	Omaha, Nebr.
						—	2079	254	360	2419	205	808	1923	2518	805	2388	1153	2159	801	1143	122	Philadelphia, Pa.
							—	1829	2345	1007	1960	1270	504	652	2152	1112	1067	1020	2220	1043	1980	Phoenix, Ariz.
								—	545	2174	242	561	1670	2264	350	2145	939	1918	400	891	188	Pittsburgh, Pa.
									—	2563	565	1094	2127	2725	197	2513	1484	2285	159	1345	480	Portland, Me.
										—	2381	1723	636	536	2405	143	1783	295	2488	1293	2360	Portland, Oreg.
											—	699	1850	2436	406	2362	985	2133	407	1089	96	Richmond, Va.
												—	1158	1738	898	1722	466	1500	958	650	710	St. Louis, Mo.
													—	592	1950	697	1155	548	2027	785	1845	Salt Lake City, Utah
														—	2548	680	1655	730	2625	1383	2437	San Francisco, Calif.
															—	2363	1290	2139	86	1165	313	Schenectady, N. Y.
																—	1820	229	2445	1282	2335	Seattle, Wash.
																	—	1621	1333	726	1035	Shreveport, La.
																		—	2216	1055	2105	Spokane, Wash.
																			—	1242	321	Springfield, Mass.
																				—	1073	Vermillion, S. Dak.

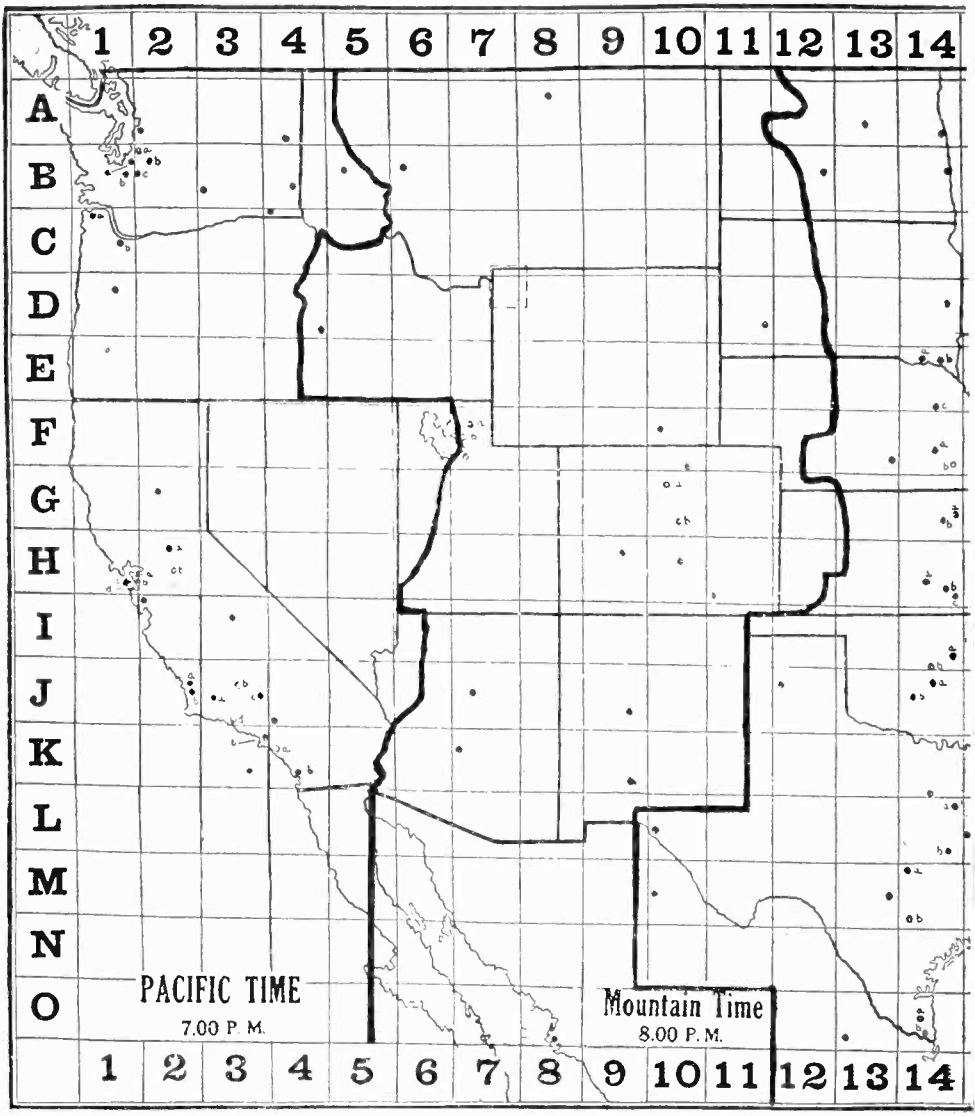
eard, always assuming of course that it is on the air nd within range of our particular set.

Now we tune in some other station, proceeding as efore, until after an evening or two, we have blanks lled on every page. We are now able to set our ials for any frequency we desire and consequently ny station we may want whether we have ever reeived it before or not.

Our Index now becomes of great value to us in lentifying programs. Let us say that we hear music t 67-65 on our dials. We refer to our Index by requencies and Dial Numbers and we find that we re in tune to 680 kilocycles. On this wave there are vo stations: KPO at San Francisco and WPTF . Raleigh, N. C. Both of these stations have 5000 atts in power. But knowing which is the closer to ur set, we can tell almost invariably which station e are hearing. The Radio Commission has had o give the same frequency in most cases to several ations but they have distributed them geographicly so they should not interfere. Where two staons in the same locality have the same frequency, ey are required to divide time. In this case of ourse it is not possible to tell which one of the two tations is broadcasting at the particular moment we hear it but we do know it is one or the other of them.

The second column in the Index by Frequencies, as we have seen, gives the power of the station as measured in watts. This power also aids us in identifying stations as we will not ordinarily hear those stations with 500 watts or less unless they are close to our home city.

The Index by Call Letters also has spaces providing for logging dial numbers but these are provided merely for the convenience of those who want to be able to turn instantly to some favorite station. They may or may not be used as you desire. Remember that it is the Index by Frequencies that we must use to get the most value and pleasure out of our radios.



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

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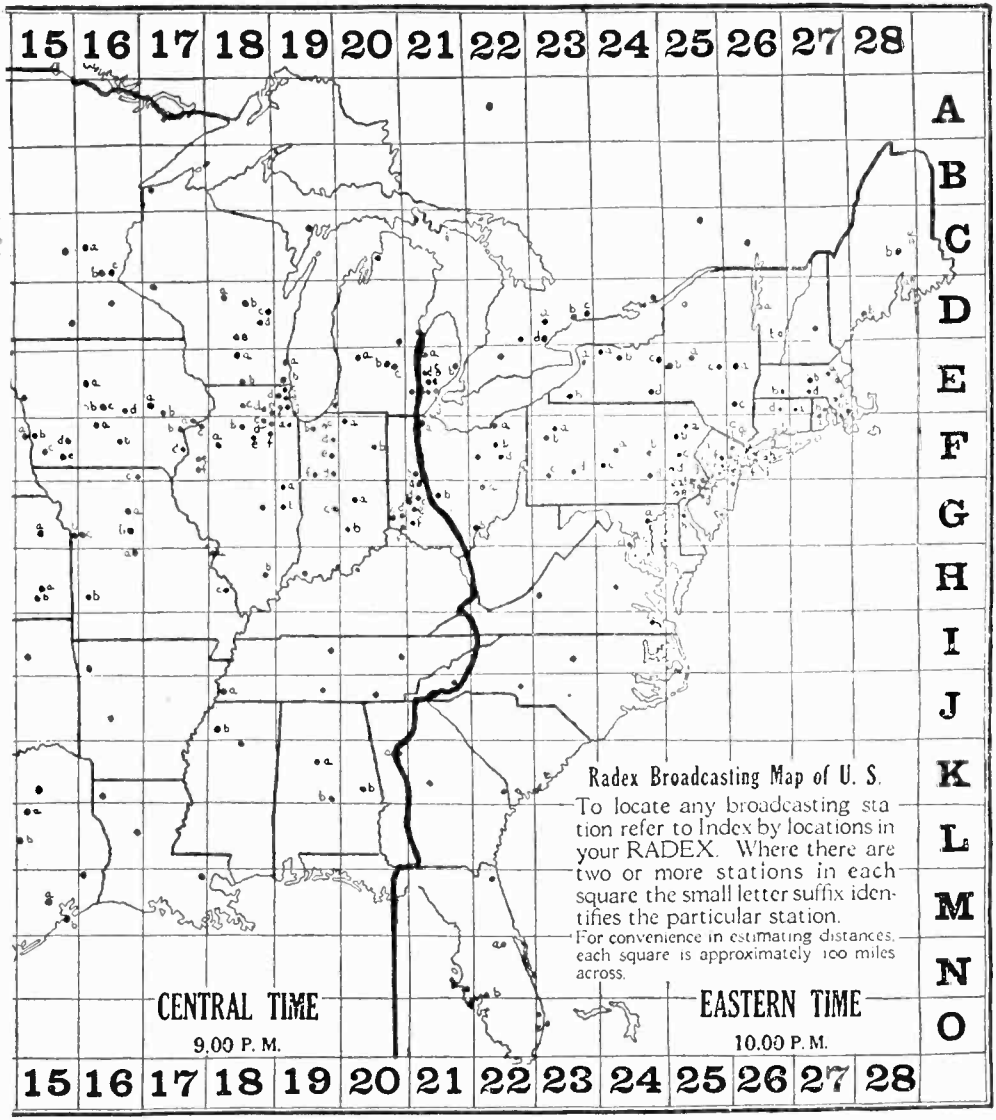
City and State.....



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.

540 kilocycles 555.6 meters

CKX	500	Brandon, Manitoba	Manitoba Telephone System
XFA	50	Mexico City	Srla. de Agricultura y Fomento

550 kilocycles 545.1 meters

KFDY	1000	Brookings, S. D.	S. D. State College
KFUO	500	St. Louis, Mo.	Concordia Theological Seminary
KFYR	500	Bismarck, N. D.	Hoskins-Meyer
KSD	500	St. Louis, Mo.	Pulitzer Publishing Co.
KTAB	500	Oakland, Cal.	Associated Broadcasters
WEAN	250	Providence, R. I.	The Shepard Stores
WEAO	750	Columbus, Ohio	Ohio State University
WGR	1000	Buffalo, N. Y.	Radio Station WGR Inc.
WKRC	500	Cincinnati, Ohio	Kodel Electric & Mfg. Co.
XEY	105	Merida, Yucatan	Partido Socialista del Sureste

560 kilocycles 535.4 meters

KFDM	500	Beaumont, Texas	Magnolia Petroleum Co.
KFEQ	2500	St. Joseph, Mo.	Scroggin & Co. Bank
KLZ	1000	Denver, Colo.	Reynolds Radio Co., Inc.
KOAC	1000	Corvallis, Ore.	State Agricultural College
WFI	500	Philadelphia ,Pa.	Strawbridge & Clothier
WIOD	500	Miami Beach, Fla.	Isle of Dreams Brdcstg. Co.
WLIT	500	Philadelphia, Pa.	Lit Brothers
WMBF	500	Miami Beach, Fla.	Fleetwood Hotel Corp.
WNOX	1000	Knoxville, Tenn.	Sterchi Bros. Stores, Inc.
WOI	3500	Ames, Iowa	Iowa State College

570 kilocycles 526.0 meters

KGKO	250	Wichita Falls, Tex.	Wichita Falls Brdcstg. Co.
KMTR	1000	Hollywood, Cal.	KMTR Radio Corp.
KPLA	1000	Los Angeles, Cal.	Pacific Development Radio Co.
KUOM	500	Missoula, Mont.	University of Montana
KXA	500	Seattle, Wash.	American Radio Tel. Co.
WIBO	1000	Chicago, Ill.	Nelson Bros. Bond & Mfg. Co.
WKBN	500	Youngstown, Ohio	W. P. Williamson, Jr.
WMAC	250	Cazenovia, N. Y.	Clive B. Meredith
WMCA	500	New York City	Greeley Square Hotel Co.
WNAX	1000	Yankton, S. D.	Gurney Seed & Nursery Co.
WNYC	500	New York City	Dept. of Plants and Structures
WPCC	500	Chicago, Ill.	North Shore Congregational Church
WSMK	200	Dayton, Ohio	Stanley M. Krohn, Jr.
WSYR	250	Syracuse, N. Y.	Clive B. Meredith
WWNC	1000	Asheville, N. C.	Citizens Brdcstg. Co.

580 kilocycles 516.9 meters

CHMA	250	Edmonton, Alta.	Christian and Missionary Alliance
CHNC	500	Toronto, Ont.	Radio Research Society
CJBC	500	Toronto, Ont.	Jarvis Street Baptist Church
CJCA	500	Edmonton, Alta.	The Edmonton Journal
CJSC	500	Toronto, Ont.	The Evening Telegram
CKCL	500	Toronto, Ont.	The Dominion Battery Co.
CKNC	500	Toronto, Ont.	Canadian National Carbon Co.
CKUA	500	Edmonton, Alta.	University of Alberta
CNRE	500	Edmonton, Alta.	Canadian National Railways
KGFX	200	Pierre, S. D.	Dana McNeil
KSAC	500	Manhattan, Kans.	State Agricultural College
WOBU	250	Charleston, W. Va.	Charleston Radio Brdcstg. Co.
WSAZ	250	Huntington, W. Va.	McKellar Electric Co.
WSUI	500	Iowa City, Iowa	University of Iowa
WTAG	250	Worcester, Mass.	Telegram Publishing Co.

KCYS. 670
MTRS. 447.5
DIAL

590 kilocycles 508.2 meters

KHQ	1000	Spokane, Wash.
WCAJ	500	Lincoln, Nebr.
WEEI	1000	Boston, Mass.
WOW	1000	Omaha, Nebr.
WEMC	1000	Berrien Springs, Mich.
XFI	1000	Mexico City

Louis Wasmer, Inc.
Nebraska Wesleyan University
Edison Elec. Illuminating Co.
Woodmen of the World
Emmanuel Missionary College
Srla. de Industria, Comercio y Trabajo

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.
CNRQ	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.

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
WREC, Inc.
Travelers Brdcstg. Service Corp.

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.

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.

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.
KFRU	500	Columbia, Mo.
WGBF	500	Evansville, Ind.
WMAL	250	Washington, D. C.
WOS	500	Jefferson City, Mo.
XFC	350	Jalapa, Ver.

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

640 kilocycles 468.5 meters

KFI	5000	Los Angeles, Cal.
WAIU	500	Columbus, Ohio
XFG	2000	Mexico City

Earle C. Anthony, Inc.
American Insurance Union
Srla. de Guerra y Marina

650 kilocycles 461.3 meters

WSM	5000	Nashville, Tenn.

National Life & Accident Ins. Co.

660 kilocycles 454.3 meters

WAAW	500	Omaha, Nebr.
WEAF	50000	New York City

Omaha Grain Exchange
National Broadcasting Co., Inc.

670 kilocycles 447.5 meters

WMAQ	5000	Chicago, Ill.
XEB	1000	Mexico City

Chicago Daily News, Inc.
El Buen Tono, S. A.

CUT OUT ON DOTTED LINES

680 kilocycles 440.9 meters

KPO	5000	San Francisco, Cal.	Hale Bros. & The Chronicle
WPTF	1000	Raleigh, N. C.	Durham Life Insurance Co.

690 kilocycles 434.5 meters

CFAC	500	Calgary, Alta.	The Calgary Herald
CFCN	1800	Calgary, Alta.	W. W. Grant, Ltd.
CHCA	250	Calgary, Alta.	The Western Farmer
CJCJ	250	Calgary, Alta.	Albertan Publishing Co., Ltd.
CKCO	100	Ottawa, Ont.	Dr. G. M. Geldert
CNRC	500	Calgary, Alta.	Canadian National Railways
CNRO	500	Ottawa, Ont.	Canadian National Railways
NAA	1000	Arlington, Va.	U. S. Navy

700 kilocycles 428.3 meters

WLW	50000	Cincinnati, Ohio	Crosley Radio Corp.

710 kilocycles 422.3 meters

KFVD	250	Culver City, Cal.	Los Angeles Brdcstg. Co.
WOR	5000	Newark, N. J.	L. Bamberger & Co.

720 kilocycles 416.4 meters

WGN	25000	Chicago, Ill.	Chicago Tribune
WLIB	25000	Chicago, Ill.	Liberty Weekly, Inc.

730 kilocycles 410.7 meters

CHLS	50	Vancouver, B. C.	W. G. Hassell
CHYC	500	Montreal, Que.	Northern Electric Co.
CKAC	1200	Montreal, Que.	La Presse Publishing Co.
CKCD	50	Vancouver, B. C.	Vancouver Daily Province
CKFC	50	Vancouver, B. C.	United Church of Canada
CKMO	50	Vancouver, B. C.	Sprott-Shaw Radio Co.
CKWX	100	Vancouver, B. C.	A. Holstead & Wm. Hanlon
CNRM	1650	Montreal, Que.	Canadian National Railways
XEN	1000	Mexico City	General Electric, S. A.

740 kilocycles 405.2 meters

KMMJ	1000	Clay Center, Neb.	The M. M. Johnson Co.
WSB	10000	Atlanta, Ga.	Atlanta Journal Co.

750 kilocycles 399.8 meters

WJR	5000	Detroit, Mich.	WJR, The Goodwill Station, Inc.

760 kilocycles 394.5 meters

KVI	1000	Tacoma, Wash.	Puget Sound Brdcstg. Co.
WEW	1000	St. Louis, Mo.	St. Louis University
WJZ	30000	New York City	Radio Corp. of America, Inc.

770 kilocycles 389.4 meters

KFAB	5000	Lincoln, Nebr.	Nebraska Buick Automobile Co.
WBBM	25000	Chicago, Ill.	Atlas Investment Co.
WJBT	10000	Chicago, Ill.	The Atlass Co., Inc.

780 kilocycles 384.4 meters

CKY	5000	Winnipeg, Manitoba	Manitoba Telephone System
CNRW	5000	Winnipeg, Manitoba	Canadian National Railways
KELW	500	Burbank, Cal.	Earl L. White
KTM	500	Los Angeles, Cal.	Pickwick Brdcstg. Corp.
WBSO	250	Wellesley Hills, Mass.	Babson's Statistical Organization
WMC	500	Memphis, Tenn.	Memphis Commercial-Appeal
WPOR	500	Norfolk, Va.	WTAR Radio Corp.
WTAR	500	Norfolk, Va.	WTAR Radio Corp.

790 kilocycles 379.5 meters

KGO	7500	Oakland, Cal.	General Electric Co.
WGY	50000	Schenectady, N. Y.	General Electric Co.
6KW	1500	Tuinucu, Cuba	Frank H. Jones

800 kilocycles 374.8 meters

WBAP	50000	Fort Worth, Tex.	Carter Publications, Inc.
WFAA	5000	Dallas, Texas	News & Journal

810 kilocycles 370.2 meters

WCCO	15000	Minneapolis-St. Paul	Washburn-Crosby Co.
WPCH	500	New York City	Eastern Broadcasters, Inc.

820 kilocycles 365.6 meters

WHAS	5000	Louisville, Ky.	Courier-Journal & Times

830 kilocycles 361.2 meters

HHK	1000	Port au Prince, Haiti	Republic of Haiti
KOA	12500	Denver, Colo.	General Electric Co.
WHDH	1000	Gloucester, Mass.	Matheson Radio Co., Inc.

840 kilocycles 356.9 meters

CFCA	500	Toronto, Ont.	Star Publishing & Ptg. Co.
CHCT	1000	Red Deer, Alta.	G. F. Tull & Ardern, Ltd.
CJBC	1000	Toronto, Ont.	Jarvis Street Baptist Church
CKLC	1000	Red Deer, Alta.	Alberta Pacific Grain Co.
CKOW	500	Toronto, Ont.	Nestle's Food Co.
CMC	500	Havana, Cuba	Cuban Telephone Co.
CNRT	500	Toronto, Ont.	Canadian National Railways
XFX	500	Mexico City	Sria. de Educacion Publica

850 kilocycles 352.7 meters

KWKH	5000	Shreveport, La.	W. K. Henderson
WWL	5000	New Orleans, La.	Loyola University

860 kilocycles 348.6 meters

KFQZ	250	Hollywood, Cal.	Taft Radio & Brdcstg. Co.
WABC	5000	New York City	Atlantic Broadcasting Corp.
WBOQ	5000	New York City	Atlantic Broadcasting Corp.
2OK	100	Havana, Cuba	Merlo G. Velez
7SR	500	Elia, Cuba	Salvador Rionda

870 kilocycles 344.6 meters

WBCN	50000	Chicago, Ill.	Great Lakes Brdcstg. Co.
WENR	50000	Chicago, Ill.	Great Lakes Brdcstg. Co.
WLS	5000	Chicago, Ill.	Agricultural Brdcstg. Co.

880 kilocycles 340.7 meters

CHCS	10	Hamilton, Ont.	The Hamilton Spectator
CHML	50	Hamilton, Ont.	Maple Leaf Radio Co.
CJCB	50	Sydney, N. S.	N. Nathanson
CKOC	50	Hamilton, Ont.	Wentworth Radio Supply Co.
KFKA	500	Greeley, Colo.	State Teachers College
KLX	500	Oakland, Cal.	Tribune Publishing Co.
KPOF	500	Denver, Colo.	Pillar of Fire, Inc.
WCOC	500	Columbus, Miss.	Crystal Oil Co.
WGBI	250	Scranton, Pa.	Scranton Broadcasters, Inc.
WQAN	250	Scranton, Pa.	Scranton Times

KGYS
880
MTRS.
340.7
DIAL

CUT OUT ON DOTTED LINES

890 kilocycles 336.9 meters

CFBO	50	St. John, N. B.	C. A. Munro, Ltd.
KFNF	500	Shenandoah, Iowa	Henry Field Seed Co.
KGJF	250	Little Rock, Ark.	Church of the Nazarene
KUSD	500	Vermillion, S. D.	University of South Dakota
WGST	250	Atlanta, Ga.	Georgia School of Technology
WILL	250	Urbana, Ill.	University of Illinois
WJAR	250	Providence, R. I.	The Outlet Co.
WKAQ	500	San Juan, P. R.	Radio Corp. of Porto Rico
WMAZ	250	Macon, Ga.	Junior Chamber of Commerce
WMMN	250	Fairmont, W. Va.	Holt Rowe Novelty Co.

900 kilocycles 333.1 meters

KGBU	500	Ketchikan, Alaska	Alaska Radio & Service Co.
KHJ	1000	Los Angeles, Cal.	Don Lee, Inc.
KSEI	250	Pocatello, Idaho	KSEI Broadcasting Association
WFBL	750	Syracuse, N. Y.	The Onondaga Co., Inc.
WFLA	1000	Clearwater, Fla.	Chamber of Commerce
WKY	1000	Oklahoma City	WKY Radiophone Co.
WLBL	2000	Stevens Pt., Wis.	Wisconsin Dept. of Markets
WMAK	750	Buffalo, N. Y.	WMAK Brdcstg. Station, Inc.
WSUN	1000	St. Petersburg, Fla.	Chamber of Commerce

910 kilocycles 329.6 meters

CFQC	500	Saskatoon, Sask.	The Electric Shop
CJGC	500	London, Ont.	Free Press Printing Co.
CJHS	250	Saskatoon, Sask.	Radio Service, Ltd.
CNRS	500	Saskatoon, Sask.	Canadian National Railways

920 kilocycles 325.9 meters

KOMO	1000	Seattle, Wash.	Fisher's Blend Station
KPRC	1000	Houston, Tex.	Houston Printing Co.
WAAF	500	Chicago, Ill.	Drovers Journal Publishing Co.
WWJ	1000	Detroit, Mich.	The Detroit News
XEX	500	Mexico City	Excelsior, Cia. Editorial, S. A.
XFF	250	Chihuahua, Chih.	Gobierno Estado de Chihuahua

930 kilocycles 322.4 meters

CHNS	500	Halifax, N. S.	Halifax Herald
CKIC	50	Wolfville, N. S.	Acadia University
KFWI	500	San Francisco, Cal.	Radio Entertainments, Inc.
KFWM	500	Oakland, Cal.	Oakland Educational Society
KGBZ	500	York, Nebr.	George R. Miller
KMA	500	Shenandoah, Iowa	May Seed & Nursery Co.
WBRC	500	Birmingham, Ala.	Birmingham Broadcasting Co.
WDBJ	250	Roanoke, Va.	Richardson-Wayland Elec. Corp.
WIBG	50	Elkins Park, Pa.	St. Pauls P. E. Church

940 kilocycles 319.0 meters

KFEL	250	Denver, Colo.	Eugene P. O'Fallon, Inc.
KFXF	250	Denver, Colo.	Pikes Peak Broadcasting Co.
KGU	500	Honolulu, Hawaii	Marion A. Mulrony
KOIN	1000	Portland, Ore.	KOIN, Inc.
WCSH	500	Portland, Maine	Congress Square Hotel Co.
WFIW	1000	Hopkinsville, Ky.	The Acme Mills, Inc.
WHA	750	Madison, Wis.	University of Wisconsin

950 kilocycles 315.6 meters

KFWB	1000	Los Angeles, Cal.	Warner Bros. Broadcasting Corp.
KGHL	500	Billings, Mont.	Northwestern Auto Supply Co.
KMBC	1000	Independence, Mo.	Midland Broadcasting Co.
KPSN	1000	Pasadena, Cal.	Pasadena Star-News
WHB	500	Kansas City, Mo.	Sweeney Automobile School
WRC	500	Washington, D. C.	Radio Corp. of America
2RK	20	Havana, Cuba	Raoul Karman

960 kilocycles 312.3 meters

CFCY	100	Charlottetown, P. E. I.	The Island Radio Co.
CFRB	1000	Twp. of King, Ont.	Standard Radio Mfg. Corp.
CHCK	30	Charlottetown, P. E. I.	W. E. Burke
CHWC	500	Regina, Sask.	R. H. Williams & Sons
CJBC	5000	Toronto, Ont.	Jarvis St. Baptist Church
CJBR	500	Regina, Sask.	Cooperative Wheat Producers
CKCK	500	Regina, Sask.	Leader Pub. Co.
CKGW	5000	Bowmanville, Ont.	Gooderham & Worts
CNRR	500	Regina, Sask.	Canadian Nat'l. Railways
XEE	101	Puebla, Pue.	Ramon Huerta G.

970 kilocycles 309.1 meters

KJR	5000	Seattle, Wash.	Northwest Radio Service Co.
WCFL	1500	Chicago, Ill.	Chicago Federation of Labor
XEH	101	Monterey, N. L.	Ing. Constantino de Tarnava

980 kilocycles 305.9 meters

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

990 kilocycles 302.8 meters

WBZ	15000	Springfield, Mass.	Westinghouse Elec. & Mfg. Co.
WBZA	500	Boston, Mass.	Westinghouse Elec. & Mfg. Co.

1000 kilocycles 299.8 meters

KGFH	250	Glendale, Cal.	Frederick Robinson
WHO	5000	Des Moines, Iowa	Bankers Life Co.
WOC	5000	Davenport, Iowa	Palmer School of Chiropractic
XEI	101	Morelia, Mich.	Carlos Gutierrez M.

1010 kilocycles 296.8 meters

CFLC	50	Prescott, Ont.	Radio Association
CKCR	50	Brantford, Ont.	John Patterson
CKSH	50	St. Hyacinthe, Que.	City of St. Hyacinthe
KGGF	500	Picher, Okla.	D. L. Connell, M. D.
KQW	500	San Jose, Cal.	First Baptist Church
WHN	250	New York City	Marcus Loew Booking Agency
WNAD	500	Norman, Okla.	University of Oklahoma
WPAP	250	New York City	Palisades Amusement Park
WQAO	250	New York City	Calvary Baptist Church
WRNY	250	New York City	Aviation Radio Station, Inc.
WSIS	250	Sarasota, Fla.	Chamber of Commerce

1020 kilocycles 293.9 meters

KFKX	5000	Chicago, Ill.	Westinghouse Elec. & Mfg. Co.
KYW	5000	Chicago, Ill.	Westinghouse Elec. & Mfg. Co.
KYWA	500	Chicago, Ill.	Westinghouse Elec. & Mfg. Co.
WRAX	250	Philadelphia, Pa.	Berachah Church, Inc.

1030 kilocycles 291.1 meters

CFCF	1650	Montreal, Que.	Canadian Marconi Co.
CJOR	50	Sea Island, B. C.	G. C. Chandler
CNRV	500	Vancouver, B. C.	Canadian Nat'l Railways

1040 kilocycles 288.3 meters

KRLD	10000	Dallas, Texas	KRLD, Inc.
KTHS	10000	Hot Springs, Ark.	Chamber of Commerce
WKAR	1000	East Lansing, Mich.	Michigan Agricultural College
WKEN	1000	Buffalo, N. Y.	Radio Station WKEN, Inc.

1050 kilocycles 285.5 meters

KFKB	5000	Milford, Kansas	John R. Brinkley, M. D.
KNX	5000	Hollywood, Cal.	Western Broadcast Co.
2MG	20	Havana, Cuba	M. y G. Salas

KCYS.
1050
MTRS.
285.5
DIAL

CUT OUT ON DOTTED LINES

1060 kilocycles 282.8 meters

KWJJ	500	Portland, Ore.	Wilbur Jerman
WBAL	10000	Baltimore, Md.	Consolidated Gas, Elec. & Pwr. Co.
WJAG	1000	Norfolk, Nebr.	Norfolk Daily News
WTIC	5000	Hartford, Conn.	Travelers Brdcstg. Service Corp.

1070 kilocycles 280.2 meters

KJBS	100	San Francisco, Cal.	Julius Brunton & Sons Co.
WAAT	300	Jersey City, N. J.	Bremer Broadcasting Corp.
WCAZ	50	Carthage, Ill.	Carthage College
WDZ	100	Tuscola, Ill.	James L. Bush
WEAR	1000	Cleveland, Ohio	WTAM and WEAR, Inc.
WTAM	3500	Cleveland, Ohio	WTAM and WEAR, Inc.

1080 kilocycles 277.6 meters

WBT	5000	Charlotte, N. C.	C. C. Coddington, Inc.
WCBD	5000	Zion, Ill.	Wilbur Glenn Voliva
WMBI	5000	Chicago, Ill.	Moody Bible Institute

1090 kilocycles 275.1 meters

KFQA	5000	St. Louis, Mo.	Voice of St. Louis, Inc.
KMOX	5000	St. Louis, Mo.	Voice of St. Louis
2UF	10	Havana, Cuba	Benito V. Ferro

1100 kilocycles 272.6 meters

KGDM	50	Stockton, Cal.	E. F. Peffer
WLWL	5000	New York City	Missionary Society of St. Paul
WPG	5000	Atlantic City, N. J.	Municipality of Atlantic City

1110 kilocycles 270.1 meters

KSOO	2000	Sioux Falls, S. D.	Sioux Falls Broadcast Assn.
WRVA	1000	Richmond, Va.	Larus & Bros. Co., Inc.
2TW	20	Havana, Cuba	Roberto E. Ramirez

1120 kilocycles 267.7 meters

CFJC	15	Kamloops, B. C.	N. S. Dalgleish & Sons
CFRC	500	Kingston, Ont.	Queen's University
CHGS	25	Summerside, P. E. I.	R. T. Holman, Ltd.
CJOC	50	Lethbridge, Alta.	J. E. Palmer
CKPR	50	Midland, Ont.	E. O. Swan
KFSG	500	Los Angeles, Cal.	Echo Park Evang. Assn.
KMIC	500	Inglewood, Cal.	James R. Fouch
KRSC	50	Seattle, Wash.	Radio Sales Corp.
KUT	500	Austin, Texas	KUT Broadcasting Co.
WCOA	500	Pensacola, Fla.	City of Pensacola
WDEL	250	Wilmington, Del.	WDEL, Inc.
WHAD	250	Milwaukee, Wis.	Marquette University
WISN	250	Milwaukee, Wis.	Evening Wisconsin Co.
WTAW	500	College Station, Texas	Agricultural & Mech. College

1130 kilocycles 265.3 meters

KSL	5000	Salt Lake City	Radio Service Corp. of Utah
WJJD	20000	Mooseheart, Ill.	Loyal Order of Moose
WOV	1000	New York City	International Brdcstg. Corp.
XEF	105	Oaxaca, Oax.	Federico Zorrila

1140 kilocycles 263.0 meters

KVOO	5000	Tulsa, Okla.	Southwestern Sales Corp.
WAPI	5000	Birmingham, Ala.	Alabama Polytechnic Institute

1150 kilocycles 260.7 meters

WHAM	5000	Rochester, N. Y.	Stromberg-Carlson Tel. Mfg. Co.
6BY	200	Cienfuegos, Cuba	Jose Ganduxe

1160 kilocycles 258.5 meters

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

1170 kilocycles 256.3 meters

KEJK	500	Los Angeles, Cal.
KTNT	5000	Muscatine, Iowa
WCAU	1000	Philadelphia, Pa.
2OL	100	Havana, Cuba

1180 kilocycles 254.1 meters

KEX	5000	Portland, Ore.
KOB	10000	State College, N. M.
WDGY	1000	Minneapolis, Minn.
WGBS	500	New York City
WHDI	500	Minneapolis, Minn.

1190 kilocycles 252.0 meters

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

1200 kilocycles 249.9 meters

KFHA	50	Gunnison, Colo.
KFJB	100	Marshalltown, Iowa
KFKZ	15	Kirksville, Mo.
KFWC	100	Pomona, 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	100	Ettrick, 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.
WRAF	100	La Porte, Ind.
WRBL	50	Columbus, Ga.
WWAE	100	Hammond, Ind.
XEA	101	Guadalajara, Jal.
XES	250	C. Lerdo, Dgo.
2BB	15	Havana, Cuba

Main Auto Supply Co.
West Virginia Brdcstg. Corp.

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

Western Broadcasting Co.
College of Agriculture
Dr. George W. Young
General Broadcasting System
Wm. Hood Dunwoody Indus. Inst.

Bridgeport Broadcasting Station
Southern Equipment Co.

Western College of Colorado
Marshall Electric Co.
State Teachers College
James R. Fouch
St. Louis Truth Center, Inc.
Mandan Radio Association
Jaren Drug Co.
J. Albert Loesch
Beehler Elec. Equipment Co.
City of Fort Morgan
Lautzenheiser & Mitchell
St. Martin's College
The Fresno Bee
Pasadena Presbyterian Church
Santa Maria Valley R. R. Co.
Conrad E. Barker, Receiver
Portable Wireless Tel. Co.
E. R. Irey 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 Brdcstg. 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.
The Radio Club, Inc.
R. E. Martin
Hammond-Calumet Brdcstg. Co.
Alberto Palos Sauza
Cerveceria de Durango, S. A.
Bernardo Barrie

KCYS.
1200
MTRS.
249.9
DIAL

CUT OUT ON DOTTED LINES

1210 kilocycles 247.8 meters

CFCO	25	Chatham, Ont.	Western Ontario "Better Radio" Club
CFNB	50	Fredericton, N. B.	James S. Neill & Sons
CHWK	5	Chilliwack, B. C.	Chilliwack Brdcstg. Co., Ltd.
CKMC	15	Cobalt, Ont.	R. L. MacAdam
CKPC	25	Preston, Ont.	Wallace Russ
KDLR	100	Devils Lake, N. D.	Radio Electric Co.
KFOR	100	Lincoln, Nebr.	Howard A. Shuman
KFVS	100	Cape Girardeau, Mo.	Hirsch Battery & Radio Co.
KGCR	100	Watertown, S. D.	Cutler's Radio Brdcstg. Service
KPCB	50	Seattle, Wash.	Pacific Coast Biscuit Co.
KPQ	100	Seattle, Wash.	Archie Taft & Louis Wasmer
KWEA	100	Shreveport, La.	William E. Antony
WBAX	100	Wilkes-Barre, Pa.	John H. Stenger, Jr.
WCBS	100	Springfield, Ill.	H. L. Dewing & Chas. Messter
WCOH	100	Yonkers, N. Y.	Westchester Brdcstg. Corp.
WCRW	100	Chicago, Ill.	Clinton R. White
WDWF	100	Cranston, R. I.	Dutee W. Flint
WEBE	100	Cambridge, Ohio	Roy W. Waller
WEBQ	100	Harrisburg, Ill.	First Trust & Savings Bank
WEDC	100	Chicago, Ill.	Emil Denemark, Inc.
WGBB	100	Freeport, N. Y.	Harry H. Carman
WGCM	100	Gulfport, Miss.	Gulf Coast Music Co.
WHBF	100	Rock Island, Ill.	Beardsley Specialty Co.
WHBU	100	Anderson, Ind.	Citizens Bank
WIBA	100	Madison, Wis.	Capital Times-Strand Theatre
WINR	100	Bay Shore, N. Y.	Radiotel Mfg. Co., Inc.
WJBI	100	Red Bank, N. J.	Robert S. Johnson
WJBU	100	Lewisburg, Pa.	Bucknell University
WJBY	50	Gadsden, Ala.	Charles J. Black
WLBV	100	Mansfield, Ohio	Mansfield Broadcasting Assn.
WLCI	50	Ithaca, N. Y.	Lutheran Assn. of Ithaca
WLSI	100	Cranston, R. I.	The Lincoln Studios, Inc.
WMAN	50	Columbus, Ohio	W. E. Heskitt
WMBG	100	Richmond, Va.	Havens & Martin, Inc.
WMBR	100	Tampa, Fla.	F. J. Reynolds
WOCL	25	Jamestown, N. Y.	A. E. Newton
WOMT	100	Manitowoc, Wis.	Francis M. Kadow
WPAW	100	Pawtucket, R. I.	Shartenburg & Robinson
WRBQ	100	Greenville, Miss.	J. Pat Scully
WRBU	100	Gastonia, N. C.	A. J. Kirby Music Co.
WSBC	100	Chicago, Ill.	World Battery Co., Inc.
WSIX	100	Springfield, Tenn.	638 Tire & Vulcanizing Co.
WTAX	50	Streator, Ill.	Williams Hardware Co.
WTAZ	15	Richmond, Va.	W. Reynolds & T. J. McGuire

1220 kilocycles 245.8 meters

KFKU	1000	Lawrence, Kans.	University of Kansas
WCAD	500	Canton, N. Y.	St. Lawrence University
WCAE	500	Pittsburgh, Pa.	Kaufman & Baer Co.
WREN	1000	Lawrence, Kans.	Jenny Wren Co.

1230 kilocycles 243.8 meters

KFIO	100	Spokane, Wash.	North Central High School
KFQD	100	Anchorage, Alaska	Anchorage Radio Club
KYA	1000	San Francisco, Cal.	Pacific Broadcasting Corp.
WBIS	1000	Boston, Mass.	Shepard-Norvell Co.
WFBM	1000	Indianapolis, Ind.	Indianapolis Power & Light Co.
WNAC	1000	Boston, Mass.	Shepard-Norvell Co.
WPSC	500	State College, Pa.	Pennsylvania State College
WSBT	500	South Bend, Ind.	South Bend Tribune

1240 kilocycles 241.8 meters

KTAT	1000	Ft. Worth, Texas	Texas Air Transport Brdcst. Co.
WGHP	750	Detroit, Mich.	American Brdcstg. Corp.
WJAD	1000	Waco, Texas	Frank P. Jackson
WQAM	1000	Miami, Fla.	Miami Brdcstg. Co.
WRBC	500	Valparaiso, Ind.	Immanuel Lutheran Church

1250 kilocycles 239.9 meters

KFMX	1000	Northfield, Minn.
KFOX	1000	Long Beach, Cal.
KIDO	1000	Boise, Idaho
KXL	500	Portland, Ore.
WAAM	1000	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.

Carleton College
Nichols & Warinner, Inc.
Boise Brdcstg. 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
KVOA	500	Tucson, Ariz.
KWWG	500	Brownsville, Texas
WJAX	1000	Jacksonville, Fla.
WLBW	500	Oil City, Pa.

Mona Motor Oil Co.
Valley Radio-Electric Corp.
Robert M. Riculfi
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.

W. D. Corley
Charles W. Greenley
Seattle Brdcstg. Co.
First Presbyterian Church
Luther College
WASH Broadcasting Corp.
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

City of Camden
Radio Industries Broadcast Co.
WDAY, Inc.
Chattanooga Radio Co., Inc.
Head of Lake Brdcstg. Co.
Franklyn 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.
KTSA	1000	San Antonio, Texas
WJAS	1000	Pittsburgh, Pa.
WNBZ	10	Saranac Lake, N. Y.

Intermountain Brdcstg. Corp.
Will H. Ford
C. L. Lintzenich
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	New York City
WHAP	1000	New York City
WHAZ	500	Troy, N. Y.
WIBW	1000	Topeka, Kansas

Radio Station KFH Co.
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 Brdcstg. Assn.

1310 kilocycles 228.9 meters

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

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

KCYS.
1310
MTRS.
228.9
DIAL

CUT OUT ON DOTTED LINES

KFPL	15	Dublin, Texas	C. C. Baxter
KFPM	15	Greenville, Texas	The New Furniture Co.
KFUP	100	Denver, Colo.	Fitzsimmons General Hospital
KFXJ	50	Edgewater, Colo.	R. G. Howell
KFXR	100	Oklahoma City	Exchange Ave. Baptist Church
KGCX	100	Vida, Mont.	First State Bank
KGEZ	100	Kalispell, Mont.	Flathead Broadcasting Assn.
KGHG	50	McGeehee, Ark.	Chas. W. McCollum
KMED	50	Medford, Ore.	Mrs. W. J. Virgin
KRMD	50	Shreveport, La.	Robert M. Dean
KTSL	100	Shreveport, La.	Houseman Sheet Metal Works, Inc.
KWCR	100	Cedar Rapids, Iowa	H. E. Paar
WAGM	50	Royal Oak, Mich.	Robert L. Miller
WBOW	100	Terre Haute, Ind.	Banks of Wabash, Inc.
WBRE	100	Wilkes-Barre, Pa.	Louis G. Baltimore
WCLS	100	Joliet, Ill.	WCLS, Inc.
WDAH	100	El Paso, Texas	Trinity Methodist Church
WEBR	100	Buffalo, N. Y.	H. H. Howell
WEHS	100	Evanston, Ill.	Victor C. Carlson
WFBG	100	Altoona, Pa.	Wm. F. Gable Co.
WFDF	100	Flint, Mich.	Frank D. Fallain
WFKD	50	Philadelphia, Pa.	Foulkrod Radio Engineering Co.
WGAL	15	Lancaster, Pa.	Lancaster Electric Supply Co.
WGH	100	Newport News, Va.	Virginia Brdcstg. Co., Inc.
WHBP	100	Johnstown, Pa.	Johnstown Automobile Co.
WHFC	100	Chicago, Ill.	Triangle Broadcasters
WIBU	100	Poynette, Wis.	William C. Forrest
WJAK	50	Marion, Ind.	Marion Brdcstg. Co.
WKAV	100	Laconia, N. H.	Laconia Radio Club
WKBB	100	Joliet, Ill.	Sanders Bros.
WKBC	100	Birmingham, Ala.	R. B. Broyles Furn. Co.
WKBI	50	Chicago, Ill.	Fred L. Schoenwolf
WKBS	100	Galesburg, Ill.	Permil N. Nelson
WLBC	50	Muncie, Ind.	Donald A. Burton
WLBO	100	Galesburg, Ill.	Fred A. Trebbe, Jr.
WMBL	100	Lakeland, Fla.	Benford's Radio Studios
WNAT	100	Philadelphia, Pa.	Lennig Bros. Co.
WNBH	100	New Bedford, Mass.	New Bedford Broadcasting Co.
WNBJ	50	Knoxville, Tenn.	Lonsdale Baptist Church
WOBT	100	Union City, Tenn.	Tittsworth's Radio & Music Shop
WOL	100	Washington, D. C.	American Broadcasting Co.
WRAW	100	Reading, Pa.	Avenue Radio & Electric Shop
WRK	100	Hamilton, Ohio	S. W. Doron & J. C. Slade
WSAJ	100	Grove City, Pa.	Grove City College
WSMD	100	Salisbury, Md.	Tom F. Little

1320 kilocycles 227.1 meters

KGHB	250	Honolulu, Hawaii	Radio Sales Co.
KGHF	250	Pueblo, Colo.	C. P. Ritchie & J. E. Finch
KGIQ	250	Twin Falls, Idaho	Radio Broadcasting Corp.
KID	250	Idaho Falls, Idaho	Jack W. Duckworth, Jr.
WADC	1000	Akron, Ohio	Allen T. Simmons
WSMB	500	New Orleans, La.	Saenger Theatre & Maison Blanche

1330 kilocycles 225.4 meters

KSCJ	1000	Sioux City, Iowa	Perkins Bros. Co.
WDRC	500	New Haven, Conn.	Doolittle Radio Corp.
WSAI	500	Cincinnati, Ohio	Crosley Radio Corp., Lessee
WTAQ	1000	Eau Claire, Wis.	Gillette Rubber Co.

1340 kilocycles 223.7 meters

KFPW	50	Siloam Springs, Ark.	Rev. Lannie W. Stewart
KFPY	500	Spokane, Wash.	Symons Broadcasting Co.
KMO	500	Tacoma, Wash.	KMO, Inc.
WSPD	500	Toledo, Ohio	Toledo Broadcasting Co.

1350 kilocycles 222.1 meters

KWK	1000	St. Louis, Mo.	Greater St. Louis Brdcstg. Corp.
WBNY	250	New York City	Baruchrome Corp.
WCDA	250	New York City	Italian Educ. Brdcstg. Co.
WKBQ	250	New York City	Standard Cahill Co., Inc.
WMSG	250	New York City	Madison Square Garden

1360 kilocycles 220.4 meters

KFBB	500	Havre, Mont.	F. A. Buttery Co.
KGB	250	San Diego, Cal.	Pickwick Brdcstg. Corp.
KGIR	250	Butte, Mont.	Symons Broadcasting Co.
WGES	500	Chicago, Ill.	Oak Leaves Broacasting Corp.
WJKS	500	Gary, Ind.	Johnson-Kennedy Radio Corp.
WLEX	500	Lexington, Mass.	Lexington Air Stations
WMAF	500	S. Dartmouth, Mass.	Round Hills Radio Corp.
WQBC	300	Utica, Miss.	Chamber of Commerce

1370 kilocycles 218.7 meters

KGRC	100	Enid, Okla.	Champlin Refining Co.
KFBL	50	Everett, Wash.	Leese Bros.
KFJI	100	Astoria, Ore.	George Kincaid
KFJM	500	Grand Forks, N. D.	University of North Dakota
KFJZ	100	Ft. Worth, Texas	H. C. Meacham
KFLX	100	Galveston, Texas	George Roy Clough
KGAR	100	Tucson, Ariz.	Tucson Motor Service Co.
KGBX	100	St. Joseph, Mo.	Foster-Hall Tire Co.
KGCI	100	San Antonio, Texas	Liberto Radio Sales
KGDA	50	Dell Rapids, S. D.	Home Auto Co.
KGER	100	Long Beach, Cal.	C. Merwin Dobyns
KGFG	100	Oklahoma City	Faith Tabernacle Assn.
KGFL	50	Raton, N. M.	Hubbard & Murphy
KGGM	100	Albuquerque, N. M.	New Mexico Brdcstg. Co.
KGKL	100	San Angelo, Texas	KGKL, Inc., Opr. by Ragsdale Auto Co.
KGRC	100	San Antonio, Texas	Eugene Roth
KIT	50	Yakima, Wash.	Carl E. Haymond
KKP	15	Seattle, Wash.	City of Seattle
KLO	100	Ogden, Utah	Peery Building Co.
KOH	100	Reno, Nevada	Jay Peters
KOOS	50	Marshfield, Ore.	H. H. Hanseth
KRE	100	Berkeley, Cal.	First Congregational Church
KVL	100	Seattle, Wash.	Arthur C. Dailey
KWKC	100	Kansas City, Mo.	Wilson Duncan Brdcstg. Co.
KZM	100	Hayward, Cal.	Leon P. Tenney
WBBL	100	Richmond, Va.	Grace Covenant Presbyterian Church
WCBM	100	Baltimore, Md.	Baltimore Brdcstg. Corp.
WELK	100	Philadelphia, Pa.	Howard R. Miller
WFBJ	100	Collegeville, Minn.	St. John's University
WGL	100	South Bend, Ind.	Fred C. Zieg
WHBD	100	Bellefontaine, Ohio	First Presbyterian Church
WHBQ	100	Memphis, Tenn.	Broadcasting Station WHBQ, Inc.
WHDF	100	Calumet, Mich.	Chas. C. MacLeod
WIBM	100	Jackson, Mich.	C. L. Carrell
WJBK	50	Ypsilanti, Mich.	James F. Hopkins
WJBO	100	New Orleans, La.	Valdemar Jensen
WMBO	100	Auburn, N. Y.	Radio Service Laboratories
WRAK	50	Erie, Pa.	C. R. Cummins
WRBT	100	Wilmington, N. C.	Wilmington Radio Association
WRJN	100	Racine, Wis.	Racine Broadcasting Corp.
WSVS	50	Buffalo, N. Y.	Seneca Vocational School

KCYS. **1390** MTRS. **215.7** DIAL

1380 kilocycles 217.3 meters

KQV	500	Pittsburgh, Pa.	Doubleday-Hill Electric Co.
KSO	1000	Clarinda, Iowa	Berry Seed Co.
WCSO	500	Springfield, Ohio	Wittenberg College
WKBH	1000	La Crosse, Wis.	Joseph Callaway

1390 kilocycles 215.7 meters

KLRA	1000	Little Rock, Ark.	Arkansas Broadcasting Co.
KOY	500	Phoenix, Ariz.	Nielson Radio Supply Co.
KUOA	1000	Fayetteville, Ark.	University of Arkansas
KWSC	500	Pullman, Wash.	State College of Washington
WHK	1000	Cleveland, Ohio	Radio Air Service Corp.

CUT OUT ON DOTTED LINES

1400 kilocycles 214.2 meters

KOCW	250	Chickasha, Okla.	College for Women
WBAA	500	Lafayette, Ind.	Purdue University
WBBC	500	Brooklyn, N. Y.	Brooklyn Broadcasting Corp.
WCGU	500	Coney Island, N. Y.	U. S. Broadcasting Corp.
WCMA	500	Culver, Ind.	Culver Military Academy
WKBF	500	Indianapolis, Ind.	Noble Butler Watson
WLTH	500	Brooklyn, N. Y.	The Voice of Brooklyn, Inc.
WSDA	500	Brooklyn, N. Y.	Amateur Radio Specialty Co.
WSGH	500	Brooklyn, N. Y.	Amateur Radio Specialty Co.

1410 kilocycles 212.6 meters

KFLV	500	Rockford, Ill.	A. T. Frykman
KGRS	1000	Amarillo, Texas	Gish Radio Service
WDAG	250	Amarillo, Texas	National Radio & Brdcstg. Corp.
WHBL	500	Sheboygan, Wis.	Press Pub. Co. & C. L. Carrell
WBCM	500	Bay City, Mich.	James E. Davidson

1420 kilocycles 211.1 meters

KFIF	100	Portland, Ore.	Benson Polytechnic Institute
KFIZ	100	Fond du Lac, Wis.	Reporter Printing Co.
KFQU	100	Holy City, Cal.	W. E. Riker
KFQW	100	Seattle, Wash.	KFQW, Inc.
KFXD	50	Jerome, Idaho	Service Radio Co.
KFXY	100	Flagstaff, Ariz.	Mary M. Costigan
KFYO	100	Abilene, Texas	T. E. Kirksey
KGCN	50	Concordia, Kansas	Concordia Broadcasting Co.
KGFF	100	Alva, Okla.	KGFF Broadcasting Co.
KGFJ	100	Los Angeles, Cal.	Ben S. McGlashan
KGFW	50	Ravenna, Neb.	Otto F. Sothman
KGGC	50	San Francisco, Cal.	Golden Gate Brdcstg. Co.
KGHD	50	Missoula, Mont.	Elmore-Nash Broadcasting Corp.
KGIW	100	Trinidad, Colo.	Trinidad Creamery Co., Inc.
KGIX	100	Las Vegas, Nevada	J. M. Heaton
KGKX	15	Sand Point, Idaho	C. E. Twiss
KICK	100	Red Oak, Iowa	Red Oak Radio Corp.
KORE	100	Eugene, Ore.	Eugene Broadcasting Station
KTAP	100	San Antonio, Texas	Alamo Brdcstg. Co.
KTUE	100	Houston, Texas	Uhalt Electric
KXRO	75	Aberdeen, Wash.	KXRO, Inc.
WAAD	25	Cincinnati, Ohio	Ohio Mechanics Institute
WEDH	30	Erie, Pa.	Erie Dispatch-Herald
WHDL	10	Tupper Lake, N. Y.	George Franklin Bissell
WHIS	100	Bluefield, W. Va.	Daily Telegraph
WHPP	10	New York City	Bronx Broadcasting Co.
WIAS	100	Ottumwa, Iowa	Poling Electric Co.
WIBR	50	Steubenville, Ohio	George W. Robinson
WILM	100	Wilmington, Del.	Delaware Broadcasting Co.
WKBP	50	Battle Creek, Mich.	Enquirer-News Co.
WLBF	100	Kansas City, Mo.	Everett L. Dillard
WLEY	100	Lexington, Mass.	Lexington Air Station
WMBC	100	Detroit, Mich.	Michigan Broadcasting Co., Inc.
WMBH	100	Joplin, Mo.	Edwin Dudley Aber
WMRJ	10	Jamaica, N. Y.	Peter J. Prinz
WPOE	30	Patchogue, N. Y.	Nassau Broadcasting Corp.
WQBZ	60	Weirton, W. Va.	J. H. Thompson
WSRO	100	Middletown, Ohio	Harry W. Fahrlander
WSSH	100	Boston, Mass.	Tremont Temple Baptist Church
WTBO	50	Cumberland, Md.	Cumberland Electric Co.

1430 kilocycles 209.7 meters

WBAK	500	Harrisburg, Pa.	Penna. State Police
WBRL	500	Manchester, N. H.	Booth Radio Laboratories
WCAH	250	Columbus, Ohio	Commercial Radio Service Co.
WGBC	500	Memphis, Tenn.	First Baptist Church
WHP	500	Harrisburg, Pa.	Pennsylvania Brdcstg. Co.
WNBR	500	Memphis, Tenn.	John Ulrich

1440 kilocycles 208.2 meters

KLS	250	Oakland, Cal.	Warner Bros.
WABO	500	Rochester, N. Y.	Lake Ave. Baptist Church
WCBA	250	Allentown, Pa.	B. B. Musselman
WHEC	500	Rochester, N. Y.	Hickson Electric Co.

WMBD	500	Peoria Heights, Ill.	Peoria Heights Radio Laboratory
WNRC	250	Greensboro, N. C.	Wayne M. Nelson
WOKO	500	Poughkeepsie, N. Y.	Harold E. Smith
WSAN	250	Allentown, Pa.	Allentown Call Publishing Co.
WTAD	500	Quincy, Ill.	Ills. Stock Medicine Brdcstg. Corp.

1450 kilocycles 206.8 meters

KTBS	1000	Shreveport, La.	Elliott & Steere
WBMS	250	Fort Lee, N. J.	WBMS Broadcasting Corp.
WFJC	500	Akron, Ohio	W. F. Jones Broadcast, Inc.
WIBS	250	Elizabeth, N. J.	New Jersey Broadcasting Corp.
WKBO	250	Jersey City, N. J.	Camith Corp.
WNJ	250	Newark, N. J.	Radio Investment Co.
WSAR	250	Fall River, Mass.	Doughty & Welch Electric Co.
WTFI	250	Toccoa, Ga.	Toccoa Falls Institute

1460 kilocycles 205.4 meters

KSTP	10000	St. Paul, Minn.	National Battery Brdcstg. Co.
WJSV	10000	Washington, D. C.	Independent Publishing Co.

1470 kilocycles 204.0 meters

KFJF	5000	Oklahoma City	National Radio Mfg. Co.
KGA	5000	Spokane, Wash.	Northwest Radio Service Co.
WKBW	5000	Buffalo, N. Y.	Churchill Evangelistic Assn.
WRUF	5000	Gainesville, Fla.	University of Florida

1480 kilocycles 202.6 meters

WCKY	5000	Covington, Ky.	L. B. Wilson, Inc.
WJAZ	5000	Chicago, Ill.	Zenith Radio Corp.
WORD	5000	Batavia, Ill.	People's Pulpit Association
WSOA	5000	Chicago, Ill.	Radiophone Brdcstg. Corp.

1490 kilocycles 201.2 meters

KPWF	50000	Westminster, Cal.	Pacific Western Brdcstg. Fed.
WBAW	5000	Nashville, Tenn.	Waldrum Drug Co.
WLAC	5000	Nashville, Tenn.	Life & Casualty Insurance Co.
WFBL	1000	Syracuse, N. Y.	The Onondaga Co.

1500 kilocycles 199.9 meters

KDB	100	Santa Barbara, Cal.	Santa Barbara Brdcstg. Co.
KGDR	15	San Antonio, Texas	KGDR Brdcstg. Co.
KGFI	100	Corpus Christi, Texas	Eagle Brdcstg. Co., Inc.
KGKB	100	Brownwood, Texas	Eagle Publishing Co.
KGHI	100	Little Rock, Ark.	Berean Bible Class
KGHX	50	Richmond, Texas	Ft. Bend County School Board
KPJM	100	Prescott, Ariz.	Miller & Klahn
KUJ	10	Longview, Wash.	Columbia Valley Brdcstg. Co.
KWBS	15	Portland, Ore.	Schaeffer Radio Co.
KWTC	100	Santa Ana, Cal.	Pacific Broadcasting Foundation
WAFD	100	Detroit, Mich.	Albert B. Parfet Co.
WCLB	100	Brooklyn, N. Y.	Arthur Faske
WHBW	100	Philadelphia, Pa.	D. R. Kienzle
WKBV	100	Brookville, Ind.	Knox Battery & Electric Co.
WKBZ	50	Ludington, Mich.	K. L. Ashbacker
WLBX	100	Long Island City, N. Y.	John N. Brahy
WLOE	100	Chelsea, Mass.	Boston Brdcstg. Co.
WMBA	100	Newport, R. I.	LeRoy Joseph Beebe
WMBJ	100	Pittsburgh, Pa.	Rev. John W. Sproul
WMBQ	100	Brooklyn, N. Y.	Paul J. Gollhofer
WMES	50	Boston, Mass.	Mass. Educational Society
WMPC	100	Lapeer, Mich.	First M. E. Church
WNBF	50	Binghamton, N. Y.	Howitt-Wood Radio Co.
WNBQ	15	Rochester, N. Y.	Brown Radio Service
WPSW	50	Philadelphia, Pa.	Wm. Penn Broadcasting Co.
WRBJ	10	Hattiesburg, Miss.	Woodruff Furniture Co.
WWRL	100	Woodside, N. Y.	Long Island Brdcstg. Corp.

KCYS. **1500** MTRS. **199.9** DIAL

INDEX BY LOCATIONS WITH MAP KEY

ALABAMA			
Birmingham K-19-a	5000	WAPI	1140
	100	WBRC	930
	10	WKBC	1310
Gadsden K-20-a	50	WJBY	1210
ALASKA			
Anchorage	100	KFQD	1230
Juneau	10	KFIU	1310
Ketchikan	500	KGBU	900
ARIZONA			
Flagstaff J-7	100	KFXY	1420
Phoenix K-7	500	KFAD	620
	500	KOY	1390
Prescott J-6	100	KPJM	1500
Tucson L-7	100	KGAR	1370
	500	KVOA	1260
ARKANSAS			
Blytheville I-18	50	KLCN	1290
Fayetteville I-16	1000	KUOA	1390
Hot Springs J-16	10000	KTHS	1040
Little Rock J-17	100	KGHI	1500
	250	KGJF	890
	1000	KLRA	1390
McGehee K-17	50	KGHG	1310
Siloam Springs I-16	50	KFPW	1340
CALIFORNIA			
Berkeley H-1-a	100	KRE	1370
Burbank J-4	500	KELW	780
Culver City K-3	250	KFVD	710
El Centro K-5	100	KXO	1200
Fresno I-3	100	KMJ	1200
Glendale K-3	250	KGFH	1000
Hayward H-2	100	KZM	1370
Hollywood K-3	250	KFQZ	850
	1000	KMTR	570
Holy City I-2	100	KFQU	1420
Inglewood K-4	500	KMIC	1120
Long Beach K-4-a	1000	KFOX	1250
	100	KGER	1370
Los Angeles K-3-b	500	KEJK	1170
	5000	KFI	640
	500	KFSG	1120
	1000	KFWB	950
	1000	KGEF	1300
	100	KGFJ	1420
	1000	KHJ	900
	5000	KNX	1050
	1000	KPLA	570
	500	KTM	780
Oakland H-1-b	750	KTBI	1300
	500	KFWM	930
	7500	KGO	790
	250	KLS	1440
	500	KLX	880
	500	KTAB	550
Pasadena J-4	50	KPPC	1200
	1000	KPSN	950
Pomona	100	KFWC	1200
Sacramento H-2-a	100	KFBK	1310
San Diego K-4-b	500	KFSD	600
	250	KGB	1360
San Francisco H-1-c	1000	KFRC	610
	500	KFWI	930
	50	KGGC	1420
	100	KJBS	1070
	5000	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
Stockton H-2-b	50	KGDM	1100
	100	KWG	1200
Westminster	50000	KPWF	1490
COLORADO			
Colo. Springs H-10	1000	KFUM	1270
Denver G-10-b	250	KFEL	940
	100	KFUP	1310
	250	KFXF	940
	1000	KLZ	560
	12500	KOA	830
	500	KPOF	880
Edgewater G-10	50	KFXJ	1310
Fort Morgan G-11	100	KGEW	1200
Greeley F-10	500	KFKA	880
Gunnison H-9	50	KFHA	1200
Pueblo H-11	250	KGHF	1320
Trinidad H-10	100	KGIW	1420
Yuma G-11	50	KGEK	1200
CONNECTICUT			
Bridgeport F-26	500	WICC	1190
Hartford E-26-d	5000	WTIC	1060
Mansfield E-27-1	250	WCAC	600
New Haven F-26-b	500	WDRC	1330
DELAWARE			
Wilmington G-25	250	WDEL	1120
	100	WILM	1420
DISTRICT OF COLUMBIA			
Washington G-24-c	250	WMAL	630
	500	WRC	950
	10000	WJSV	1460
	100	WOL	1310
FLORIDA			
Clearwater N-21	1000	WFLA	900
Gainesville M-21	5000	WRUF	1470
Jacksonville M-22	1000	WJAX	1260
Lakeland N-22	100	WMBL	1310
Miami O-23	1000	WQAM	1240
Miami Beach O-23	1000	WIOD	560
	500	WMBF	560
Orlando N-22	1000	WDBO	620
Pensacola L-19	500	WCOA	1120
Sarasota N-22	250	WSIS	1010
St. Petersburg N-21	1000	WSUN	900
Tampa N-22-b	1000	WDAE	620
	100	WMBR	1210
GEORGIA			
Atlanta K-20-a	250	WGST	890
	10000	WSB	740
Columbus K-20	50	WRBL	1200
Macon K-21	250	WMAZ	890
Toccoa J-21	250	WTFI	1450
HAWAII			
Honolulu	250	KGHB	1320
	500	KGU	940
IDAHO			
Boise D-4	1000	KIDO	1250
Idaho Falls D-7	250	KID	1320
Jerome E-5	50	KFXD	1420
Pocatello E-7	250	KSEI	900
Sand Point	15	KGKX	1420
Twin Falls E-5	250	KGIQ	1320

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
	5000	WBCN	870
	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
	10000	WJBT	780
	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	100	WEBQ	1210
Joliet E-19-f	100	WCLS	1310
	100	WKBB	1310
La Salle F-18-d	100	WJBC	1200
Mooseheart E-18-e	20000	WJJD	1130
Peoria Heights G-18	500	WMBD	1440
Quincy G-17	500	WTAD	1440
Rockford E-18-c	500	KFLV	1410
Rock Island F-17-c	100	WHBF	1210
Springfield G-18	100	WCBS	1210
Streator F-18-e	50	WTAX	1210
Tuscola G-19-b	100	WDZ	1070
Urbana G-19-a	250	WILL	890
Zion E-19-c	5000	WCBD	1080

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	WWAE	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	KFNF	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	WJBW	1200
	500	WSMB	1320
	5000	WWL	850
Shreveport K-16	50	KRMD	1310
	1000	KTBS	1450
	100	KTSL	1310
	100	KWEA	1210
	5000	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	1000	WBIS	1230
	500	WBZA	990
	1000	WEEI	590
	50	WMES	1500
	1000	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
New Bedford E-27-g	100	WNBH	1310
S. Dartmouth E-27	500	WMAF	1360
Springfield E-26-b	15000	WBZ	990
Webster E-27-d	100	WKBE	1200
Wellesley Hills E-27	250	WBSO	780
Worcester E-27-b	250	WTAG	580

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

Detroit E-21-g	100	WAFD	1500
	750	WGHP	1240
	5000	WJR	750
	100	WMBC	1420
	1000	WWJ	920
East Lansing E-20-b	1000	WKAR	1040
Flint E-21-a	100	WFDF	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
	1000	WDGY	1180
	1000	WGMS	1250
	500	WHDI	1180
	1000	WLB	1250
	1000	WRHM	1250
Northfield D-16	1000	KFMX	1250
	1000	WCAL	1250
St. Paul C-16-c	10000	KSTP	1460
	15000	WCCO	810
	1000	WGMS	1250

MISSISSIPPI

Columbus K-18	500	WCOC	880
Greenville K-17	100	WRBQ	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	1000	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	WOQ	610
Kirksville F-16-c	15	KFKZ	1200
St. Joseph G-15	2500	KFEQ	560
	100	KGBX	1370
St. Louis H-18-a	5000	KFQA	1090
	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	100	KGCX	1310

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	1000	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

Las Vegas	100	KGIX	1420
Reno G-3	100	KOH	1370

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
Elizabeth F-26-h	250	WIBS	1450
Fort Lee F-26	250	WBMS	1450
Jersey City F-26-d	300	WAAT	1070
	250	WKBO	1450
Newark F-25-h	1000	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

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	WINR	1210
Binghamton E-25	50	WNBF	1500
Brooklyn F-26-f	500	WBBC	1400
	250	WCDA	1350
	100	WCLB	1500
	500	WLTH	1400
	100	WMBQ	1500
	500	WSGH	1400
Buffalo E-23-a	100	WEBR	1310
	1000	WGR	550
	5000	WKBW	1470
	1000	WKEN	1040
	750	WMAK	900
	50	WSVS	1370
Canton D-25	500	WCAD	1220
Cazenovia E-25-b	250	WMAC	570
Coney Island F-26	500	WCGU	1400
Freeport F-26-i	100	WGBB	1210
Ithaca E-24-d	500	WEAI	1270
	50	WLCI	1210
Jamaica F-26-f	10	WMRJ	1420
Jamestown E-23-b	25	WOCL	1210
Long Island City F-26	100	WLBX	1500

New York City F-26	5000	WABC	850
	250	WBNY	1350
	5000	WBOQ	860
	50000	WEAF	660
	500	WEVD	1300
	500	WGBS	1180
	1000	WHAP	1300
	250	WHN	1010
	10	WHPP	1420
	30000	WJZ	760
	250	WKBQ	1350
	5000	WLWL	1100
	500	WMCA	570
	250	WMSG	1350
	500	WNYC	570
	1000	WOV	1130
	250	WPAP	1010
	500	WPCH	810
	250	WQAO	1010
	250	WRNY	1010
Patchogue	30	WPOE	1420
Poughkeepsie F-26-a	500	WOKO	1440
Rochester E-24-b	500	WABO	1440
	5000	WHAM	1150
	500	WHEC	1440
	15	WNBQ	1500
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
Woodside F-26	100	WWRL	1500
Yonkers E-26	100	WCOH	1210

NORTH CAROLINA

Asheville J-21	1000	WWNC	570
Charlotte J-22	5000	WBT	1080
Gastonia J-22	100	WRBU	1210
Greensboro I-22	250	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	KFJM	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
	500	WSAI	1330
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
Dayton G-21-e	200	WSMK	570
Hamilton G-20-d	100	WRK	1310
Mansfield F-21	100	WLBV	1210
Middletown G-20	100	WSRO	1420
Springfield G-21-c	500	WCSO	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	250	KOCW	1400
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	100	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
	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
	500	WHP	1430
	100	WPRC	1200
Johnstown F-23-d	100	WHBP	1310
Lancaster G-25-a	15	WGAL	1310
	100	WKJC	1200
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	WFAN	610
	500	WFI	560
	50	WFKD	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	KQV	1380
	500	WCAE	1220
	1000	WJAS	1290
	100	WMBJ	1500
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

PORTO RICO

San Juan	500	WKAQ	890

RHODE ISLAND

Cranston F-27-a	100	WDWF	1210
	100	WLSI	1210
Newport F-27	100	WMBA	1500
Pawtucket E-27	100	WPAW	1210
Providence E-27-h	250	WEAN	550
	250	WJAR	890

SOUTH CAROLINA

Charlestown K-23	75	WBBY	1200

SOUTH DAKOTA

Brookings D-14	1000	KFDY	550
Deli Rapids D-14	50	KGDA	1370
Oldham D-14	15	KGDY	1200
Pierre D-12	200	KGFX	580
Rapid City D-11	100	WCAT	1200
Sioux Falls D-14	2000	KSOO	1150
Vermillion E-14-b	500	KUSD	890
Watertown	100	KGCR	1210
Yankton E-14-a	1000	WNAX	570

TENNESSEE

Chattanooga J-20	1000	WDOD	1280
Knoxville I-20	50	WFBC	1200
	50	WNBJ	1310
	1000	WNOX	560
Lawrenceburg J-19	500	WOAN	600
Memphis J-18-a	500	WGBC	1430
	100	WHBQ	1370
	500	WMC	780
	500	WNBR	1430
	500	WREC	600
Nashville I-19	5000	WBAW	1490
	5000	WLAC	1490
	5000	WSM	650
Springfield I-19	100	WSIX	1210
Union City I-18	100	WOBT	1310

TEXAS

Amarillo J-12	1000	KGRS	1410
	250	WDAG	1410
Austin L-14-b	500	KUT	1120
Beaumont M-16	500	KFDM	560
Breckenridge K-13	100	KFYO	1420
Brownsville O-14-b	500	KWWG	1260
Brownwood L-13	100	KGKB	1500
College Sta. M-13	500	WTAW	1120
Corpus Christi	100	KGFI	1500
Dallas L-15-a	10000	KRLD	1040
	5000	WFAA	800
	500	WRR	1280
Dublin K-14	15	KFPL	1310
El Paso L-10	100	WDAH	1310
Fort Worth L-14-a	100	KFJZ	1370
	1000	KTAT	1240
	50000	WBAP	800
Galveston M-15-b	100	KFLX	1370
	500	KFUL	1290
Greenville K-15	15	KFPM	1310
Harlingen O-14	500	KRGV	1260
Houston M-15-a	1000	KPRC	920
	100	KTUE	1420
Richmond M-15	50	KGHX	1500
San Angelo M-12	100	KGKL	1370
San Antonio M-14-a	100	KGCI	1370
	15	KGDR	1500
	100	KGRC	1370
	100	KTAP	1420
	1000	KTSA	1290
	5000	WOAI	1190
Waco L-15-b	1000	WJAD	1240
Wichita Falls K-14	250	KGKO	570

UTAH

Ogden F-7-b	100	KLO	1370
Salt Lake City F-7-c	1000	KDYL	1290
	5000	KSL	1130

VERMONT

Burlington D-26-a	100	WCAX	1200
Springfield D-26-b	10	WNBX	1200

VIRGINIA

Arlington G-24-d	1000	NAA	690
Ettrick	100	WLBG	1200
Newport News	100	WGH	1310
Norfolk I-24	100	WBBW	1200
	500	WPOR	780
	500	WTAR	780
Richmond H-24	100	WBBL	1370
	100	WMBG	1210
	1000	WRVA	1110
	15	WTAZ	1210
Roanoke H-23	250	WDBJ	930

WASHINGTON

Aberdeen B-1	75	KXRO	1420
Bellingham A-1	100	KVOS	1200
Everett A-2	50	KFBL	1370
Lacey B-2-b	10	KGY	1200
Longview B-1	10	KUJ	1500
Pullman B-4	500	KWSC	1390
Seattle B-2-a	100	KFQW	1420
	5000	KJR	970
	15	KKP	1370
	1000	KOL	1270
	1000	KOMO	920
	50	KPCB	1210
	100	KPQ	1210
	50	KRSC	1120
	1000	KTW	1270
	100	KVL	1370
	500	KXA	570
Spokane A-4	100	KFIO	1230
	500	KFPY	1340
	5000	KGA	1470
	1000	KHQ	590
Tacoma B-1-a	500	KMO	1340
	1000	KVI	760
Yakima	50	KIT	1370

WEST VIRGINIA

Bluefield	100	WHIS	1420
Charleston H-22	250	WOBU	580
Fairmont G-23	250	WMMN	890
Huntington G-22	250	WSAZ	580
Weirton G-22	60	WQBZ	1420
Wheeling G-22	5000	WWVA	1160

WISCONSIN

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	940
	100	WIBA	1210
Manitowoc D-19	100	WOMT	1210

INDEX BY LOCATIONS WITH MAP KEY

Milwaukee E-19-a	250	WHAD	1120
	250	WISN	1120
	1000	WTMJ	620
Poynette D-18-e	100	WIBU	1310
Racine E-19	100	WRJN	1370
Sheboygan C-18	500	WHBL	1410
Stevens Pt. D-18-b	2000	WLBL	900
Superior B-17	1000	WEBC	1280
West De Pere D-19	100	WHBY	1200
WYOMING			
Laramie F-10	500	KWYO	600
CANADA			
ALBERTA			
Calgary	500	CFAC	690
	1800	CFCN	690
	250	CHCA	690
	250	CJCJ	690
	500	CNRC	690
Edmonton	250	CHMA	580
	500	CJCA	580
	500	CKUA	580
	500	CNRE	580
Lethbridge	50	CJOC	1120
Red Deer	1000	CHCT	840
	1000	CKLC	840
BRITISH COLUMBIA			
Chilliwack	5	CHWK	1210
Kamloops	15	CFJC	1120
Sea Island	50	CJOR	1030
Vancouver	50	CHLS	730
	50	CKCD	730
	50	CKFC	730
	50	CKMO	730
	100	CKWX	730
	500	CNRV	1030
Victoria	500	CFCT	630
MANITOBA			
Brandon	500	CKX	540
Winnipeg	5000	CKY	780
	5000	CNRW	780
NEW BRUNSWICK			
Fredericton	50	CFNB	1210
Moncton	500	CNRA	630
St. John	50	CFBO	890
NOVA SCOTIA			
Halifax	500	CHNS	930
Sydney	50	CJCB	880
Wolfville	50	CKIC	930
ONTARIO			
Bowmanville	5000	CKGW	960
Brantford	50	CKCR	1010
Chatham	25	CFCO	1210
Cobalt	15	CKMC	1210
Hamilton	10	CHCS	880
	50	CHML	880
	50	CKOC	880
Iroquois Falls	250	CFCH	600
King Twp.	1000	CFRB	960
Kingston	500	CFRC	1120
London	500	CJGC	910
Midland	50	CKPR	1120
Ottawa	100	CKCO	690
	500	CNRO	690
Prescott	50	CFLC	1010
Preston	25	CKPC	1210
Toronto	500	CFCA	840
	500	CFCL	580
	500	CHNC	580
	500	CJBC	580
	1000	CJBC	840
	5000	CJBC	960
	500	CJSC	580
	500	CKCL	580
	500	CKNC	580
	500	CKOW	840
	500	CNRT	840
PRINCE EDWARD ISLAND			
Charlottetown	100	CFCY	960
	30	CHCK	960
Summerside	25	CHGS	1120
QUEBEC			
Montreal	1650	CFCF	1030
	500	CHYC	730
	1200	CKAC	730
	1650	CNRM	730
Quebec	25	CHRC	600
	22	CKCI	600
	50	CKCV	600
	50	CNRQ	600
St. Hyacinthe	50	CKSH	1010
SASKATCHEWAN			
Fleming	500	CJRW	600
Moose Jaw	500	CJRM	600
Regina	500	CHWC	960
	500	CJBR	960
	500	CKCK	960
	500	CNRR	960
Saskatoon	500	CFQC	910
	250	CJHS	910
	500	CNRS	910
Yorkton	500	CJGX	630
HAITI			
Port au Prince	1000	HHK	830
MEXICO			
Chihuahua	250	XFF	920
C. Lerdo, Dgo.	250	XES	1200
Guadalajara, Jal.	101	XEA	1200
Jalapa, Ver.	350	XFC	630
Merida, Yucatan	105	XEY	550
Mexico City	1000	XEB	670
	1000	XEN	730
	500	XEX	920
	50	XFA	540
	2000	XFG	640
	1000	XFI	590
	500	XFX	840
Monterrey, N. L.	101	XEH	970
Morelia, Mich.	101	XEI	1000
Oaxaca, Oax.	105	XEF	1130
Puebla, Pue.	101	XEE	960
CUBA			
Cienfuegos	200	6BY	1150
Elia	500	7SR	860
Havana	500	CMC	840
	15	2BB	1200
	50	2LR	1280
	20	2MG	1050
	100	2OK	860
	100	2OL	1170
	20	2RK	950
	20	2TW	1110
	10	2UF	1090
Tuinucu	1500	6KW	790

CFAC 690
Calgary, Alta.
CFBO 890
St. John, N. B.
CFCA 840
Toronto, Ont.
CFCF 1030
Montreal, Que.
CFCH 600
Iroquois Falls, Ont.
CFCN 690
Calgary, Alta.
CFCO 1210
Chatham, Ont.
CFCT 630
Victoria, B. C.
CFCY 960
Charlottet'n, P.E.I.
CFJC 1120
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CFLC 1010
Prescott, Ont.
CFNB 1210
Fredericton, N. B.
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CHWC 960
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CJHS 910
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CKCL 580
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Preston, Ont.
CKPR 1120
Midland, Ont.
CKSH 1010
St. Hyacinthe, Que.
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CKX 540
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CKY 780
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CNRO 690
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CNRQ 600
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CNRR 960
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CNRS 910
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KDB 1500
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KDKA 980
Pittsburgh, Pa.
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KDYL 1290
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KFAD 620
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KFBB 1360
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KFJM 1370
Grand Forks, N.D.
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KFJZ 1370
Ft. Worth, Texas
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Greeley, Colo.
KFKB 1050
Milford, Kansas
KFKU 1220
Lawrence, Kans.

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Kirksville, Mo.
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Galveston, Texas
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KFNF 890
Shenandoah, Iowa
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Lincoln, Nebr.
KFOX 1250
Long Beach, Cal.
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Dublin, Texas
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Greenville, Texas
KFPW 1340
Siloam Spgs., Ark.
KFPY 1340
Spokane, Wash.
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Holy City, Cal.
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Seattle, Wash.
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Hollywood, Cal.
KFRC 610
San Francisco, Cal.
KFRU 630
Columbia, Mo.
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San Diego, Cal.
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Galveston, Texas
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Col. Spgs., Colo.
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Culver City, Cal.
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KGBX 1370
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KGBZ 930
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KGCA 1270
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KGCI 1370
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KGCN 1420
Concordia, Kans.
KGCR 1210
Watertown, S. D.
KGCU 1200
Mandan, N. D.
KGCX 1310
Vida, Mont.
KGDA 1370
Dell Rapids, S. D.
KGDE 1200
Fergus Falls, Minn.
KGDM 1100
Stockton, Cal.
KGDR 1500
San Antonio, Texas
KGDY 1200
Oldham, S. D.
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Los Angeles, Cal.
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Yuma, Colo.
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Long Beach, Cal.
KGEW 1200
Fort Morgan, Colo
KGEZ 1310
Kalispell, Mont.
KGFF 1420
Alva, Okla.
KGFG 1370
Oklahoma City
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Glendale, Cal.
KGFI 1500
Corpus Christi,Tex.
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Hallock, Minn.
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Raton, N. M.
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KGFX 580
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KGGC 1420
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KGGF 1010
Picher, Okla.
KGGM 1370
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KGHB 1320
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KGHD 1420
Missoula, Mont.
KGHF 1320
Pueblo, Colo.

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McGehee, Ark.
KGHI 1500
Little Rock, Ark.
KGHL 950
Billings, Mont.
KGHX 1500
Richmond, Texas
KGIQ 1320
Twin Falls, Ida.
KGIR 1360
Butte, Mont.
KGIW 1420
Trinidad, Colo.
KGIX 1420
Las Vegas, Nev.
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
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KGRS 1410
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KGU 940
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KGW 620
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KGY 1200
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KHJ 900
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KHQ 590
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KICK 1420
Red Oak, Iowa
KID 1320
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KIDO 1250
Boise, Idaho
KIT 1370
Yakima, Wash.
KJBS 1070
San Francisco, Cal.
KJR 970
Seattle, Wash.
KKP 1370
Seattle, Wash.
KLCN 1290
Blytheville, Ark.
KLO 1370
Ogden, Utah
KLRA 1390
Little Rock, Ark.
KLS 1440
Oakland, Cal.
KLX 880
Oakland, Cal.
KLZ 560
Denver, Colo.
KMA 930
Shenandoah, Iowa
KMBC 950
Independence, Mo.
KMED 1310
Medford, Ore.
KMIC 1120
Inglewood, Cal.

KMJ 1200
Fresno, Cal.
KMMJ 740
Clay Center, Nebr.
KMO 1340
Tacoma, Wash.
KMOX 1090
St. Louis, Mo.
KMTR 570
Hollywood, Cal.
KNX 1050
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Denver, Colo.
KOAC 560
Corvallis, Ore.
KOB 1180
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Chickasha, Okla.
KOH 1370
Reno, Nevada
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KOIN 940
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KOL 1270
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KOMO 920
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KOOS 1370
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KORE 1420
Eugene, Ore.
KOY 1390
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KPCB 1210
Seattle, Wash.
KPJM 1500
Prescott, Ariz.
KPLA 570
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KPO 680
San Francisco, Cal.
KPOF 880
Denver, Colo.
KPPC 1200
Pasadena, Cal.
KPQ 1210
Seattle, Wash.
KPRC 920
Houston, Texas
KPSN 950
Pasadena, Cal.
KQV 1380
Pittsburgh, Pa.
KQW 1010
San Jose, Cal.
KPWF 1490
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KRE 1370
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KRGV 1260
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KSMR 1200
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KSO 1380
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KTAP 1420
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KTBI 1300
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KTBR 1300
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KTBS 1450
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KTHS 1040
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Los Angeles, Cal.
KTNT 1170
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KTSA 1290
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KTSL 1310
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KTUE 1420
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KTW 1270
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KUJ 1500
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KUOA 1390
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KUOM 570
Missoula, Mont.
KUSD 890
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KVL 1370
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KVOA 1260
Tuscon, Arizona
KVOO 1140
Tulsa, Okla.
KVOS 1200
Bellingham, Wash.
KWBS 1500
Portland, Ore.
KWCR 1310
Cedar Rapids, Ia.
KWEA 1210
Shreveport, La.
KWG 1200
Stockton, Cal.
KWJJ 1060
Portland, Ore.
KWK 1350
St. Louis, Mo.
KWKC 1370
Kansas City, Mo.
KWKH 850
Shreveport, La.

KWLC 1270
Decorah, Iowa
KWSC 1390
Pullman, Wash.
KWTC 1500
Santa Ana, Cal.
KWWG 1260
Brownsville, Texas
KWYO 600
Laramie, Wyo.
KXA 570
Seattle, Wash.
KXL 1250
Portland, Ore.
KXO 1200
El Centro, Cal.
KXRO 1420
Aberdeen, Wash.
KYA 1230
San Francisco, Cal.
KYW 1020
Chicago, Ill.
KYWA 1020
Chicago, Ill.
KZM 1370
Hayward, Cal.
NAA 690
Arlington, Va.
WAAD 1420
Cincinnati, Ohio
WAAF 920
Chicago, Ill.
WAAM 1250
Newark, N. J.
WAAT 1070
Jersey City, N. J.
WAAW 660
Omaha, Nebr.
WABC 860
New York City
WABI 1200
Bangor, Maine
WABO 1440
Rochester, N. Y.
WABZ 1200
New Orleans, La.
WADC 1320
Akron, Ohio
WAFD 1500
Detroit, Mich.
WAGM 1310
Royal Oak, Mich.
WAIU 640
Columbus, Ohio
WAPI 1140
Birmingham, Ala.
WASH 1270
Gr. Rapids, Mich.
WBAA 1400
Lafayette, Ind.
WBAK 1430
Harrisburg, Pa.
WBAL 1060
Baltimore, Md.
WBAP 800
Fort Worth, Texas
WBAW 1490
Nashville, Tenn.
WBAX 1210
Wilkes-Barre, Pa.
WBBC 1400
Brooklyn, N. Y.
WBBL 1370
Richmond, Va.
WBBM 770
Chicago, Ill.

WBCM 1410
Bay City, Mich.
WBCN 870
Chicago, Ill.
WBBR 1300
Rossville, N. Y.
WBBW 1200
Norfolk, Va.
WBBY 1200
Charleston, S. C.
WBBZ 1200
Ponca City, Okla.
WBIS 1230
Boston, Mass.
WBMS 1450
Fort Lee, N. J.
WBNY 1350
New York City
WBOQ 860
New York City
WBOW 1310
Terre Haute, Ind.
WBRC 930
Birmingham, Ala.
WBRE 1310
Wilkes-Barre, Pa.
WBRL 1430
Manchester, N. H.
WBSO 780
Wellesley H'ls, Mass.
WBT 1080
Charlotte, N. C.
WBZ 990
Springfield, Mass.
WBZA 990
Boston, Mass.
WCAC 600
Storrs, Conn.
WCAD 1220
Canton, N. Y.
WCAE 1220
Pittsburgh, Pa.
WCAH 1430
Columbus, Ohio
WCAJ 590
Lincoln, Nebr.
WCAL 1250
Northfield, Minn.
WCAM 1280
Camden, N. J.
WCAO 600
Baltimore, Md.
WCAP 1280
Asbury Park, N. J.
WCAT 1200
Rapid City, S. D.
WCAU 1170
Philadelphia, Pa.
WCAX 1200
Burlington, Vt.
WCAZ 1070
Carthage, Ill.
WCBA 1440
Allentown, Pa.
WCBD 1080
Zion, Ill.
WCBM 1370
Baltimore, Md.
WCBS 1210
Springfield, Ill.
WCCO 810
Minneap.-St. Paul
WCDA 1350
New York City
WCFL 970
Chicago, Ill.

WCGU 1400
Coney Island, N. Y.
WCKY 1480
Covington, Ky.
WCLB 1500
Brooklyn, N. Y.
WCLO 1200
Kenosha, Wis.
WCLS 1310
Joliet, Ill.
WCMA 1400
Culver, Ind.
WCOA 1120
Pensacola, Fla.
WCOC 880
Columbus, Miss.
WCOH 1210
Yonkers, N. Y.
WCRW 1210
Chicago, Ill.
WCSH 940
Portland, Maine
WCSO 1380
Springfield, Ohio
WDAE 620
Tampa, Fla.
WDAF 610
Kansas City, Mo.
WDAG 1410
Amarillo, Texas
WDAH 1310
El Paso, Texas
WDAY 1280
Fargo, N. D.
WDBJ 930
Roanoke, Va.
WDBO 620
Orlando, Fla.
WDEL 1120
Wilmington, Del.
WDGY 1180
Minneapolis, Minn.
WDOD 1280
Chattanooga, Tenn.
WDRC 1330
New Haven, Conn.
WDSU 1270
New Orleans, La.
WDWF 1210
Cranston, R. I.
WDZ 1070
Tuscola, Ill.
WEAF 660
New York City
WEAI 1270
Ithaca, N. Y.
WEAN 550
Providence, R. I.
WEAO 550
Columbus, Ohio
WEAR 1070
Cleveland, Ohio
WEBC 1280
Superior, Wis.
WEBE 1210
Cambridge, Ohio
WEBQ 1210
Harrisburg, Ill.
WEBR 1310
Buffalo, N. Y.
WEBW 600
Beloit, Wis.
WEDC 1210
Chicago, Ill.

WEDH 1420
Erie, Pa.
WEEI 590
Boston, Mass.
WEHS 1310
Evanston, Ill.
WELK 1370
Philadelphia, Pa.
WEMC 590
Berrien Spgs., Mich.
WENR 870
Chicago, Ill.
WEPS 1200
Gloucester, Mass.
WEVD 1300
New York City
WEW 760
St. Louis, Mo.
WFAA 800
Dallas, Texas
WFAN 610
Philadelphia, Pa.
WFBC 1200
Knoxville, Tenn.
WFBE 1200
Cincinnati, Ohio
WFBG 1310
Altoona, Pa.
WFBJ 1370
Collegeville, Minn.
WFBL 900-1490
Syracuse, N. Y.
WFBM 1230
Indianapolis, Ind.
WFBR 1270
Baltimore, Md.
WFDF 1310
Flint, Mich.
WFI 560
Philadelphia, Pa.
WFIW 940
Hopkinsville, Ky.
WFJC 1450
Akron, Ohio
WFKD 1310
Philadelphia, Pa.
WFLA 900
Clearwater, Fla.
WGAL 1310
Lancaster, Pa.
WGBB 1210
Freeport, N. Y.
WGBC 1430
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 940
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.
WHBW 1500
Philadelphia, Pa.
WHBY 1200
West De Pere, Wis.
WHDF 1370
Calumet, Mich.
WHDH 830
Gloucester, Mass.
WHDI 1180
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
WHP 1430
Harrisburg, Pa.
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.
WICC 1190
Bridgeport, Conn.
WIL 1200
St. Louis, Mo.
WILL 890
Urbana, Ill.
WILM 1420
Wilmington, Del.
WINR 1210
Bay Shore, N. Y.
WIOD 560
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.
WJBT 770
Chicago, Ill.
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.
WKBQ 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.
WLBC 1310
Muncie, Ind.
WLBF 1420
Kansas City, Mo.
WLBG 1200
Ettrick, Va.
WLBL 900
Stevens Point, Wis.
WLBO 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
Ithaca, N. Y.
WLEX 1360
Lexington, Mass.
WLEY 1420
Lexington, Mass.
WLIB 720
Chicago, Ill.
WLIT 560
Philadelphia, Pa.
WLOE 1500
Chelsea, Mass.
WLS 870
Chicago, Ill.
WLSI 1210
Cranston, R. I.
WLTH 1400
Brooklyn, N. Y.

WLW 700 Cincinnati, Ohio
WLWL 1100 New York City
WMAC 570 Cazenovia, N. Y.
WMAF 1360 S. Dartm'th, Mass.
WMAK 900 Buffalo, N. Y.
WMAL 630 Washington, D. C.
WMAN 1210 Columbus, Ohio
WMAQ 670 Chicago, Ill.
WMAY 1200 St. Louis, Mo.
WMAZ 890 Macon, Ga.
WMBA 1500 Newport, R. I.
WMBC 1420 Detroit, Mich.
WMBD 1440 Peoria Heights, Ill.
WMBF 560 Miami Beach, Fla.
WMBG 1210 Richmond, Va.
WMBH 1420 Joplin, Mo.
WMBI 1080 Chicago, Ill.
WMBJ 1500 Pittsburgh, Pa.
WMBL 1310 Lakeland, Fla.
WMBO 1370 Auburn, N. Y.
WMBQ 1500 Brooklyn, N. Y.
WMBR 1210 Tampa, Fla.
WMC 780 Memphis, Tenn.
WMCA 570 New York City
WMES 1500 Boston, Mass.
WMMN 890 Fairmont, W. Va.
WMPC 1500 Lapeer, Mich.
WMRJ 1420 Jamaica, N. Y.
WMSG 1350 New York City
WMT 1200 Waterloo, Iowa
WNAC 1230 Boston, Mass.
WNAD 1010 Norman, Okla.
WNAT 1310 Philadelphia, Pa.
WNAX 570 Yankton, S. D.
WNBF 1500 Binghamton, N. Y.
WNBH 1310 New Bedford, Mass.
WNBJ 1310 Knoxville, Tenn.
WNBO 1200 Washington, Pa.
WNBQ 1500 Rochester, N. Y.
WNBR 1430 Memphis, Tenn.
WNBW 1200 Carbondale, Pa.
WNBX 1200 Springfield, Vt.
WNBZ 1290 Saranac Lake, N. Y.
WNJ 1450 Newark, N. J.
WNOX 560 Knoxville, Tenn.
WNRC 1440 Greensboro, N. C.
WNYC 570 New York City
WOAI 1190 San Antonio, Texas
WOAN 600 Lawrenceb'g, Tenn.
WOAX 1280 Trenton, N. J.
WOBT 1310 Union City, Tenn.
WOBU 580 Charleston, W. Va.
WOC 1000 Davenport, Iowa
WOCL 1210 Jamestown, N. Y.
WODA 1250 Paterson, N. J.
WOI 560 Ames, Iowa
WOKO 1440 Poughkeepsie, N. Y.
WOL 1310 Washington, D. C.
WOMT 1210 Manitowoc, Wis.
WOOD 1270 Gr. Rapids, Mich.
WOQ 610 Kansas City, Mo.
WOR 710 Newark, N. J.
WORD 1480 Batavia, Ill.
WOS 630 Jefferson City, Mo.
WOV 1130 New York City
WOW 590 Omaha, Nebr.
WOWO 1160 Fort Wayne, Ind.
WPAP 1010 New York City
WPAW 1210 Pawtucket, R. I.
WPCC 570 Chicago, Ill.
WPCH 810 New York City
WPG 1100 Atlantic City, N. J.
WPOE 1420 Patchogue, N. Y.
WPOR 780 Norfolk, Va.
WPRC 1200 Harrisburg, Pa.
WPSC 1230 State College, Pa.
WPSW 1500 Philadelphia, Pa.
WPTF 680 Raleigh, N. C.
WQAM 1240 Miami, Fla.
WQAN 880 Scranton, Pa.
WQAO 1010 New York City
WQBC 1360 Utica, Miss.
WQBZ 1420 Weirton, W. Va.
WRAF 1200 La Porte, Ind.
WRAK 1370 Erie, Pa.
WRAW 1310 Reading, Pa.
WRAX 1010 Philadelphia, Pa.
WRBC 1240 Valparaiso, Ind.
WRBJ 1500 Hattiesburg, Miss.
WRBL 1200 Columbus, Ga.
WRBQ 1210 Greenville, Miss.
WRBT 1370 Wilmington, N. C.
WRBU 1210 Gastonia, N. C.
WRC 950 Washington, D. C.
WREC 600 Memphis, Tenn.
WREN 1220 Lawrence, Kansas
WRHM 1250 Minneapolis, Minn.
WRJN 1370 Racine, Wis.
WRK 1310 Hamilton, Ohio
WRNY 1010 New York City
WRR 1280 Dallas, Texas
WRUF 1470 Gainesville, Fla.
WRVA 1110 Richmond, Va.
WSAI 1330 Cincinnati, Ohio
WSAJ 1310 Grove City, Pa.
WSAN 1440 Allentown, Pa.
WSAR 1450 Fall River, Mass.
WSAZ 580 Huntington, W. Va.
WSB 740 Atlanta, Ga.
WSBC 1210 Chicago, Ill.
WSBT 1230 South Bend, Ind.
WSDA 1400 Brooklyn, N. Y.
WSGH 1400 Brooklyn, N. Y.
WSIS 1010 Sarasota, Fla.

WSIX 1210 Springfield, Tenn.
WSM 650 Nashville, Tenn.
WSMB 1320 New Orleans, La.
WSMD 1310 Salisbury, Md.
WSMK 570 Dayton, Ohio
WSOA 1480 Chicago, Ill.
WSPD 1340 Toledo, Ohio
WSRO 1420 Middletown, Ohio
WSSH 1420 Boston, Mass.
WSUI 580 Iowa City, Iowa
WSUN 900 St. Petersburg, Fla.
WSVS 1370 Buffalo, N. Y.
WSYR 570 Syracuse, N. Y.
WTAD 1440 Quincy, Ill.
WTAG 580 Worcester, Mass.
WTAM 1070 Cleveland, Ohio
WTAQ 1330 Eau Claire, Wis.
WTAR 780 Norfolk, Va.
WTAW 1120 College Sta., Tex.
WTAX 1210 Streator, Ill.
WTAZ 1210 Richmond, Va.
WTBO 1420 Cumberland, Md.
WTFI 1450 Toccoa, Ga.
WTIC 600-1060 Hartford, Conn.
WTMJ 620 Milwaukee, Wis.
WWAE 1370 Hammond, Ind.
WWJ 920 Detroit, Mich.
WWL 850 New Orleans, La.
WWNC 570 Asheville, N. C.
WWRL 1500 Woodside, N. Y.
WWVA 1160 Wheeling, W. Va.
XEA 1200 Guadalajara, Jal.
XEB 670 Mexico City
XEE 960 Puebla, Pue.
XEF 1130 Oaxaca, Oax.
XEH 970 Monterey, N. L.
XEI 1000 Morelia, Mich.
XEN 730 Mexico City
XES 1200 C. Lerdo, Dgo.
XEX 920 Mexico City
XEY 550 Merida, Yucatan
XFA 540 Mexico City
XFC 630 Jalapa, Ver.
XFF 920 Chihuahua, Chih.
XFG 640 Mexico City
XFI 590 Mexico City
XFX 840 Mexico City
2BB 1200 Havana, Cuba
2LR 1280 Havana, Cuba
2MG 1050 Havana, Cuba
2OK 860 Havana, Cuba
2OL 1170 Havana, Cuba
2RK 950 Havana, Cuba
2TW 1110 Havana, Cuba
2UF 1090 Havana, Cuba
6BY 1150 Cienfuegos, Cuba
6KW 790 Tuinucu, Cuba
7SR 860 Elia, Cuba

Television Stations

			Kcs.
W1XAE	Springfield, Mass	Westinghouse Elec. & Mfg. Co	2000-2100
W1XAY	Lexington, Mass	Lexington Air Stations	2000-2100
W2XAL	New York City	Hotel Roosevelt	3091-9700
W2XBA	Newark, N. J	WAAM, Inc	2750-2850
W2XBS	Portable	Radio Corp. of America	2000-2100
W2XBT	Long Island City	Frank L. Carter	8195
W2XBV	Portable	Radio Corp. of America	2000-2100
W2XBW	Portable	Radio Corp. of America	2000-2100
W2XCL	New York City	Pilot Electric Mfg. Co	2000-2100 2750-2850
W2XCO	New York City	Radio Corp. of America	2100-2200
W2XCR	Jersey City, N. J	Jenkins' Television Corp	2100-2200
W2XCW	Schenectady, N. Y.	General Electric Co	2100-2200
W2XX	Ossining, N. Y.	Robert F. Gowen	2000-2100
W3XK	Washington, D. C.	Jenkins' Laboratories	2000-2100 2850-2950
W3XL	Bound Brook, N. J.	Radio Corp. of America	2850-2950
W4XA	Whitehaven, Tenn.	WREC, Inc	2400-2500
W4XE	Winter Park, Fla.	W. J. Lee	2000-2100
W6XAM	Los Angeles, Cal.	Ben S. McGlashan	2000-2100
W6XBW	Los Angeles, Cal.	P. S. Lucas	2140-4280
W6XC	Los Angeles, Cal.	Robert B. Parrish	4500-4600
W6XF	Los Angeles, Cal.	Calvin J. Smith	2700-2900
W6XN	Oakland, Cal.	General Electric Co	2000-2100
W7XAO	Portland, Ore.	Wilbur Jerman	2750-2850
W8XAV	Pittsburgh, Pa.	Westinghouse Elec. & Mfg. Co	2000-2200 2750-2850
W9XAA	Chicago, Ill.	Federation of Labor	2000-2100
W9XAG	Chicago, Ill.	Aero Products, Inc	2100-2200
W9XOA	Chicago, Ill.	Nelson Bond & Mortgage Co	2000-2100
W9XAZ	Iowa City, Iowa	University of Iowa	2000-2100

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 11:00 P.M.		5:00 P.M. to 11:00 P.M.	2:00 P.M. to* 4:00 P.M.	5:00 P.M. to 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 10:30 P.M.	5:00 P.M. to 10:30 P.M.	5:00 P.M. to 10:30 P.M.	2:00 P.M. to* 4:00 P.M. 5:00 P.M. to 10:30 P.M.	5:00 P.M. to 10:30 P.M.	5:00 P.M. to 11:00 P.M.
PCJJ Eindhoven, Holland	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 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.	68.5	8:00 P.M. to 10:30 P.M.	2:00 P.M. to* 4:00 P.M. 8:00 P.M. to 10:30 P.M.	8:00 P.M. to 10:30 P.M.	8:00 P.M. to 10:30 P.M.	2:00 P.M. to* 4:00 P.M. 8:00 P.M. to 10:30 P.M.	8:00 P.M. to 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.

QUICK INDEX TO FAVORITE FEATURES

PROGRAM	CALL	DIAL NUMBERS			DAY	HOUR

Most Astounding Value Ever Offered!

KOLSTER
ELECTRO-DYNAMIC REPRODUCER

Combined with 210 Power Amplifier and "B" Supply Unit

Model K-5

Height	42"
Width	25½"
Depth	19"

Features:

1. Electro-Dynamic Reproducer (10¼-in. dia.).
2. 210 Power Amplifier. Fine tone quality.
3. Supplies "B" voltage, if desired.
4. Can be used with any electric or battery set.
5. Complete A. C. Electric operation.
6. Beautiful pencil-striped walnut cabinet.

List Price $175.00
(without tubes)

Never Before **$49.50**

THESE Dynamic] Reproducers are Kolster built, packed in the original Kolster cases and cartons, shipped direct to us from the Kolster factory from whom we have purchased all of these Dynamic Reproducers. Every Dynamic Reproducer is brand new, each bears the Kolster guarantee tag and the original serial number.

Such opportunity as herein presented is seldom available. And they won't last long at this low price. We suggest quick action —there's quality here—at a price heretofore unknown.

THIS finely matched, rugged unit, comprises a complete heavy duty Electro-Dynamic Reproducer, including a 210 Power Amplifier with "B" supply unit, all self-contained on a steel frame. It weighs 45 pounds without the cabinet. The cabinet itself is of pencil-striped walnut, beautifully designed with Cathedra l grille. It is equipped with switch for control of house current to reproducer, power unit and amplifier. A pilot light indicates when the Reproducer is in operation.

If desired, the 210 Power Amplifier will also supply 22, 67 and 90 volts "B" current, sufficient for any set using up to 8 tubes. An automatic voltage regular tube, UX-874, maintains the "B" voltage silent and steady.

This Electro-Dynamic Reproducer can be used with any battery or A. C. set, replacing the last audio stage or be used with all tubes of the set. Wherever used, it will bring out every shading and range of tone; every note is reproduced with utmost faithfulness, pure and undistorted. It will modernize any radio receiver.

The following tubes are required for its operation: 2-UX-281 (for full-wave rectification); 1-UX-210 (for super power amplification); 1-UX-874 (for voltage regulation). For use with phonograph pick-up. one additional audio stage is recommended between the pick-up and this Reproducer.

A 20-ft. cable is included with each instrument. Operates direct from 50-60 cycle, 110-120 volt A. C. current.

Licensed under patents of RCA and Lektophone Corp.

Terms: 25% cash with order, balance C.O.D., F.O.B. New York

American Sales Co., 19-21 Warren Street, New York City

I Will Train You at Home to Fill a Big-Pay Radio Job

If you are earning a penny less than $50 a week, send for my book of information on the opportunities in Radio. It's FREE. Clip the coupon NOW. A flood of gold is pouring into Radio, creating hundreds of big pay jobs. Why go along at $25, $30 or $45 a week when the good jobs in Radio pay $50, $75 and up to $250 a week? "Rich Rewards in Radio" gives full information on these big jobs and explains how you can quickly learn Radio through my easy, practical home-study training.

Salaries of $50 to $250 a Week Not Unusual

The amazing growth of Radio has astounded the world. In a few short years three hundred thousand jobs have been created. And the biggest growth is still to come. That's why salaries of $50 to $250 a week are not unusual. Radio simply hasn't got nearly the number of thoroughly trained men it needs.

You Can Learn Quickly and Easily in Spare Time

Hundreds of N. R. I. trained men are today making big money—holding down big jobs—in the Radio field. You, too, should get into Radio. You can stay home, hold your job and learn in your spare time. Lack of high school education or Radio experience are no drawbacks.

Many Earn $15, $20, $30 Weekly On the Side While Learning

I teach you to begin making money shortly after you enroll. My new practical method makes this possible. I give you SIX BIG OUTFITS of Radio parts and teach you to build practically every type of receiving set known. M. E. Sullivan, 412 73rd St., Brooklyn, N. Y. writes: "I made $720 while studying." G. W. Page, 1807 21st Ave., S., Nashville, Tenn. "I picked up $935 in my spare time while studying."

Your Money Back If Not Satisfied

My course fits you for all lines—manufacturing, selling, servicing sets, in business for yourself, operating on board ship or in a broadcasting station—and many others. I back up my training with a signed agreement to refund every penny of your money if, after completion you are not satisfied with the lessons and instructions I give you.

Act NOW—64-Page Book Is FREE

Send for this big book of Radio information. It has put hundreds of fellows on the road to bigger pay and success. Get it. See what Radio offers you, and how my Employment Department helps you get into Radio after you graduate. Clip or tear out the coupon and mail it RIGHT NOW.

Radio Needs Trained Men!

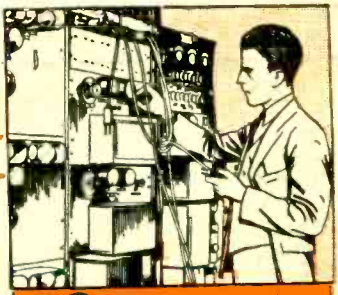
J. E. Smith, President, Dept. 9S91

National Radio Institute

Washington, D. C.

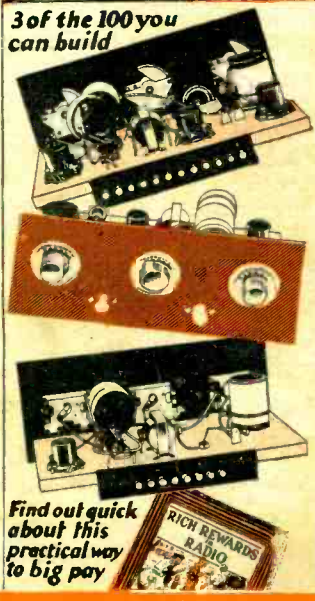
Employment Service to all Graduates

Originators of Radio Home Study Training



You can build 100 circuits with the six big outfits of Radio parts I give you

3 of the 100 you can build



Find out quick about this practical way to big pay

Mail this Coupon at Once

J. E. SMITH, President,
Dept. 9S91, National Radio Institute,
Washington, D. C.

Dear Mr. Smith: Send me your Free book "Rich Rewards in Radio," giving information on the big-money opportunities in Radio and your practical method of teaching with six Radio Outfits. I understand this places me under no obligation.

Name.....Age.....

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