

THE JANUARY 1934

RADIO IN INDEX

THE ALL-WAVE RADIO MAGAZINE



25^c

30 cents
in Canada
Including
Tax

The Proper Way to Verify Reception
Using Microphone and Phonograph
The Foreign Short Wave Stations
A Debate on Aerials and Grounds
The Beginners' Story of Radio

No. 75

JANUARY 1, 1934



RADIO INDEX

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Short Wave Editor

TENTH YEAR

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to give **WORLD-
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RECEPTION *Every Day!*

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FOR
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HARDEST-
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JANUARY DX CALENDAR

In addition to the following programs which are put on by courtesy of the stations for the benefit of distant listeners, more than 300 other stations are holding monthly frequency checks for monitoring by the Federal Radio Commission. These monthly checks appeared in the September issue by days of the week, in November by frequencies, and in December by states and cities. The following programs are arranged in order by Eastern Standard Time. Power is given in parenthesis in kilowatts. Distant readers should note that those programs which occur weekly, will probably be repeated on the same day of the week in February.

SUNDAY MORNINGS

Jan. 7-14-21-28

- 12:00-1:00—CMBW, Havana, 1140 (.6)
- CMX, Havana, 890 (1)
- XETW, Mexico City, 830 (.5)
- 12:00-1:30—WMBC, Detroit, 1420 (.1)
- 12:00-3:00—CMCD, Havana, 925 (.5)
- WGES, Chicago, 1360 (.5)
- 1:00-2:00—WCCO, Minneapolis, 810 (.50)
- WDO, Chattanooga, 1280 (1)
- WVAE, Hammond, 1200 (1)
- 1:00-2:30—XEAB, Tamaulipas, 1450 (.0075)
- 1:00-4:00—CMBD, Havana, 965 (.25)
- 2:00-3:00—CMCJ, Havana, 1185 (.5)
- WMMN, Fairmont, 890 (.25)
- 2:00-5:00—KPJM, Prescott, 1500 (.1)
- 3:00-4:00—KFXM, San Bernardino, 1210 (.1)
- KGER, Long Beach, 1360 (1)
- KIT, Yakima, 1310 (1)
- 3:00-5:00—CKOV, Kelowna, 1210 (.1)
- KVL, Seattle, 1370 (1)
- 10-AT, Trail, 1155 (.025)
- 3:00-6:00—XEOK *Tijuana, 760 (5)
- 4:00-5:00—CFCJ, Kamloops, 1120 (1)
- CMJK, Camaguey, 790 (.5)
- 4:00-6:00—XEFV, Juarez, 1400 (1)

*P. O. Box 1441, San Diego, Calif.

Jan. 7

- 12:00-3:00—WCNW, Brooklyn, 1500 (.1)
- 2:00-3:00—KFDY, Brookings, 550 (.5)
- 2:30-4:30—WNBX, Springfield, 1260 (.25)
- 3:00-4:00—KFPD, Anchorage, 600 (.25) NNRC
- 4:00-5:00—EGKO, Wichita Falls, 570 (.25) NNRC

Jan. 7-21

- 4:00-5:00—CMGF, Matanzas, 977 (1)
- 5:00-6:00—XFB, Jalapa, 1290 (1)

Jan. 7-28

- 2:00-5:00—CMCU, Havana, 1100 (.5)

Jan. 7-Feb. 4

- 2:30-4:30—10-BI, Prince Albert, 1200 (.025)

Jan. 14-21-28

- 1:00-3:30—WIBM, Jackson, 1370 (1)

Jan. 14

- 1:00-1:30—WKY, Oklahoma City, 900 (1)
- 1:00-2:00—KUSD, Vermillion, 890 (.5)
- 2:00-3:00—WOL, *Washington, 1310 (1)
- 3:00-4:00—KGKL, San Angelo, 1370 (1)
- WMAZ, Macon, 1180 (.5)
- WOS, Jefferson City, 630 (.5)
- 3:00-4:30—KFOX, Long Beach, 1250 (1)
- 3:00-5:00—KGNO, Dodge City, 1340 (.25)
- 3:30-4:30—CKWX, Vancouver, 1010 (1)
- 4:00-5:00—WBBZ, Ponca City, 1200 (1)
- WNBO, Washington, Pa. (1)

*Must enclose postage and be postmarked not later than following Monday midnight.

Jan. 21

- 1:00-1:45—WNBO, Washington, Pa. (1)
- 1:00-2:00—XEPW, Tampico, 1280 (.07)
- 1:45-2:30—WJBC, LaSalle, 1200 (1)
- 2:00-3:00—KOH, Reno, 1380 (.5)
- 2:00-4:00—WHP, Harrisburg, 1430 (.5) NNRC
- 2:30-3:15—WJBL, Decatur, 1200 (1)
- 3:00-4:00—KREG, Santa Ana, 1500 (1)
- 3:00-5:00—KMJ, Fresno, 580 (.5)
- WHAZ, Troy, 1300 (.5)

- 3:00-7:00—KGIR, Butte, 1360 (.5)
- 3:15-4:00—KGK, Yuma, Colo., 1200 (.1)
- 3:30-4:30—WHBU, *Anderson, 1210 (1)
- 4:00-4:45—WCLO, Janesville, 1200 (1)
- 4:45-5:30—WRBL, Columbus, 1200 (1)
- 5:30-6:15—WCAT, Rapid City, 1200 (1)

*Wants 5c for verification.

Jan. 28

- 2:00-3:00—CHWC, Regina, 1010 (1)
- 3:00-4:00—WJEJ, Hagerstown, 1210 (1)
- 3:00-5:00—WVAS, White Plains, 1210 (1)
- 4:00-5:00—WIBG, Glenside, 970 (1)
- 4:00-4:30—CKFC, Vancouver, 1410 (.05) TRDXC
- 4:30-5:00—CKFC, Vancouver, 1410 (.05) IDA
- 5:00-5:30—CKFC, Vancouver, 1410 (.05) NNRC

Feb. 4

- 1:00-3:00—CMCU, Havana, 965 (15)

MONDAY MORNINGS

Jan. 1-8-15-22-29

- 12:00-3:00—WGES, Chicago, 1360 (.5)
- 12:30-1:00—KSOO, Sioux Falls, 1110 (2.5)
- 2:00-3:00—KFSG, Los Angeles, 1120 (.5)
- 2:00-4:00—TIGP, San Jose, 830 (.075) IDA

Dec. 25

- 5:00-6:00—WHK, Cleveland, 1390 (1)

Dec. 25-Jan. 1

- 1:00-2:00—CMHJ, Cienfuegos, 1125 (.06)

Jan. 1

- 12:00-4:00—KOOS, Marshfield, 1370 (1)
- 1:00-2:00—XEPN, Piedras Negras, 585 (75)
- 3:00-5:00—KPCB, Seattle, 650 (1)
- 4:00-5:00—CHRC, Quebec, 930 (1)

Jan. 1-Feb. 5

- 3:45-4:00—KUJ, Walla Walla, 1370 (1)

Jan. 1-15

- 1:00-2:00—HIH, San Pedro de M., 1395 (.015)

Jan. 8

- 2:00-2:30—KWCR, Cedar Rapids, 1420 (1)
- 3:00-3:30—KSO, Des Moines, 1370 (1)
- 5:00-5:30—WIAS, Ottumwa, 1310 (1)

Jan. 15

- 3:00-4:00—WHBQ, Memphis, 1370 (1)

Jan. 22

- 4:00-5:00—WSPA, Spartanburg, 1420 (.25)

TUESDAY MORNINGS

Jan. 2-9-16-23-30

- 12:00-1:00—XEH, Monterrey, 1132 (.25)
- 1:00-1:30—WTOC, Savannah, 1260 (.5)
- 1:00-3:00—CMCW, Havana, 965 (.15)
- 1:00-4:00—WSUL, Iowa City, 880 (.5)
- 4:00-5:00—WCAH, Columbus, 1430 (.5)
- 5:00-6:00—WAWZ, Zarephath, 1350 (.25)

Jan. 2

- 1:00-2:00—CMHJ, Cienfuegos, 1125 (.06)
- 2:30-4:00—CHWK, Chilliwack, 780 (1)
- 5:00-5:30—WKFI, Greenville, 1210 (1)

Jan. 16

- 4:00-5:00—KFBB, Great Falls, 1280 (1)

(Continued on page 58)

The BEGINNERS'

STORY of RADIO

PART FOUR

Electrons, Capacity and Condensers

● ● ● By B. FRANCIS DASHIELL

UP to now our interest has been held by electric currents and the phenomenon of electromagnetic induction. We have been quite unfamiliar with electricity itself. We must understand further its origin if we are to become familiar with the operation of radio tubes and condensers. Electricity is definitely a material thing, cloaked in mystery, but substantiated by one of the most amazing theories of science. It is not a liquid, such as flowing water or gas, but a movement of an actual form of energy.

Let us, then, devote a few brief moments to the romantic story of the *electron*. Here is the tiniest thing in all nature; an infinitesimal bit of pure negative electricity; a real particle or corpuscle of energy; something speedy, indestructible, and fixed in form and power. You cannot see an electron, even with the most powerful microscope, for it is so small that, if, 10,000,000,000,000 of them could be laid in a row, they would cover only one and one-half inches. Under certain conditions the electron is free to move about; or it can be held—bound—in place, as a form of potential energy.

Now we must also consider another tiny basic unit—the *atom*. It is the smallest unit particle of any one of the elements known on earth. No one has seen an atom, although most of them have diameters equal to at least 100,000 electrons! Then two or more different atoms will group together to construct a single unit, or *molecule*, of any kind of substance or matter, solid or liquid, known to man. We have often heard of water being called H_2O . This means that

two atoms of hydrogen combine with one atom of oxygen to form one molecule of water. Atoms and molecules are more or less fixed in position for they are the units of matter which, when welded together, make up masses of visible solids. But the electron, which can be made to move at will, can well be called an atom of electricity.

The Birth of Electricity

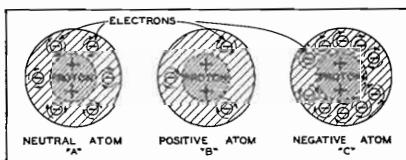
In the center of each atom, which is a tiny sphere, is a minute, but complete, solar system. The atom, being a particle of matter, has bulk and weight. Its center, however, is a core or nucleus of pure positive electricity—the *proton*. Around the center many electrons are constantly spinning—like the planets about the sun. We know that positive and negative electric charges attract each other, and, since the proton nucleus of the atom is a unit positive charge of electricity, it must, therefore, attract to its bulk a sufficient number of negative electrons exactly to balance or neutralize the proton charge. The atom, then, becomes electrically neutral or normal. This is the state of any mass of matter unless it has been affected in some way by an outside or internal influence or disturbance.

What can affect the neutral state of any mass of atoms or molecules? Friction, mechanical motion or chemical action can set the electrons free from their associated atoms. Electricity is made available simply by compelling the electrons to move away rapidly. We must realize that electricity cannot be created out of nothing. Electrons are present al-

ways in any substance; it is necessary only to set them in motion. Water, for instance, is not created by a pump; the latter simply starts the motion and keeps it going. The electric generator or battery is the pump that keeps the electrons flowing.

The Law of Conductivity

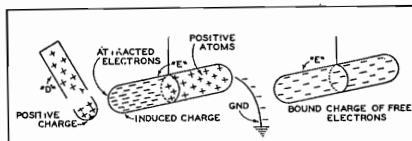
Electrons can fly with the speed of light through any conductor. The spaces between the atoms and molecules of a wire are vast when viewed by an electron. It can pass through with the ease of a fly in some great auditorium. Now, if a great many electrons are forced through a length of wire, many of them do not reach the far end, and the original current becomes reduced. If an excessive quantity of electrons try to pass through the atomic spaces of a small wire, the crowding becomes so great that the friction causes sufficient heat to melt the wire. Conductors with smaller atoms and less space between offer more resistance to the flow of electrons than material composed of larger atoms with more open spaces between. That is why some metals are good conductors while others offer high resistances.



What happens when we set free the electrons normally held within the atom's solar system, and upset the neutral state of an atomic mass? We have seen that the atom's positive, or proton, charge must remain constant. Up to now it has been neutralized by the presence of a certain number of associated electrons, as shown at "A" in the illustrations. But let us remove some of the electrons, as shown in "B," and we readily see that the proton positive charge predominates and gives to the atom a definite charge of positive electricity. Or we can thrust some additional electrons on

the neutral atom "A," and then the negative charge of the electrons predominates, as shown at "C." The work of adding to, or taking electrons from, atoms, is called *ionization*. This term, in radio, refers particularly to the atoms and molecules of air and gas.

Because of the ease with which electrons can be separated from their parent atoms we find that electric charges can be developed by induction, just as we have seen currents created by electromagnetic induction in wires and coils. This new form of induction is termed *capacitative induction*, and is one of the absolute essentials in radio work. Let us see how it is accomplished.



Static Electricity

Rub a glass rod briskly with a piece of warm, dry flannel. The electrons will be agitated and many of them are attached to the flannel. Now, because of the resulting deficiency of electrons in the rod, the latter assumes a positive charge, as shown at "D" because the positive protons of the atoms predominate, which condition is indicated at "B." Thus a state of frictional or static electricity has been developed. This charged rod can be used to induce charges—of an opposite nature—in another, but insulated, body.

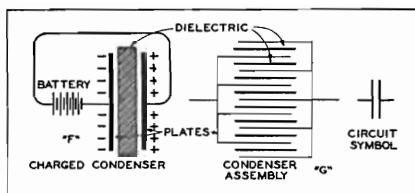
Suppose we suspend a glass tube from a silk thread, as shown in "E." This tube, or rod, is normally inactive and electrically neutral, for the electrons are in place along with each atom. But, as soon as the rod "D" is brought close to one end of "E," as shown, the positive charge on the former *attracts* as many of the electrons in "E" as are needed to make up the deficiency of electrons in "D." These freed electrons rush to the end of "E" where they are *bound* on the surface by induction. This, then, is

called a *bound charge*. But, at the other end of "E," the atoms are deficient in electrons, and a positive state persists. Some refer to this as the *repelled* positive charge—sent to the far end of "E" by the like charge on "D."

If we touch the far end of "E" with a grounded wire (GND), a number of surplus earth electrons will rush into "E" to replace those electrons bound at the end next to "D." Each positive atom receives its quota of electrons and, upon removal of the wire, we discover that "E" now has a large excess charge or supply of electrons. Remove the charged rod "D." The electrons now distribute themselves evenly over "D," which is negatively charged through the inductive effects of the positive charge on "D." Bring "D" close to "E" and, if in a dark room, a tiny spark will be seen as the surplus electrons jump off "E" to seek the positive or electronically deficient atoms of "D." There they recombine, and the charges are neutralized, with both "D" and "E" returning to their normal state. The amount of charge that can be induced on "E" is determined by the area of the surface, the kind of material, and the insulation (in this case a silk thread) which prevents the electrons from leaking off. This, then, is the *capacity* of a body to hold an electric charge. Many other interesting experiments with capacity and induction can be made by the amateur. That of the electrophorus (described in any text book or encyclopedia) is the most popular and entertaining. It is capable of producing strong shocks and brilliant sparks.

Principle of the Condenser

At this point, we come, quite naturally, to a discussion of the *condenser*. It is a device absolutely necessary in radio, and has the ability to receive, hold, and yield a charge of electricity. A condenser is constructed by placing two parallel conducting surfaces on opposite sides of some insulating material, called the



dielectric, as shown in "F." This arrangement provides a *fixed condenser*. The capacity of this condenser can be increased by enlarging the area of the dielectric surface, or the addition of several units, connected as shown in "G."

When placed in an electric circuit, the condenser is a *blocking* or insulating device. An electric current cannot pass. However, when connected to a battery, the condenser will store up electrons which can be later discharged into the circuit. At "F" we see a simple condenser and battery. If a billion electrons accumulate on the negative side, then the opposite side becomes equally deficient in electrons. Remove the battery. The condenser is now charged with opposite electric charges bound on the two opposite sides by attraction. There is a form of electrical strain and stress in the material used as the dielectric. This strain can be released instantly in the form of a momentary flow of electricity if the two opposite sides of "F" are touched together with a wire-conductor.

A condenser can pass an alternating current although it effectively blocks a direct current. When an alternating current is impressed upon both sides of a condenser it is charged and discharged—first in one direction, then in the opposite—although the current does not actually pass through the condenser. Current really flows into and out of a condenser. The first alternation—call it negative—will give the plates a negative charge, then, as the second—the positive—alternation appears, the negatively charged condenser discharges into the circuit and prepares to receive a positive charge. Thus, current flows to and from a

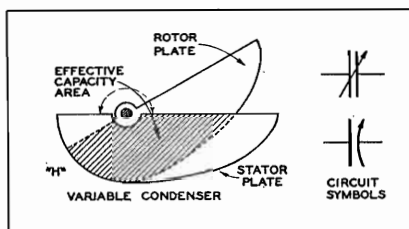
condenser at every cycle of an alternating current. Apparently, therefore, a condenser *seems* to pass a current of alternating electricity. And it is this principle that gives us a powerful device to control the tuning of our radio receivers, as we shall see in a subsequent chapter.

Measuring Capacity

The capacity of a condenser depends upon the dimensions of its conducting surfaces or *plates*, and the type and thickness of the dielectric. This capacity is measured by a unit called the *farad*. But even one farad is too immense to use—it would make a condenser as large as a great building. So we use a unit of capacity that is more in keeping with the size of radio condensers. It is the *micro-farad*, meaning one-millionth part of a farad. A still smaller unit, called the *micro-microfarad*, is one millionth of one-millionth of a farad. Thus, we write the capacity of a condenser, for instance, as 0.0005 of a microfarad (mfd), or, more conveniently, 500 micro-microfarads (mmfd).

Our radio receivers use several types of condensers. The fixed condensers are divided into the *by-pass*, *blocking*, or *filter* types. The larger filter types are more carefully constructed, most of them being known as *electrolytic* condensers. These give large capacity with the minimum use of space. The variable types are known as tuning and adjusting condensers.

The *variable condenser* is unique with radio. It is constructed of interlocking, spaced metal plates using air as the dielectric. One set of semi-circular stationary plates are connected together and form one surface of the condenser. These are the *stator* plates. Another set of spaced plates, which can be rotated between the stator plates by a shaft, is called the *rotor* plates. They are used to vary the capacity of the condenser continuously from zero to maximum by changing the area of the plates opposite each other, as shown in "H."



Tuning a Radio Receiver

Condensers, as we have learned, pass only alternating currents. Low-frequency alternating currents pass only through large condensers. High frequencies only can be passed by small condensers, or large condensers as well. In other words, it takes a large capacity condenser to permit low or audio-frequency currents to flow, but a small capacity condenser will pass high, or radio-frequency currents. The variable condenser, therefore, can be made to pass high and low frequency alternating currents simply by adjusting it to the proper capacity. In radio sets, these condensers have sufficient size to pass the radio currents having frequencies between 1500 and 550 kilocycles or 200 and 550 meters, respectfully. A number of units, placed on a single shaft and turned with one dial, simultaneously tune a similar number of inductance coils. Capacities of these condensers range from 0.00035 mfd. (350 mmfd) to 0.0005 mfd. (500 mmfd.). Short wave condensers are much smaller and range from 10 to 320 mmfds. The tiny *adjusting*, *balancing* or *trimmer* condensers, used to offset mechanical irregularities in large variable condenser construction when lined up in a *gang* unit, have capacities ranging from 3 to 35 mmfds.

Now that we understand how condenser capacity controls the frequency of the alternating current passing through the radio circuit, we shall be better able to realize how condensers are used to *tune* radio circuits to any desired frequency flowing in the receiving antenna. Next month, then,
(Continued on page 46)

Dressing Room GOSSIP

• • • By "BETTY"

INTRODUCING Katherine Carrington, singing star of "An Evening in Paris," Columbia's Sunday night musical half-hour. Good breaks and the ability to capitalize on them brought her to stardom.

Born in 1908 at South Orange, N. J., and schooled at St. Agnes Academy in Albany and at East Orange High School, Katherine always nursed stage ambitions. Her first appearance was in an amateur production of "Cinderella." She stole the show. Success with school, church and amateur productions strengthened her resolve to be an actress. After finishing high school she attended the American Academy of Dramatic Art at Carnegie Hall, New York.

Was graduated from there in 1925 with rather romantic ideas of Shakespeare and classic drama. Disillusioned by fruitless rounds of the Broadway agencies, she finally made her first professional bow with a vaudeville tabloid musical comedy in Peoria.

On the Stage

Next came the role of a fairy in a revival of the Gilbert and Sullivan opus, "Iolanthe," followed by a small part in "Desert Song." Another vaudeville tour, then musical comedy revivals with a stock company on Long Island that prefaced her next Broadway appearance. Had a small part in the play, "Little Accident," and won its leading part on the road tour. First real break turned to heart-break when she was chosen for the prima donna part in the first "Little Show," with Fred Allen, Clifton Webb and Libby Holman. As the revue went into rehearsal, she went under the knife with appendicitis. Recovered in time to take the part on its tour of the hinterlands.

Then followed the Theatre Guild's

"Garrick Gaieties," appearances in Manhattan night-clubs, and the road again, playing the role of a French vamp in "Princess Charming"—the role which Jeanne Aubert had filled in the New York production. Later stormed Broadway booking offices, announcing, "I'm Katherine Carrington." "Oh, yeah," an agent belittled. "Never heard of you." Then she added, "You will! I'm just back from the Aubert part in 'Princess Charming.'" The agent rushed her in a cab to the stage of the Imperial Theatre, where Ed Wynn was wringing his hands and tearing his hair. Wynn's revue, "Laugh Parade," faced sudden closing, for its leading lady, Jeanne Aubert, had been taken ill. There had been no understudy for the part. Katherine had seen the show and knew the part. She pleaded for the chance to try it. For two hours she memorized script and practised songs. The show went on, the audience was won, and Katherine received an ovation when Wynn told the audience of the drama behind the scenes.

In Musical Comedy

Then came leads in two of the most successful musicals Broadway has known—"Face the Music" and "Music in the Air." Rave notices followed and radio sought her for the "Evening in Paris" program, co-starred with Milton Watson (photographed with Katherine on page 9).

Katherine is blonde and charming. . . . Designs all of her own clothes and might have become a dress designer if she had not answered the call of the footlights. . . . Likes football and dancing. . . . Always answers fan mail, for she still remembers her bitter disappointment when one of her girlhood idols, a famous dramatic actress, never answered her letters.



The Boy from Steubenville

He Made Good in the City

George Beatty, who likes to speak of himself as "half serious and half-wit," might have been one of a number of things—opera and concert singer, professional baseball player, cartoonist, writer or surgeon. Instead, by accident, he turned out to be a comedian and is doing very nicely with the "American Revue" Sunday night variety program, co-starring Ethel Waters, on the CBS network.

George was born at the turn of the century in Steubenville, Ohio, where he went to grammar and high school and where his father was a high member of the Board of Education. Enrico Caruso was his boyhood idol, and George planned from the beginning to be an opera singer. At school, he proved extremely versatile, playing baseball, football, basketball, tennis and boxing, drawing cartoons for the school paper, entertaining with the glee club and dramatic club, and taking part in amateur minstrel shows. On the side, he helped toward his support by working for \$4.00 a week as assistant boys' secretary of the local Y. M. C. A.

After graduation, young Beatty started toward the ideal he had chosen for himself, spending three years as a concert baritone in Chautauqua and concert tours and studying voice. Then came the accident which converted him into a comedian. A skillful pitcher, George played semi-pro baseball every now and then on Saturdays and Sundays. One afternoon, a wild ball struck him in the Adam's apple and laid him up for four months. His vocal chords were affected, so that future dreams of an operatic career were out.

On Vaudeville Circuit

From 1921 on, Beatty devoted himself to vaudeville. For three years he was the baritone of that well known quartet, the "Big City Four," then for three years he worked with Jack King, in a piano comedy act. Since 1926, he has carried on as a single, with a comedy song and patter routine, and any dyed-in-the-wool vaudeville critic will tell you that his pantomime of a celebrating sailor trying to roll a cigarette is one of the classics of the four-a-day.

George made his first radio guest appearance this fall and displayed such a refreshingly original type of humor that he was signed as master-of-ceremonies for the "American Revue" heard over CBS every Sunday at 7:00 p. m. EST. Unlike many comedians, he writes his own material, including the music and lyrics of his comedy songs, such as "Springfield" and "I Love to Watch Steam-Shovels."

George is just six feet tall, weighs 170, and has blue eyes and brown hair. Handsome, affable and extremely well liked by all his associates. Has been married since 1921. . . . Has appeared in movie shorts written by himself. . . . Actually craves fried green tomatoes for breakfast. . . . Travels by air whenever possible. . . . Still keeps up the stamp collection he started as a boy. . . . Prefers life in the country. . . . Won't read from a radio script he

hasn't typed himself—his only superstition.

Stories of "The Big House"

Lewis E. Lawes, Warden of Sing Sing Prison, presents half-hour dramatized stories of the men who are serving "Twenty Thousand Years in Sing Sing," every Wednesday at 9:00 p. m. EST, over an NBC (Blue) network. In the thirteen years that he has been head of the most famous prison in the United States, Warden Lawes has achieved a world-wide reputation and has become the most widely known Warden in the world.

Lawes has turned the operation of a penitentiary into a well-organized and efficient business proposition, not with a view to profit taking in the financial sense, but very definitely so in the field of turning out law-abiding citizens where law breakers had gone in.

Lawes says that the idea began to take form nearly thirty years ago, at the time that he became a guard in Clinton Prison at Dannemora, N. Y. Prior to that he had been first a newspaper reporter, and then an enlisted man in the U. S. Army.



Warden Lawes of Sing Sing



Katherine Carrington and Milton Watson

After Dannemora, Lawes passed through a number of phases of prison work, including a position of chief guard at Auburn. Then he was chosen as superintendent of the New York City Reformatory, and it was while he served in this capacity that the then Governor Alfred E. Smith made him Warden of Sing Sing.

Today his name is synonymous with prison reform. Welfare leaders, penologists, social workers throughout the country eagerly seek his aid and advice. His appearance as a speaker is always a widely heralded event, his book has served as the theme for a motion picture, and yet with these manifold activities, it is Sing Sing, and those within its walls, to which he gives the greater part of his thought and time.

* * *

Ethel Shutta's two young sons are their own radio censors. Whenever a singer comes on the air to render a number their mother has done on NBC they are up in arms. "Shut her off, quick!" yells George Olsen, Jr., aged 4, and Charlie, aged 6, jumps

to obey. They think there should be a law, or something, prohibiting anybody from singing their mother's songs.

* * *

Gertrude Niesen found herself pressed for time when playing at a Brooklyn theatre recently. . . . She had to get to the CBS studios in New York in a hurry for "The Big Show." . . . Gertrude didn't know how to go about getting a police escort, so she ups and hires an ambulance for \$15, arriving in it just two minutes before the dress rehearsal.

* * *

There are two casts for "Just Plain Bill"—one in New York and the other in Chicago, each playing to different sections of the CBS network. . . The same thing applies to the "Bobby Benson and Sunny Jim" scripts.

* * *

The Men About Town turned down a commercial because the sponsor wanted them to add another voice and sing as a quartet. Their excuse is that they'd rather be the top trio than one of many quartets.

* * *

Guy Lombardo has added another member to his Royal Canadians band which now numbers an even dozen. The latest addition is Hugo D'Ippolito who will share piano honors with Freddy Kreitzer, giving the orchestra for the first time two pianos. And like ten others in the group, he, too, hails from London, Ontario. Strangely enough, he looks more like the Lombardo brothers than they look like themselves.

* * *

Ethel Waters, the great sepie singer, is probably the most honest solitaire player in the country. She calms her nerves before a broadcast by playing, keeps accurate check of how much money she wins or losses. Her losses are added to her contributions to charity. Ethel has been signed by Magna Pictures for a two-reel musical comedy, "Hot and Bothered."

In order to be in the proper mood for a broadcast, Lee Wiley, the melancholy stylist of song, always dines at one or another of the town's swankier places the evening she's going on the air.

* * *

Frank Black, the maestro, is one of the casualties of the opening of Radio City. As he sat down in a chair to start the largest orchestra ever heard in New York (400 men) to rehearse, the conductor's chair toppled over backward and he sustained painful leg injuries.

* * *

The name of Ann Enslie doesn't mean a thing to radio listeners. But it does to the orchestra leaders and artists. For Ann is the young lady at the Columbia offices who checks on their musical numbers and sees to it that none are repeated within specified times. She is deluged with all sorts of sheet music from the publishers. So when Ann's office was moved to another floor, she did the very natural thing. She tacked on the door a copy of "Annie Doesn't Live Here Anymore."

* * *

A Washington station recently held auditions for a woman announcer. Among the candidates for the job was a young lady by the name of Helene Smith, a secretary in the Department of Justice. She passed the test with the highest average and was given her first trial program to announce. At the conclusion of her broadcast, the station manager said: "You did very nicely, Miss Smith. Now tell me, do you know anything about radio?" "Well, in a way," she replied. "I have a sister who is sort of connected with radio. Her name is Kate." Kate's sister is 26, two years older than Kate, and is a decided blonde of medium height. She is comparatively slender. Not wishing to capitalize on her sister's influence, Helene secured the position entirely unknown to Kate.

(Continued on page 46)

A Little Debate on AERIALS and GROUNDS

More Important Than the Set?

AERIALS and grounds, constituting as they do a most vital factor in distant reception, are an ever-present source of interest to all listeners. Of course if one is interested only in local reception any old kind of an aerial or even none at all will do. But if one wants to hear those far-distant programs then too much attention cannot be given to this important part of radio reception.

Some one has said that the total energy gathered by a million aerials would not light the bulb in a pocket flash. How true this may be we are unable to calculate but the statement does help to make clear what an infinitesimal amount of energy enters the set and how important it must be to guard at every point and in every way against the loss of the tiniest part of this tiny current.

Unfortunately neither aerial nor ground is capable of mathematical demonstration. In other words it is not possible to furnish a formula for either aerial or ground that will be *best* in every case with any receiver or even with the same receiver. The matter of location in its geographical, meteorological and geological aspects, plays too great a part.

Under these circumstances there is no way to find the *best* for any location or any receiver except through experimentation. Trying various expedients in both aerials and grounds is not only an interesting but a most profitable undertaking.

Value of Experiments

"It is really amazing just what one can do with a bit of careful experimenting in aerial and ground connections and construction," concludes Edward W. Pew, 1151 South Broadway, Los Angeles, Calif. "Each lo-

cality, of course, presents a different problem and offers one no little pleasurable pastime and enjoyment.

"I began experimenting with different aerial and ground connections after moving into a permanent home. I settled down to an aerial of about 60 feet in length and used a seven-strand copper wire (lacquered) attached to a mast on the corner of my garage and running downward to the house where it leads in just at the window top. I carefully soldered all connections and used a metal-shielded lead-in to the set aerial post.

"For a ground I am using a coil of copper tubing (about 15 feet of it when uncoiled) buried in the ground about three feet. The lead-in from the ground is a lead-covered 16 gage twisted wire. This is also carefully soldered at all connections, window lead-in, etc. For the aerial lead-in a radio technician suggested that I use a heavier wire than the aerial. All connections I have insulated with



The Davidson twins, Harriet (left) and Gretchen (right), newly recruited to the Columbia dramatic staff, are scheduled for important roles in various sustaining features. They're nineteen years old, come from Chicago and prefaced their radio work with appearances in the late Ziegfeld's "Showboat."

a good tape and then painted with heavy auto-enamel.

"With the above construction I am able to play at full volume many of the distant stations and, with favorable weather conditions, during the winter months I get really excellent reception with no more static and noise than with local stations. I receive WJZ, WGN, WENR, WLS, WMAQ, WLW, WBBM, WBAP, WFAA, WHAS, WWL, KOA, KDKA, KMOX and several Mexican stations of the better class. With these and the California, Washington and Oregon stations of note, I am enabled to enjoy quite a variety of excellent programs."

The Grounded Aerials

Another interesting factor which may be discovered and capitalized upon by experimenting is the directional effect. The less desirable stations may be put into the background and the desirable ones emphasized by changing the direction of the aerial. This point is brought out by Clair Calavan, Jefferson, Oregon.

"I did not discover that reception could be improved from any given direction until about two months ago when I erected an exceptionally long aerial to the east. Upon connecting it to my set in midafternoon one day, I noticed that I could easily tune in a number of the more powerful eastern stations. I then tuned in a number of the local stations to the north and found that they did not come in as strong as usual.

"I had read a number of articles in RADEX by persons who had obtained better reception and new stations by grounding the far end of their aerial. I tried grounding the end of my high aerial (about 35 feet high) but some of the results weren't so good. Then I grounded the far end of a 100-foot aerial, 15 feet high, which ran toward the north. I found that it increased the volume of the stations and, oddly enough, almost completely eliminated the loud continual static which had bothered me during the hard, sudden showers in the spring and fall.



That sardonic hunter and villain, Beetle, who heckles Phil Baker, the Armour Jester, during their broadcast every Friday at 9:30 p. m. EST over an NBC (Blue) network, is shown here in the flesh for the first time. But he would only peek so no one could get a full view of him.

"I believe I have found the real reason for the improved reception of some stations on these grounded aerials. It is because they possess marked directional characteristics.

"I now have seven aerials pointing in different directions. I also have an ordinary ground connected to the eight-point switch which I constructed. Thus it is a simple matter to switch to any desired direction. I am afraid this system would be impossible for those living in crowded districts but to those in the wide, open spaces, I urge the experiment if they are interested in reducing interference and increasing the signals of distant stations.

"I have found these grounded aerials a great aid in reducing interference on West Coast stations. I can listen to KORE to the south or KBPS to the north, both on the same wave, with very little interference from the other. On an ordinary ground they come in with about the same volume,

(Continued on page 46)

PROPER REPORTS

Bring Verifications

• • • By ALFRED W. OPPEL,

Executive Secretary, Newark News Radio Club

ALTHOUGH we are sure that you all have read many articles on the subject of radio and DXing, we venture to speak of verifying and a good method of doing so.

Strange as it may seem, very few distance seekers really know the correct way of writing a station and asking for a verification. We say "correct" advisedly since there are many legitimate ways which will usually bring the desired results.

We are presenting a form which has received better than a 99% average in station response over a period of four DX seasons and which has brought in 775 verifications. All of which leads one to think that it may have its advantages.

As part of my former duties as Assistant Secretary of the Newark News Radio Club, I had to verify reports for a local station. At least fifty per cent of these reports were written illegibly, contained no return postage or were written on post cards. Is it a wonder that they received no replies in many instances?

First of all, a DXer must be sure of his station call letters. Then he must list the musical selection or conversation by the announcer at the exact time at which it happened. He should note fading—the time period between the start of the fading and the return of the signal—as well as interference from any other station, amount of static, temperature, modulation, hum or any other bit of information in which the station operator might be interested.

This information, together with the request for verification, should be contained in the introductory part of

the letter. In a separate block, there should be listed the program and the time it was heard. And, incidentally, always indicate the time in which you are reporting the reception—E. S. T., C. S. T., etc.

The conclusion of the letter can be short with a wish for the good health of the station personnel and the hope that an early reply will be received. If you have ever been in the vicinity of the station, no matter where it is, except locally situated, inject this personal note into the letter and it will often bring results where an ordinary letter did not or would not.

It is an important thing to have



Helene Dumas, blond stage and radio actress, plays a leading role in "The Three Musketeers" over an NBC (Blue) network each Thursday, Friday and Saturday, at 7:15 p. m. EST.

stationery printed with your name and address prominently displayed on the letter paper as well as the return address on the envelope.

Finally, remember that return postage is a very important feature of your request for a verification.

Even so, there are times when stations will not answer, even if the above procedure has been followed carefully. The writer usually allows the station thirty days in which to answer and, if no reply is forthcoming within that period, we generally drop them a postcard and point out that, regardless of existing conditions at the station, we are entitled to the courtesy of an answer. Of course, there are some stations which won't answer a gentle hint like that and then there is only one remaining recourse.

Write to the Secretary of the Chamber of Commerce in which the station is located. Point out the prestige given the town by the radio station. Tell how they have ignored all your requests for a verification, despite your polite letters, your reminder and the return postage. Stress the civic pride involved and, in the majority of instances, the Secretary will inveigle the station into answering you when other methods had failed.

Only two stations in this country have ever failed to answer me—WMBA, Newport, R. I., and a California station which was deleted one week after I had heard it. In both instances, the Secretary of the Chamber of Commerce wrote me a letter and explained the situation satisfactorily.

When writing to a station owned and operated by a college, it is well to address your report in care of "The Registrar." That will often bring an answer where other methods would not.

When writing to Cuba, Mexico and other Spanish-speaking countries, always use the language of the country, as it will bring a reply almost without exception. Always make these let-

ters flowery in substance as the Latins seem to prefer this in the business letter.

These small details may seem familiar to most DXers, but I am sure they are seldom followed.

And now for a sample verification request form. Avoid using technical terms like QSA5, R4, etc., unless the station operator requests them. An announcer may read your letter and wonder what you are talking about.

JOHN W. SMITH
2737 FIFTH AVENUE
NEW YORK CITY

December 1, 1933,
From 4:20 to
4:40 A.M., E. S. T.

Radio Station KNMO
Seattle, Washington
Dear Radio Friends:

On the above date and time, I had the pleasure of hearing your station transmitting on 1010 kilocycles and ask that you please send me a verification if the data below prove to be correct. Station volume was adequate, but static and interference from XYZ, on your channel, prevented better reception. Modulation was perfect and fading every two minutes for one minute. Here is what I heard:

The recording "Love Everlasting" by the Victor Salon Orchestra at 4:20 a.m., E. S. T., followed by the announcer saying, "Hello, Everybody! Why not send us a report on reception? We'll be pleased to hear from you and will verify all correct reports. We now dedicate the next number to Ted Carlton, of Hohokus, N. J. The name is . . .

"When The Moon Comes Over The Mountain," recorded by Kate Smith and orchestra." This at 4:26 a.m. "This is station KNMO, The Voice of the Grand Ballroom, in Seattle," etc., etc., to 4:40 a.m., when the writer left the dial setting.

Thanking you in advance for your answer and with best wishes to you and your staff, I am,

Cordially yours,
John W. Smith.

Short Stories of the Short Waves

All the News in High Frequencies

TWO of the best stations on short waves at the present time are HJ1ABB and HC2RL, and we are pleased to announce that their owners have agreed to dedicate special programs to readers of this magazine during this month.

The time chosen for the program from HJ1ABB is 5 to 6 a. m. EST, on January 14, or 1000 to 1100 GMT the same day. The address of this station is Radiodifusora "La Voz de Barranquilla" de Elias J. Pellet B., Apartado 715, Barranquilla, Colombia. Mr. Pellet sends us the following information:

"Our wavelength is 46.5 meters or 6451 kcs; power, 12 watts; schedule, daily from 11:30 a. m. to 1 p. m. and 5 to 10 p. m. EST. On Sundays we broadcast from Parque de Bolivar the concert played by the Police Band at 7:45 p. m.

Building New Station

"In the very near future I will inaugurate a new and modern station with a power of 300 watts, Class B modulation and high grade microphones such as the Brush Crystal and RCA velocity. Tests on this new station will take place on Tuesdays and Thursdays at midnight and Sundays at 5 a. m. EST. Reports are welcome and QSL cards sent to all who send a report that is O. K. with our log."

Mr. Pellet's new card is one of the most attractive we have seen and carries the statement that for ten correct reports a beautiful set of photographs of the City of Barranquilla will gladly be sent.

One from Ecuador

January 14 is also the date chosen for the special program from HC2RL, the time being 1015 to 11:15 p. m., EST. This time is equivalent to 0315 to 0415 GMT, January 15. Marie Piedad Castillo de Levi is the owner

of the station and Dr. Roberto Levi the Director. Letters should be addressed to Dr. Levi, P. O. Box 759, Guayaquil, Ecuador. In a letter to RADEX Dr. Levi gives the frequency of HC2RL as 6668 kcs. or 44.97 meters, and the power is 150-200 watts in the antenna. Their regular schedule is, Sundays from 5:45 to 7:45 p. m. and Tuesdays from 9:15 to 11:15 p. m., EST. These programs open and close with the playing of the Ecuadorian National Hymn, and the expression "Quinta Piedad" is used often in the announcements. The January 14 program from this station will feature primarily Ecuadorian national music, and as Dr. Levi has planned to have artists from the National Conservatory of Music and the Academia de Artistas Nacionales, we believe the program will be a very interesting one.

And From Venezuela

YV3BC will be on the air again this month and next with special pro-



Here's an exotic type of head-gear, the latest addition to the wardrobe of Gertrude Niesen, Columbia's young songstress. Her distinctive interpretations of modern tunes are a weekly highlight of "The Big Show," with Isham Jones' Orchestra, over CBS Mondays, 9:30 p. m. EST. In addition, she is featured in her own sustaining series of programs.

grams for RADEX. On January 10 and February 10, YV3BC, Radiodifusora Venezuela en Caracas, will broadcast on 31.52 meters from 9:30 to 10:30 p. m., EST. Any reader who has not yet received a QSL from this station should take advantage of these specials and obtain a really worth while verification card.

The International DX'ers Alliance announces that YV1BC, Broadcasting Caracas, will transmit a special program on short and long waves on January 7 from 1 to 3 a. m., EST. The wavelength will be 49.1 meters, or a frequency of 6.112 megacycles. The address, Apartado de Correos 290, Caracas, Venezuela.

Thanks to HIX

We take this opportunity of expressing our appreciation for the courtesy shown RADEX last month by Mr. J. R. Saladin of station HIX, Santo Domingo City. A special two hour program was transmitted on December 5th and Mr. Saladin kindly dedicated one hour of it to our readers. Although this information was received too late for inclusion in the December number, many radio fans were notified personally so the Symphonic Society of Santo Domingo could play to a good sized audience. Mr. Saladin says the schedule we give for HIX is correct except for the Sunday morning broadcast, which begins at 7:40 a. m., EST.

The Lisbon Station

A post card received from station CT1AA gives their complete mailing address as Estacao CT1AA, Rádio Colonial, Abilio Nunes dos Santos Junior, Av. Antonio Augusto de Aguiar 144, Lisbon, Portugal. Senhor Santos gives his schedule as 2130 to 2400 GMT on Tuesdays and Fridays, or 4:30 to 7:00 p. m., EST. This station is easily identified by its interval signal of three cuckoo calls, and by the English announcement, "Lisbon calling Rádio Colonial, Station CT1AA on 31.25 meters." CT1AA always verifies correct reception reports. 2000 watts power is used.

Another in Canada

A letter from the new broadcast band station VE9EK at Montmagny, Quebec, contains the information that they also work on short waves under the call CKT on 2284 kcs. and VE2DC on 3333 kcs. This is an official station of the Canadian DX Relay. Its owner is J. A. Marquis, 11 Rue St. Jean Baptiste. The power used is only 10 watts.

The Brazilians

The Radio Club of Brazil has made its appearance again on station PRBA. PRBA is, we believe, merely a phantom call used by this Club when they rent the facilities of the Companhia Radio Internacional do Brasil. PRBA has been reported on 36.65 and 31.58 meters, wavelengths which correspond with stations PSK and PSA. These programs generally commence near 4:30 and last until approximately 8 p. m., EST. Readers reporting PRBA are Lowell F. Barrows, 149 E. Winter St., Delaware, Ohio; Doyle E. Carpenter, R. W. Evans, Richard Carter, Wm. McDaniel, Geo Glass, Robert Weber and John Strong, all Official Auditors.

The Radio Club do Brasil generally announces in several languages in addition to their native Portuguese. Three strokes on a gong are used as an interval signal, and PRBA signs off with the Brazilian National Hymn.

Finds Two Rare Ones

The only report that has ever been brought to our attention on station UOR3 was received from W. T. R. Morris, 3219 Garland Ave., Richmond, Va. Mr. Morris, Official Auditor for his state, writes, "Shortly after 1 p. m., EST, I noticed that both England's and Germany's 25 meter stations were off the air, so I tuned around the 25 meter band and picked up UOR3 at Vienna, Austria, with fine volume, considering its power of only 250 watts. Then I tuned a fraction away from UOR3 and found RW50 (RNE?) with also a fair signal. I haven't any way of telling exactly the right wavelength

to the hundredth part of a meter, but I do know that these two stations are almost jammed up against DJD and GSD. Both the stations had fine quality and neither of them faded completely out at any time. Of course there was some fading, but never complete. I am positive as to the identity of UOR3 but I wouldn't swear about the Russian."

Many Pick Up KJTY

KJTY, Admiral Byrd's flagship Jacob Ruppert, is reported by a number of readers. Doyle Carpenter, Official Auditor in Emmetsburg, Iowa, says he has heard KJTY almost nightly on their 8840 kcs. frequency from about 9 p. m., CST. "It is 9:30 p. m. and I am listening to a very interesting program from KJTY," he writes. "They are having quite a party with music and a speech by Admiral Byrd himself. I think they are practicing with WEZ for a broadcast to be given next Saturday night. I got the program a week ahead; that's what I consider good service. They rate about QSA4, R7, with some fading." Clement Van Velsor, 1033 Sanford Ave., Irvington, N. J., and Geo. W. Burns, 2466 Wahl Terrace, Cincinnati, Ohio, both heard KJTY off Easter Island, about 120 West longitude and 40 South latitude. At this time KJTY was on 31.5 meters, but as this wavelength was only assigned temporarily it is possible it will not be heard again. Other readers reporting KJTY are John Strong, R. W. Evans, Robert Weber, all Official Auditors, and W. H. Lewis, of 1328 Delaware St., Leavenworth, Kans. Mr. Lewis uses a Midwest 16-tube all wave receiver and would like to hear from other DXers.

From A. B. Baadsgaard, Ponoka, Alberta, comes this interesting report: "The past two nights between 8 and 10 p. m., MST (Thursday, Nov. 23, and Friday, Nov. 24) I had the pleasure of bringing in Station KJTY direct on 40.80 meters. The volume was like a local and it was quite distinct. The ship was reported some



Johnny Marvin, lonesome singer of the air, presents his daily programs at 12:15 p. m. EST, over an NBC (Red) network. Marvin is assisted by Legwin Hester, guitarist (left), and Irving Miller, pianist (right). Johnny possesses that elusive and indescribable something which makes people want to write to him. In proof of this, he receives more than 3000 letters a week from listeners who have enjoyed his singing and want to tell him about it.

4,000 miles out. The receiver used in recording this broadcast is a Canadian Marconi all-wave Model 41, 11 tubes. The December RADEX with its article on 'Listening for KJTY' made this feat possible."

From the Netherlands

"I received a card today from PHI which was mailed from Hilversum," writes Robert L. Weber, West McHenry, Ill. "It says, in part, the PHOHI station (call letters PHI) was built by Philips' Radio, Eindhoven, and the Nederlandsche Seintoestellenfabriek, Hilversum, Holland. The transmitter works on wavelengths of 16.88 meters (18885 kcs.) and 25.57 meters (11730 kcs.), depending on the season. Announcements are made in Dutch, Malay, German, French, English, Spanish and Portuguese.

Management and Program Department, Eindhoven. Studio, Hilversum. The schedule, Monday, Thursday and Friday, 12:30 to 14:30 GMT, and Saturday and Sunday, 12:30 to 15:00 GMT. They add that their transmissions are for the Dutch East and West Indies but they announce in seven languages to give listeners an opportunity to identify their station and enjoy their broadcasts." The schedule, given above in GMT, becomes, in EST, 7:30 to 9:30 a. m. and 7:30 to 10 a. m.

The German Stations

Commencing January first, considerable change is expected in the transmission schedule of the German stations. A new station, DJL, should make its debut about this time, on 15.110 megs. or 19.84 meters.

Several readers have received letters from the Reichs Rundfunk Gesellschaft which, translated, reads in part, "We wish to inform you that the construction of our short wave network has progressed considerably. In January, 1934, we shall start working three more short wave aerials with directional effect towards South America, Africa and Eastern Asia. For each sender we will arrange programs considering each individual country." They add that they are endeavoring to compose programs which will meet with the approval of all listeners, and to accomplish this the cooperation of everyone hearing their broadcasts is necessary.

We are advised by the Chicago Short Wave Radio Club that the schedule of DJC will be advanced an hour, becoming 8 to 10:15 p. m., EST.

"DFB in Nauen, Germany was heard twice near 8:30 a. m. calling Maracay, Venezuela," reports R. W. Evans, 832 Richie Ave., Lima, Ohio. "This station has a peculiar signal by which it can be identified. Most phone stations use a single tone or whistle when they are calling another station; this station has a three-tone whistle which corresponds to the notes D, C and G on the piano. I am not sure of the call but it is a German

station and the dial reading is very close to DFB's assigned frequency, 17.520 megs."

In Mexico and Costa Rica

"By the way," continues Mr. Evans, "I have not heard XETE for quite some time. Are they still on the air? Also, TI4NRH has changed its sked to 10 to 11 p. m. HC2RL is received regularly on its schedule. CT1AA has not been heard for some weeks. PSH on 10220 has been testing with an American phone in the early evenings."

Regarding XETE, they have been heard testing by two listeners on their original wavelength of 31.25 meters in the early mornings near 3 to 4 a. m., EST. G. W. Gilbert, 342 N. Brighton Ave., Kansas City, Mo., reports XETE interfering with VK2ME on Sunday mornings.

As for TI4NRH, we are almost inclined to list their schedule as "Irregular," because, since Mr. Evans wrote, the schedule has been changed again. At the time of writing, NRH is working from 6:30 to 8 p. m., EST.



Glen Gray, leader of the Casa Loma Orchestra, heard on the Camel program over CBS each Tuesday and Thursday at 10:00 p. m. EST.

The Ship Stations

According to information received from Geo. W. Burns, Official Auditor, 2466 Wahl Terrace, Cincinnati, Ohio, a change in some of the ship frequencies can be expected soon. He writes that the ships will move from 4174 kcs. to 4412 kcs., and that WOO will have to give up its present frequency of 4752.5 kcs. Some time ago WOO was granted a Construction Permit for 4272.5 kcs. and it is believed that this station will soon be heard on this frequency. Mr. Burns adds that WOO will soon have a sister station WOY or WOYO, with only 500 watts power, working on the same waves as WOO. He also reports a Danish ship, OXGD, near 5600 kcs. working with OXZ in Denmark.

Several postal cards from this good correspondent contain the following assorted information: "WEF and WCG have been testing at intervals for the past week near 1 to 2 p. m. with a new Bermudan, ZFD, which is on about 10330 kcs. The U. S. Coast Guard Cutter, Dix, call NRLP, is on voice on 2315 kcs. talking to WOU frequently near 9 p. m. A new station in Portugal is CTICT, Rua Gomez Freire 79, 2-D, Lisbon, on 24.53 meters from 4 to 6 p. m. EST, Sundays. YNOP uses only 15 watts. CQN, Macao, is reported on 48.9 meters from 5 to 9:30 a. m. WMEP, Akron, Ohio, 6615 kcs. is testing with KHIND and KHIWD. KHIWD is the airship Puritan."

Miscellaneous Notes

"I hear EAQ, Madrid, Spain, daily from 4:30 to 7 p. m.," contributes Guy R. Bigbee, 66th Infantry, Light Tanks, Fort Benning, Ga. "In nearly every case they come in clear and loud and I especially like the hook-up with the International Broadcasting Co., London. I like the numerous stations that they take one to during this IBC broadcast. The radio I use is the new 16-tube Midwest All-Wave. I have not burned any midnight oil as yet but as soon as weather conditions are better I am going to pick up

Australia." Mr. Bigbee reports reception of EAQ in the afternoons in addition to their regular evening schedule, and also asks for information regarding station W9XQ, Chicago, which he heard testing between 6 and 7 a. m., EST. W9XQ is the experimental call for the NBC s. w. station in Chicago, or, as Mr. Van Velsor says, "it is W9XF in disguise."

"May I call your attention to the fact that station HJ4ABE, Medellin, Colombia, is not on 5879 kcs., but on 5900 kcs. and 50.6 meters," writes Manuel Alberto Cadilla, PO Box 824, San Juan, Porto Rico. "Also, they usually announce themselves as HKO, which was their former name."

A new station, WQT, New Brunswick, N. J., on 13.885 megs. is reported calling RNE by Official Auditor John E. Strong, 1436 Meridian Place, N. W., Washington, D. C. Mr. Strong also reports YVQ on the new wavelength of 44.96 meters, or 6.672 megacycles, and adds that YV1BC has returned to its original frequency of 6.112 megs.

Station HVJ

HVJ has discontinued its experimental transmissions from 10 to 10:30 a. m. and has returned to its original schedule, according to information received from the station by C. R. Anderson, Mason City, Iowa. HVJ works on 19.84 meters from 5 to 5:15 a. m. and on 50.26 meters from 2 to 2:15 p. m., EST. On Sundays a special transmission is radiated on 50.26 meters from 5 to 5:30 a. m. This longer wavelength cannot be received in this country on the afternoon schedule, but the 19 meter wave can be heard occasionally. HVJ is easily recognized by the announcement "Radio-Vaticano," and by the ticking of a clock in the studio. Mr. Anderson's letter continues with the news that DJB now uses four strokes on a gong to identify themselves instead of the ten notes they formerly used, and that he has heard XETE testing on 31.25 meters on Sunday mornings near 3 a. m.

Reception in Ontario

"The South Americans are beginning to come in very well," contributes E. C. Houlgate, 351 Adelaide St., London, Ontario. "Last Tuesday night I heard HIX on about 50.4, HJ1ABB on 46.5 HC2RL on 45 and HJ4ABB on 42 meters, all excellent. YV1BC is back on 49.1 meters and is heard as well as YV3BC on 48.78. EAQ is beginning to be heard on its Saturday afternoon broadcast and the League of Nations stations are becoming pretty good signals. Rabat on 37.23 meters was heard last Sunday QSA5, R7. I was also lucky enough to tune in RV59 on 50 meters R6-7 between 4:15 and 5:45 p. m. They faded badly after 5:15. This is the only time I ever heard it although I have tried for him for a year."

And From Quebec

"I was fortunate enough to hear J1AA using a demodulated phone on about 9850 kcs. from 6 to 8 a. m., EST," contributes K. P. Williamson, 1610 Sherbrooke St., W, Montreal, Official Auditor for the Province of Quebec. "I am unable even to hear VK2ME's carrier, although 3ME was received with about R6-7 volume. The South Americans have been pretty active, notably YV1BC, YV3BC, YVQ, HJ4ABE and CP5. I heard W3XL working the Graf Zeppelin but could not pick up DENNE's call, which is not extraordinary as 3XL itself was unable to hear them. I notice that WOU is coming through very strongly again about 7 p. m." Mr. Williamson has a new Bosch 10-tube All-Wave set, for which he has built a T-type doublet antenna peaked for 31 meters.

Condensed Reports

Our Auditor P. J. Soper, 256 Burroughs Terrace, Union, N. J., advises us that the call sign of the Mexican station on 25.5 meters is XDS, and that the Canadian ship-to-shore phone on 62 meters is CZA. Mr. Soper is hearing a station transmitting music on 15.45 meters irregularly near noon-time, and would appreciate any

help readers can give him in identifying this strange station.

"The South American stations are beginning to make their appearance here in Southern California," comments Stuart Walmsley, 1316 W. 58th Place, Los Angeles, Calif. "HC2RL is a new visitor to these parts and have been coming in very well the last three Tuesday evenings from about 7 to 9 p. m., PST. YV3BC on 48.8 meters comes through between 6-7 p. m., PST, with about R6 volume. I heard TGX, Guatemala City, between 11:30 p. m., and 12:30 a. m., PST, which was evidently a special broadcast of some kind. For the past month the two European stations which I have been tuning in most regularly have been EAQ and Pontoise, the latter on 25.2 meters. GSE and GSB have been heard several times with good volume but they seem rather inconsistent here."

"I picked up LSN on 30 meters from 6:30 to 7:50 p. m. during a special broadcast by the President of Argentina," comments Jas. Woonton, R. R. No. 7, London, Ontario. "LSL was also transmitting but I did not try for it. They requested reports on their transmission. This station was very loud and clear. LSY has also been heard here with wonderful volume."

"I have heard Rabat in Morocco a few times," reports J. A. Shanks, Russellville, Tenn. "My latest catches are PHI on both its waves, HI1A between 3:30 and 4:30 p. m. CST on about 46.8 meters; YV3BC seems to me to be on about 48.2 meters, and is heard as early as 3 or 3:30 p. m., loud and clear. YV1BC is heard anywhere in the 49 meter band, never seeming to be satisfied with any one wave."

Some More Shorts

"I have heard XAM on 25.8 working with XDC on 32.09 from 5 to 6 p. m. XDC is in Torreon, Coahuila." Richard Carter, Ann Arbor, Mich.

LSY, Buenos Aires, 16.56 meters is broadcasting music on Saturdays

(Continued on page 48)

Using MICROPHONES and Phonograph PICKUPS

Methods of Attaching to Modern Sets

MANY of our readers have asked how to connect microphones and phonograph pickups to their radio receivers. It is a very simple matter to attach a microphone or phonograph pickup to any radio receiver, for only two fundamental connections are necessary. Best results, however, cannot be obtained without a good receiver, microphone, pickup, and properly altered circuit arrangement.

Most persons wish to experiment with toy microphones that are made for home entertainment. These are inexpensive devices which sell for about one to two dollars. Any microphone is nothing more than a refined type of telephone transmitter; poor ones give unsatisfactory results; while good ones help to make reproduction more nearly natural. Good microphones cost from ten to fifty dollars.

Phonograph pickups are not so expensive; they range in price from about five to ten dollars. The pickup is a magnetic device with a vibrating inner magnet attached to the needle so as to set up induced currents in a surrounding coil of wire. These currents are very weak and will not give good volume unless the audio amplifier of the radio set is capable of considerable amplification.

The Three Radio Stages

All radio receivers provide, through their audio amplifiers, suitable means for experimenting and entertaining with microphones and phonograph pickups. A radio receiver has three essential stages in its circuit arrangement—the radio-frequency section, where inaudible radio waves are greatly amplified; the detector circuit, where r.f. signals are slowed

down by rectification to audible limits; and the audio amplifier, where the detected and rectified signals are amplified to loud speaker volume. All we do, in this case, is to cut off the first part of the receiver and make use of the audio amplifier for the boosting up of the weak currents from the microphone or pickup.

A pulsating current flows from the pickup (see article and illustration "D" on page 5, November, 1933, issue of RADEX). It has the same character of audio wave as that sent from the detector tube into the audio stages for amplification. The microphone does not produce any current; it simply varies the amount of current flowing through the resistances of its internal mechanism. The microphone must be used with a transformer in order to obtain the necessary flow of pulsating current. Now, if we attach such a pickup or microphone transformer to the receiver we can send their induced and pulsating currents into the audio amplifier for amplification. But the radio-frequency stages, feeding into the detector, must be cut off so as to prevent the radio signals from passing back into the audio end when the set is turned on for operation of its audio amplifier. This can be accomplished simply by turning down the volume control, which operates on the radio-frequency circuit, or detuning the set to a point where no signals can be heard.

Various Degrees of Amplification

The amount of "gain" or amplification in the audio stages is far from being uniform for all makes of receivers. This depends upon the circuit and number of tubes. Some sets have the conventional first audio stage or "driver" tube feeding

into the second or output stage (one or two tubes). These, in turn, feed into the output transformer and loud speaker. Such circuits are best adapted to microphone or pickup amplification. The necessary connections are simple, but in sets having complicated circuits, such as some of the new midget dual-purpose tube receivers, the tube connections cannot be so easily converted to our purposes.

When a detector tube feeds directly into the last stage of the output without a previous audio stage, it then is best to attach the microphone or pickup to the detector tube. While the detector does not amplify the signal to any extent, its circuit can be altered without much difficulty or effort so it will work as an audio amplifier when the pickup is used. In this way we gain the power of one additional tube and actually increase the amplification and volume to a high degree.

Making the Connection

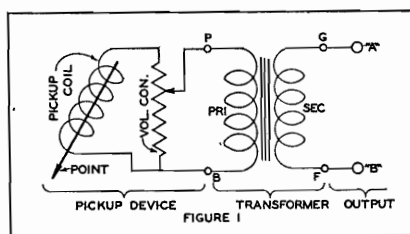
The fundamental connection of a microphone or pickup is to the grid of a tube and the grounded chassis. The grid controls the operation of the tube, for, if we vary the potential of the grid with the pulsating voltage coming from the microphone transformer or the pickup, we cause the tube to operate just as it does when in the radio circuit. However, this simple connection, while it always works, may not give perfect volume or tone. For this reason it may be necessary to make some circuit alterations. All phonograph pickup devices include volume controls in their own assembly, but such a control should be attached to the microphone to control modulation for a more pleasing reproduction and tone.

Pickups or microphones can be attached directly to the radio set with adapters, several of which are on the market. The adapter fits beneath the tube, either the detector or first or second audio. It splits the cathode lead to the tube socket and inserts the reproducing device in series with

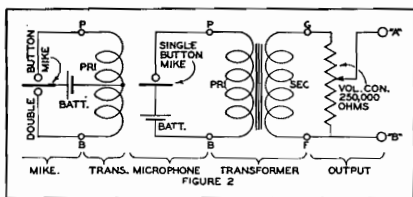
the cathode. Other adapters connect between the grid and the cathode. If the detector is a type of tube with top grid-cap connection, this contact must be removed so as to disconnect the radio-frequency tuning coil and prevent the shorting of the microphone input voltage through the coil into the ground. The contact is replaced with one of the leads from the microphone or pickup unit; the other lead fastening to the cathode.

Using a Transformer

The foregoing applies to direct connections of the microphone or pickup. Such methods do not always give the best results and there often is complaint of "tinny," distorted and unnatural sounds. Generally both the pickup and microphone require a transformer to step up the low voltage for proper coupling to the amplifier circuit. This provision matches the low impedance of the device to the high impedance of the tube input, which is very necessary for undistorted tone and good volume at maximum amplification. The special transformers that are used have turn ratios ranging from 1:20 to 1:64; the higher ratios being used with single-button, or less expensive, types of microphones. Ordinary audio transformers are not recommended.

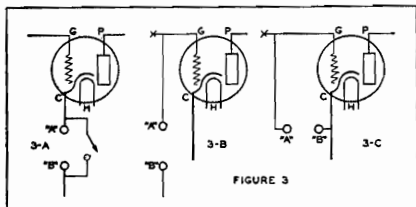


Connections for microphones and pickups are the same. The pickup, with its built-in volume control, is attached to the primary (P and B) of the transformer, as shown in Figure 1. And the microphone, with a 1½ to 3 volt battery in series, is connected also to a transformer primary, as shown in Figure 2. A 250,000 ohm potentiometer volume control is



shunted across the secondary (G and F), as shown in Figure 2. The output terminals are marked "A" and "B," and, in the illustrations and text, these will be referred to as the "unit output."

Let us consider a simple connection to a radio receiver. See Figure 3. In 3-A we have the unit placed in series with the cathode of a grid-leak or ordinary biased detector tube. This arrangement can be obtained with an adapter made for the purpose. The types of tubes with which it best can be used are: -24A, -27, -36, -37, 56, and 57.



In 3-B we see how the output of the unit is connected to the grid of any grid-leak or biased detector, such as filament types -00A, -01A, -12A, -30, -32 and -99, in addition to the cathode types above mentioned. Or it can also be attached in this way to any filament or heater type of audio amplifying tube, such as types -01A, -12A, -10, -20, -26, -27, -30, -31, -33, -37, -41, -45, -47, -50, -56, -71A and -99. At 3-C we see another simple method that of connecting the output of the unit ("A" and "B") between the grid and cathode of any cathode type or heater tube included in the above lists.

Editor's Note: While the description given above is ample for the great majority of sets, there are some

Wave Trap with Converter

By John Strong

MANY short wave listeners depend upon a converter for their reception. Most of the converters call for a quiet spot somewhere on the broadcast dial. During the winter it is very difficult to find a quiet spot. As a result the broadcast signals heterodyne the short wave signals making them very hard to understand. In some cases night reception is impossible.

If these listeners would put a simple wave trap in the antenna lead, most of this difficulty would be eliminated. Construct a coil by winding 70 turns of No. 26 enameled wire around a three inch form—a salt box will do. Connect the aerial to one end of this coil and also to a variable condenser—the one I am using is a Hammarlund 23-plate (not a mid-get). Any standard condenser will work. If it shouldn't work properly, taking off or adding some turns will correct it. The other end of the coil and of the condenser goes to the antenna post of the set.

Run the aerial also to a single-pole, single-throw switch and thence to the antenna post of the set for use in cutting the trap in and out.

Tune the condenser of the wave trap until the signals of the broadcast are at their minimum volume. This will assist materially in giving the s. w. converter signals the right of way.

The wave trap will also be useful in minimizing the signals of a local station to prevent interference with DX. It is best to use a shielded lead-in from the trap to the set to prevent any pick-up on that part of the antenna system.

circuits and some tubes which require special treatment. These will be covered by Mr. Dashiell in the February issue.

From the Editor's VIEWPOINT

WHAT are we going to do about this duplication of effort in arranging special DX programs? Here is an instance of the trouble that is caused to the stations and all others concerned. In the first place, let us say that RADEX does not seek to arrange these special programs but only to secure advance information regarding those that have been arranged. To do this we send questionnaires to all stations that give DX programs either regularly or occasionally. In answer to such a questionnaire, station KDB at Santa Barbara notified us that they would give a DX program on Sunday, Dec. 17. We were advised by Fred W. Janssen, of the Courtesy Programs Committee of the NNRC, that this was going to interfere badly with a program he had arranged with another station for the same hours and on the same frequency. We asked KDB to change

their program to Monday, Dec. 18, and so notified Mr. Janssen who then wrote us that this, too, interfered with still another program he had arranged for KGFI, Corpus Christi, for Monday morning on 1500. As the December issue of this magazine was already out showing the program of KDB for Monday, Dec. 18, Mr. Janssen kindly said he would try to rearrange the KGFI program.

This duplication must necessarily be most annoying to the radio stations and, it may easily be foreseen, it will result in discouraging the stations from putting on any DX programs and thus prevent great numbers of listeners from logging many stations. This is a matter for the clubs to work out and we earnestly commend the matter to their careful consideration.

Apartment House Radio

"Can you or any of your readers suggest a suitable aerial for this location?" appeals W. G. Odenwalder, Care American Tel. & Tel. Co., 32 Sixth Ave., New York, N. Y. "I am in an apartment house and the roof is cluttered with wire leaving not much room for me. What is the effect of my aerial running over the others at right angles? What is a good ground in an apartment and how far should it be from the set?"

Mr. Odenwalder is certainly in a "hot spot" but he has a great deal of company. It is a real problem for denizens of apartment houses to secure a good aerial. Some day builders of apartments will erect an absolutely necessary part of their structure, one single high aerial equipped to serve all the tenants. The RCA-Victor people have developed such an aerial for Rockefeller Center which will give adequate antenna service to the thousands of tenants of that huge building. There are now on the market a number of aerial systems designed especially for multi-service in



Charles J. V. Murphy, production-man-announcer of the CBS, now enroute for the Antarctic with Admiral Byrd's expedition aboard the S. S. Jacob Ruppert. Murphy directs the weekly broadcasts heard over CBS each Saturday at 10:00 p. m. EST.

apartments. The best, and in fact the only, ground available to those in Mr. Odenwalder's position is the cold water pipe in kitchen or bath-room. In some apartments the attachment can be made direct to the pipes in service openings in the wall. A long ground lead to a good ground is preferable to a short lead to a poor ground such as a radiator. In no cases should a set be grounded to a gas pipe.

In spite of his handicap, Mr. Odenwalder reports 77 stations received in a month on his RCA-Victor R-22 Universal Midget. These include such catches as KFI, KFSD, KPO, XER-XEF, XEAW, XEPN, CKAC, and CFRB. On the short waves he has 68 police.

Cutting Our Features

"I want to add my little say to the slight controversy that seems to be on tap, concerning just what you should print in your magazine. Anyone who says a certain subject should be eliminated from RADEX, is plain selfish. I seldom read the short wave section because it doesn't interest me. The same is true of 'What's on the Air Tonight.' But I'm not going to be so selfish as to say that I would like to see these cut out. Hundreds of your readers want these in the magazine and their desires are equally as important as mine. Your magazine is just about perfect and I hope you will keep it essentially as it is." This fair summary comes from Arthur E. Foerster, a member of the Courtesy Program Committee of the NNRC, 1213 Bosart Ave., Indianapolis, Ind.

And Alden P. Bowser, 358 Pleasant Street, Brockton, Mass., seconds the motion by saying, "I want to contradict that complaint on page 25 of the December issue about 'Stories of the Stars.' Don't you believe it. Give us what we're getting now and I won't kick."

Questions DX Calendar

"A few words about the special DX calendar that you print each month," complains D. Robinson, 1114 Washington Ave., Rensselaer, N. Y., "I



Don Voorhees, young orchestra leader who led Columbia's first jazz band back in 1927, is now on CBS again each Wednesday night at 8:30 p. m. EST, on the program featuring Albert Spalding. In addition to accompanying Spalding and the baritone soloist, Conrad Thibault, Don offers his own special arrangements of popular melodies.

think I can safely say that at least three-fourths of them do not put on these special programs at the time specified. I do not blame you but I think the stations fall down on the job. My reason for believing this is that, on listening to the frequency checks, every station that I have wanted to hear has come in on the time specified whereas with the special DX programs, I would be lucky if I could catch half a dozen out of the whole list." It is true that the stations are obliged to put on their frequency checks without fail whereas they can postpone or abandon their DX programs without notice. But is not the real reason for the results Mr. Robinson has had due to the fact that, in the case of the checks, the way has been cleared by the FRC and all interference silenced whereas with the DX programs, the stations must be heard under ordinary operating con-

ditions with other stations on the same and adjacent channels going full blast?

Wants Foreign Stations

"A DX experience of mine suggests what I think will be a distinct improvement in your station listings," submits Arthur Foerster, Indianapolis. "I had an interference with WHAM and after careful tuning discovered it was LR8. Why not list all the stations of 1000 watts or even 2000 watts in South America and Australia, just as you do YV1BC and HJN?" It is true that more and more of our readers are now picking up stations outside the North American continent and perhaps we shall have to follow Mr. Foerster's suggestion and list all of the principal stations of the world in all three indices. In the meantime, however, those who do receive the foreign broadcasters may have our new DX Log of the World which contains *all* the stations of the world on the broadcast band. It is issued quarterly and the price is only ten cents.



Phil Regan, debonair bachelor and tenor, heard over CBS at various times during the week. The portrait above, incidentally, is his latest.

Cleaning Improved It

"By the way, thanks a lot for your tip in the November RADEX about dusting and cleaning up the set," thanks R. B. Monahan, 908 E. 5th St., Erie, Pa. "I gave the set a fairly satisfactory cleaning and the results are excellent. The signals are much stronger and with much less static. I even fancy that the tone is better. I had XEW on before I cleaned the set and there was so much static being pulled in that I had to get another station. Afterwards I got the same station and turned the volume almost entirely on before noticing any static. But the stations (all of them) still fade, so I'm going to get some new tubes."

"If any of your readers have small transmitters of their own, I have something which may interest them," contributes Edward Curren, Jr., New Rockford, N. Dak. "In case a person is using type 210 tubes in a transmitter and is also using a Majestic set, the plate supply for the transmitter may be obtained by hooking one of the wires from the ground terminal of the set and the other to either of the speaker field coil terminals. This gives a well-filtered plate supply without cost. Battery clips are good for making the two connections at the set."

Senor Alejandro Galindo, Manager of the Service for the Radio Club, Mexico City, advises us that conditions compel him to suspend further activities of the club. Lack of cooperation from the stations made the work too difficult in securing verifications. He regrets that circumstances prevented XETR from putting on a special program for the NNRC and tells us that station has now withdrawn from the air.

The only book published that contains all the stations on the broadcast band—The DX Log of the World; price 10 cents.

All stations in the world listed by countries, frequencies and calls.

The First Aid DEPARTMENT

• • • *By our* TECHNICAL EDITOR

I AM taking the B voltage from the large prong of the -80 rectifier tube in my set to supply the plates of a Stewart-Warner short-wave converter. A serious hum is heard which cannot be reduced, and I am at a loss what to do. Can you advise me?

When you take high voltage from one of the large prongs of the -80 rectifier tube—the side connecting to the choke coils—you are using raw rectified current which is merely a vibrating or pulsating d.c. output. This rectified current hums and has as many positive impulses per second as there are cycles in the a.c. power line supplying the receiver. Such rectified current is unfit for radio use until after it is smoothed and filtered.

You should make a connection to the far side of the filter choke coil which smooths out the d.c. impulses of the raw current into a quiet, steady flow of direct current for the plates of the tubes in the receiver. Therefore, it is best to take off the B voltage supply at the proper place on the voltage divider system or at one of the tube sockets.

Value of Control

Can you tell me what is the value of the volume control in my McMullan receiver?

We regret that we are unable to determine just how the circuit of this received is arranged and advise you exactly. However, we believe the control to be a Centralab volume control No. 79005, Junior series, having 15,000 ohms resistance. Write the Central Radio Laboratories, Milwaukee, Wis., for the proper replacement unit needed by your set.

Phones on Majestic 180

I am having trouble with headphones and adapters on my Majestic 180 receiver. I am afraid of overloading the set and doing some dam-

age to the power pack and tubes. What else can I use to better advantage and with more safety?

This set uses two -50 tubes in the power output and it is likely that the adapter used with them upsets the balancing of the circuit when the -50s are removed from their sockets. No power tubes should be removed when a set is operating.

Because of the excessive voltage of this set -425 volts—it might be best to use a hook-up as shown in Figure 3, page 3, of the February, 1933, issue of RADEX. The suggested phone attachment is shown in the lower right-hand corner of Figure 3. Attach to the plate of either of the -50 tubes with a 0.5 microfarad 500-volt test by-pass condenser between the plate terminal of one of the sockets (using a wafer adapter to make this connection) and the phones, then a 25,000-ohm resistance between the phones and the chassis or ground. Use care in making the wiring because of the dangerous voltage on the plates of these tubes. Good insulation is obviously necessary. Silence the speaker as indicated in the February article.

Which New Tube?

I should like to use new tubes in my Stromberg-Carlson 635A a.c. receiver. Which ones can you recommend?

The first audio tube, type -27, can be replaced with a 56. Since the rest of the radio-frequency end of the circuit is neutralized new adjustments would be necessary if the rest of the -27s were replaced with 56s. You could use a -45 in place of the -71A with a resistor to reduce the present 5.0 volts to the 2.5 needed by the -45 tube. But the amperage drain of the -45 is six times that of the -71A and this might cause your a.c. power-pack to become overheated.

New Tubes in Philco

Can I change the old tubes in my Philco, model 95, to some of the newer and more efficient tubes?

Since this receiver is a tuned-radio-frequency set using three -27s, three -24s, and two -45s, it is possible to use some of the newer types of tubes. The first audio tube, a -27 set in the corner of the chassis rear next to the two -45s, may be replaced with a 56. While using this tube try replacing the detector, another -27, next to the three -24s set in a row, and also the power detector, the last remaining -27 tube. If the replacement works well in these three positions you would feel justified in purchasing new 56s. A 57 may be used in place of a -24 in your set. These are radio-frequency tubes. We suggest that you get one 57 and one adapter and try the substitutions, one at a time, before investing in a complete set of tubes and adapters. We are sure, however, that the substitution will be beneficial.

Load on Power Tube

I have just learned that a constant load must be maintained on the pentode power-tube output as otherwise serious damage is likely to result. For this reason will you tell me whether head phones can be added to my set?

A load must be maintained on this part of the radio circuit. Power pentodes must never be removed from their sockets when the set is turned on. You will note that the drawings in our February, 1933, issue of RADEX, show how headphones may be attached and that the output from the power tubes continues to pass through the primary windings of the output transformer from the plates of the power tubes. Thus the d.c. supply is maintained on the plates and the load remains constant. When the voice coil of the speaker is cut open with a switch it merely prevents the induced current from the secondary coil of the output transformer from flowing through a circuit. It is not necessary

to maintain a load on the secondary of the output transformer.

When you attach headphones to the plates of the power tubes you do not consume any of the direct-current supplied to the plates by the power pack eliminator device built into the set. The phones use only the alternating-current component and surges that pass through the blocking condensers placed in series with the phones and the ground. The use of headphones as shown in the February, 1933, issue of RADEX, does not in any way alter the normal load on the power tubes or subject the set or parts to any overloading.

Filter Chokes

Please tell me the values of the filter chokes in my Radiola 60. I wish to make replacements.

You can replace either or both of the filter chokes or reactors of this set which are connected in series in the powerpack portion of the Radiola 60 receiver with single or double choke arrangement having individual values of 30 henries, 125 to 150 milliamperes, and about 200 ohms d.c. resistance, each.

Loud Volume

The volume control of my receiver does not reduce the volume of sound from the speaker even when it is turned down low. Why is this, and how can it be remedied?

A defective volume control may be the cause of too much volume. It may also be that the ground end of the volume-control resistor is open thus obtaining series voltage-control of the screen voltage. In this case the relatively low value of the volume-control resistor will not allow appreciable voltage control at the screens. As soon as the screen circuit is completed by advancing the volume-control arm until contact is made the screen voltage is almost at a maximum, hence the volume is too high. You have not indicated the kind of set you have in your query, but if the set uses such a resistor at the volume control we suggest that it be tested and replaced, if necessary.

Home-Made Set Hums

There is an annoying hum that begins at 1060 kilocycles and continues on up to 1500 kilocycles in my two-tube home-made regenerative set. What can be done about it?

All sets of this type employing regeneration have a decided tendency to howl and hum when regeneration becomes too critical. Such sets are an annoyance to every nearby radio neighbor unless it is far off in the country. The tendency to hum and howl is greater as the high frequencies on the dial are reached. Perhaps the tickler coil has too many turns on it. Try taking off three or four turns. The hum also can come from an inefficient A and B current source. Try using another -24 detector tube, for a defective tube will give a decided hum. Insert a 0.1 mfd. fixed condenser in series with the cathode of the -24 tube and the ground and then shunt this condenser with a 1,500-ohm self-biasing resistor.

Silencing Dual Speakers

How do I silence the dual speakers of my Zenith, model 410, receiver? I do not know which lead to cut for the switch. How far can the switch be placed from the cut wires?

Dual speakers operate usually as a single speaker. From the output transformer (secondary coil) will be found two short, flexible leads. These connect to the voice coil of the first speaker, usually the largest of the pair. This coil will be found on the tip of the cone of the speaker and is the only free or unspotted winding in the speaker assembly. The two wires then continue on to the additional or smaller speaker of the dual unit.

In order to silence these speakers it is only necessary to cut into one of the speaker wires above mentioned which will immediately silence both speakers. The two ends of the cut wires may be extended any distance with additional wire. Between the



When Mrs. Franklin D. Roosevelt went on the air over the CBS network from a banquet in Chicago recently, the announcer handling the broadcast found that the hubbub of the guests was entering his microphone. He therefore quietly crawled, microphone in hand, under a nearby table where the alert camera-man caught him. In the above composite, Mrs. Roosevelt is shown speaking at the banquet, while announcer Holland E. Engle lurks under a nearby table.

ends of the extended wire connect any type of snap switch. When it is turned to the "off" position the speaker lead is open and the speaker silent—when turned to the "on" position the circuit is again closed and the speaker operates.

Kolster Has a Hum

I have a 1928 Kolster, serial 32547, model K-24. It uses five -26s, one -27, one -10 and two -81s. Can I use new tubes? Would it be possible to use a -45 or -47 in place of the -10 by using resistors to cut down the voltage? Would it be difficult to use a -80 in place of the two -81s?

If the volume control is turned full way on, when either local or distance switch is on, a bad hum results and the set is neither selective nor sensitive. How can I correct this fault?

The Kolster K-24 receiver uses grid-suppressor oscillation control in the r.f. stages and when a hum as mentioned occurs it is usually caused by an open grid suppressor. All such resistors should be replaced by 2,000-ohm resistors and the small condensers shunting them should be removed for better results.

Although possible, the substitution of a -45 tube in place of the -10 in

this receiver is not recommended. However, the -81s may be replaced with an 83 or 5Z3 rectifier by using a suitable filament resistor and connecting the sockets properly. A 1-ohm resistor will be all right and the plate connection of one socket is simply connected to the blank terminal of the other—the one which will be used. There is some risk in this alteration of overloading the filament secondary and this fact should be carefully noted for if overheating becomes serious the only thing to do is to revert to the former and original method of operation. The -27 tube can be replaced with a 56. The -26s have no similar types that can be used for substitution.

Short Wave Converter

I have built your short-wave converter as described in the June issue of RADEX. I am using it with an Eveready model I set, and obtain fair results, but, due to the poor selectivity of the set I have difficulty finding a totally dead spot in the 1,000-1,500 kcs. range to which to tune when operating the converter. As a result I have been using the converter when the set is tuned to about 520 kcs. Are there any changes in the hook-up that will make it operate more satisfactorily at that point?

No circuit changes are necessary to use an intermediate frequency of 520 kilocycles although your broadcast receiver is undoubtedly not as sensitive at this frequency as it would be closer to 1,500 kcs. Since the main function of the converter is to change the signal frequency so that it falls within the range of the broadcast receiver (500 to 1,500 kcs.) input, it accomplishes very little in the way of actual amplification. Some gain is provided through the detection processes, but we suggest that you improve the gain of your broadcast receiver first and then if necessary couple the converter into the receiver by means of a tuned circuit. That is, simply connect the plate of the converter output to the primary winding of a

radio-frequency transformer coil, tune the secondary with a condenser similar to the ones used within the broadcast set, and send that secondary tuned current into the grid of a radio-frequency amplifying tube. The plate of this tube is then connected to the antenna post of the broadcast set through a fixed condenser similar to that in the converter. This arrangement, while rather crude, can be refined somewhat and will sharpen the tuning of the receiver and step up the short-wave signals so that more distance and stations can be heard.

Stewart-Warner Converter

If I connect a Stewart-Warner short-wave converter to my RCA 60 receiver will it draw too heavily on the transformer in the set? Where do I attach the converter plate-voltage terminal tip?

We see no reason why attaching the converter to the RCA 60 set should throw too much load on the transformer. If it does overload you will notice it when the transformer becomes much warmer than is usually the case when the RCA 60 is operated alone.

(Continued on page 45)

Sweeping Changes in New Zealand

Effective December first, the broadcasting stations of New Zealand moved to new channels with a few exceptions. Following are the old and new frequencies:

1YA Auckland from 820 to 650
1YX Auckland (new) on 880
1ZB Auckland from 1420 to 1190
1ZH Hamilton from 630 to 770
1ZJ Auckland from 1320 to 1310
2YA Wellington from 720 to 570
2YB New Plymouth from 1230 to 750
2YC Wellington from 1010 to 840
2ZD Masterton from 1180 to 1170
2ZF Palmerston N. from 1050 to 960
2ZH Napier from 1370 to 820
2ZJ Gisborne from 1150 to 980
2ZL Hastings from 1400 to 1240
2ZO Palmerston N. from 1050 to 1400
2ZR Nelson from 1360 to 1110
2ZW Wellington from 1120 to 1060
3YA Christchurch from 980 to 720
3ZR Greymouth from 1300 to 940
4YA Dunedin from 650 to 790
4ZB Dunedin from 1080 to 1050
4ZM Dunedin from 1080 to 1050
4ZO Dunedin from 1080 to 1050
4ZP Invercargill from 1160 to 620
4ZW Dunedin from 1080 to 1470

In the WEE HOURS *with the* RADEXERS

The Meeting of the Clan

EVEN a casual reader of these columns must be impressed with the way in which the old world is shrinking. The reception of a single Jap or Aussie used to be good for a whole column but now the foreign stations on the broadcast band are being reported from all over the continent. No longer is this privilege restricted to the Pacific Coast. The Europeans are being reported from the West and the Trans-Pacifcs from the East.

While perhaps the majority of our readers are still without the experience of the thrill of the voice from across the big waters, yet one by one they are logging the foreign station. Increase in transmitting power and the improvement of receivers is making possible in many localities almost daily reception of the other continents. Patience, perseverance and a knowledge of where and when to tune, are required.

New Zealand From New York

"I had a funny experience Sunday morning (Nov. 12)" narrates Sam Kiamie, 2857 Sampson Avenue, New York City. "I was listening to KGB on 1330, then moved my dial slightly and, right on 1328 kcys., I heard a station playing concert music from 3:00 to 3:15 a. m., and a long talk positively in the French language from 3:15 to 3:30. Looking up the world list in the Midsummer RADEX, I saw that Station Normandie in Fecamp, France, was on that exact frequency. I have written them for verification. I also got my first trans-Pacific, Saturday, Oct. 28. I was fishing around 720 kcs. about 5:00 a. m. when I heard a talk with a decided British accent. I listened for a while and heard the announcer talk about

New Zealand business and also race track reports at 5:15 a. m. He gave the call as 2YA in Wellington, New Zealand. Then followed a period of dance music much of which is very popular here. What a thrill to hear that 'New Zaylander' as they say it. On the same morning I heard on several frequencies such as 820 and 900, stations broadcasting a series of sound by gongs but never heard anything else but that. I wonder who they could have been." Mr. Kiamie says he heard WKBB which recently moved to East Dubuque, Ill., on 1500 instead of 1310. How come?

From the Middle West

"What a kick I get out of reading the letters of the DX hounds and

Foreign Postage Rates

Letters to the following countries, 3c each ounce or fraction: Andorra, Argentina, Balearic Island, Bolivia, Brazil, Canada, Canary Island, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Guatemala, Haiti, Honduras, Labrador, Mexico, Newfoundland, Nicaragua, Panama, Paraguay, Peru, Salvador, Spain (including Alhucemas Island, Ceuta, Chaferinas or Zafarani Islands, Melilla, Penon de Velez de la Gomera, and Tangier), Uruguay, Venezuela. For all other foreign destinations, 5c first ounce and 3c each additional ounce. Registration fee for all foreign destinations, 15c in addition to postage. When a return receipt is requested at the time of mailing there is an additional charge of 5c.

comparing my catches with theirs," exclaims Chas. Rife, 1621 Summitt, Kansas City, Mo. "And what a thrill it is to sit down before the old set in the early hours and listen to stations in Japan, Australia, New Zealand, China or the Philippines. I fish for long shots and make sure of my catch but I never trouble to send for verifications. My grand total logged in two years with a 9-tube Majestic 251 super, is 485 stations. I have heard from one to 26 stations in each of the following countries: Mexico, Canada, Cuba, Venezuela, Argentine, Uruguay, Norway, Australia, New Zealand, Japan, China, and the Philippines, Hawaii and Porto Rico. I never miss one word in RADEX whether it be broadcast band or short waves. Although I have only a broadcast receiver, I am very interested in short waves and hope some day to explore those intriguing channels."

Dislikes Changes

"CMC was coming in nicely until they put CKLW on 840," protests Richard M. Carter, 820 McKinley Ave., Ann Arbor, Mich. "Then it was a shame to put CKY on XEW's wave. Now neither is good here. XEW had some of the best programs on the air. CMQ can be heard most any night until about 9:00 o'clock. Saturday night is a good time to try for XEYZ and XEB, between 9:00 and 11:00. XEYZ announces 'aikess-ay-ee-gree-ay-ga-thaytah' on the hour and XEB generally announces every 15 minutes, giving something like a cuckoo call before each announcement.

"My list now stands at a total of 629 of which 535 are U. S. Not bad for one year and nine months of DX-ing. There are only 100 Americans on the air now that I lack—none over 1000 watts. I'm going to get LR4 eventually. I hear them heterodyning WBZ every evening and once in a while I can catch a few words. Last Sunday morning I heard about ten T-P's—KGU, 2YA, and 2BL were the only ones coming in well enough to log though, and I already had these."

Out in the Desert

"I have a six-tube Majestic auto radio in my car," advises Stanley C. Schultz, 1100 Union Oil Bldg., Los Angeles, Calif. "Last Sunday morning between 2:30 and 4:30, while on the desert near Lancaster, Calif., I picked up a station on 650 kcs., which would be fairly loud for three or four minutes then fade clear out. If I am not mistaken, the language spoken was Japanese. I understand, though, that there are only two very small Japs on that frequency. Have there been any new ones placed on 650 kcs.? Between 4:00 and 4:30 the program consisted of soprano solos with piano accompaniment. Practically all the remainder was a long talk by the announcer. It seemed to me that he kept repeating a certain phrase over and over again. There was no English spoken to my knowledge.

"I also picked up another Jap (?) on approximately 765 kcs. Their program was seemingly a play with only two characters in the cast. That one was not as clear and loud as the first one. My radio is a very powerful set and capable of receiving many middle-western stations. W H O, WCCO, WENR, come in with good volume. Reception on the desert Sunday couldn't have been better. The temperature was around 38 degrees, the air was clear, and we were over 50 miles from any high tension wires."

A Frolic on 1200

Arthur Foerster, 1213 Bosart Ave., Indianapolis, Ind., reports his own log standing at 611 stations with 535 verified. Some of his latest are 2BL, KOOS, KRE, XEU, XEAD, KLS, KGDM, KPQ and CX26. He now holds the Superace certificate from the NNRC. He adds: "You might be interested in the DX program I have scheduled for the NNRC on Sunday morning, January 21, 1934, on 1200 kcs. Here is the schedule:

WNBO, Silverhaven, 1:00-1:45*
WJBC, La Salle, 1:45-2:30

WJBL, Decatur, 2:30-3:15
KGEK, Yuma, 3:15-4:00
WCLO, Janesville, 4:00-4:45
WRBL, Columbus, 4:45-5:30
WCAT, Rapid City, 5:30-6:15

All time is EST. Two yearly subscriptions to RADEX are to be offered—one for the most distant report on any one broadcast; the other for the most complete report of the entire broadcast.

"I cannot help but marvel at the wonderful reception possible with present-day receivers," postscripts Mr. Foerster. "On Saturday and Sunday, November 18 and 19, with my Majestic 340-B, 11-tube, I heard WOR, Newark, here in Indianapolis all day long with WLW and WGN on adjacent channels."

*"To everyone picking up our signal and writing me," promises Charles A. Christopher, Production Manager of WNBO, whose address is Washington, Pa., "I will send an exact replica of Lincoln's Gettysburg Address or an exact copy of Lincoln's letter to Mrs. Bixby, the latter in Lincoln's own handwriting. Listeners must give the names of at least three selections used on the program and enclose three cents postage. No postal cards will be verified."

Four Nights' Work

"On Thursday, Nov. 16, I bought two new B batteries so I thought that I'd start logging all over again," reports A. Breitner, Cawston P. O., B. C. "From Thursday night to Monday, Nov. 20, at 5:00 a. m., I had logged 128 stations, including five Japs, JOBK-1, JOGK, JOIK, JOAK-1, and JOAK-2, and four Mexicans: XETA, XER, XEPN and XEYZ. My best catch was WDBO at Orlando, Fla. I pull in WABC, New York, just like a local. My radio, a five-tube t. r. f. Magnavox battery set, tunes to about 1790 kcs., enabling me to log a number of the police. I have not been able to log CJOC on their regular frequency of 840 kcs. but I have been getting them at about 1640; have they two transmitters or



Leopold Stokowski, distinguished conductor of the Philadelphia Orchestra, heard nightly (except Sunday) over CBS at 9:00 o'clock EST. This is in addition to the regular Friday afternoon series which Stokowski now presents and will continue to present throughout the season. Above, the camera shows the conductor at the helm of his orchestra during one of the broadcasts from the Philadelphia station, WCAU.

is this a harmonic? Cawston is about 225 miles from the Pacific and about 14 miles north of the U. S. boundary." CJOC would have a harmonic on 1660 but it is unusual to be able to pick up a station on its harmonic and not on its fundamental.

Going to Do Better

"Up till now I have been a rather indifferent DXer," confesses R. J. Lauria, 11903 Lenacrave Ave., Cleveland, O. "But I have finally been smitten with the fever. Beginning in October of last year up to the present time, I have logged 360 stations, none verified. Now I'm starting all over and hope to have them all verified. I am using a 7-tube Atwater Kent, Model 55, with an aerial of about 30 feet in the attic. Is there any possible way of cutting out some of the electrical noises? At times it is very bad here and it always interferes with distant stations. Can anything be done about separating stations that come in two and three at a time between 1100 and 1500 kcs.?" Your attic aerial is undoubtedly responsible for much of your noise. It is in a position to pick up a great deal of interference from the power lines in your house. Erect an out-door

aerial, by all means, if you can possibly do so. It is practically impossible to separate the stations in the upper band without a superheterodyne set.

Notes From New Zealand

From Hastings, New Zealand, comes this letter, George E. Bott, 507 Southhampton St.: "My first year of DXing ended October 20. In that time I have heard 99 U. S. stations, 8 Mexicans, 57 Australians, 28 Japanese, 3 Chinese, 5 Canadian, 45 here in New Zealand, 7 in Europe and one each in India, Hong Kong, Siam, French Indo-China and Argentine. I have heard three hundred-watters in your continent. I have a total of 257 stations heard of which 105 are verified. I am using a 1927 model Grebe 5-valve battery set.

"The new 3YA station at Christchurch should be on the air on 570 kcs. about November. Four new stations are also to be constructed in Australia of which two are to have a power of 20,000 watts and the other two 10,000. A new station will also be started at Auckland shortly to replace the existing 1YA. This station will have a power of 2000 watts on 600 kcs."

One Left In Manila

Clyde E. Lowe, 730 K St., Merced, Calif., sends us a letter from RCA Communications, Inc., stating that KZRC in the Philippines and KZKA are no longer on the air. "In three nights," says Mr. Lowe, "I picked up the following 21 stations: Z1LY, 2CO, 7ZL, 3AR, 5CK, 6WF, 5CL, 4QG, 3LO, 2BL, 4RK, 6ML, F31CD, VUC, VUB, 2YA, CE86, PRAC, KZRM, SBA, XGOA and (page Ripley) PP four times on 914 kcs. The above stations are all verified. I use a Majestic 9-tube Model 61 on the broadcast band only. I do not use phones. XGOA is good for at least three hours of reception any morning until 6:30 PST on 660 kcs., not 681 as you have it. 2YA, Wellington, usually signs off at 3:00 or 3:30 a. m. During daylight saving time, it was a common

occurrence at 10:30 p. m., PST, to hear the clock in the G. P. O. at Wellington, strike six." This is a most astonishing record that Mr. Lowe gives us and we are prepared for a deluge of criticism.

A Report From England

"Perhaps my experiences as a European DXer may interest you," suggests F. Wiseman, 90, Brighton Grove, Newcastle-on-Tyne, England. "DX here has been possible all summer, verified reception from WKAQ, WBT, WTIC, WPG, WCAU, WJSV, WTAM, WNAC, LR3, LR4, being received from April to the end of August. September 7th produced my best U. S. A. veri., KGO. Since August, veris have been received from WOAI, CKAC, WHAM, WAAB, KGO, WRDC, WCAM, WABC, and the NBC verified reception of their program heard from LR4, Radio Splendid. Extraordinary reception was experienced from September 30 to October 5, when I made gramophone records of the programs from 21 American stations and nine Argentines. These records have been sent to the stations concerned as evidence for verifications. I use a Midwest 16-tube and a Midwest 8-tube." Mr. Wiseman is the general European representative of the I D A.

Good List From Down Under

"I have substituted the 171A's in my set for the newer Pentode 47's and find that the Anzec stations are really booming in despite a lot of static," comments S. R. Lewis, Rt. 3, Box 688A, Toledo, Ohio. "Have heard the following TP's: 2CO, 7ZL, 3AR, 5CK, 2FC, 2YA, 5CL, JOBK, 4QG, JOGK, 3LO, 1YA, 2BL, 4RK, 2GB, 3HA, 2UE, 4BC. Can't seem to get any TP's any farther down the dial than about 1150 kcs. I still use my old familiar Crosley Showbox, with a wave trap attached, and many, many dials and contraptions to facilitate the balancing of the neutralizers to any particular frequency I may want to hear. Have about 300 feet of aerial out at present. Use three dif-

ferent grounds. Verifications are now about 775. Sure hope to get 800 this year, but I'm afraid not, for I need only 11 more stations in the U. S. A. and very few in Canada."

Luck on Tests

"This summer I bought a Philco 89-L, 6-tube super all-wave and now I have the DX fever again," admits H. A. Turner, 263 St. Clair St., Bridgeville, Pa. "I started to log on October 1st and to date I have 410 on the b. c. band. On Saturday, November 4, I got 19 out of the 20 on frequency check, Sunday morning, 9 of the 13, Monday morning 30 of the 48, Tuesday, 12 of the 30. I now have 130 with 100 watts or less. I am 12 miles southwest of Pittsburgh. I use two aerials—one is 150 feet long with 25 foot lead-in, the other is 50 feet long at a 45-degree angle with the long one. I have a switch so I can use either or both. I have all the states but two. I would like to know when either KDFN, Casper, Wyo., or either of the Delaware stations are on."

All Channels at Noon

"Just thought I would drop you a line to let you know what kind of daytime reception I am getting now," announces John A. Shanks, Russellville, Tenn. "Today (November 7) at 12:15 to 12:45 p. m. (noon) I tuned in a station on all the 96 channels on the b. c. band. All stations but three or four came in with full speaker volume. Even heard a Spanish speaking on 910 or 912 kcs. (a Cuban), also CMCQ on 775 kcs. and a Cuban on about 880 kcs., all with full volume. CKLW was heard on 840 and nothing on 540. What do you think of this for reception? The Midwest receiver is sure a distance-getter, never saw anything like it before."

Proud of His List

"I have worked for many a night trying to land an 'under-the-world' station," admits C. Leroy Custer, 2606 Dwight Way, Berkeley, Calif., "and last week I was rewarded. I guess I have not been patient enough.

I finally landed 2YA in Wellington, N. Z., and then, on the morning of October 8, from 3:00 to 6:30 PST, I had the grandest luck. I pulled in JOAK-2, JOVK, JOLK, JOKK, JOBK-1, JOGK, JOIK, JOFK, JOAK-1, JODK-2, JODK-1 and JFAK—twelve of them. I am really quite proud of that list. I never dreamed that I could catch so many in one night. I have logged 357 stations on the b. c. band. I hope this experience of mine will be of interest to those who are discouraged in their attempts to get across the Pacific."

One Morning's Log

"Sunday morning, November 5, I heard 2YA, 2BL, JFAK, JOBK-1, JOAK-1—in all, six Japs and two Aussies," Charles L. Clark, Physics B, 410, University of Texas, Austin, tells us. "We now have 380 stations in just two months DXing. About ten of these are illegal. Austin, in the middle of Texas, is the bootleg radio men's paradise. We have four or five here in town and as many others within 100 miles. I think my Majestic 21 is unusually good. I have received WGY on 790 while WBAP on 800 was on at the same time with the same volume. I can get the big Easterns every night while KDYL on 1290 comes in so strong it is almost a nuisance. The Physics Department here has a Western Electric 10-A t. r. f. set and I'm going to start DXing with it soon—Antenaplex, 14 tubes, mercury tubes, four-stage amplification before and after detector, etc., etc. We ought to win a prize!"

"I have six stations from Australia, two from New Zealand, and two from South America verified," reports J. Drake, 1920 Athol St., Regina, Sask. "A few days ago I picked up four stations in Japan, to whom I wrote for verification. My total verifications are now 306, and there are about 15 reports out to stations that I have picked up in the last few days. I have not as yet had a chance to work on the FRC frequency checks, but

will be in there starting tomorrow morning. All the above stations were received on the loud-speaker. Today I had phones installed on the set, but have not had a chance to try them out. I use a Philco 96, 9 tubes, and just about three years old."

Let Well Enough Alone

"I just got a radio October 31st to start the month of November off with a bang," enthuses Paul E. Heeley, 1220 W. Jackson St., Painesville, Ohio. "Thought I would help matters by writing you a letter. RADEX is getting better with every issue. I say to keep things balanced as they are, just a little of everything and not a lot of one thing. DX reports of the fans are my weakness. I'm using a Graybar GT7, a 1933 product. The first three mornings of the FRC tests I logged 70 out of 131 stations, including WKAQ, KFPL, KABC, KGFI, KCMC, KGHI, KGHF, KGDE, WQBC, and KBTM. This set has plenty of reserve power and sure pulls them in."

"Since last writing to you, my brother has purchased a Victor radio," advises Edmund M. Neel, Box 365, Duncan, V. I., B. C. "This little set has only five tubes and all I can say about it is that it is the best little set out. We started DXing as soon as the season opened and up to date have a total of 156 stations from all over the Western Hemisphere. Included in the log so far are the following: 15 Japs, 3 New Zealanders, 4 Australian, one Chinese, one Hawaiian, two Alaskan, 6 Mexican, and a few low wattage eastern stations. The last few nights have been marvelous. I have just installed an Ollie Ross ground which I hope will bring in far more foreign stations."

Two Days Old

"I am now a full-fledged DXer," admits Albert Kunigis, 1138 Pierce Ave., Niagara Falls, N. Y. "That is, since two days ago when I was introduced to your super-magazine RADEX. In these two days (of which I have spent approximately 7½ hours

at the dials) of DXing I have logged 60 stations, including 15 shortwave stations. My best are KFI, Los Angeles, and WEXL, Royal Oak, Mich., 50 watts. With this type of station on my set, which is a Crosley, 5-tube, model 167, superheterodyne, am I doing okay? I should like to hear from other DXers and also from those who have the same type of set."

"I do not know what you mean by DX," observes a new reader, Manual Alberto Cadilla, P. O. Box 824, San Juan, P. R., "but if it is something about the logging of distant stations, I want to assure you that I have already started DXing. My first night up was Saturday, Nov. 11, and from 8:00 p. m. until 5:00 a. m. Sunday I tuned in 43 stations. (Mr. Cadilla lists stations all over the U. S. and Mexico including KFRC with 1000 watts in San Francisco, 4250 miles away.) You would guess by this log that I have a costly apparatus but such is not the case because my set is a 5-tube "European" AC-DC, no ground, 75 feet antenna and omnibus traffic all night to interfere constantly."

A New Mexican

"I have been picking up a station in Mexico, XEWW, on 1095 kcs.," states R. B. Rolfe, 1741 Burnett, Waco, Texas. "They must have a good deal of power as they come in very strong and always interfere with KMOX, sometimes blocking them out completely. Their sustaining feature seems to be a Mexican string band with sometimes a singer with a guitar. The DX season is looking up here now with the first touch of cold weather. Since November 1, I have added 25 new stations. With WDBO I now have Florida complete." XEWW is a new station at Veracruz with 250 watts on 1100 kcs.

"I have been DXing for three weeks," sums up Foster Allen, 115 N. College St., Martinsburg, W. Va., "and you will find enclosed a log of 178 stations which I received during this period. I have an old Stewart-Warner Model 801. The set tunes

very broadly and it is hard to get the stations due to interference by more powerful stations on adjoining frequencies. My best catch is KFVD, a 250-watt station in Los Angeles. I also have four other stations in California: KGER, KFI, KPO and KNX." Foster sends us a list of stations which pretty well cover the North American continent.

Wants a Converter

"I have a Graybar 310 and would like to know what kind of a short wave set to attach to it," inquires Frank Frazier, 225 Menomonee Street, Chicago, Ill. There are a number of short wave converters on the market at prices ranging from as low as five dollars upward. Or the R-DEX converter described in last June's issue, can be built easily and cheaply. Frank has logged a total of 267 stations and thinks the following his best: WGNV, 50 w., WJBY, 50 w., KRMD, 50 w., WOCL, 25 w., WSYB, 100 w., XES, 250 w., CKCF, 100 w., and WTAW, 500 w.

"Glad to say that I received CX26, Montevideo, Uruguay, Saturday morning, Nov. 18, on our special IDA-ARC program," writes Earl R. Roberts, 42 Burt Ave., Newark, Ohio. "Hardly expected to get it on my old battery set but I used three B batteries and was able to hear the announcement at 3:31 in English very clearly. Judging by the way it came in with 2000 watts, CP4 with 10,000 and LR5 with 27,000 should be heard very well the next two weeks. Why not include FQN, St. Pierre, Miquelon Island, in your lists? They are still broadcasting on 572 kcs. with 250 watts."

"I have a 9-tube Silvertone with which I have been DXing since September, 1933," states Frank Wheeler, 406 Eagle Point, Lakeside, Erie, Pa. "In that length of time I have received a total of 315 stations. I now have a total of 480 stations including stations received on my old set. Although I have not been able to receive any European, Australian, or

New Zealand stations, I have received stations from Mexico, South America, Central America, Cuba, Porto Rico, and Nova Scotia besides Americans and Canadians."

Heard Aussies Unknowingly

"I have increased my log to 405 stations," announces H. Arbic, Acton, Ont. "This was done in seven months. Included are 2YA, 2BL and WKAQ. I listened to the Aussies for a couple of weeks before I realized what I was getting. I received them both from 5:00 a. m. till 6:45 a. m., when I had to go to work. I really don't know how long I could hold 2BL, if WABC didn't start warming up. I sure would like to hear from someone with a Rogers 850. A Rogers service man claims it is the most sensitive machine they have turned out. KFPM, 15 watts, came in with plenty of volume on the monthly test."

In answer to our question in the last issue as to how many had received 50 watt New Zealanders, Karl J. Halpern, 495 East 3rd Street, Brooklyn, N. Y., reminds us of his report of the reception of 2ZI which stirred up such a tempest. He also reports 1ZB with 32 watts, 2SF with 50 and 1ZH, 50. Karl has recently replaced two of the 27 tubes in his Zenith with 56s and reports volume increased 25 per cent, and sensitivity about 50 per cent.

"I operate a 12-tube Scott all-wave, which leaves nothing to be desired as far as DXing is concerned," asserts W. C. Everhart, 104 Front St., Fargo, N. D. "I have tried just about every aerial and ground from umbrella to loop in various sizes and lengths, and indoor aerials from loop to transformer, as well as combinations of these and also several of my own invention. Grounds the same way."

A French Tip

Among his best records, and justly so, Charles Leboeuf, Box 222, North Grosvenordale, Conn., counts CX26, Montevideo, Uruguay, Radio Normandie, Fecamp, France, HHK, Port au

Prince, Haiti, and VE9EK, Montmagny, Que. "This is the first time I have had to use the International Reply coupons, and I had bad luck in that the postmaster did not postmark the coupon; hence it is no good. I picked up the French station, twice, both times at 2:15 a. m. This tip might help out some other DXer. My log is up to 517 stations—not bad for a four-year-old set."

"I'll say this season is going to be good for the DXer," gloats Charles Meyer, Jr., 411 Blake Street, St. Joseph, Mo. "Last night, or rather this morning, in quick succession I picked up 4QG, 2YA, JOHK and 30 other new stations for this season's log."

A Jumping Log

"Since my last letter my log has jumped from 203 to 325," remarks Donald W. Reynolds, 34 Chambers St., Newburgh, N. Y. "I now have 19 in Canada, 15 in Mexico, 4 in Cuba, and 287 in the U. S., with 15 in California. Some of my best catches are KGGM, KTM, KMPC, KFRC, KFXJ, KIT, KVI, KFSD, KLX, KWJJ, XEW, CKY and KJBS. I have sent to CKTB, KFI, KOA KTFI, XEPN, KSL and KNX for verifications, but have not received them. Have had no luck with any off the continent yet, but here's hoping."

"I started to DX in 1924 while stationed on an island out in the Atlantic, offshore from New Hampshire and Maine, called the 'Isle of Shoals'—a coast guard station. Boy, those were the days," recalls Jack Land, 603 Milton Street, Toledo, Ohio. "WNAC was our favorite in those days. I did not verify stations from 1924 to 1933 and then I got the bug. I'm glad, too, because now I have something to look back at as the years roll by."

"I haven't been DXing very long," admits George C. Wetmore, Jr., 44 Allview Ave., So. Norwalk, Conn., "but have received some good catches. Some of my best are: CFBO, CKPR, WSPA, WJBY, WHET, WRBL, WQDX, XER and XEPN. I have also received CKTB, testing on a fre-

quency of 1200, with a power output of 100 watts, every morning until about 5:30 EST. The announcer said that all letters would be answered with an Ekko stamp. I have a Majestic, combined models 91 and 92, and would be glad to hear from anyone with a similar set, and will answer all letters."

Uses Umbrella

"I have been DXing for the past two years," says Robert W. Botzum, 633 Moss St., Reading, Pa., "and have logged 305 stations in U. S., 33 in Canada, 13 in Mexico, 10 in Cuba, and one in South America. My best are: YV1BC, KGU, KFI, KGO, KPO, KGW, KECA, KFPY, KFRC, KFJR, KGA, KGHL, KHJ, KHQ, KJR, CRCV, CFCN, CHLP, CHNS, CFBO, CFCY, XEN, XEW, XEPN, XEFO, all verified. Total stations logged, 362, with 190 verified. I have an 8-tube Atwater Kent and use an umbrella aerial, with an outside ground leading to my set."

"I have a nine tube Brunswick, model 5WO," comments Robert M. Musson, 35 Couch St., So. Norwalk, Conn., "and would like very much to receive letters from any other DXer with the same set, and will answer all letters. I haven't been DXing very long, but have some good catches, such as: CHNS, CKY, CMC, KGDY, KCRJ, WABI, WALR and WELL."

"I have a six-tube Majestic 31," remarks Fred Burleigh, 142 Converse Ave., Meriden, Conn., "and my present log is 427 stations. I have logged every frequency in 46 states, Canada, Cuba, Mexico, South America, Porto Rico, and one in Australia. My best catches are: 4RK, HJN, XEBF, KGFJ, KUJ, 10-BQ, KFXD, KFXJ, KDLR, KGCR, KOY, CMGF, and CMCA, all verified. I would like to hear from other DXers, especially those using this same type set."

"With my Philco 43, I have logged 364 broadcast and 68 short wave stations not including amateurs," totals Fred Wakerell, 32 Boteler St., Ottawa, Ont. "This in four weeks. The

frequency checks were fine but I still have 59 of them to log, so next month should see another big boost. My best catches were KPQ, KXO and KERN. Bob Moran and Ernest Ball both report hearing 2BL on 855 but no such luck for me. However, I have got 2CO, 2YA and 5CK."

NNRC DX Tips

DX tips are broadcast by a number of stations for the Newark News Radio Club. Among these, according to Alfred W. Opiel, Executive Secretary, are the following: WSM every morning except Monday at 1:00 a. m., EST; WAAM every Wednesday from 9:30 to 10:15 p. m., EST; WAAT every Saturday from 5:15 to 5:45 p. m., EST; KTFI every Sunday between 1:30 and 2:15 a. m., EST; CF-CO every Sunday at 10:15 a. m., EST.

"Since January 30th, 1932, I have recorded 127 new stations, making my total 342," summarizes Rudolph N. Maxwell, Jr., Wart Street, Cincinnati, O. "My best catches are KFWI, WKAQ, KGR, KFXD, KWSC, KGHF, CMC, KFBB, KDLR, KTM, KMPC and KFJZ. I have 107 hundred-watters and 44 states. I am using a two-tube regenerative receiver with a —24 tube detector and a —27 a. f. stage."

"Since September 5 I have received at least one station on each of the broadcast channels," reports Kenneth M. White, Rockville, Conn., "and have distinguished both call letters and location of approximately 150 stations. My Zenith set has a dial to 1750 kcs., although it is possible to tune higher to approximately 1800 kcs. in the 160 meter phone band. I have received 36 stations divided between amateur phone and police stations."

"Since you last heard from me I have increased my log to 427, including 10 police stations and one short-wave station," comments Ernest Byers, 102 W. 11th St., Waterloo, Iowa. "The frequency checks given in the September issue were an aid in logging many new stations. I have heard

from 43 states in the U. S. and 6 provinces of Canada. Has anyone heard a station on 1420 with the slogan, 'Voice of the Adirondacks?'"

A Big Thrill

"I had a big thrill on November 5," relates Burney McClurkan, 804 N. Locust St., Denton, Texas. "I pulled in five Japs and one Zedder! I received WCSH on their special DX program for RADEX the same morning and have received a very nice verification: They were my first from the state of Maine. My total is now 380 heard and 158 verified."

"Please tell your readers to be on the lookout for HAL-2, Budapest, Hungary, which comes on the air at 4:00 a. m., EST, on 545 kcs, with 120,000 watts," kindly advises Edwin E. Hatch, 5508 N. Mascher St., Philadelphia, who also says that EAJ2, Madrid, Spain, on 708 kcs. are on the air after 3:00 a. m. EST.

"Will you please list our club in your next roster," asks John L. Fletcher, Secretary of the Universal DX Club, 296 Hamilton Place, Hackensack, N. J. "In our monthly bulletin we have a short wave department. We send out one or two tip cards between bulletins. Our dues are 75 cents a year."

(Continued on page 48)

Changes in Canada

This official data was received too late to change our indices in this issue.

540	CJRM to 1000 watts
600	CFCO to 50 watts
	CJOR from 1210
690	CJCJ to 100 watts
730	CJCA to 1000 watts
780	CKPR to 50 watts
930	CFAC to 100 watts
	CKPC formerly 10-BQ now Brantford
1100	CRCV to 1000 watts
1120	CHGS to 50 watts
	CKOC to 500 watts
1200	CJAT to 100 watts; was 10-AT, 1155
	CKBI to 100 watts; was 10-BI
1210	CKMC to 50 watts
1310	CHCK to 50 watts
	CJKL, 100, Kirkland Lake, Ont., new
	CJLS, 100, Yarmouth, N. S., new
1370	CHPR, 100, St. John, N. B., new
1390	CJRC, 100, Middlechurch, Man., new
1420	CKGB, 100, Timmins, Ont., new
1450	CFCT from 1430
1510	CFRC from 915
	CKCR from 645

Notes and Tips

RADIO STATION CRCS, Chicoutimi, writes as follows: "This station is owned by the Canadian Marconi Company and always broadcasts programs supplied by the Canadian Radio Commission. We also have an occasional local program in the form of phonograph recordings and announcements. Both station identification and those relative to the broadcast are always given in both French and English. The French announcements are supplied locally on all programs, whereas the English is given at the point of program origin. We are willing to answer all letters for verification of reception if supplied with return postage."

* * *

"KVOA is one of the old stations of the Southwest," writes D. D. Campbell, Commercial Manager of that station, at Fayetteville, Ark. "Originally, an experimental station for the Engineering Department of our State University, Mr. Lloyd Bardon, inventor of Class B Modulation, was the constructing engineer on this plant that has been in service for a good many years, until its rebuilding under Mr. Harold Albrecht. Our Chief Announcer is Mr. Alton Hart, who is also a licensed operator and a great DX fan. We will naturally appreciate hearing from any DXers on any of our frequency checks."

* * *

"Your classification of KREG as 'ak' is correct," advises Station KREG, Santa Ana, Calif., "but we will verify reports in any case, provided they leave no doubt as to reception. We cannot verify on musical numbers alone, except on DX broadcasts. All letters or cards will be answered, whether or not postage is sent, but we prefer the listener to include return postage."

* * *

From J. A. Chambers, Technical Supervisor of stations WLW-WSAI-

W8XAL, comes the information that WLW is now conducting tests of the new 500,000 watt transmitter during the early morning hours. It is expected that this testing will continue for the next month or two.

* * *

3YA is building a new transmitting station at Gebbie's Pass which will be opened to use very soon. It is an especially advantageous location, 1100 feet above sea level, and ought to help many of our readers to log 3YA.

* * *

WFIW, removed from Hopkinsville, Ky., to Louisville, now becomes WAVE. The formal opening has been set for the night of Dec. 30. WAVE will be affiliated with NBC. WAVE is said to be testing on 1120 kcs. instead of 940.

* * *

KROW will take to the air the first week in December with a complete new Western Electric transmitter, new RCA studio equipment and new microphone equipment.

* * *

WNBW, Carbondale, Pa., was ordered off the air by the Radio Commission Nov. 24 in a decision sustaining the recommendation of Examiner Hill. Simultaneously the Commission denied an application for involuntary assignment of the license of the 10-watt local which has operated on 1200 kcs.

The Inquiry Division

WHOO CAN help me on this one," queries Richard M. Carter, 820 McKinley Ave., Ann Arbor, Mich. "Last night, Nov. 19, 10-11:30 p. m., I heard a Spanish-speaking station testing with phonograph records on 635 kcs. They announced only once during a fadeout at 10:15 and went off the air without saying a word. I thought I heard the words 'Radio Corporation of Cuba.' Is it possible that CMC has changed its wave length

to get away from CKLW? During the time I heard them, they played Drigo's 'Serenade' three times and 'Ramona' and 'Girl of My Dreams' twice each. It wasn't CMQ as they were coming in well at 638."

* * *

"WLOE has never been off the air and shows no signs of going," contributes Alden P. Bowser, 358 Pleasant Street, Brockton, Mass. "They are on daily until about 2:30 p. m. and announce, as always, 'by permission of the FRC.'" The FRC definitely and finally ordered WLOE off the air on November 30th, (since Alden's letter) and we have no doubt they are now permanently off the ether.

"For George Burnett," goes on this correspondent, "LR4 is to be heard frequently after WBZ-A's sign-off. Also LR5, Radio Excelsion, comes in well on 830. Can you identify NBQ heard at 3:28 a. m. on Nov. 12? Seemed to be giving a weather forecast. What is CKAC doing on short waves? I heard him testing on about 1550 kcs. Recent catches are Rabat, Morocco, Poste Parisian, VE9EK and others bringing my total up to 765 in 32 countries." CKAC would have a harmonic on 1460; who can explain his being on 1550?

* * *

"About the first of the year," prophesies Clement Van Velsor, 1033 Sanford Ave., Irvington, N. J., "WAAM, Newark, and WODA, Paterson, on 1250 kcs. will become one with the call of WBO and studios in New York City." Mr. Van Velsor concludes by answering one question and asking another. "Russell Geiger, Poland, Ohio, mentions hearing a station on 835 kcs. I have heard CMC which you list as 840, on 835. I am positive because both KOA and CKLW were on at the same time. I recently heard a station on 905 kcs. using machine-gun style Spanish. This was about Nov. 5. I listened from 8:00 to 9:15 p. m. without QRM from either WJAX or XEW, five kcs away. The signals were very strong for about twenty minutes then faded and finally

came back. I left when I found I couldn't make out anything. The signals averaged QSA-5, R-7-8. I hope someone knows who it is."

* * *

Two questions from R. D. Causse, P. O. Box 6688, Lester, Pa.: "I would like to find out what station on 1280 broadcast the description, play-by-play, of a football game on Nov. 10, from 10:15 to 11:15 p. m. EST. One of the teams playing was named Oak Cliff. Second, I have written numerous times to XEAN, both to the American address and the Mexican address, but my letters always come back marked 'unclaimed' or 'party unknown.' How can I reach them?"

* * *

"In December Arthur C. Gluck mentioned the moon's influence on short waves," recalls Nicholas J. Hock. "I find the same is true on the b. c. band. On clear, cool nights when the moon is bright, I always experience better reception on the b. c. band. I am considering purchasing a Postal International for work on the short waves. I would appreciate any letters from owners of this radio regarding its ability."

* * *

"I fully agree with Mr. Clair Calavan (page 11, November) regarding XGOA in Nanking, China," writes Frank F. Busted, 1163-26th Ave. W., Vancouver, B. C. "I have been hearing it broadcasting regularly on 660 or 665 kcs. for the past three weeks. There is a powerful Jap on 680 which I have not been able to identify."

With the DX CLUBS

THIS is to notify you that the Great Lakes Radio Club has ceased operations and has joined the Canadian DX Relay which we think has all the clubs beaten," advises Leo Shelly, 125 Lake St., St. Catharines, Ontario. And from Fred H. Disset, President of the Canadian DX Relay, P. O. Box 339, Goderich,

Ont., comes the comment: "This consolidation brought us a fine bunch of rooters. The Relay is growing like a weed as well as our tip-sheet which is now a six-page affair. We now have a contest going in our club. Two of our Drummondville members, Elwin H. Bullard and Roderick Moffat, have donated three silver cups. One is to go to the member who verifies the most CDXR special programs from September first to May first with mileage taken into consideration. This is the "CDXR Champion DXer Cup." The winner is to be judged on the following points: Each verification to count three points with one one-hundredth of the total mileage to be added to total points. The "CDXR Specials Cup" is given for the year to the member who verifies the most specials. The winner is judged by the total mileage between his city and the stations participating. The "CDXR Seasonal Verifications Cup" goes to the member who verifies the most stations from September first to May first each year. The contests, of course, are open to members of the CDXR only. Then there is a cup that goes to the member who verifies the most foreign stations during our season.

"Already fifty stations have had programs for the CDXR, quite a number of whom have never had a DX program before. CKCO gave a very fine program. CFQC changed to 1230 kcs. just before their first DX program on October 14 making quite a mess of our advance advertising. Both CFQC and CKCO will verify all reports on their programs and both stations expect to broadcast another special DX later in the winter for the club. We will endeavor to get advance notice to RADEX."

The Transcontinental Radio DX Club, too, has ceased operations according to a notice from Ralph H. Schiller, President, Hawthorne, N. J. There is a possibility the members will join the new National Radio Club at York, Pa.

With three clubs disappearing by

merger or otherwise, news of a recent addition comes from James Reese, 2037 Seventh Ave., New York City. It is the National Radio Amateur Club and it has *three members*.

Rod La Rocque, 135 Highland Street, Worcester, Mass., has been appointed acting secretary of the New England Radio Club due to the former secretary moving elsewhere. Correspondence for this club should be addressed as above.

"Please publish particulars of the New Zealand DX Club in one of your issues," requests S. Robson, President, 100 Islington St., Invercargill, N. Z. "Applications for membership should be made to The Secretary, N. Z. DX Club, P. O. Box 1032, Wellington, N. Z. The fee is 2/6 which is about fifty to sixty cents and this entitles one to a badge, certificate and life membership. There are no annual dues. Our magazine is published monthly at a cost of about twenty cents. The membership is well over the 1000 mark."

Pardon Our French!

IN the October issue we presented a typical report of reception in the French language. This was prepared for us by a professional translator and we assumed that it would be entirely correct. Unfortunately our own personal knowledge of French is extremely limited. Now comes a frank critic who tells that Frenchmen would read this letter with the same amusement that we did the one from the French-Canadian guide, published on page 18 of the November issue.

Not wishing to subject our readers to any embarrassment, we are giving below the corrected version of the letter in French as given us by our good correspondent, G. J. Malcolm, Toronto, Ontario. Mr. Malcolm points out the many ways in which we mixed our infinitives and our past participles and our plurals. We plead guilty and present the new version herewith:

Monsieur,

Je me suis bien diverti ce soir (ce matin, cet après-midi) en écoutant votre station de radiodiffusion XXXX en . . . kcs.

Ci-dessous je donne avec grand plaisir la liste des sélections que j'ai entendues avec quelques indications des conditions de la réception au point de vue de volume, de temps et de qualité, etc.

Voudriez vous avoir la bonté de vérifier celle-ci avec votre propre liste et de m'adresser une vérification de réception.

Vous remerciant d'avance pour votre vérification et dans l'espoir de bien pouvoir vous adresser à l'avenir un autre rapport je vous prie, Monsieur, d'agréer l'expression de mes salutations distinguées.

La Listesuit

1. Sélection d'orchestre
2. Sélection de piano
3. Sélection de violon
4. Sélection d'orgue
5. Sélection de marimba
6. Sélection d'accordéon
7. Solo vocal (Monsieur)
8. Solo vocal (Madame)
9. Choeur vocal
10. Musique classique
11. Musique populaire
12. Musique du pays
13. Musique de la danse
14. Fox trot
15. Marche
16. Valse
17. Causerie
18. Annonces de la station
19. Volume—faible
20. Volume—médium
21. Volume—fort
22. Qualité du ton—mauvaise
23. Qualité du ton—bonne
24. Conditions de l'atmosphère—bonne
25. Conditions de l'atmosphère—mauvaise
26. Musique américaine
27. Musique française
28. Guitare
29. Duo Trio
30. Le temps

The English translation appears on page 19 of the March issue, No. 67.

Down with the

Radio Mob!

“DO you think the radio stations will ever cut out this ‘visible’ audience idea and again broadcast for the invisible audience?” is the pertinent question asked us by L. D. Smith, 524 East 9th St., Erie, Pa. “I hate these programs that you hear now with their constant and everlasting laughter and hand clapping. I believe others feel as I do, that the programs now are not built for the radio fan but rather for the entertainment of the studio mob.”

It is strange that sponsors who go to great expense to put a program on the air do not sense the feeling of resentment that very naturally comes to the radio audience as a result of the type of program described by Mr. Smith. Can you remember the wave of anger that used to sweep over you when you were a child and you could hear the crowd laughing and cheering over something that you were too little to see? Were you ever a part of an overflow audience out on the sidewalk and you could hear the crowd within laughing and enjoying themselves? Well, that is exactly the reaction the radio audience gets when they hear the studio audience laughing at something they cannot see. This idea of using a studio mob was devised to “pep” up some of the high-priced stars who had to have laughs they could hear, in order to “do their stuff.”

If a star is so wedded to a visible audience that he cannot perform before a microphone without one, our advice to him is “to hire a hall,” and let someone else use the microphone who is satisfied with an audience of millions.

Texaco and other sponsors are not helping to build good-will with their radio audience when they provide laughs for their studio audience by grotesque costumes and slap-stick comedy from which the radio audience is barred.

(Continued on page 45)

GOSSIP *from* Some Old-Timers

RADIO has been my hobby for the last 16 years," recalls Clement E. Craig, 104 Vine Street, Macon, Mo. "My first set was a crystal receiver and what a set! Then I began to purchase parts such as could be had at that time, including one vacuum tube at \$9.50, and built one of the first honest-to-goodness tube sets in Macon. I remember receiving KDKA before their license and call letters were issued. Can you remember when every station would play a phonograph record for five minutes at the beginning of a program so listeners could tune and adjust their sets? Really, this present-day group of radio listeners, or most of them, can't realize what radio has gone through in the last few years. Back in 1920, I was one of three boys here that built spark transmitters and sent messages back and forth. B batteries were made from flashlight batteries held together in a cigar box.

"But to come down to the present day: I am a strong believer in listening to the other fellows' experiences in the radio field. Your RADEX certainly does print plenty of what the fans and listeners of our country as well as others are doing. I greatly appreciated your article in one of the issues on grounds. This summer I constructed a ground, using a post-hole digger, an eight-foot ground rod, a hundred pounds of rock salt and plenty of water. And did my set improve in volume! I have a transposed lead-in and advise anyone bothered with man-made static to try them. My antenna is 39 feet long on each side of the lead-in, placed about 40 feet from the ground, using Lynch transposition blocks. The aerial runs N.E. to S.W. Before erecting this aerial I used the single wire Hertz aerial with single wire lead-in and every time a car came within a block of the house, the program would be crowded out by the interference. I

believe a 1914 Ford could park under my present aerial without causing me to utter even one bad word.

"Let us have more articles by our foreign friends, such as the article on Antennae from New Zealand and 'Tuning a Radio in Britain.'"

I Got Chicago!

Another veteran is Richard J. Southward, 1417 Oakmont St., Toledo, Ohio, who writes: "I have had a radio since early in 1922 when I built my first receiver—a one-tuber. The B batteries I constructed myself, using flash-light cells from the five-and-ten, building them into blocks of 22½ volts. Everybody in the family fought to get one of the two pairs of earphones I had attached to the set every time I turned it on. I will never forget the first time I picked up Chicago; say, there wouldn't be as much excitement today if I tuned in an Aussie at midday.

"I am now a confirmed DXer and have been for years but I never did much verifying until after the purchase of a Temple all-wave model 150 in March, 1932. This set has six tubes in the broadcast receiver and three tubes in the short wave converter. I have over 300 veries on the broadcast band with this set. My prize catch was XEFV last March. I tuned them in shortly after eleven p. m. and you know that is freakish with all the stations there are around and on the 1370 band. XEFV at that time had only 50 watts.

"My short wave stage has surprised me considering the low price of the complete receiver as I verified 2ME, 3ME, EAQ, LSN, YV1BC, DJD, DJC and an English commercial, GBB. The British Broadcasting Co. won't verify so I quit writing them after three letters. I have logged GSA, GSB, GSC, GSD and GSF. I have received many U. S. A. short wave broadcasters, commercials and amateurs as

well as in Canada, Mexico and South America. I have reports into Pontoise and I2RO. I sent a report to LSX last July and last week I got the letter back unopened. Just this morning I picked up HBP, Geneva, Switzerland, on 38.47 meters.

"A person reading your magazine would think there was a DXer in every home. Many people doubt me when I say I have logged 22 stations in California on the broadcast band so I suggest they read RADEX and they will learn that I haven't much to boast about after they read some of the letters from your readers.

"I have never seen published any report of a verification received by means of an A. R. R. L. message. I received one from Mr. Ellis of 10-BQ last winter thanking me for my report. The message was relayed through W8DVL of Cleveland and W8PP-W8UU of Monroe, Michigan, who forwarded the message by post card to me."

"I have been a DXer since 1922," states Phil E. Lockwood, 315 North 7th St., Yakima, Wash., "when I began with an outfit known as a crystal set, built by myself from a round cardboard lard box, a few brass clips, some wire and a crystal, with a telephone receiver as a phone. From that I graduated to a two-tube Radiola with WD tubes protruding from the top. Next came the Browning-Drake, then an interest in short waves which, at that time, were none too successful. At the present time I have a Midwest 16-tube superhet. And being on a long vacation due to health, I'm having one large time. I have a total of 352 stations to date and I'm only getting started. You may expect to hear from me again because there is no set that will beat a Midwest.

"This locality is generally known as none too good for radio reception, being surrounded on four sides by mountains, but I have no trouble in reaching out to New York City and all way points any night in the week with clarity and volume that make the programs enjoyable."

A RECORD for HOME-MADE Sets

IF I don't get busy and notify you of the various catches I have made on different occasions, I will not have anything to boast about, judging by the way the stations drop off the list every now and then," concludes Clement A. Wyborski, 102 Mifflin St., Philadelphia. "Among some of the old-timers I have logged and verified and which have been deleted are KFWO, 250 watts, Avalon, Calif.; KPSN, Pasadena; KFQZ, Hollywood; KTBI and KGEF, Los Angeles; KFBU, Laramie, Wyo.; WCBE, 5-watter of New Orleans; 7SR, Elia, Cuba; CNRE, CNRC, CNRR of Canada; WMBF, WGBU of Florida; and many others.

"I became interested in radio as

(Continued on page 91)

The Radio MOB

(Continued from page 43)

Absolutely unforgiveable is the program with "hired laughers" who laugh hollowly at everything the leader says. "Who was the lady I saw you with last night? That wasn't a lady——" and the rest of the joke, be it ever so "punk," is lost in the asinine snickers of the paid mob.

Wake up, sponsors, your radio audience is dialing you off and tuning in a program which is really meant for them.

First Aid Department

(Continued from page 30)

The converter's plate tip terminal should be connected to terminal 1 of the strip (brown wire), but the maximum voltage that you can obtain for the converter is about 175 volts. The makers of the converter recommend

250 volts. For this reason the converter may not operate at maximum efficiency. When the plate voltage is too low the -27 oscillator may not oscillate as it should.

Changing Power Tubes

Is it feasible to use -45s or -47s in the last audio stage of my Majestic, model 181 receiver? The set now uses two -50s in push-pull. Would it be practicable to insert -45s in the last stage and use a new power-pack or can the voltage of the present system be made to fit in if some resistors are inserted to take care of the voltage changes? Can you tell me the voltages of the taps on the power-pack?

We suggest the use of -45s in the output circuit because of the design of the output transformer. To do this break the lead connecting the heater (2.5 volts) winding centertap resistor to the detector cathode, and connect a 750-ohm 5-watt resistor from this center point to the ground or chassis. Connect a 2,500-ohm, 15-watt, resistor in series with the positive B lead into the center of the push-pull output transformer and then bypass this point (transformer primary coil centertap) to ground with a 0.5 to 1.0 mfd. condenser. Connect the socket filament terminals in parallel and then to the 2.5-volt heater terminals after removing the former leads.

The voltages of the two positive B taps on the power-pack are 144 and 425 volts, respectively.

Dressing Room Gossip

(Continued from page 10)

Until recently, Rosemary and Priscilla Lane always were referred to as the "kid" sisters of Lola Lane of the screen. It seemed to be their only claim to fame. Then, each was promoted to featured spots by Fred Waring. Several weeks ago, Buddy

De Sylva, songwriter and film producer, saw eighteen-year-old Rosemary's photograph in a Los Angeles newspaper. He was impressed with her beauty and when he arrived in Manhattan in search of a leading lady for a forthcoming film, he sought out Rosemary after the broadcast. Waring gave his permission for her screen test and the reel was rushed westward for the screen officials to view. Now, providing contractual matters can be arranged, it looks as if Lola's "kid" sister also is headed for screen fame.

The Beginner's Story

(Continued from page 6)

we shall see how a circuit can be tuned to pass only certain frequencies by means of inductances (coils) and capacities (condensers).

Queries

1. What is the relation of electron, atom and molecule?
2. To what may the atom and its electrons be likened?
3. What is the polarity of the electron? Of the nucleus of the atom?
4. By what means may the electrons be excited?
5. What causes an electric wire to become hot?
6. What sort of materials make the best conductors?
7. What is a dielectric?
8. How may the capacity of a condenser be changed?
9. How is capacity measured?
10. Why does turning the dial change the frequency of a receiver?

Debate on Aerials

(Continued from page 12)

both at once. I can separate KMO from KGB and KGU from WJR as early as 8:30 p. m. I can receive CMAF while KPO is on the air and listen to WGY while KGO is in operation and tune in KZRM with KTAR practically on the same wave. The Japs come in best from the n. w. and the Aussies from the s. w.

"If anyone tries this system, I

would like to hear from him. I'm a 20-year-old boy away out west trying to recover from a long and severe illness for the last two years."

The Directional Effect

Regarding this matter of the directional value of aerials, Leroy Cattell, R. F. D. 2, Paterson, N. J., take an opposing position. Mr. Calavan found that the greatest signal strength was reached when the far end of the aerial pointed directly toward the station and the least when the far or free end pointed away from the station. In Mr. Calavan's case, however, the far end of the aerial was grounded which may have altered the effects. Says Mr. Cattell:

"Marconi found in his experiments that the inverted L-type antenna was highly directional for short distances. He even proved that such an antenna could be used successfully to determine the location of a transmitter. Also in this experiment he proved that an opinion held by many DXers was false. They believe that reception is best from the direction in which the free end (the insulated end) point. On the contrary, in every experiment Marconi made in finding hidden transmitters, the receiver end of the aerial was nearest the transmitter.

"From Marconi's experiments it can be seen how an inverted L antenna can best be erected to exclude signals from a nearby transmitter. He demonstrated that signals were weakest from a direction making an angle of 70 degrees with the flat top of the antenna. That is, suppose the free end of the antenna points due south, then 70 degrees east of south and 70 degrees west of south would represent the directions from which the signals would be weakest. If, therefore, one were to erect his antenna so that his local station would be 70 degrees to either side of it, that station would be in the point of least possible interference.

"In regard to grounds, there is one important factor—that is to get as much substance in connection with the earth as possible. To illustrate: a cer-

tain weight of copper in wire form would be much better than the same weight in a lump. The ground should be placed in the wettest place possible or kept well-watered through a pipe that runs down to the buried metal."

The Ground Waves

Finally we have the phenomenon of the increase of signals due to the use of the ground on the aerial post in place of the antenna. An instance of this is pointed out by Joe Tamele, 13201 Coath Ave., Cleveland, Ohio, who says:

"A strange thing happened to me the other night. I tuned in KPO and it came in weak with static. I disconnected my outside aerial and attached to the aerial post, the wire that comes from a pipe that is buried under the cellar floor—and KPO came in with fine volume and no static."

All in all, a wealth of information can be gathered by experimenting with your ground and aerial construction.

Changing Aerial Adds Sixteen

"As far as I am concerned," says Kenneth Buxton, 282 Elgin St., Sarina, Ont., "the New Zealand Times has the right dope on aerials. I always considered that I had one of the best aerials in the neighborhood. It is 60 feet high at one end and 40 feet at the other and 65 feet long without the lead-in. I had the lead tapped 18 inches from the insulator and cut across the roof to make it as short as possible.

"After reading the article in the December RADEX, I put another insulator where the lead-in was tapped and brought the same wire through the insulator making the aerial and lead-in one piece. I then brought the lead-in straight down to a stand-off three feet from the eave-trough and brought the lead around the corner of the building instead of cutting across the roof. Well, I was simply amazed at the difference. It was raining and there was plenty of static yet I added 16 stations to a log that already stood at 186 (since August

of this year). Among the new ones were CMQ, 10-BQ and KALE.

"For a ground, I dug down to water then took a heavy copper cable and put it through a pipe nine feet long which I drove in the ground. This gives me a ground that is permanently in water. I find I do not get as much static on this ground as on a water pipe.

"I use a De Forest-Crosley 7-tube Canvendis model and a Sparton S. W. converter. I am more than pleased with it. It not only brings in foreign stations but it is a pleasure to listen to them."

The Short Waves

(Continued from page 20)

from noon to 2 p. m., EST. Clarence Sargent, Dansville, N. Y.

XIZ, Mexico City, 6300 kcs. is reported near 6 p. m. EST by Wm. McDaniel, Charleston, W. Va.

R. N. Shaw in "Wireless Weekly," (Australia) confirms RNE. This telegram was received from him and appeared in his magazine: "Mystery station 25 meters creating such widespread interest definitely identified RNE Moscow, heard towards 2:30 a. m. exchanging test programs America signals maximum speaker announcements English Russian."

LCL, 6.990 megs. (42.87 meters), Jeløy, Norway, Relays the Oslo program to the new station at Vadso from 1 to 5 p. m., EST. "Dipole", from World-Radio.

From Bandoeng

A letter of interest to our readers comes to us as we are about to go to press, from Mr. J. F. W. de Kort, Bragaweg 34, Bandoeng, Java, D. E. I. "We can inform you that we are transmitting daily except on Sundays and holidays from 11:45 p. m., to 00:03 a. m. on a wavelength of 49.5 meters (6.070 kcs.) and from 9:15 a. m. to 11:00 a. m. on a wavelength of 49.02 meters (6.120 kcs.) The

times given are in GMT. Besides, we can inform you that we shall have the pleasure in transmitting specially for the listeners in America on the 5th, 10th and 15th of February, from 10:00 a. m. to 11:30 a. m., GMT. The last half-hour of these transmissions we shall be broadcasting native music."

"I have just received a QSL from HIZ on 47.5 meters," reports Edward C. Houlgate, 351 Adelaide Street, London, Ont. "This gives me the long-distance record for their station. They use 20 watts and are on the air daily from 4:40-5:40 p. m. and until 6:40 p. m. on Sundays."

"On Nov. 19, 3:15-4:00 p. m., I heard a HKS or HJS on about 20.2 meters testing with WNC," reports Richard M. Carter, 820 McKinley, Ann Arbor, Mich. "They announced as being in Barranquilla, Colombia. They did not come in on the same dial setting as HJB. The Brazilian on 36.65 m. is announcing regularly now as PSK instead of PRBA. Heard ZFD on 10,355 kcs. again."

"The San Joaquin Valley reports again," begins R. M. Ballard, 409 Watson Ave., Visalia, Calif. "Nov. 1, I listened to Pontoise on 25.6 meters at 9:00 a. m. Have also heard KAZ, Manila, on 31 m. and HJ1ABB on 45 m. with PRADO, Riobamba, Ecuador, the same week."

The DX Clan

(Continued from page 39)

"With a five-tube Bosch and in my third year of DXing, I have 370 stations, 95 of them being 100 watts or less," summarizes Philip Guernsey, 157 Atkins St., Meriden, Conn. "Best catches are KFD, KVOR, KGCX, 10-BQ, KGKB, KFVD."

"I have picked up and verified ten Japanese, seven Australians and two Zealanders to say nothing about a lot of the little 50 and 100 watt stations in Hawaii, Cuba and the U. S." reports H. Connacher, 506 4th Ave. N., Saskatoon, Sask.

WHAT'S ON THE AIR TONIGHT?

Fill in calls and dial numbers for those stations through which you best receive the three chains. You can then turn quickly to the one one that has the feature you want.

COLUMBIA.....(C)	
Call	Dial

NATIONAL, Red (R)	
Call	Dial

NATIONAL, Blue.(B)	
Call	Dial

TIME: E Eastern; C Central; M Mountain; P Pacific.

RADEX is the only publication listing stations in alphabetical order for your convenience.

While these programs are correct at the time of going to press changes are made from time to time.

MONDAY

E-8:00 p.m., C-5:00, M-4:00, P-3:00

C — Buck Rogers in 25th Century

CKLW WAAB WABC WADC WBT WCAO WCAU WDRC WEAN WHK WJSV WKBW WOKO

R — Waldorf Astoria Orchestra

KDYL KFYP KOA KPO KPRC KSD KSTP KTBS KTHS KVOO WAPI WBEN WCAE WCSH WDAF WDAY WEAF WEBC WFAA WFLL WHO WIBA WIOD WIS WJAR WJAX WJDX WKV WMAQ WMC WOAI WOC WRC WRVA WSAI WSB WSM WSMB WSOC WTAG WWJ WWNC

U. S. Army Band

KOIL KSO KWCR KWK KYW WBAL WBZ WBZA WCKY WENR WHAM WJZ WMAL WREN WSYR

E-8:15 p.m., C-5:15, M-4:15, P-3:15

C — Bobby Benson; Sunny Jim

WAAB WABC WCAU WDRC WEAN WFBL WGR WHEC WHK WLBZ WMAS WOKO WORC

E-8:30 p.m., C-5:30, M-4:30, P-3:30

C — Vera Van, Contralto

CFRB CKLW KLRA WAAB WABC WADC WBIG WBRC WCAO WDBJ WDRC WDSU WFBA WGST WHEC WHK WHP WJSV WKBW WLAC WLWB WMBG WOKO WORC WQAM WREC WSA WSJ STAR WTTC

R — Irene Beasley, Songs

KGO KOA WAPI WBEN WCKY WEAF WFBR WGY WHO WJDX WMC WCG WSAI WSB WSM WSMB WSOC WTAG WWJ

E-8:45 p.m., C-5:45, M-4:45, P-3:45

R — Horsensense Philosophy; Andrew Kelly

KOA WAPI WBEN WCAE WCKY WEAF WFAA WFBR WGY WHO WJDX WMAQ WMC WOC WSAI WSB WSM WSMB WTAG WWJ

B — Lowell Thomas

CRCT KDKA WBAL WBZ WBZA WFLA WGAR WHAM WIOD WJAX WJR WJZ WLW WSYR

E-7:00 p.m., C-6:00, M-5:00, P-4:00

C — Myrt and Marge

CKLW KRLL WABC WADC WBT WCAO WCAU WDAE WDBO WDRC WEAN WFBL WGR WHK WJAS WJSV WKRC WNAC WOKO WQAM WSPD WTCC WWVA

R — Mollie Show

KSD WBEN WCAE WCSH WDAF WEAF WEEI WFBR WGY WHO

WJAR WLIT WMAQ WOC WOW

WRC WTAG WTAM WTIC WWJ

B — Amos 'n' Andy

CRCT KDKA WBAL WBZ WBZA WCKY WFLL WGAR WHAM WIOD WJR WJZ WLW WMAL WPTF WRVA

E-7:15 p.m., C-6:15, M-5:15, P-4:15

C — Just Plain Bill

CFRB CKLW WABC WCAO WCAU WGR WHK WJSV WKRC WNAC

R — Billy Bachelor; Ray Knight

WEAF WGY WJAR WRC WTAG WTAM WWJ

B — Baby Rose Marie, Songs

KDKA WBAL WBZ WBZA WHAM WJZ WMAL WSYR

E-7:30 p.m., C-6:30, M-5:30, P-4:30

C — Music in the Air

WABC WCAO WCAU WDRC WEAN WFBL WFEA WGR WHEC WICC WJAS WJSV WLBZ WNAC WOKO WORC

R — Lum and Abner

KSD WBEN WCAE WCSH WDAF WEAF WEEI WFBR WGY WJAR WLW WRC WTAG

B — Potash and Perlmutter

KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WCKY WENR WHAM WJR WJZ WMAL WREN WSYR

E-7:45 p.m., C-6:45, M-5:45, P-4:45

C — Boake Carter; Philco

CKLW KMBC KMOX WABC WBBM WBT WCAO WCAU WCCO WGR WHAS WHK WJAS WJSV WNAC

R — The Goldbergs

WBEN WCAE WCSH WDAF WEAF WEEI WENR WFBR WGY WJAR WLIT WOW WRC WSAI WTAG WTAM WWJ

B — Mme. Frances Alda

KDKA KDYL KFI, KFYP, KGO KGW KHQ KOA, KOIL, KOMO KPRC KTBS KTHS KWCR KWK KYW WBAL WBAF WBZ WBZA WHAM WIBA WJDX WJZ WKY WMAL WOI WSMB WSYR

E-8:00 p.m., C-7:00, M-6:00, P-5:00

C — Happy Bakers

CKLW WABC WADC WCAH WDRC WFBM WGN WGR WHEC WHK WICC WJSV WMAE WMBG WMT WNAC WORC WSPD WWVA

R — Soonyland Sketches—Drama

WBEN WCSH WEAF WEEI WGY WJAR WTAG WTIC

B — Sealed Power Side Show

KDKA KFYP KOIL KPRC KSO

KSTP KTBS KTHS KVOO KWCR

KWK WBAL WBZ WBZA WDAY

WEBC WFAA WGAR WHAM WIBA

WJDX WJR WJZ WKY WLS WMAL

WMC WOAI WSB WSM WSMB

WSYR WTMJ

E-8:15 p.m., C-7:15, M-6:15, P-5:15

C — Edwin C. Hill

CKLW KMBC KMOX WABC WADC WCAO WCAU WCCO WDRC WEAN

WFBL WFBM WGN WGR WHK

WJAS WJSV WKRC WNAC WOKO

WSPD

E-8:30 p.m., C-7:30, M-6:30, P-5:30

C — Bing Crosby

CKLW KDB KERN KFBK KFPY KPRC KGB KHJ KLZ KMBC KMJ

KMOX KOIN KOL KSL KVI KWG

WABC WADC WCAO WCAU WDRC

WEAN WFBL WFBM WGN WGR

WHAS WHK WJAS WJSV WKRC

WNAC WOKO WOWO WSPD

B — Father Finn Choristers

KDKA KOIL KSO KSTP KWCR KWK WBAL WCKY WEBC WGAR WHAM WIBA WJR WJZ WLS WMAL WREN WSYR

C — Voice of Firestone

CFRC CRCT KFYP KPRC KSD KTBS KTHS KVOO WBEN WCSH

WDAF WDAY WEAF WEBC WEEI

WFAA WFBF WFLA WGY WHO

WIOD WIS WJAR WJAX WJDX

WKY WLIT WLW WMAQ WMC

WOAI WOC WOW WRC WRVA WSB

WSM WSMB WSOC WTAG WTAM

WTIC WTMJ WWJ WWNC

E-8:45 p.m., C-7:45, M-6:45, P-5:45

B — Red Davis—Dramatic Sketch

KDKA WBAL WBZ WBZA WHAM WJR WJZ WLS WSYR

E-9:00 p.m., C-8:00, M-7:00, P-6:00

C — Philadelphia Symphony Orchestra

CKLW KDB KERN KFBK KPH KFPY KPRC KGB KHJ KLRA KLZ

KMBC KMJ KMOX KOH KOIN

KOL KOMA KSL KTRH KTSK

KVI KWG WABC WADC WBBM

WBRC WBT WCAH WCAO WCAU

WCCO WDAE WDBJ WDBO WDRC

WDSU WEAN WFBL WFBM WGR

WGST WHAS WHEC WHK WICC

WISN WJAS WJSV WKRC WLAC

WLBZ WMBG WMT WNAC WOKO

WOWO WPG WQAM WREC WRR

WSPD WTAR WTCC

R — A. & P. Gypsies

KSD WBEN WCAE WCSH WDAF

WEAF WEEI WGY WHO WJAR

WLIT WMAQ WOC WOW WRC

MONDAY—(Continued)

WSAI WTAG WTAM WTIC WWJ
B — Sinclair Minstrels
KDKA KFJR KOA KOIL KPRC
KSO KSTP KTBS KTHS KVOO
KWCR KWK WBAL WBZ WGBA
WDAY WEBC WFAA WFLA WGRA
WHAM WIBA WIOD WIS WJAX
WJDX WJR WJZ WKY WLS WLW
WMC WOAI WPTF WRN WRVA
WSB WSM WSMB WTMJ WUNC

E-9:15 p.m., C-8:15, M-7:15, P-6:15
C — Alexander Woolcott
CFRB CKLW KFH KLRA KLZ
KMBC KTRH KTSB KVOR WABC
WACO WADC WBIG WBT WCAH
WCAO WCAU WCCO WDAE WDBJ
WDBO WDOU WEAN WFBL WFBM
WFEA WGST WHAS WHK WHP
WICC WISN WJAS WJSV WKBW
WLWB WLWB WMAS WMBD WMBG
WNAC WODX WORC WPG WQAM
WREC WSBT WSPD WTOC

E-9:30 p.m., C-8:30, M-7:30, P-6:30
C — Isham Jones; Lulu McConnell
CFRB CKLW KDB KERN KFBK
KFYR KFRC KGB KHJ KLZ KMBC
KMJ KMOX KOIN KOL KRLD
KSL KVI KWG WABC WADC
WBBM WBT WCAH WCAO WCAU
WCCO WDRC WDSU WEAN WFBL
WFBM WHAS WHK WICC WJAS
WJSV WKBW WKRC WLAC WNAC
WOKO WOVO WREC WSPD WTAR

R — Del Monte Ship of Joy
KDYL KOA KPRC KSD KSTP
KTBS KVOO WBNB WCAE WCSH
WEAF WEBC WEEI WFAA WFBR
WFLA WGY WHO WIOD WIS
WJAR WJAX WKBF WKY WLIT
WMAQ WOAI WOC WOV WRC
WRVA WSAI WTAG WTAM WTMJ
WWJ WUNC

B — Jack Frost's Melody Moments
KDKA KABL WENR WGAR WHAM
WJR WJZ WLW

E-10:00 p.m., C-9:00, M-8:00, P-7:00
C — Wayne King and Orchestra
CKLW KALE KDP KERN KFRC
KGB KHJ KLZ KMBC KMOX
KOIN KOL KSL KVG WAAB WABC
WADC WBBM WCAO WCAU WCCO
WDRW WEAN WFBL WFBM WGR
WHAS WHK WJAS WJSV WKRC
WOKO WOVO WSPD

R — Contented Program
CFRC CRCT KDYL KFI KFJR
KGO KGW KHQ KOA KOMO KPRC
KSTP WOSH WEAF WEBC WEEI
WFBR WJAR WLIT WMC WOAI
WRC WSP WSM WTAG

B — Marcel Rodrigo, Baritone
KDKA KOIL KSO KWCR KWK
WBAL WBZ WBA WHAM WJZ
WMAL WSYR

E-10:30 p.m., C-9:30, M-8:30, P-7:30
C — Columbia News Service
CKAK CKLW KLRA KRLL KTRH
KTSB KVOR WAAB WABC WACO
WBIG WBT WCAH WCAO WCAU
WDAE WDBJ WDBO WDOD WDRW
WEAN WFBL WFEA WGR WGST
WHAS WHEC WHP WISN WJAS
WJSV WKBW WLAC WLWB WLWB
WMAS WMT WODX WOKO WORC
WQAM WRC WRCS WSPD WTOC

R — Kay-Seven, Drama
CRCT KSD WBNB WCAE WCSH
WDAF WEAF WEEI WFBR WGY

WHO WJAR WLIT WLW WMAQ
WOC WOV WRC WTAG WTAM
WTIC - WWJ

B — Henri Deering, Concert Pianist
KFYR KOIL KPRC KSO KSTP
KTBS KVOO KWCR WBAL WBZ
WGBA WCKY WEBC WFAA WHAM
WIBA WJDX WJZ WKY WMAL
WVAI WREN WSB WSM WSMB
WSYR

E-10:45 p.m., C-9:45, M-8:45, P-7:45
C — Myrt and Marge
KDB KERN KFBK KFPY KFRC
KGB KHJ KLRA KLZ KMBC KMJ
KMOX KOIN KOL KOMA KSL
KVI KVG WBBM WBRW WCCO
WDSU WFBM WGST WHAS WLAC
WODX WREC

B — Planned Recovery
KFYR KOIL KPRC KSO KSTP
KTBS KVOO KWCR WBAL WBZA
WCKY WEBC WFLA WHAM WIBA
WIS WJAX WJDX WJZ WKY WMAL
WOAI WREN WSB WSM WSMB
WSYR WUNC

E-11:00 p.m., C-10:00, M-9:00, P-8:00
C — Willard Robison and Orchestra
CKLW KFH KLZ KMBC KOMA
KSCJ KTRH KTSB KVOR WAAB
WABC WADC WBRW WBT WCAH
WCAO WDAE WDBJ WDRW WDSU
WEAN WFEA WGST WHAS WHEC
WHP WIBW WICC WIP WISN WJAS
WJSV WKBW WKBW WLWB WMAS
WMBD WMBG WMT WODX WOKO
WORC WOVO WQAM WREC WSJS
WSPD WTOC

B — Amos 'n' Andy
KDYL KFI KGO KGW KHQ KOA
KOIL KOMO KPRC KSTP KTHS
KWK WBAP WDAF WENR WKY
WMAQ WMC WOAI WREN WSB
WSM WSMB WTMJ

E-11:15 p.m., C-10:15, M-9:15, P-8:15
C — Boswell Sisters
CFRB CKLW KFAB KFH KLRA
KLZ KMBC KTRH KTSB KVOR
WAAB WABC WACO WADC WBT
WCAH WCAO WCCO WDAE WDBJ
WDBO WDOU WDRW WEAN WFBM
WFEA WGST WHP WIBW WIP
WISN WJAS WJSV WKBW WKBW
WLAC WLWB WLWB WMAS WMBD
WMT WODX WORC WPG WQAM
WREC WSBT WSJS WSPD WTOC

R — Lum and Abner
KFYR KSD WDAF WENR WHO
WIBA WKBF WOC WOV WTAM
WTMJ

E-11:30 p.m., C-10:30, M-9:30, P-8:30
C — Glen Gray and Orchestra
CFRB CKLW KFH KLRA KLZ
KMBC KOMA KTRH KTSB KVOR
WABC WADC WBRW WCAO WCAU
WDBJ WDRW WDSU WEAN WFBL
WFBM WGST WHAS WHK WHP
WIBW WICC WISN WJSV WKBW
WLAC WLWB WLWB WMBG WMT
WNAC WOKO WORC WPG WQAM
WREC WSBT WSJS WTAR WTOC

R — Voice of Firestone
KDYL KFI KFSD KGHJ KGIR KGO
KGO KGW KHQ KOA KOMO KTAR

E-12:00 p.m., C-11:00, M-10:00, P-9:00
B — Sealed Power Side Show
KDYL KFI KGHJ KGIR KGO KGW
KHQ KOA KOMO KTAR

TUESDAY

E-6:00 p.m., C-5:00, M-4:00, P-3:00
C — Buck Rogers, See Monday
R — Waldorf Astoria, See Monday
B — Richard Himber and Orchestra
KOIL KSO KWCR WBAL WCKY
WENR WHAM WJR WJZ WMAL
WREN

E-6:15 p.m., C-5:15, M-4:15, P-3:15
C — Bohdy Benson, See Monday

E-6:30 p.m., C-5:30, M-4:30, P-3:30
R — Mid-Week Hymn Sing
KDYL KFYR KGIR KPO KPRC
KTBS KTHS KVOO WDAY WEAF
WFAA WFT WGY WHO WIBA WIS
WJAX WJDX WMAQ WOAI WOC
WRC WSAI WTAG WUNC
B — Mary Small, Juvenile Singer
KSO KWCR WBAL WCKY WENR
WHAM WJZ WREN WSYR

C — The Dictators
CKLW WAAB WABC WBIG WBRW
WBT WDAE WDBJ WDRW WDSU
WFEA WGST WHEC WHP WJSV
WKBW WLWB WMAS WMBG WOKO
WORC WQAM WREC WSFA WSJS
WSPD WTOC

E-6:45 p.m., C-5:45, M-4:45, P-3:45
C — Little Italy
WAAB WABC WCAO WCAU WDRW
WEAN WHEC WHP WKBW WOKO
R — Cheerio Musical Mosaias
KDYL KOA KPO KSD WCKY
WEAF WEEI WFBR WFLA WGY
WHO WIOD WIS WJAR WJAX
WJDX WMAQ WOC WOV WRVA
WSAI WSM WSOC WTAG WWJ
WUNC

B — Lowell Thomas, See Monday

E-7:00 p.m., C-6:00, M-5:00, P-4:00
C — Myrt and Marge, See Monday
B — Amos 'n' Andy, See Monday

E-7:15 p.m., C-6:15, M-5:15, P-4:15
C — Just Plain Bill, See Monday
R — Billy Bachelor, See Monday
B — Radio in Education
KDKA KECA KEX KFSD KFYR
KGA KGHJ KGIR KJR KOA KOIL
KPRC KTAR KTBS KTHS KVOO
KWCR KWK KYA WAPI WBAP
WBZ WBZA WCKY WFLA WHAM
WIBA WIS WJDX WJZ WMAL
WOAI WPTF WREN WSMB WUNC

E-7:30 p.m., C-6:30, M-5:30, P-4:30
C — Dell Campo, Songs
WABC WBIG WBT WDAE WDBJ
WDRW WDSU WFEA WGST WLWB
WMBG WORC WQAM WREC WSFA
WSJS WTOC

R — Lum and Abner, See Monday

E-7:45 p.m., C-6:45, M-5:45, P-4:45
C — Boake Carter, See Monday
R — Goldbergs, See Monday
B — Rhythm String Quartet
KDKA WJZ WBZA WENR WGAR
WHAM WJZ WMAL WSYR

E-8:00 p.m., C-7:00, M-6:00, P-5:00
C — Elmer Everett Yes; Comedy
CKLW KFAB KFH KMBC KMOX
KOMA KSCJ KTRH KTSB WAAB
WABC WADC WBBM WBIG WBRW
WBT WCAH WCAO WCAU WCCO
WDAE WDBO WDOU WDRW WDSU
WEAN WFBL WFBM WGR WGST
WHAS WHEC WHK WIBW WICC

TUESDAY—(Continued)

WJAS WJSV WKBN WKRC WLAC
WMAS WMBG WMT WOKO WORC
WOWO WQAM WROC WRR WSFA
WSPD WTAR WWVA
R — Blackstone; Sanderson-Crumit
WBEN WCAE WCSH WFAE WEEI
WFI WGY WJAR WRC WTAG
WTAM WWJ
B — Ena Crime Clues
KDKA KWK WBAL WBZ WBZA
WGAR WHAM WJR WJZ WLW
WMAL WMAQ WREN

E-8:15 p.m., C-7:15, M-6:15, P-5:15
C — Edwin C. Hill, See Monday

E-8:30 p.m., C-7:30, M-6:30, P-5:30
C — Voice of Experience
CKLW KMBC KMOX WABC WBBM
WBT WCAO WCAU WDRC WEAN
WGR WHAS WHEK WJAS WJSV
WKRC WNAC

R — Wayne King and Orchestra
KPRC KSD KSTP WBEN WCAE
WCSH WDAF WFAE WEEI WFAA
WFI WGY WHO WJAR WKBF
WKY WMAQ WMC WOAI WOC
WOW WRC WSAI WSB WSM WSMB
WTAG WTAM WTMJ WWJ
B — Horlick's Adventures in Health
CRCT KDKA KOIL KSO KWK
WBAL WJZ WBZA WGAR WHAM
WJR WJZ WLS WLW WREN

E-8:45 p.m., C-7:45, M-6:45, P-5:45

C — Columbians; Freddie Rich
CKLW KFH KLZ KMBC KOMA KSCJ
KSL KTRH KTSa KVOR WABC
WADC WBIG WBRC WBT WCAH
WCAO WCAU WCCO WDAE WDBJ
WDRC WDSU WEAN WFBL WFEA
WGR WGST WHAS WHP WIBW
WICC WISN WJAS WJSV WKBN
WLWB WMAS WMBG WMT WNAC
WODX WOKO WORC WOWO WPG
WQAM WROC WSBT WSJS WSPD
WTAQ WTOC

B — Smith Bros.—Trade and Mark
KDKA KOIL KSO KWCR KWK
WBAL WBZ WBZA WGAR WHAM
WJR WJZ WLS WLW WMAL WREN
WSYR

E-9:00 p.m., C-8:00, M-7:00, P-6:00

R — Ben Bernie and Orchestra
KFYR KOA KPRC KSD KSTP
WBAP WBEN WCAE WCSH WDAF
WFAE WEEI WFBR WFI WGY
WHO WJAR WKY WLW WMAQ
WMC WOAI WOC WOW WRC
WRVA WSB WSM WSMB WTAG
WTAM WTMJ WWJ
B — Household Musical Memories
KDKA KSO KWK WBAL WBZ WBZA
WHAM WJR WJZ WKBF WLS
WREN WSYR
C — Phila. Symphony, See Monday

E-9:15 p.m., C-8:15, M-7:15, P-6:15

C — Mystery Guild
CKLW KFH KLZ KMBC KOMA KSL
KTRH KTSa KVOR WABC WADC
WBIG WBRC WBT WCAH WCAO
WCAU WCCO WDAE WDBJ WDRC
WDSU WEAN WFBL WFEA WGST
WHAS WHEC WHK WHP WIBW
WICC WISN WJAS WJSV WKBN
WKBW WLWB WMAS WMBD WMBG
WMT WNAC WODX WOKO WORC
WOWO WPG WQAM WREC WSBT
WSJS WSPD WTOC

E-9:30 p.m., C-8:30, M-7:30, P-6:30

C — California Melodies
CFBR CKLW KFAB KFH KLZ
KMBC KOMA KRLD KSCJ KSL
KTRH KTSa KVOR WABC WADC
WBIG WBRC WBT WCAH WCAO
WCCO WDAE WDBJ WDRC WDSU
WEAN WFBL WFEA WGST WHAS
WHEC WHP WIBW WICC WJAS
WJSV WKBN WKBW WLWB WMAS
WMBD WMBG WMT WNAC WODX
WOKO WORC WOWO WPG WQAM
WREC WSBT WSJS WSPD WTOC

R — Texaco Fire Chief Program
KDYL KFI KFSB KFYR KGHJ
KGR KGO KGW KHQ KOA KOMO
KPRC KSD KSTP KTAI KTBS
KVOO WBAP WBEN WCAE WCSH
WDAF WDAY WFAE WFCB WEEI
WFBR WFI WFLA WGY WHO WIBA
WIOD WIS WJAR WJAX WJDX
WKY WLW WMAQ WMC WOAI
WOC WOW WPTF WRC WRVA
WSB WSM WSMB WTAG WTAM
WTMJ WWJ WWNC

E-10:00 p.m., C-9:00, M-8:00, P-7:00

C — Camel; Glen Gray's Orchestra
CKLW KDB KERN KFBK KFH
KFPY KPRC KGB KHJ KLRA KLZ
KMBC KMJ KMOX KOIN KOL
KOMA KRLD KSCJ KSL KTRH
KTSa KVI KWG WAAB WABC
WAGO WADC WBBM WBIG WBRC
WBT WCAH WCAO WCAU WCCO
WDAE WDBJ WDBO WDOD WDRC
WDSU WFBL WFBM WFEA WGST
WHAS WHEC WHK WHP WIBW
WICC WJAS WJSV WKBH WKBN
WKBW WJRC WLAC WLWB WMAS
WMBD WMBG WMT WNAK WODX
WOKO WORC WOWO WPG WQAM
WREC WSJS WSPD WTAR WTOC

R — Cruise of Seth Parker

KDYL KFI KFSB KFYR KGHJ
KGR KGO KGW KHQ KOA KOMO
KPRC KSD KSTP KTAI KTBS
WAPI WBAP WBEN WCAH WDAF
WDAY WFAE WFCB WEEI WFBR
WFI WFLA WGY WHO WIBA WIOD
WIS WJAR WJAX WJDX WKY
WLW WMAQ WMC WOAI WOC
WOW WRC WRVA WSB WSM
WSMB WTAG WTAM WWJ WWNC

E-10:30 p.m., C-9:30, M-8:30, P-7:30

R — Madama Sylvia—Beauty Talk
KDYL KFI KGO KGW KHQ KOA
KOMO KSD KSTP WBEN WFAE
WERC WEEI WGY WHO WIBA
WMAQ WOC WRC WTAG WWJ
C — News Service, See Monday

E-10:45 p.m., C-9:45, M-8:45, P-7:45

C — Myrt and Marge, See Monday

E-11:00 p.m., C-10:00, M-9:00, P-8:00

B — Amos 'n' Andy, See Monday
C — Evan Evans, Baritone
CKLW KFH KMBC KSCJ KSL KTSa
KVOR WAAB WABC WADC WBRC
WBT WCAO WDAE WDBJ WDRC
WDSU WEAN WGST WHAS WHEC
WHK WIBW WICC WJAS WJSV
WKBN WKBW WLWB WMAS WMBD
WMT WODX WOKO WORC WQAM
WSJS WSPD WTOC WWVA

E-11:15 p.m., C-10:15, M-9:15, P-8:15

C — Gertrude Niesen, Songs
CFBR CKLW WAAB WABC WADC
WBRC WBT WCAH WCAU WDAE
WDBJ WDRC WDSU WEAN WFBL
WGST WHEC WHP WJAS WJSV

WKBN WKBW WLWB WMAS WMBD
WMBG WMT WODX WOKO WORC
WPG WQAM WREC WSJS WSPD
WTOC WWVA

C — Elmer Everett Yess; Comedy
KALE KDB KERN KPRC KGB
KHJ KLZ KMJ KOIN KOL KSL
KWG

R — Lum and Abner, See Monday

E-11:30 p.m., C-10:30, M-9:30, P-8:30

C — Isham Jones and Orchestra
CFBR CKLW KFH KLRA KLZ
KMBC KOMA KSL KTRH KTSa
WABC WADC WBRC WCAO WDBJ
WDRC WDSU WEAN WFBL WFBM
WGST WHK WHP WIBW WISN
WJSV WKBW WLAC WLWB WMBD
WMBG WMT WNAC WOKO WORC
WQAM WROC WSBT WSJS WTAR
WTOC WWVA

B — Meyer Davis and Orchestra
CFCF KDYL KFYR KOIL KPO KSO
KSTP KWCR KWK WAPI WBAL
WBZ WBZA WCKY WDAY WEEC
WENR WFLA WHAM WIBA WIOD
WIS WJDX WJZ WMAL WMC
WREN WRVA WSB WSM WSMB
WSYR WWNC

E-11:45 p.m., C-10:45, M-9:45, P-8:45

C — Voice of Experience
KDB KERN KFBK KFPY KPRC
KGB KHJ KLZ KMJ KOIN KOL
KSL KVI KWG

E-12:00 mid., C-11:00, M-10:00 P-9:00

R — Ben Bernie and Orchestra
KFI KGO KGW KHQ KOMO

WEDNESDAY

E-6:00 p.m., C-5:00, M-4:00, P-3:00

C — Buck Rogers, See Monday
R — Waldorf Astoria, See Monday

B — Westminster Choir
KOIL KSO KWCR KWK WBAL
WCKY WGAR WHAM WJZ WMAL
WREN WSYR

E-6:15 p.m., C-5:15, M-4:15, P-3:15

C — Bobby Benson, See Monday

E-6:30 p.m., C-5:30, M-4:30, P-3:30

C — Vera Van, See Monday
R — Back of News

KFYR WFAE WFBR WGY WIBA
WIS WJAR WJDX WRC WSAI
WSB WSM WWJ WWNC

B — Irene Beasley, Contralto
KGO KOA KPRC KSO KTBS KVOO
KWCR WBAL WPAP WCKY WENR
WGAR WJZ WOAI WREN

E-6:45 p.m., C-5:45, M-4:45, P-3:45

B — Lowell Thomas, See Monday

E-7:00 p.m., C-6:00, M-5:00, P-4:00

C — Myrt and Marge, See Monday
R — Mollie Show, See Monday
B — Amos 'n' Andy, See Monday

E-7:15 p.m., C-6:15, M-5:15, P-4:15

C — Just Plain Bill, See Monday
R — Billy Bachelor, See Monday
B — John Herrick, Baritone
KDKA KOIL KSO KWCR KWK
WBAL WBZ WBZA WCKY WENR
WHAM WJZ WMAL WSYR

E-7:30 p.m., C-6:30, M-5:30, P-4:30

C — Music in Air, See Monday

WEDNESDAY—(Cont'd)

R — Lum and Abner, See Monday
B — Potash and Perlmutter, See Mon.

E-7:45 p.m., C-6:45, M-5:45, P-4:45
C — Boake Carter, See Monday
R — Goldbergs, See Monday

E-9:00 p.m., C-7:00, M-6:00, P-5:00
C — Happy Bakers, See Monday
R — George Olsen; Bert Lahr
CFCE CRCT KSD WBEN WCAE
WCKY WCSH WDAF WEAF WEEL
WFRB WGY WHO WJAR WLIT
WLS WOC WOW WRC WSAI WTAG
WTAM WTIC WWJ
B — Eno Crime, See Tuesday

E-9:15 p.m., C-7:15, M-6:15, P-5:15
C — Edwin C. Hill, See Monday

E-9:30 p.m., C-7:30, M-6:30, P-5:30
C — Albert Spalding; Conrad Thibault
CFRB CKAC CKLW KDB KERN
KFBK KFPY KFRC KGB KHJ
KLRA KLZ KMBC KMJ KMOX
KOLN KOL KOMA KSL KTAT
KTRH K TSA KVI KWG WABC
WBRC WCAO WCAU WCCO WDOD
WDRC WDSU WEAN WFBL WFBM
WGN WGR WGST WHAS WHK
WJAS WJSV WKRC WLAC WMT
WNAC WOKO WORC WOW WREC
WRR

B — Dangerous Paradise, Drama
CFCE KDKA KOIL KSO KWCR
KWK WBAL WBZ WBZA WGAR
WHAM WJR WJZ WLS WMAL
WREN WSYR

R — Wayne King and Orchestra
KSD WBEN WCAE WCSH WEAF
WFRB WGY WJAR WKBF WLIT
WMAQ WOW WRC WSAI WTAG
WTAM WWJ

E-8:45 p.m., C-7:45, M-6:45, P-5:45
B — Red Davis, See Monday

E-9:00 p.m., C-8:00, M-7:00, P-6:00
R — Ipana Troubadours
KDYL KFI KGO KGW KHQ KOA
KOMO KPRC KSD KSTP KTBS
KTBS KVOO WAPI WBAP WBEN
WCAE WCSH WDAF WEAF WFAA
WFRB WGY WHO WIOD WIS
WJAR WJAX WKY WLIT WMAQ
WMC WOAI WOC WOW WRC
WRVA WSAI WSB WSM WSMB
WTAG WTAM WTMJ WWJ

B — Warden Lawes; Sing Sing Drama
KDKA KOIL KSO KWCR KWK
WBAL WBZ WBZA WCKY WGAR
WHAM WJR WJZ WLS WMAL
WREN WSYR

C — Philadelphia Symphony, See Mon.

E-9:15 p.m., C-8:15, M-7:15, P-6:15
C — Col. Stoopnagle and Budd
CKLW KDB KERN KFBK KFH
KFPY KFRC KGB KHJ KLRA KLZ
KMBC KMJ KMOX KOIN KOL
KOMA KRLD KSCJ KSL KTRH
K TSA KVI KWG WABC WADC
WBMM WBRC WBT WCAH WCAO
WCAU WCCO WDAE WDRC WDSU
WEAN WFBL WFBM WGST WHAS
WHEC WHK WIBW WICC WISN
WJAS WJSV WKBW WKRC WLAC
WMBD WMT WNAC WOKO WOWO
WQAM WREC WSPD WTAR WTOC

E-9:30 p.m., C-8:30, M-7:30, P-6:30
C — Guy Lombardo—Burns and Allen
CKLW KDB KERN KFBK KFPY

KFRC KGB KHJ KLZ KMBC KMJ
KMOX KOIN KOL KOMA KRLD
KSL KTRH K TSA KVI KWG WABC
WADC WBT WCAO WCAU WCCO
WDRC WEAN WFBL WFBM WGN
WHK WJAS WJSV WKBW WKRC
WNAC WOKO WORC WOWO WSPD
R — Leo Reisman's Orchestra
KSD KSTP WBEN WCAE WCSH
WDAF WEAF WFRB WGY WJAR
WLIT WMAQ WOW WRC WSAI
WTAG WTAM WTMJ WWJ

B — John McCormack, Tenor
KDKA KDYL KFI KGO KGW KHQ
KOA KOIL KOMO KSO KWCR
KWK WBAL WBZ WBZA WCKY
WENR WGAR WHAM WJR WJZ
WMAL WREN WSYR

E-10:00 p.m., C-9:00, M-8:00, P-7:00
C — Old Gold—Fred Waring's Orchestra
CKLW KDB KERN KFBK KFOR
KFPY KFRC KGB KHJ KLRA KLZ
KMBC KMJ KMOX KOH KOIN
KOL KOMA KRLD KSCJ KSL
KTRH K TSA KVI KVOR KWG
WABC WACO WADC WBIG WBRC
WBT WCAH WCAO WCAU WCCO
WDAE WDBJ WDOD WDRC
WDSU WEAN WFBL WFBM WFEA
WGN WGST WHAS WHEC WHK
WHP WIBW WICC WISN WJAS
WJSV WKBW WKBW WKRC WLAC
WLWB WLZB WMAS WMBD WMBG
WMT WNAC WNAX WOKO WORC
WOWO WPG WQAM WREC WSPD
WTAR WTOC

R — Corn Cob Pipe Club
KDYL KFI KFYR KGHL KGJR
KGO KGW KHQ KOA KOMO KSD
KSTP WBEN WCAE WCSH WDAF
WDAF WEAF WCBW WEEL WENR
WFRB WGY WHO WIBA WJAR
WLIT WLW WOC WOW WRC
WRVA WTAG WTAM WTIC WTMJ
WWJ

E-10:30 p.m., C-9:30, M-8:30, P-7:30
R — National Radio Forum
KFYR KPRC KSD KSTP KTHS
KVOO WBEN WCAE WCSH WDAY
WEAF WEEL WFAA WFBW WFLA
WGY WHO WIBA WIS WJAR WJAX
WJDX WKY WMAQ WOAI WOC
WOW WRC WRVA WSAI WBS WSM
WSMB WTAG WTAM WTIC WWJ
WWNC

C — News Service, See Monday

E-10:45 p.m., C-9:45, M-8:45, P-7:45
C — Myrt and Marge, See Monday

E-11:00 p.m., C-10:00, M-9:00, P-8:00
B — Amos 'n' Andy, See Monday

C — Mark Warnow Presents
CKLW KFH KLRA KLZ KMBC
KSL KTRH K TSA KVOR WAAB
WABC WACO WADC WBIG WBT
WCAH WCAO WCCO WDAE WDBJ
WDOD WDOD WDRC WEAN WFBL
WFEA WGST WHEC WHK WHP
WIBW WICC WIP WISN WJAS
WJSV WKBW WLAC WLWB WLZB
WMAS WMBD WMBG WMT WODX
WOKO WORC WPG WQAM WSJS
WSPD WTOC

E-11:15 p.m., C-10:15, M-9:15, P-8:15
R — Lum and Abner, See Monday
B — Poet Prince, Songs
KDYL KFI KFYR KGO KGW KHQ
KOA KOIL KOMO KSO KSTP KTBS

KTHS KWCR KWK WAPI WBAL
WCKY WDAY WEBC WFAA WIBA
WJDX WJR WJZ WKY WMAL
WMAQ WMC WREN WSB WSYR

E-11:30 p.m., C-10:30, M-9:30, P-8:30
C — Ozzie Nelson and Orchestra
KLRA WABC WBRC WDBJ WDCR
WDSU WEAN WGST WICC WLAC
WMBG WNAC WORC WQAM WREC
WSJS WTAR WTOC
C — Edwin C. Hill
KDB KERN KFBK KFPY KFRC
KGB KHJ KLZ KMJ KOIN KOL KSL
KVI KWG

THURSDAY

E — 6:00 p.m., C-5:00, M-4:00, P-3:00
C — Buck Rogers, See Monday
R — Waldorf Astoria, See Monday
B — Richard Himber and Orchestra
KOIL KSO KWCR WBAL WBZ
WBZA WCKY WENR WHAM WJR
WJZ WMAL WREN WSYR

E-6:15 p.m., C-5:15, M-4:15, P-3:15
C — Bobby Benson, See Monday

E-6:30 p.m., C-5:30, M-4:30, P-3:30
R — John B. Kennedy
KDYL KFYR KOA KPO KPRC KSD
KTBS KTHS KVOO WAPI WDAY
WEAF WFRB WFI WGY-WHO WIBA
WIS WJAX WJDX WMAQ WMC
WOR WRC WSAI WSB WSMB WTAG
WWJ WWNC

C — Edith Murray, Songs
WAAB WABC WBIG WBRC WBT
WCAO WDAE WDBJ WDSU WFEA
WGST WHEC WHP WJSV WKEN
WLZB WMAS WMBG WORC WQAM
WREC WSFA WSJS WTOC

E-6:45 p.m., C-5:45, M-4:45, P-3:45
R — Sizlers Trio
KFYR KOA KPRC KSD KSTP
KTBS KVOO WAPI WBEN WCKY
WDAY WEAF WEBC WEEI WFAA
WFRB WFI WGY WHO WIBA WJAR
WJDX WKY WMC WOAI WOC WOW
WSAI WSB WSM WSMB WTAG
WWJ

B — Lowell Thomas, See Monday
C — Little Italy, See Tuesday

E-7:00 p.m., C-6:00, M-5:00, P-4:00
C — Myrt and Marge, See Monday
B — Amos 'n' Andy, See Monday

E-7:15 p.m., C-6:15, M-5:15, P-4:15
B — Three Musketeers, Drama
CRCT WBAL WBZ WBZA WHAM
WJZ WMAL WSYR

C — Just Plain Bill, See Monday
R — Billy Bachelor, See Monday

E-7:30 p.m., C-6:30, M-5:30, P-4:30
R — Lum and Abner, See Monday
C — Mildred Bailey, Songs
WABC WBT WDAE WDBJ WDRC
WDSU WEAN WGST WLZB WMAS
WMBG WNAC WORC WQAM WREC
WSFA WSJS WTOC

E-7:45 p.m., C-6:45, M-5:45, P-4:45
B — Concert Favorites
KDKA KDYL KFYR KOA KPO
KPRC KSO KSTP KTBS KTHS KVOO
KWCR WBZ WBZA WCKY WEBC
WFAA WHAM WIBA WIOD WIS
WJAX WJDX WJZ WKY WMAL

THURSDAY—(Cont'd)

WMC WOAI WREN WSB WSMB WUNC
C — Boake Carter, See Monday
R — Goldbergs, See Monday

E-8:00 p. m., C-7:00, M-6:00, P-5:00
C — Elmer E. Yess, See Tuesday
R — Rudy Vallee and Orchestra
CFCC CRCT KDYL KFI KFYP KGO
KGW KHQ KOA KOMO KPRC KSD
KSTP KTAR KTHS WAPI WBAP
WBEN WCAE WCHS WDAF WDAY
WEAF WEBC WEEI WFBR WFI
WFLA WGY WHO WIOD WJAR
WJAX WJDX WKY WLW WMAQ
WMC WOAI WOC WOW WPTF WRG
WRVA WSB WSM WSMB WTAG
WTAM WTMJ WWJ

E-8:15 p. m., C-7:15, M-6:15, P-5:15
C — Edwin C. Hill, See Monday

E-8:30 p. m., C-7:30, M-6:30, P-5:30
C — Voice of America
CKLW KMBC KMOX WABC WADC
WBMM WCAO WCAU WDRC WEAN
WFBL WGR WHAS WHK WJAS
WJSV WKRC WNAC WOKO WOWO
WSPD
B — Horlick's, See Tuesday

E-9:00 p. m., C-8:00, M-7:00, P-6:00
R — Maxwell House Showboat
KDYL KFI KFSD KGO KGW KHQ
KOA KOMO KPRC KSD KSTP KTAR
KTHS WAPI WBAP WBEN WCAE
WCKY WCHS WDAF WEAF WEEI
WFBR WFI WFLA WGY WHO WIOD
WIS WJAR WJAX WJDX WKY
WMAQ WMC WOAI WOC WOW
WRC WRVA WSAI WSB WSM WSMB
WTAG WTAM WTMJ WWJ WUNC
B — Death Valley Days—Drama
KDKA KOIL KSO KWCR KWK
WBAL WBZ WBZA WGAR WHAM
WJR WJZ WLS WLW WMAL WREN
WSYR

C — Philadelphia Symphony, See Mon.

E-9:15 p. m., C-8:15, M-7:15, P-6:15
C — Alex. Woolcott, See Monday

E-9:30 p. m., C-8:30, M-7:30, P-6:30
C — Andre Kostelanetz Presents
CKLW KFH KLZ KMBC KOMA
KRLD KSCJ KTRH KTSA KVR
WABC WADC WBIG WBRC WBT
WCAH WCAO WCCO WDAE WDBJ
WDRC WDSU WEAN WFBL WFEA
WGST WHAS WHEC WHK WHP
WIBW WICC WJAS WJSV WKBN
WKBW WLZ WMAS WMBD WMBG
WMT WNAC WOKO WORC WOWO
WQAM WREC WSBT WSJS WSPD
WTOC

B — Wayne King and Orchestra
KDKA KOIL KSO KWCR KWK
WBAL WBZ WBZA WENR WGAR
WHAM WJR WJZ WREN

E-10:00 p. m., C-9:00, M-8:00, P-7:00
R — Paul Whiteman and Orchestra
KDYL KFI KFYP KGO KGW KHQ
KOA KOMO KPRC KSD KSTP KTBS
KTHS KVVO WBAP WBEN WCAE
WCHS WDAF WDAY WEAF WEBC
WEEI WFBR WFLA WGY WHO
WIBA WIOD WIS WJAR WJAX
WJDX WKY WLW WMAQ WMC
WOAI WOC WOW WRC WRVA WSB

WSM WSMB WTAG WTAM WTMJ
WWJ WUNC
B — Hands Across the Border
CFAC CFBO CFCC CFCH CFCN
CFCO CFCC CFJC CFNB CFFL
CFQC CHAB CHGS CHNS CHRC
CHWC CHWK CJCA CJB CJG
CJGX CJOC CJRM CJRW CKCH
CKCK CKNC CKOC CKOV CKPC
CKRP CKUA CKX CKY CRCO CRCS
CRCT CRVC CFCC KDKA KOIL KSO
KWCR WBAL WBZ WBZA WCKY
WGAR WHAM WJR WJZ WMAQ
WREN WSYR
C — Camel Program, See Tuesday

E-10:30 p. m., C-9:30, M-8:30, P-7:30
B — Archer Gibson, Organist
KDKA KSO KWCR KYW WBAL WBZ
WBZA WCKY WGAR WHAM WJZ
WMAL WREN
C — News Service, See Monday

E-10:45 p. m., C-9:45, M-8:45, P-7:45
C — Myrt and Marge, See Monday

E-11:00 p. m., C-10:00, M-9:00, P-8:00
C — Harlem Serenade
CKLW KFH KLZ KMBC KSCJ
KTRH KTSA KVR WAAB WABC
WADC WBIG WBRC WBT WCAH
WCAO WDAE WDBJ WDRC WDSU
WEAN WFEA WGST WHAS WHEC
WHP WIBW WICC WISN WJAS
WJSV WKBW WLZ WMAS WMBD
WMBG WMT WODX WOKO WORC
WQAM WREC WSJS WSPD WTOC
WWVA
B — Ames 'n' Andy, See Monday
R — Viola Philo, Soprano
WCAE WCHS WEAF WFI WFLA
WGY WIOD WIS WOW WRVA
WTAM WUNC

E-11:15 p. m., C-10:15, M-9:15, P-8:15
C — Phil Regan, Tenor
CFRB CKLW KLRA WAAB WABC
WADC WBIG WBRC WBT WCAO
WCCO WDAE WDBJ WDBO WDOD
WEAN WFBM WFEA WGST
WHP WIP WJAS WJSV WKBN
WKBW WLAC WLWB WLZ WMAS
WMBG WMBD WMT WODX WORC
WPG WQAM WREC WSBT WSJS
WSPD WTOC

C — Elmer E. Yess, See Tuesday
R — Lum and Abner, See Monday
B — Poet Prince, See Wednesday

E-11:30 p. m., C-10:30, M-9:30, P-8:30
C — Isham Jones, See Tuesday
R — Enric Madriguera and Orchestra
KSD WBEN WCAE WCHS WDAF
WEAF WEEI WFBR WFI WGY
WHO WJAR WOC WOW WSAI
WTAG WTAM
C — Edwin C. Hill, See Wednesday

FRIDAY

E-6:00 p. m., C-5:00, M-4:00, P-3:00
C — H. V. Kaltenborn
CFRB CKLW KLRA WAAB WABC
WADC WBIG WBT WCAO WCAU
WDAE WDBJ WDBO WDOD WDRC
WFAE WGST WHEC WHK WICC
WJSV WLAC WLWB WLZ WMBG
WOKO WORC WQAM WREC WWSA
WSJS WSPD WTOC
R — Waldorf Astoria, See Monday

E-6:15 p. m., C-5:15, M-4:15, P-3:15
C — Bobby Benson, See Monday

E-6:30 p. m., C-5:30, M-4:30, P-3:30
B — Three X Sisters
KDKA KOIL KWCR KWK WBAL
WBZ WBZA WCKY WENR WHAM
WJZ WMAL WREN WSYR
R — Irene Beasley, See Monday
C — Toto Guier, Tenor
CFRB CKLW WAAB WABC WBIG
WBRC WBT WCAO WDAE WDBJ
WDRC WDSU WFEA WGST WHEC
WKBW WKBW WLZ WMAS WMBG
WOKO WORC WQAM WREC WWSA
WJSV WTOC

E-6:45 p. m., C-5:45, M-4:45, P-3:45
C — Zoel Parenteau's Orchestra
CKLW WAAB WABC WBT WCAU
WDRC WEAN WFBL WFEA WHEC
WJSV WKBW WLZ WOKO
B — Lowell Thomas, See Monday

E-7:00 p. m., C-6:00, M-5:00, P-4:00
C — Myrt and Marge, See Monday
R — Mollie Show, See Monday
B — Ames 'n' Andy, See Monday

E-7:15 p. m., C-6:15, M-5:15, P-4:15
C — Just Plain Bill, See Monday
R — Billy Bachelor, See Monday
B — Three Musketeers, See Thursday

E-7:30 p. m., C-6:30, M-5:30, P-4:30
R — Scott's Circus Day
KSD WCHS WDAF WEAF WEEI
WGY WJAR WKBW WLW WMAQ
WOW WRC WTAG WTAM WTIC
B — Potash and Perimutter, See Mon.
C — Music in Air, See Monday.

E-7:45 p. m., C-6:45, M-5:45, P-4:45
C — Boake Carter, See Monday
R — Goldbergs, See Monday

E-8:00 p. m., C-7:00, M-6:00, P-5:00
C — Happy Bakers, See Monday
R — Cities Service Center
CRCT KDYL KOA KPRC KSD KTBS
KTHS KYW WBEN WCAE WCHS
WDAF WFAE WEBC WEEI WFAA
WFBR WGY WHO WJAR WKY WLTJ
WOAI WOC WOW WRC WRVA WSAI
WTAG WTAM WTIC WTMJ WWJ
B — Nestle's with Ethel Shutta
KDKA KWK WBAL WBZ WBZA
WCKY WGAR WJR WJZ WLS WMAL
WSYR

E-8:15 p. m., C-7:15, M-6:15, P-5:15
C — Edwin C. Hill, See Monday

E-8:30 p. m., C-7:30, M-6:30, P-5:30
C — March of Time
CKLW KDB KERN KFBC KFPY
KFRC KGB KEJ KLZ KMBC KMJ
KMOX KOIN KOL KSL KTRH KVI
KWG WABC WCAO WCAU WCCO
WDRC WDSU WEAN WFBL WFBM
WGN WGR WGST WHAS WHK WJSV
WJZ WKRK WNAC WOKO WSPD
B — Dangerous Paradise, See Wed.

E-8:45 p. m., C-7:45, M-6:45, P-5:45
B — Red Davis, See Monday

E-9:00 p. m., C-8:00, M-7:00, P-6:00
B — Phil Harris and Orchestra
CFCC KDKA KDYL KFI KGHL
KGIR KGO KGW KHQ KOA KOIL
KOMO KSO KWCR KWK WAPI
WBAL WBZ WBZA WCKY WFAA
WGAR WJZ WKY WLS WMAL
WOAI WREN WSB WSM WSMB
WSYR

FRIDAY—(Continued)

C — Philadelphia Symphony, See Mon.
R — Frank Munn; Abe Lyman
 KSD WBEN WCSH WEAF WEEI
 WFBW WGY WJAR WLIT WMAQ
 WOW WRC WSAI WTAG WTAM
 WWJ

E-9:15 p. m., C-8:15, M-7:15, P-6:15

C — Threads of Happiness
 CKLW KDB KERN KFBK KFH
 KFPY KFCR KGB KHJ KLRA KLZ
 KMBC KMJ KMOX KOIN KOL
 KOMA KSL KTRH KTAI KTSB KVI
 KWG WABC WADC WBRB WBT
 WCAO WCAU WCCO WDAE WDRB
 WDSU WEAN WFBL WFBM WGN
 WGST WHAS WHK WJAS WJSV
 WKBW WKRC WLAC WNBC WOKO
 WOWO WREC WRN WSPD WTAR
 WTOC

E-9:30 p. m., C-8:30, M-7:30, P-6:30

R — Pond's Program; Lee Wiley
 KSD WBEN WCAE WCSH WDAF
 WEAF WFBW WGY WHO WJAR
 WLIT WMAQ WOC WOW WRC WSAI
 WTAG WTAM WTIC WWJ
B — Armour Program; Phil Baker
 KDKA KDYL KFI KGO KGW KHQ
 KOA KOIL KOMO KPRC KSO KSTP
 KTAI KWK WAPI WBAL WBZ
 WBZA WENR WENR WFAA WGAR
 WHAM WIOD WJAX WJR WJZ
 WKY WMC WOAI WWRN WRVA
 WSB WSM WSMB WTMJ WWNC

E-10:00 p. m., C-9:00, M-8:00, P-7:00

C — Swift Revue—Olsen and Johnson
 CKLW KDB KERN KFBK KFPY
 KFCR KGB KHJ KLZ KMBC KMJ
 KMOX KOIN KOL KOMA KRLD
 KSCJ KSL KTRH KVI KWG WABC
 WADC WBBM WBRB WBT WCAO
 WCAU WCCO WDRB WEAN WFBL
 WGST WHAS WHK WJAS WJSV
 WKBW WKRC WNBC WOKO WOWO
 WREC

R — First Nighter—Drama
 CRCT KDYL KFI KGO KGW KHQ
 KOA KOMO KPRC KSD KSTP
 WAPI WBEN WCAE WCSH WDAF
 WEAF WBBM WEEI WFBW WGY
 WHO WJAR WKY WLIT WMAQ
 WOAI WOC WOW WRC WSAI WSB
 WSM WSMB WTAG WTAM WTIC
 WTMJ WWJ

B — Armo Ironmaster Program
 KDKA KOIL KSO KWCR WBAL
 WBZ WBZA WENR WGAR WHAM
 WJR WJZ WLW WMAL WREN
 WSYR

E-10:30 p. m., C-9:30, M-8:30, P-7:30

R — Lum and Abner's Sociable
 KFPY KSD WBEN WCAE WCSH
 WDAF WDAY WEAF WEEI WENR
 WFBW WGY WHO WIBA WJAR
 WKBF WLIT WLW WOC WOW
 WRC WTAG WTAM WTIC WTMJ

B — Mario Cozzi, Baritone
 KDKA KFPY KOIL KSO WAPI
 WBAL WBZ WBZA WCKY WDAY
 WBBM WFLA WHAM WIBA WICD
 WIS WJAX WJR WJZ WREN WSE
 WSM WSYR WWNC

C — News Service, See Monday

E-10:45 p. m., C-9:45, M-8:45, P-7:45

C — Myrt and Marge, See Monday

E-11:00 p. m., C-10:00, M-9:00, P-8:00

B — Amos 'n' Andy, See Monday
C — Gladys Rice, Soprano

CKLW KFH KLZ KMBC KSCJ KTRH
 KTSB KVOR WAAB WABC WADC
 WBRB WBT WCAH WCAO WDAE
 WDBJ WDRB WDSU WEAN WFEA
 WGST WHAS WHEC WHK WHP
 WIBW WICC WISN WJAS WJSV
 WKBW WLWB WLZB WMAS WMBD
 WMBG WMT WODX WOKO WORC
 WOWO WPG WQAM WREC WJSJ
 WSPD WTOC

E-11:15 p. m., C-10:15, M-9:15, P-8:15

C — Boswell Sisters, See Monday

E-11:30 p. m., C-10:30, M-9:30, P-8:30

C — Isha m Jones, See Tuesday
C — Edwin C. Hill, See Wednesday

SATURDAY

E-6:00 p. m., C-5:00, M-4:00, P-3:00

C — Meet the Artist
 CFRB CKLW KFH KLRA KMBC
 KOMA KSL KTRH KTSB KVOR
 WAAB WABC WACO WADC WBBM
 WBIG WBRB WCAO WCCO WDBJ
 WDSU WFBL WFEA WGR WGST
 WHAS WHEC WHK WHP WLWB
 WICC WIP WISN WJAS WJSV
 WLWB WLZB WMBG WMT WOKO
 WQAM WREC WSBT WSFA WSJS
 WTAQ WTAR WTOC WWVA

R — Waldorf Astoria, See Monday

B — Trio Romantique
 KOIL KSO KWCR KYW WBAL WBZ
 WBZA WCKY WHAM WJR WJZ
 WMAL WREN WSYR

E-6:15 p. m., C-5:15, M-4:15, P-3:15

C — Mildred Bailey, Songs
 CKAC CKLW KFAB KFH KLRA
 KLZ KMBC KRLD KSL KTRH KTSB
 KVOR WAAB WABC WACO WBIG
 WBT WCAH WCAO WCCO WDAE
 WDBJ WDBO WDDO WDRB WEAN
 WFEA WGR WGST WHEC WHK
 WHP WIBW WICC WIP WISN
 WJAS WJSV WLAC WLWB WLZB
 WMBG WMT WOKO WORC WQAM
 WREC WSBT WSFA WSJS WSPD
 WTAQ WTOC WWVA
B — O'Leary's Irish Minstrels
 KOIL KSO KWCR KYW WBAL WBZ
 WBZA WCKY WHAM WJR WJZ
 WMAL WREN WSYR

E-6:30 p. m., C-5:30, M-4:30, P-3:30

C — George Hall and Orchestra
 CKLW WAAB WABC WBIG WBRB
 WBT WCAO WDAE WDBJ WDRB
 WDSU WEAN WFEA WGST WHEC
 WHP WICC WJSV WLWB WLZB
 WMAS WMBG WOKO WORC WQAM
 WREC WSFA WSJS WSPD WTOC
B — Mary Small, See Tuesday

E-6:45 p. m., C-5:45, M-4:45, P-3:45

B — Flying with Capt. Al Williams
 WBAL WBZ WBZA WCKY WGAR
 WHAM WJR WJZ WSYR
R — J. C. Nugent—Male Quartet
 WCSH WEAF WEEI WGY WJAR
 WTAG

E-7:00 p. m., C-6:00, M-5:00, P-4:00

C — Frederic William Wile
 CKLW KFH KLRA KLZ KMBC
 KRLD KSL KTRH KTSB KVOR
 WABC WACO WADC WBBM WBIG
 WBRB WCAO WCAU WDBJ WDSU
 WEAN WFBL WFEA WGR WGST
 WHEC WHK WIBW WICC WISN
 WJAS WJSV WLAC WLWB WLZB

WMBG WMT WOKO WQAM WREC
 WSBT WSFA WSJS WTAQ WTAR
 WTOC WWVA
B — John Herrick, Baritone
 KDKA KOIL KSO KWCR KWK
 WBAL WCKY WGAR WJZ WKBF
 WMAL WMAQ

E-7:15 p. m., C-6:15, M-5:15, P-4:15

C — Tito Guizar, Tenor
 CFRB CKLW KFH KLZ KOMA KSCJ
 KTRH KTSB KVOR WAAB WABC
 WBIG WBRB WBT WCAO WCAU
 WCCO WDBJ WDRB WDSU WFBL
 WFEA WGR WGST WHEC WHP
 WIBW WISN WJAS WLWB WLZB
 WMAS WMBG WMT WOKO WORC
 WQAM WREC WSFA WSJS WSPD
 WTAQ WWVA

R — Religion in the News

KFI KFPY KGO KGW KHQ KOA
 KOMO KSD KTBS WAPI WBEN
 WCAE WDAF WEAF WEEI WFAA
 WFBW WFI WFLA WGY WHO WIBA
 WIOD WIS WJAR WJAX WLW
 WMC WOAI WOC WRC WSM WSMB
 WTAG WTAM

B — Three Musketeers, See Thursday

E-7:30 p. m., C-6:30, M-5:30, P-4:30

C — Elder Michaux' Congregation
 CFRB CKLW KFH KLZ KMBC
 KOMA KSCJ KSL KTRH KTSB
 KVOR WABC WADC WBIG WBT
 WCAH WCAO WCCO WDBJ WDRB
 WDSU WEAN WFBL WFEA WGR
 WGST WHAS WHP WIBW WICC
 WIP WISN WJAS WJSV WLWB
 WLZB WMAS WMBG WMT WNBC
 WOKO WORC WQAM WREC WSJS
 WSPD WTAQ WTOC WWVA
B — Richard Humber and Orchestra
 CFCF KFI KGO KGW KHQ KOA
 KOIL KOMO KPRC KSO KTBS
 KTHS KWCR WBAL WBAP WCKY
 WENR WHAM WIOD WIS WJR WJZ
 WKY WHM WMC WOAI WREN
 WRVA WSB WSM WSMB WSYR
 WWNC

R — Circus Days, See Friday

E-8:00 p. m., C-7:00, M-6:00, P-5:00

R — George Olsen and Orchestra
 KDYL KFI KFPY KGO KGW KHQ
 KOA KOMO KPRC KSD KSTP KTBS
 KVOO KYW WBEN WCSH WDAF
 WEAF WBBM WEEI WFBW WFLA
 WGY WIBA WIOD WIS WJAR WJAX
 WJZ WOAI WOW WRC WSB WSM
 WSMB WTAG WTAM WWJ WWNC
B — Economics in the New Deal
 KOIL KSO KWCR WBAL WCKY
 WENR WHAM WJR WJZ WMAL
 WREN WSYR

C — Elmer E. Yess, See Tuesday

E-8:15 p. m., C-7:15, M-6:15, P-5:15

C — Fray and Braggiotti
 CFRB CKAC CKLW KFH KLRA
 KLZ KMBC KSL KTRH KTSB
 KVOR WABC WACO WADC WBIG
 WBT WCAH WCAO WCAU WCCO
 WDAE WDBJ WDBO WDDO WDRB
 WEAN WFBL WFEA WGR WGST
 WHAS WHEC WHP WIBW WICC
 WISN WJAS WJSV WLAC WLWB
 WLZB WMAS WMBG WMT WNBC
 WOKO WORC WPG WQAM WREC
 WSBT WSFA WSJS WSPD WTAQ
 WTOC WWVA

E-8:30 p. m., C-7:30, M-6:30, P-5:30

R — Antobai's Cubans
 KDYL KFI KGO KGW KHQ KOA

SATURDAY—(Continued)

KOMO KPRC KSD KTBS KTHS
KVOR WFBC WDAF WDAY WFAF
WBEC WFAA WFBR WFLA WGY
WBO WIBA WIS WJAR WJAX
WJDX WKY WMAQ WMC WQAI
WOC WRC WRVA WSAI WSB WSM
WSMB WTAG WTAM WWJ WWNC

B — Sous les Ponts de Paris
CFBO CFCH CFNC CFQC CFYU
CFUC CFNB CFPL CFQC CHAB
CHGS CHNC CHNS CHWC CHWK
CJCA CJCB CJGX CJOC CJRM
CJRW CKCH CKCK CKNC CKOC
CKOV CKPC CKPR CKUA CKK
CKY CRCM CRCO CRCS CRCT
CRCV KDKA KOIL KSO KWCR
KYW WBAL WBZ WBZA WCKY
WGAR WHAM WJR WJZ WMAL
WREN WSYR

C — George Jesse!
CFBR CKLW KFH KLRA KLZ
KMBC KMOX KOMA KRLD KTRH
KTSa KVOR WAAB WABC WADC
WBIG WBRC WCAO WCAU WCCO
WDBJ WDSU WEAN WFMB WFEA
WGST WHAS WHEC WHK WHP
WIBW WICC WISN WJAS WJSV
WKBW WLAC WLWB WLWB WMBD
WMBG WOKO WPG WQAM WREC
WSBT WSJS WTAR WTOC WWVA

E-9:00 p.m., C-8:00, M-7:00, P-8:00
R — Lucky Strike—Jack Pearl
KDYL KFSD KFYR KGO KGW KGW
KHQ KOA KOMO KPRC KSD KSTP
KTRH KTBS KTHS WAPI WBAP
WBEN WCAE WCHS WDAF WDAY
WEAF WEBC WEEI WFBR WFI
WFLA WGY WIBA WIOD WIS WJAR
WJAX WJDX WKY WLW WMAQ
WMC WQAI WOW WRC WRVA WSB
WSMB WTAG WTAM WTMJ WWJ
WWNC

C — Philadelphia Symphony, See Mon.
B — Jamboree—Variety Show
CFBC KDKA KDYL KFI KFYR
KGO KGW KHQ KOA KOIL KOMO
KPRC KSO KSTP KTBS KWCR
KWY KYW WAPI WBAL WCKY
WDAY WEBC WFLA WGAR WHAM
WIBA WIOD WIS WJAX WJDX WJR
WJZ WKY WMAL WMC WREN
WRVA WSB WSM WSMB WSYR
WWNC

E-9:15 p.m., C-8:15, M-7:15, P-8:15
C — Stoopnagle-Budd, See Wednesday

E-9:30 p.m., C-8:30, M-7:30, P-8:30
C — Carborandum Band
CKLW KMBC KMOX WAAB WABC
WBBM WBT WCAO WCAU WCCO
WHAS WHK WJAS WKBW WKRC
R — Lee Reisman; Yacht Club Boys
WBEN WCAE WCHS WDAF WEAF
WEEI WFBR WFI WGY WIO WJAR
WMAQ WOC WOW WRC WSAI
WTAG WTAM WWJ

E-10:00 p.m., C-9:00, M-8:00, P-7:00
R — B. A. Rolfe and Orchestra
CRCT KDYL KFI KGO KGW KOA
KOMO KSD KSTP WBAP WBEN
WCAE WCHS WDAF WEAF WEEI
WFBR WFI WGY WHO WJAR WJAX
WLW WMAQ WQAI WOC WOW
WRC WRVA WSB WSMB WTAG
WTAM WTMJ WWJ
B — Tales of the Titans—Drama
KDKA KOIL KWCR KWY KYW
WBAL WBZ WBZA WCKY WGAR
WHAM WJR WJZ WMAL WREN
WSYR

C — Byrd Expedition
CKLW KDB KERN KFBK KFH
KFPY KFCB KGB KHJ KLRA
KMBC KMLJ KMOX KOIL KOL
KOMA KRLD KTRH KTSa KVI
KWG WAAB WABC WCAO WADC
WBBM WBRC WBT WCAO WGU
WCCO WDAE WEAN WGST WHAS
WHEC WHK WHP WIBW WJSV
WKBW WKRC WLAC WLWB WMBG
WMT WOKO WORC WQAM WREC

E-10:30 p.m., C-9:30, M-8:30, P-7:30
C — News Service, See Monday
B — Cuckoo—Ray Knight
KOIL KSO KWCR KYW WBAL WBZ
WBZA WCKY WGAR WJZ WMAL
WREN WSYR

E-10:45 p.m., C-9:45, M-8:45, P-7:45
C — H. V. Kallenborn
CFBR CKLW KLZ KMBC KOMA
KRLD KSCJ KSL KTRH KTSa
KVOR WAAB WABC WADC WBIG
WBRC WBT WCAH WCAO WDBJ
WDRS WDSU WEAN WFMB WFEA
WGST WHEC WHP WIBW WIP
WISN WJAS WJSV WKBW WLWB
WLWB WMAS WMBD WMBG WMT
WODX WORC WPG WQAM WREC
WSBT WSJS WSPD WTAQ WTOC
WWVA

E-11:00 p.m., C-10:00, M-9:00, P-8:00
C — Glen Gray and Orchestra
CFBR CKLW KLRA KLZ KMBC
KMOX KOMA KTRH KTSa KVOR
WAAB WABC WADC WBIG WBRC
WCAO WCAU WCCO WDBJ WDSU
WEAN WFBL WFMB WGST WHAS
WHP WIBW WICC WISN WJAS
WJSV WKBW WLAC WLWB WLWB
WMBD WMBG WMT WOKO WPG
WQAM WREC WSBT WSJS WTAR
WTOC

R — One Man's Family—Sketch
CFBC KDYL KFI KFYR KGO KGW
KHQ KOA KOMO KPO KPRC KSD
KSTP KTBS KTHS KVOO WBEN
WCAE WDAF WDAY WEAF WFBR
WFI WFLA WGY WHO WIBA WIOD
WIS WJAR WJAX WJDX WKY
WMAQ WMC WQAI WOC WOW
WRC WRVA WSAI WSB WSMB
WTAG WTAM WWJ WWNC
B — WLS Barn Dance
KDKA KOIL KSO KWCR KWY KWB
WLBA WGAR WHAM WJR WJZ
WLS WLW WMAL WREN WSYR

E-11:15 p.m., C-10:15, M-9:15, P-8:15
C — Elmer E. Yess, See Tuesday

E-11:30 p.m., C-10:30, M-9:30, P-8:30
C — Abe Lyman and Orchestra
CFBR CKLW KLRA KLZ KMBC
KOMA KSL KTRH KTSa KVOR
WABC WADC WBRC WCAO WDBJ
WDSU WEAN WFBL WFMB WGST
WHEC WHP WIBW WIP WISN
WJSV WKBW WLAC WLWB WLWB
WMBD WMBG WMT WNAC WOKO
WPG WQAM WREC WSBT WSJS
WTOC

R — Hollywood on the Air
CFBC KDYL KFYR KOA KPO KPRC
KSD KSTP KTBS KTHS KVOO
WBEN WCAE WDAF WDAY WEAF
WFBR WFI WFLA WGY WHO WIBA
WIOD WIS WJAR WJAX WJDX
WKY WMAQ WMC WQAI WOC
WOW WRC WRVA WSAI WSB
WSMB WTAG WTAM WWJ WWNC

E-12:00 p.m., C-11:00, M-10:00, P-9:00
C — Little Jack Little
CKLW KFH KLZ KMBC KMOX
KOMA KRLD KSCJ KTRH LITSa
WABC WCAU WEAN WFBL WHAS
WHP WIBW WICC WISN WJSV
WKBW WLWB WMAS WMBD
WNAC WOKO WSBT WSPD
B — Freddie Martin and Orchestra
KOIL KSO KWCR KWY KWB
WBZ WBZA WCKY WGAR WHAM
WJZ WLW WMAL WREN WSYR

E-12:30 a.m., C-11:30, M-10:30, P-9:30
B — William Scott and Orchestra
KDKA KOIL KSO KWCR KWY
KYW WBAL WBZ WBZA WCKY
WGAR WJR WJZ WLW WMAL
WREN WSYR

SUNDAY

E-11:15 a.m., C-10:15, M-9:15, P-8:15
R — Major Bowes' Capitol Family
KDYL KFYR KOA KPRC KSTP
KTBS KVOO WAPI WCAE WDAF
WDAY WEAF WEBC WFAA WFBR
WFLA WGY WHO WIOD WJAR
WJAX WKY WMAQ WMC WQAI
WOC WRC WRVA WSAI WSBM
WTAG WTAM WWNC

E-11:30 a.m., C-10:30, M-9:30, P-8:30
C — Salt Lake Tabernacle Choir
CKLW KLRA KLZ KMBC KOMA
KSL KTRH KTSa KVOR WABC
WACO WADC WBIG WBRC WCAO
WCCO WDBJ WDRS WDSU WEAN
WFBL WFEA WGN WGR WGST
WHAS WHEC WHP WIBW WICC
WISN WJAS WJSV WLAC WLWB
WMBD WMT WNAC WOKO WORC
WPG WQAM WSBT WSPA WSJS
WTAQ WTAR WWVA

E-12:15 p.m., C-11:15, M-10:15, P-9:15
R — Morning Home Circle
WCHS WEAF WEEI WFBR WFI
WJR WRC WTAG

E-12:30 p.m., C-11:30, M-10:30, P-9:30
B — Radio City Concert
CFBC CRCT KDKA KDYL KFI
KFYR KGO KGW KHQ KOA KOIL
KOMO KPRC KSO KVOO WAPI
WBAL WBZ WBZA WCKY WDAY
WEBC WGAR WHAM WIS WJDX
WJR WJZ WKY WMAL WQAI WREN
WSMB WSYR WWNC
R — Chicago Round Table
WBEN WCHS WDAF WEAF WEEI
WFBR WFI WGY WHO WJAR
WOC WOW WRC WSAI WTAG
WTAM WWJ

C — Madison Ensemble
CFBR CKLW KLRA KLZ KMBC
KOMA KSL KTRH KVOR WACO
WADC WABC WCAO WCAU WDBJ
WDRS WDSU WEAN WFBL WFEA
WGR WGST WHAS WHEC WIBW
WISN WJAS WJSV WLAC WLWB
WMBD WMT WNAC WOKO WPG
WQAM WREC WSBT WSJS WTAQ
WTAR WTOC WWVA

E-1:00 p.m., C-12:00, M-11:00, P-10:00
C — Church of the Air
CFBR CKLW KLRA KLZ KOMA
KTRH KTSa KWB WAAB WABC
WACO WADC WCCO WDBJ WDRS
WDSU WFBL WGR WGST WHAS
WHEC WHP WIBW WJAS WJSV
WLAC WLWB WMT WOKO WPG
WQAM WREC WSBT WSJS WTAQ
WTAR WTOC WWVA

SUNDAY—(Continued)

R—Russian Symphonic Choir
WBEN WCAE WDAF WFAE WEEI
WFI WGY WHO WJAR WLW WMAQ
WOC WRC WSAI WTAG WTAM
WVWJ

E-1:30 p.m., C-12:30, M-11:30, P-10:30

R—Little Known Facts
WBEN WCSH WFAE WEEI WFI
WGY WJAR WTAG WTAM WVWJ

B—National Youth Conference
KDKA KFI KFSD KFYR KGHL
KGIR KGO KGW KHQ KOA KOIL
KOMO KPRC KSO KTAR KTBS
KVVO KWCR KWK WAPI WBAL
WBZ WBZA WDAY WEBC WFAA
WGAR WIBA WIOD WIS WJAX
WJDX WJR WJZ WMAL WOAI
WREN WRVA WSB WSM WSMB
WSYR WNNC

C—Lazy Dan, Minstrel Man
CKLW KMBC KMOX KRLD WABC
WBMM WCAH WCAO WCAU WCCO
WHAS WHK WJAS WJSV WKBW
WKRC WMWB

E-2:00 p.m., C-1:00, M-12:00, P-11:00

C—Broadway Melodies; Helen Morgan

CFRB CKLW KDB KFPY KFRC
KGB KHL KLZ KMBC KMOX KOIN
KOL KRLD KSL KVI WABC WBMM
WCAO WCAU WCCO WDSU WHK
WJAS WJSV WKBW WKRC WLAC
WNAC

R—Gene Arnold and Commodores
KDYL KFI KGO KGW KHQ KOA
KOMO KPRC KVVO WBEN WCAE
WCSH WFAE WFCB WEEI WFAA
WFBR WGY WIBA WJAR WKY
WLW WMAQ WOAI WOW WPTF
WRC WRVA WTAG WTAM WVWJ
WNNC

B—Bar X Days and Nights
CFCF CRCT KDKA KOIL KSO
KWCR KWK KYW WBAL WBZ
WBZA WCKY WGAR WJR WJZ
WMAL WREN WSYR

E-2:30 p.m., C-1:30, M-12:30, P-11:30

C—Abe Lyman's Orchestra
CFRB CKLW KMBC KMOX WABC
WBMM WCAO WCAU WCCO WDRS
WEAN WFBL WFBM WHFC WHK
WJSV WKBW WKRC WNAC WOKO

R—John B. Kennedy
CFCF CRCT KSD WBEN WCAE
WCKY WDAF WFAE WEEI WFAE
WGY WJAR WMAQ WOW WRC
WSAI WTAG WTAM WVWJ

B—Grenadier Guards Band
CFCF CRCT KDKA KOIL KSO
KWCR KWK WAPI WBAL WBZ
WBZA WCKY WFLA WGAR WHAM
WIOD WIS WJAX WJDX WJR WJZ
WMAL WMC WRVA WSB WSM
WSMB WSYR WNNC

E-2:45 p.m., C-1:45, M-12:45, P-11:45

R—Gems of Melody; Muriel Wilson
WBEN WCAE WCSH WDAF WFAE
WEEI WFBR WGY WHO WJAR
WMAQ WOC WOW WRC WSAI
WTAG WTAM WVWJ

E-3:00 p.m., C-4:00, M-1:00, P-12:00

C—New York Philharmonic Orch.
CFAC CFBO CFCH CFCH CFON
CFQC CFYC CFIC CFNB CFPL
CFCC CHAB CHGS CHNS CHRC
CHWC CHWK CJCA CJCB CJCJ
CJGX CJOC CJRM CJRW CKCH

CKCK CKNC CKOC CKOV CKPC
CKPR CKUA CKX CKY CRCA
CRCO CRCS CRCT CRCV CFRB
CKLW KFH KIRA KLZ KMBC
KMOX KOMA KSL KTRH K TSA
KVOR WABC WADC WBIG WBRC
WCAO WCAU WCCO WDBJ WDRS
WDSU WEAN WFBM WFEA WGN
WGR WGST WHAS WHFC WHK
WHP WIBW WICC WIP WISN WJAS
WJSV WLAC WLW WMBD WMBG
WMT WNAC WOKO WORC WQAM
WREC WSBT WSJS WTAQ WTAR
WTOC WVVA

R—Wayne King and Orchestra
KDYL KFI KGO KGW KHQ KOA
KOMO KPRC KSD KSTP KVVO
WBEN WCAE WCSH WDAF WFAE
WEEI WFAA WGY WHO WJAR
WKBF WKY WLIT WLS WLW
WOAI WOC WOW WRC WTAG
WTAM WTMJ WVWJ

B—International Tid-bits
CFCF CRCT KDKA KOIL KSO
KWCR KWK WAPI WBAL WBZ
WBZA WCKY WFLA WGAR WHAM
WIOD WIS WJAX WJDX WJR WJZ
WMAL WMC WRVA WSB WSM
WSMB WSYR WNNC

E-3:30 p.m., C-2:30, M-1:30, P-12:30

R—Singing Sailors—Male Quartet
KSD KYW WBEN WCAE WCSH
WDAF WFAE WFBR WGY WJAR
WLIT WOW WRC WSAI WTAG
WTAM WVWJ

B—Yeast Foamers; Jan Garber
KDKA KDYL KFI KFSD KFYR
KGHL KGIR KGO KGW KHQ KOA
KOIL KOMO KPRC KSO KTAR
KTBS KTHS KVVO KWCR KWK
KYW WAPI WBAL WBZ WBZA
WDAY WEBC WFAA WFLA WGAR
WHAM WIBA WIOD WIS WJAX
WJDX WJZ WKBF WKY WLW
WMAL WMC WPTF WREN WRVA
WSB WSM WSMB WSYR WTMJ
WNNC

E-3:45 p.m., C-2:45, M-1:45, P-12:45

R—Submarine G-10; Drama
KSD KYW WBEN WCAE WCSH
WDAF WFAE WFBR WGY WJAR
WLIT WOW WRC WSAI WTAG
WTAM WVWJ

E-4:00 p.m., C-3:00, M-2:00, P-1:00

R—Fiddlers Three
CFCF CRCT KDYL KFI KFSD
KFYR KGO KGW KHQ KOA KOMO
KSD KSTP KTAR KTBS KYW
WAPI WBEN WCAE WDAF WDAY
WFAE WFCB WEEI WFLA WGY
WHO WIBA WIOD WIS WJAR
WJDX WKY WLIT WOAI WOC
WOW WRC WRVA WSAI WSB WSM
WTAG WTAM WVWJ WNNC

Rev. Charles E. Coughlin
KMOX KSTP KYW WCAO WCAU
WDRS WEAN WFBL WFEA WGAR
WGR WHB WHO WICC WJAS WJR
WLW WLW WMAS WNAC WOC
WOL WOR WORC WCKY WOKO

B—Railroad Adventures, Drama
KDKA KDYL KFI KFYR KGHL
KGIR KGO KGW KHQ KOA KOIL
KOMO KPRC KSO KSTP KTBS
KTHS KVVO KWCR KWK WAPI
WBAL WBPB WBZ WBZA WCKY
WDAY WEBC WENR WFLA WGAR
WHAM WIBA WIOD WIS WJAX
WJDX WJR WJZ WKBF WKY
WMC WOAI WPTF WREN WRVA

WBS WSM WSMB WSYR WTMJ
WVWJ WNNC

E-4:15 p.m., C-3:15, M-2:15, P-1:15

R—Wildcat; Vee and Johnny
KDYL KFI KFYR KGO KGW KHQ
KOA KOMO KPRC KTBS KVVO
WBEN WCAE WCSH WDAF WDAY
WFAE WEBC WEEI WFAA WFBR
WGY WIBA WJAR WKY WLIT WLS
WOAI WOW WRC WSAI WTAG
WTAM WTMJ WVWJ

B—Morin Sisters, Harmony Trio
CFCF CRCT KDKA KOIL KSO
KWCR KWK KYW WBAL WBZ
WBZA WCKY WFLA WGAR WHAM
WIOD WJAX WJDX WJR WJZ WLW
WMAL WREN WRVA WSB WSM
WSYR WNNC

E-4:30 p.m., C-3:30, M-2:30, P-1:30

R—Hoover Sentinels
CFCF CRCT KDYL KFI KGO KGW
KHQ KOA KOMO KPRC KVVO
WBAP WBEN WCAE WCSH WDAF
WFAE WEBC WEEI WFBR WFI
WGY WIBA WJAR WKY WMAQ
WOAI WOW WRC WTAG WTAM
WVWJ

B—Dion Kennedy, Organist
CFCF CRCT KDKA KFSD KFYR
KGO KGW KHQ KOA KOIL KOMO
KPRC KSO KSTP KTBS KVVO
KWCR KWK KYW WBAL WBZ
WBZA WCKY WDAY WEBC WFAA
WFLA WGAR WHAM WIBA WIOD
WIS WJAX WJDX WJR WJZ WKY
WMAL WMC WOAI WREN WRVA
WSB WSM WSYR WNNC

E-5:00 p.m., C-4:00, M-3:00, P-2:00

C—Roses and Drums, Drama
CKLW KFAB KIRA KLZ KMBC
KMOX KOMA KRLD KTRH K TSA
WAAB WABC WADC WBBM WBRC
WCCO WDSU WGST WHAS WHK
WJAS WJSV WKRC WREC

R—Big Ben Dream Drama
WBEN WCAE WCSH WDAF WFAE
WEEI WFBR WGY WJAR WMAQ
WOW WRC WSAI WTAG WTAM
WVWJ

B—National Vespers
KDYL KECA KFSD KFYR KGHL
KGIR KGO KGW KHQ KOA KOIL
KPRC KSO KSTP KTAR KTBS
KVVO KWCR KWK WAPI WBAL
WBZ WBZA WFLA WCKY WDAY
WEBC WFLA WGAR WHAM WIBA
WIOD WIS WJAX WJDX WJR WJZ
WKY WMAL WMC WOAI WPTF
WREN WRVA WSB WSM WSMB
WVWJ WNNC

E-5:15 p.m., C-4:15, M-3:15, P-2:15

R—Achievements in Science, Drama
CFCF CRCT WBEN WCAE WCSH
WDAF WFAE WENR WFBR WGY
WJAR WOW WRC WSAI WTAG
WTAM WVWJ

E-5:30 p.m., C-4:30, M-3:30, P-2:30

C—Frank Crumit; Julia Sanderson
CKLW KFAB KFH KMBC KMOX
KOMA WAAB WABC WADC WCAH
WCAO WCAU WDRS WDSU WEAN
WFBL WFBM WGR WHFC WHK
WICC WJSV WMAS WOKO WORC
WSPD WTAR WVVA

R—Talkie Picture Time—Sketch
WCAE WCSH WDAF WFAE WEEI
WFBR WTY WGY WJAR WMAQ
WMC WOW WRC WSAI WSM WTAG

SUNDAY—(Continued)

B — Grand Hotel—Drama
 KDKA KDYL KFI KGO KGW KHQ
 KOA KOIL KOMO KSO KSTP KWCR
 KWK WBAL WBZ WBZA WCKY
 WJBC WENR WGAR WHAM WJRW
 WJZ WKBF WMAL WREN WSYR
 WTMJ

E-8:00 p. m., C-5:00, M-4:00, P-3:00
C — Jacques Renard's Orchestra
 CKLW KMBC KMOX WABC WBBM
 WCAO WCAU WCCO WFBM WGR
 WHK WJAS WJSV WKRC

R — Catholic Hour
 KDYL KECA KFYZ KGHL KGIR
 KGW KOA KOMO KPO KPRC
 KSTP KTAR KTBS KVOO WAPI
 WBAP WBEN WCAE WCSH WDAF
 WDAY WEAF WECB WEEI WENR
 WFRB WFLA WGY WHO WIBA
 WIOD WIS WJAR WJAX WJDX
 WKY WLIT WMC WOAI WOC WOW
 WRCA WRVA WSAI WSB WSM
 WSBM WTAG WTAM WWJ WWCN

E-8:30 p. m., C-5:30, M-4:30, P-3:30
C — Smiling Ed McConnell
 CKLW KDB KERN KFAB KFBK
 KFH KFPY KPRC KGB KHJ KLZ
 KMBC KMOX KOIN KOL KRLL
 KSL KVI KWG WAAB WABC WBBM
 WBT WCAH WCAU WCCO WDSU
 WEAN WFBL WHAS WHEC WHP
 WJAS WJSV WKWB WKRC WLAC
 WMT WOKO WQAM WSPD WTAR
 WVVVA

R — Our American Schools
 CFCE CRCT KDYL KBCA KFSD
 KFYZ KGW KOMO KPO KPRC KSD
 KSTP KTAR KTBS KVOO WAPI
 WBAP WBEN WCAE WCSH WDAF
 WDAY WEAF WECB WEEI WFRB
 WFLA WGY WHO WIBA WIOD
 WJAR WJAX WJDX WKY WLIT
 WMAQ WMC WOAI WOC WRC
 WRVA WSAI WSB WSM WSBM
 WTAG WTAM WWJ WWCN

E-6:45 p. m., C-5:45, M-4:45, P-3:45
C — H. V. Kallenborn
 CKAC CKLW KLRA KLZ KMBC
 KTRH KTSB KVOR WAAB WABC
 WACO WBIG WBRC WCAH WCAO
 WCAU WCCO WDAE WDBJ WDBO
 WDOD WDRC WEAN WFBA WGST
 WHAS WHEC WHP WICC WJAS
 WJSV WKWB WLAC WLWB WMAS
 WOKO WQAM WREC WWSA WSPD
 WTAR WTOC

E-7:00 p. m., C-6:00, M-5:00, P-4:00
R — Blue Coal Program
 CRCT WBEN WEAF WEEI WFRB
 WGY WJAR WLIT WRC WTAG
C — Ethel Waters; George Beaty
 WABC WBT WCAO WCAU WDAE
 WDBO WDRC WEAN WFBA WGST
 WHK WJAS WJSV WKBN WLZ
 WNAK WPG WQAM WTAR WWVA
B — Reasilk; Ted Weems' Orchestra
 KDKA KDYL KFI KGO KGW KHQ
 KOA KOIL KOMO KSO KWCR KWK
 WBAL WBZ WBZA WFLA WGAR
 WHAM WIS WJR WJZ WLS WLW
 WMAL WPTF WREN WRVA WSYR

E-7:30 p. m., C-6:30, M-5:30, P-4:30
C — Willard Robinson's Orchestra
 CKLW KFH KLZ KMBC KSCJ
 KTRH KTSB WABC WADC WBIG
 WBRC WBT WCAH WDAE WDBJ

WDSU WEAN WFBM WFEA WGR
 WGST WHAS WHEC WHP WIBW
 WISN WJAS WKBN WLZB WMAS
 WMT WOKO WORC WQAM WREC
 WWSA WWSJ WSPD WTOC WVVVA
B — Ozzie Nelson; Joe Penner
 KDKA KDYL KFI KFYZ KGO KGW
 KHQ KOA KOIL KOMO KPRC KSO
 KSTP KTAR KVOO KWCR KWK
 WBAL WBZ WBZA WDAY WECB
 WFAA WFLA WGAR WHAM WIBA
 WIOD WJAX WJDX WJR WJZ WKY
 WLS WLW WMAL WMC WOAI
 WPTF WREN WRVA WSB WSM
 WSBM WTMJ WWCN

E-7:45 p. m., C-6:45, M-5:45, P-4:45
C — Rin Tin Tin Thriller
 CKLW KMOX WABC WCAU WFBL
 WFBM WGN WGR WHAS WHK
 WJAS WJSV WKRC WNAK
R — Fitch Program; Wendell Hall
 CFCE KSD WBEN WCAE WCSH
 WDAF WEAF WFRB WGY WHO
 WJAR WLIT WMAQ WOC WOW
 WRC WSAI WTAG WTAM WWJ

E-8:00 p. m., C-7:00, M-6:00, P-5:00
R — Chase and Sanborn Hour
 CFCE CRCT KDYL KFI KFYZ KGO
 KGW KHQ KOA KOMO KPRC KSD
 KSTP KTAR KTBS KVOO WBEN
 WCAE WCSH WDAF WDAY WEAF
 WECB WFAA WFRB WFLA WGY
 WHO WIOD WIS WJAR WJAX
 WJDX WKY WLIT WLW WMAQ
 WMC WOAI WOC WOW WPTF WRC
 WRVA WSB WSM WSBM WTAG
 WTAM WTIC WTMJ WWJ WWCN

C — Evening in Paris
 CKLW KLZ KMBC KMOX KOMA
 KSL WABC WADC WBBM WCAO
 WCAU WCCO WDSU WEAN WFBL
 WFBM WGR WGST WHAS WHK
 WJAS WJSV WKRC WOKO WSPD

E-8:30 p. m., C-7:30, M-6:30, P-5:30
C — Columbia Dramatic Guild
 CFRB CKLW KFH KLZ KOMA
 KRLL KSCJ KTRH KTSB KVOR
 WAAB WABC WADC WBIG WBRB
 WBT WCAH WCAO WCAU WCCO
 WDAE WDBJ WDRC WDSU WEAN
 WFBL WFEA WGST WHAS WHEC
 WHK WHP WIBW WICC WISN
 WJAS WJSV WKBN WKWB WLZB
 WMAS WMBD WMT WODX WOKO
 WORC WOWO WPG WQAM WREC
 WWSJ WSPD WTOC

E-9:00 p. m., C-8:00, M-7:00, P-6:00
C — Erno Rapee; Nino Martin
 CKLW KDB KERN KFBK KFPY
 KPRC KGB KHJ KLRA KLZ KMBC
 KMJ KMOX KOIN KOL KOMA
 KRLL KSCJ KSL KTRH KVI KWG
 WABC WADC WBBM WCAO WCAU
 WCCO WDRC WDSU WEAN WFBL
 WFBM WGR WGST WHAS WHK
 WISN WJAS WJSV WKRC WMT
 WNAK WNAX WOKO WORC WOWO
 WREC WSPD WTAR

R — Manhattan Merry-Go-Round
 KDYL KFI KGO KGW KHQ KOA
 KOMO KSD WDAF WEAF WFRB
 WFI WGY WHO WJAR WMAQ WOC
 WOW WRC WSAI WTAM WTIC
 WWJ

B — Gulf Headliners
 KAKA KPRC KTBS WBAL WBZ
 WBZA WFAA WFLA WGAR WHAM
 WIOD WIS WJAX WJDX WJR WJZ
 WLW WMAL WMC WOAI WRVA
 WSB WSM WSBM WSYR WWCN

E-9:30 p. m., C-8:30, M-7:30, P-6:30
R — Album of Familiar Music
 CFCE CRCT KDYL KFI KGO KGW
 KHQ KOA KOMO KPRC KSD KSTP
 WAPI WBEN WCAE WCKY WCSH
 WDAF WEAF WEEI WFAA WFRB
 WFI WFLA WGY WHO WIOD WJAR
 WJAX WJDX WKY WMAQ WMC
 WOAI WOC WOW WPTF WRC
 WRVA WSAI WSB WSM WSBM
 WTAG WTAM WTMJ WWJ
B — Walter Winchell
 KDKA KOIL KSO KWCR KWK
 WBAL WBZ WBZA WENR WGAR
 WHAM WJR WJZ WLW WMAL
 WREN WSYR

E-9:45 p. m., C-8:45, M-7:45, P-6:45
B — Gould and Shefter Piano Duo
 KDKA KOIL KSO KWCR KWK
 KYW WBAL WBZ WBZA WGAR
 WHAM WJR WJZ WMAL WREN
 WSYR

E-10:00 p. m., C-9:00, M-8:00, P-7:00
R — Chevrolet; Jack Benny
 KDYL KFI KFSD KFYZ KGHL
 KGIR KGO KGW KHQ KOA KOMO
 KPRC KSTP KTAR KTBS WAPI
 WBAP WBEN WCAE WCSH WDAF
 WDAY WEAF WECB WEEI WFRB
 WFI WFLA WGY WIBA WIOD WIS
 WJAR WJDX WKY WMAQ WMC
 WOAI WOW WRC WRVA WSB WSM
 WSBM WTAG WTAM WTIC WTMJ
 WWJ WWCN

C — Patri's Childhood Dramas
 CKLW KDB KERN KFBK KFPY
 KPRC KGB KHJ KLZ KMBC KMJ
 KMOX KOIN KOL KSL KVI KWG
 WAAB WABC WCAO WCAU WCCO
 WDRC WFBL WGR WHAS WHK
 WJAS WJSV WKRC WOKO WSPD

E-10:30 p. m., C-9:30, M-8:30, P-7:30
B — Mary Small—Green Bros. Orch.
 CFCE KDKA KOIL KSO KWCR
 WBAL WENR WGAR WHAM WJZ
 WMAL WREN

E-11:00 p. m., C-10:00, M-9:00, P-8:00
C — Guy Lombardo and Orchestra
 CFRB CKAC CKLW KFH KLRA
 KLZ KTRH KTSB KVOR WABC
 WACO WBIG WBRC WCAH WCAO
 WDAE WDBJ WDBO WDOD WDRC
 WDSU WEAN WGST WHAS WHEC
 WHP WICC WIP WISN WJAS WJSV
 WKBN WLAC WLWB WMAS WMBD
 WNAK WODX WOKO WPG WQAM
 WREC WWSA WJSV WSPD WTAR
 WTOC

B — Walter Winchell
 KDYL KFI KFSD KGHL KGIR
 KGO KGW KHQ KOA KOMO KTAR

E-11:30 p. m., C-10:30, M-9:30, P-8:30
C — Eddie Duchin and Orchestra
 CFRB CKLW KFH KLZ KOMA
 KSCJ KTRH KTSB KVOR WABC
 WADC WABC WBT WCAH WCAO
 WCAU WDAE WDBJ WDRC WDSU
 WEAN WFBL WFBM WGR WGST
 WHEC WHK WHP WIBW WICC
 WISN WJAS WJSV WKBN WLZB
 WMAS WMBD WMT WNAK WOKO
 WQAM WREC WSBT WJSV WSPD
 WTOC

B — Paul Whiteman and Orchestra
 KDKA KFYZ KOIL KSO KSTP
 KWCR KWK WBAL WBZ WBZA
 WCKY WDAY WECB WGAR WIBA
 WJR WJZ WLW WREN

JANUARY DX CALENDAR

(Continued from page 2)

WEDNESDAY MORNINGS

Jan. 3-10-17-24-31

6:00-7:00—WOOD, Grand Rapids, 1270 (.5)

Jan. 3

1:00-2:30—KFYR, Bismarck, 550 (1)
4:30-5:00—WCAL, Northfield, 1250 (1)

Jan. 10

1:00-2:00—WIBG, Glenside, 970 (1)
4:30-6:00—10-BP, Wingham, 1200 (.015)

Jan. 17

2:00-2:30—KWCR, Cedar Rapids, 1420 (1)
3:00-3:30—KSO, Des Moines, 1370 (1)
5:00-5:30—WIAS, Ottumwa, 1310 (1)

Jan. 24

3:00-7:00—WOPI, Bristol, 1500 (1)

Jan. 31

2:00-4:00—WNRA, Muske Shoals, 1420 (1)

THURSDAY MORNINGS

Jan. 4-11-18-25

2:00-4:00—CMK, Havana, 730 (5)
WEDC, Chicago, 1210 (1)

Jan. 4

1:00-2:00—KFYO Lubbock, 1310 (1)

Jan. 4, Feb. 1

3:00-4:00—WRDW, Augusta, 1500 (1)
4:30-5:00—WCBS, Springfield, 1210 (1)
5:30-7:00—KGFJ, Shawnee, 1420 (1)

Jan. 11

2:00-3:00—WRUF, Gainesville, 830 (5)

Feb. 1

2:00-3:00—WRAW, Reading, 1310 (1)

FRIDAY MORNINGS

Jan. 5-12-19-26

12:00-1:00—KOIL, Council Bluffs, 1260 (1)
12:00-2:00—CFCN, Calgary, 1030 (10)

12:00-6:00—WJAX* Jacksonville, 900 (1)
1:00-1:30—WRAM, Wilmington, 1370 (1)
1:00-2:00—WBBX, New Orleans, 1200 (1)
*Prizes to most distant.

Jan. 26

4:00-5:00—KPOF, Denver, 880 (.5)

Feb. 2

2:30-4:00—CHWK, Chilliwack, 780 (1)

SATURDAY MORNINGS

Jan. 6-13-20-27

1:00-2:00—WGNV, Chester, 1210 (1)
2:00-3:00—CMBS, Havana, 780 (.2)
4:00-5:00—XEAO, Mexicali, 560 (1)

Jan. 13-20-27

1:00-3:00—CMCW, Havana, 965 (1.5)
2:00-3:00—WGLC, Hudson Falls, 1370 (1)

Jan. 6

3:00-4:00—WJBC, LaSalle, 1200 (1)
4:00-6:00—KVOA, Tucson, 1260 (.5)
4:30-5:30—WCAC, Storrs, 600 (.25)

Jan. 6-20

2:00-3:00—XES, Tampico, 1020 (.5)

Jan. 6, Feb. 3

4:00-5:00—WIS, Columbia, 1010 (.5)
4:15-4:45—WGNV, Chester, 1210 (1)

Jan. 13

3:15-4:15—WMBQ, Brooklyn, 1500 (1)
4:00-5:00—10-BQ, Brantford, 1200 (.005)

Jan. 20

2:00-3:00—WCLO, Janesville, 1200 (1)
WHA, Madison, 940 (1)
WOQ, Kansas City, 1300 (1)

Jan. 27

1:00-7:00—WHET, Troy, 1210 (1)

Short Wave Special Sunday, Jan. 28

2:30-4:00—VE9CS, Vancouver, 6070 (.005)

THE MONTH'S CHANGES

POWER

580 WOBV Charleston, W. Va., 250 to 500
580 WTAG Worcester, Mass., 250 to 500
720 WGN Chicago, Ill., 25000 to 50000
820 WHAS Louisville, Ky., 25000 to 50000
970 WIBG Glenside, Pa., 25 to 100
990 WBZ Boston, Mass., 25000 to 50000
1080 WBT Charlotte, N. C., 25000 to 50000
1140 KVOO Tulsa, Okla., 5000 to 25000
1150 WHAM Rochester, N. Y., 25000 to 50000
1250 WGCP Newark, N. J., 250 to 1000

DELETED

580 CRCA Moncton, N. B.
610 XETR Mexico City, D. F.
630 XEZ Merida, Yuc.
750 XEAN Jaurez, Chih.
870 XEAD Mexico City, D. F.
1070 XEG Mexico City, D. F.
1180 HIJK Santo Domingo, D. R.
1180 XETA Mexico City, D. F.
1200 CHAB Moose Jaw, Sask.
1330 XEQ Mexico City, D. F.

NEW

572 FQN St. Pierre, Miquelon Isl.
630 XEX Monterrey, N. L.
830 LR5 Buenos Aires, Arg.
900 XEAF Nogales, Son.
1100 XEWW Veracruz, Ver.
1200 CMHW Cienfuegos, Cuba
1210 XETZ Mexico City, D. F.
1300 HIZ Santo Domingo, D. R.

FREQUENCIES

600 CFCO Chatham, Ont., from 1210
760 KEYZ Mexico City, from 780
970 WIBG Glenside, Pa., from 930
1210 CKOV Kelowna, B. C., from 1200
1335 CMJ1 Ciego de Avila, Cuba, from 1280
1400 XEFV Jaurez, Chih., from 1370
1485 CMBK Havana, Cuba, from 1445

CALLS

757 XEOK Tijuana, B. C., formerly XEFD
940 WAVE Louisville, Ky., formerly WFIW
1400 KTUL Tulsa, Okla., formerly KOCW
1400 WVFW Brooklyn, N. Y., formerly WFOX

OWNERS

760 XEYZ Mexico City, to Angel M. Diez
890 XETU Pachuca, Hdg., to Benito Castillo
1030 CFCN Calgary, Alta., to Voice of Prairies, Ltd.
1370 XEFZ Mexico City, to Manuel Zetina

REINSTATED

588 CMDD Havana, Cuba

PERMIT TO CHANGE LOCATION

1200 KBTM Paragould, Ark., to Jonesboro, Ark.
1210 WHET Troy, Ala., to Dothan, Ala.

PERMIT TO CHANGE FREQUENCY

1210 WHET Troy, Ala., to 1370

CLASSIFIED INDEX TO CHAIN PROGRAMS

Time in Eastern Standard

CONCERTS

Armeo Program, 10:00 p. m., Friday, B.
 Ennio Bolognini, 'Cellist, 11:15 p. m., Sunday, B.
 Concert Footlights, 7:45 p. m., Thursday, B.
 N. Y. Philharmonic, 3:00 p. m., Sunday, C.
 Philadelphia Symphony, 9:00 p. m., daily, except Sun., C.
 Radio City, 12:30 p. m., Sunday, B.
 Russian Symphonic Choir, 1:00 p. m., Sunday, R.
 Albert Spalding, 8:30 p. m., Wednesday, C.
 Trio Romantique, 6:00 p. m., Saturday, B.
 Waldorf-Astoria, 6:00 p. m., daily, except Sunday, R.

DANCE BANDS

Ben Bernie, 9:00 p. m. and 12 Mid., Tuesday, R.
 Don Bestor, 8:00 p. m., Friday, B.
 Henry Busse, 12:00 Mid., Sunday, C.
 Jack Denny, 7:00 p. m., Sunday, C.
 Eddie Duchin, 11:30 p. m., Sunday, 12:00 Mid., Wed., C.
 Jan Garber, 3:30 p. m., Sunday, B.
 Al Goodman, 9:00 p. m., Sunday, B.
 Glen Gray, 11:30 p. m., Monday; 10:00 p. m., Tuesday and Thursday; 11:00 p. m., Saturday, C.
 Green Bros., 10:30 p. m., Sunday, B.
 George Hall, 6:30 p. m., Saturday, C.
 Phil Harris, 9:00 p. m., Friday, B.
 Lennie Hayton, 8:30 p. m., Monday, C.
 Richard Himber, 6:00 p. m., Tues. and Thurs., 7:30 p. m., Saturday, B.
 Isham Jones, 9:30 p. m., Monday; 11:30 p. m., Tuesday, Thursday, Friday, C.
 Wayne King, 10:00 p. m., Monday, B; 3:00 p. m., Sunday; 8:30 p. m., Tues. and Wed., R; 9:30 p. m., Thurs., B.
 Guy Lombardo, 11:00 p. m., Sunday; 9:30 p. m., Wed., C.
 Vincent Lopez, 12:00 Mid., Tuesday, C.
 Abe Lyman, 2:30 p. m., Sunday; 11:30 p. m., Saturday, C; 9:00 p. m., Friday, R.
 Freddie Martin, 12 Mid., Saturday, B.
 Ozzie Nelson, 11:30 p. m., Wednesday; 12:00 Mid., Thurs., C; 7:30 p. m., Sunday, B.
 George Olsen, 8:00 p. m., Wednesday and Saturday, R.
 Raymond Paige, 9:30 p. m., Tuesday, C.
 Leo Reisman, 9:30 p. m., Wednesday, R.
 Willard Robison, 7:30 p. m., Sun.; 11:00 p. m., Mon., C.
 B. A. Rolfe, 10:00 p. m., Saturday, R.
 Rudy Vallee, 8:00 p. m., Thursday, R.
 Ted Weems, 7:00 p. m., Sunday, B.
 Paul Whiteman, 10:00 p. m., Thurs., R; 11:30 p. m., Sun., B.

DIALOG

Amos 'n' Andy, 7:00 and 11:00 p. m., daily, except Saturday and Sunday, B.
 Phil Baker, 9:00 p. m., Friday, B.
 Jack Benny, 10:00 p. m., Sunday, R.
 Burns and Allen, 9:30 p. m., Wednesday, C.
 Cuckoo Program, 10:30 p. m., Saturday, B.
 Andrew Kelly, 6:45 p. m., Monday, R.
 Bert Lahr, 8:00 p. m., Wednesday, R.
 Lum and Abner, 7:30 and 11:15 p. m., Monday to Thursday, Inc.; 10:30 p. m., Friday, R.
 Lulu McConnell, 9:30 p. m., Monday, C.
 Olsen and Johnson, 10:00 p. m., Friday, C.
 Jack Pearl, 9:00 p. m., Saturday, R.
 Joe Penner, 7:30 p. m., Sunday, B.
 Potash and Perlmutter, 7:30 p. m., Mon., Wed., Fri., B.
 Stoppangale and Budd, 9:15 p. m., Wed. and Sat., C.
 Ed Wynn, 9:30 p. m., Tuesday, R.
 Elmer Everett Yess, 8:00 and 11:15 p. m., Tuesday, Thursday, Saturday, C.

DRAMA

Bar X Days, 2:00 p. m., Sunday, B.
 Bobby Benson, 6:15 p. m., daily, except Sat. and Sun., C.
 Big Ben, 5:00 p. m., Sunday, R.
 Billy Batchelor, 7:15 p. m., daily, except Sat. and Sun., R.
 Columbia Dramatic Guild, 8:30 p. m., Sunday, C.
 Dangerous Paradise, 8:30 p. m., Wednesday and Friday, B.
 Death Valley, 9:00 p. m., Thursday, B.
 Eno Crime Clues, 8:00 p. m., Tuesday and Wednesday, B.

First Nighter, 10:00 p. m., Friday, R.
 Gold, 8:00 p. m., Sunday, B.
 Goldbergs, 7:45 p. m., daily except Sat. and Sun., R.
 Grand Hotel, 5:30 p. m., Sunday, B.
 Just Plain Bill, 7:15 p. m., daily, except Sat. and Sun., C.
 Kay-Seven, 10:40 p. m., Monday, R.
 Little Italy, 6:45 p. m., Tuesday and Thursday, C.
 March of Time, 8:30 p. m., Friday, C.
 Myrt and Marge, 7:00 and 10:45 p. m., daily, except Saturday and Sunday, C.
 Mystery Guild, 9:15 p. m., Tuesday, C.
 One Man's Family, 11:00 p. m., Saturday, R.
 Seth Parker's Cruise, 10:00 p. m., Tuesday, R.
 Patri's Childhood Drama, 10:00 p. m., Sunday, C.
 Red Davis, 8:45 p. m., Monday, Wednesday, Friday, B.
 Rin Tin Tin, 7:45 p. m., Sunday, C.
 Buck Rogers, 6:00 p. m., Monday to Thursday, inc., C.
 Romances of Science, 5:15 p. m., Sunday, R.
 Roses and Drums, 5:00 p. m., Sunday, C.
 Scott's Circus Days, 7:30 p. m., Friday and Saturday, R.
 Coonyland Sketches, 8:00 p. m., Monday, R.
 Submarine, G-10, 3:45 p. m., Sunday, R.
 Tales of the Titans, 10:00 p. m., Saturday, B.
 Talkie Picture Time, 5:30 p. m., Sunday, R.
 Three Musketeers, 7:15 p. m., Thurs., Fri., Sat., B.
 True Railroad Adventures, 4:00 p. m., Sunday, B.
 Warden Lawes, 9:00 p. m., Wednesday, B.

PIANO AND ORGAN

Henry Deering, 10:30 p. m., Monday, B.
 Fray and Braggiotti, 8:15 p. m., Saturday, C.
 Archer Gibson, 10:30 p. m., Thursday, B.
 Gould and Shefter, 9:45 p. m., Sunday, B.
 Dion Kennedy, 4:30 p. m., Sunday, B.

POPULAR PROGRAMS

A. & P. Gypsies, 9:00 p. m., Monday, R.
 Album Familiar Music, 9:30 p. m., Sunday, R.
 Antobal's Cubans, 8:30 p. m., Saturday, R.
 Armour Program, 9:30 p. m., Friday, B.
 Gene Arnold, 2:00 p. m., Sunday, R.
 Blue Coal Program, 7:00 p. m., Sunday, R.
 Major Bowes' Family, 11:15 a. m., Sunday, R.
 Broadway Melodies, 2:00 p. m., Sunday, C.
 Byrd Expedition, 10:00 p. m., Saturday, C.
 California Melodies, 9:30 p. m., Tuesday, C.
 Camel Program, 10:00 p. m., Tuesday and Thursday, C.
 Carborundum Band, 9:30 p. m., Saturday, C.
 Chase and Sanborn, 8:00 p. m., Sunday, R.
 Cheerio, 6:45 p. m., Tuesday, R.
 Chevrolet Program, 10:00 p. m., Sunday, R.
 Cities Service, 8:00 p. m., Friday, R.
 Contented Program, 10:00 p. m., Monday, R.
 Corn Cob Pipe Club, 10:00 p. m., Wednesday, R.
 Del Monte Ship of Joy, 9:30 p. m., Monday, R.
 Evening in Paris, 8:00 p. m., Sunday, C.
 Fiddlers Three, 4:00 p. m., Sunday, R.
 Fleischmann Hour, 8:00 p. m., Thursday, R.
 Jack Frost's Melody, 9:30 p. m., Monday, B.
 Gems of Melody, 2:45 p. m., Sunday, R.
 Grenadier Guards, 2:30 p. m., Sunday, B.
 Gulf Headliners, 9:00 p. m., Sunday, B.
 Hands Across the Border, 10:00 p. m., Thursday, B.
 Hollywood on the Air, 11:30 p. m., Saturday, R.
 Hoover Sentinels, 4:30 p. m., Sunday, R.
 Household Musical, 9:00 p. m., Tuesday, B.
 Ipana Troubadours, 9:00 p. m., Wednesday, R.
 Jamboree Variety Show, 9:00 p. m., Saturday, B.
 Lucky Strike, 9:00 p. m., Saturday, R.
 Lum and Abner Sociable, 10:30 p. m., Friday, R.
 Manhattan Merry-Go-Round, 9:00 p. m., Sunday, R.
 Maxwell House Showboat, 9:00 p. m., Thursday, R.
 Mollie Show, 7:00 p. m., Monday, Wednesday, Friday, R.
 Music on the Air, 7:30 p. m., Mon., Wed., Fri., C.
 Nestle's Chocolateres, 8:00 p. m., Friday, B.
 Old Gold, 10:00 p. m., Wednesday, C.
 O'Leary's Irish Minstrels, 6:15 p. m., Saturday, B.
 Pond's Program, 9:30 p. m., Friday, R.

Realsilk Show, 7:00 p. m., Sunday, B.
 Sinclair Minirels, 9:00 p. m., Monday, B.
 Sealed Power Sideshow, 8:00 and 12:00 p. m., Monday, B.
 Swift Revue, 10:00 p. m., Friday, C.
 Threads of Happiness, 9:15 p. m., Friday, C.
 U. S. Army Band, 6:30 p. m., Monday, B.
 Voice of America, 8:00 p. m., Thursday, C.
 Voice of Firestone, 8:30 and 11:30 p. m., Monday, R.
 Wildroot, 4:15 p. m., Sunday, R.
 WLS Barn Dance, 11:00 p. m., Saturday, B.
 Yeast Foamers, 3:30 p. m., Sunday, B.

RELIGIOUS

Catholic Hour, 6:00 p. m., Sunday, R.
 Church of the Air, 1:00 p. m., Sunday, C.
 Elder Michaux, 7:30 p. m., Saturday, C.
 Mid-Week Hymn Sing, 6:30 p. m., Tuesday, R.
 National Vespers, 5:00 p. m., Sunday, B.
 Salt Lake Choir, 11:30 a. m., Sunday, C.

SINGERS

Frances Alda, 7:45 p. m., Mon., B; 6:00 p. m., Tues., R.
 Baby Rose Marie, 7:15 p. m., Monday, B.
 Mildred Bailey, 7:30 p. m., Thurs.; 6:15 p. m., Sat., C.
 Irene Beasley, 6:30 p. m., Mon. and Fri., R.; 6:30 p. m., Wednesday, B.
 Boswell Sisters, 11:15 p. m., Mon. and Friday, C.
 Dell Campo, 7:30 p. m., Tuesday, C.
 Eddie Cantor, 8:00 p. m., Sunday, R.
 Richard Crooks, 8:30 and 11:30 p. m., every other Mon. R.
 Bing Crosby, 8:30 p. m., Monday, C.
 Dictators, 6:30 p. m., Tuesday, C.
 Jessica Dragonette, 8:00 p. m., Friday, R.
 Evan Evans, 11:00 p. m., Tuesday, C.
 Father Finn's Choir, 8:30 p. m., Monday, B.
 John Fogarty, 11:00 p. m., Sunday, B.
 Jane Froman, 9:00 p. m., Sunday, C.
 Alex Gray, 8:30 p. m., Thursday, C.
 Tito Guizar, 8:30 p. m., Friday; 7:15 p. m., Saturday, C.
 Hall Johnson Singers, 11:00 p. m., Thursday, C.
 Wendell Hall, 7:45 p. m., Sunday, R.
 Happy Bakers, 8:00 p. m., Monday, Wednesday, Friday, C.
 John Herriek, 7:15 p. m., Wed.; 7:00 p. m., Sat., B.
 George Jessel, 8:30 p. m., Saturday, C.
 Lazy Dan, 1:30 p. m., Sunday, C.
 Little Jack Little, 12:00 Mid., Friday and Saturday, C.
 Madison Ensemble, 12:30 p. m., Sunday, C.
 Nino Martini, 9:00 p. m., Sunday, C.
 John McCormack, 9:30 p. m., Wednesday, B.
 Modern Male Chorus, 11:15 p. m., Wednesday, C.
 Helen Morgan, 2:00 p. m., Sunday, C.
 Morin Sisters, 4:15 p. m., Sunday, B.
 Frank Munn, 9:30 p. m., Sun.; 9:00 p. m., Fri., R.
 Edith Murray, 6:30 p. m., Thursday, C.
 Gertrude Niesen, 9:30 p. m., Mon.; 11:15 p. m., Tues., C.
 Viola Philo, 11:00 p. m., Thursday, R.
 Virginia Rea, 9:30 p. m., Sunday, R.

Phil Regan, 11:15 p. m., Thursday, C.
 Revelers Quartet, 9:00 p. m., Sunday, B.
 Gladys Rice, 11:00 p. m., Friday, C.
 Carson Robinson, 2:00 p. m., Sunday, B.
 Marcel Rodrigo, 10:00 p. m., Monday, B.
 Lanny Ross, 9:00 p. m., Thursday, R.
 Vivien Ruth, 8:00 p. m., Monday, Wednesday, Friday, C.
 Sanderson-Crumit, 5:30 p. m., Sun., C; 8:00 p. m., Tues., R.
 Ethel Shutta, 8:00 p. m., Friday, B.
 Singing Sailors, 3:30 p. m., Sunday, R.
 Sizzlers Trio, 6:45 p. m., Thursday, R.
 Mary Small, 10:30 p. m., Sunday; 6:30 p. m., Tuesday and Saturday, B.
 Smiling Ed McConnell, 6:30 p. m., Sunday, C.
 Smith Bros., 8:45 p. m., Tuesday, B.
 Songs Mother Used to Sing, 6:00 p. m., Sunday, C.
 Tamara, 9:00 p. m., Sunday, R.
 Irene Taylor, 10:00 p. m., Tuesday and Thursday, C.
 Conrad Thibault, 8:30 p. m., Wednesday, C; 9:00 p. m., Thursday, R.
 Lawrence Tibbett, 8:30 and 11:30 p. m., every other Monday, R.
 Vera Van, 6:30 p. m., Monday and Wednesday; 9:15 p. m., Wednesday and Saturday, C.
 Vee and Johnny, 4:15 p. m., Sunday, R.
 Ethel Waters, 7:00 p. m., Sunday, C.
 Westminster Choir, 6:00 p. m., Wednesday, B.
 Lee Wiley, 9:30 p. m., Friday, R.

TALKS

Back of News, 6:30 p. m., Wednesday, R.
 Byrd Expedition, 10:00 p. m., Saturday, C.
 Dale Carnegie, 1:30 p. m., Sunday, R.
 Bonke Carter, 7:45 p. m., daily, except Sat. and Sun., C.
 Chicago Round Table, 12:30 p. m., Sunday, R.
 Columbia News Service, 10:30 p. m., daily, except Sun., C.
 Conclave of Nations, 10:30 p. m., Sunday, C.
 Father Coughlin, 4:00 p. m., Sunday.
 Economics in New Deal, 8:00 p. m., Saturday, B.
 Flying Capt. Williams, 6:45 p. m., Saturday, B.
 Edwin C. Hill, 8:15 p. m., daily, except Sat. and Sun.; 11:30 p. m., Wednesday, Thursday, Friday, C.
 Horlick's Health, 8:30 p. m., Tuesday and Thursday, B.
 H. V. Kaltenborn, 6:45 p. m., Sunday; 6:00 p. m., Friday; 10:45 p. m., Saturday, C.
 John B. Kennedy, 2:30 p. m., Sun.; 6:30 p. m., Thurs., R.
 Meet the Artist, 6:00 p. m., Saturday, C.
 National Radio Forum, 10:30 p. m., Wednesday, R.
 National Youth Conference, 1:30 p. m., Sunday, B.
 Our American Schools, 6:30 p. m., Sunday, R.
 Planned Recovery, 10:45 p. m., Monday, B.
 Radio in Education, 7:15 p. m., Tuesday, B.
 Mme. Sylvia, 10:30 p. m., Tuesday, R.
 Lowell Thomas, 6:45 p. m., daily, except Sat. and Sun., B.
 Voice of Experience, 8:30 and 11:45 p. m., Tuesday, C.
 Frederic William Wile, 7:00 p. m., Saturday, C.
 Walter Winchell, 9:30 and 11:15 p. m., Sunday, B.
 Alexander Woolcott, 9:15 p. m., Mon. and Thurs., C.

As Shown in the Index by Frequencies and Dial Numbers

KEY TO SYMBOLS

Frequency is given in kilocycles; wavelength in meters. Night power is shown in watts in third column. Daytime power is shown in parenthesis in fourth column in kilowatts, thus (25) indicating 250 watts. Some stations outside the United States use a "split frequency." Their exact frequency is shown in fourth column. Time Zones: A—Atlantic, E—Eastern, C—Central, M—Mountain, P—Pacific, L—Local. A. M. time is shown in light face type.

Second Column Symbols

- a Verifies reception for return postage.
- b Verifies only occasionally.
- c Does not verify.
- d Verification 10c; letter 25c.
- e Sends Ekko stamp for 10c.
- f Sends Ekko stamp for 5c.
- g Sends Ekko stamp for postage.
- h Sends own station stamp for 10c.
- i Sends own station stamp for 5c.
- j Sends own station stamp for postage.
- k Has no stamps.
- l No information available.

Fourth Column Symbols

- B National "Blue" network.
- C Columbia network.
- D Daytime only.
- Dn Daytime with occasional evening hours.
- E Trans-Canada network.
- F Canadian Radio Broadcast Commission.
- G All Canadian networks.

- H Yankee network.
- J Orange network.
- K Michigan network.
- L Canadian Pacific Ry. network.
- M Central Canada network.
- N National "Red" and "Blue" networks.
- P Has construction permit only.
- Q Great Lakes network.
- R National "Red" network.
- S Sunday only.
- Sy Synchronized.
- T Don Lee System.
- U Dixie network.
- V Maritime Broadcasting network.
- W All-Florida network.
- W Curtis-Indiana network.
- X Has permit to increase power.
- Y Has permit to change location.
- Z Has permit to change frequency.

a-b-c. Small letters show stations using same transmitter
 1-2-3. Figures denote stations sharing time.
 No information.

INDEX BY FREQUENCIES AND DIAL NUMBERS

With Wednesday's Time on the Air

KCYS.

600

DIAL

540 kilocycles 555.2 meters

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X CJRM	z	500	F	Moose Jaw, Sask.	C
X CJRW	ak	500	F	Fleming, Sask.	C—8:00-9:00; 10:00-10:45; 1:00-1:15; 2:15-2:30; 5:30-7:30
XBY	z	105	546.8	Merida, Yuc.	

550 kilocycles 545.1 meters

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X KFDY	ae	500	1 (1)	Brookings, S. D.	C—12:30-2:00
X KFUO	ae	500	2 (1)	St. Louis, Mo.	C
X KFYR	ah	1000	1N (2.5)	Bismarck, N. D.	C—7:00-12:30; 2:00-11:30
X KOAC	ak	1000	...	Corvallis, Ore.	P—6:30-4:00; 6:30-9:00
X KSD	ak	500	2R	St. Louis, Mo.	C
X TISO	ak	250	...	San Jose, C. R.	C—10:00-1:00; 4:00-11:00
X WDEV	ae	500	D	Waterbury, Vt.	E—7:30-10:00; 11:30-2:00; 3:00-7:00
X WGR	ae	1000	C	Buffalo, N. Y.	E—7:30-mid.
X WKRC	ak	1000	C	Cincinnati, Ohio.	E—7:00-1:00

560 kilocycles 535.4 meters

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X KFDM	ak	500	(1)	Beaumont, Texas.	C—7:00-10:00
X KGIJ	ak	500	D	Springfield, Mo.	C—7:00-7:00
X KLZ	ak	1000	C	Denver, Colo.	M—6:45-11:30
X KTAB	ak	1000	...	San Francisco, Calif.	P—7:00-1:00
X WFI	ae	500	1R	Philadelphia, Pa.	E—6:45-9; 9:45-11; 1-2; 3-4:30; 6-7:00
X WIND	ak	1000	C	Gary, Ind.	C—5:30-3:30
X WLIT	ak	500	1R	Philadelphia, Pa.	E—9:9:45; 11-1; 2-3; 4:30-6; 7-1
X WNOX	ak	1000	C (2)	Knoxville, Tenn.	C
X WQAM	ae	1000	CW	Miami, Fla.	E—7:15-mid.
X XEAO	ak	100	(.15)	Mexicali, B. C.	P—8:00-10:00

570 kilocycles 526.0 meters

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X FON	z	250	572	St. Pierre, Miquelon, Isl.	A
X KKGK	ak	250	(.5)	Wichita Falls, Texas.	C—7:00-10:00
X KMTR	ak	500	...	Hollywood, Calif.	P—6:00-12:15
X KVI	ak	500	...	Tacoma, Wash.	P—6:00-mid.
X WKBN	ae	500	1C	Youngstown, Ohio.	E—7:30-9:00; 11:00-1:00; 3:00-8:00
X WMCA	ak	500	...	New York, N. Y.	E—8:00-1:00
X WNAX	ak	1000	C (2.5)	Yankton, S. D.	C—6:00-mid.
X WOSU	ae	750	1 (1)	Columbus, Ohio.	E—9:00-11:00; 1:00-3:00; 8-11
X WSYR	ak	250	B	Syracuse, N. Y.	E—7:30-1:00
X WWNC	ae	1000	N	Asheville, N. C.	E—8:00-1:00

580 kilocycles 516.9 meters

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X CHMA	ak	250	S	Edmonton, Alta.	
X CKCL	aj	100	M	Toronto, Ont.	E—8:00-11:30 (CFCL)
X CKUA	ak	500	...	Edmonton, Alta.	M
X CDDD	z	150	588	Havana, Cuba.	E
X HIX	ak	1500	...	Santo Domingo, D. R.	E—Silent
X KMJ	ak	500	CT	Fresno, Calif.	P—7:00-mid.
X KSAC	ak	500	2 (1)	Manhattan, Kans.	C—8:00-9:00; 10:00-10:30; 12:30-1:30; 4:30-5:30
X WDBO	ae	250	CW	Orlando, Fla.	E—7:00-mid.
X WIBW	ae	1000	C2	Topeka, Kans.	C—6:00-mid.
X WOBU	ak	500	...	Charleston, W. Va.	E—8:00-mid.
X WTAG	a e	500	R	Worcester, Mass.	E—8:00-mid.
X XEPN	ak	75000	585	Piedras Negras, Coah.	C—6:00-8:00; 11:00-1:00; 7:00-11:00

590 kilocycles 508.2 meters

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X CMW	ae	1400	...	Havana, Cuba.	E
X KHQ	ak	1000	N (2.5)	Spokane, Wash.	P—7:00-1:00
X WBEI	ak	1000	R	Boston, Mass.	E
X WKZO	ae	1000	DK	Kalamazoo, Mich.	E—7:00-7:00
X WOV	ae	1000	R	Omaha, Neb.	C—7:00-10:00; 10:45-3:15; 4:00-mid.

600 kilocycles 499.7 meters

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X CFCF	ae	500	F	Montreal, Que.	E—7:30-mid.
X CFCO	ak	100	FL	Chatham, Ont.	E—7:15-10:00
X KFOD	ck	250	...	Anchorage, Alaska.	L—6:00-mid.
X KFSD	ah	1000	N	San Diego, Calif.	P—7:30-mid.
X WCAC	ae	250	2	Storrs, Conn.	E—12:30-1:00; 4:30-5; 7-8
X WCAO	ae	250	C	Baltimore, Md.	E—7:00-mid.
X WICC	ae	250	2 CH (.5)	Bridgeport, Conn.	E—7:45-1:00
X WMT	af	500	C	Waterloo, Iowa.	C—6:00-mid.
X WREC	ak	500	C (1)	Memphis, Tenn.	C—6:30-mid.

CUT OUT ON DOTTED LINES

INDEX BY FREQUENCIES AND DIAL NUMBERS

With Wednesday's Time on the Air

610 kilocycles 491.5 meters

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X	KFRC	ae	1000	CT	San Francisco, Calif.	P-7:00-1:00
	KZEG	ak	1000	618.5	Manila, P. I.	L-7:30-12:15; 1:15-5:00
	KZRM	ak	50000	618.5	Manila, P. I.	L-6:30-10:30; 12:15-1:15; 5:10-10:30
	TIXA	z	7.5	614	San Jose, C. R.	
X	WDAF	ak	1000	R	Kansas City, Mo.	C-7:56-12:30
	WIP	ae	500	C	Philadelphia, Pa.	E-8:30-12:30
X	WJAY	ak	500	D	Cleveland, Ohio.	E

620 kilocycles 483.6 meters

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X	KGW	ae	1000	NJ	Portland, Ore.	P-7:00-mid.
X	KTAR	ae	500	NJ (1)	Phoenix, Ariz.	M-7:00-11:15
	WFLA	ae	1000	Na (2.5)	Clearwater, Fla.	E-7:30-1:00
	WLBZ	ak	500	C	Bangor, Maine.	E
X	WSUN	ae	1000	Na (2.5)	St. Petersburg, Fla.	E-7:30-1:00
X	WTMJ	ae	1000	N (2.5)	Milwaukee, Wis.	C-6:45-1:00

630 kilocycles 475.9 meters

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	CFCY	ae	500	FVE	Charlottestown, P. E. I.	A-12:00-1:30; 6:00-11:30
	CJGX	ck	500	F	Yorkton, Sask.	C-8:30-9:15; 10:30-11:45; 12:40-1:15; 7:30-8:30
X	CMQ	z	500	2	Havana, Cuba	E
X	KFRU	ak	500	1	Columbia, Mo.	C-6:00-9:00; 4:00-sunset; 7:00-mid.
	KGFX	z	200	D	Pierre, S. D.	C-9:30-sunset
X	WGBF	ae	500	1	Evansville, Ind.	C
X	WMAL	ak	250	B (.5)	Washington, D. C.	E-6:45-mid.
X	WSOJ	ak	500	1D	Jefferson City, Mo.	C-9:00-4:00
	XEX	z	50	Monterrey, N. L.	
	XFG	z	2000	638.3	Mexico City, F.	C

640 kilocycles 468.5 meters

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X	CKCR	ak	100	M645	Kitchener, Ont.	E-10:00-1:30; 4:00-11:00
X	KFI	ak	50000	1N	Los Angeles, Calif.	P-6:30-mid.
X	WAIU	ae	500	1	Columbus, Ohio.	E-6:15-5:00
X	WOI	ae	5000	D	Ames, Iowa.	C-6:30-11:30; noon-1:45; 3:30-5:00

650 kilocycles 461.3 meters

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X	KPCB	ae	100	Seattle, Wash.	P-5:30-sunset; 10:00-4:00
X	WSM	aej	50000	N	Nashville, Tenn.	C-6:30-mid.

660 kilocycles 454.3 meters

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X	TIGP	z	75	666	San Jose, C. R.	
X	WAAW	af	500	D	Omaha, Neb.	C-6:00-sunset
X	WEAF	ak	50000	R	New York, N. Y.	E-8:00-1:00

670 kilocycles 447.5 meters

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X	WMAQ	ck	5000	N	Chicago, Ill.	C-7:30-1:00
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680 kilocycles 440.9 meters

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X	CMAF	ak	1000	Havana, Cuba.	E-5:30-11:30
	HJN	ak	500	681	Bogota, Colombia.	L-Noon-1:30; 8:00-10:00
X	KFEQ	ae	2500	D	St. Joseph, Mo.	C-9:30-4:50
X	KPO	ak	50000	N	San Francisco, Calif.	P-7:30-mid.
X	VAS	z	2:00	685	Glace Bay, N. S.	A-1:00-1:15; 1:00-1:15
X	WPTF	ae	10:0	DnN	Raleigh, N. C.	E-7:30-sunset

690 kilocycles 434.5 meters

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X	CFRB	ak	10000	C	Toronto, Ont.	E-8:00-mid.
	CJCF	ak	500		Calgary, Alta.	M
	NAA	ak	1000	Arlington, Va.	E-11:55-noon; 9:55-10:00
	XET	ck	500	Monterrey, N. L.	C-Noon-2:00; 4:00-10:00

700 kilocycles 428.3 meters

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X	WLW	ak	50000	NX	Cincinnati, Ohio.	E-6:30-2:00
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710 kilocycles 422.3 meters

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X	KMPC	ae	500	Dn	Beverly Hills, Calif.	P-6:45-12:30
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X	TIFB	z	30	714	San Jose, C. R.	C—6:00-10:00			
X	WOR	ak	5000	Newark, N. J.	E—6:45-12:30			
X	XEN	ak	1000	711	Mexico City, D. F.	C—9:00-noon; 1:00-4:00; 5:00-mid.			

720 kilocycles 416.4 meters

X	WGN	ck	50000	Chicago, Ill.	C—7:00-1:30			
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730 kilocycles 410.7 meters

	CFPL	z	100	F	London, Ont.	E			
X	CJCA	ah	500	F	Edmonton, Alta.	M			
X	CKAC	ak	5000	C	Montreal, Que.	E—7:30-11:30			
X	CMK	ae	3150	.....	Havana, Cuba.	E—11:00-1:00; 7:00-mid.			
X	XEF-								
X	XER	ak	150000	735	Villa Acuna, Coah.	C—7:15-5:00			

KCYS.

820

DIAL

740 kilocycles 405.2 meters

X	KMMJ	ae	1000	D	Clay Center, Neb.	C—5:00-sunset			
X	WHEB	ak	250	D	Portsmouth, N. H.	E—8:30-1:30; 3:30-7:45			
X	WSB	ah	50000	NX	Atlanta, Ga.	C—6:55-mid.			

750 kilocycles 399.8 meters

X	KGU	aj	2500	N	Honolulu, T. H.	L—6:30-10:30			
X	WJR	ak	10000	B	Detroit, Mich.	E—7:00-1:00			
X	XEOK	ak	5000	757	Tijuana, B. C.	P—7:00-mid.			

760 kilocycles 394.5 meters

X	KXA	ae	250	(.5)	Seattle, Wash.	P			
X	WBAL	ae	10000	BSy	Baltimore, Md.	(See 1060 Kcys.)			
X	WEW	ae	1000	D	St. Louis, Mo.	C—7:30-6:00			
X	WJZ	ck	50000	BSy	New York, N. Y.	E—8:00-1:00			
X	XEYZ	z	10000	.....	Mexico City, D. F.	C			

770 kilocycles 389.4 meters

X	KFAB	ae	5000	CSy	Lincoln, Neb.	C—5:00-6:45; 9:00-mid.			
X	WBBM	ae	25000	CSy	Chicago, Ill.	C			

780 kilocycles 384.4 meters

	CHWK	ak	100	F	Chilliwack, B. C.	P—9:00-10:00; 12:00-1:00; 5:30-8:30			
	CJCS	ae	500	(1) P	Sudbury, Ont.	E—8:00-mid.			
	CKPR	ak	100	FE	Fort William, Ont.	E—10:00-2:00; 5:00-11:00			
	CMBS	ag	200	1 (.15)	Havana, Cuba.	E—10:00-noon; 7:00-11:00			
	CMCQ	z	1000	1	Havana, Cuba.	E			
X	KELW	ae	500	2	Burbank, Calif.	P—10:00-1:00; 5:00-8:00; 4:00-6:00			
X	KTM	ae	500	2 (1)	Los Angeles, Calif.	P—6:00-10:00; 1:00-5:00; 8:00-4:00			
X	WEAN	ae	500	CH	Providence, R. I.	E—7:30-1:00			
X	WMC	ak	500	N (1)	Memphis, Tenn.	C—7:00-mid.			
X	WTAR	ae	500	C	Norfolk, Va.	E—7:00-mid.			
X	XEP	z	1000	.....	Mexico City, D. F.	C			

790 kilocycles 379.5 meters

X	CMJK	ak	500	.....	Camaguey, Cuba.	E—11:30-12:30; 5:00-11:00			
X	KGO	ak	7500	N	San Francisco, Calif.	P—7:00-mid.			
X	WGY	ak	50000	R	Schenectady, N. Y.	E—6:45-1:00			

800 kilocycles 374.8 meters

	VOAC	z	40	.....	St. John's, Newfoundland.	L			
X	WBAP	ak	50000	Na	Fort Worth, Tex.	C—6:30-7; 8:30-10:30; 12:30-3; 5:30-6:30; 10-mid.			
X	WFAA	ak	50000	Na	Dallas, Texas.	C—7-8:30; 10:30-12:30; 3-5:30; 6:30-7; 7-10			
X	XFC	z	350	805	Aguascalientes, Ags.				

810 kilocycles 370.2 meters

X	VOAS	ak	100	.....	St. John's, Nfld.	L—11:00-12:30; 4:00-5:30			
X	WCCO	ae	50000	C	Minneapolis, Minn.	C—7:00-mid.			
X	WNYC	ak	500	N	New York, N. Y.	E—10:00-7:30			

820 kilocycles 365.6 meters

X	CMGC	z	30	Matanzas, Cuba.	E			
X	WHAS	aj	50000	C	Louisville, Ky.	C—7:00-mid.			

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830 kilocycles 361.2 meters

CMGA	z	100	834	Colon, Cuba.	E
XKOA	ak	12500	N	Denver, Colo.	M—7:00-mid.
LR5	z	20000	.....	Buenos Aires, Arg.	L
TIEA	z	7.5	833	San Jose, C. R.	L
XWEEU	ak	1000	D	Reading, Pa.	E—8:00-6:15
XWHDH	ae	1000	Dn	Boston, Mass.	E—7:00-sunset in Denver
XWRUF	ae	5000	Dn	Gainesville, Fla.	E—8:00-7:00
XZETW	dk	500	.....	Mexico City, D. F.	C—Noon-11:00

840 kilocycles 356.9 meters

XCJOC	ak	100	F	Lethbridge, Alta.	M—7:30-8:00
XCKLW	ae	5000	C	Windsor, Ont.	E—7:00-1:00
XCMC	ae	500	.....	Havana, Cuba.	E—10:30-11:30; 6:45-11:00
XFX	ak	500	.....	Mexico City, D. F.	C—7-10:30; 6:00-10:00

850 kilocycles 352.7 meters

XKIEV	ak	100	D	Glendale, Calif.	P—6:00-sunset
XKWKH	ae	10000	I	Shreveport, La.	C
XWWL	ae	10000	IDn	New Orleans, La.	C—8:00-8:30

860 kilocycles 348.6 meters

TIVL	z	30	869	San Jose, C. R.	C—11:00-1:00; 7:00-10:00
XWABC	ae	50000	C	New York, N. Y.	E—7:30-2:00 (WBOQ)
XWHB	ae	500	D	Kansas City, Mo.	C—6:00-5:00
XETH	ak	100	.....	Puebla, Pue.	C—8:30-11:00; 1:00-3:00; 6:30-11:00

870 kilocycles 344.6 meters

XWENR	ak	50000	Na	Chicago, Ill.	C
XWLS	ae	50000	Na	Chicago, Ill.	C—5:30-9:15; 10:45-2:30; 6:00-7:30

880 kilocycles 340.7 meters

XCJCB	ak	50	F	Sydney, N. S.	A—10:00-11:00; noon-2:00; 5:00-10:00
XCRCO	ak	1000	F	Ottawa, Ont.	E—Noon-1:30; 5:30-11:30
XKFKA	ak	500	2 (1)	Greeley, Colo.	M—6:00-7:30; 9:00-2:30; 4:30-7:30; 9:00-mid.
XKLX	ae	1000	.....	Oakland, Calif.	P—8:00-11:00
XKPOF	ae	500	2	Denver, Colo.	M—7:30-9:00; 2:30-4:30; 7:30-9:00
XWCOG	ae	500	(1)	Meridian, Miss.	C—7:30-2:00; 5:00-10:30
XWGBI	ae	250	1	Scranton, Pa.	E—9:30-12:30; 1:30-4:30; 5:30-10:30
XWQAN	ae	250	1	Scranton, Pa.	E—9:00-9:30; 12:30-1:30; 4:30-5:30
XWSUJ	ae	500	.....	Iowa City, Iowa.	C—9:00-10:00; 11:00-12:30; 2:00-4:00; 6:00-10:00
YV2BC	z	100	882	Caracas, Venez.	L

890 kilocycles 336.9 meters

CMCF	ak	250	1	Havana, Cuba.	E—5:00-8:00
CMX	ae	1000	1	Havana, Cuba.	E—Noon-2:00; 8:00-11:00
XKARK	ak	250	.....	Little Rock, Ark.	C—7:00-2:30; 4:30-9:00
XKFNF	ak	500	2 (1)	Shenandoah, Iowa.	C—5:00-10:00; 11:00-5:00; 6:00-10:00
XKSEI	ck	250	(.5)	Pocatello, Idaho.	M—7:30-11:00
XKUSD	ae	500	2	Vermillion, S. D.	C—Silent
XWGST	aeH	250	C (.5)	Atlanta, Ga.	C—7:00-mid.
XWILL	ak	250	2 (1)	Urbana, Ill.	C—10:00-12:15; 5:00-6:00
XWJAR	ae	500	R	Providence, R. I.	E—8:00-1:00
XWMMN	ae	250	(.5)	Fairmont, W. Va.	E—7:00-9:30
XZETU	z	100	.....	Pachuca, Hdo.	

900 kilocycles 333.1 meters

KGBU	ak	500	.....	Ketchikan, Alaska.	L
XKHJ	ae	1000	CT	Los Angeles, Calif.	P—7:00-1:00
VOWR	ak	500	S	St. John's, Nfld.	L—Silent
XWBEN	ae	1000	R	Buffalo, N. Y.	E—6:45-mid.
XWJAX	aeH	1000	N	Jacksonville, Fla.	E—7:00-12:30
XWKY	ak	1000	N	Oklahoma City, Okla.	C—6:45-mid.
XWLBL	ae	2500	D	Stevens Point, Wis.	C—8:00-sunset

910 kilocycles 329.6 meters

CFRC	ak	100	915	Kingston, Ont.	E
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XCKY	ak	5000	F	Winnipeg, Man.	C—8:30-1:30; 4:00-11:00
CRMC	ck	5000	F	Montreal, Que.	E
TICR	z	75	911	San Jose, C. R.	C—6:30-10:00
XZEW	ak	5000	.....	Mexico City, D. F.	C

920 kilocycles 325.9 meters

XCMCD	ah	500	(.25)	Havana, Cuba.	E—Noon-11:30
CMDE	z	150	925	Havana, Cuba.	E
HKK	ae	1000	i.....	Port-au-Prince, Haiti.	E—Silent
XKFEL	ak	500	i.....	Denver, Colo.	M—6:30-8:30; 10:00-12:30; 3:00-4:30
XKFXF	ak	500	1	Denver, Colo.	M—8:30-10; 12:30-3; 4:30-6; 7:30-1:00
XKOMO	ak	1000	N	Seattle, Wash.	P—6:55-mid.
XKPRC	ae	1000	N (2.5)	Houston, Texas.	C—6:30-mid.
XWAAF	ak	500	D	Chicago, Ill.	C—6:00-sunset
WBSO	ae	500	D	Babson Park, Mass.	E—8:30-5:15
XWWJ	ae	1000	R	Detroit, Mich.	E—7:30-mid.

930 kilocycles 322.4 meters

CFAC	ak	500	.....	Calgary, Alta.	M
CFCH	ak	100	F....	North Bay, Ont.	E—Noon-1:30; 5:30-mid.
CFLC	ae	100	F....	Prescott, Ont.	E—8:00-10:00; noon-2:00; 5:00-7:30
CHRC	ak	100	F....	Quebec, Que.	E—9:00-12:30
XCKPC	ae	100	FG	Preston, Ont.	E—6:45-mid.
CMJF	z	200	i.....	Camaguey, Cuba.	E
XKFWI	ak	500	i.....	San Francisco, Calif.	P
XKGBZ	ak	500	2 (1)	York, Neb.	C—5-6; 7:30-9:30; 11-12:30; 2-3:30; 5-6:30; 8:30-10
XKMA	ak	500	2 (1)	Shenandoah, Iowa.	C—6:7:30; 9:30-11; 12:30-2; 3:30-5; 6:30-8:30; 10-mid.
XKROW	ak	500	1 (1)	Oakland, Calif.	P—8:00-9:00; 1:00-6:00; 7:30-8:30
XWBR	ak	500	C (1)	Birmingham, Ala.	C—7:00-11:00
XWDBJ	ae	250	C (5)	Roanoke, Va.	E—8:00-mid.

KCYS.
990

DIAL

940 kilocycles 319.0 meters

XKOIN	ak	1000	CT	Portland, Ore.	P—6:30-mid.
XWAAT	ae	300	D	Jersey City, N. J.	E—6:00-6:00
XWAVE	ak	1000	.....	Louisville, Ky.	C—Silent
XWCSH	ae	1000	R (2.5)	Portland, Maine.	E—8:00-mid.
XWDAY	ae	1000	N	Fargo, N. D.	C—7:00-mid.
XWHA	ak	1000	D	Madison, Wis.	C—8:00-sunset
XKEFO	ak	5000	.....	Mexico City, D. F.	C—1:00-3:00; 6:25-mid. (XEO)

950 kilocycles 315.6 meters

CMHD	dk	500	(.25)	Caibarien, Cuba.	E—8:00-9:00
XKFWB	ak	1000	.....	Hollywood, Calif.	P—7:30-12:30
XKGLH	ak	1000	NJ (2.5)	Billings, Mont.	M—8:00-11:00
XKMBC	ak	1000	C	Kansas City, Mo.	C—6:00-mid.
XWRC	ae	500	R	Washington, D. C.	E—6:30-1:00

960 kilocycles 312.3 meters

CMBD	z	250	965	Havana, Cuba.	E—Noon-6:00
XCMCW	ak	150	965	Havana, Cuba.	E—6:00-mid.
CMJL	z	50	.....	Camaguey, Cuba.	
XCRCT	ak	5000	NF	Toronto, Ont.	E—6:45-mid.
XEAW	ak	10000	965	Reynosa, Tams.	C—5:00-1:00
YVIBC	ak	5000	.....	Caracas, Venz.	L—11:00-1:30; 5:30-10:15

970 kilocycles 309.1 meters

CMGF	ak	100	977	Matanzas, Cuba.	E—3:00-5:00; 8:00-10:30
XKJR	z	5000	N	Seattle, Wash.	P—6:55-mid.
XWCFL	ae	1500	BX	Chicago, Ill.	C—7:00-mid.
XWIBG	ae	100	D	Glenside, Pa.	E—9:00-sunset

980 kilocycles 303.9 meters

XKDKA	ak	5000	B	Pittsburgh, Pa.	E—7:00-1:00
XEAB	ak	800	.....	Tijuana, B. C.	P—9:00-mid.

990 kilocycles 302.8 meters

TITV	z	7.5	999	San Jose, C. R.	C—3:00-5:00; 7:00-11:00
XWBZ	ak	5000	BSy	Boston, Mass.	E
XWBZA	ak	1000	BSy	Springfield, Mass.	E
XWJEM	z	500	D	Tupelo, Miss.	C
XEAF	z	750	Nogales, Son.	
XXEK	ak	100	Mexico City, D. F.	C—11:00-4:00; 6:00-2:00

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1000 kilocycles 299.8 meters

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X KFVD	ae	250	Dn	Los Angeles, Calif.	P-6:30-sunset; 10:00-mid.
X WHO					
X WOC	ak	50000	R	Des Moines, Iowa.	C-7:00-mid.
X WORK	ak	1000	D	York, Pa.	E-8:00-6:45
X XEA	ak	250	.....	Guadalajara, Jal.	C-8:30-9:00; 6:00-11:00
X XEC	z	50	.....	Toluca, D. F.	C
X XEFE	z	100	.....	Nuevo Laredo, Tams.	C
X XEFJ	ak	100	.....	Monterrey, N. L.	C-11:00-2:00; 7:00-10:00
X XEFS	ak	40	Queretaro, Oro.	C-8:00-10:00
X XEL	ak	40	Saltillo, Coah.	C-10:30-1:00; 6:00-9:00

1010 kilocycles 296.9 meters

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X CHML	aei	50	M	Hamilton, Ont.	E-8:00-11:00
X CHWC	ae	500	3F	Regina, Sask.	M-7:9; 10:11; noon-1; 3:30-11
X CKCD	ak	100	.....	Vancouver, B. C.	P-8:30-9:00
X CKCK	ak	500	3F	Regina, Sask.	M-9:00-10:00; 11:00-noon; 1:00-3:30
X CKCO	z	100	.....	Ottawa, Ont.	E
X CKIC	ak	50	.....	Wolfville, N. S.	A-Noon-1:00; 6:00-7:00
X CKWX	ae	100	LZ	Vancouver, B. C.	P-7:00-8:30; 9:00-1:00
X CMBZ	ak	150	.....	Havana, Cuba.	E-11:00-1:00; 4:00-6:00; 8:30-11:00
X CMJO	ak	50	.....	Ciego de Avila, Cuba.	E-9:00-1:00; 6:00-10:00
X KGGF	ak	500	2 (1)	Coffeyville, Kans.	C-7:30-2:00; 5:00-8:00; 9:15-10:30
X KQW	ae	500	.....	San Jose, Calif.	P-7:00-8:00; 9:00-3:00; 4:30-10:00
X TIGA	z	30	1014	Cartago, C. R.	
X WHN	ae	250	1	New York, N. Y.	E-4:00-mid.
X WIS	ae	500	N (1)	Columbia, S. C.	E-8:00-mid.
X WNAD	ae	500	2	Norman, Okla.	C-8:15-9:15
X WPAP	ae	250	1	New York, N. Y.	E-9:30-1:00
X WQAO	ae	250	1	New York, N. Y.	E-7:30-8:30
X WRNY	ae	250	1	New York, N. Y.	E-1:00-4:00
X XEJ	ak	500	1015	Juarez, Chih.	C
X XEU	ak	100	Veracruz, Ver.	C-7:00-9:00; 10:00-2:00; 5:00-11:00

1020 kilocycles 293.9 meters

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X KYW	ae	10000	NY	Chicago, Ill.	C-8:00-1:00
X WRAX	ak	250	DZ	Philadelphia, Pa.	E-7:00-7:00
X XES	dk	250	Tampico, Tams.	E-10:00-2:30; 5:00-10:00

1030 kilocycles 291.1 meters

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X CFEN	ak	10000	F	Calgary, Alta.	M-7:30-1:30; 5:00-11:00
X CFNB	ae	500	FE	Fredericton, N. B.	A-8:30-9:30; 12:30-2:00; 7:30-10:00
X CKNC	ak	100	F	Toronto, Ont.	E-8:00-11:00
X CMHI	ak	250	1037	Santa Clara, Cuba.	E-11:00-noon; 8:00-9:00
X CMKC	z	150	1034	Santiago, Cuba.	E
X XEB	ak	10000	Mexico City, D. F.	C-9:30-10:00

1040 kilocycles 288.3 meters

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X CMGH	ak	15	Matanzas, Cuba.	E-2:00-3:00; 5:00-6:00; 7:30-8:30
X KRLD	ae	10000	1C	Dallas, Texas.	C
X KTHS	ae	10000	DN	Hot Springs, Ark.	C
X WESG	ak	1000	D	Elmira, N. Y.	E-8:00-6:00
X WKAR	ak	1000	D	East Lansing, Mich.	E

1050 kilocycles 285.5 meters

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X CHNS	ae	500	FL	Halifax, N. S.	A-8:00-1:30; 6:00-mid.
X CMJG	z	50	Camaguey, Cuba.	E
X KFBI	ak	5000	Dn	Abilene, Kans.	C-6:00-sunset
X KNX	ak	25000	Hollywood, Calif.	P-6:45-11:00
X XEFC	ak	100	Merida, Yuc.	C-8:00-10:00

1060 kilocycles 282.8 meters

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X KWJJ	ak	500	Portland, Ore.	P-6:00-8:00; 9:00-2:00
X WBAL	ae	10000	1B	Baltimore, Md.	E-7:30-3:00
X WJAG	ak	1000	D	Norfolk, Neb.	C-6:45-sunset
X W TIC	ak	50000	1R	Hartford, Conn.	E-3:00-mid.

1070 kilocycles 280.2 meters

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X CMBG	z	225	Havana, Cuba.	E
X CMCB	ak	150	Havana, Cuba.	E

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KJBS	ae	100	D	San Francisco, Calif.	P-12:01-sunset
WCAZ	ae	50	D	Carthage, Ill.	C
WDZ	ak	100	D	Tuscola, Ill.	C-8:00-4:00
WTAM	ck	50000	R	Cleveland, Ohio.	E-6:30-1:00

1080 kilocycles 277.6 meters

VOKW	z	30	1085	St. John's, Nfld.	L-Noon-2:00
WBT	ae	50000	CU	Charlotte, N. C.	E-7:00-mid.
WCBD	ae	5000	1Dn	Zion, Ill.	C-7:30-10:30; 1:30-sunset
WMBI	ae	5000	1Dn	Chicago, Ill.	C-7:00-7:30; 10:30-1:30; 3:00-4:00
XEFG	ak	500	1085	Mexico City, D. F.	C-10:30-4:00; 7:00-mid.

1090 kilocycles 275.1 meters

XKMOX	ak	50000	C	St. Louis, Mo.	C-6:30-12:30
XEAI	z	100	.....	Mexico City, D. F.	(All mail returned)

1100 kilocycles 272.6 meters

XCMCU	ak	500	.....	Havana, Cuba.	E-6:00-mid.
XCRCV	ak	500	F	Vancouver, B. C.	P-Noon-1:00; 5:30-11:00
XKGDm	ak	250	D	Stockton, Calif.	P-6:00-6:30
XTRCA	ak	500	.....	San Jose, C. R.	C-11:00-1:00; 5:00-10:30
WLWL	ae	5000	1	New York, N. Y.	E-6:00-8:00
XWPG	ak	5000	1C	Atlantic City, N. J.	E-9:00-6:00; 8:00-1:00
XEWw	z	250	.....	Veracruz, Ver.	C

1100 kilocycles 270.1 meters

XKSOO	ae	1000	Dn (2.5)	Sioux Falls, S. D.	C-6:00-6:30
WRVA	ae	5000	N	Richmond, Va.	E-7:00-mid.
XENT	ak	150000	1115	Nuevo Laredo, Tams.	C-6:00-8:00; 10:00-2:00; 5:00-10:00

**KCYS.
1160
DIAL**

1120 kilocycles 267.7 meters

XCHGS	ae	100	F	Summerside, P. E. I.	A-7:30-8:45; 10:30-2:00; 4:30-7:30; 9:00-11:00
CHLP	z	100	.....	Montreal, Que.	E-9:00-mid.
XCKOC	ae	1000	F	Hamilton, Ont.	E-7:45-11:30
CMHJ	ae	60	1125	Cienfuegos, Cuba.	E-11:00-2:00; 6:00-9:00
XKFO	ae	100	D	Spokane, Wash.	P-7:00-sunset
XKFSG	ag	500	a	Los Angeles, Calif.	P-6:30-7:15; 7:30-10:00
XKRKD	ae	500	a	Los Angeles, Calif.	P-7:45-7:30; 10:00-mid.
KRSC	ak	100	D	Seattle, Wash.	P-6:45-6:30
XKTRH	z	1000	2C	Houston, Texas.	C-6:30-11:30
WDEL	ak	250	(.5)	Wilmington, Del.	E-9:00-10:00
XWHAD	ak	250	1C	Milwaukee, Wis.	C-9:30-10:15; 3:00-4:00; 8:30-9:30
XWISN	ak	250	1	Milwaukee, Wis.	C
WTAw	ae	500	2	College Station, Texas.	C-Silent

1130 kilocycles 265.3 meters

XKSL	ae	50000	C	Salt Lake City, Utah.	M-6:45-mid.
XWJD	ae	20000	Dn	Chicago, Ill.	C-6:30-10:00
XWov	ag	1000	D	New York, N. Y.	E-8:00-6:00
XEH	ak	250	1132	Monterrey, N. L.	C-8:00-1:30; 5:00-10:00

1140 kilocycles 263.0 meters

CMBJ	z	500	.....	Havana, Cuba.	E-Noon-7:00
XCMBW	ak	600	.....	Havana, Cuba.	E-Silent
XKVOO	ae	25000	1N	Tulsa, Okla.	C-6:30-7:00
XWAPI	ae	5000	1N	Birmingham, Ala.	C-6:00-sunset; 9:00-mid.

1150 kilocycles 260.7 meters

CMJH	ak	50	.....	Ciego de Avila, Cuba.	E-8:00-8:30; 10:00-3:00; 5:30-10:30
XWHAM	ae	50000	B	Rochester, N. Y.	E-8:00-mid.
XED	ak	500	1155	Guadalajara, Jal.	C-Noon-3:30; 7:00-mid.
10-AT	ak	25	1155	Trail, B. C.	P-9:30-9:00

1160 kilocycles 258.5 meters

XWOWO	ae	10000	1C	Fort Wayne, Ind.	C-8:30-4:30; 7:30-mid.
XWVA	ae	5000	1C	Wheeling, W. Va.	E-6:30-8:30

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1170 kilocycles 256.3 meters

CMJE z 50 1175
WCAU ae 50000 C

Camaguey, Cuba. E.
Philadelphia, Pa. E-8:00-1:00

1180 kilocycles 254.1 meters

CMBN ak 150 1185
CMCJ ak 500 1185
KEX ak 5000 2N
KOB ae 10000 2
WDGY ak 1000 Dn
WINS ae 500
WMAZ ak 500

Havana, Cuba. E
Havana, Cuba. E-Noon-2:00; 4:00-6:00; 7:00-10:00
Portland, Ore. P-7:00-4:45; 8:00-mid.
Albuquerque, N. M. M-Noon-1:00; 5:00-9:00
Minneapolis, Minn. C-6:30-8:15
New York, N. Y. E-6:00-7:00
Macon, Ga. E-7:30-3:00; 5:00-8:15

1190 kilocycles 252.0 meters

HIJ z 15 1195
VE9EK ak 10 1195
VONF ak 400 1195
WOAI ae 50000 N
WSAZ ak 1000

Santo Domingo, D. R. E-12:30-2:30; 6:30-8:30
Montmagny, Que. E
St. John's, Nfld. L-Noon-2:00; 6:00-9:00
San Antonio, Texas. C-6:30-11:30
Huntington, W. Va. E-8:00-8:00

1200 kilocycles 249.9 meters

CKTB ae 100 G
CMGB z 30 1205
CMHW z 100
KBTM ak 100 DY
KERN ak 100 CT
KFJB ak 100 (.25)
KFJD ae 100
KFXJ ak 100
KGDE ak 100 (.25)
KGKE ak 100
KGFJ ae 100
KGHI ak 100 (.25)
KGVO ak 100
KMLB ak 100
KSUN ae 100 D
KVOS ak 100
KWG ae 100 CT
WABI ak 100
WBBX ak 100 1
WBBZ ak 100
WBHS z 100 4
WCAT ak 100 D
WCAZ ak 100
WCLO ak 100
WFAM ak 100 8C
WFBC ak 100 4 (.25)
WFBE ak 100 (.25)
WHBC ak 100 2
WHBY ak 100
WIBX ae 100 (.3)
WIL ak 100 5 (.25)
WJBC ae 100 6
WJBL ae 100 6
WJBW ak 100 1
WKBO ak 100 3
WKJC ae 100 3
WLAP ae 100 (.25)
WNBO ae 100 2
WNBW z 10 (.1)
WPHR ak 100 (.25)
WRBL z 100
WRAE ae 100 8
YV3BC ak 1000
10-AK ak 15
10-BI ak 25
10-BP ak 15
10-BQ ak 5
10-BU z 15

St. Catharines, Ont. E
Matanzas, Cuba. E
Cienfuegas, Cuba E
Paragould, Ark. C-7:30-1:30; 2:30-5:30
Bakersfield, Calif. P-7:00-mid.
Marshalltown, Iowa. C-6:00-9:00; noon-3:00; 6:00-9:00
Nampa, Idaho. M-7:00-9:00
Grand Junction, Colo. M
Fergus Falls, Minn. C-7:00-9:00
Yuma, Colo. M-11:30-1:30
Los Angeles, Calif. P-24 hours
Little Rock, Ark. C-7:00-1:00; 4:00-10:00
Missoula, Mont. M-8:00-8:30
Monroe, La. C
Lowell, Ariz. M-Sunrise-sunset
Bellingham, Wash. P-7:00-10:00
Stockton, Calif. P-7:00-mid.
Bangor, Maine. E-9:00-2:00; 6:00-10:00
New Orleans, La. C-Noon-5:00; 8:00-11:00
Ponca City, Okla. C-6:30-10:00
Huntsville, Ala. C
Rapid City, S. D. C-12:30-1:30
Burlington, Vt. E-Noon-1:00; 6:00-8:00
Janesville, Wis. C-7:30-2:00; 5:00-8:30
South Bend, Ind. C-6:30-mid.
Greenville, S. C. E-7:30-2:30; 5:30-10:30
Cincinnati, Ohio. E-7:00-11:30
Canton, Ohio. E-7:00-9:00; noon-3:00; 6:00-9:00
Green Bay, Wis. C-7:30-9:45
Utica, N. Y. E-8:00-11:00
St. Louis, Mo. C-7:00-mid.
LaSalle, Ill. C-8:00-9:00; 10:00-12:30; 6:30-10:30
Decatur, Ill. C-6:30-8:00; 9:00-10:00; 12:30-3:00; 4:30-6:30
New Orleans, La. C-8:00-noon; 5:00-8:00
Harrisburg, Pa. E-7:00-10:00; 2:00-5:00; 7:00-11:00
Lancaster, Pa. E-11:00-3:00; 6:00-9:00
Louisville, Ky. C-7:30-11:30
Silverhaven, Pa. E-9:00-noon; 3:00-6:00; 9:00-mid.
Carbondale, Pa. E
Petersburg, Va. E-8:00-5:00; 6:00-9:00
Columbus, Ga. C-7:00-11:00
Hammond, Ind. C-7:00-8:30; 11:00-1:00; 4:00-7:00; 8:00-mid.
Caracas, Venez. L-11:00-2:00; 5:00-10:30
Stratford, Ont. E-Noon-1:00; 5:30-7:00
Prince Albert, Sask. M
Wingham, Ont. E-Silent
Brantford, Ont. E-11:00-8:00
Canora, Sask. C

1210 kilocycles 247.8 meters

CFBO z 100 F
CHNC ak 100 PF
CJOR ak 500

St. John, N. B. A
New Carlisle, Que. A-1:00-mid.
Vancouver, B. C. P-7:30-10:30

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With Wednesday's Time on the Air

CKCH	z	100	Hull, Que.	E
CKMC	ak	100	Cobalt, Ont.	E
CKOV	ak	100	F	Kelowna, B. C.	P
KASA	ak	100	.....	Elk City, Okla.	C-6:30-1:30; 5:00-7:00
KDLR	ak	100	.....	Devils Lake, N. D.	C-8:00-2:15; 6:00-8:00
KFJI	ak	100	.....	Klamath Falls, Ore.	P-8:30-9:00
KFOR	ak	100	(.25)	Lincoln, Neb.	C-7:00-10:00
KFPW	ak	100	.....	Fort Smith, Ark.	C-7:00-2:00; 5:00-10:00
KFPV	ae	100	6	Cape Girardeau, Mo.	C-9:00-noon; 4:00-8:30
KFXM	ak	100	9	San Bernardino, Calif.	P-6:00-7:00; 9:15-mid.
KGCR	ak	100	.....	Watertown, S. D.	C-7:00-3:00; 5:00-9:00
KGY	ak	100	.....	Olympia, Wash.	P-6:00-mid.
KIEM	ak	100	.....	Eureka, Calif.	P-7:45-sunset
KPPC	ak	50	9	Pasadena, Calif.	P-7:00-9:15
KWEA	z	100	.....	Shreveport, La.	C
KWFE	z	100	.....	Hilo, Hawaii.	L
WALR	ae	100	1	Zanesville, Ohio.	E
WBAX	ak	100	1	Wilkes Barre, Pa.	E
WBBL	ak	100	7S	Richmond, Va.	E-Silent
WCBS	ak	100	2	Springfield, Ill.	C-11:15-3:00; 6:45-9:00
WCRW	ae	100	4	Chicago, Ill.	C-11:00-2:00; 5:00-7:00
WEBQ	ae	100	6	Harrisburg, Ill.	C-6:00-9:00; noon-4:00; 8:30-mid.
WEDC	ae	100	4	Chicago, Ill.	C-8:30-10:00; 3:30-5; 7-8; 10-11; mid.-2:00
WFAS	ak	100	3	White Plains, N. Y.	E-3:00-5:00
WGGB	ae	100	3	Freeport, N. Y.	E-9:00-noon; 8:00-mid.
WGCM	ae	100	(.25)	Mississippi City, Miss.	C-9:00-1:00; 7:00-9:00
WGNV	ak	100	.....	Chester, N. Y.	E
WHBF	ak	100	.....	Rock Island, Ill.	C-7:30-10:00
WHBU	ah	100	.....	Anderson, Ind.	C-7:00-7:15
WHET	ak	100	DZY	Troy, Ala.	C-9:00-sunset
WIBU	a	100	.....	Poynette, Wis.	C
WJBI	ak	100	3	Red Bank, N. J.	E-5:00-8:00
WJBY	ak	100	.....	Gadsden, Ala.	C-9:00-9:00
WJEJ	ah	100	D	Hagerstown, Md.	E-7:00-1:00; 4:00-7:45
WJW	ak	100	.....	Akron, Ohio.	E-9:00-11:30
WKFI	ak	100	.....	Greenville, Miss.	C-7:00-7:00
WKOK	ak	100	Y	Sunbury, Pa.	E
WMBG	ak	100	7C	Richmond, Va.	E-7:00-mid.
WOCL	ak	50	.....	Jamestown, N. Y.	E-Noon-mid.
WOMT	ae	100	.....	Manitowoc, Wis.	C
WPRO	ak	100	.....	Providence, R. I.	E-9:00-2:00; 4:00-11:15
WQDX	ae	100	.....	Thomasville, Ga.	E-8:00-9:00
WSBC	ae	100	4	Chicago, Ill.	C-6:00-8:30; 10:00-11:00; 2:00-3:30; 8:00-10:00; 11:00-mid.
WSEN	ak	100	.....	Columbus, Ohio.	E-8:00-mid.
WSIX	ak	100	.....	Springfield, Tenn.	C-6:00-4:00; 6:00-9:00
WSOC	ae	100	N	Charlotte, N. C.	E
WTAX	ak	100	2	Springfield, Ill.	C
XETZ	z	500	Mexico City, D. F.	C

KCYCS.
1240
DIAL

1220 kilocycles 245.8 meters

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CMHK	ak	50	1225	Cruces, Cuba.	E-10:00-11:30
KFKU	a	500	Lawrence, Kas.	C-2:30-3:00; 6:00-6:15
KTW	ak	1000	S2	Seattle, Wash.	P-Silent
KWSC	ae	1000	2(2)	Pullman, Wash.	P-Noon-2:30; 4:30-8:00
WCAD	ak	500	D	Canton, N. Y.	E-12:30-1:30; 3:00-4:00
WCAE	ae	1000	R	Pittsburgh, Pa.	E-6:45-1:00
WDAE	ae	1000	CW	Tampa, Fla.	E-8:00-mid.
WREN	ak	1000	Ba	Lawrence, Kas.	C-7:00-mid.

1230 kilocycles 243.8 meters

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CFQC	z	500	F	Saskatoon, Sask.	C
CMBY	z	250	2	Havana, Cuba.	E
CMCA	z	150	2	Havana, Cuba.	E
KGGM	ak	250	(.5)	Albuquerque, N. M.	M-6:00-noon; 4:00-8:00
KYA	ae	1000	N	San Francisco, Calif.	P-7:30-mid.
WFBM	ae	1000	1C	Indianapolis, Ind.	C-7:30-10:15; noon-3:00; 5:30-11:30
WNAC	ak	1000	CH	Boston, Mass.	E-6:30-1:00
WSBT	ak	500	1C	South Bend, Ind.	C-6:30-mid.

1240 kilocycles 241.8 meters

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CMAB	z	20	1249	Pinar del Rio, Cuba.	E
CMJN	z	50	Camaguey, Cuba.	E
KGCU	ak	250	1	Mandan, N. D.	M-Noon-5:00; 6:45-9:00
KLPM	ak	250	1	Minot, N. D.	C-7:00-1:00; 6:00-7:45
KTAT	ak	1000	C	Fort Worth, Texas.	C-7:00-mid.

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X	KTFI	ae	1000	Twin Falls, Idaho.	M—6:00-mid.
X	WKAQ	ae	1000	San Juan, P. R.	A—12:15-3:15; 6:30-10:00
X	WXYZ	ak	1000	K	Detroit, Mich.	E—7:30-mid.

1250 kilocycles 239.9 meters

X	KFOX	ae	1000	.....	Long Beach, Calif.	P—6:00-mid.
X	WAAM	ae	1000	1a (2.5)	Newark, N. J.	E—7:00-9:00; 10:00-noon; 2:00-4:30; 9:00-mid.
X	WCAL	ah	1000	2	Northfield, Minn.	C—9:45-10:15; 8:00-10:00
X	WDSU	ak	1000	C	New Orleans, La.	C—7:00-11:45
X	WGCP	ak	1000	1 (2.5)	Newark, N. J.	E—2:00-5:00; 8:00-10:00
X	WLB	ak	1000	2	Minneapolis, Minn.	C—10:35-11:30; 12:30-1:00
X	WODA	z	1000	1a (2.5)	Paterson, N. J.	E
X	WRHM	ak	1000	2	Minneapolis, Minn.	C—6:15-9:45; 11:30-12:30; 1-8; 9-mid.
X	XEFA	z	500	.....	Mexico City, D. F.	C

1260 kilocycles 238.0 meters

X	KOIL	ak	1000	B	Council Bluffs, Iowa.	C—6:00-1:00
X	KRGV	ae	500	1	Harlingen, Texas.	C—7:00-9:30; 12:30-3:30; 6:30-9:30
X	KUOA	ak	1000	.....	Fayetteville, Ark.	C—7:00-6:30
X	KVOA	ak	500	.....	Tucson, Ariz.	M—6:00-9:00; noon-3:00; 6:00-9:00
X	KWWG	z	500	1	Brownsville, Texas.	C
X	WLBW	ae	500	C(1)	Erie, Pa.	E—8:00-1:00
X	WNBX	ak	250	D	Springfield, Vt.	E—7:30-sunset
X	WTOC	ae	500	C	Savannah, Ga.	E—7:00-1:00
X	XEFT	ak	250	.....	Chihuahua, Chih.	C—1:00-3:00; 8:00-10:30

1270 kilocycles 236.1 meters

X	CMBC	ae	150	1	Havana, Cuba.	E
X	CMCP	z	150	1	Havana, Cuba.	E
X	KGCA	ak	100	2D	Decorah, Iowa.	C—8:30-9:45; 10:45-11:30; 12:30-2:30
X	KOL	ae	1000	CT	Seattle, Wash.	P—6:45-mid.
X	KVOR	ae	1000	C	Colorado Springs, Colo.	M—7:00-11:00
X	KWLC	ak	100	2D	Decorah, Iowa.	C—7:30-8:30; 9:45-10:45; 11:30-12:30; 2:30-3:30
X	WASH	ak	500	Ka	Grand Rapids, Mich.	E—7:00-mid.
X	WFBR	ae	500	R	Baltimore, Md.	E—7:10-1:00
X	WJDX	ae	1000	N	Jackson, Miss.	C—7:00-11:00
X	WOOD	ak	500	Ka	Grand Rapids, Mich.	E—7:00-mid.

1280 kilocycles 234.2 meters

X	KFBB	ae	1000	(2.5)	Great Falls, Mont.	M—8:00-3:00; 5:00-10:00
X	WCAM	ae	500	1	Camden, N. J.	E—11:00-noon; 2:00-5:00
X	WCAP	ae	500	1	Asbury Park, N. J.	E—9:00-11:00; noon-1:00; 9:00-mid.
X	WDOD	ae	1000	C(2.5)	Chattanooga, Tenn.	C—7:00-11:00
X	WIBA	ae	500	N(1)	Madison, Wis.	C—7:30-mid.
X	WORC	ak	500	CH	Worcester, Mass.	E—8:00-mid.
X	WRR	ak	500	C	Dallas, Texas.	C—7:00-11:00
X	WTNJ	ak	500	1	Trenton, N. J.	E—1:00-2:00; 5:00-8:00
X	XEFW	ak	70	.....	Tampico, Tams.	E—8:00-10:00; noon-2:00; 5:00-6:00; 7:00-10

1290 kilocycles 232.4 meters

X	CMHL	ak	20	.....	Cienfuegos, Cuba.	E—10:00-noon; 6:00-9:00
X	KDYL	ae	1000	NJ	Salt Lake City, Utah.	M—6:30-1:00
X	KLCN	z	100	D	Blytheville, Ark.	C
X	KTSA	ak	1000	C	San Antonio, Texas.	C—7:00-mid.
X	WEBC	ae	1000	N(2.5)	Superior, Wis.	C—7:00-mid.
X	WJAS	ak	1000	C(2.5)	Pittsburgh, Pa.	E—7:30-12:30
X	WNBZ	z	50	D	Saranac Lake, N. Y.	E
X	XEAC	z	100	1295	San Luis Potosi, S. L. P.	
X	XFB	ak	1000	.....	Jalapa, Ver.	C—8:00-9:00; 1:00-2:30; 8:00-11:30

1300 kilocycles 230.6 meters

X	CMKJ	z	20	.....	Guantanamo, Cuba.	E
X	HIZ	z	10	.....	Santo Domingo, D. R.	L
X	KALE	ak	500	3CT	Portland, Ore.	P—7:00-10:30; 2:30-5:00; 6:00-7:00
X	KFAC	ae	1000	.....	Los Angeles, Calif.	P—7:00-mid.
X	KFH	ak	1000	C2	Wichita, Kans.	C—7-8:30; 9-11; 11:30-2; 3-6; 7-9; 10-11
X	KFJR	ag	500	3	Portland, Ore.	P—10:30-2:30; 5:00-6:00; 7:00-mid.
X	WBRR	aej	1000	1	Brooklyn, N. Y.	E—6:00-7:00; 10:00-noon; 6:00-8:00
X	WEVD	ak	500	1	New York, N. Y.	E—5:00-6:00
X	WFAB	ae	1000	1	New York, N. Y.	E—9:00-10:00; noon-3:00; 9:00-10:00
X	WHAZ	ae	500	1	Troy, N. Y.	E—Silent
X	WIOD	ae	1000	N	Miami, Fla.	E—7:15-mid.
X	WOQ	ae	1000	2	Kansas City, Mo.	C—6-7; 8:35-9:05; 11-11:30; 2-3; 6-7; 9-10; 11-mid

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1310 kilocycles 228.9 meters

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	CFJC	ak	100	FLE	Kamloops, B. C. P—7:30-10:30; noon-2:00; 6:00-7:30
	CHCK	ak	100	Charlottetown, P. E. I. A—Noon-1:30
	CKCV	ak	50	.....	Quebec, Que. E—Noon-2:00; 6:30-8:00
X	KCRJ	ak	100	D	Jerome, Ariz. M—7:30-9:30; noon-1:00; 4:30-6:00
X	KFBK	ak	100	C	Sacramento, Calif. P—7:00-11:00
X	KFGQ	ak	100	7	Boone, Iowa. C
X	KFPL	ak	100	.....	Dublin, Texas. C—6:30-8:30; 9:00-3:15; 7:00-10:45
X	KFPM	ae	15	.....	Greenville, Texas. C—7:45-9:00; 1:00-2:45; 6:00-9:40
X	KFXR	ak	100	(.25)	Oklahoma City, Okla. C—7:30-2:00; 4:30-mid.
X	KFYO	ak	100	(.25)	Lubbock, Texas. C—7:00-2:00; 4:00-10:00
X	KGBX	ae	100	.....	Springfield, Mo. C
X	KGCX	ak	100	(.25)	Wolf Point, Mont. M—7:30-9:00; 11:30-3:00; 6:00-7:00
X	KGEZ	aj	100	.....	Kalispell, Mont. M—8:00-9:00
X	KGFV	ak	100	.....	Kearney, Neb. C—7:00-9:00
X	KIFH	z	100	.....	Juneau, Alaska. L
X	KIT	ak	100	.....	Yakima, Wash. P—7:00-11:00
X	KMED	ck	100	.....	Medford, Ore. P—8:00-8:00
X	KRMD	ak	100	.....	Shreveport, La. C—7:00-1:00; 5:00-8:00
X	KTSM	ak	100	a	El Paso, Texas. M—7:00-1:30; 3:00-10:00
X	KXRO	ak	100	.....	Aberdeen Wash. P—7:30-10:00
X	WAML	ak	100	.....	Laurel, Miss. C—7:00-10:00; 11:00-2:00; 4:00-7:00
X	WBEO	ae	100	.....	Marquette, Mich. C—9:30-1:15; 5:00-7:00
X	WBOW	ak	100	.....	Terre Haute, Ind. C—7:00-11:00
X	WBRE	ak	100	.....	Wilkes Barré, Pa. E—8:00-11:30
X	WCLS	ae	100	b	Joliet, Ill. C—9:30-1:00; 5:00-8:00
X	WDHA	ck	100	Sa	El Paso, Texas. M—Silent
X	WBBR	aej	100	Q (.25)	Buffalo N. Y. E—7:00-1:00
X	WEXL	ak	50	.....	Royal Oak, Mich. E—7:30-5:00
X	WFBG	ae	100	3	Altoona, Pa. E—10:30-4:30; 8:45-10:15
X	WDFD	ak	100	K	Flint, Mich. E—7:00-mid
X	WGAL	ae	100	5	Lancaster, Pa. E—9:30-2:30; 4:30-6:00; 7:00-10:00
X	WGH	ae	100	.....	Newport News, Va. E—7:00-1:00; 5:00-11:00
X	WHAT	ak	100	4	Philadelphia, Pa. E—9:00-11:00; 1:00-2:00; 5:00-mid.
X	WIAS	ak	100	7	Ottumwa, Iowa. C—7:00-11:00
X	WJAC	ae	100	3	Johnstown, Pa. E—9:00-10:30; 4:30-8:45
X	WKBB	ae	100	.....	E. Dubuque, Ill. C
X	WKBC	ak	100	.....	Birmingham, Ala. C—7:00-10:00
X	WLBC	ak	100	6	Muncie, Ind. C—7:00-10:00
X	WMBO	ak	10	.....	Auburn N. Y. E—9:00-9:00
X	WNBH	ae	100	(.25)	New Bedford, Mass. E—8:00-2:00; 4:00-10:00
X	WOL	ae	100	.....	Washington, D. C. E—7:00-mid.
X	WRAW	ak	100	5	Reading, Pa. E—7:00-9:30; 6:00-7:00
X	WROL	ak	100	.....	Knoxville, Tenn. C—7:00-1:00; 4:00-11:00
X	WSAJ	ae	100	.....	Grove City, Pa. E—Silent
X	WSJS	ak	100	C	Winston-Salem, N. C. E—7:45-mid.
X	WTFL	ah	100	4	Philadelphia, Pa. E—7:00-9:00; noon-1:00
X	WTJS	ak	100	(.25)	Jackson, Tenn. C—7:00-2:00; 4:00-10:00
X	WTJC	ak	50	6 (.1)	Elkhart, Ind. C—6:00-7:30
X	XFBF	ak	100	1315	Monterrey, N. L. C—11:00-2:00; 6:00-mid.
X	XEI	ak	250	Morelia, Mich. C—2:00-3:30; 9:00-10:00

1320 kilocycles 227.1 meters

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	CMCY	ak	500	1325	Havana, Cuba. E
X	KGHF	ak	250	(.5)	Pueblo, Colo. M—6:30-9:30
X	KGMB	ak	250	C	Honolulu, T. H. L—6:00-11:00
X	KID	ae	250	(.5)	Idaho Falls, Idaho. M—6:00-11:00
X	WADC	ae	1000	C	Akron, Ohio. E—8:00-mid.
X	WSMB	ak	500	N	New Orleans, La. C—7:00-mid.

KCY5.

1340

DIAL

1330 kilocycles 225.4 meters

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	KMJI	ak	45	1335	Ciego de Avila, Cuba. E
X	KMB	agj	1000	CT	San Diego, Calif. P—7:00-1:00
X	KMO	ak	250	.....	Tacoma, Wash. P—6:45-11:00
X	KSCJ	aj	1000	1C (.2.5)	Sioux City, Iowa. C—7:30-11:00
X	WDRG	ae	1000	CH	Hartford, Conn. E—8:00-mid.
X	WSAI	ak	1000	R (.2.5)	Cincinnati, Ohio. E—8:00-mid.
X	WTAQ	ae	1000	1C	Eau Claire, Wis. C—7:00-8:00

1340 kilocycles 223.7 meters

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	KFPY	ak	1000	C	Spokane, Wash. P—6:45-mid.
X	KGDY	ak	250	Huron, S. D. C
X	KGNO	ak	250	Dodge City, Kans. C—6:30-9:00
X	WCOA	ae	500	.....	Pensacola, Fla. E—9:00-10:00
X	WLEC	z	250	(.5)	Portland, Maine. E—(Mail returned)
X	WSPD	ae	1000	C	Toledo, Ohio. E—7:00-1:00

CUT OUT
ON DOTTED LINES

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1350 kilocycles 222.1 meters

X KIDO	ak	1000	B	Boise, Idaho.	M-8:00-9:30			
X KWK	ak	1000	B	St. Louis, Mo.	C-7:00-mid.			
TGW	ak	500		.....	Guatemala City, Gua.	L-Noon-1:00; 6:00-7:00; 9:00-11:00			
X WAWZ	ae	250	1	.....	Zarephath, N. J.	E-6:00-9:00; 5:00-6:30			
X WBNX	ae	250	1	.....	New York, N. Y.	E-9:00-11:30			
X WEHC	ae	500	D	.....	Charlottesville, Va.	E			

1360 kilocycles 220.4 meters

X CMJP	ak	75		.....	Moron, Cuba.	E-10:00-noon; 8:00-10:00			
X KGER	ak	1000		.....	Long Beach, Calif.	P-6:00-mid.			
X KGR	ak	500	N(1)	.....	Butte, Mont.	M-7:00-mid.			
X WCSC	ae	500		.....	Charleston, S. C.	E-8:00-10:30; noon-2:00; 7:00-10:00			
X WFBL	ak	1000	C(2.5)	.....	Syracuse, N. Y.	E-6:00-9:00; 5:00-6:30			
X WGES	ae	500		.....	Chicago, Ill.	C-5:45-11:00; 5:00-8:00			
X WQBC	ak	500		.....	Vicksburg, Miss.	C			

1370 kilocycles 218.8 meters

X CMCN	z	250	1375	.....	Havana, Cuba.	E			
X CMCR	ak	150	1375	.....	Havana, Cuba.	E-noon-1:00; 4:00-5:00; 9:00-11:00			
X CMGE	z	30	1375	.....	Cardenas, Cuba.	E			
X KCRC	ak	100	2(.25)	.....	Enid, Okla.	C-6:00-9:00; 11:00-2:00; 5:00-7:45; 10:00-mid.			
X KFBL	ae	50	3	.....	Everett, Wash.	P-9:00-noon; 3:00-6:00; 9:00-mid.			
X KFJM	ak	100		.....	Grand Forks, N. D.	C-7:00-9:00			
X KFJZ	ae	100		.....	Fort Worth, Texas.	C-7:00-11:00			
X KGAR	ak	100	(.25)	.....	Tucson, Ariz.	M-7:00-9:00			
X KGEF	bk	100	2	.....	Oklahoma City, Okla.	C			
X KGFL	ak	100	4	.....	Roswell, N. M.	M-6:00-9:30; 2:00-7:30			
X KGKL	ak	100		.....	San Angelo, Texas.	C-8:00-4:30; 6:00-10:00			
X KICA	ak	100	4	.....	Clovis, N. M.	M-9:30-2:00; 7:30-9:30			
X KLUF	z	100		.....	Galveston, Texas.	C			
X KMAC	ak	100	5	.....	San Antonio, Texas.	C-7:00-8:30; 10:00-11:00; noon-1:30; 4:00-6:00; 7:00-8:00; 10:00-12:30			
X KONO	ak	100	5	.....	San Antonio, Texas.	C-6:00-7:00; 8:00-10:00; 11:00-noon; 1:30-4:00; 6:00-7:00; 8:00-10:00			
X KOOS	ae	100		.....	Marshfield, Ore.	P-7:00-9:00			
X KRE	ak	100		.....	Berkeley, Calif.	P-6:30-9:30; noon-3:00; 6:00-9:00			
X KSO	ak	100	B(.25)	.....	Des Moines, Iowa.	C-6:30-1:00			
X KUJ	ak	100		.....	Walla Walla, Wash.	P-6:45-9:00			
X KVL	ak	100	3	.....	Seattle, Wash.	P-6:00-9:00; noon-3:00; 6:00-9:00; mid.-1:30			
X KWKC	z	100		.....	Kansas City, Mo.	C			
X WBTM	ak	100	7	.....	Danville, Va.	E-8:00-1:00; 4:00-6:30			
X WCBM	ak	100	(.25)	.....	Baltimore, Md.	E-7:00-mid.			
X W DAS	ae	100	(.25)	.....	Philadelphia, Pa.	E-9:00-11:00			
X WGL	ae	100		.....	Fort Wayne, Ind.	C-6:30-mid.			
X WGLC	ak	100		.....	Hudson Falls, N. Y.	E-7:30-mid.			
X WHBD	ak	100		.....	Mount Orab, Ohio.	E-8:00-11:30; noon-9:00			
X WHBQ	ak	100		.....	Memphis, Tenn.	C-7:55-2:00; 4:00-10:30			
X WHDF	ak	100	(.25)	.....	Calumet, Mich.	E-7:00-9:00; 11:30-1:30; 5:30-8:30			
X WIBM	ae	100	1K	.....	Jackson, Mich.	E-7:30-9:00			
X WJBK	ae	50	1	.....	Detroit, Mich.	E-7:00-sunset; 9:00-mid.			
X WJTL	ae	100		.....	Atlanta, Ga.	E			
X WLEY	ak	100	(.25)	.....	Lexington, Mass.	E-Noon-3:00; 6:00-9:00			
X WLVA	ck	100	7	.....	Lynchburg, Va.	E-1:00-3:00; 6:30-11:00			
X WMBR	ak	100		.....	Tampa, Fla.	E-7:00-9:30			
X WPF	ak	100		.....	Hattiesburg, Miss.	C			
X WQDM	ae	100	D	.....	St. Albans, Vt.	E			
X WRAK	ak	100		.....	Williamsport, Pa.	E-8:30-3:00; 5:00-10:30			
X WRAM	ae	100		.....	Wilmington, N. C.	E-7:30-mid.			
X WRDO	ae	100		.....	Augusta, Maine.	E-9:00-1:00; 4:30-8:30			
X WRJN	ae	100		.....	Racine, Wis.	C-9:00-2:30; 4:00-10:30			
X WSYS	ak	50	D	.....	Buffalo, N. Y.	E-8:30-10:00; 2:00-3:00			
X XEFZ	ae	100		.....	Mexico City, D. F.	C			

1380 kilocycles 217.3 meters

X CMJC	z	150	1382	.....	Camaguey, Cuba.	E			
X KOH	ak	500	C	.....	Reno, Nev.	P-8:00-10:00			
X KOV	ak	500	2C	.....	Pittsburgh, Pa.	E-7:00-10:00			
X TGX	z	75		.....	Guatemala City, Guat.				
X WKBH	ae	1000	C	LaCrosse, Wis.	C-7:30-10:00			
X WSMK	ak	200	2	Dayton, Ohio.	E-7:00-8:00; 10:00-mid.			
X XETB	z	125		Torreón, Coah.				

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1390 kilocycles 215.7 meters

HIH	ak	15	1395	San Pedro de Macoris, D. R.	L-12:15-2:00
X KLRA	ae	1000	G	Little Rock, Ark.	C-7:00-mid.
X KOY	ae	500	(1)	Phoenix, Ariz.	M
X WHK	ae	1000	C(2.5)	Cleveland, Ohio.	E-7:00-mid.

1400 kilocycles 214.2 meters

KLO	ah	500	C	Ogden, Utah.	M-8:30-10:30
X KTUL	z	250	(.5)	Tulsa, Okla.	C
X VOGY	ak	75		St. John's, Nfld.	L-10:30-11:30; 1:00-2:00; 6:15-8:00
WARD	ak	500	j	Brooklyn, N. Y.	E
WBAA	z	500	1	Lafayette, Ind.	C-Silent
WBBC	ae	500	2	Brooklyn, N. Y.	E-1:30-4:00; 9:00-10:00
X WKBF	ak	500	1N	Indianapolis, Ind.	C-6:00-mid.
X WLTH	ak	500	2	Brooklyn, N. Y.	E-4:00-6:00; 10:00-mid.
X WVFV	ak	500	2	Brooklyn, N. Y.	E
X XEFV	ae	100	.....	Jaurex, Chih.	C-9:00-3:00; 5:00-11:00

1410 kilocycles 212.6 meters

CKFK	ak	50	5	Vancouver, B. C.	P-3:00-4:30
X CKMO	z	100	5	Vancouver, B. C.	P
CMCH	ak	50	.....	Havana, Cuba.	E
CMCM	z	15	.....	Havana, Cuba.	E
X KFLV	ak	500	4	Rockford, Ill.	C-10:00-12:30; 3:00-6:00; 8:00-10:00
X KGRS	ae	1000	1	Amarillo, Texas.	C-6-8; 10-12:30; 3-4:30; 6-7; 9-10
WAAB	ae	500	CH	Boston, Mass.	E-8:30-mid.
WBBC	ae	500	K	Bay City, Mich.	E-8:00-mid.
WDAG	ae	1000	1	Amarillo, Texas.	C-8-10; 12:30-3; 4:30-6; 7:30-9; 10-mid.
X WHBL	ae	500	4	Sheboygan, Wis.	C-7-10; 12:30-3; 6-8; 10-mid.
X WHIS	ak	250	2	Bluesfield, W. Va.	E-7:00-9:00; noon-3:00; 6:00-8:00
X WODX	ae	500	3C	Mobile, Ala.	C-7:00-6:15; 7:45-10:30
WRBX	ae	250	2	Roanoke, Va.	E
X WSEA	ck	500	3C	Montgomery, Ala.	C-6:00-7:45

1420 kilocycles 211.1 meters

X KABC	ak	100	.....	San Antonio, Texas.	C-6:00-mid.
X KBPS	aj	100	4	Portland, Ore.	P-11:00-12:30; 3:00-5:00
X CKMC	ak	100	.....	Texarkana, Ark.	C-7:00-2:00; 4:00-9:00
X KFIZ	ak	100	.....	Fond du Lac, Wis.	C-10:00-1:00; 4:00-10:00
X KGFF	ak	100	.....	Shawnee, Okla.	C-7:30-3:00; 5:00-9:00
X KGGC	ak	100	.....	San Francisco, Calif.	P-9:00-1:00; 4:00-9:00
X KGIW	ak	100	1	Alamosa, Colo.	M
X KGIX	ak	100	.....	Las Vegas, Nev.	M
X KICK	z	100	.....	Carter Lake, Iowa.	C
X KIDW	z	100	1	Lamar, Colo.	M-8:00-10:00; 7:00-10:00
X KORE	ae	100	.....	Eugene, Ore.	P-7:45-9:00
X KUMA	ak	100	.....	Yuma, Ariz.	M-7:00-9:00; 11:00-2:00; 6:00-10:00
X KWCR	ak	100	B(.25)	Cedar Rapids, Iowa.	C-7:00-Mid.
X KXL	ae	100	4	Portland, Ore.	P-7:00-1:00
X WACO	ak	100	C	Waco, Texas.	C-8:00-2:00; 5:00-10:30
X WAGM	ae	100	.....	Presque Isle, Maine.	E-11:00-1:00; 4:00-7:00
X WAMC	ae	100	.....	Anniston, Ala.	C-7:00-9:00
X WAZL	ak	100	2	Hazleton, Pa.	E-11:00-9:00
X WEED	ak	100	D	Greenville, N. C.	E-9:00-6:00
X WEHS	ak	100	a	Cicero, Ill.	C-4:00-6:00
X WELL	ak	50	.....	Battle Creek, Mich.	E-9:00-9:30
X WENC	ak	100	D	Americus, Ga.	C-7:00-6:15
X WHDL	ae	100	D	Tupper Lake, N. Y.	E
X WHFC	ae	100	a	Cicero, Ill.	C-7:00-1:30; 6:00-9:00; 11:00-1:00
X WILM	aj	100	2	Wilmington, Del.	E-7:00-11:00; 2:00-5:00; 9:00-mid.
X WJBO	z	100	D	Baton Rouge, La.	C
X WJMS	ak	100	.....	Ironwood, Mich.	C-7:30-1:30; 4:30-7:00
X WKBI	ak	100	a	Cicero, Ill.	C-1:30-4:00
X WLBFI	ak	100	.....	Kansas City, Kans.	C-7:00-11:00
X WMAS	ak	100	CH(.25)	Springfield, Mass.	E-8:00-mid.
X WMBG	ag	100	(.25)	Detroit, Mich.	E-7:30-mid.
X WMBH	ak	100	(.25)	Joplin, Mo.	C-7:30-2:00; 6:00-9:30
X WNRA	ak	100	D	Muscle Shoals, Ala.	C-7:00-10:00
X WPAD	ak	100	.....	Paducah, Ky.	C
X WSPA	ae	100	(.25)	Spartanburg, S. C.	E-7:30-2:00; 4:00-9:30
X WTBO	ae	100	(.25)	Cumberland, Md.	E-9:00-7:00

**KCYs.
1430
DIAL**

1430 kilocycles 209.7 meters

X CFCT	ae	50	Victoria, B. C.	P-8:00-12:30; 6:00-8:00; mid.-2.0'
X KECA	ak	1000	N	Los Angeles, Calif.	P-7:00-11:00

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KGNF	ak	500	D	North Platte, Neb.	C—7:00-sunset
WBAK	ak	500	1 (1)	Harrisburg, Pa.	E
WCAH	ae	500	1C	Columbus, Ohio.	E—8:00-mid.
WFEA	ae	500	CH	Manchester, N. H.	E—7:30-11:00
WHEC	ae	500	C	Rochester, N. Y.	E
WHP	ak	500	1C(1)	Harrisburg, Pa.	E—8:30-10:30; 11:30-1:30; 2:30-4:00; 4:30-1:00
WNBR	ae	500	.....	Memphis, Tenn.	C—8:00-1:00; 3:00-10:00
WOKO	ae	500	C	Albany, N. Y.	E—7:30-1:00

1440 kilocycles 208.2 meters

CMBL	ak	200	1445	Havana, Cuba.	E—Mail returned
KDFN	ak	500	.....	Casper, Wyo.	M—7:30-2:00; 3:30-9:00
KLS	ae	250	D	Oakland, Calif.	P—8:00-sunset
KXYZ	ak	250	.....	Houston, Texas.	C—6:30-1:00; 2:30-11:00
TIFS	z	7.5	1441	Cartago, C. R.	L
WBIG	ae	500	C(1)	Greensboro, N. C.	E—8:00-11:00
WCBA	aj	250	a	Allentown, Pa.	E—7:30-mid.
WMBD	ae	500	3C(1)	Peoria, Ill.	C—6:00-11:00, 8:00-mid.
WSAN	aj	250	a	Allentown, Pa.	E—7:30-mid.
WTAD	ak	500	3	Quincy, Ill.	C—11:00-8:00

1450 kilocycles 206.8 meters

CKX	ak	500	F	Brandon, Man.	C
KTBS	ck	1000	N	Shreveport, La.	C—7:00-mid.
TIEP	z	7.5	.....	San Jose, C. R.	L
WGAR	ak	500	B(1)	Cleveland, Ohio.	E—6:00-1:00
WHOM	ae	250	.....	Jersey City, N. J.	E—8:00-mid.
WSAR	ae	250	.....	Fall River, Mass.	E—8:00-3:30; 5:00-10:00
WTFI	ak	500	.....	Athens, Ga.	E—8:00-9:00
XEAB	ak	7.5	.....	Neuvo Laredo, Tams.	C—10:00-3:00; 4:00-7:00

1460 kilocycles 205.4 meters

KSTP	ae	10000	N (25)	St. Paul, Minn.	C—6:45-12:30
WJSV	ak	10000	C	Washington, D. C.	E—6:30-mid.

1470 kilocycles 204.0 meters

KGA	ak	500	N	Spokane, Wash.	P—6:00-mid.
WLAC	ae	500	C	Nashville, Tenn.	C—7:00-mid.

1480 kilocycles 202.6 meters

CMBK	z	15	1485	Havana, Cuba.	E
KOMA	ak	5000	C	Oklahoma City, Okla.	C—6:30-mid.
WKBW	ae	5000	C	Buffalo, N. Y.	E—10:00-1:00

1490 kilocycles 201.2 meters

WCKY	ae	5000	BY	Covington, Ky.	E—7:00-mid.
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1500 kilocycles 199.9 meters

CRCS	z	100	F	Chicoutimi, Que.	E—6:30-11:30
KDB	ak	100	CT	Santa Barbara, Calif.	P—7:30-mid.
KGFI	ak	100	(.25)	Corpus Christi, Tex.	C—7:00-3:00; 6:00-10:00
KGFK	ak	100	.....	Moorhead, Minn.	C—8:00-9:00
KGKB	ak	100	.....	Tyler, Texas.	C—8:00-10:00; noon-2:00; 5:00-6:00; 7:30-9:00
KGKY	ck	100	.....	Scottsbluff, Neb.	M—9:00-1:30; 5:00-9:00
KNOW	ak	100	.....	Austin, Texas.	C—7:30-2:00; 4:00-10:00
KPJM	ak	100	.....	Prescott, Ariz.	M—7:00-8:00
KPO	aj	100	.....	Wenatchee, Wash.	P—7:00-10:00
KREG	ak	100	.....	Santa Ana, Calif.	P—9:00-11:00
KXO	al	100	.....	El Centro, Calif.	P—7:00-2:00; 4:00-9:00
WENW	ak	100	i	Brooklyn, N. Y.	E—2:00-6:00; 10:00-1:00
WFDW	ak	100	.....	Rome, Ga.	C—7:00-10:00; noon-3:00; 6:00-9:00
WHEF	z	100	P (.25)	Kosciusko, Miss.	C
WKBV	z	100	.....	Richmond, Ind.	C
WKBZ	ak	100	.....	Ludington, Mich.	E—9:00-9:00
WKEU	ak	100	.....	LaGrange, Ga.	C—10:00-noon; 3:00-6:00
WMBQ	ae	100	i	Brooklyn, N. Y.	E—9:00-10:00; 6:00-8:00
WMPC	ak	100	.....	Lapeer, Mich.	E—10:00-2:00; 3:30-6:00; 7:00-10:30
WNBF	ae	100	.....	Binghamton, N. Y.	E—7:30-10:00
WOPI	ae	100	.....	Bristol, Tenn.	E—7:00-2:00; 3:00-8:00
WPEN	ck	100	(.25)AZ	Philadelphia, Pa.	E—7:30-10:00
WRDW	ae	100	.....	Augusta, Ga.	E
WSYB	ae	100	.....	Rutland, Vt.	E—10:00-1:00; 5:00-9:00
WWRL	ak	100	i	Woodside, N. Y.	E—8.9; 11.2; 8-10
WWSW	ae	100	(.25)	Pittsburgh, Pa.	E—8:00-11:45

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Frequency in kilocycles in second column. Night power in watts in third column. Network affiliations in fourth column: C Columbia, E National Red, B National Blue, N National Red and Blue. F Canadian.

<p>ALABAMA</p> <p>Anniston WAMC 1420 100</p> <p>Birmingham WAPI 1140 5000 N WBRC 930 500 C WKBC 1310 100</p> <p>Gadsden WJBY 1210 100</p> <p>Huntsville WBHS 1200 100</p> <p>Mobile WODX 1410 500 C</p> <p>Montgomery WSFA 1410 500 C</p> <p>Muscle Shoals WNRA 1420 100</p> <p>Troy WHET 1210 100</p> <p>ALASKA</p> <p>Anchorage KFQD 600 250</p> <p>Juneau KIFH 1310 100</p> <p>Ketchikan KGBU 900 500</p> <p>ARIZONA</p> <p>Jerome KCRJ 1310 100</p> <p>Lowell KSUN 1200 100</p> <p>Phoenix KOY 1390 500 KTRAR 620 500 N</p> <p>Prescott KPPM 1500 100</p> <p>Tucson KGAR 1370 100 KVOA 1260 500</p> <p>Yuma KUMA 1420 100</p> <p>ARKANSAS</p> <p>Blytheville KLCN 1290 100</p> <p>Fayetteville KUOA 1260 1000</p> <p>Fort Smith KFPW 1210 100</p> <p>Hot Springs KTHS 1040 10000 N</p> <p>Little Rock KARK 890 250 KGGH 1200 100 KLLRA 1390 1000 C</p> <p>Paragould KBTM 1200 100</p> <p>Texarkana KCMC 1420 100</p> <p>CALIFORNIA</p> <p>Bakersfield KERN 1200 100 C</p> <p>Berkeley KRE 1370 100</p> <p>Beverly Hills KMPC 710 500</p> <p>Burbank KELW 780 500</p> <p>El Centro KXO 1500 100</p> <p>Eureka KIEM 1210 100</p> <p>Fresno KMJ 580 500 C</p> <p>Glendale KIEV 850 100</p>	<p>Hollywood</p> <p>KFWB 950 1000 KMTR 570 500 KNX 1050 25000</p> <p>Long Beach</p> <p>KFOX 1250 1000 KGER 1360 1000</p> <p>Los Angeles</p> <p>KECA 1430 1000 N KFAC 1300 1000 KFI 640 50000 N KFSG 1120 500 KFVD 1000 250 KGFJ 1200 100 KHJ 900 1000 C KRKD 1120 500 KTM 780 500</p> <p>Oakland</p> <p>KLS 1440 250 KLX 880 1000 KROW 930 500</p> <p>Pasadena KPPC 1210 50</p> <p>Sacramento KFBK 1310 100 C</p> <p>San Bernardino KFXM 1210 100</p> <p>San Diego</p> <p>KFSD 600 1000 N KGB 1330 1000 C</p> <p>San Francisco</p> <p>KFRC 610 1000 C KFWI 930 500 KGGC 1420 100 KGO 790 7500 N KJBS 1070 100 KPO 680 50000 N KTAB 560 1000 KYA 1230 1000 N</p> <p>San Jose KQW 1010 500</p> <p>Santa Ana KREG 1500 100</p> <p>Santa Barbara KDB 1500 100 C</p> <p>Stockton KGDH 1100 250 KWG 1200 100 C</p> <p>COLORADO</p> <p>Alamosa KGIW 1420 100</p> <p>Colorado Springs KVOR 1270 1000 C</p> <p>Denver KFEL 920 500 KFXF 920 500 KLZ 560 1000 C KOA 830 12500 N KPOF 880 500</p> <p>Grand Junction KFXJ 1200 100</p> <p>Greeley KFKA 880 500</p> <p>Lamar KIDW 1420 100</p> <p>Pueblo KGHF 1320 250</p> <p>Yuma KGEK 1200 100</p> <p>CONNECTICUT</p> <p>Bridgeport WICC 600 250 C</p> <p>Hartford WDRG 1330 1000 C</p>	<p>WTIC 1060 50000 R</p> <p>Storrs WCAC 600 250</p> <p>DELAWARE</p> <p>Wilmington WDEL 1120 250 WILM 1420 100</p> <p>DISTRICT OF COLUMBIA</p> <p>Washington WJSV 1460 10000 C WMAL 630 250 B WOL 1310 100 WRC 950 500 R</p> <p>FLORIDA</p> <p>Clearwater WFLA 620 1000 N</p> <p>Gainesville WRUF 830 5000</p> <p>Jacksonville WJAX 900 1000 N</p> <p>Miami WIOD 1300 1000 N WQAM 560 1000 C</p> <p>Orlando WDBO 580 250 C</p> <p>Pensacola WCOA 1340 500</p> <p>St. Petersburg WSUN 620 1000 N</p> <p>Tampa WDAE 1220 1000 C WMBR 1370 100</p> <p>GEORGIA</p> <p>Americus WENC 1420 100</p> <p>Athens WTFI 1450 500</p> <p>Atlanta WGST 890 250 C WJTL 1370 100 WSB 740 50000 N</p> <p>Augusta WRDW 1500 100</p> <p>Columbus WRBL 1200 100</p> <p>LaGrange WKUE 1500 100</p> <p>Macon WMAZ 1180 500</p> <p>Rome WFDV 1500 100</p> <p>Savannah WTOC 1260 500 C</p> <p>Thomasville WQDX 1210 100</p> <p>HAWAII</p> <p>Hilo KWVF 1210 100</p> <p>Honolulu KGMB 1320 250 C KGU 750 2500 N</p> <p>IDAHO</p> <p>Boise KIDO 1350 1000</p> <p>Idaho Falls KID 1320 250</p> <p>Nampa KFSD 1200 100</p> <p>Pocatello KSEI 890 250</p> <p>Twin Falls KTFF 1240 1000</p> <p>ILLINOIS</p> <p>Carthage WCZA 1070 50</p>	<p>Chicago</p> <p>KYW 1020 10000 N WAAF 920 500 WBBM 770 25000 C WCFL 970 1500 B WCRW 1210 100 WEDC 1210 100 WENR 870 50000 N WGES 1360 500 WGN 720 50000 WJJD 1130 20000 WLS 870 50000 N WMAQ 670 5000 N WMBI 1080 5000 WSBC 1210 100</p> <p>Cicero WEHS 1420 100 WHFC 1420 100 WKBI 1420 100</p> <p>Decatur WJBL 1200 100</p> <p>East Dubuque WKBB 1310 100</p> <p>Harrisburg WEBQ 1210 100</p> <p>Joliet WCLS 1310 100</p> <p>LaSalle WJBC 1200 100</p> <p>Peoria WMBD 1440 500 C</p> <p>Quincy WTAD 1440 500</p> <p>Rockford KFLV 1410 500</p> <p>Rock Island WHBF 1210 100</p> <p>Springfield WCBS 1210 100 WTAX 1210 100</p> <p>Tuscola WDZ 1070 100</p> <p>Urbana WILL 890 250</p> <p>Zion WCBD 1080 5000</p> <p>INDIANA</p> <p>Anderson WHBU 1210 100</p> <p>Elkhart WTRC 1310 50</p> <p>Evansville WGBF 630 500</p> <p>Fort Wayne WGL 1370 100 C WOWO 1160 10000 C</p> <p>Gary WIND 560 1000 C</p> <p>Hammond WWAE 1200 100</p> <p>Indianapolis WFBM 1230 1000 C WKBF 1400 500 N</p> <p>Muncie WLBC 1310 100</p> <p>Richmond WKBV 1500 100</p> <p>South Bend WFAM 1200 100 C WSBT 1230 500 C</p> <p>Terre Haute WBOW 1310 100</p> <p>West Lafayette WBAA 1400 500</p>
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IOWA			Bangor			WRHM 1250 1000			WOW 590 1000 R		
Ames			WABI 1200	100		Moorhead			Scottsbluff		
WOI	640	5000	WLBZ 620	500 C		KGFK 1500	100		KGKY 1500	100	
Boone			Portland			Northfield			York		
KFGQ	1310	100	WCSH 940	1000 R		WCAL 1250	1000		KGBZ 930	500	
Cartier Lake			WLEC 1340	250		St. Paul			NEVADA		
KICK 1420	100		Presque Isle			KSTP 1460 10000 N			Las Vegas		
Cedar Rapids			WAGM 1420	100		MISSISSIPPI			KGIX 1420 100		
KWCR 1420	100 B		MARYLAND			Greenville			Reno		
Council Bluffs			Baltimore			WKFI 1210			KOH 1380		
KOIL 1260	1000 B		WBAL 1060	10000 B		Hattiesburg			NEW HAMPSHIRE		
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WSUI 880	500		Babson Park			Mississippi City			WPG 1100		
Marshalltown			WBSO 920	500		WGCM 1210			Camden		
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KMA 930	500		WNAC 1230	1000 C		Cape Girardeau			WAAM 1250		
Sioux City			Fall River			KFVS 1210			WGCP 1250		
KSCJ 1330	1000 C		WSAR 1450	250		Columbia			WOR 710		
Waterloo			Lexington			KFRU 630			Paterson		
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Abilene			WNBH 1310	100		WMBH 1420 100			WJBI 1210		
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Coffeyville			WBZA 990	1000 B		KMBC 950			WTNJ 1280		
KGGF 1010	500		WMAS 1420	100 C		KWKC 1370 100			Zarephath		
Dodge City			Worcester			KWDAF 610			WAZW 1350		
KGNO 1340	250		WORC 1280	500 C		WHB 860 500			NEW MEXICO		
Kansas City			WTAG 580	500 R		WQO 1300 1000			Albuquerque		
WLB 1420	100		MICHIGAN			St. Joseph			KGGM 1230		
Lawrence			Battle Creek			KFEU 680			KOB 1180		
KFRU 1220	500		WELL 1420	50		St. Louis			Clovis		
WREN 1220	1000 B		Bay City			KFUO 550			KIC 1370		
Manhattan			WBCM 1410	500		KMOX 1090			Roswell		
KSAC 580	500		Calumet			KSD 550			KGFL 1370		
Topeka			WHDF 1370	100		KWK 1350 1000 B			NEW YORK		
WIBW 580	1000 C		Detroit			KEW 760			Albany		
Wichita			WJBC 1370	50		KEW 760			WOKO 1430		
KFH 1300	1000 C		WJR 750	10000 B		KWL 1200			Auburn		
KENTUCKY			WMBC 1420	100		Springfield			WMO 1310		
Covington			WWJ 920	1000 R		KGXB 1310 100			Binghamton		
WCKY 1490	5000 B		WXYZ 1240	1000		KGIZ 560 500			WNBF 1500		
Louisville			East Lansing			MONTANA			Brooklyn		
WAVE 940	1000		WKAR 1040	1000		Billings			WARD 1400		
WHAS 820	50000 C		Flint			KGHL 950			WBBC 1400		
WLAP 1200	100		WFDF 1310	100		Butte			WBBR 1300		
Paducah			Grand Rapids			KGIR 1360			WCNW 1500		
WPAD 1420	100		WASH 1270	500		Great Falls			WLTH 1400		
LOUISIANA			WOOD 1270	500		KFBB 1280			WMBQ 1500		
Baton Rouge			Ironwood			Kalispell			WVFW 1400		
WJBO 1420	100		WJMS 1420	100		KGEZ 1310 100			Buffalo		
Monroe			Jackson			Missoula			WBEN 900		
KMLB 1200	100		WIBM 1370	100		KGVO 1200			WEBR 1310		
New Orleans			Kalamazoo			Wolf Point			WGR 550		
WBBX 1200	100		WKZO 590	1000		KGXC 1310 100			WKBW 1480		
WDSU 1250	1000 C		Lapeer			NEBRASKA			WSVS 1370		
WJBW 1200	100		WMPC 1500	100		Clay Center			Canton		
WSMB 1320	500 N		WLBG 1500	100		KMMJ 740			WCAD 1220		
WWL 850	10000		Marquette			Kearney			Chester		
Shreveport			WBEO 1310	100		KGFV 1310			WGNV 1210		
KRMD 1310	100		Royal Oak			Lincoln			Elmira		
KTBS 1450	1000 N		WEXL 1310	50		KFAB 770			WESG 1040		
KWEA 1210	100		MINNESOTA			KFOR 1210			Freeport		
KWKH 850	10000		Fergus Falls			Norfolk			WGBB 1210		
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			WDGY 1180	1000		Omaha			WOCL 1210		
			WLB 1250	1000		WAAW 660			50		

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WBNX 1350 250	WGAR 1450 500 B	Lancaster	WGAL 1310 100	Bristol	WOPI 1500 100
WBQO 860 50000 C	WHK 1390 1000 C	WGCJ	WKJC 1200 100	Chattanooga	WDOD 1280 1000 C
WEAF 660 50000 R	WJAY 610 500	Philadelphia	WCAU 1170 50000 C	Jackson	WTJS 1310 100
WEVD 1300 500	WTAM 1070 50000 R	WCAU	WDAU 1370 100	Knoxville	WNOX 560 1000 C
WFAB 1300 1000	Columbus	WFI	WFAT 1310 100	WROL	WROL 1310 100
WHN 1010 250	WAIU 640 500	WLP	WLIT 560 500 R	Memphis	WHBQ 1370 100
WINS 1180 500	WCAH 1430 500 C	WLP	WPEN 1500 100	WMC	WMC 780 500 N
WJZ 760 50000 B	WOSU 570 750	WRAX	WTEL 1310 100	WNBR	WNBR 1430 500
WLWL 1100 5000	Dayton	Pittsburgh	KDKA 980 50000 B	WREC	WREC 600 500 C
WMCA 570 500	WSMK 1380 200	KOV	KOV 1380 500 C	Nashville	WLAC 1470 5000 C
WNYC 810 500	Mount Orab	WCAE	WCAE 1220 1000 R	WSM	WSM 650 50000 N
WOP 1130 1000	WHBD 1370 100	WJAS	WJAS 1290 1000 C	Springfield	WSIX 1210 100
WPAP 1010 250	Toledo	WWSW	WWSW 1500 100	TEXAS	
WQAO 1010 250	WSPD 1340 1000 C	Reading	WEEU 830 1000	Amarillo	KGRS 1410 1000
WRNY 1010 250	Youngstown	WRW	WRW 1310 100	WADAG	WADAG 1410 1000
Rochester	WKBN 570 500 C	Scranton	WGBI 880 250	Austin	KNOW 1500 100
WHAM 1150 50000 B	Zanesville	WQAN	WQAN 880 250	Baumont	KFDM 560 500
WHEC 1430 500 C	WALR 1210 100	Silverhaven	WNBO 1200 100	Brownsville	KWVC 1260 500
Saranac Lake		Sunbury	WKOK 1210 100	Collage Station	WTAW 1120 500
WNBZ 1290 50	OKLAHOMA	Wilkes-Barre	WBAX 1210 100	Corpus Christi	KGET 1500 100
Schenectady	Eik City	WBR	WBR 1310 100	Dallas	KRLD 1040 10000 C
WGY 790 50000 R	KASA 1210 100	Williamsport	WRAX 1370 100	WFAA	WFAA 800 50000 N
Syracuse	Enid	WORK	WORK 1000 1000	WRR	WRR 1280 500 C
WFBL 1360 1000 C	KCRC 1370 100	PHILIPPINES		KFPL	KFPL 1310 100
WSYR 570 250 B	Norman	Manila	KZEG 618.5 1000	El Paso	KTSM 1310 100
Troy	WNAD 1010 500	KZRM	KZRM 618.5 50000	WDAH	WDAH 1310 100
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Tupper Lake	KFXR 1310 100	San Juan	WKAQ 1240 1000	KAT	KAT 1240 1000 C
WHDL 1420 100	KGFG 1370 100	RHODE ISLAND		WBAP	WBAP 800 50000 N
Utica	KOMA 1480 5000 C	Providence	WEAN 780 500 C	Galveston	KLUF 1370 100
WIBX 1200 100	WKY 900 1000 N	WJAR	WJAR 890 500 R	Greenville	KFPM 1310 15
White Plains	Ponca City	WPRO	WPRO 1210 100	Harlingen	KRGV 1260 500
WFAS 1210 100	WBBZ 1200 100	SOUTH CAROLINA		Houston	KPRC 920 1000 N
Woodside	Shawnee	Charleston	WCSC 1360 500	KTRH	KTRH 1120 1000 C
WWRL 1500 100	KGFF 1420 100	Columbia	WIS 1010 500 N	KXYZ	KXYZ 1440 250
NORTH CAROLINA	Tulsa	Greenville	WFBC 1200 100	Lubbock	KFYO 1310 100
Asheville	KTUL 1400 250	Spartanburg	WSPA 1420 100	San Angelo	KGKL 1370 100
WWNC 570 1000 N	KVOO 1140 25000 N	SOUTH DAKOTA		San Antonio	KABC 1420 100
Charlotte	OREGON	Brookings	KFDY 550 500	KMAC	KMAC 1370 100
WBT 1080 50000 C	Corvallis	Huron	KGDY 1340 250	KONO	KONO 1370 100
WSOC 1210 100 N	KOAC 550 1000	Pierre	KGFX 630 200	KTSA	KTSA 1290 1000 C
Greensboro	Eugene	Rapid City	WCAT 1200 100	WOAI	WOAI 1190 50000 N
WBIG 1440 500 C	KORE 1420 100	Sioux Falls	KSOO 1110 1000	Tyler	KGKB 1500 100
Greenville	Klamath Falls	Vermillion	KUSD 890 500	Waco	WACO 1420 100 C
WEED 1420 100	KFJL 1210 100	Watertown	KGCR 1210 100	Wichita Falls	KGKO 570 250
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KFYR 550 1000 N	KFJR 1300 500				
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KDLR 1210 100	KOIN 940 1000 C				
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SHORT WAVE RELAY BROADCASTING STATIONS

Grouped According to Network Programs Transmitted

Frequency in megacycles in first column, wavelength in meters in second column, schedule in third column, time being EST. The location of the broadcast band station is given in parentheses following the geographical location of the short wave transmitter.

COLUMBIA BROADCASTING SYSTEM

W2XE-WABC, Wayne, N. J. (New York, N. Y.)	W3XAL-WJZ, Boundbrook, N. J. (New York, N. Y.)
15.258 19.65 11 a.m. to 1 p.m.	17.772 16.87 12:30 to 6:30 p.m., except Sat.
11.823 25.38 3 p.m. to 5 p.m.	6.096 49.17 Sat.-day 3 p.m. to midnight
6.116 49.02 6 to 11 p.m.	W3XL-WJZ, Boundbrook, N. J. (New York, N. Y.)
W3XAU-WCAU, Byberry, Pa. (Philadelphia, Pa.)	6.425 46.66 Fri., 5 p.m. to 1 a.m.
9.585 31.28 Noon to 6 p.m.	W8XK-KDKA, Saxtonburg, Pa. (Pittsburgh, Pa.)
6.057 49.50 8 p.m. to 1 a.m.	21.451 13.93 7 a.m. to 2 p.m.

NATIONAL "RED" NETWORK

W1XAL-WEEI Boston, Mass. (Boston, Mass.)	W8XAL-WLW, Mason, Ohio (Cincinnati, Ohio)
15.242 19.67 Sunday, 10 a.m. to 1 p.m.	6.060 49.48 Irregular
11.780 25.45 Sat., 5:30 to 11 p.m.; Sun., 6:30-8:30 p.m.	W9XF-WENT, Downer's Grove, Ill. (Chicago, Ill.)
W2XAD-WGY, Schenectady, N. Y. (Schenectady, N. Y.)	6.100 49.15 Sat., silent; Sun., 1 to 2:30 p.m., 4:30 to 7 p.m., 9 p.m. to 2 a.m.; other days, 4:30 to 8 p.m., 9:30 p.m. to 2 a.m.
15.320 19.57 Mon., Wed., Fri., Sun., 4-5 p.m.	
W2XAF-WGY, Schenectady, N. Y. (Schenectady, N. Y.)	
9.530 31.46 7:45 to 11 p.m.	
W9XAA-WCFI, Chicago, Ill. (Chicago, Ill.)	
17.780 16.86 Very Irregular	
11.840 25.35 Irregular	
6.076 49.34 3 to 6 p.m.	

NATIONAL "BLUE" NETWORK

W1XAZ-WBZ-WBZA, Millis, Mass. (Boston and Springfield, Mass.)	W9XAL-WLW, Mason, Ohio (Cincinnati, Ohio)
9.500 31.36 6 a.m. to midnight	6.060 49.48 Irregular

W8XAL-WLW, Mason, Ohio (Cincinnati, Ohio)	W9XAL-WLW, Mason, Ohio (Cincinnati, Ohio)
6.060 49.48 Irregular	6.060 49.48 Irregular
W9XF-WENT, Downer's Grove, Ill. (Chicago, Ill.)	6.100 49.15 Sat., silent; Sun., 1 to 2:30 p.m., 4:30 to 7 p.m., 9 p.m. to 2 a.m.; other days, 4:30 to 8 p.m., 9:30 p.m. to 2 a.m.

NATIONAL "RED" AND "BLUE" NETWORK

VE9DR-CFCF, Montreal, Quebec (Montreal, Quebec)	VE9GW-CRCT, Bowmanville, Ont. (Toronto, Ontario)
6.005 48.93 Sun., noon to 11:15 p.m. Other days, 7:30 a.m. to midnight	6.092 49.22 Thurs., 7 a.m. to 4 p.m.; Fri. and Sat., 3 to 11 p.m.; Sun., 11 a.m. to 8 p.m.
W4XB-WIOD, Miami Beach, Fla. (Miami Beach, Fla.)	W4XB-WIOD, Miami Beach, Fla. (Miami Beach, Fla.)
6.036 49.67 Irregular	6.036 49.67 Irregular
W8XAL-WLW, Mason, Ohio (Cincinnati, Ohio)	W9XF-WENT, Downer's Grove, Ill. (Chicago, Ill.)
6.060 49.48 Irregular	6.100 49.15 Sat., silent; Sun., 1 to 2:30 p.m., 4:30 to 7 p.m., 9 p.m. to 2 a.m.; other days, 4:30 to 8 p.m., 9:30 p.m. to 2 a.m.

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CFAC 930 500 Calgary, Alta. Calgary Herald.	CKCH 1210 100 Hull, Que. Dr. J. L. Chabot.
CFBO 1210 100 St. John, N. B. C. A. Munro, Ltd.	CKCK 1010 500 Regina, Sask. Leader-Post, Ltd.
CFCF 800 500 Montreal, Que. Canadian Marconi Co.	CKCL 580 100 Toronto, Ont. Dominion Battery Co., Ltd.
CFCH 930 100 North Bay, Ont. Northern Broadcasting Co., Ltd.	CKCO 1010 100 Ottawa, Ont. Dr. G. M. Geldert.
CFGN 1030 10000 Calgary, Alta. Voice of the Prairies, Ltd.	CKCR 645 100 Kitchener, Ont. William C. Mitchell and G. Liddle.
CFGO 600 100 Chatham, Ont. John Beardall.	CKCV 1310 50 Quebec, Que. Vandry, Inc.
CFGT 1430 50 Victoria, B. C. Victoria Broadcasting Assn.	CKFC 1410 50 Vancouver, B. C. Radio Service Engineers, Ltd.
CFCY 630 500 Charlottetown, P. E. I. Island Radio Broadcasting Co., Ltd.	CKIC 1010 50 Wolfville, N. S. Acadia University.
CFJC 1310 100 Kamloops, B. C. Review Publishing Co., Ltd.	CKLW 840 500 Windsor, Ont. Western Ontario Broadcasting Co., Ltd.
CFLC 930 100 Prescott, Ont. Radio Assn. of Prescott.	CKMC 1210 100 Cobalt, Ont. R. L. MacAdam.
CFNB 1030 500 Fredericton, N. B. James S. Neill & Sons, Ltd.	CKMO 1410 100 Vancouver, B. C. Sprott-Shaw Radio Co.
CFPL 730 100 London, Ont. Free Press & Printing Co., Ltd.	CKNC 1030 100 Toronto, Ont. Canadian National Carbon Co., Ltd.
CFQC 1230 500 Saskatoon, Sask. Electric Shop, Ltd.	CKOC 1120 1000 Hamilton, Ont. Wentworth Radio Broadcasting Co., Ltd.
CFRB 690 10000 Toronto, Ont. Canadian Radio Corp., Ltd.	CKOV 1210 100 Kellowna, B. C. Okanagan Broadcasters, Ltd., Box 243.
CFRC 915 100 Kingston, Ont. Queens University.	CKPC 930 100 Preston, Ont. Cyrus Dolph.
CHCK 1310 100 Charlottetown, P. E. I. J. A. Geesner.	CKPR 780 100 Fort William, Ont. Dougall Motor Co., Ltd.
CHGS 1120 100 Summerside, P. E. I. R. T. Holman, Ltd.	CKTB 1200 100 St. Catharines, Ont. E. T. Sandell.
CHLP 1120 100 Montreal, Que. La Patrie Publishing Co., Ltd.	CKUA 580 500 Edmonton, Alta. University of Alberta.
CHMA 580 250 Edmonton, Alta. Christian and Missionary Alliance.	CKWX 1010 100 Vancouver, B. C. Western Broadcasting Co., Ltd.
CHML 1010 50 Hamilton, Ont. Maple Leaf Radio Co., Ltd.	CKX 1450 500 Brandon, Man. Manitoba Telephone System.
CHNC 1210 100 New Carlisle, Que. Dr. Charles Houde.	CKY 910 5000 Winnipeg, Man. Manitoba Telephone System.
CHNS 1050 500 Halifax, N. S. Maritime Broadcasting Co., Ltd.	CMAB 1249 20 Pinar del Rio, Cuba. Jose Silvera, Marti No. 101.
CHRC 930 100 Quebec, Que. CHRC, Ltd.	CMAF 680 1000 Havana, Cuba. International Broadcasting Co., Miramar.
CHWC 1010 500 Regina, Sask. R. H. Williams & Sons, Ltd.	CMBC 1270 150 Havana, Cuba. Domingo Fernandez, Maximo Gomez No. 139.
CHWK 780 100 Chilliwack, B. C. Chilliwack Broadcasting Co., Ltd.	CMBD 985 250 Havana, Cuba. Luis Perez Garcia, Enamorados y Flores.
CJCA 730 500 Edmonton, Alta. Edmonton Journal, Ltd.	CMBG 1070 225 Havana, Cuba. John L. Stowers, Hospital No. 100
CJCB 880 50 Sydney, N. S. Nathanson's Radio Headquarters.	CMBJ 1140 500 Havana, Cuba. Emilio Perera, Consulado y Virtudes.
CJCJ 890 500 Calgary, Alta. Albertan Publishing Co., Ltd.	CMBK 1495 15 Havana, Cuba. Alberto Alvarez, Paula y Oficios.
CJCS 780 500 Sudbury, Ont. George McLeod Cootes	CMBL 1445 200 Havana, Cuba. Julio C. Hidalgo, Vedado.
CJGX 830 500 Yorkton, Sask. Winnipeg Grain Exchange.	CMBN 1185 150 Havana, Cuba. G. de Sequeira, Agrimonte No. 32
CJOC 840 100 Lethbridge, Alta. H. R. Carson, Ltd.	CMBS 780 200 Havana, Cuba. Enrique Artalejo, Calzada y H. St.
CJOR 1210 500 Vancouver, B. C. G. C. Chandler.	CMBW 1140 600 Havana, Cuba. Alvarez, Moris y Cia, Obrapia No. 13.
CJRM 540 500 Moose Jaw, Sask. James Richardson & Sons, Ltd.	CMBY 1230 250 Havana, Cuba. Callejas-Estefani, Principe No. 33.
CJRW 540 500 Fleming, Sask. James Richardson & Sons, Ltd.	CMCZ 1010 150 Havana, Cuba. Manuel y G. Salas, San Rafael No. 14.
CKAC 730 5000 Montreal, Que. LaPresse Publishing Co., Ltd.	CMC 840 500 Havana, Cuba. Radio Corp. of Cuba.
CKCD 1010 100 Vancouver, B. C. Vancouver Daily Province.	CMCA 1230 150 Havana, Cuba. Manuel Cruz, Ave. de Italia No. 102.

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CMCB 1070	150	Havana, Cuba.
Metropolitan-Radio de Cuba.		
CMCD 925	500	Havana, Cuba.
Angel Bertematy.		
CMCF 890	250	Havana, Cuba.
Raoul Karman.		
CMCH 1410	50	Havana, Cuba.
Wifredo y Humberto Fontanals Sanchez.		
CMCJ 1185	600	Havana, Cuba.
Rafael Rodriguez, Estevez No. 4.		
CMCM 1410	15	Havana, Cuba.
Aurelio Balino, Belas Coain No. 639.		
CMCN 1375	250	Havana, Cuba.
Antonio Ginard, Reina y Ave. Buen Retiro		
CMCP 1270	150	Havana, Cuba.
Jose A. Yanis		
CMCQ 780	1000	Havana, Cuba.
Andres Martinez, Vista Alegre No. 80.		
CMCR 1375	150	Havana, Cuba.
Aurelio Hernandez.		
CMCU 1100	500	Havana, Cuba.
Jorge Garcia Serra.		
CMCW 965	150	Havana, Cuba.
Vilarino y Cervantes.		
CMCY 1325	500	Havana, Cuba.
Manuel D. Autran, Ave. de la Pdt s.215.		
CMDD 588	150	Havana, Cuba.
G. de Sequira		
CMDE 925	150	Havana, Cuba.
Radio Aerial Ad.		
CMGA 834	100	Colon, Cuba.
L. Valdes Figueras, Marti No. 19.		
CMGB 1205	30	Matanzas, Cuba.
Jose Anorga, Magdalena No. 1.		
CMGC 820	30	Matanzas, Cuba.
Oscar S. Mechoso, Independencia No. 56.		
CMGE 1375	30	Cardenas, Cuba.
Genaro Sebatier, Cespedes No. 180.		
CMGF 977	100	Matanzas, Cuba.
Bernabe R. de la Torre.		
CMGH 1040	15	Matanzas, Cuba.
Octavio y Julio Alvarez.		
CMHD 950	500	Caibarien, Cuba.
Manuel Alvarez, M. Escobar 17.		
CMHI 1037	250	Santa Clara, Cuba.
Lavis y Paz.		
CMHJ 1125	50	Cienfuegos, Cuba.
Victorino Lopez Hontanon.		
CMHK 1225	50	Cruces, Cuba.
Virgilio Villaneuva Fernandez.		
CMHL 1290	20	Cienfuegos, Cuba.
Oscar Zayas, San Carlos 143.		
CMHW 1200	100	Cienfuegos, Cuba.
San Carlos No. 106		
CMJC 1382	150	Camaguey, Cuba.
Feliciano Isaac, Cisneros y G. Gomez.		
CMJE 1175	50	Camaguey, Cuba.
Manuel Fernandez, Plaza de Maceo.		
CMJF 930	200	Camaguey, Cuba.
John L. Stowers, Hotel Plaza.		
CMJG 1050	50	Camaguey, Cuba.
Jose Antonio Lefran, Martires 133.		
CMJH 1150	50	Ciego de Avila, Cuba.
Luis Marauri Mendosa.		
CMJI 1335	45	Ciego de Avila, Cuba.
Gilberto Gessa Lopez, Independencia 95.		
CMJK 790	500	Camaguey, Cuba.
Compania Cubana Nacional de Radio S. A.		
CMJL 960	50	Camaguey, Cuba.
Enrique Artime, Cuba No. 27.		
CMJN 1240	50	Camaguey, Cuba.
Ernesto de Ugarriza, Martires 11.		

CMJO 1010	50	Ciego de Avila, Cuba.
Jose M. Rey, C. Central & Maceo.		
CMJP 1390	75	Moron, Cuba.
Cesar Canall, Callejas No. 28.		
CMK 730	5000	Havana, Cuba.
National Broadcasting Co. of Cuba.		
CMKC 1034	150	Sancti Spiritus, Cuba.
Pinol Batlle y Co.		
CMKJ 1300	20	Guantanamo, Cuba.
Luis Morlote, East Giro 11.		
CMQ 630	500	Havana, Cuba.
Jose Fernandez, 25 Numero 445.		
CMW 590	1400	Havana, Cuba.
Troncoso y Gil, Paseo de Marti 103.		
CMX 890	1000	Havana, Cuba.
Casa "Lavin," Ave. de la Republica 99A.		
CRCM 910	5000	Montreal, Que.
Canadian Radio Broadcasting Commission		
CRCO 880	1000	Ottawa, Ont.
Canadian Radio Broadcasting Commission.		
CRCS 1500	100	Chicoutimi, Que.
Canadian Marconi Co., Ltd.		
CRCT 960	5000	Toronto, Ont.
Canadian Radio Broadcasting Commission.		
CRCV 1100	500	Vancouver, B. C.
Canadian Radio Broadcasting Commission.		
FQN 572	250	St. Pierre, Mig.
HHK 920	1000	Port-au-Prince, Haiti.
Haitian Government.		
HIH 1395	15	San Pedro de M., D. R.
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HIJ 1195	15	Santo Domingo, D. R.
Tuto Baez, Hostos 34		
HIX 580	1500	Santo Domingo, D. R.
J. R. Saladin, Director General		
HIZ 1300	10	Santo Domingo, D. R.
Abbes and Garcia		
HJN 681	500	Bogota, Colombia
Government of Colombia, National Library.		
KABC 1420	100	San Antonio, Texas.
Alamo Broadcasting Co., Inc.		
KALE 1300	500	Portland, Ore.
Kale, Inc., New Heathman Hotel		
KARK 890	250	Little Rock, Ark.
Arkansas Radio & Equipment Co.		
KASA 1210	100	Elk City, Okla.
E. M. Woody, Casa Grande Hotel.		
KBPS 1420	100	Portland, Ore.
Benson Polytechnic School		
KBTM 1200	100	Paragould, Ark.
Jay P. Beard.		
KCMC 1420	100	Texarkana, Ark.
M. P. Mims, Box 865.		
KCRC 1370	100	Enid, Okla.
Enid Radiophone Co.		
KCRJ 1310	100	Jerome, Ariz.
Chas. C. Robinson, Drawer D.		
KDB 1500	100	Santa Barbara, Calif.
Santa Barbara Broadcasters, Ltd.		
KDFN 1440	500	Casper, Wyo.
Donald Lewis Hathaway.		
KDKA 980	50000	Pittsburgh, Pa.
Westinghouse Electric & Mfg. Co.		
KDLR 1210	100	Devils Lake, N. D.
KDLR, Inc., 1025 3rd Street.		
KDYL 1290	1000	Salt Lake City, Utah.
Intermountain Broadcasting Corp.		
KECA 1430	1000	Los Angeles, Calif.
Earle C. Anthony, Inc.		
KELW 780	500	Burbank, Calif.
Magnolia Park, Ltd., 3702 Magnolia		

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KERN 1200 100 Bakersfield, Calif. Bee Bakersfield Broadcasting Co.	KFSQ 1120 500 Los Angeles, Calif. Echo Park Evangelistic Assn.
KEX 1180 5000 Portland, Ore. National Broadcasting Co.	KFUO 650 600 St. Louis, Mo. Evangelical Lutheran Church.
KFAB 770 5000 Lincoln, Neb. KFAB Broadcasting Co.	KFVD 1000 250 Los Angeles, Calif. E. L. Cord, 645 S. Mariposa.
KFAC 1300 1000 Los Angeles, Calif. E. L. Cord, 645 So. Mariposa.	KFVS 1210 100 Cape Girardeau, Mo. Oscar C. Hirsch, Box 275.
KFBB 1280 1000 Great Falls, Mont. Buttrey Broadcast, Inc.	KFWB 950 1000 Hollywood, Calif. Warner Bros. Motion Pictures, Inc.
KFBI 1050 5000 Abilene, Kans. Farmers & Bankers Life Ins. Co.	KFWI 930 600 San Francisco, Calif. Radio Entertainments, Ltd.
KFBK 1310 100 Sacramento, Calif. James McClatchy Publishing Co.	KFXD 1200 100 Nampa, Idaho. Frank E. Hurt, 1024 12th Ave., S.
KFBL 1370 50 Everett, Wash. Leese Bros., 2814 Rucker Ave.	KFXF 920 500 Denver, Colo. Colorado Radio Corp.
KFDM 580 500 Beaumont, Texas. Sabine Broadcasting Co.	KFXJ 1200 100 Grand Jct., Colo. Western Slope Broadcasting Co.
KFDY 550 600 Brookings, S. D. South Dakota State College.	KFXM 1210 100 San Bernardino, Calif. Lee Bros. Broadcasting Co.
KFEL 920 500 Denver, Colo. Eugene P. O'Fallon, Inc.	KFXR 1310 100 Oklahoma City, Okla. Exchange Avenue Baptist Church.
KFEQ 680 2500 St. Joseph, Mo. Seroggin & Co. Bank	KFYO 1310 100 Lubbock, Texas. Kirksey Bros., Hotel Lubbock.
KFGQ 1310 100 Boone, Iowa. Boone Biblical College.	KFYR 550 1000 Bismarck, N. D. Mayer Broadcasting Co.
KFH 1300 1000 Wichita, Kans. Radio Station KFH Co.	KGA 1470 6000 Spokane, Wash. Northwest Broadcasting Co., Inc.
KFI 640 50000 Los Angeles, Calif. Earle C. Anthony, Inc.	KGAR 1370 100 Tucson, Ariz. Tucson Motor Service Co.
KFIO 1120 100 Spokane, Wash. Spokane Broadcasting Corp.	KGB 1330 1000 San Diego, Calif. Don Lee Broadcasting System
KFIZ 1420 100 Fond du Lac, Wis. Reporter Printing Co.	KGBU 900 500 Ketchikan, Alaska. Alaska Radio & Service Co., Inc.
KFJB 1200 100 Marshalltown, Iowa. Marshall Electric Co.	KGBX 1310 100 Springfield, Mo. KGBX, Inc.
KFJI 1210 100 Klamath Falls, Ore. KFJI Broadcasters, Inc., Willard Hotel.	KGBZ 930 500 York, Neb. Dr. Geo. R. Miller, 715 Grant Ave.
KFJM 1370 100 Grand Forks, N. D. University of North Dakota.	KGCA 1270 100 Decorah, Iowa Charles W. Greenley
KFJR 1300 500 Portland, Ore. Ashley C. Dixon-KFJR, Inc.	KGCR 1210 100 Watertown, S. D. Greater Kampeska Radio Corp.
KFJZ 1370 100 Fort Worth, Texas. Fort Worth Broadcasters, Inc.	KGCU 1240 250 Mandan, N. D. Mandan Radio Assn.
KFKA 880 500 Greeley, Colo. Mid-Western Radio Corp.	KGCX 1310 100 Wolf Point, Mont. E. E. Krebsbach.
KFKU 1220 500 Lawrence, Kans. University of Kansas.	KGDE 1200 100 Fergus Falls, Minn. C. L. Jaren.
KFLV 1410 500 Rockford, Ill. Rockford Broadcasters, Inc.	KGDM 1100 250 Stockton, Calif. E. F. Peffer, 42 S. Calif. St.
KFNF 890 500 Shenandoah, Iowa. Henry Field Co.	KGDY 1340 250 Huron, S. D. Voice of S. D., Inc., 347 Dakota Ave.
KFOR 1210 100 Lincoln, Neb. Howard Shuman	KGEK 1200 100 Yuma, Colo. Elmer G. Beehler, 109 W. 2nd St.
KFOX 1250 1000 Long Beach, Calif. Nicholas & Warinner, Inc.	KGER 1360 1000 Long Beach, Calif. Consolidated Broadcasting Co.
KFPL 1310 100 Dublin, Texas. C. C. Baxter, Box 176	KGEZ 1310 100 Kalispell, Mont. Donald C. Treloar, Box 1.
KFPM 1310 15 Greenville, Texas. New Furniture Co.	KGFF 1420 100 Shawnee, Okla. KGFF Broadcasting Co., Inc.
KFPW 1210 100 Fort Smith, Ark. Southwestern Hotel Co.	KGFG 1370 100 Oklahoma City, Okla. Oklahoma Broadcasting Co., 1113 N. Broadway.
KFPY 1340 1000 Spokane, Wash. Symons Broadcasting Co.	KGFI 1500 100 Corpus Christi, Texas. Eagle Broadcasting Co., Inc.
KFQD 600 250 Anchorage, Alaska Anchorage Radio Club, Inc.	KGFJ 1200 100 Los Angeles, Calif. Ben S. McGlashan, 1417 S. Figueroa.
KFRC 610 1000 San Francisco, Calif. Don Lee, Inc.	KGFK 1500 100 Moorhead, Minn. Red River Broadcasting Co., Inc.
KFRU 630 500 Columbia, Mo. KFRU, Inc., 9th and Elm Sts.	KGFL 1370 100 Roswell, N. M. KGFL, Inc., 507 N. Main St.
KFSD 600 1000 San Diego, Calif. Airfan Radio Corp., Ltd.	KGFW 1310 100 Kearney, Neb. Central Nebraska Broadcasting Corp.

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KGFX 630 200 Pierre, S. D. Dana McNeil, 510 Summit Ave.	KJR 970 5000 Seattle, Wash. Fishers Blend Station, Inc.
KGGC 1420 100 San Francisco, Calif. Golden Gate Broadcasting Co.	KLCN 1290 100 Blytheville, Ark. C. L. Lintzenh, Main and Division St.
KGGF 1010 500 Coffeyville, Kans. Hugh J. Powell and Stanley Plata.	KLO 1400 500 Ogden, Utah. Interstate Broadcasting Co.
KGGM 1230 250 Albuquerque, N. M. New Mexico Broadcasting Co.	KLPM 1240 250 Minot, N. D. John B. Cooley.
KGHF 1320 250 Pueblo, Colo. C. P. Ritchie & Geo. J. Ikelman	KLRA 1390 1000 Little Rock, Ark. Arkansas Broadcasting Co.
KGHI 1200 100 Little Rock, Ark. Lloyd Judd Co., Marion Hotel.	KLS 1440 250 Oakland, Calif. Warner Bros., 2201 Telegraph Ave.
KGHL 950 1000 Billings, Mont. Northwestern Auto Supply Co.	KLUF 1370 100 Galveston, Texas. Geo. R. Clough, 3327 Ave. P.
KGIR 1360 500 Butte, Mont. KGIR, Inc., 121 W. Broadway.	KLX 880 1000 Oakland, Calif. Tribune Building Co.
KGIW 1420 100 Alamosa, Colo. Leonard E. Wilson, 326 N. Commercial	KLZ 560 1000 Denver, Colo. Reynolds Radio Co., Inc.
KGIX 1420 100 Las Vegas, Nev. J. M. Heaton, Box 656.	KMA 930 500 Shonandoah, Iowa. Earl E. May Seed & Nursery Co.
KGIZ 560 500 Springfield, Mo. Grant City Park Corp.	KMAC 1370 100 San Antonio, Texas. W. W. McAllister, Blue Bonnet Hotel.
KGKB 1500 100 Tyler, Texas. East Texas Broadcasting Co.	KMBC 950 1000 Kansas City, Mo. Midland Broadcasting Co.
KGKL 1370 100 San Angelo, Texas. KGKL, Inc., St. Angelus Hotel.	KMED 1310 100 Medford, Ore. Mrs. W. J. Virgin, Sparta Bldg.
KGKO 570 250 Wichita Falls, Texas. Wichita Falls Broadcasting Co.	KMJ 580 500 Fresno, Calif. James McClatchy Co.
KGKY 1500 100 Scottsbluff, Neb. Hilliard Co., Inc., 1517½ Broadway.	KMLB 1200 100 Monroe, La. Liners Broadcasting Station, Inc.
KGMB 1320 250 Honolulu, T. H. Honolulu Broadcasting Co., 119 Merchant St.	KMMJ 740 1000 Clay Center, Neb. The M. M. Johnson Co.
KGNF 1430 500 North Platte, Neb. Great Plains Broadcasting Co.	KMO 1330 250 Tacoma, Wash. KMO, Inc., Hotel Winthrop.
KGNO 1340 250 Dodge City, Kans. KGNO Broadcasting Station	KMOX 1090 5000 St. Louis, Mo. The Voice of St. Louis, Inc.
KGO 790 7500 San Francisco, Calif. National Broadcasting Co., Inc.	KMPC 710 590 Beverly Hills, Calif. Beverly Hills Broadcasting Corp.
KGRS 1410 1000 Amarillo, Texas. E. B. Gish, Bellaire Park.	KMTR 670 500 Hollywood, Calif. KMTR Radio Corp., 915 N. Pormosa Ave.
KGU 750 2500 Honolulu, T. H. Advertiser Publishing Co., Ltd.	KNOW 1500 100 Austin, Texas. Southwest Broadcasting Co.
KGVO 1200 100 Missoula, Mont. Msbys, Inc., 240 N. Higgins.	KNX 1050 25000 Hollywood, Calif. Western Broadcast Co., Inc.
KGW 620 1000 Portland, Ore. Oregonian Publishing Co.	KOA 830 12,500 Denver, Colo. General Electric Co., 1370 Krameria St.
KGY 1210 100 Olympia, Wash. KGY, Inc., 11th and Capitol Way.	KOAC 550 1000 Corvallis, Ore. Oregon State Agricultural College.
KHJ 900 1000 Los Angeles, Calif. Don Lee Broadcasting System.	KOB 1180 10000 Albuquerque, N. M. Albuquerque Journal, Box 667.
KHQ 590 1800 Spokane, Wash. Louis Wasmer, Inc.	KOH 1380 500 Reno, Nev. The Bee, Inc.
KICA 1370 100 Clovis, N. M. Southwest Broadcasting Co.	KOIL 1260 1000 Council Bluffs, Iowa. Mona Motor Oil Co.
KICK 1420 100 Carter Lake, Iowa. Red Oak Radio Corp.	KOIN 940 1000 Portland, Ore. KOIN, Inc., New Heathman Hotel.
KID 1320 250 Idaho Falls, Idaho. KID Broadcasting Co., Inc.	KOL 1270 1000 Seattle, Wash. Seattle Broadcasting Co.
KIDO 1350 1000 Boise, Idaho. C. G. Phillips & Frank L. Hill.	KOMA 1480 5000 Oklahoma City, Okla. National Radio Manufacturing Co.
KIDW 1420 100 Lamar, Colo. Lamar Broadcasting Co., Box 688	KOMO 920 1000 Seattle, Wash. Fishers Blend Station, Inc.
KIEM 1210 100 Eureka, Calif. Harold H. Hanseth, Vance Hotel.	KONO 1370 100 San Antonio, Texas. Mission Broadcasting Co., St. Anthony Hotel.
KIEV 850 100 Glendale, Calif. Cannon System, Ltd., Glendale Hotel.	KOOS 1370 100 Marshfield, Ore. H. H. Hanseth, Hall Bldg.
KIFH 1310 100 Juneau, Alaska Juneau Broadcasting Co.	KORE 1420 100 Eugene, Ore. Frank L. Hill and Curtis G. Phillips.
KIT 1310 100 Yakima, Wash. Valley Broadcasters, Inc.	KOY 1390 500 Phoenix, Ariz. Nielsen Radio & Sporting Goods Co.
KJBS 1070 100 San Francisco, Calif. Julius Brunton & Sons Co.	KPCB 650 100 Seattle, Wash. Queen City Broadcasting Co.

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KPJM 1500 100 Prescott, Ariz. Frank Mauths, Box 852	KTW 1220 1000 Seattle, Wash. First Presbyterian Church.
KPO 880 50000 San Francisco, Calif. National Broadcasting Co., Inc.	KUJ 1370 100 Walla Walla, Wash. KUJ, Inc., Marcus Whitman Hotel.
KPOF 880 500 Denver, Colo. Pillar Of Fire, 1845 Champa St.	KUMA 1420 100 Yuma, Ariz. Dr. A. H. Schermann, Box 267.
KPPC 1210 50 Pasadena, Calif. Pasadena Presbyterian Church.	KUOA 1260 1000 Fayetteville, Ark. KUOA, Inc., Washington Hotel.
KPQ 1500 100 Wenatchee, Wash. Westcoast Broadcasting Co.	KUSD 890 500 Vermillion, S. D. University of South Dakota.
KPRC 920 1000 Houston, Texas. Houston Printing Co.	KVI 570 500 Tacoma, Wash. Puget Sound Broadcasting Co., Tacoma Hotel.
KQV 1380 500 Pittsburgh, Pa. KQV Broadcasting Co., Investment Bldg.	KVL 1370 100 Seattle, Wash. KVL, Inc., 5th and Virginia St.
KQW 1010 500 San Jose, Calif. Pacific Agricultural Foundation, Ltd.	KVOA 1260 500 Tucson, Ariz. Arizona Broadcasting Co., Inc.
KRE 1370 100 Berkeley, Calif. First Congregational Church.	KVOO 1140 25000 Tulsa, Okla. Southwestern Sales Corp.
KREG 1500 100 Santa Ana, Calif. The Voice of the Orange Empire, Inc.	KVOR 1270 1000 Colorado Springs, Colo. S. H. Patterson
KRGV 1280 500 Harlingen, Texas. KRGV, Inc.	KVOS 1200 100 Bellingham, Wash. KVOS, Inc., Bellingham Hotel.
KRDK 1120 500 Los Angeles, Calif. Fireside Broadcasting Corp.	KWCR 1420 100 Cedar Rapids, Iowa. Cedar Rapids Broadcast Co.
KRLD 1040 10000 Dallas, Texas. KRLD Radio Corp., Adolphus Hotel.	KWEA 1210 100 Shreveport, La. International Broadcasting Corp.
KRMD 1310 100 Shreveport, La. Radio Station KRMD, Inc.	KWFFV 1210 100 Hilo, Hawaii Hilo Broadcasting Co., Ltd.
KROW 930 500 Oakland, Calif. Educational Broadcasting Corp.	KWG 1200 100 Stockton, Calif. McClatchy Newspapers, Inc.
KRSC 1120 100 Seattle, Wash. Radio Sales Corp., Washington Athletic Club.	KWJJ 1080 500 Portland, Ore. KWJJ Broadcast Co., Inc., 328 Salmon St.
KSAC 580 500 Manhattan, Kans. State College of Agriculture.	KWK 1350 1000 St. Louis, Mo. Thomas Patrick, Inc., Hotel Chase.
KSCJ 1330 1000 Sioux City, Iowa. Perkins Bros. Co., 415 Douglas St.	KWKK 1370 100 Kansas City, Mo. Wilson Duncan Broadcasting Co.
KSD 550 500 St. Louis, Mo. Pulitzer Publishing Co.	KWKH 850 10000 Shreveport, La. International Broadcasting Corp.
KSEI 890 250 Pocatello, Idaho. Radio Service Corp., 141 S. 6th Ave.	KWLC 1270 100 Decorah, Iowa. Luther College.
KSL 1130 50000 Salt Lake City, Utah. Radio Service Corp. of Utah.	KWSC 1220 1000 Pullman, Wash. State College of Washington.
KSO 1370 100 Des Moines, Iowa. Des Moines Register & Tribune.	KWWG 1260 500 Brownsville, Texas. Frank P. Jackson.
KSOO 1110 1000 Sioux Falls, S. D. Jos. Henkin, 1613 S. Duluth Ave.	KXA 760 250 Seattle, Wash. American Radio Tel. Co., 218 Bigelow Bldg.
KSTP 1460 10000 St. Paul, Minn. National Battery Broadcasting Co.	KXL 1420 100 Portland, Ore. KXL Broadcasters, 269 Pine St.
KSUN 1200 100 Lowell, Ariz. Copper Electrical Co.	KXO 1500 100 El Centro, Calif. E. R. Irey and F. M. Bowles.
KTAB 560 1000 San Francisco, Calif. Associated Broadcasters, Inc.	KXRO 1310 100 Aberdeen, Wash. KXRO, Inc., Hotel Moreck.
KTAR 820 500 Phoenix, Ariz. KTAR Broadcasting Co.	KXYZ 1440 250 Houston, Texas. Harris County Broadcast Co.
KTAT 1240 1000 Fort Worth, Texas. Southwest Broadcasting Co.	KYA 1230 1000 San Francisco, Calif. Pacific Broadcasting Corp.
KTBS 1450 1000 Shreveport, La. Tri-State Broadcasting System.	KYW 1020 10000 Chicago, Ill. Westinghouse Elec. & Mfg. Co.
KTFI 1240 1000 Twin Falls, Idaho. Radio Broadcasting Corp.	KZRM 618.5 50000 Manila, P. I. Erlanger and Galingler, Inc. (KZEG)
KTHS 1040 10000 Hot Springs, Ark. Chamber of Commerce.	LR5 830 20000 Buenos Aires, Arg.
KTM 780 500 Los Angeles, Calif. Pickwick Broadcasting Corp., Ltd.	NAA 690 1000 Arlington, Va. United States Navy.
KTRH 1120 1000 Houston, Texas. KTRH Broadcasting Co., Rice Hotel.	RUS 664 500 San Salvador, E. S. Republic of El Salvador.
KTSA 1290 1000 San Antonio, Texas. Southwest Broadcasting Co.	TGW 1350 500 Guatemala, Gua. Gobierno de Guatemala.
KTSM 1310 100 El Paso, Texas. Tri-State Broadcasting Co., Inc.	TGX 1380 75 Guatemala City
KTUL 1400 250 Tulsa, Okla. J. T. Griffin	TICR 912 75 San Jose, C. R. Government of Costa Rica.

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TIEA 833 7.5 San Jose, C. R.
TIEP 1450 7.5 San Jose, C. R.
TIFB 714 30 San Jose, C. R.
TIFS 1441 7.5 Cartago, C. R.
TIGA 1014 30 Cartago, C. R.
TIGP 666 75 San Jose, C. R.
TIRCA 1100 500 San Jose, C. R.
 Perry Girtton, Apt. 225.
TISO 550 250 San Jose, C. R.
 P. F. Saborio, Apt. 1354
TITV 999 7.5 San Jose, C. R.
TIVL 869 30 San Jose, C. R.
TIXA 614 7.5 San Jose, C. R. |
VAS 685 2000 Glace Bay, N. S.
 Canadian Marconi Co., Ltd.
VEBEK 1195 10 Montmagny, Que.
 J. A. Marquis, P. O. Box 57
VOAC 800 40 St. John's, Nfld.
VOAS 810 100 St. John's, N. F.
 Ayre & Sons, Ltd.
VOGY 1400 75 St. John's, N. F.
 Newfoundland Broadcasting Co.
VOKW 1085 30 St. John's, N. F.
 Cyril L. Parkins.
VONF 1195 400 St. John's, N. F.
 Dominion Broadcasting Co., Ltd., Box 1355.
VOWR 900 500 St. John's, N. F.
 Wesley United Church, Box 157.
WAAB 1410 500 Boston, Mass.
 Bay State Broadcasting Corp., 1 Winter Pl.
WAAF 920 500 Chicago, Ill.
 Chicago Daily Drivers Journal.
WAAM 1250 1000 Newark, N. J.
 WODAAM Corp., 1060 Broad St.
WAAT 940 300 Jersey City, N. J.
 Bremer Broadcasting Corp., 50 Journal Sq.
WAAW 680 500 Omaha, Neb.
 Omaha Grain Exchange.
WABC 860 50000 New York, N. Y.
 Atlantic Broadcasting Corp.
WABI 1200 100 Bangor, Maine.
 First Universalist Society.
WACO 1420 100 Waco, Texas.
 Southwest Broadcasting Co.
WADC 1320 1000 Akron, Ohio.
 Allen T. Simmons, P. O. Box 29.
WAGM 1420 100 Proseque Isle, Me.
 Aroostook Broadcasting Corp.
WAIU 640 500 Columbus, Ohio.
 Associated Radiocasting Corp.
WALR 1210 100 Zanesville, Ohio.
 WALR Broadcasting Corp.
WAMC 1420 100 Anniston, Ala.
 R. C. Hammett, 1200 Noble St.
WAML 1310 100 Laurel, Miss.
 Southland Radio Corp.
WAPI 1140 5000 Birmingham, Ala.
 WAPI Broadcasting Corp.
WARD 1400 500 Brooklyn, N. Y.
 United States Broadcasting Corp.
WASH 1270 500 Grand Rapids, Mich.
 Kunskey-Trendle Broadcasting Corp.

WAVE 940 1000 Louisville, Ky.
 WFLW, Inc.
WAWZ 1350 250 Zarephath, N. J.
 Pillar of Fire.
WAZL 1420 100 Hazleton, Pa.
 Hazleton Broadcasting Service, Inc.
WBAA 1400 500 West Lafayette, Ind.
 Purdue University.
WBAK 1430 1000 Harrisburg, Pa.
 Commonwealth of Pennsylvania.
WBAL 1060 10000 Baltimore, Md.
 Consolidated Gas, Elec. Light & Power Co.
WBAP 800 50000 Fort Worth, Texas.
 Carter Publications, Inc.
WBAX 1210 100 Wilkes-Barre, Pa.
 John H. Stenger, Jr., 70 S. Main St.
WBBC 1400 500 Brooklyn, N. Y.
 Brooklyn Broadcasting Corp.
WBBL 1210 100 Richmond, Va.
 Grace Covenant Presbyterian Church.
WBBM 770 25000 Chicago, Ill.
 WBBM Broadcasting Corp., Wrigley Bldg.
WBBR 1300 1000 Brooklyn, N. Y.
 Peoples Pulpit Assn.
WBBX 1200 100 New Orleans, La.
 Samuel D. Reeks, Marberc Hotel.
WBBZ 1200 100 Ponca City, Okla.
 C. L. Carrell.
WBCM 1410 500 Bay City, Mich.
 James E. Davidson, Hotel Wenonah.
WBEN 900 1000 Buffalo, N. Y.
 WBEN, Inc. (Buffalo Evening News.)
WBEO 1310 100 Marquette, Mich.
 Lake Superior Broadcasting Co., Inc.
WBHS 1200 100 Huntsville, Ala.
 Radio Station WBHS, Inc.
WBIG 1440 500 Greensboro, N. C.
 North Carolina Broadcasting Co., Inc.
WBNX 1350 250 New York, N. Y.
 Standard Cabill Co., Inc.
WBOQ 860 50000 New York, N. Y.
 Atlantic Broadcasting Corp.
WBOW 1310 100 Terre Haute, Ind.
 Banks of Wabash, Inc., 24½ S. 8th.
WBRC 930 500 Birmingham, Ala.
 Frank M. King, Receiver.
WBRE 1310 100 Wilkes-Barre, Pa.
 Louis G. Baltimore, 16 N. Main.
WBSO 920 500 Babson Park, Mass.
 Broadcasting Service Organization, Inc.
WBT 1080 50000 Charlotte, N. C.
 Station WBT, Inc., Wilder Bldg.
WBTM 1370 100 Danville, Va.
 Piedmont Broadcasting Corp.
WBZ 990 50000 Boston, Mass.
 Westinghouse Elec. & Mfg. Co.
WBZA 990 1080 Springfield, Mass.
 Westinghouse Elec. & Mfg. Co.
WCAC 600 250 Storrs, Conn.
 Connecticut Agricultural College.
WCAD 1220 500 Canton, N. Y.
 St. Lawrence University.
WCAE 1220 1000 Pittsburgh, Pa.
 WCAE, Inc., Sun-Telegraph.
WCAH 1430 500 Columbus, Ohio.
 International Bible Students Assn.
WCAL 1250 1000 Northfield, Minn.
 St. Olaf College.
WCAM 1280 500 Camden, N. J.
 City of Camden, City Hall.
WCAO 600 250 Baltimore, Md.
 Monumental Radio Co.

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WCAP 1280	500 Asbury Park, N. J. Radio Industries Broadcast Co.	WEAN 780	500 Providence, R. I. Shepard Broadcasting Service, Inc.
WCAT 1200	100 Rapid City, S. D. South Dakota State School of Mines.	WEBC 1290	1000 Superior, Wis. Head of the Lakes Broadcasting Co.
WCAU 1170	50000 Philadelphia, Pa. WCAU Broadcasting Co., 1622 Chestnut.	WEBQ 1210	100 Harrisburg, Ill. Harrisburg Broadcasting Co.
WCAX 1200	100 Burlington, Vt. Burlington Daily News, Inc.	WEBR 1310	100 Buffalo, N. Y. Howell Broadcasting Co., Inc., 735 Main.
WCAZ 1070	50 Carthage, Ill. Superior Broadcasting Service, Inc.	WEDC 1210	100 Chicago, Ill. Emil Denemark, 3860 Ogden Ave.
WCBA 1440	250 Allentown, Pa. B. Bryan Musselman, 39-41 10th St.	WEED 1420	100 Greenville, N. C. Wm. Avera Wynne.
WCBD 1080	5000 Zion, Ill. Wilbur Glenn Voliva.	WEEI 590	1000 Boston, Mass. Edison Elec. Illuminating Co.
WCBM 1370	100 Baltimore, Md. Baltimore Broadcasting Corp.	WEUU 830	1000 Reading, Pa. Berks Broadcasting Co., 533 Penn.
WCBS 1210	100 Springfield, Ill. WCBS, Inc., 208½ S. 5th.	WEHC 1350	500 Charlottesville, Va. Community Brdcastg. Corp.
WCCO 810	50000 Minneapolis, Minn. Northwestern Broadcasting, Inc.	WEHS 1420	100 Cicero, Ill. WEHS, Inc., 6138 W. 22nd St.
WCFL 970	1500 Chicago, Ill. Chicago Federation of Labor.	WELL 1420	50 Battle Creek, Mich. Enquirer News Co., 7 N. McCamly St.
WCKY 1490	5000 Covington, Ky. L. B. Wilson, Inc.	WENC 1420	100 Americus, Ga. Americus Broadcast Corp.
WCLO 1200	100 Janesville, Wis. WCLO Radio Corp.	WENR 870	50000 Chicago, Ill. Great Lakes Broadcasting Co.
WCLS 1310	100 Joliet, Ill. WCLS, Inc., 301 E. Jefferson St.	WESQ 1040	1000 Elmira, N. Y. Elmira Star Gazette, Inc.
WCNW 1500	100 Brooklyn, N. Y. Arthur Fasko, 1525 Pitkin Ave.	WEVD 1300	500 New York, N. Y. Jewish Daily Forward, Hotel Claridge.
WCOA 1340	500 Pensacola, Fla. Pensacola Broadcasting Co.	WEW 780	1000 St. Louis, Mo. St. Louis University, 221 N. Grand Blvd.
WCOG 880	500 Meridian, Miss. Mississippi Broadcasting Co., Inc.	WEXL 1310	50 Royal Oak, Mich. Royal Oak Broadcasting Co.
WCRW 1210	100 Chicago, Ill. Clinton R. White, 2750 Pine Grove Ave.	WFAA 800	50000 Dallas, Texas. Morning News and Journal.
WCSC 1380	500 Charleston, S. C. South Carolina Broadcasting Co., Inc.	WFAB 1300	1000 New York, N. Y. Fifth Avenue Broadcasting Corp.
WCSH 940	1000 Portland, Me. Congress Square Hotel Co., 157 High.	WFAM 1200	100 South Bend, Ind. South Bend Tribune, 200 W. Colfax.
WDAE 1220	1000 Tampa, Fla. Tampa Publishing Co., Tampa Terrace.	WFAS 1210	100 White Plains, N. Y. Westchester Broadcasting Corp.
WDAF 810	1000 Kansas City, Mo. Kansas City Star Co.	WFBC 1200	100 Greenville, S. C. Greenville News-Piedmont Co.
WDAQ 1410	1000 Amarillo, Texas. National Radio & Broadcasting Corp.	WFBE 1200	100 Cincinnati, Ohio. WFBE, Inc., Hotel Sinton.
WDAH 1310	100 El Paso, Texas. Tri-State Broadcasting Co., Inc.	WFBG 1310	100 Altoona, Pa. Gable Broadcasting Co. 12th Av. & 13th St.
WDAS 1370	100 Philadelphia, Pa. WDAS Broadcastg. Co., Inc., Broadwood Hotel.	WFBL 1380	1000 Syracuse, N. Y. Onondaga Radio Broadcasting Corp.
WDAY 940	1000 Fargo, N. D. WDAY, Inc., Black Bldg., 118 Broadway.	WFBM 1230	1000 Indianapolis, Ind. Indianapolis Power & Light Co.
WDBJ 930	250 Roanoke, Va. Times World Corp., 122 W. Church Ave.	WFRB 1270	500 Baltimore, Md. Baltimore Radio Show, Inc.
WDBO 580	250 Orlando, Fla. Orlando Broadcasting Co., Inc.	WFDF 1310	100 Flint, Mich. Flint Broadcasting Co.
WDEL 1120	250 Wilmington, Del. WDEL, Inc., 10th and King Sts.	WFDV 1500	100 Rome, Ga. Rome Broadcasting Corp., 10 3rd Ave.
WDEV 550	500 Waterbury, Vt. Harry C. Whitehill, Stowe St.	WFEA 1430	500 Manchester, N. H. New Hampshire Broadcasting Co.
WDGY 1180	1000 Minneapolis, Minn. Dr. Geo. W. Young, 909 W. Broadway.	WFI 580	500 Philadelphia, Pa. WFI Broadcasting Co., 891 Market.
WDDO 1280	1000 Chattanooga, Tenn. WDOD Broadcasting Corp., Hotel Patten.	WFLA 620	1000 Clearwater, Fla. Florida West Coast Broadcasting Co., Inc.
WDRC 1330	1000 Hartford, Conn. WDRC, Inc., Corning Bldg., 11 Asylum St.	WGAL 1310	100 Lancaster, Pa. WGAL, Inc., 8 W. King St.
WDSU 1250	1000 New Orleans, La. Jos. H. Uhalt, On Hotel DeSoto.	WGAR 1450	500 Cleveland, Ohio. WGAR Broadcasting Co., Hotel Statler.
WDZ 1070	100 Tuscola, Ill. James L. Bush.	WGBB 1210	100 Freeport, N. Y. H. H. Carman, 64 S. Grove St.
WEAF 680	50000 New York, N. Y. National Broadcasting Co., Inc.	WGBF 630	500 Evansville, Ind. Evansville On the Air, Inc.

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WGBI 880 250 Scranton, Pa. Scranton Broadcasters, Inc.	WHN 1010 250 New York, N. Y. Marcus Loew Booking Agency.
WGCM 1210 100 Mississippi City, Miss. Great Southern Land Co., Gulfport, Miss.	WHOM 1450 250 Jersey City, N. J. New Jersey Broadcasting Corp.
WGCP 1250 1000 Newark, N. J. May Radio Broadcasting Co.	WHP 1430 500 Harrisburg, Pa. WHP, Inc., Harrisburg Telegraph.
WGES 1380 500 Chicago, Ill. Oak Leaves Broadcasting Station, Inc.	WIAS 1310 100 Ottumwa, Iowa. Iowa Broadcasting Co., Hotel Ottumwa.
WGH 1310 100 Newport News, Va. Hampton Roads Broadcasting Corp.	WIBA 1280 500 Madison, Wis. Badger Broadcasting Co., Inc.
WGL 1370 100 Fort Wayne, Ind. F. C. Zieg, 213 W. Main St.	WIBG 970 100 Glenside, Pa. WIBG, Inc., Keswick Bldg.
WGLC 1370 100 Hudson Falls, N. Y. O. T. Griffin & G. F. Bissell.	WIBM 1370 100 Jackson, Mich. WIBM, Inc., Otsego Hotel.
WGN 720 50000 Chicago, Ill. WGN, Inc., Tribune Tower.	WIBU 1210 100 Poynette, Wis. Wm. C. Forrest, R. F. D. No. 3.
WGNV 1210 100 Chester, N. Y. Peter Goelet (Orange County).	WIBW 580 1000 Topeka, Kans. Topeka Broadcasting Assn., Inc.
WGR 550 1000 Buffalo, N. Y. Buffalo Broadcasting Corp.	WIBX 1200 100 Utica, N. Y. WIBX, Inc., 1st Natl. Bank Bldg.
WGST 890 250 Atlanta, Ga. Georgia School of Technology.	WICC 600 250 Bridgeport, Conn. Shepard Broadcasting Service, Inc.
WGY 790 50000 Schenectady, N. Y. National Broadcasting Co., Inc.	WIL 1200 100 St. Louis, Mo. Missouri Broadcasting Corp.
WHA 940 1000 Madison, Wis. University of Wisconsin.	WILL 890 250 Urbana, Ill. University of Illinois.
WHAD 1120 250 Milwaukee, Wis. Marquette University.	WILM 1420 100 Wilmington, Del. Delaware Broadcasting Co., Inc.
WHAM 1150 50000 Rochester, N. Y. Stromberg-Carlson Tel. Mfg. Co.	WIND 580 1000 Gary, Ind. Johnson-Kennedy Broadcasting Corp.
WHAS 820 50000 Louisville, Ky. Courier Journal & Louisville Times.	WINS 1180 500 New York, N. Y. American Radio News Corp.
WHAT 1310 100 Philadelphia, Pa. Curds-Martin Newspapers, Inc.	WIOD 1300 1000 Miami, Fla. Isle of Dreams Broadcasting Corp.
WHAZ 1300 500 Troy, N. Y. Rensselaer Polytechnic Institute.	WIP 810 500 Philadelphia, Pa. Pennsylvania Broadcasting Co.
WHB 880 500 Kansas City, Mo. WHB Broadcasting Co., Searritt Bldg.	WIS 1010 500 Columbia, S. C. Station WIS, Inc., 1811 Main St.
WHBC 1200 100 Canton, Ohio. Edw. P. Graham, 319 Tusco St., W.	WISN 1120 250 Milwaukee, Wis. American Radio News Corp.
WHBD 1370 100 Mount Orab, Ohio. F. P. Moler.	WJAC 1310 100 Johnstown, Pa. WJAC, Inc., Tribune Bldg. Annex.
WHBF 1210 100 Rock Island, Ill. Rock Island Broadcasting Co.	WJAG 1080 1000 Norfolk, Neb. Norfolk Daily News.
WHBL 1410 500 Sheboygan, Wis. Press Publishing Co.	WJAR 890 500 Providence, R. I. Outlet Co., Weybossett St.
WHBQ 1370 100 Memphis, Tenn. Broadcasting Sta. WNBQ, Inc., Hotel Claridge.	WJAS 1290 1000 Pittsburgh, Pa. Pittsburgh Radio Supply House.
WHBU 1210 100 Anderson, Ind. Anderson Broadcasting Corp.	WJAX 900 1000 Jacksonville, Fla. City of Jacksonville.
WHBY 1200 100 Green Bay, Wis. WHBY, Inc., Bellin Bldg.	WJAY 610 500 Cleveland, Ohio. Cleveland Radio Broadcasting Corp.
WHDF 1370 100 Calumet, Mich. Upper Michigan Broadcasting Co.	WJBC 1200 100 LaSalle, Ill. Kaskaskia Broadcasting Co.
WHDH 830 1000 Boston, Mass. Matheson Radio Co., 62 Boylston.	WJBI 1210 100 Red Bank, N. J. Monmouth Broadcasting Co., Inc.
WHDL 1420 100 Tupper Lake, N. Y. Tupper Lake Broadcasting Co.	WJBK 1370 50 Detroit, Mich. James F. Hopkins, Inc., Curtiss Bldg.
WHEB 740 250 Portsmouth, N. H. Granite State Broadcasting Corp.	WJBL 1200 100 Decatur, Ill. Commodore Broadcasting, Inc.
WHEC 1430 500 Rochester, N. Y. WHEC, Inc., 40 Franklin St.	WJBO 1420 100 Baton Rouge, La. Baton Rouge Broadcasting Co., Inc.
WHEF 1500 100 Kosciusko, Miss. Attala Milling & Produce Co.	WJBW 1200 100 New Orleans, La. C. C. Carlson, 2743 Dumaine St.
WHET 1210 100 Troy, Ala. Troy Broadcasting Co.	WJBY 1210 100 Gadsden, Ala. Gadsden Broadcasting Co., 112 N. 8th St.
WHFC 1420 100 Cicero, Ill. WHFC, Inc., 6138 W. 22nd St.	WJDX 1270 1000 Jackson, Miss. Lamar Life Insurance Co.
WHIS 1410 250 Bluefield, W. Va. Daily Telegraph Printing Co., Inc.	WJEJ 1210 100 Hagerstown, Md. Hagerstown Broadcasting Co., Inc.
WHK 1390 1000 Cleveland, Ohio. Radio Air Service Corp.	WJEM 990 500 Tupelo, Miss. Britt A. Rogers, Jr.

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WJJD 1130 20000 Chicago, Ill. WJJD, Inc., 201 N. Wells St.	WLIT 660 600 Philadelphia, Pa. Lit Bros. Broadcasting System, Inc.
WJMS 1420 100 Ironwood, Mich. WJMS, Inc., St. James Hotel.	WLS 870 60000 Chicago, Ill. Agricultural Broadcasting Co.
WJR 760 10000 Detroit, Mich. WJR, Inc., Fisher Bldg.	WLTH 1400 500 Brooklyn, N. Y. Voice of Brooklyn, Inc.
WJSV 1460 10000 Washington, D. C. Old Dominion Broadcasting Co.	WLVA 1370 100 Lynchburg, Va. Lynchburg Broadcasting Corp.
WJTL 1370 100 Atlanta, Ga. Oglethorpe University.	WLW 700 50000 Cincinnati, Ohio. Crosley Radio Corp.
WJW 1210 100 Akron, Ohio. WJW, Inc., 41 S. High St.	WLWL 1100 6000 New York, N. Y. Missionary Society of St. Paul.
WJZ 760 60000 New York, N. Y. National Broadcasting Co., Inc.	WMAL 630 250 Washington, D. C. National Broadcasting Co., Inc.
WKAQ 1240 1000 San Juan, P. R. Radio Corp. of Porto Rico.	WMAQ 670 6000 Chicago, Ill. National Broadcasting Co., Inc.
WKAR 1040 1000 East Lansing, Mich. Michigan State College.	WMAS 1420 100 Springfield, Mass. WMAS, Inc., Hotel Stonehaven.
WKBB 1310 100 East Dubque, Ill. Richard W. Hoffman	WMAZ 1180 600 Macon, Ga. Southeastern Broadcasting Co.
WKBC 1310 100 Birmingham, Ala. R. B. Broyles, Tutwiler Hotel.	WMBC 1420 100 Detroit, Mich. Michigan Broadcasting Co.
WKBF 1400 600 Indianapolis, Ind. Indianapolis Broadcasting, Inc.	WMBD 1440 600 Peoria, Ill. Peoria Broadcasting Co.
WKBH 1380 1000 LaCrosse, Wis. WKBH, Inc., 409 Main St.	WMBG 1210 100 Richmond, Va. Havens and Martin, Inc.
WKBI 1420 100 Cicero, Ill. WKBI, Inc., 6138 W. 22nd St.	WMBH 1420 100 Joplin, Mo. W. M. Robertson.
WKBN 670 600 Youngstown, Ohio. WKBN Broadcasting Corp.	WMBI 1080 6000 Chicago, Ill. Moody Bible Institute.
WKBO 1200 100 Harrisburg, Pa. Keystone Broadcasting Corp.	WMBO 1310 100 Auburn, N. Y. WMBO, Inc., Metcalf Bldg.
WKBV 1600 100 Richmond, Ind. Wm. O. Knox, Box 286	WMBQ 1600 100 Brooklyn, N. Y. Paul J. Gollhofer, 95 Leonard St.
WKBW 1480 6000 Buffalo, N. Y. Buffalo Broadcasting Corp.	WMBR 1370 100 Tampa, Fla. F. J. Reynolds, 907 Florida Ave.
WKBZ 1600 100 Ludington, Mich. Karl L. Ashbacher & Sons.	WMC 780 600 Memphis, Tenn. WMC, Inc., Hotel Gayoso.
WKEU 1600 100 LaGrange, Ga. Radio Station WKEU, 906 Hill St.	WMCA 670 600 New York, N. Y. Knickerbocker Broadcasting Co.
WKFI 1210 100 Greenville, Miss. J. Pat Scully, Box 302.	WMFN 890 250 Fairmont, W. Va. A. M. Rowe, Inc., 325 Main St.
WKJC 1200 100 Lancaster, Pa. Lancaster Broadcasting Service, Inc.	WMPC 1500 100 Lapeer, Mich. First Methodist Protestant Church.
WKOK 1210 100 Sunbury, Pa. Sunbury Broadcasting Co.	WMT 600 600 Waterloo, Iowa. Waterloo Broadcasting Co.
WKRC 660 1000 Cincinnati, Ohio. WKRC, Inc., Hotel Alma.	WNAC 1230 1000 Boston, Mass. Shepard Broadcasting Service, Inc.
WKY 800 1000 Oklahoma City, Okla. Oklahoma Publishing Co.	WNAD 1010 600 Norman, Okla. University of Oklahoma.
WKZO 690 1000 Kalamazoo, Mich. John E. Fetzer, Burdick Hotel.	WNAX 670 1000 Yankton, S. D. The House of Gurney, Inc., 2nd and Capital St.
WLAC 1470 6000 Nashville, Tenn. Life & Casualty Insurance Co.	WNBF 1500 100 Binghamton, N. Y. Howitt-Wood Radio Co., Inc.
WLAP 1200 100 Louisville, Ky. American Broadcasting Corp. of Ky.	WNBH 1310 100 New Bedford, Mass. New Bedford Broadcasting Co.
WLB 1250 1000 Minneapolis, Minn. University of Minnesota.	WNBO 1200 100 Silver Haven, Pa. John Brownlee Spriggs. (Washington, Pa.)
WIBC 1310 100 Muncie, Ind. D. A. Burton, Anthony Bldg.	WNBR 1430 600 Memphis, Tenn. Memphis Broadcasting Co., Hotel DeVoy.
WIBF 1420 100 Kansas City, Kans. WIBF Broadcasting Co., Huron Bldg.	WNBW 1200 10 Carbondale, Pa. WNBW, Inc., 50 Main St., N.
WIBL 900 2500 Stevens Point, Wis. Wisconsin Dept. of Agriculture and Markets.	WNBX 1260 250 Springfield, Vt. WNBX Broadcasting Corp., 39 Main St.
WIBW 1280 600 Erie, Pa. Broadcasters of Pennsylvania, Inc.	WNBZ 1290 600 Saranac Lake, N. Y. Smith & Mace, 70 Broadway.
WIBZ 620 600 Bangor, Me. Maine Broadcasting Co., Inc., 100 Main.	WNOX 660 1000 Knoxville, Tenn. WNOX, Inc.
WLEC 1340 250 Portland, Me. Casco Bay Broadcasting Co.	WNRA 1420 100 Muscle Shoals, Ala. Kathryn Jones
WLEY 1370 100 Lexington, Mass. Albert S. Moffat	WNYC 810 600 New York, N. Y. Dept. of Plant and Structures.

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WOAI 1190 50000 San Antonio, Texas.
 Southern Industries, Inc., 1038 Navarro.
WOBV 580 500 Charlottesville, W. Va.
 WOBV, Inc., Ruffner Hotel.
WOC- 1000 50000 Des Moines, Iowa.
WHO 1000 50000 Central Broadcastg. Co., 914 Walnut St.
WOCL 1210 50 Jamestown, N. Y.
 A. E. Newton, 840 N. Main St.
WODA 1250 1000 Paterson, N. J.
 WODAAM Corp., 115 Ellison St.
WODX 1410 500 Mobile, Ala.
 Mobile Broadcasting Corp., Battle House.
WOI 840 5000 Ames, Iowa.
 Iowa State College.
WOKO 1430 500 Albany, N. Y.
 WOKO, Inc., Hotel Ten Eyck.
WOL 1310 100 Washington, D. C.
 American Broadcasting Co., Annapolis Hotel.
WOMT 1210 100 Manitowoc, Wis.
 Francis M. Kadow, Box 326.
WOOD 1270 500 Grand Rapids, Mich.
 Kunsky-Trendle Broadcasting Corp.
WOPI 1500 100 Bristol, Tenn.
 Radiophone Broadcasting Station WOPI, Inc.
WOQ 1300 1000 Kansas City, Mo.
 Unity School of Christianity.
WOR 710 5000 Newark, N. J.
 Bamberger Broadcasting Service, Inc.
WORC 1280 500 Worcester, Mass.
 Alfred F. Kleindienst, 60 Franklin St.
WORK 1000 1000 York, Pa.
 York Broadcasting Co., 15 S. Beaver St.
WOS 630 500 Jefferson City, Mo.
 State Highway Control, Capitol Bldg.
WOSU 570 750 Columbus, Ohio.
 Ohio State University.
WOV 1130 1000 New York, N. Y.
 International Broadcasting Corp.
WOW 590 1000 Omaha, Neb.
 Woodmen of the World, 4th and Farnam.
WOWO 1160 10000 Fort Wayne, Ind.
 Main Auto Supply Co., 213 W. Main.
WPAD 1420 100 Paducah, Ky.
 Paducah Broadcasting Co., Inc.
WPAP 1010 250 New York, N. Y.
 Marcus Loew Booking Agency.
WPEN 1500 100 Philadelphia, Pa.
 William Penn Broadcasting Co.
WPFB 1370 100 Hattiesburg, Miss.
 Otis P. Eure, Box 530.
WPG 1100 5000 Atlantic City, N. J.
 Columbia Broadcasting System.
WPHR 1200 100 Petersburg, Va.
 WLBG, Inc., Medical Arts Bldg.
WPRO 1210 100 Providence, R. I.
 Cherry & Webb Broadcasting Co., 15 Chestnut.
WPTF 680 5000 Raleigh, N. C.
 Durham Life Insurance Co.
WQAM 580 1000 Miami, Fla.
 Miami Broadcasting Co., Inc., 327 N. E. 1st Ave.
WQAN 880 250 Scranton, Pa.
 Scranton Times, 149 Penn Ave.
WQAO 1010 250 New York, N. Y.
 Marcus Loew Booking Agency.
WQBC 1360 500 Vicksburg, Miss.
 Delta Broadcasting Co., Hotel Vicksburg.
WQDM 1370 100 St. Albans, Vt.
 A. J. St. Antoine and E. J. Regan.
WQDX 1210 100 Thomasville, Ga.
 Stevens Luke, 135 E. Jackson St.
WRAK 1370 100 Williamsport, Pa.
 WRAK, Inc., 244 W. 4th St.

WRAM 1370 100 Wilmington, N. C.
 Wilmington Radio Assn., Princess St.
WRAW 1310 100 Reading, Pa.
 Reading Broadcasting Co., 533 Penn St.
WRAX 1020 250 Philadelphia, Pa.
 WRAX Broadcasting Co., 217 S. Broad St.
WRBL 1200 100 Columbus, Ga.
 WRBL Radio Station, Inc.
WRBX 1410 250 Roanoke, Va.
 Richmond Development Corp.
WRC 950 500 Washington, D. C.
 National Broadcasting Co., Inc.
WRDO 1370 100 Augusta, Me.
 WRDO, Inc., Augusta House.
WRDW 1500 100 Augusta, Ga.
 Virgil V. Evans Co., 309 8th St.
WREC 600 500 Memphis, Tenn.
 WREC, Inc., Hotel Peabody.
WREN 1220 1000 Lawrence, Kans.
 Jenny Wren Co., 8th and Vermont St.
WRHM 1250 1000 Minneapolis, Minn.
 Minnesota Broadcasting Corp., 115 E. Grant.
WRJN 1370 100 Racine, Wis.
 Racine Broadcasting Corp., Hotel Racine.
WRNY 1010 250 New York, N. Y.
 Marcus Loew Booking Agency.
WROL 1310 100 Knoxville, Tenn.
 Stuart Broadcasting Corp., 524 S. Gay.
WRR 1280 500 Dallas, Texas.
 City of Dallas, Hilton Hotel.
WRUF 830 5000 Gainesville, Fla.
 State University.
WRVA 1110 5000 Richmond, Va.
 Larus & Bro. Co., Inc., 22nd and Gary St.
WSAI 1330 1000 Cincinnati, Ohio.
 Crosley Radio Corp., 1329 Arlington.
WSAJ 1310 100 Grove City, Pa.
 Grove City College.
WSAN 1440 250 Allentown, Pa.
 WSAN, Inc., 39 10th St.
WSAR 1450 250 Fall River, Mass.
 Doughty & Welch Electric Co., Inc.
WSAZ 1190 1000 Huntington, W. Va.
 WSAZ, Inc., 929 1/2 4th Ave.
WSB 740 50000 Atlanta, Ga.
 Atlanta Journal, 7 N. Forsyth St.
WSBC 1210 100 Chicago, Ill.
 Gene T. Dyer, 1258 S. Michigan Ave.
WSBT 1230 500 South Bend, Ind.
 South Bend Tribune.
WSEN 1210 100 Columbus, Ohio.
 Columbus Broadcasting Corp., 144 S. High.
WSFA 1410 500 Montgomery, Ala.
 Montgomery Bldg. Co., Inc., Jeff. Dav. H'l.
WSIX 1210 100 Springfield, Tenn.
 638 Tire & Vulcanizing Co.
WSJS 1310 100 Winston-Salem, N. C.
 Winston-Salem Journal Co., 416 N. Marshall.
WSM 659 50000 Nashville, Tenn.
 National Life & Accident Insurance Co.
WSMB 1320 500 New Orleans, La.
 WSMB, Inc., Maison Blanche Bldg.
WSMK 1380 200 Dayton, Ohio.
 S. M. Krohn, Jr., 4th and Main St.
WSOC 1210 100 Charlotte, N. C.
 WSOC, Inc., Box 730.
WSPA 1420 100 Spartanburg, S. C.
 Virgil V. Evans, Ravenel and Avant St.
WSPD 1340 1000 Toledo, Ohio.
 Toledo Broadcasting Co., 505 Jefferson
WSUI 860 500 Iowa City, Iowa.
 State University of Iowa.

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WSUN 820 1000 St. Petersburg, Fla. Florida Westcoast Broadcasting Co., Inc.	KEAW 985 10000 Reynosa, Tams. Internacional Broadcasting Co., S. A.
WVSV 1370 50 Buffalo, N. Y. Seneca Vocational High School.	XEB 1030 10000 Mexico City, D. F. El Buen Tono, S. A., Buen Tono No. 6.
WVYB 1500 100 Rutland, Vt. Philip Weiss Music Co., 80 West St.	XEC 1000 50 Toluca, D. F. Jesus R. Benavides, Independencia 76.
WSYR 570 250 Syracuse, N. Y. Central New York Broadcasting Corp.	XED 1155 500 Guadalajara, Jal. Radiofonografica de Guadalajara, S. A.
WTAD 1440 500 Quincy, Ill. Illinois Broadcasting Corp., State and 6th.	XEF 735 150000 Villa Acuna, Coah. Compania Radiodifusora de Acuna, S. A.
WTAQ 580 500 Worcester, Mass. Worcester Telegram Publishing Co.	XEFA 1250 500 Mexico City, D. F. Eduardo Limon Segui, Mediterraneo 236
WTAM 1070 50000 Cleveland, Ohio. National Broadcasting Co., Inc.	XEFB 1315 100 Monterrey, N. L. Jesus Quintanilla, 5 de Mayo Oriente 112.
WTAQ 1330 1000 Eau Claire, Wis. Gillette Rubber Co., Hotel Eau Claire.	XEFC 1050 100 Merida, Yuc. J. Molina Font, Calle 59, 517.
WTAR 780 500 Norfolk, Va. WTAR Radio Corp., Walwright Bldg.	XEFE 1000 100 Laredo, Tams. Rafael T. Garranza.
WTAW 1120 500 College Station, Texas. Agricultural and Mechanical College.	XEFG 1085 500 Mexico City, D. F. Ricardo Gonzales Montero, Tepic 48
WTAX 1210 100 Springfield, Ill. WTAX, Inc., 416 E. Capitol Ave.	XEFI 1260 250 Chihuahua, Chih. Feliciano Lopez Isles, Apt. 157.
WTBO 1420 100 Cumberland, Md. Associated Broadcasting Corp., Box 794.	XEFJ 1000 100 Monterrey, N. L. R. Junco de la Vega, C. Morelos Oriente 759.
WTEL 1310 100 Philadelphia, Pa. Foulkrod Radio Engineering Co., Inc.	XEFO 940 5000 Mexico City, D. F. Partido Nacional Revolucionario.
WTFI 1450 500 Athens, Ga. Liberty Broadcasting Co., Costa Bldg.	KEFS 1000 40 Queretaro, Qro. Salvador Sanchez, Calle Montes 23.
WTIC 1060 50000 Hartford, Conn. Travelers Broadcasting Service Corp.	KEFV 1400 100 Jaurez, Chih. J. Onofre Meza, Ave. Lerdo Norte 521.
WTJS 1310 100 Jackson, Tenn. Sun Publishing Co., Sun Bldg.	KEFW 1280 70 Tampico, Tams. J. Expedito Martinez, C. Madero Poniente 19.
WTMJ 820 1000 Milwaukee, Wis. The Journal Co., 333 W. State St.	KEFZ 1370 100 Mexico City, D. F. Manuel Zetina
WTNJ 1280 500 Trenton, N. J. Trenton Broadcasting Co., Stacy Trent Hotel.	XEH 1132 250 Monterrey, N. L. Tarnava y Cia, P. Mier 215.
WTOC 1280 500 Savannah, Ga. Savannah Broadcasting Co., Inc., DeSoto Hotel.	XEI 1310 250 Morelia, Mich. Carlos Gutierrez M., F. I. Madero 545
WTRC 1310 50 Elkhart, Ind. Truth Radio Corp., Hotel Elkhart.	XEJ 1015 500 Juarez, Chih. Juan G. Buttner, Ave. Lerdo 309.
WVFW 1400 500 Brooklyn, N. Y. Paramount Brdstg. Co., 1 Nevins St.	XEK 990 100 Mexico City, D. F. Arturo Martinez, Jalapa No. 51
WWAE 1200 100 Hammond, Ind. Hammond Calumet Broadcasting Corp.	XEL 1000 40 Saltillo, Coah. Antonio Garza Castro, Aldama 59
WWJ 920 1000 Detroit, Mich. Evening News Assn., 616 Lafayette Blvd.	XEN 711 1000 Mexico City, D. F. Cerveceria Modelo S. A., Motolinia 22.
WWL 850 10000 New Orleans, La. Loyola University, Roosevelt Hotel.	XENT 1115 150000 Nuevo Laredo, Tams. Cia Industrial Universal S. A., Apt. 47.
WWNC 570 1000 Asheville, N. C. Citizen Broadcasting Co., Inc., Flatiron Bldg.	XEO 940 5000 Mexico City, D. F. Partido Nacional Revolucionario.
WWRL 1500 100 Woodside, N. Y. Long Island Broadcasting Corp.	XEOK 760 2500 Tijuana, B. C. Carlos de la Sierra, (Box 1441, San Diego).
WWSW 1500 100 Pittsburgh, Pa. Walker & Downing Radio Corp.	XEP 780 500 Mexico City, D. F. Cia Difusora de Mexico S. A., Durango 74.
WWVA 1180 5000 Wheeling, W. Va. West Virginia Broadcasting Corp.	XEPN 585 75000 Piedras Negras, Coah. Piedras Negras Broadcasting Co.
WXYZ 1240 1000 Detroit, Mich. Kunsky-Trendle Broadcasting Corp.	XER 735 150000 Villa Acuna, Coah. Compania Radiodifusora de Acuna, S. A.
XEA 1000 250 Guadalajara, Jal. Alberto Palos Souza, Juan Manuel 383	XES 1020 250 Tampico, Tams. Fernando Sada, Hotel Inglaterra.
XEAB 1450 7.5 Nuevo Laredo, Tams. Homberto Garcia.	XET 890 500 Monterrey, N. L. Cadena Radiodifusora Mexicana, S. A.
XEAC 1295 100 San Luis Potosi, S.L.P. Francisco de P. Cabrera.	XETB 1380 125 Torreon, Coah. Jose A. Berumen, R. Corona 317.
XEAE 980 800 Tijuana, B. C. Adolfo Labastida, Jr., Ave. D 542.	XETH 860 100 Puebla, Pue. Ramon Huerta G., Calle 17, Oriente 6.
XEAF 990 750 Nogales, Son. Manuel Mascarenas M., Hotel Central.	XETU 890 100 Pachuca, Hdg. Benito Castillo
XEAI 1090 100 Mexico City, D. F. Carlos Gonzales Caballero, Insurgentes 366.	ETW 830 500 Mexico City, D. F. Rafael M. Pena, Gante 4, 3er piso
XEAO 560 100 Mexicali, B. C. Luis L. Castro, C. Altamirano 156.	

AROUND *the* CLOCK on the SHORT WAVES

MIDNIGHT TO NOON (EST)

GMT	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00
AST	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00
EST	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00
CST	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00
MST	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00
PST	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
	W8XK W9XF	VK2ME W9XF	GSD GSF VK2ME	RV15 GSD GSF	RV15	J1AA RV15 VK2ME VK3ME	J1AA RV15 VK2ME VK3ME W1XAZ ZGE	EAR58 GSE GSC PHI Rabat RV15 PHI VE9DR VE9GW VK2ME W1XAZ W8XK ZGE	DJB EAR58 GSE GSQ H11A PHI Pont. Rabat VE9DR VE9GW VK2ME W8XK YV2AM YV3BC ZGE	DJB GSE GSF PHI Pont. VE9DR VE9GW VK2ME W1XAZ W8XK YV2AM YV3BC	CT3AQ DJB DJD GSD GSF Pont. VE9DR VE9GW W1XAL W1XAZ W8XK YV3BC	CT3AQ DJB DJD GSD GSF I2RO Pont. VE9DR VE9GW W1XAL W1XAZ W1XAL W1XAZ W8XK YV3BC

NOON TO MIDNIGHT (EST)

GMT	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	1:00	2:00	3:00	4:00
AST	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00
EST	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00
CST	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00
MST	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00
PST	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
	DJB DJD GSB GSF H11A I2RO Pont. TGW VE9DR VE9GW VE9JR W1XAL W1XAZ W2XE W3XAL W3XAU W8XK	DJB DJD GS ? GSD H11A I2RO Pont. VE9DR VE9GW VE9JR W1XAZ W3XAL W3XAU W8XK W9XF	DJB DJD GSC GSD I2RO OXY Pont. VE9DR VE9GW VE9JR W1XAZ W3XAL W3XAU W8XK W9XF	DJB DJD GSC GSD HJ4ABB I2RO OXY Pont. Rabat RV59 VE9DR VE9GW VE9JR W1XAZ W2XE W3XAL W3XAU W8XK W8XK	CT1AA DJD GSC GSD I2RO OXY Pont. Rabat RV59 VE9DR VE9GW HJ1ABB I2RO OXY RV59 VE9DR VE9GW VE9JR W1XAZ W2XE W3XAL W3XAU W8XK YV3BC	CT1AA CT3AQ DJA DJD EAQ GSA GSC HBL HBP HJ1ABB OXY Pont. VE9DR VE9GW W1XAL W1XAZ W2XAF W2XE W3XAL W8XK W9XF XETE YV1BC YV3BC	CT1AA CT3AQ DJA DJA EAQ GSA GSC HBL HBP HJ1ABB OXY Pont. VE9DR VE9GW W1XAL W1XAZ W2XAF W2XE W3XAL W8XK W9XF XETE YV1BC YV3BC	DJA EQ GSA GSA GSC HJ1ABB HBL HJ4ABE Pont. VE9DR VE9JR VE9JR W1XAL W1XAZ W2XAF W2XE W3XAL W8XK W9XF YV3BC	DJA DJC H11A HJ1ABB 2ABA 3ABD 4ABB 4ABE LSX Pont. VE9DR VE9GW VE9HX VE9JR W1XAL W2XAF W2XE W3XAL W3XAU W8XK W9XF YV3BC	HC2RL HJ . . . 3aBD Pont. PRADO TGW NRH VE9DR VE9GW VE9JR W1XAL W2XE W3XAL W3XAU W8XK W9XF XETE	HC2RL HJ . . . 3aBD Pont. PRADO TGW NRH VE9DR VE9GW VE9JR W1XAL W2XE W3XAL W3XAU W8XK W9XF XETE	HJ . . . 4ABB Pont. VE9DR W1XAZ W3XAL W3XAU W8XK W9XF XETE

One Hundred Best Short Wave Stations

Arranged Alphabetically

Stations marked with an asterisk (*) will not verify. Frequencies are given in megacycles. Times are given in Eastern Standard.

- *British Ships, 13.220, 8.831, 4.174
 *CEC, Chile, 19.678, 15.855
 CGA, Canada, 13.296, 9.340
 CNR, Morocco, 12.820
 CP5, Bolivia, 6.081
 CT1AA, Portugal, 9.592. Tues. and Fri., 4:30-7 p.m.
 CT3AQ, Madeira, Tues., Thurs., 5-6:30 p.m.; Sun. 10:30 a.m.-noon.
 DAF, Germany, 12.394
 DFB, Germany, 17.512
 DIQ, Germany, 10.285
 DJA, Germany, 9.552. 5 to 9:15 p.m.
 DJB, Germany, 15.190. 8 a.m. to 4:30 p.m.
 DJC, Germany, 6.017. 8 to 10:15 p.m.
 DJD, Germany, 11.753. 10 a.m. to 6 p.m.
 DJL, Germany, 15.110
 EAQ, Spain, 9.862. 5:30 to 7:30 p.m.
 EAR58, Canaries, 7.207. 5 to 6:30 p.m.
 EHY, Spain, 10.164
 FTK, France, 15.863
 FTM, France, 19.282
 FZS, Indo-China, 11.983
 *German Ships, 13.135, 10.163, 8.328, 4.174
 GAS, England, 18.304
 GBB, England, 13.500
 GBS, England, 12.148
 GBW, England, 14.450
 GSA, England, 6.050. 6 to 8 p.m.
 GSB, England, 9.510. 11 a.m. to 1 p.m.
 GSC, England, 9.585. 1:15 to 5:45 p.m.; 6 to 8 p.m.
 GSD, England, 11.750. 2 to 4 a.m.; 1:15 to 5:45 p.m.
 GSE, England, 11.865. 7 to 8:45 a.m.; 9 to 11 a.m.
 GSF, England, 15.140. 2 to 4 a.m.; 9 a.m. to 1 p.m.
 GSG, England, 17.770. 7 to 8:45 a.m.
 G6RX, England, 4.972. Testing nights
 HBL, Switzerland, 9.580. Sat., 5:30 to 6:15 p.m.
 HBP, Switzerland, 7.872. Sat., 5:30 to 6:15 p.m.
 HC2J5B, Ecuador, 4.283. 9 to 11 p.m.
 HC2RL, Ecuador, 6.659. Tues., 9:14 to 11:14 p.m.; Sun., 5:45 to 7:45 p.m.
 HCJ9, Ecuador, 3.998. 8:14 to 10:14 daily, exc. Mon.
 HCK, Ecuador, 5.694. 8 to 11 p.m.
 HIX, Santo Domingo, 5.948. Tues. and Fri., 8 to 10 p.m.; Sun., 7:40 a.m.
 HIZ, Santo Domingo, 6.379. 5-6 p.m.
 HI-1-A, Santo Domingo, 6.272. 8-8:30 a.m.; 12:30-1:30 p.m.; 8-9 p.m.
 *HJB, Colombia, 14.930
 *HIY, Colombia, 18.444
 HJ1AB, Colombia, 6.447. 5 to 10 p.m.
 HJ2ABA, Colombia, 5.879. 7:30 to 10 p.m.
 HJ3ABD, Colombia, 7.402. 9-11:15 p.m., daily
 HJ4ABB, Colombia, 7.139. Sat., 11 p.m. to Mid.; Sun. 3-5 p.m.; Wed., 8-10 p.m.
 HJ4ABE, Colombia, 5.879. Mon., Wed., Fri., 7:30-9:30 p.m.
 HJ5ABB, Colombia, 6.378
 HJ5ABF, Colombia, 8.271
 HKN, Colombia, 7.138. 8-10 p.m., daily
 *HPF, Panama, 14.545.
 HSP, Siam, 17.719
 HVJ, Vatican City, 15.120. 5 to 5:15 a.m.
 IAC, Italy, 12.785
 I2RO, Italy, 11.800. 11:30 a.m. to 12:30 p.m.; 1:15 to 6 p.m.
 J1AA, Japan, 9.862. 5 to 8 a.m.
 KAY, Philippines, 14.980
 KAZ, Philippines, 9.980
 *KKP, Hawaii, 16.024
 LSN, Argentina, 9.395
 LSX, Argentina, 10.345
 LSY, Argentina, 18.116
 *OCI, Peru, 18.670
 OXY, Denmark, 9.520. 2 to 6:30 p.m.
 PHI, Holland, 11.725. 7:30 to 10 a.m., except Tues. and Wed.
 PLE, Java, 18.820
 PLV, Java, 9.410
 Pontoise, France, 15.454
 Pontoise, France, 15.234. 8-11 a.m.
 11.898. 11:15 a.m. to 2:15 p.m.; 3 to 6 p.m.
 11.711. 3 to 9 p.m.; 10 p.m. to mid.
 *PPU, Brazil, 19.270
 PRADO, Ecuador, 6.618. Thursday, 9-11 p.m.
 *PSF, Brazil, 14.682
 Rabat, Morocco, 12.820. Sun, 7:30 to 9 a.m.
 8.218. Sun, 2:30 to 5 p.m.
 RNE, USSR., 11.923. Testing irregularly
 RV15, Siberia, 4.273. 3-9 a.m., daily
 RV59, USSR, 5.996. 3-6 p.m., daily
 SRI, Poland, 9.488. 1-3 p.m., Tues.; 8-9 a.m., Wed.
 TGA, Guatemala, 14.545
 TIN-TTU, Costa Rica, 14.545
 TI4NRH, Costa Rica, 9.670. 10-11 p.m., daily
 UOR2, Austria, 6.072. 8:30-9 a.m.; 10 a.m.-1 p.m. and 2-4 p.m. on Tuesdays.
 UOR3, Austria, 11.800
 VE9BJ, Canada, 6.090
 VE9CS, Canada, 6.074
 VE9DR, Canada, 6.005. 7:30 a.m. to Midnight; Sun., noon to 11:15 p.m.
 VE9GW, Canada, 6.092. 3 p.m.-midnight
 VE9HX, Canada, 6.110. 5-11 p.m., daily
 VE9JR, Canada, 11.710. Sun., 9-10 p.m.; Sat., 9:30-10 a.m.; 11-11:30 a.m.; 12:45-1:15 p.m.; 7-8:30 p.m.; 9-10:30 p.m. Other days: 9:30-10 a.m.; 11-11:35 a.m.; 2-2:15 p.m.; 3:15-3:35 p.m.; 7-10:30 p.m.
 VK2ME, Australia, 10.520.
 9.585. Sun., 1 to 3 a.m.; 5 to 11 a.m.
 VK3ME, Australia, 9.503. Wed., 5-6:30 a.m.; Sat., 5-7 a.m.
 VWZ, India, 17.533
 *WNC, U. S. A., 15.055
 W1XAL, U. S. A., 15.242. Sunday, 10 a.m.-1 p.m.
 11.780. Sat., 5:30-11 p.m.; Sun., 6:30-8:30 p.m.
 W2XAD, USA, 15.320. Sun., Mon., Wed., Fri., 4-5 p.m.
 W2XAF, USA, 9.530. 7:45 to 11 p.m.
 W2XE, U. S. A., 15.258. 11 a.m. to 1 p.m.
 11.823. 3 to 5 p.m.
 6.116. 6 to 11 p.m.
 W3XAL, U. S. A., 17.772. 12:30 to 6:30 p.m. except Sat.
 6.096. 3 p.m. to midnight, Saturday
 W3XAU, USA, 9.585. Noon to 6 p.m.
 6.057. 8 p.m. to 1 a.m.
 W3XL, U. S. A., 6.421. Irregular
 W8XK, U. S. A., 21.451. 7 a.m. to 2 p.m.
 15.204. 10 a.m. to 4:15 p.m.
 11.870. 4:30-10 p.m.
 6.140. 4:30 p.m. to 12:30 a.m.
 W9XAA, U. S. A., 6.076. 3 to 6 p.m.
 W9XF, U. S. A., 6.100. Silent Sat.; Sun, 1-2:30 p.m.; 4:30-7 p.m.; 9 p.m. to 2 a.m.; other days, 4:30-8 p.m.; 9:30 p.m. to 2 a.m.
 XAM, Mexico, 11.187
 XDS, Mexico, 11.760
 XETE, Mexico, 9.630. 2:30-5 p.m.; 6:30 p.m. to midnight
 *YNA, Nicaragua, 14.480. Phones Hialeah.
 *YVQ, Venezuela, 13.337. Phones Hialeah
 *YVR, Venezuela, 18.296 and 9.168
 YV1BC, Venezuela, 6.112. 5:15 to 10 p.m.
 YV2AM, Venezuela, 7.138. Sun., 8-10 a.m.
 YV3BC, Venezuela, 9.510. 9:30 to 10 p.m.
 6.150. 10:30 a.m. to 1 p.m. and 4:30-noon and 3-6:30 p.m.
 *ZFA, Bermuda, 5.045
 *ZFB, Bermuda, 10.080
 ZFS, Bahamas, 4.513.
 ZGE, Malaya, 5.996. Tues., Fri., 6:30-8:30 a.m. and Sun., 7-9 a.m.

The FOREIGN Short Wave Stations

With frequencies in megacycles, wavelengths in meters. Letters in parentheses are the calls assigned to the country by international agreement. The zone given is for use with the RADEX Time Converter. The North American Stations will appear in the February issue.

City	Call	Megs.	Meters	City	Call	Megs.	Meters	City	Call	Megs.	Meters	
ARGENTINA, South America (LOA-LVZ) Zone 18				CANARY ISLANDS, Africa (EAA-EHZ) Zone 24				PLE 18.820 15.93				
Buenos Aires	LQA	9.702	30.90	Santa Cruz de Tenerife	EAR58	7.207	41.60	PLF 17.850 16.80				
	LQA	9.600	31.23		CHILE, South America (CAA-CEZ) Zone 16			PLG 15.950 18.80				
	LSA	14.530	20.65	Santiago	CAU	14.545	20.69	PLM 12.290 24.40				
	LSA	9.890	30.32		CEC	19.678	15.24	PLV 9.410 31.86				
	LSG	19.895	15.07		CEC	15.855	18.91	PLW 9.480 31.63				
	LSI	9.830	30.50		CEC	10.664	28.12	PMB 20.606 14.55				
	LSL	21.129	14.18		CHINA, Asia (XGA-XUZ) Zone 42			PMC 18.170 16.50				
	LSL	10.296	29.12	Shanghai	XGK	18.692	16.04	PMN 10.250 29.25				
	LSL	9.993	30.00		XGL	7.963	37.65	PMY 5.143 58.30				
	LSM	21.128	14.19		XGN	16.383	18.30	Macassar (Celebes)	PNI	8.769	34.19	
	LSM	19.121	15.68		XGO	7.575	39.58	Medan (Sumatra)	UIG	10.410	28.80	
	LSN	21.020	14.27		COLOMBIA, South America (HJA-HKZ) Zone 16			ECUADOR, South America (HCA-HCZ) Zone 16				
	LSN	14.480	20.70	Barranquilla	HJ1ABB	6.447	46.50	Guayaquil	HC2J8B	4.283	70.00	
	LSN	9.895	30.00		HJ1ABB	6.447	46.50		HC2RL	6.659	45.02	
	LSR	18.958	15.82	Bogota	HJB	14.930	20.08	Quito	HCJB	4.107	73.00	
	LST	9.104	32.93		HJP	7.465	40.16		HCK	5.694	52.65	
	LSX	10.345	28.98		HJY	18.444	16.25	Riobamba	Prado	6.618	45.31	
	LSY	20.820	14.40		HJY	9.923	30.20					
	LSY	18.116	16.55		HJ3ABD	9.028	40.50					
AUSTRALIA, Oceania (VHA-VMZ) Zones 42-45-46					HJ3ABF	6.246	48.00					
Ballan, Victoria	VYI	12.017	24.95		HKI	7.402	40.50					
Melbourne, Vic.	VK3LR	5.678	52.80	Cali	HJ5ABB	6.378	47.00					
	VK3ME	9.503	31.55	Manizales	HJ4ABB	7.139	42.00					
Sydney, N. S. W.	VK2ME	10.520	28.50	Medellin	HJ4ABE	5.879	51.00					
	VK2ME	9.750	30.75		HKN	7.138	42.00					
	VK2ME	9.585	31.28	Popayan	HJ5ABF	8.271	36.25					
	VK2ME	7.940	37.76	Tunja	HJ2ABA	5.879	51.00					
	VLJ	9.756	30.73		CONGO, BELGIAN (Africa) (ONA-OTZ) Zones 28-30							
	VLJ	7.177	37.59	Leopoldville	OPL	20.028	14.97					
	VLK	10.520	28.50		OPM	10.135	29.98					
	VLK	8.090	37.06		COSTA RICA, Central America (TIA-TIZ) Zone 14							
AUSTRIA, Europe (UOA-UOZ) Zone 28					Cartago	TIN-TIU	14.545	20.69				
Vienna (Wein)	UOR2	6.072	49.37		TIR	8.784	34.13					
	UOR3	11.800	25.41		TIR	7.685	39.01					
BAHAMAS, North America (VPA-VSZ, ZBA-ZJZ) Zone 16					Heredia	TIANRH	9.670	31.00				
Nassau	ZFS	4.513	66.43		CZECHOSLOVAKIA, Europe (OKA-OKZ) Zone 28							
				Podebrady	OKI	21.000	14.28					
BELGIUM, Europe (ONA-OTZ) Zone 26						DENMARK, Europe (OUA-OZZ) Zone 28						
Brussels	ORG	19.182	15.63	Skamlobaek	OXY	9.520	31.49					
	ORK	10.324	29.04		OXY	6.069	49.40					
BERMUDA, North America (VPA-VSZ, ZBA-ZJZ) Zone 18						DOMINICAN REPUBLIC, North America (HIA-HIZ) Zone 16						
St. George (Hamilton)	ZFA	5.045	59.42	Santiago de los Caballeros	HIIA	6.272	47.80					
	ZFB	10.060	29.80	Santo Domingo	HIX	5.948	50.40					
	ZFD	10.330	29.02		HIZ	6.379	47.50					
BOLIVIA, South America (CPA-CPZ) Zone 18						DUTCH EAST INDIES, Oceania (UIA-UKZ, PKA-POZ) Zones 40-44						
La Paz	CP5	6.081	49.30	Bandoeng (Java)	PKIWK	6.116	49.02					
BRAZIL, South America (PPA-PYZ) Zones 18-20												
Rio de Janeiro	PPQ	11.644	25.75									
	PPU	19.270	15.27									
	PSA	21.069	14.23									
	PSA	16.162	18.55									
	PSF	14.682	20.42									
	PSH	10.212	29.35									
	PSK	8.180	36.65									

City	Call	Megs.	Meters	City	Call	Megs.	Meters	City	Call	Megs.	Meters		
	DID	11.753	25.51	Guatemala City	TGA	14.545	20.69	Kemikawa-Cho (Tokio)	J1AA	15.760	19.02		
	DJE	17.760	16.88		TGW	6.611	45.35		J1AA	13.074	22.94		
	DJL	15.110	19.84		TGX	8.950	33.50		J1AA	9.862	30.40		
	GREAT BRITAIN, Europe (G-M) Zone 26				HONGKONG, Asia (VPA-VSZ, ZBA-ZJZ) Zone 42				KENYA, Africa (VPA-VSZ) Zone 31	Nairobi			
Bodmin	GBJ	18.620	16.10	Cape D'Aguliar	VPS	10.631	28.20		VQ7LO	6.060	49.48		
Davenport	GSA	6.050	49.56		VPS	5.972	50.20		MACAO, Asia (CSA-CUZ) Zone 42 Macao				
	GSB	9.510	31.53	Victoria Peak	ZBW	8.645	34.68		CQH	5.996	50.00		
	GBC	9.585	31.28		ZBW	5.972	50.20		CQN	6.018	49.80		
	GSD	11.750	25.51		HUNGARY, Europe (HAA-HAZ) Zone 28				MADAGASCAR, Africa (F) Zone 32 Tananarive				
	GSE	11.865	25.27	Skekesfehevar	HAS	13.671	21.93		FIU	5.689	52.70		
	GSF	15.140	19.81		HAS	6.207	48.30		MADEIRA ISLANDS, Africa (CSA-CUZ) Zone 24				
	GSJ	17.770	16.88		HAT	17.122	17.51		Funchal				
	GSH	21.470	13.96		HAT	7.220	41.53		CT3AQ	11.174	26.83		
Rugby	GAA	20.368	14.72		INDIA, Asia (VTA-VWZ) Zones 37-38				MEXICO, North America (XAA-XFZ) Zone 14				
	GAG	18.963	15.81	Calcutta	VUC	6.110	49.10		Chapultepec, D. F.	XDA	5.879	51.00	
	GAS	18.304	16.38		Poona	VWZ	17.533	17.10		XDM	11.760	25.50	
	GAU	18.611	16.11		IRAQ, Asia (YIA-YIZ) Zone 32				Merida, Yucatan	XAM	11.187	26.80	
	GAW	18.193	16.48		Bagdad	YID	4.467	67.11		XAM	5.766	52.00	
	GBA	13.984	21.44			ITALY, Europe (I) Zone 28				Mexico City, D. F.			
	GBB	13.500	22.09		Coltano (Piza)	IAC	17.770	16.89		XDA	14.630	20.50	
	GBC	17.080	17.55			IAC	12.785	23.45		XDA	9.375	31.97	
	GBC	12.780	23.46			IAC	6.648	45.10		XETE	9.600	31.23	
	GBC	8.646	34.56			Fiumicino	IAF	29.803	10.06		XFD	11.111	26.98
	GBC	4.975	60.27			Golfo Aranci	IAG	30.593	9.80		XFD	9.091	32.97
	GBP	10.761	27.86			Rome	IMA	6.900	43.45		Torreon, Coahuila		
	GBS	12.148	24.68				IRW	19.506	15.37		XDC	9.343	32.09
	GBU	22.291	13.45				I2RO	11.800	25.40		MOROCCO, Africa (CNA-CNZ) Zone 26		
	GBU	12.241	24.41				I3RO	3.750	79.95		Rabat		
	GBW	14.450	20.75				JAPAN, Asia (J) Zone 44				CNR	12.820	23.38
	GBX	16.150	18.56								8.218	36.36
	GCA	9.702	30.90								NETHERLANDS, Europe (PAA-PIZ) Zone 26		
	GCB	9.273	32.33										
	GCS	9.014	33.26										
	GCU	9.942	30.15										
	GCW	9.798	30.60										
	GDB	6.791	44.15										
	GDS	6.900	43.45										
	GDW	4.835	62.00										
	GGRX	4.972	60.30										
	GUATEMALA, Central America (TGA-TGZ) Zone 14												

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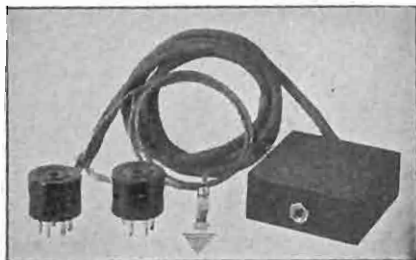
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