MID-SUMMER EDITION

RADIO INDEX

THE ALL-WAVE RADIO MAGAZINE

25c

30 cents in Canada Including Tax

Complete Reallocation in Mexico
New All-Wave World-Wide Antenna
When Signals Cut Off and On
A Radio Log for the Whole World
The Beginner's Story of Radio

No. 80

The MONTH'S CHANGES

FREQUENCIES

590	XEPN	Piedras Negras, from 585
680	CMCQ	Havana, Cuba, from 767
720	XEFI	Chihuahua, from 1260
780	KFDY	Brookings, S. D., from 550
810	XFC	Aguascalientes, from 805
820	XETW	Mexico City, from 830
850	XETZ	Mexico City, from 1210
950	CMHD	Caibarien, Cuba, from 940
970	XEP	Mexico City, from 780
970	XES	Tampico, Tams., from 1020
1010	XEB	Mexico City, from 1030
1020	XEJ	Juarez, Chih., from 1015
1040	XEFG	Mexico City, from 1105
1080	XEAF	Nogales, Son., from 990
1100	XEWW	Veracruz, from 1095
1120	XEK	Mexico City, from 990
1160	XED	Guadalajara, from 1155
1180	XEFA	Mexico City, from 1250
1200	WMPC	Lapeer, Mich., from 1500
	XEU	Vera Cruz, from 1010
	XEY	Merida, Yuc., from 540
1210	XEA	Guadalajara, from 1000
	XEAB	NuevoLaredo, from 1450
	XEC	Toluca, D. F., from 1000
	XEFJ	Monterrey, from 1000
	XEFV	Juarez, Chih., from 1400
	XETH	Puebla, Pue., from 1200
1280	XEBC	Agua Caliente, from 815
1300	CMCG	Havana, Cuba, from 1140
1310	XEFC	Merida, Yuc., from 1050
	XETB	Torreon, Coah., from 1380
	XEX	Monterrey, from 630
1320	KSO	Des Moines, from 1370
1340	XENT	Nuevo Laredo, from 1110
1370	XEFE	Nuevo Laredo, from 980
	XEL	Saltillo, Coah., from 1000
1420	XEAI	Mexico City, from 1090
	XEFB	Monterrey, from 1310
1500	WGAL	Lancaster, Pa., from 1310
	WJBK	Detroit, Mich., from 1370

POWER

600	CFCO	Chatham, Ont., 50 to 100
610	XFX	Mexico City, 500 to 1000
630	KTRH	Houston, Tex., 500 to 250
650	KPCB	Seattle, Wash., 1000 to 250
670	WMAQ	Chicago, Ill., 5000 to 50000
860	XEMO	Tijuana, B. C., 1500 to 2500
930	WDBJ	Roanoke, Va., 250 to 500
980	XEAE	Tijuana, B. C., 800 to 250
1050	KNX	Hollywood, Cal., 25000 to 50000
1080	XEAF	Nogales, Son., 750 to 250
1260	WNBX	Springfield, Vt., 250 to 500
1280	XEBC	Agua Caliente, 2500 to 5000
1310	WLBC	Muncie, Ind., 100 to 50
1320	KGHF	Pueblo, Colo., 250 to 500

NEW

640	XEOX	Saltillo, Coah.
740	XEPR	Mexico City, D. F.
750	XEMC	Merida, Yuc.
1200	XEMA	Tampico, Tams.
1200	XEWZ	Mexico City, D. F.
1210	WJIM	Lansing, Mich.
1210	XEE	Durango, Dgo.
1240	XFD	Orizaba, Ver.
1310	XFA	Aguascalientes, Ags.
1370	XEZZ	San Luis Potosi
1420	XEAZ	Leon, Guan.
1530	.....	Waterbury, Conn.
1530	.....	Kansas City, Mo.
1550	.....	Long Island City, N. Y.
1550	.....	Bakersfield, Calif.

CALLS

1200	WBNO	New Orleans, La., from WBBX
1210	WJIM	Lansing, Mich., from WCBC
1410	WALA	Mobile, Ala., from WODX
1500	WRGA	Rome, Ga., from WFDV

DELETED

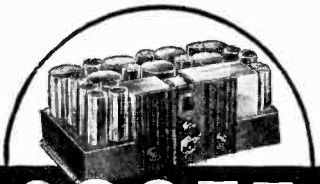
1100	XEWW	Veracruz
1390	CMPN	Havana, Cuba
1430	WBAK	Harrisburg, Pa.

OWNERS

840	CJOC	Taylor, Pearson & Carson Brdcstg. Co. Ltd., Lethbridge, Alta.
930	CFAC	Taylor, Pearson & Carson Brdcstg. Co. Ltd., Calgary, Alta.
980	XEAE	Adolfo Labastida, Jr., Ave. D542, Tijuana, B. C., Mex.
1060	WBAL	WBAL Broadcasting Co., Baltimore, Md.
1210	WJIM	Capital City Broadcasting Co., Lansing, Mich.
1240	XFD	Gobierno del Estado Veracruz, Orizaba, Ver., Mex.
1370	WHBD	Veebee Corp., Mount Orab, Ohio
1410	WALA	Pape Broadcasting Corp., Mobile, Ala.
1500	WDNC	Durham Radio Corp., Washington-Duke Hotel, Durham, N. C.
1500	WHEF	Attala Broadcasting Corp., Kosciusko, Miss.

Summer DX Programs

550	KFYR	Bismarck, N. D., Second Tuesday morning of each month, 1:00-2:00 EST
560	XEAO	Mexicali, B. C., Mex., Saturday mornings, 4:00-5:00 EST
730	CMK	Havana, Cuba, Friday evenings, 11:00-midnight
780	CHWK	Chilliwack, B. C., Second morning each month, 2:30-4:00 EST
925	CMCD	Havana, Cuba, Sunday mornings, midnight-3:00 EST
1030	CFCN	Calgary, Alta., Friday mornings, midnight-2:00 EST
1100	CMCU	Havana, Cuba, First and last Sunday mornings, 3:00-5:00 EST
1110	KSOO	Sioux Falls, S. Dak., Monday mornings, 12:30-1:00 EST
1140	CMBW	Havana, Cuba, Sunday mornings, midnight-1:00 EST
1160	XED	Guadalajara, Jal., Mex., Every 24th morning, 2:00-5:00 EST
1200	WWAE	Hammond, Ind., First Saturday night each month, 1:00-2:00 EST
1210	CKBI	Prince Albert, Sask., Last Saturday night each month, 2:30-4:30 EST
	WGNY	Chester, Orange Co., N. Y., Third Monday morning, 12:30-1:00 EST
1250	WCAL	Northfield, Minn., First Wednesday morning each month 4:30-5:00 EST
1260	KOIL	Council Bluffs, Iowa, Friday mornings, 1:00-2:00 EST
	WTOC	Savannah, Ga., First Sunday morning 1:00-2:00
1310	CFJC	Kamloops, B. C., Intermittently Sunday mornings, 3:00-5:00 EST
	KIT	Yakima, Wash., Mornings 3:00-4:00 EST
1360	KGER	Long Beach, Calif., Sunday mornings, 3:00-4:00 EST
	WGES	Chicago, Ill., Saturday and Sunday nights, midnight-3:00 EST
1370	KUJ	Walla Walla, Wash., First Monday morning, 3:45-4:00 EST
	WHBQ	Memphis, Tenn., Morning 15th each month, 3:00-4:00 EST
	WIBM	Jackson, Mich., Each Sunday morning except first Sunday, 1:00-3:00 EST
1420	WSPA	Spartanburg, S. C., Morning of 22nd of each month 4:00-5:00 EST
1430	WBNS	Columbus, Ohio, Tuesday mornings, 4:00-5:00 EST
1500	KPJM	Prescott, Ariz., Sunday mornings, 2:00-3:00 EST



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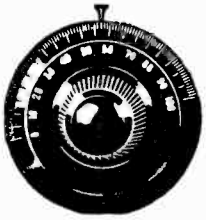
June 1, 1934



RADIO INDEX

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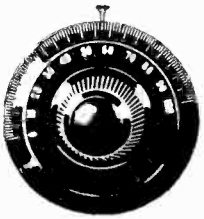

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Short Wave Editor

TENTH YEAR

NUMBER 80

CONTENTS

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The BEGINNERS' STORY *of* RADIO

PART NINE

The Complete T.R.F. Receiver

• • • *By* B. FRANCIS DASHIELL

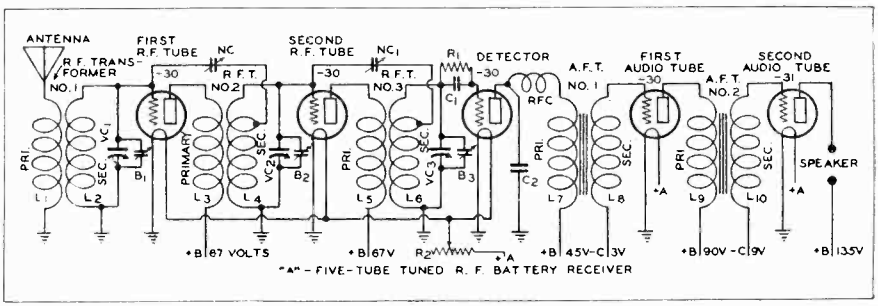
THE preceding eight chapters have been devoted to a study of the essentials of radio, and we have discovered how a number of electrical devices perform important duties in our radio sets. The underlying principles of these parts have been explained, while the standard symbols used in all schematic diagrams of radio circuits have been illustrated. At this time, therefore, we should be prepared to recognize these symbols when used in the description of radio circuits. Let us, then, assemble the different symbols, with which we are now familiar, in a schematic radio-circuit diagram, and proceed with the construction of a complete tuned radio-frequency receiver.

We find, in Part Three, illustrations G and H, a radio-frequency transformer; in Part Four, at H, a variable condenser; in Part Five, at D, the explanation of how a r.f. transformer is tuned by a variable condenser; also, at E, how several of these tuned units can be assembled in r.f. stages so as to form a tuned radio-frequency amplification circuit; in Part Six, the description of the actions of radio tubes; in Part Seven, at F, a typical detector circuit; and, in Part Eight, the principles of audio amplification, with a standard circuit diagram illustrated at C.

The Complete Diagram

We are ready, now, to take the tuned radio-frequency circuit (E), shown in Part Five, and add to it the detector (F) given in Part Seven. Then, to the latter, we will connect the audio-frequency circuit (C), of Part Eight. As a result of the combination of these independent circuits, we will have a complete five-tube tuned radio-frequency receiver of good selectivity and sensitivity. *Selectivity* is the degree to which a receiver is able to select and separate radio signals of different frequencies; *sensitivity* should not be confused with selectivity, for a receiver may have one without the other. Sensitivity is the distance-getting ability of a set and the degree of its responsiveness to extremely weak signals.

So, after we have assembled the three independent, elementary cir-



"A" – FIVE-TUBE TUNED R. F. BATTERY RECEIVER

cuits into one unit, we find the result illustrated at A. At the left we see the primary (L_1) of the *first* radio-frequency (No. 1) transformer connected between the antenna and the ground. Its secondary (L_2) is tuned to resonance by the variable condenser (VC_1). The upper, or high potential, end of this coil feeds an induced alternating current of radio frequency to the control-grid of the *first* r.f. tube; the lower, or low potential, end of the coil is grounded to the chassis. The plate of the first r.f. tube connects to the primary (L_3) of the *second* radio-frequency transformer (No. 2), and its circuit then continues to a source of positive potential, such as a "B" battery. About 67 volts is the proper potential for this plate in an elementary circuit of this type.

The R. F. Circuit

The primary (L_3) is coupled inductively to the secondary (L_4) which is tuned by a second variable condenser (VC_2). The upper end of the secondary feeds to the control-grid of the *second* radio-frequency tube, just as L_2 fed the grid of the first r.f. tube. As before, the lower end of the secondary is grounded. The plate of the second r.f. tube connects to the primary (L_5) of the *third* radio-frequency transformer (No. 3), and then continues to a positive "B" voltage. The coil (L_5) is coupled inductively to its secondary (L_6).

And the secondary (L_6), similar to the secondaries L_2 and L_4, is tuned by a third condenser (VC_3). And it also feeds the amplified r.f. potential to the control-grid of a third tube, but which is not another r.f. amplifying tube. This is the detector tube, and a small grid-condenser (C_1) is placed in series between L_6 and the grid. Then it is shunted by a high-resistance grid-leak resistor (R_1). The lower end of the detector grid-coil (L_6) also is grounded, but in some cases, particularly if the detector is regenerative, the set will work better if the lower end is connected to the positive terminal of the "A" battery.

At this point we take leave of the radio-frequency amplifying portion of the assembled radio circuit. The greatly amplified r.f. signal from the antenna is now turned over by the secondary (L_6) of the last of the three radio-frequency transformers to the input grid of the detector for detection and rectification. Then, after this effect has been accomplished, the detected signal must be further amplified for audio purposes.

The A. F. Circuit

If we follow the circuit given in A we can trace the detected signal as it passes from the plate of the detector tube. Its a.f. component enters the r.f. choke coil (RFC) and then goes into the primary (L_7) of the *first* audio-frequency transformer (No. 1); the r.f. component is turned back by the reactance of the choke, and is passed readily through the bypass condenser (C_2) into the neutral part of the circuit. After emerging from the primary (L_7) this circuit continues to a source of positive potential ("B" battery), which, since the detector plate is involved, seldom is more than 45 volts.

Now, as we know, the secondary of the first a.f. transformer (L_8) feeds its output to the grid of the *first* audio tube. But the lower end of this coil is not grounded; it must be connected to a source of negative electricity, such as a "C" battery of -3 to -6 volts. The pulsating-current output from the plate of the first audio tube (see Part Eight) controls the inductive operation of the primary (L_9) of the *second* a.f. transformer, the lower end of which connects to a positive source of "B" voltage. The amplified potential in the secondary (L_{10}) feeds the grid of the *second* or *output* audio power tube. The lower end of the secondary (L_{10}) also connects to a negative "C" battery, but of greater negative potential.

The output from the plate of the audio power tube feeds directly into the loud speaker, or the primary of an *output transformer*. This plate

must be operated with a higher potential than the plates of any of the preceding tubes. There are several variations of audio amplification, as was explained in Part Eight, and the push-pull circuit (D), shown in Part Eight, may be substituted for the last audio tube in our completed assembly.

The three variable condensers used for tuning can be placed on a single shaft in a gang unit, so the three secondaries (L_2, L_4 and L_6) will be tuned simultaneously. And, in order to offset slight mechanical inequalities in the condensers or windings of the coils, the tiny trimmer condensers (B_1, B_2 and B_3) are used to equalize the resonance of the three r.f. stages.

Building the Receiver

For those who may wish actually to construct this tuned radio-frequency receiver, the following specifications are given: The three r.f. transformers are wound on card, fiber or bakelite tubes that are about two inches in diameter and three inches long. Use double cotton covered copper wire, No. 26, for this purpose. The primary will have 12 turns, and the secondary 65 turns, both wound evenly and in the same direction. A space of about ⅛ of an inch is left between the ending of the primary winding and the beginning of the secondary winding. Illustration G, in Part Three, shows the arrangement of a radio-frequency transformer. Remember that all the transformers must be exact duplicates.

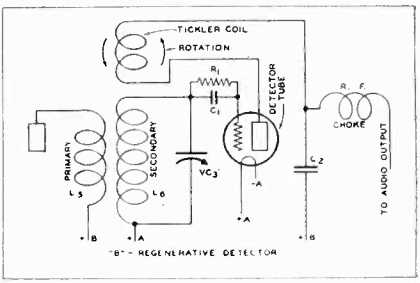
The secondaries are tuned simultaneously by a three-section, variable gang-condenser with each unit having similar capacities of .00035 mfd (350 mmfds). The small trimmer condensers may have capacities of about 50 mmfds. The two radio-frequency tubes, the detector and the first audio tubes, are of the -30 type, which uses two volts for the filament and draws a minimum of current. The negative terminals of the three filaments are grounded; the other three are brought together and connected to the positive terminal of the "A" battery *through* a series 20-ohm rheostat (R_2) used for the control of volume.

The resistance of the grid leak (R_1) is from 2 to 4 megohms; the grid condenser (C_1) has a capacity of .00025 mfd (250 mmfds); the bypass condenser (C_2) has a capacity of .001 mfd (1000 mmfds); the radio frequency choke coil (RFC), between the detector plate and the first audio transformer, has a value of approximately 40 millihenrys; both of the audio transformers should have turn ratios of three to one.

A Regenerative Detector

A *regenerative detector* and its subsequent amplification effects will add remarkably to the sensitivity of any t.r.f. receiver. Regeneration gives tremendous increases in the sensitivity of a detector. This means greater distance, and the actual reception of very weak signals. The regenerative detector requires a *three-circuit tuner*. The detector shown in the assembled circuit at A, utilizes a *two-circuit* tuner (the r.f. transformer). But we can add a third coil, and this will provide regenerative action.

This third coil, in a three-circuit tuner of a regenerative detector is called the *tickler coil*. Its position is indicated in illustration B. It has about 20 turns of wire, No. 26, wound on a short length of tube that will fit *within* the upper end of the secondary coil (L_6). A shaft must be provided so the tickler can be rotated back and forth. The amount of regeneration obtained depends upon the position of the tickler, and we are thus enabled to regulate the amount of inductive *feed-back* returned by the de-



tector plate circuit into its own grid circuit.

The Tickler Coil

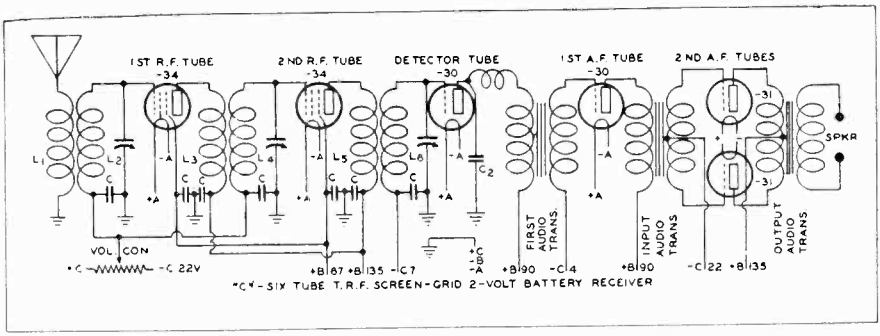
The action of the tickler is simple. Look at illustration B. When a signal is induced in the secondary (L_5) by the primary (L_5), the grid of the detector tube is given an alternating-current charge. The detector plate current immediately rises and falls in pulsating waves (as we learned in Parts Six and Seven). These waves have the same frequency as the alternations impressed upon the grid of the tube by the grid coil (L_6). Then, since the entire plate current is flowing also through the tickler, which is placed in series, a powerful magnetic field is created around the tickler. The tickler, then, induces another alternating current in the secondary (L_6) in *addition* to the current originally induced by the primary (L_5). In effect, this action is the same as if the secondary had two primary coils —one at either end. The additional induced current created by the magnetic field of the tickler seems to appear simultaneously with the original current and causes no interference. However, such feed-back action, which is re-impressed upon the grid of the detector and results in a re-amplified plate current, tends indefinitely to increase. The detector will break into oscillation with annoying howls and whistles, but the rotation of the tickler controls the point of oscillation, and a careful operator can prevent regenerative noises.

A tickler may be added to the typical detector circuit (F) in Part Seven. The coils of that circuit (L_1 and L_2), together with a tickler, will make the three-circuit tuner shown in B of this chapter. Regenerative receivers are not always held in high esteem because of their tendency to cause noises in nearby receivers by re-radiation. However, with some modifications, they are widely used for amateur and short wave reception. A small, well-designed tuned radio-frequency receiver with a regenerative detector will be hard to beat for distant reception of weak signals by means of phones. The several critical adjustments, however, have militated against tuned radio-frequency receivers using variable tickler control of regeneration. The regenerative detector, however, is one of the fundamental and elementary types.

Neutralizing the Circuit

Neutralization will eliminate unstable receiver operation with oscillation noises. This condition is due to the capacity that exists between the grid and the plate of a three-electrode (triode) tube. These capacities must be balanced out by means of *neutralizing condensers.* Examine the r.f. circuit of the assembled receiver shown in A. Count down from the tops of the secondary coils L_4 and L_5 exactly 15 turns. Attach short lengths of wire and run the two ends to two tiny neutralizing condensers, each of 25 mmfds. capacity. Then connect the opposite ends of the condensers to the control grids of the first and second r.f. tubes, respectively. These condensers are shown at NC and NC_1, in A.

Neutralize the circuit as follows: Remove one filament wire from the socket of the first r.f. tube (with the unlighted tube remaining in the socket). Then, with all tubes in place and lighted, tune in a station on about 1000 kilocycles. Adjust the screw in the first neutralizing condenser (NC) with an insulated tool until the signal can no longer be heard. The adjustment will be critical. Replace the filament wire to its socket terminal, and the signal will again come in at normal strength. Next remove one filament lead from the socket of the second r.f. tube. Adjust the screw of the second neutralizing condenser (NC_1) until the signal cannot be heard. Replace the filament wire, and the signal will again come in. The set is now properly neutralized. However, other adjustments may be required when signals are being received on 600 and 1500 kilocycles.



"C"-SIX TUBE T.R.F. SCREEN-GRID 2-VOLT BATTERY RECEIVER

A Screen-Grid T.R.F. Receiver

Neutralization is not necessary on sets that use screen-grid tubes. And, of course, it is not always used on sets that use the three-electrode tubes. In illustration C we observe that the circuit diagram of our assembled t.r.f. receiver may be so altered as to use pentode tubes in the r.f. stages, and push-pull power amplification in the audio output stage. The set will be more sensitive and selective; neutralization is not needed, and more power and better tone can be obtained from the loud speaker.

The circuit shown at C is essentially the same as that shown at A, except that more bypass condensers (C) are added (all of them being .01 mfd. capacity) and neither grid leak nor grid condenser is used with the detector. Two type-34 two-volt tubes are used. They are super-control pentodes and are very effective. The detector and first audio tubes are type -30s, as before, but two -31s are used in the push-pull power stage. Volume control is obtained by varying the negative bias to the grids of the r.f. amplifier tubes. A suitable potentiometer is used for this purpose.

(In the September issue of RADEX we shall show how an oscillator tube and circuit, and also intermediate-frequency stages of amplification, can be added to our elementary circuit. The result, then, will be the superheterodyne receiver.)

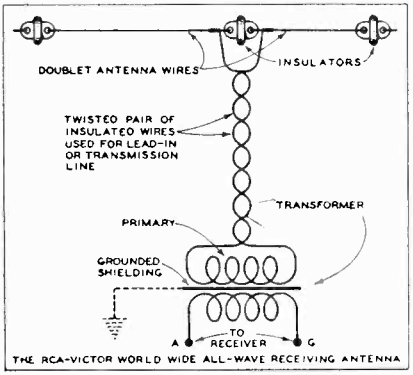
New ALL-WAVE "WORLD WIDE Antenna"

IT HAS been known for a long time that there is an ideal length of antenna for every wave band. But, even if it were practicable to erect separate antennas for the broadcast, police, amateur and 49-meter, 31-meter, 25-meter, 19-meter and 16-meter bands, the problem of man-made static would remain. When the antenna is erected high in the air, remote from the sources of man-made static, a lead-in is needed to pick off the signals and bring them down to the receiver. This lead-in passes through the zone of electrical static impulses, and becomes the source of much of this type of annoying interference.

The RCA—Victor Company, in its experimental laboratories at Camden, N. J., after years of research conducted under severe electrical static conditions, has produced its new "World Wide Antenna." This remarkable system responds particularly well to the short waves, but is fully as efficient on the broadcast band.

Length Is Important

Experience has shown that, for short waves, antennas 29 feet and 100 feet in length are best to use. But the 29-foot antenna is best for all the wave lengths between 15 and 60 meters (the waves above 60 meters are not so critical to antenna length), while the 100-foot antenna is not so good on the 16- and 31-



THE RCA-VICTOR WORLD WIDE ALL-WAVE RECEIVING ANTENNA

meter bands. Proper choice of antenna length, then, will often decide the difference between satisfactory and unsatisfactory radio reception.

The "World Wide Antenna" consists of a doublet type of receiving antenna. A doublet, as shown in the illustration, is made of a single wire that is cut in the middle and joined by an insulator. RCA-Victor does not make these two halves equal in length, for the results of their long research indicate that the two portions of the doublet should be 29 feet and 16.6 feet in length. A doublet antenna has slight directional effects and should be pointed toward the direction from which most signals are expected, but for general use, it can be set in a line running northwest and southeast.

The new RCA antenna is excellent for reception on the commonly used short-wave bands, but is efficient on all other waves, such as the police, amateur, aircraft and broadcast bands. The wires furnished with the kit of parts are tinned at the proper points where connections should be made, and there can be no question of carelessness causing poor results through neglect to make the necessary measurements.

Special Parts are Vital

The lead-in from the antenna consists of a pair of twisted, insulated wires. They are quite similar to ordinary lamp cord. But this lead-in has predetermined inductance and capacity effects, which have been calculated by the manufacturer. For these reasons the lead-in has a definite length in order to insure maximum transfer of radio energy from the antenna to the receiver. This lead-in must be used in the exact length furnished, and the remainder should be coiled behind the receiver if it is found to be longer than required.

When static impulses from nearby electrical appliances are picked up by the two twisted wires of the lead-in, the induced voltage in one wire will be canceled by the voltage in the other wire, both flowing in opposition to each other. Thus, this type of lead-in will eliminate its own surges of man-made static by the process of cancellation.

May Be Increased by Multiples

By using any number of multiples of the original length of lead-in furnished with the kit, it will be possible to locate the antenna high in the air and far removed from the sources of most man-made static. At the RCA laboratories an antenna 500 feet from the receiver responded perfectly to short waves! But, after three full lengths of lead-in have been used, the lead-in can be cut wherever desired. However, under these three full lengths, a decided detriment of efficiency is observed when less than the standard lengths are used. For instance, if 2¼ lengths of lead-in are required, you must use three; if 1½, use two; and if ¾ of a length, use the full length.

At the lower end of the lead-in, adjacent to the receiver, a radio-frequency antenna-matching transformer is used. It is shielded, and the primary coil matches the inductance of the lead-in or transmission line. The secondary coil matches the impedance of the antenna coil of all present-day receivers. The result is a balanced system that works well because careful consideration has been given to all the variable fac-

(Continued on page 42)

Thumb Nail SKETCHES *of the* STARS

ALBERT SPALDING was born in Chicago, and at the age of seven went abroad with his parents. He began the study of violin in Florence, Italy, continuing it on his return to America. His mother was a talented pianist, harpist, and singer; and his father, J. W. Spalding, sporting goods manufacturer, though not musically gifted, was equally in sympathy with his son's career.

After one season in America, the young violinist, still in his early twenties, received the remarkable opportunity to make a concert tour of Russia. Despite countless hectic experiences, Spalding appeared with outstanding success in the music centers of that country. Previous to this tour, he had made his European debut in Paris. At the age of 16 he had the honor of playing on the occasion of Adelina Patti's last public appearance. He has played before audiences in practically every civilized nation on the globe.

Albert Spalding

During the war, Spalding enlisted as a private and served overseas in Italy. He received a commission as a ground officer in the aviation corps in 1917 and was subsequently decorated with the Cross of the Crown of Italy, the highest honor that can be bestowed on a foreigner. France decorated him with the Cross of the Chevalier of the Legion of Honor.

In the 20-odd years of Spalding's American recitals, he has established a tremendous following in all parts of the country and regularly makes almost one hundred performances a year. No other violinist has consistently played so often over a period of years. In New York alone, he has appeared more than one hundred times. His concert fees alone usually total close to a hundred thousand dollars a year.

America's foremost violinist is heard each Wednesday at 10:30 p. m. EDST, over a coast-to-coast Columbia network.

The Birth of a Star

Gladys Swarthout was born on Christmas Day, 1904, in the town of Deep Water, Missouri, which she says has "a population just about large enough to fill one concert hall."

One of the most vivid impressions she retains from childhood is the arrival of a grand piano. Lessons followed but singing eventually outstripped piano and Gladys made her professional debut at the age of thirteen. One afternoon at a vaudeville matinee where she had gone against the wishes of her mother, she was summoned from the stage to answer the phone. Gladys cowered, expecting a terrible scolding.

Gladys Swarthout

But her fear and trembling were wasted, for she was invited to go to St. Joseph, Mo., that evening to substitute for her teacher, who was ill. The pay, fifty dollars, and her expenses seemed like a great deal to a girl of thirteen.

Encouraged by her success in St. Joseph, she pinned up her curls, and calmly announcing that she was nineteen, applied for the position of contralto soloist in a Kansas City church. The richness and maturity of her voice supported her statement, and she got the job.

While studying harmony, singing and theory at the Bush Conservatory in Chicago she got her first theatre engagements. They were with the Balaban and Katz Theatres and gave her practical stage experience. Her first important musical engagement came in 1923 when the directors of the Minneapolis Symphony Orchestra invited her to Minneapolis as soloist with that organization.

An audition was arranged with the Chicago Civic Opera Company and Gladys won a contract for the following season. The climax came four seasons ago when the Metropolitan Opera opened its doors to her. She made her debut there as the blind mother, La Cieca, in Ponchielli's "Giaconda." In her first season she sang fifty-six performances, more than any other single artist that season. The most exciting event in her career came in 1931 when she was called upon to sing a role in "Norma" on two days' notice. There was time only for a piano rehearsal of the difficult duet which she had to sing with Rosa Ponselle, and then she went on in the Cleveland Public Auditorium before 12,000 people and received a tremendous ovation.

She had become the most famous boy-impersonator in the history of the Metropolitan—so much so that she heaves a sigh of relief every time she is allowed to wear really feminine clothes on the stage.

Gladys began singing on the air over NBC networks in 1932. She is enthusiastic about the radio because it reaches so many different kinds of people. Gladys is now heard in the Palmolive Beauty Box program each Tuesday at 10:00 p. m. EDST over an NBC (Red) network.

During the winter Miss Swarthout lives in New York. Her vacations she likes to spend abroad, especially in Italy. There she met her husband —in the opera house at Florence, for he, too, is a concert and opera singer. In private life she is Gladys Swarthout Chapman.

* * * *

One of the most delightful commercials ever offered a radio entertainer is that proposed to Johnny Marvin, Lonesome Singer of the Air. A tourist association wants him to spend the summer traveling about to various resorts, meanwhile visiting the microphone daily to sing and talk about the beauties of the territory. Johnny may take up the idea instead of his usual trip to his Thousand Island home.

* * * *

Sound effect, says Irene Rich, are the most fascinating part of radio to her. She received her first big

surprise during one of her first broadcasts when the script called for the sound of wolves running over snow. Irene turned and saw the serious-visaged sound effects technician producing the sounds by running his fingers through corn flakes in a tin cigarette box. A forest fire raging and a burning tree falling, she found, meant the cracking of cellophane in front of the microphone and the falling of a tiny twig held close to the mike.

* * * *

George Gershwin couldn't quite figure it out when a schoolboy approached him after three successive broadcasts and requested his autograph. When it happened the fourth time, Gershwin said: "Did you lose the other three, young man?" "No," said the youth, "I sold 'em for fifty cents apiece to the kids in Ma's music class."

* * * *

An actor friend several weeks ago inveigled the Men About Town trio into his new cabin monoplane for a trial spin. They were over the Alleghenies when the heating system went haywire and the temperature dropped clear out of sight. The trio was reduced to a duo for several hours after they landed, for the extreme cold caused Jack Parker, the tenor, to lose his voice completely. It returned to normal after an extended session before a steam radiator.

* * * *

Frank Black, who collects antiques in his spare time, says it's really the collector who pays and pays. Just as sure as he breaks the family bank to purchase a much coveted spool-legged table, he has to turn around and insure it against theft. At present he is paying premiums on close to a quarter of a million dollars insurance on a small but costly collection of antique treasures.

* * * *

In a recent poll of radio editors, Jack Benny was voted their favorite comedian. Which reminds us that it was a newspaperman, a New York columnist, who gave the NBC headliner his start on the air. The writer invited Benny to appear on his broadcast as a guest star. Benny did and a sponsor listening in decided that he needed just such a personality for his program. He signed a contract with the comedian the next day.

* * * *

Each member of the Revelers quartette is a thorough musician. Any one of the four can take a sheet of music he has never seen before and sing it correctly at sight without ever having heard it played. Not one professional singer in a hundred has this ability.

* * * *

Lennie Hayton never goes to bed before dawn—he works on his arrangements from midnight until 2:00 a. m. and then tours the byways of Broadway. . . . Donald Novis, who has established himself as a film star, says he will stay in radio for at least six months instead of returning to the movies—simply because he likes radio.

Mady Christians, a distinguished actress from the German stage, is now a permanent member of "The Big Show" on the Columbianet Mondays at 9:30 p. m. EDST.

The Summer *and the* SHORT WAVES

● ● ● *By* PAGE TAYLOR

THIS edition of RADEX brings to a close another DX season, and there are more than a few shortwave fans who will not mourn its passing. Without a doubt the past twelve months have been the worst shortwave months ever experienced.

Just a year ago, this department promised good reception of the Australian stations during the summer, because the summer months are most favorable for Australian reception, but for some reason the stations failed to make the gain in reliability that was expected. Undaunted, however, we again venture the prophecy that good reception should be enjoyed from VX2ME, 3ME and 3LR, this prophecy being based on the fact that these stations have already begun to show considerable improvement in all sections of the country.

VK3LR, Melbourne, has moved up to 9580 kc/s. (31.29 meters) and works daily except Sunday, as early, sometimes, as 2:30 am, EST, until 6 or 6:30 am. Programs of the International Broadcasting Co. of London are featured. VK3LR can be addressed as follows: Research section, P. M. G. Department, 61 Little Collins St., Cl, Melbourne, Vic., Australia.

A Letter from TGW

Another most interesting item, especially to old-timers who have written, fruitlessly, to Guatemalan stations for verifications, comes in the form of a letter from Mr. C. H. W. Nason, Director Technico de TGW. The letter follows:

"Some months ago I began receiving hot letters from U. S. listeners chaffing me for my failure to give confirmation of my signals. I now have at hand a clipping from one of your issues, date unknown, where you have something to say in this matter under the heading "TGW Verifies." (Dec., 1933, page 29.)

"I am on the air nightly on 565 kc/s., having changed recently from 1130 kc/s. Early in February I gave an early morning program on 1130 and had some forty to fifty reports from the States, all of which were acknowledged. I hope shortly to be on the air on 5940 kc/s., in which event I will be anxious to receive reports from the USA.

"Had you troubled to listen in on the shortwaves you might have known that TGW was not amongst the sig-

After presenting half a dozen programs each day for several years. Vera Eakin, staff pianist at WABC can still smile for the photographer man. If she had as many hours in the air as she has on the air, she would be the world's greatest aviatrix.

nals and refrained from writing the article in question. I have turned over to TGX every report of his signals addressed to TGW through error. Phonetically, TGX is pronounced Tay Hay Eckis, and TGW is Tay Hay Dooble-vay. There seems little reason for confusing the two."

We are not sure of the meaning of the phrase ". . . not amongst the signals," because in August, 1931, and again in August, 1933, TGW certainly was "amongst the signals," being reported by listeners in every part of North and Central America. Nevertheless, we are glad to learn that this station is now willing to confirm correct reports. We hope that Mr. Nason will receive many good letters from this country following the inauguration of his new station, and that these successful listeners will receive their Guatemalan verifications.

The Stations of Colombia

According to information received from the Republic of Colombia, there are only seven shortwave stations in that country which broadcast programs regularly. Numerous stations have been heard here but in most cases they are amateurs who do not remain long on the air. Colombia has long been one of the most active shortwave countries and their "will-o'-the-wisp" stations afford considerable amusement in trying to get them properly identified and verified(!) before they leave the air for all time. Unfortunately, Colombia has an unfavorable reputation, due to the failure of nine-tenths of her stations to acknowledge letters.

The oldest station in Colombia is HJ1ABB. For a long time this station was known merely as "Barranquilla," then, after a period of silence, it returned to the air with the call sign HKD, a call which has been heard on all the continents with but 7½ watts power. When Colombia decided to give all her shortwave broadcasting stations an experimental status (as does the FRC in our own country), the call was changed to HJ1ABB.

At the present time this popular station is well received in the United States and the quality of reception, as well as the quality of the musical programs, make HJ1ABB one of the best South American stations. English is used frequently and the slogan, "La Voz de Barranquilla," aids in identification. The studios are located in the proprietor's own building, Edificio Pellet, Plaza San Nicolás, but letters should be addressed to the owner, Sr. Elias J. Pellet B., Apartado 715, Barranquilla. HJ1ABB is on the air daily from 5 to 10 pm on 46.47 meters with 300 watts.

The Other HJ's

A change in call letters cannot possibly affect reception, but when Sr. Uribe's station was known as HKF it was one of the best heard stations in this country. Now that the call sign has been changed to HJ3ABF, very inconsistent reception obtains. This station usually presents good musical programs, but the long and numerous dramatic presentations, in Spanish, of course, detract from the program value of this station as far as the North American listener is concerned.

HJ3ABF works on 48.5 meters with 50 watts power from noon to 2 pm and 7 to 11 pm daily; from 6 to 7 pm on Wednesdays and Saturdays, and English lessons are given on Mondays and Thursdays from 6:30 to 7 pm. HJ3ABF never answers reports, so readers may as well refrain from writing them. For those who wish to take a chance, however, letters can be addressed to Estacion HJ3ABF, Gustavo Uribe Th. y Rafal Moreno, Apartado Postal 317, Bogotá.

HJ5ABB, "La Voz del Valle," Cali, works on various wavelengths between 46 and 47.5 meters, from 7 to 10 pm on Tuesdays, Saturdays and Sundays. This station verifies only occasionally, so listeners should be particular that the station is prop-

erly identified before writing. HJ5ABB can be identified by the crow of a rooster.

HJ4ABB (formerly HKT), "La Voz de Caldas," is owned by Roberto Baena V., Apartado 157, Manizales, Colombia. Their programs are on the air (but heard infrequently) from 8 to 10 pm on Monday and Thursday on 41.5 meters. Mr. Baena always answers correct reports.

HJ4ABE, "Medellin Radio," is located in the Hotel Europa in Medellin, Colombia. It is not heard at present but the wavelength is believed to be about 50.6 meters. Reports are acknowledged.

Careful tuning between 8 and 11 pm near 40.5 meters will usually bring in HJ3ABD, "Colombia Broadcasting," a Bogota station owned by Alford Radio Laboratorios, Calle 16, numero 88-A. The chances of receiving a confirmation from this station are about as good as winning the Irish Sweepstakes.

Sr. Pompelio Sanchez C., Tunja, Colombia, advises us that he is the owner of two stations. One of these, HJ2ABA, is not now on the air. His other station is HJ2ABG, Cucuta, Norte de Santander, which works on 5975 kc/s. with 50 watts from 6 to 9 pm, EST, daily except Sunday. Some readers have reported an HJ2ABC in Cucuta, which may be this station. Sr. Sanchez says his identification signal is "en-re-mi-fa-do," which are notes of the scale, but whether he whistles them or plays them on a cymbolom, we do not know. Perhaps readers who have heard this signal can help.

From the Dominican

Several readers who have heard HI1A report that the theme song is "Anchors Aweigh," an item which we are passing along, but which is not confirmed in a recent letter from Mr. Rafael Western, owner of the station. Mr. Western writes:

"My station is located in Santiago de los Caballeros, a city in the inland of the island which is the Dominican Republic. Its power is 7:5 watts, transmitting every day from noon to 1:30 pm and 7:30 to 9:30 pm, EST, and special programs every Sunday morning at 1 am for short-wave listeners The frequency is 6.272 megs. or 47.8 meters. It was constructed by its owner. Our air trademark is "La Voz del Yaque." We usually have an exciting and varied program. Lots of dance music, featuring the Merangue, Bolero, Danzon, Criolla, Son, Rumba, and band concerts from Duarte Park by the Municipal Band."

Mr. W. A. Shane, Chief Engineer of Station VE9GW, advises us that his station transmits on 6.095 megs. with an antenna power of 500 watts on the following schedule: Monday, Tuesday, Wednesday, 2 to 11 pm; Thursday, 3 pm to midnight; Friday and Saturday, 7 am to midnight, and Sunday, 11:30 am to 8 pm, EST.

Re-Emphasising Secrecy

The information on airways stations contained in RADEX and the *DX Log of the World* was furnished by Mr. Paul Goldsborough, President of Aeronautical Radio, Inc., owners of the airways stations in this country. In sending the lists, Mr. Goldsborough requested that we bring to the attention of listeners the fact that messages from these stations are addressed communications and as such the message text (except Mayday calls), should not be divulged. "Mayday" is the phonetic spelling of the French words "m'aider," the call for help used by telephone stations just as SOS is used by code stations.

With the S. W. Radexers

C. R. Anderson, 1926 1st N. E., Mason City, Iowa, is one of the many readers who report VK3LR. "Very bad about not announcing calls," he writes. "I had to wait from 4 until 6:30 am for their letters. W8XAL announced the other evening that, to give interference-free reception from GSA, they would cease broadcasting from 6 to 8 pm to give GSA

a chance to come through, and would appreciate reports on this from listeners. I think it is a noble gesture on their part." (And so do we.) Mr. Anderson thinks that W1XAZ should not come on the air until VK2ME has signed off, and suggests that W3XAU might remain silent when the League of Nations station is on.

Paul Marstellar, 922½ West 41st Drive, Los Angeles, Calif., says the reason for writing was that he had to tell someone how good his Philco 16X receiver is. His letter, in report form, continues, "JYK, 13.6 megs. and YJA, 9.862 megs., Japanese stations, have been heard after midnight, PST. I have recognized voice on five different waves. CJRX, Winnipeg, is heard between 5 and 7 pm, PST. XGW, 28.79 meters, calls London GDJ at 1:20 am, PST. XGW is in Shanghai, China. XAI is heard with good signal strength during the late afternoon and early evening on 9.600 megs. VK3LR, Melbourne, 9.580 megs (sure of this, as I heard the announcer give it), heard shortly after midnight and up to 2 am, PST. VUC, 6.110 megs., Calcutta (not positive of this one), heard between 6 and 6:30 am. PLE, 18.820 megs., Bandoeng, Java, a very powerful signal, in the late afternoons. PLV, 9.410, also in Bandoeng, is even better; 6:45 to 7 am, PST. Is heard at midnight on Monday, Wednesday and Friday calling Tokio. Most of these were received on a ten foot indoor length of copper wire. No ground was used in most cases. I have a three purpose Philco aerial that is peaked for the 49 meter band and it sure does work."

News of the Japs

Some more Japanese information is contained in a letter from H. N. Walker, South Pine Road, Enoggera, Brisbane, Australia, who writes, "The Japanese have altered their stations somewhat and now the call J1AA is used by the 38 meter stations only. On 30.4 meters, testing phone with Berlin and other countries the call is JYS while on 21 meters, also on phone with Berlin and VK2ME the call is JYK. I do not know the rest of the calls but I have written to JYS, the same location as J1AA, and later on I may be able to send more information. I also requested information on a Japanese on about 52 meters, a very good station, and another around 31 meters. I think the two latter stations are in Manchuria and I may receive a reply, as I wrote a seven page report."

"I have heard a station LSQ in Buenos Aires testing with a New York station," reports Robert L. Weber, West McHenry, Ill. "They announced their frequency as 19.5 megs. and promised to send QSL's to all who reported on their signals and modulation. Picked up K6XO testing again but don't know their location. This time they were playing Hawaiian music." K6XO is the experimental call sign for any of the telephone stations at Kahuku, Hawaii.

Current events are presented to Columbia audiences in a new vein by James Thurber, Thursdays at 10:45 p. m. EDST. For several years Thurber has, in the pages of the "New Yorker," been renowned for his writings and his one-line-captioned sketches.

Ansel E. Gridley, P. O. Box 1294, Sarasota, Fla., also reports LSQ, Hurlingham, Argentina, and adds that KNRA, on the schooner Seth Parker, wishes reports from listeners who are at least 1500 miles away from the station. Letters should be addressed to the NBC at 30 Rockefeller Plaza, New York City.

"Let me tell you what I have picked up on the shortwaves with a ten foot wire," requests L. N. Henry, 65 Pride Rd., Wilkensburg, Pa. "DJA, C, D, GSA, B, C, EAQ, 2RO, HJ1ABB and VE9JR are a few of my catches. I make it a habit to listen to GSB on Saturday and get the outline of their programs for the next week."

Failed to Tune Carefully

"I bought a Stewart-Warner model 301-A about four months ago, and at first had no luck with it, and gave up trying for about a month," advises Donald C. Hamilton, Jr., 5814 Murrayhill Place, Pittsburgh, Pa. "Last December I decided to try again, and began tuning more carefully, as has been advocated in RADEX. Now I have received a great many stations and am still getting more. My foreign stations are Daventry, Zeesen, EAQ, HIZ, HJ4ABB, HJ1ABB, L2RO, YV1BC and 3BC, PSK, VK2ME, etc. This may not be such a good record in comparison with some of those fine ones that other DX'ers get, but it is at least a proof that all discouraged shortwave listeners, such as I was, might have better success if they would take more care in tuning and in antenna construction."

"DGU, Nauen, Germany, 31.06 meters, telephone station, broadcasts fine music irregularly in the mornings," reports Clarence Sargent, 18 Clinton St., Dansville, N. Y. "DGU sends out a nice card to all who send them reports. LSX is rebroadcasting LR4 and wishes reports, which are acknowledged with a very worthwhile QSL card."

Bi-Lingual Announcements

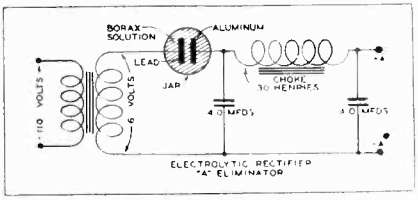
Charles Miller, 309 View Place, Covington, Ky., asks if it would not be possible to encourage foreign stations which are heard in this country to announce in English. The idea is a splendid one but it seems that we should also try to encourage our own stations to announce in Spanish for the benefit of the thousands of Spanish listeners in South America. Of the well-received foreign stations it is difficult to think of any, off hand, which do not announce in English, except Radio Coloniale at Pontoise, and even this station sometimes has news bulletins in our language. German stations announce in English, Spanish and German. PHI uses Dutch, Malay, French, English, Spanish, German and Portuguese. EAQ and CT1AA use English in addition to their own languages. All of the commercial broadcasting stations in South America use English at least once in a while. Truly enough, some of the small Colombian stations, which are really amateur stations, use only Spanish, but it is doubtful that some of these can afford the expense of an interpretor. Whenever it is possible for a station to do so, listeners in this country would appreciate announcements in English at least once in thirty minutes, and we are sure that if our own relay stations can find an extra moment between the chain program features, that our South American neighbors will appreciate an occasional Spanish announcement. We are glad to learn that W2XE has already adopted the regular practice of announcing in five languages, English, French, German, Spanish and Italian.

"I have a Philco 16-B, 11-tube, all-wave receiver, using a 100-foot non-directional cage aerial," reports Laurence Wolcott, 207 Railroad Ave., California, Mo., writing for the first time. "I have been DXing just two weeks and it certainly has given me a thrill. Among my s. w. stations so

(Continued on page 42)

TROUBLES *and* TRIBULATIONS

• • • First Aid to Ailing Sets



Electrolytic Rectifier

I WISH to build an electrolytic rectifier to use as an "A" eliminator for my small battery set. I have a 15 volt toy transformer. Please tell me how to make this rectifier.

It will be all right to take power from the secondary of the 15 volt toy transformer. But you will have to reduce the voltage down to six. Most toy transformers have a switching arrangement to get various potentials. We feel, however, that perhaps the amperage output of this device may be rather low to light your tubes. This depends, of course, on the kinds of tubes in the set.

The rectifier is made of two pieces of sheet lead and aluminum hung vertically and parallel in a glass jar filled with a saturated solution of distilled water and pure borax. There will be a bad hum due to the fact that the pulsating direct current obtained from the rectifier unit is not filtered and smoothed out. So all eliminators, therefore, have a filtering system of choke coils and condensers. You will need an audio choke of 30 henries, and two large 4.0 mfds. filter condensers.

In order to show how an eliminator should be connected we are indicating herewith the proper hookup.

Philco 16-L Wave Trap

I have a Philco 16-L all-wave receiver. In order to get peak performance the oscillation was raised by the adjustment of what a serviceman called the "wave trap." I find that, while there seems to be no difference on short waves, the receiver is not as selective on the broadcast band. Will the adjustment of this wave trap alter the selectivity of the set? What is its function? How can I go about adjusting the wave trap myself?

The wave trap on this receiver provides a method of tuning the set to the intermediate frequency, or 465 kilocycles. It is for the purpose of preventing interference on this particular frequency. Faulty adjustment of the wave trap circuit should have no bad effect on the selectivity of the set. It will hardly affect the short wave reception. Properly to adjust this trap set up an oscillator to give a frequency of 465 kilocycles, and adjust the receiver when tuned to a minimum signal at about 600 kilocycles. The trap is situated in the back of the chassis and is reached through a small hole with a neutralizing tool.

There is no reason why you cannot make some adjustments of this character yourself. Use proper tools and prevent body capacity from interfering.

RCA 60 Power Tubes

How can I use type -47 tubes in place of the -71As in my RCA 60 receiver?

The type -47 consumes one-half the voltage but seven times the amperage (current) of a -71A tube. This means that the use of a -47 will add considerable current drain on your set. If there is an excessive generation of heat you may be forced to return to your -71A tube.

There is a "Na-ald" type of adapter on the market which fits into the -71A socket so that a -47 type can be used. The newer type 6A4 is a power am-

plifier which can also be used, with suitable adapter, in place of the -71A.

A Tuning Meter

How can I install a visual tuning meter in my 16-tube Midwest all-wave receiver?

The visual tuning meter is a high resistance type of milliammeter used in the plate circuit. When the circuit is tuned to resonance the indicating hand swings over to its maximum position. This means that the signal is coming from the output at its greatest volume.

The Midwest 16-tube receiver utilizes four -45 power tubes—two pairs, each pair being connected in parallel as a single tube. The output transformer has three terminals to its primary. Each of the two outer terminals connect to the two parallel plates of one pair of -45 tubes. The center tap of this primary connects to the high potential B supply that feeds the plates of the -45s.

The connection of this center tap to its terminal of the primary of the output transformer must be opened, and the visual tuning meter inserted in series with this break in the wire. All you really do is to set the milliammeter in series with the plate current supply lead. Make sure that the rating of the meter is not less than the total output of your power tubes in milliamperes.

Boosting R. F. Stages

I would like to use an additional radio-frequency stage of amplification with my Kolster 1933 receiver. How is this done?

An additional r.f. stage between the antenna and broadcast receiver was illustrated and explained in the May, 1934, issue of RADEX. This should serve your purpose.

Those 2-Volt Tubes

How about using two-volt tubes instead of the -01As in my Atwater Kent, model 20, receiver? No C battery is used with my set. But will not one be required with the two-volt tubes?

The tubes in this set can be replaced with 2-volt tubes (-30s). It will be necessary to use exactly 2 volts on the A terminals of the receiver. A -31 power tube can be used in the last audio stage. This tube requires 135 volts on the plate, and a C battery. All the others use 90 volts, with the exception of the detector, which may require from 22 to 45 volts for its plate.

When the -31 is used it requires 22 volts negative C bias for the grid. Cut the lead to the -F of the secondary of the *second* audio transformer, where it attaches to the transformer terminal. Run a new wire from this terminal to the -22 volt post of a C battery. The positive end of the C battery is connected to -A and -B. Some improvement might be noted if the -F terminal of the first audio transformer is attached to a -3 volt C connection.

"Cat Whiskers"

What is a "cat-whisker" detector, and how does it work? Can it be used with a broadcast receiver?

Before the days of electron tubes detection was accomplished by certain crystals which possessed the peculiar properties of passing electric currents in one direction. Pieces of galena, silicon or iron pyrites, when held in a metal clamp and lightly touched with a fine wire contact called the "cat-whisker," were utilized to rectify radio currents. The crystal detector cannot well be used in a broadcast receiver. It has been used in the so-called "reflex" circuits, and the output of a crystal detector receiver, when amplified by two stages of a.f. amplification, will give excellent tone on local stations.

Touch System

My Airline 6-tube set will stop playing suddenly, and I have discovered that if I short the first and second detector control-grids by touching them with my fingers, reception will come back. It seems as if I have to touch these grids to start the set to working, and then in a short while I have to do it all over again.

We believe the trouble is due to an intermediate-frequency transformer coil being open or subject to a poor contact. Also, it is likely that a grid leak or grid filter resistor is defective which will let the grid of either the -32 or -34 detector tubes "float" and block up with electrons so as to hinder operation. The touching of the top caps temporarily discharges the accumulation of electrons and permits it again to work for a short time.

If the i.f. tuning is out of line this effect may also occur. We are tempted to suspect the i.f. stage of this receiver, and suggest that all of its parts related to the grid be carefully tested.

Converter Supply

How do I get the 180 volts from my Graybar 770 receiver to operate a short-wave converter?

We suggest that you make the connection to a point (5) of the power pack unit, and place a 10,000 ohm resistor in series with the lead to the converter terminal. This should provide approximately 180 volts to the converter.

2A5 Power Tube

Do I have to use a -47 power tube in my Philco 70 receiver? This set also cuts off at times. What do you think is the cause of the trouble?

The -47 tube can be replaced with a 2A5. This 2A5 has the decided advantages of a heater-cathode type of construction and it has also a slightly higher output. It will reduce hum in the audio stage. The 59 type of tube, connected as a pentode, by attaching the suppressor-grid to the cathode, may also be used in place of the -47, with approximately the same advantages that have been indicated for the 2A5. However, the 2A5 is a 6-prong tube, and the 59 is a 7-prong tube, while the -47s has only 5 prongs. Special adapters, therefore, will be necessary, or new sockets must be installed.

The cutting off may be due to defective coupling condensers that couple the audio stages. A defective condenser in the cathode circuit of the oscillator tube may also cause this trouble. This condenser can be replaced with a 0.1 mfd. bypass type. All tubes, particularly the oscillator, should be examined. Then, too, every grid leak, resistor of high value, and bypass condenser, should be subject to suspicion.

180 Volts Source

How can I take 180 volts from my Majestic 30 receiver to operate the RADEX *short-wave converter?*

Retrace the two wires leading to

Elizabeth Day, a recruit to radio from the legitimate stage, does impersonations of various movie heroines in "Forty-five Minutes in Hollywood" each Sunday at 10:30 p. m. EDST on the See-Bee-Ess. Miss Day's last New York stage appearance was in "Dinner at Eight."

the two plates of the first two -24 tubes, to where they join and then run as a single conductor to a tap on the voltage divider in the power unit. This point provides 180 volts. It is the middle tap on the resistance, with two other resistances being on either side of the point of contact.

A. K. Set Oscillates

My Atwater Kent set oscillates when the hand is touched to the first r.f. transformer, detector tube, or first audio tube. The set works only when the ground is placed on the antenna post. The antenna proper does not seem to make any difference. What is wrong?

This set has become unstable, and is only made so by grounding the antenna terminal. The effect that seems to be due to your body capacity further indicates the unstability of the receiver. Since you have not indicated the model of your set we cannot give definite instructions, but generally a set in this condition will require neutralization, alignment or balancing, or all three, depending upon the type of circuit used. We assume, of course, that all other parts are in good condition.

Battery Set Whistles

I have a battery superheterodyne, and it whistles when the volume is tuned on full. It uses seven -01As and one -71A. After a certain point is reached it begins to whistle. How can it be fixed?

In some of the earlier receivers plate voltage volume control was used. It gave the set a tendency to oscillate on high volume levels. You have not indicated the type of set you have, but undoubtedly the method of self-oscillation that is used in this receiver is out of condition. It may use neutralizing condensers, suppressor resistors, reverse plate coils, etc., all of which may require readjustments or replacement. We cannot treat the case more specifically without more information as to the type and model. Readers are urged again to make sure they give the *name* and *model* of the set in trouble; otherwise their questions cannot be given definite treatment.

Bosch Needs Neutralizing

I have a model 66 Bosch cruiser with a separate Bosch power pack. Under the shield are three balancing screws. The two on the left are o. k., but the one to the right can either be loosened or tightened and it does not seem to affect the operation of the set. I can get perfect reception between 720 and 1500 kcs., but little volume between 720 and 545 kcs.

Two of the adjustment screws operate neutralizing condensers for the second and third r.f. tubes, and the third screw operates the detector alignment condenser. The circuit should first be reneutralized, and then balanced and aligned for correct performance. See the March and April issues of RADEX for complete instructions. The second r.f. tube, which is neutralized first, is the center tube of the group of three. The third r.f. tube, which is neutralized second, is the front tube of the group of three.

One of these adjustable condensers may have been damaged in adjustment. This accounts for its having no effect on reception. When this is repaired or replaced the correct adjustments can then be made successfully.

Power Tubes Deteriorate

I have a Silver Marshall, model F, originally using a -47. I changed this tube to a 2A5. For a couple of days I had fine tone, then the set took on a "tinny" sound and developed an oscillation. On testing the 2A5 it proved to have no emission. Now a noise has developed, resembling boiling water, which may be heard even when the volume is turned very low. This same noise appeared once before, when a -47 tube became inoperative after a very short period of use. Also, the set burned out a dial light before I changed to the 2A5 tube.

The rapid loss of emission of the power tube, either -47 or 2A5, indi-

(Continued on page 42)

On the Editor's WAVELENGTH

IN view of the fact that we have just received official data concerning the broadcasting stations of Brazil and several other countries, we deem it advisable to repeat the lists of world stations in this issue. Hereafter this list will appear in the *DX Log of the World*, the next issue of which, the August-September-October number, will be found on the newsstands on or before August first. Beginning with the September issue of RADEX, the lists will include only the stations in North America as heretofore.

We have now established valuable contacts throughout the world and believe we will be able to keep the *DX Log of the World* up to the same high mark of accuracy that has characterized the indices in RADEX. As more and more of the foreign stations are being heard in America, the need for a world list is becoming of increasing importance. The *DX Log of the World* will be issued quarterly and the price will remain at ten cents.

Secrecy of Radio Messages

The FRC issues a warning regarding the secrecy of certain radio messages and the heavy penalties provided for violations. Boiled down, Section 27 of the Radio Act of 1927 reads as follows: "No person receiving any radio communication shall divulge the contents to any person other than addressee. No person shall intercept any message and divulge the contents or use the information therein for his own benefit." Section 33 provides "Any person who shall violate any provision of this act shall be punished by a fine of not more than $5,000 or by imprisonment of not more than five years or both for each offense."

Says the Commission: "Reports reaching the Commission indicate that the public is increasingly intercepting police and other short wave communications. Congress has given serious consideration to a bill providing that 'no person shall use, operate or possess, in any vehicle any short-wave radio receiving set without a permit.' Police officials in some cities are in favor of such legislation as they claim their work in apprehending criminals has been interfered with by persons who intercepted messages intended solely for the police. However, the Commission is hopeful that no such legislation will be necessary as it would have a tendency to hinder experimental work in the shortwave field."

Reporting reception of telephone messages for the purpose of verifying is considered to be "divulging the contents" within the meaning of the law, by many of the ship and phone stations. Readers are cautioned

Everett Marshall, baritone star of the current Ziegfeld Follies and formerly of the Metropolitan Opera Company, may now be heard with Jerry Freeman's Orchestra in "Broadway Melodies" every Wednesday evening from 8:30 to 9:00 p. m. EDST by tuning in the proper station on the WABC-Columbia network.

therefore to avoid using any phone communication as a basis for a report of reception.

Stamping Out Fraud

This magazine and a number of the DX Clubs have received letters from the secretary of the New Zealand DX Radio Association, asking cooperation in stamping out the practice of obtaining verifications by false or unethical procedure. Charles A. Morrison, President of the IDA, Bloomington, Ill., writes us: "My contention has been, and still is, that by far the vast majority of DXers are honest and use methods above reproach in obtaining verifications. I have also felt that too much publicity on this subject is harmful to the DX fraternity in general, giving the stations the idea that the majority of DXers are unfair and dishonest in their methods. This would inevitably lead the stations to regard each request with a skeptical and over-critical eye. As a matter of fact, the majority of reports are made, I believe, in all sincerity by DXers who would not write to a station if there were a question in their mind as to whether they actually heard the station. Nevertheless, the unfortunate fact remains that there are DXers using questionable methods. This small minority is creating a menace to the whole fabric of friendly relations existing between stations and listeners."

With this statement by Mr. Morrison, this magazine finds itself in full accord and joins him in his concluding appeal: "I call upon you members of every club and DXers who are not members of any club, never to write to a station requesting a verification unless you have some conclusive evidence that you heard that station. Call letters as a rule should be plainly heard unless, in rare cases, you hear other evidence so plainly that there is no doubt that you had this particular station. You should never request a verification unless you feel that you would yourself as a station official, say 'There is no doubt this man heard our station.' Radio stations, I call upon you to aid in this campaign to put DXing upon a higher level by refusing to verify in cases where the listener has failed to give such conclusive evidence as may warrant a verification."

Theory and Practice

Theory of radio and actual practice do not always seem to move together. Take, for instance, the theory that it is the vertical part of the antenna which actually picks up the radio wave. Theron Colegrove, radio operator on board the Tug, H. C. Cadmus, plying the waters off the southeastern states, questions this theory. Says he: "A number of years ago when WKAQ was operating on 940 or thereabouts, with 500 watts, I pulled him in with a fifty-foot aerial, using an old Atwater Kent 5-tube t. r. f. set with an extra screen-grid r. f. stage. I was on Lake Michigan at the time. The portion of my aerial which was vertical was but two or three feet long. Obviously with the situation I was in, the horizontal portion must have been doing its part or I wouldn't have heard WKAQ with fair speaker volume."

There is, of course, no doubt that satisfactory reception is possible without any part of the aerial in a vertical position. Thus if one were located in the top story of a high building with an aerial which was entirely horizontal and without any vertical lead-in whatever, there would be radio reception and probably it would be very good. On the other hand, we have the present tendency to erect transmitting antennae which are entirely vertical.

Mr. Colegrove wonders how far away man-made static may be heard. "While off Miami, I have heard a power leak so strong as to drown out 90 per cent of the stations audible at noon. At this time the nearest land was five miles away and the ship's generator was not running. This same noise seems to extend from Cape Canaveral (midway of the east coast of Florida) to a consider-

able distance beyond Miami and has been heard, around 80 meters, when the nearest power line was 15 miles away."

Faults of Broadcasting

J. L. Wheeler, Jr., 16 California St., San Francisco, lists the following as among the reasons why program sponsors lose the goodwill of listeners and why stations are dialed out:

1. Shifting of programs without announcement, causing a listener to miss a favorite artist.
2. Curtailing a program in order to chisel-in with a few minutes of extraneous advertising.
3. Distracting laughter and applause by the studio audience and the silent acting by artists catering to this noisy audience.
4. Interrupting the continuity of a program with advertising which should be permitted only at the beginning or end.
5. Incompetent announcers who seem to consider all listeners morons; making asinine remarks to the artists; commenting on subjects of which they are ignorant; making flippant remarks about their own personal opinions; mispronouncing names and words and titles.
6. Insertion of personal propaganda by comedians and announcers not at all germane to the article advertised by the sponsor.
7. Reiteration ad nauseum of the latest tin-pan-alley song.

An Early Station

C. O. Gould, 801 East Main Street, Stockton, Calif., sends us a newspaper clipping in which it is recalled that twelve years ago Mr. Gould established KJQ with five-watts on 360 meters and gave Stockton its first experience in radio broadcasting. The station was on the air from 5 to 6 p. m. and Sundays from 9 to 10 p. m. The microphone was held in the hand with a big phonograph horn attached to it. KJQ was conducted by Gould for four years and then abandoned when it was impossible for him to meet new broadcasting regulations. It is a far cry from this little five-watter to the new WLW with 500,000.

The Cuckoos are back with Ray Knight. Mrs. Pennyfeather, Mary McCoy, Jack Arthur and Sally Belle Cox, the cry-baby girl. The act is pure burlesque and delicious nonsense. Robert Armbruster and his orchestra and the Sparklers Quartet share the spotlight in this half-hour of insanity. NBC-Blue Wednesdays, 9 p. m. EDST.

That complete reallocation of Mexican broadcasting stations which we mentioned in the last issue was promulgated on April 7 and is now operative, according to official word from Mexico City. The reallocation resulted in the assignment of Mexicans on 19 clear U. S. channels and on nine U. S. regional channels and three U. S. locals. Only one assignment was made on a Canadian exclusive but six Canadian shared waves were allocated. The frequencies allotted in Mexico are all exact. Mexico evidently is giving up its practice of allotting split frequencies but the question remains whether the stations can and will adhere to their exact frequencies. The changes are being made in the indices in this issue.

Abusing Privileges

Shall we discontinue our practice of giving the addresses of our correspondents? We have always done this so that other readers may write direct to those in whose reports they are particularly interested. We know that a great many have done this and in some cases, valuable friendships have resulted. We dislike discontinuing this service to our readers. It seems, however, that some readers abuse the privilege and write dis-

agreeable letters, usually anonymous, to any whose reports do not suit them. Then, too, some mail order houses seem to be using these addresses and swamp our correspondents with circulars of all kinds of schemes. We do not want to be the unwitting cause of annoyance to any of our readers and yet we believe our practice of giving mail addresses has been a helpful one. What do our readers think?

Rev. Samuel N. Morris, Pastor of the First Baptist Church, Stamford, Texas, thinks that our article, "Cleaning Up the Outlaws" in the April issue, gave the FRC more credit than was due them. "On August 22, 1933, complaints were filed in Lubbock against eighteen people for operating unlicensed radio stations," comments Mr. Morris. "One was convicted, one pleaded guilty, but all the others were either dismissed or acquitted. Three people tried in Sherman, Texas, were acquitted. Out of about thirty complaints and indictments there have been only three clear-cut convictions."

Thomas Huffaker, 2914 East 29th St., Kansas City, Mo., has a real ground. He had a two-foot hole bored from the floor of the basement 37 feet deep. He secured 50 feet of No. 14 heavily-insulated copper wire. Four feet of this were stripped and machine-wound around a piece of large copper pipe. The wire-wound pipe was then dipped into a vat of hot solder after oiling the inside of the pipe so that no solder would stick there. He put this in the hole in which there was and is 18 feet of water.

The Station's View Point

"Thursday, March 29," relates Warren E. Winkley, Hughson, Calif., "Luther E. Grimm, William Ellis and I visited Station KFBK. The chief announcer, William V. Conners, very courteously showed us around the station. He said repeatedly in the course of our talk, that the DXers were running the game into the ground with their constant requests for special programs and their lack of consideration for the other fellow. Luther is a member of the National Radio Club; William belongs to the IDA and I belong to the Universal Radio DX Club. That was hard for us to take but what came next was even worse. Mr. Connors showed us some 40 or 50 requests for verification received recently. I was dumfounded. Out of the whole pile, I would not have verified more than 15 at the most. The rest were written on postcards and gave only a bare bit of the program, or if in letters either didn't enclose postage or left the station in doubt as to whether that station was heard or not. And most of them were members of some club or other. I think that the sooner the DXers realize that the stations are doing them a favor and not vice versa, more stations will put on DX programs and verify reports."

The KDKA DX Club is planning a broadcast especially dedicated to listeners in East Africa and Mozambique, on the night of Sunday, July 15, from midnight to 1 a. m., EDST, according to Joe Stokes, announcer, and major domo of the Club. A number of prominent DXers have been invited to make brief talks.

A new short wave club is announced by George E. Crouse, president of the R9 Listeners League, 140 East Gas Ave., York, Pa. The club has 45 members so far, from Canada, the U. S. and New Zealand. There are no dues or fees as yet. Thirty more members are desired. The object is the exchange of information regarding the short waves.

"The United States Radio DX Club was organized Jan. 1, 1933, under the name of the Shrewsbury Radio Club," writes Howard Morse, Secretary-Treasurer, 7 Water St., Shrewsbury, Mass. The dues are 75 cents a year and cover our monthly bulletin and tip card.

As noted in these pages some months ago, the band from 1500 to 1600 kcs. has been set aside in the U. S. for experimental broadcasting purposes. This is known as the "high

Presenting the Master of Ceremonies of NBC's Carefree Carnival, Ned Tollinger, which may be heard each Saturday at midnight figuring your time by Eastern Daylight Saving method. This program arrives via the Red Network.

fidelity" band. In this issue we are including the first stations which have been granted licenses to operate in this band—two on 1530 and two on 1550 kcs.

"Answering the SOS of A. E. Glover regarding KIIQ," responds Alfred W. Oppel, 186 Hollywood Ave., Irvington, N. J., "I quote from a letter received from the KMTR Radio Corp. of Hollywood: 'KIIQ is the 200-watt portable broadcast pickup transmitter of KMTR. It operates on a frequency of 2342 kc. and is used to relay programs from remote points for broadcasting over KMTR on 570. This station is built right into a truck and contains a gas engine-generator so that it may be operated in any location regardless of the presence of electric power.' "

Stuart Leland, New Canaan, Conn., thinks that the W2XI reported by J. Armantrout, may be W2XR, Radio Pictures, Inc., Park Row, New York City. He says it may be heard between 5 and 6 p. m., EST., weekdays on about 1570 kcs. Stuart also suggests that Mr. Armantrout may have heard WPEL, West Bridgewater, Mass., a police station on 1574, and caught the call as WDL.

With the removal on May 13, of KFDY, Brookings, S. Dak., from 550 to 780 kcs., KFYR, Bismarck, N. Dak., an NBC outlet, became an "unlimited time" station on 550. KFYR is now on the air continuously from 7 a. m. to midnight each day, CST.

"I built the r. f. stage as per diagram in the April RADEX and it certainly is *fine!*" reports C. E. Gates, 514 Ivy Street, Pittsburgh, Pa. "It has pepped up my receiver wonderfully and the selectivity now compares favorably with a modern superhet."

Ian Bruce Murdoch, 17 Main St., West, Grimsby, Ont., editor of the DX page of the "Canadian Microphone" would like to receive DX reports and letters for publication in that paper.

S. C. Kellenberger, 135 Bloomingbank Road, Riverside, Ill., would like to hear from readers who have used a loop successfully with a superheterodyne, particularly an RCA-Victor R-50.

And now for the long-awaited vacation during which the staff of RADEX will be busy devising new ways of serving our great family and gathering new data from all over the world for the new season beginning with our September issue. Until then, au revoir.

Marian Hopkinson, star in the Borden cheese show, "Forty-Five Minutes in Hollywood," over CBS Saturday nights, not only attends at least two different pictures featuring the same movie actress whose voice she is going to double, but she also reads all available biographical material in movie magazines to get personal background.

Writing FINIS *on the* DX Season

• • • Balancing *the* Books

THE 1933-1934 radio season passes into the limbo of the lost with this issue. Some report it as exceedingly unfavorable, but on the other hand, many added more stations to their logs than ever before. Certainly more and more foreign stations have been appearing in our records. No longer are they limited to the two coasts but those living inland are reporting them with increasing frequency.

During the year we have had a wide reallocation in Canada and now we are closing with an almost complete shake-up in Mexico. Many other changes are brewing, but no longer will our readers need to wait for the September issue of RADEX to get these changes. The August-September-October edition of the *DX Radio Log of the World* will be on the newsstands late in July with its complete log of all the stations in the world on the broadcast band.

We will now empty the very last mail bag of the old season.

"I was one of those who tried for a long time but never could hear a foreign station," admits Joel H. Armantrout, 602 E. Magnolia St., Fitzgerald, Ga. "Then a DX friend of mine told me what to do. I took an old auto-radiator and soldered a lead-in wire to the copper top. I put a long pipe into the mouth and buried it about four feet in the ground. Every day I fill it up with water. It truly worked wonders. On March 11, I logged and kept LR5 for an hour. I also logged YV3BC and JOGK. I logged and kept CX26 for an hour and a half. On March 18, I listened to LR4 for 45 minutes. On March 24, I heard the station announcement of CP4 and on the 25th, RUS came in for 30 minutes and the station call of 2CO. Before installing this new ground, I was not able to get anything outside the U. S., except Cuba, Mexico, Canada and Hawaii. I now have a total on the b. c. b. of 657. I have completely logged over 30 states. Would like to hear from any foreign DXer and will answer all letters."

Uses a Pre-Amplifier

"I am another enthusiastic Midwest owner," begins Kenneth C. McCartt, 213 State St., Lexington Ky. "I am the proud possessor of the G-10 all-wave model. To this I have attached my home-made one-tube preamplifier. With this combination I can play 100-watt stations on the West Coast at R-7-8 volume at night and WFAA at practically the same volume all day long any day in the week. I purchased the receiver a month ago and since then I have increased my log from 214 to 598 in 14 countries. This includes 355 on the b. c. band of which 150 are of 100 watts or less. I have every station of 10,000 watts or more on the North American continent except CFCN and XEYZ. However I haven't been able to get a squeak out of the TP's or SA's on the b. c. b. yet although I have heard several on the higher frequencies.

"I use a 30 foot, five-wire cage aerial, 25 feet high and a ground consisting of ten feet of copper tubing. I am considering suspending my aerial vertically and I would particularly like to hear from those who have had experience with vertical aerials of any type."

Results with a Scott

Hundreds of Dxers would like to have half of this log: 2CO, 3AR, 5CK, 2YA, 5CL, 4QG, 3LO, 2BL, 4RK, 2GB, 2UE, 2CH, 2HD, 4BC, 4BH, KGU, HIX, WKAW, VOAS, YV1BC, HJN, LR5, VE9EK, 10-BP,

10-BQ, RXKR, PP, Radio Normandie, Turin, Trieste, Stuttgart, Frankfurt, Leipzig and Hilversum. Yet John DeMyer, 545 Baker St., Lansing, Mich., to whom it belongs, writes: "I thought I was a DXer until I read some of the reports in the April issue and now I find I am a rank novice. I belong to several radio clubs and correspond with a lot of DXers. I am not jealous of any DXer but, on the contrary, I am happy that one has been fortunate in pulling in one of those rare catches. I do some s. w. DX and have quite a few stations verified. My verified list includes all continents. I use a Scott all-wave receiver."

"This radio season is just about finished," concludes Earl R. Roberts, 2742 No. Gale St., Indianapolis, Ind., who has just returned to his old home after residence in Cambridge, Ohio. "I started last fall with 958 stations and now have 1046 logged—an increase of 88 stations. Some of the best of these were WDAH, KGDM, KLS, KRE, KCRJ, KSUN, KFBL, CX26, LR4, LR5, Beromunster, Fecamp, CMCO, CMCN, CMCG, CFQC, CJOC, CMHI, CMPN, XEAL, XETZ, XEFG, etc. My total of 1046 contains 733 broadcast stations now on the air, 189 now deleted, two long wave (KDA, WWAS) and 132 short wave including 67 police, 56 airport, 7 fire and one commercial plane. The odd thing is that I do not have a short wave set or converter of any kind. My set tunes from 500 to 1900 kcs. and brings in harmonics of police and airport stations broadcasting on 2400 and 3200 kcs."

Reports Favorable Season

"This season was the most successful one since I have been at this great old pastime," decides Raymond C. Corbett, 619 12th St., Sacramento, Calif. "The only regret I have is the fact that it was about the poorest season for Australian stations. I did not add a single new one and only heard a few of the old standbys a couple of times. Have completely logged all of the stations in the eleven far western states. Have also heard all in Kansas. The stations in N. A. that I consider my best are WEXL, WGH, WHAZ, WCSH, WTRC, WPAD, WLAP, WFDV, WKAQ, CMQ, CJCJ. The last three were received at 7 a. m. PST. I have 105 stations over 2000 miles away and 37 over 5000 miles. Most of these were received on a 1933 model 43-B Philco. I use two grounds but attribute my success to an aerial of about 150 feet. All the above stations were on the b. c. b. Would like to hear from other owners of a set similar to mine."

A prodigal DXer has returned. "I'll bet you thought me lost, strayed or stolen," writes Bruce P. Lundy, Jr., RD2, Jersey Shore, Pa. "I have been away the last two years and haven't had time to DX. I have now been back home a month and, boy, am I happy? I have added about 40 stations since I have been back. I have 18 to go yet to hit the 500 mark. This last weekend I had an enjoyable time. A friend allowed me to take his allwave 11-tube Philco. It was my first experience with the s. w. and I sure had fun. I didn't shut it off long enough to eat and I didn't sleep from the time I got it Saturday morning until I took it back Monday afternoon! I had Spain and England come in better than American stations. I had Rabat, Morocco, France and Italy. I was just all over the waves. Hello to all my old DX friends; will be glad to hear from any of them."

Have You Heard CDXR?

"I've been reading the letters in the last RADEX and decided it was about time for me to contribute one," justly concludes Leslie Scourfield, 299 Tunis St., Ingersoll, Ont. "To date I've received 580 stations from twelve countries. I have eight provinces and 46 states. My best are KGMB, 2YA, 2BL, CFCT, CX-26 and VOAS. I haven't been able to get any TA's or Japanese or Chinese stations as yet. I use a DeForest-Crosley 850, 1931 model. I am a mem-

ber of the Canadian DX Relay. We operate a half-watt station on 1280 kcs. on Saturday and Sunday mornings. Its call letters, of course, are CDXR. It's located in Goderich, Ont." Leslie says he received TGW on 560 on April first and that he has heard CMCQ on 678 of late. Can others verify these two changes?

"I have a new 'wrinkle' in DXing," announces James B. Crusan, 424 Smithfield St., Mount Pleasant, Pa. "I start a new log with each new copy of RADEX. One can log surprising totals each month. Last month I logged 339. I suggest that some DXers try this method." James goes on to ask: "Is it usual to receive amateurs on the 1900-2000 band, on a broadcast receiver? On my 7-tube Airline WG-24, by turning the adjustments slightly, I can receive these amateurs, my best being W5BQX in Mississippi, W1ENO, New Haven, Conn., and W3DMG, Frederick, Md. What is the cause of this?" This reader does not say what adjustments he makes but he undoubtedly is changing the capacity of his condensers. We would not recommend this to others as it may be a very difficult matter to put them back where they belong.

A New Recruit

"Here is another letter from a beginner," prefaces Clair E. Fultz, 17 15th Ave., Columbus, Ohio. "Last November I first saw Radex. Soon I became an ardent DXer and in the following four months logged a total of 606 stations. On the b. c. b., my log of 485 includes such stations as CKWX, CMGF, CMCW, KDB, KGFJ, KIEM, KPCB, KRE, XEFV, 2YA, 4QG, 5CK, 3AR, 2FC, 3YA, 2BL, 10BQ, KGU and WKAQ. On the s. w. I have 55 stations including DJC-D, COC, EAQ, FYA, GBP, GSA-B-D-E-F-G, G6RX, HBP, IRM, I2RO, HC2RL, HJ1ABB-3ABD, LSX, PHI, PSK, VK2ME-3ME, XETE, YV1BC-3BC, KFZ, KJTY, KNRA. Police stations add 66 to this log. Before summer I hope to pass 500 on the b. c. b. with my Philco 11-tube, all-wave, model 16. Would like to hear from other users of this set especially those in New Mexico."

Here's a report on the Aussies from New York. "This morning the TP's were coming in great," writes Carl Forestieri, 463 East 185th St., New York City. "From 4:30 to 5:45 a. m. EST, I logged 2BL, 2FC, 3AR and 4QG and heard carriers that I am sure were 5CK, 3LO and 3YA. I just bought a new Atwater Kent 711 all-wave and it has performed very good both on the s. w. and the b. c. b. It is capable of 10 kc selectivity. At about 7 p. m. on a fair night, I can tune in WENR only 10 kc. from WABC. Although I am new at the s. w. game, I have logged, in a little over two weeks, six stations in England, three in Germany, FYA in France on three frequencies, three in Italy, two in Colombia, two in Australia and EAQ in Spain. I can tune in most of these European stations on the s. w. with neither aerial nor ground."

"I have never read any letters from Davenport so I am wondering if there are others interested in DX who live near here," observes Henry A. Kniegge, 1522 West 13th St., Davenport, Iowa. "I would like to hear from those persons and see what reception they get in this district. I have a Philco 7-tube Model 77 which I have used for four years. I DX only in winter and during the past three I have logged 330 stations with 205 veries. Some of my best in the 50-watt group are KGFK, WJBK, KRMD, WCAZ and WEXL; in the 100-watt are WBBZ, WHBY, WIBX, WFBE, WPAD, KGHI, CFCO and WOPI; others are 10-AB, WIS, WCOC and XEW. The new WOC scheduled for Davenport will not be on the air for some time because of a hearing that must be held due to objections by a number of stations."

The New XFD

"In my verification from XEWW at Veracruz, the manager, Estaban Silva, states that they have been off the air since March 15 and that the

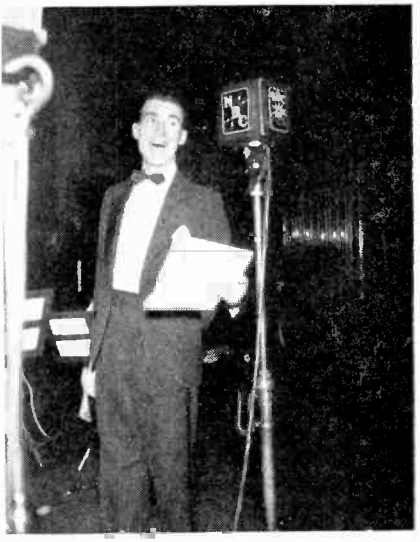
station has been bought by the Gobierno del Estado de Veracruz," reports L. G. Briscoe, 3743 Hutchison St., Montreal, Que. "The location will be changed from Veracruz to Orizaba, Ver. and frequency from 1100 to 1240 and call from XEWW to XFD. The inaugural program of this new station is to take place on May 1, 1934. Possible tests may be carried on before that date however." Leslie reports that his log now stands at 643 with 516 verified. His best are XEK, HIX, YV1BC, LR5, CX26, Poste Parisien, Radio Normandie, CKMO, VE9EK, KFPM, CMJP, KFXD, XEAC, XEFV, KGCX, KFXJ and a list of 100-watters in Southern Texas, Oklahoma and Louisiana.

Writes James T. Spalding, 672½ Atwood St., Louisville, Ky.: "I have not seen any reports lately from this city and none from users of the Philco 16-L, so will tell you something of the success I have been having. I have been a DX fan since the days of Harry Snodgrass of WOS and his 'Three O'Clock in the Morning.' I also enjoyed the old Kansas City Nighthawks at WDAF and many others that I can recall. Just lately I have gone back to DX again and my log since December 22, 1933, includes the following: 99 foreign stations of which 28 are on the b. c. b. and the rest on short waves. Included in this is CKCK at Kitchener, Ont., a 100-watter received in daytime and verified. Among my U. S. stations which number 201 b. c. and 33 s. w., I have verifications from the 50-watt WEXL at Royal Oak, Mich., the 100-watter at Silver Haven, Pa., and 30 other 100-watters. Adding phone stations, airports and a few ships, my total is 655, all received between Dec. 22 and March 31. I should like to see reports in RADEX from owners of the Philco 16-L."

Another Newcomer

"Your magazine seems to be the chief congregating place for DXers from all over the world," points out Elwin T. Smith, Box 82, Harrah, Wash. "Would someone please move over and make a place for one from way out West in Washington? I am the possessor of an Airline 7-tube super. I have received some twenty Japs all told but have verifiable reports on only ten. As for the Australians I have not been so good; have 2CO, 2YA, 5CK, 3AR, 3YA, 4QG, 3LO, 2BL, 4RK, 3HA, 2UE, 4BC, 2SM and 4BH, all with fair volume. I believe 2FC would be good if it were not for the superior power of KGOA which takes that channel by storm. Could any eastern DXers give me any info on European stations. I would gladly exchange hints with others."

"I recently purchased one of the Perfect Phone Adapters and, after giving it a thorough tryout, I find that it is just about the finest thing of its kind for bringing in the distant stations," reports Charles L. Clarke, 214 White St., Waverly, Mass., who encloses a long list of the distant stations he has received including many 50 and 100-watters.



Mac McCloud, End Man of the Sinclair Minstrels, got his local color by riding through the South in a boxcar. He also acquired skill with the "bouncing ivories" called dice. You are cordially invited to attend this minstrel show each Monday evening at 9 p. m. EDST through the NBC-WJZ chain.

"I have had my Midwest 16-tube set only since March 9 and to date (April 24) have logged 303 stations," reports Harvey Scheirer, Jr., Fullerton, Pa. "My log includes six airway stations on the long waves, 188 on the b. c. b. (every channel except 540) 56 police, 8 airports and 45 s. w. stations. I have had three Californians, four Mexicans, several Texans and others ranging from 50 watts (WEXL, Royal Oak, Mich.) to 500,000 (W8XO, Cincinnati). On the s. w. I have received EAQ, CT1AA, DJA-B-C, GBC-P, GSA-B-C-D-F, I2RO, Pontoise, HI1A, CP5, HJ1ABB-3ABI, YV3BC, PSK, LSX. European stations, especially England, come in very good on a warm, clear afternoon."

Has 25 TP's

"I have a Dictator (nine tubes) and I find it a very good set although the Philco 7-tube I had in 1932 had it beaten for distance," submits Fred Knight, Portage and Essen Roads, Victoria, B. C. "On the Philco I logged 463 stations in little over a year; I had six in Cuba and one in Naltchik, USSR, two in England and all kinds of 100-watters in eastern U. S., Australia, New Zealand and Japan used to come in like locals. I started all over with the Dictator in February, 1933, and up to writing this letter, have 258 stations logged. On the new log I have 16 Japs, 5 Aussies, 3 Zedders, KZRM, 13 in Mexico. If any other readers use a Dictator I would like to hear from them."

"When I got my first issue of your magazine the middle of October, 1933, I started the fascinating hobby of DX. Since that time I have logged 415 stations, 100 of them 100 watts or less, and 46 police and 16 s. w. Every state but three is logged and all the provinces except Nova Scotia. Some of my best are KPCB, KFUO, KGFJ, KWG, WKAQ, 10-BQ, 10-BP, KFPM, GSA, DJC, G6RX, GBB, GBW and HJ2ABA. No luck for me on the TP's. I have an 80-foot aerial of the L type pointing north. My ground is a pipe driven down ten feet. I am using a Crosley Dual 10, Model 170, tuning from 535 to 6100 kcs." This interesting report is from Warner Elliott, 433 Lillie Street, Chillicothe, Ohio.

The Pot and the Kettle

Not long ago a certain reader wrote a violent diatribe against those so-called DXers who claim to have received certain stations that they only assumed or guessed they heard. This same reader, whom we will call X, in a later letter reported having heard a station in Soviet Russia in the middle of the day. Now we are receiving letters, signed and unsigned, taking violent exception to X's claims. This magazine will not attempt to decide what reception is possible and what is not. We will publish any interesting reports submitted by DXers of standing. But here is the catch—if the reports are too obviously exaggerated, such DXers are pretty apt to lose their standing. In the case of Mr. X, he has already been dropped by one of the leading clubs.

"This season, while it supplied some of my most distant catches, has been very bad in regard to static," reports Albert Sandham, 99 Page St., St. Catharines, Ont. "This year I kept a separate seasonal log in addition to my complete one, and on counting them up today, I find that I have heard 461 different calls from Sept. 1, 1933, to May 1, 1934. This includes seven police stations and such catches as 4RK, 2FC, 5CK, LR5, FQN, CMHI and CMCW verified and PP and 2CO not yet verified. My grand total is now 750 with 410 verified. All were heard on an old 1929 Rogers. Have any readers verified CMBD, XEAE, XETW and XFB? I sent them each ten cents but without success."

"About a year ago, I wrote you about my work on the b. c. b.," recalls Wm. Wheatley, 124-22 Metropolitan Ave., Kew Gardens, N. Y. "My log then was 260 and I thought that was good. Now, through RADEX

and the CDXR, I have 565 stations with 305 verified. I have every state but Wyoming and every province of Canada but Manitoba, and nine other countries. I have 190 stations of 100 watts or less. These were all logged in about eighteen months but what sleep I've missed in order to pull them in. I put up a new aerial, a loop, about 180 feet long and 40 feet high, clear of all interference; it sure pulls them in and does it make my set sensitive, which by the way, is a Philco, Model 90, 9-tube."

The New Million Watter

"I have been hearing new call letters from Cuba," notes Rudolph Kure, 3365 Clifton Ave., Cincinnati, Ohio. "They are COD on about 1225 kcs., Havana, the Universal Broadcasting Corp. Sometimes it seems as if they are broadcasting already. Then again, on April 8th, I heard an announcement over CMCA, 1230 kcs., Havana, that COD will be ready to go on the air in November." COD is a proposed new one million watt station for Havana. The promoters are now trying to sell stock in the U. S. Other reports have it that Dr. John R. Brinkly of the late-lamented XER is back of the super-project.

"Six weeks ago a friend introduced me to RADEX," advised Ovid Punch, 418 Erie St., Medina, N. Y. "Since then I have logged 150 stations. My best catch is WKAW. Have also received CMCW, KGCX, XEW, XEB, etc. As a rank novice I have to my credit a number of low-powered western stations including KGDM. I would like to hear from DXers anywhere."

"This year I have logged 504 stations and verified even 200," announces Clifford Drain, 622 Camden St., Parkersburg, W. Va. "As a rule the stations have been rather prompt in verifying but a few of them have not. I have received verifications after a lapse of 56 days. I have 24 of California's 43 and reports out to 11 others. I have 13 verified out of a possible 22 in Washington. I was tuned to 960 kc. and heard a station that came on the air with a bugle call which was repeated two or three times. Someone started a piano solo immediately. Could not keep them very long. I had the same experience on 1455—same old bugle call. Can anyone tell me what stations these were?"

"My record now stands at 360 on the b. c. band, 58 on s. w. I now have logged every state in the Union and stations in Canada, Cuba, Porto Rico, Mexico and South America on the broadcast band. On short waves, I have veries from DJA, HBP, XETE, DJC, PRA3, HJ1ABB, YV3BC, EAQ, HC2RL, CE9GW, HI1A and DJA. I have logged LSN, LSX, GCW, GBB, HBL, VE9HX, YNF, KKP, and HPF. Some of the best amateurs I have logged are K6BIZ and K6CRW, Honolulu; VE5EF Vancouver; and PY2AK Brazil. I am still using a Philco 11-tube Model 16-B and welcome all letters particularly from Australia or New Zealand." This report comes from Donald W. Shields, Box 345, Roseville, Ohio.

Otherwise It's All Right

"DXing from 6 p. m. to midnight is practically impossible here in this part of Long Island," complains R. W. Fales, Intervale Ave., Roslyn, N. Y. "WEAF blankets everything from 635 to about 675. WJZ is playing tiddily-winks with WJR. WABC is raising heck with WENR-WLS. Now WHN has raised its power to 1000 watts and completely cuts out WHO and KYW, both of which used to come in like a house afire. WNEW also comes in too loud, cleaning up everything from 1230 to 1260 kcs. Then we have WEVD-WBBR-WFAB-WHAZ which make things very uncomfortable around 1300." Aside from this, we gather that everything is lovely on Long Island.

"DX this season has been the best I have ever experienced despite the unusually heavy static which has been marring reception on various mornings." This favorable report comes from Carroll H. Weyrich, 6 N. Gor-

man Ave., Baltimore, Md. "This season I have verified 197 stations and increased my log from 416 to 613. My best veries are CX26, LR5, HHK, HIX, PP, YV1BC, VOAS, 10-AK, 10-BP and 10-BQ. I consider my best the 15-watter KFPM in Greenville, Tex. Honorable mention to KTSM and WDAH, by far the hardest stations to receive that I have ever tried for. Almost as good as KFPM is KFBL, Everett, Wash., 50 watts."

"I have an Emerson five-tube superhet that tunes from about 75 to 550 meters," states Donald C. Little, 54 Deepdale Drive, Great Neck, L. I. "In the three months I have used the set, I have received about 66 police, 20 airport and airplane, England, Mexico, Canada and 38 stations in the U. S., also numerous ship, experimental stations and plenty of hams. I have not had much luck with western stations. Would like to hear from anyone owning an Emerson like my own."

"Just three months ago I bought my first copy of your magazine," recalls Karl Thayer Soule, Jr., 198 Culver Road, Rochester, N. Y., "and from that time I have been an ardent DXer. For my three months' work I can show a log of 317 stations with 227 verifications and 40 reports out. My best verified catches are KFPM, KPCB, KFXJ, KXA, KGDM, KRGV, 10-BQ, 10-BP, KGIR, WKAQ, and KGCR. I have a report out to LR5. I am using a 7-tube Philco two years old."

An English Pioneer

"I suppose that I am really an 'old-timer,' " muses H. M. Campbell, 204 London Road, Twickenham, Middlesex, England. "I remember listening to the old Writtle station in 1921. I didn't try DXing, however, until under two years ago. I have been using a home-made two-tube receiver and have so far verified WIOD, WAAB, WNAC, WCAU, WPG, KMOX, WBT, WTAM, WJZ and WHAM besides numerous short-waves. I have reports out to WBZ, WABC, WGY and WFBL. I have just rebuilt the set into a three-tube and am hoping to add considerably to my log.

"My log now stands at 276 in the U. S., 20 in Canada, 8 in Mexico and 16 police, making 292 in all," totals Ernest H. Griebel, 8 Wayne St., Carbondale, Pa. "I can get KSL and KFI at 9:00 p. m. loud enough to raise the roof. I have not succeeded in getting any TP's or TA's. I use a Sonora 8-tube 1929 model and a Majestic 8-tube Model 91. I have 41 states and the D. of C. In Kentucky I have all but WPAD; do they ever give a DX program? Is KOB on at any time after WCAU and WOAI sign off?"

"Does VAS broadcast any more at 1:00 a. m. AST?" asks R. G. Ludwign, 1463 Fernwood Ave., Toledo, Ohio. "I have tried for him several times unsuccessfully. What Mexican is on 1560 almost every night at about 9:45 EST? Since February, 1933, my best catches out of a log of 460 are HHK, WKAW, 4QG, HJN, LR5, YV3BC, KGU, PP, KPCB, CFBO, KERN, CHGS, KWG, CMCB, CMCO, KXA, XES and KFPM. My log includes all provinces and all states except Wyoming."

Likes the Kicks

"I enjoy everything in RADEX," comments W. T. Hall, 729 S. P. Building, Houston, Tex., "and, paradoxically speaking, I get a wonderful kick out of the kickers' kicks. Especially as to verifications. I can sympathize with the fellow that wants a verification and cannot get it. I quit asking for them a long time ago. If I *know* I heard the station, I go ahead and log it as heard. If I'm not perfectly sure of my ground, I just try again some time."

"With the reception of XEBC and XEAE, my log of Pacific coast stations stands at 60 with 56 verified," states Alfred Razzando, RD 1, Fayette City, Pa. "I have every state, all the provinces of Canada, Cuba, Mexico, Bahamas, PP in France and HJN in Colombia. Among my best

are 10-BI, 10-BQ, 10-AK, 10-BP, VAS, CKMO, CKMC, KWX, KXL, KPCB, KGFJ, KFXM, KPJM, KUJ, KDB, KERN, KWG and KJBS."

From Samuel A. Meyer, Jr., 83 Canterbury Road, Rochester, N. Y.: "My log has now reached a total of 391 of which I have verified only 148. I have never had the luck to tune in any TP's or TA's but I'm still hoping. My best catch is CMJP, 75 watts, Moron, Cuba. On the s. w. I have verified EAQ, Prado, HJ1ABB, HC2RL, CT1AA, YV1BC and YV3BC. Have heard DJA-B-C-D, GSB, HVJ, I2RO, HJ4ABB and VE9JR."

"I bought a new Philco Model 18-B in January and started logging," narrates Harvey E. Sells, 188 Pine St., N. E., Atlanta, Ga. To date I have 244 stations including 78 police, 7 Mexicans, 3 Canadians, 4 Cubans and 132 in the U. S. besides 20 amateurs. My location is very bad for distance and have not been able so far to get any of the foreign stations. Would be glad to hear from anyone using a similar set especially here in the South."

Another new DXer is George D. Sallade, 649, Vester Place, Sinking Spring, Pa., who writes: "I have just bought a Philco 16-B all-wave set. I have had it but two weeks and have logged 47 foreign stations located in 21 different countries. On the b. c. b. I can listen to 20 Pacific Coast stations any night in the week. Would like to hear from other owners of the same model and will answer all letters."

Some Boiled Logs

"I now have over 300 stations to my credit," advises Gustave Solomon, 404 Bon Accord Block Winnipeg, Man. "I am still using the same 1931 Lyric 7-tube set. New catches include CRCS, CKCO, KFJZ, KVL, KMO, WAMC, WNRA, WAAT, WNAC, KTAR, XEAE, XEBC, XEB, XENT, WOV, WLWL, WCAZ (50 watts), WJBK, WICC and WCAC." Gustave gives the sked for CJRC as Monday to Friday inclusive, 8:15-10 a. m., noon to 2 p. m., 6 to 10 p. m. CST. Saturdays off at 10:30 p. m.

"Just a word about my set and DX in general here on the coast," briefs Stephen D. Warring, Piru, Calif. "My set is a 10-tube Patterson PR-10 all-wave and gives me five to seven kc. separation on b. c. and about the same on s. w. My log to date numbers about 350 on the b. c. b. and 60 on the s. w. The aerial consists of a single strand No. 12 enameled copper wire about 165 feet in length."

"So far this season I have hunted in vain for the TP's," laments William N. Garrison, 122 E. William St., Bath, N. Y. "I can't even tune in 2YA which was an old standby with me last year at this time. I consider my best veries so far this season to be FQN, PP, Fecamp, HIX, LR5, VOAS, CJOC, VE9EK, and KXL. I was unable to secure enough information on Strasbourg and Stuttgart due to interference with WGN and WEEU respectively."

"I have a 6-tube Amplex battery set with a B Eliminator. I never thought I could get far away with it but last week I started to DX. We have no outside aerial and yet I have received stations all over the eastern U. S." Thus writes "the boy DXer," W. M. MacFarland, Jr., 221 Sylvania Ave., Rockledge, Pa.

"I have picked up the calls of 244 stations since Jan. 1, 1933," says Benjamin Genung, 340 Arch St., Spring City, Pa. "My best was WEXL and WJBK both 50-watters. We have two transmitters being built near here about which the owners are silent. NAA announces as Washington now and has a 3:45 p. m. EST program many days."

"Since I bought my new Crosley 6-tube, Model 173, my log has mounted to 249," says Robert Hoffman, 306 West School Lane, Germantown, Philadelphia. "I have 41 states. My best catches are KTAR, KOY, KFSD, KHQ, KWSC, KOMO, CMQ, KOH, WNRA and KTUL. Have logged both 10-BP and 10-BQ.

Would like to hear from anyone owning a Crosley 173."

"I have logged 238 stations including seven in Mexico, ten in Cuba and nine in Canada," reports Homer Koon, Shawmut, Ala. "I haven't logged any foreigners yet but I am still hoping. My best catches are WICC, CMJG, KFXJ, WJBK, CKCR and CKNC. On the West Coast I have KFI, KPO and KNX."

"I use a Majestic 8-tube set Model 72, on which I have logged 616 stations with 331 verified," states Donald S. Voorhies, 1717 East 19th St., Brooklyn, N. Y. "My best catches are KGBU, KGU, JOFK, JOBK, 6WF, 5CL, 3LO, LR4, LR8 and Heilsburg, Germany."

"With an Emerson midget and an indoor aerial, I can easily tune in many distant stations," says Manuel Velasques, 157 E. 103rd St., New York City. "I now have a log of 375 stations. I get the police calls and many hams. Would like to hear from other Emerson owners."

"On the night of Feb. 24, I logged seven TP's, one Cuban and one Argentine," writes Maurice Clark, 145 N. Oakdale Ave., Medford, Ore. "I use an Atwater Kent Model 40 6-tube and have a total of 228 stations."

"I guess you will think my log small in comparison with some," avers Tom O'Brien, 642 College Ave., Quincy, Ill. "My log consists of 82 on the b. c. b. and 13 s. w. My best are KDB, a 100-watter, and KGFI, also a 100-watter. Last night I received XEN and KTAT."

This and That

W8XO is reaching Hawaii wonderfully clear and very loud and right on its own channel, reports E. Allen Creevey, 2621 E. Manoa Rd., Honolulu, who uses only a Ducon Dubilier Condenser for an aerial with his Gilfillan 7-tube superhet.

"Who can tell me what station on 1210, employing Spanish or a similar language and no English, broadcast a musical program which I heard from 4:54 to 5:30 a. m. April 2?" queries Ray H. Zorn, Troy Grove, Ill.

"I should like to submit for your outlaw list, WAR of Blairsville, Pa., and WCBA, Greensburg, Pa., on 820 and 850 respectively," postcards James B. Crusan, 424 Smithfield St., Mount Pleasant, Pa. Can any readers throw any light on these stations?

For the benefit of those who are trying for the Japs, Warren E. Winkley, Hughson, Calif., says JOAK announces regularly at 11:17, 12:45 and from 4:40 to 4:59; JOIK at 11:17, 2:30 and at sign-off. KZRM and XGOA announces every half hour.

"DX in this neck of the woods is terrible these months," complains George C. Wetmore, Jr., 44 Allview Ave., South Norwalk, Conn. "Between the snowstorms, rainstorms, blizzards and what-not, the DX is ruined."

"I heard a Cuban which stated it was broadcasting on 338 meters," says A. E. Bollier, 18 George St., Buffalo, N. Y. "The call sounded like CMKG but I am not sure. Will appreciate any information as I wish to write for verification."

Julia Sanderson and Frank Crumit are sending the names of shut-in and invalid fans throughout the country to the Florists Telegraph Association who will distribute baskets of flowers and bouquets to them on June 10th. . . . Morton Downey's softly-spoken "Goodnight, Lover" at the conclusion of his broadcasts is addressed to his wife, the former Barbara Bennett. . . . Isham Jones and his band will play at "The Hollywood" in Atlantic City this summer, broadcasting from the seashore spot three times weekly. . . . Pancho and his orchestra are booked for the summer season at the Westchester Country Club, Rye, N. Y.

Anyone may install an amateur radio transmitter in Brazil. The only regulations governing the matter are that the power must not be greater than 1000 watts, and a small annual fee must be paid.

Assorted S. W. INFORMATION

READERS who are not acquainted with some of the radio abbreviations or expressions which are often seen and heard, may find something of interest in the assortment given below.

The Spanish Alphabet

A, pronounced ah; B, bay; C, say or thay*; D, day; E, ay; F, effay; G, hay; H, ah-hay; I, ee; J, ho-tah; K, kah; L, el-lay; M, em-may; N, ennay; O, oh; P, pay; Q, koo; R, airray; S, ess-say; T, tay; U, oo; V, vay; W, doo-ble-vay; X, eckis, aykis, ek-key*; Y, yay, ee-grek, ee-gray-yee-ah*; Z, zed.

*These pronunciations are given the way they sound on the radio and may not agree with Spanish textbooks. Slightly different accents are heard in the various Spanish-speaking countries, which accounts for the difference in pronunciation of some of the letters. One, oo-no; Two, dose; Three, trace; Four, koo-at-tro; Five, thing-ko; Six, sase; Seven, sate; Eight, oh-cho; Nine, noo-ay-ve; Ten, diez.

Amateur Abbreviations

To save the trouble of sending a lot of extra dots and dashes, many words are shortened by the amateurs and these short forms are often seen in print. The letter X is used for "trans-" as in "xmitter," "xmission," etc. "Xtal" is the shortened form for crystal. Schedule is spelled "sked."

You, u; Your, ur; Thanks, tnx or thanx; Good, gud; From, de; Phone, fone; Again, agn; Some, sum; Very, vy; And, es; With, wid; Please, pse; Best regards, 73; "Love and kisses," 88.

An operator is an "op"; his typewriter is a "mill"; he proudly refers to his xmitter as "junk" or "a rig," while his aerial is usually a "sky wire" and the pylons supporting the sky wire are "sticks." Instead of typing on his typewriter, he "pounds" the mill, and the hand with which he operates his key is his "fist." A good op is said to have a "gud fist."

While programs for retransmission are being lined up, some interesting lingo is sometimes used by the commercial ops, such as "Down in the mud," which means that the signals are of low volume, or the modulation is too low. Those who sing as if they were tired are said to have "lock jaw" and those who skip over notes, especially in scales, are "scoopers."

All radio operators, amateur and professional alike, seem to be "old men" and "young ladies," regardless of their respective ages. OM and YL are the abbreviations for "old man" and "young lady."

CQ is a general call to any station wishing to QSO.

A QSO is a communication between two stations.

A QSL is an acknowledgment, as a QSL card, which verifies reception of a transmission.

K means "go ahead." When an operator finishes his own part of a transmission and wishes the communicating station to reply, he terminates his own transmission by sending K in code, or, if using phone, says "K," or "dah dit dah" (the way K sounds in code), or he merely says "go ahead."

CUL means "see you later," or CU agn, "see you again."

QRA, a station's address.

QRM, interference from other stations, or local QRM can be interference caused by faulty electrical appliances nearby (man-made static).

QRN, Atmospherics, or natural static.

QRT, "quit."

QSA, The understandability of signals is expressed by the QSA Code, QSA1 being signals which are not at all intelligible and QSA5 being perfectly understandable signals.

QSB, fading.

R, The R Code describes the volume of signals, ranging from R1, the faintest signals which can be heard in the headphones, to R9, the very best signals on the loudspeaker.

A1, Continuous wave (code) emission.

A2, Interrupted continuous wave (code) emission.

A3, Voice emission.

CW, Continuous wave.

ICW, Interrupted continuous wave.

Condition A, Inverted modulation or "scrambled speech."

Condition B, Intelligible speech.

CMC, Canadian Marconi Co.

BBC, British Broadcasting Corp.

RCA, Radio Corporation of America.

NBC, National Broadcasting Co.

CBS, Columbia Broadcasting System.

AWA, Amalgamated Wireless (A/sia), Ltd.

A/sia, Australasia.

AT&T, American Telephone and Telegraph Co.

FRC, Federal Radio Commission.

PTT, (Bureau des, or Règie des) Postes, des Télégraphs et des Téléphones. The abbreviation PTT is often given, erroneously, as the call-sign of various French or French Colonial stations. It is the abbreviation for the governmental bureau or department which controls the station.

TSF, another common French abbreviation, which is translated by our words "wireless" or "radio." TSF is Télégraphie sans fil, or, telegraphy without wire.

M. S., (preceding the name of a ship), Motor Ship, or M. V., Motor Vessel.

H. M. S., His Majesty's Ship.

R. M. S., Royal Mail Ship.

AST, Atlantic Standard Time.

EST, Eastern Standard Time (EDST, "daylight time").

CST, Central Standard Time (CDST, "daylight time").

MST, Mountain Standard Time.

PST, Pacific Standard Time (PDST, "daylight time").

JST, Japanese Standard Time.

EAST, Eastern Australia Standard Time.

CET, Central European Time.

MEZ, The German abbreviation for CET.

LST, Local Standard Time.

GMT, Greenwich Mean Time.

GST, Greenwich Summer Time.

Greenwich Mean Time is the time system in which noon occurs at the time the sun passes over the meridian of Greenwich, England, and the standard time of nearly every locality in the world is calculated to gree with Greenwich in minutes and seconds, but to differ in hours by whole numbers. The true sun time of New York is 4 hours and 56 minutes slower than Greenwich, but the standard time differs by exactly five hours.

Publications which have readers in every part of the world, cater to only a minority of their subscribers when only Eastern Standard Time is given, as all their subscribers, except those living in the Eastern Time Zone, must convert the time to their own standard. A better way is to give time as RADEX does, in GMT and the five Standard times of North America.

GMT commences at midnight (0000) and continues through 24 hours to 11:59 pm (2359), without starting over at noon, as we do, thereby averting the necessity of using AM and PM. Thus, in GMT, 12:45 am is expressed 0045, and 12:45 pm is 1245. 1 pm is 1300, or 13 hours past midnight. To convert GMT into EST, it is necessary only to subtract 5 hours and no minutes (500) from GMT, because EST is exactly 5 hours slower than GMT. Thus, 1400 GMT is 900 EST, or 9:00 am. If the result of this subtraction is greater than 1200, subtract 1200. Thus, 2100 GMT, minus 500 gives 1600, or 16 hours past midnight. Subtract the 12 hours of the morning (1200) and obtain 400, or 4:00 pm, EST.

Persons living in the Central time zone must subtract 600, as their time

(Continued on page 42)

RADIO *in* AUSTRALIA

• • • *By* EDWIN J. WETTON*

I AM writing this article for RADEX at the suggestion of my friend, "Hi Frequency," (Clement Van Velsor) to give a short outline of broadcasting in Australia and an idea of how it compares with your system in America.

At the present time we have in this country about sixty stations which provide programs daily. These are divided into two classes, the "A" class or National, and the "B" class, the licensed broadcasting stations. There are, all told, eight National and four Relay stations which work in conjunction with the parent stations and form the National hook-up.

All of these stations depend upon the listener for the income to provide the programs and maintain the stations and out of the yearly license fee of 24 shillings (roughly, $5.75 in your money), the Commission is able to provide programs from 7 a. m. until 11:30 p. m. or midnight and to 10:30 p. m. on Sundays.

Owing to our small population, the stations are unable to provide artists all the time so we have plenty of gramaphone records during the daytime. These are interspersed with many talks by leading authorities on many subjects including sports. The National programs are put on daily from 8 to 10:30 p. m. and during this period the best artists and music are heard. Operas, musical comedies and dramas of note are all given in turn and the best musical and band features are provided. These programs come to us from the Sydney and Melbourne studios. Other programs of special merit are taken from Adelaide, Brisbane and Newcastle. Since the Commission took charge, they have broadcast all the leading operas and all the Gilbert and Sullivan operas from the leading theatres in Sydney and Melbourne.

Visiting artists are always sought after and most of them make an appearance before the microphone while they are here. In this direction, I must say, the Commission is very alert.

As a short-wave listener, I have been able to hear quite a number of your programs and I can honestly say that, as for the National programs, we have very little room for complaint and, above all, we have no advertising.

The American Plan

Turning to the class "B" or licensed broadcasting stations, we have a very fine class of stations, largely Americanized in their system of working. These stations sell their time to sponsors who advertise their wares in this new and novel way. They are on the air from 6:00 a. m. until midnight daily, and some of the sponsored programs are very good indeed. Amongst them I might mention Pepsodent and the Wrigley people with whom you are, of course, familiar. It is surprising to see how the Australian business-man is taking to advertising on the air. In Sydney alone, we have six of these stations and they have all increased their power and the size of their studios considerably during the past twelve months. Broadcasts presented by them include horse-racing and greyhound-coursing with descriptions from the courses, and boxing and wrestling bouts are graphically described from the ringside.

The "B" stations have a very big listening audience and some of the clubs formed in connection with the individual stations, have astounded many, so great has their membership become. On many occasions our

*46 Cooper Street, Strathfield, Sydney, New South Wales, Australia.

largest halls have been too small to hold the members.

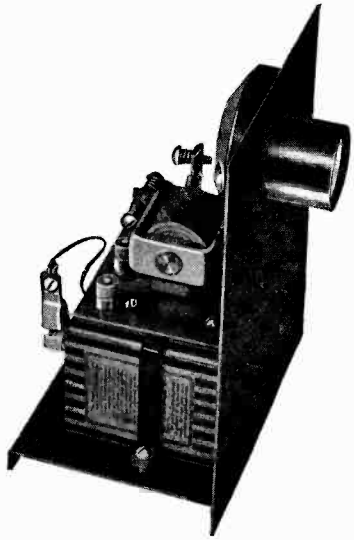
It would be hard and somewhat unfair, to try to compare the broadcasting systems of our two countries but I believe we are particularly fortunate here because we have the choice of the European system in the "A" stations and straight-out broadcasting or the American system in the "B" class. Both are very popular but it would be hard to compare our tiny network with such a wonderfully organized system as you have in your country, though I will say that we are very satisfied and proud of our achievements in the broadcasting field.

Editor's note: Mr. Van Velsor tells us that Mr. Wetton is an ex-amateur and that he is a shut-in due to an accident and has to use a wheel-chair to get about. He made a four-tube short wave receiver with an additional stage of audio. He has an impressive log of s. w. stations and finds W8XK his most consistent American. Mr. Wetton is an enthusiastic radio fan and DXes for as long as eighteen hours a day. No doubt our Australian friend would be pleased to hear from some of his American colleagues.

The Electric Eye

GARAGE doors are now being opened mysteriously whenever a car drives up; house doors open when one approaches them; drinking fountains send forth a stream when one bends over them. These are but a very few of the uses to which the "electric eye" is being put. J. Thos. Rhamstine, 500 East Woodbridge St., Detroit, Mich., has brought out a low-priced photo-electric relay which offers a wide field for experimenters.

This device consists of the photo-electric cell with the necessary dry batteries and a relay switch so that when the light entering the cell is interrupted the electric current flowing through the switch is turned on or off. In this way advertising signs



can be turned on as night approaches, boiler drafts can be opened or closed when the smoke becomes dense, objects may be counted mechanically.

In certain installations such as burglar alarms, it is necessary to have a light source to throw a beam of light in the "eye." In some cases infra-red rays are used as these are invisible to the observer and he would not know he was walking through such a ray. Mr. Rhamstine has also brought out a low-cost Light Source. These two devices permit of wide experimentation by those electrically inclined.

Adding automatic volume control to old t. r. f. sets is possible, but it is not recommended. Satisfactory operation cannot be obtained because the available coupling devices will not match the impedance of the diodes and still have uniform gain throughout the b. c. b.

VK3ME announces that VK3LR, Melbourne, is moving down to 9.580 megs. and broadcasting programs of the International Broadcasting Corp., London, from 3 until approximately 5:30 p. m. EST.

When SIGNALS Cut Off *and* On

• • • *By* B. FRANCIS DASHIELL

FROM the many letters RADEX receives from its readers who are experiencing intermittent reception, it appears that the cutting off and on of signals is one of the most common faults in radio receivers. The coming summer months provide a good time to give the set a thorough testing to find out the cause of that annoying intermittent reception. A brief discussion of this serious problem, therefore, will not be amiss at this time.

Locating the sources that cause a set suddenly to cut off is the most baffling and varied of all radio troubles. Usually the difficulty calls for expert treatment, particularly because the very nature of the trouble requires certain instrumental and set analyzer tests and a check on the voltage readings to the plates and screens of the tubes. However, with the aid of a good high reading voltmeter, one should be able to make his own diagnosis.

Locating the Trouble

The fact that so many receivers are different (although fundamentally similar) precludes any attempt to give other than blanket instructions for the locating of intermittent reception. But the reader, working with a schematic wiring diagram of his set, together with the values of resistors and condensers, should be able to locate the various parts that will be mentioned in the following text as possible sources of trouble and worthy of examination.

Defective parts that cause intermittent operation usually will be found in some minor circuit. Unfortunately, these elements are difficult to deal with in the matter of isolation and testing, for the defects may be caused by seemingly insignificant effects. Intermittent reception—the sudden cutting off and on of signals during operation of a receiver, occasionally only before it becomes fully warmed up, or, more frequently, not until some time after the set has become completely heated—will be found in most cases due to sudden changes in the electrical values of one or more of the many minor units in the circuit. High value resistors carrying little or no current, leaking or broken-down resistors or condensers, opening or shorting bypass condensers, defective tubes in sensitive circuits, mechanical faults in tuning units, broken wires and loose contacts that expand or contract with thermal changes, poor antenna and ground connections, dielectric imperfections in filtering condensers, and the ever present problem of faulty manufacturing, must be examined with suspicion.

Failure of Resistors

When characterized by spontaneous volume changes intermittent reception, without doubt, will be found within the receiver. There are many resistors of high values, and those of the carbon type are known to change resistance values excessively when the voltage applied across them is increased above a certain critical point. Depending upon the position of such resistors in the circuit, bias voltages, plate or screen-grid voltages, coupling relationships, or signal bypassing, will result. High value resistors, which may be so affected, will be found in receivers in series with the plates of certain tubes to reduce the applied potential; in series with the screen-grids of that particular type of tubes; and as bleeders shunted between the screen-grids to the ground or chassis; in grid returns; for cathode biasing; in filter circuits; and in automatic volume control circuits. It is difficult to list all of the possible positions of these high resistance re-

sistors, but a glance at a circuit diagram will reveal their locations. But the foregoing will cover the probable locations in which defective resistors should be found causing intermittent reception.

Those sudden changes in potential that may be applied automatically across the terminals of high resistances are due, in part, to excessive line voltages, intense signal potentials, or to faulty parts within the receiver and power unit. It is then that a low-current carrying high-value resistor becomes overloaded and breaks down. At this point we frequently find that the usual testing equipment used by many servicemen utilizes only low voltages and is not suitable for testing defects of this character. Under such conditions, when trouble is intermittent, a defective resistor may test perfectly at the shop and show no trouble. Sets are returned as satisfactory only to have them soon recommence their cutting off and on at irregular intervals.

The Substitution Test

The surest way of testing for faults in high resistances is to substitute new resistors in place of the old ones that are under suspicion. Then operate the set as a final test. It may be necessary to test a number of resistors in this way before the real offender is located. This method is certain but, of course, slow. It is not necessary that the old resistor be shunted by one having a similar rating simply for test purposes. The final replacement, however, should be identical, but its wattage rating can be slightly higher. This may forestall any possibility of a similar breakdown from overloading in the future.

Bypass condensers are the cause of as much trouble of this nature as defective resistors. They will intermittently open, leak, or short circuit. Ordinarily a condenser effectively blocks the passage of a direct current, but sometimes it will develop considerable direct-current conductivity. This will short circuit the plate, control-grid, screen-grid or cathode to the ground intermittently, and thus suddenly change the volume. Then, also, a condenser may temporarily "heal", only to break down suddenly with another voltage surge and cut off reception. Bypass condensers should be tested also by the substitution method just as described for resistances.

Open Bypass Condensers

The cutting on or off of signals, accompanied by oscillation and howling, may be caused by the opening of screen-grid and cathode bypass condensers. In some receivers the fine wires that emerge from bypass condensers that are encased in small bakelite shells become broken. A simple way to determine this is to probe around the lugs with a fine, sharp pointed instrument having a well-insulated handle, while the set is operating. Coupling condensers, those that couple the audio stages, or the second detector with the audio stage, may cause intermittent operation if defective. Trouble also occurs in the oscillator circuit; volume controls; tone controls; and in the gang condenser units when plates touch or rotor contacts between the shaft and its bearings are imperfect. Cleaning and bonding the contacts are the obvious remedies.

The most common internal faults have been described above. But trouble also occurs in noisy, wire wound volume controls. They should be cleaned and filled with a little dry graphite, such as rubbing a soft lead pencil vigorously across the turns of wire. The shield of an antenna lead-in, when such is in use, may be loose and touch the wires within the set. Tubes, of course, are a common source of trouble. One or more of the internal elements may become broken away from their supports, or warped by heat, and touch as the tube becomes heated, thus shorting some circuit. Try placing several tubes in the automatic volume control socket, for with some tubes this operation is very critical. Switches used for

power, local-distance, tone control and all-wave changes often get loose and cause a set to cut off. Loose wires and other contacts are responsible too, for they may change with the heating and chilling of the parts of the chassis. Trouble has been located as poor contacts between one prong of a tube and its socket. Moving the tubes in their sockets may disclose the fault.

Broken Wires

The primary windings of audio and output transformers have been known to burn out, and the tiny break occurring somewhere in the hundreds of feet of fine wire may alternately separate or close with a consequent cutting off or on of signals. A test of the primary coil with battery and voltmeter will disclose this fact. Radio frequency coils and chokes may have defective wire contacts. Examine each of these, particularly when in an antenna or grid circuit. Temporarily shorting r.f. choke coils with a piece of wire will remedy the trouble. Internal shorting of one of the intermediate stages is a possibility. Sometimes the drastic action of resoldering or "sweating" every soldered contact in the set will correct intermittent reception which cannot otherwise be located.

If the antenna leadin wire runs for any distance parallel to any electric conduit or wires it should be of the shielded or transmission line type. The line plug should be reversed, as in some cases this will clear up such trouble. A separate outside ground is often effective, or a 0.5 mfd. fixed condenser in series with the ground lead may help. Bonding of the joints in an electric conduit carrying the power wires, as well as its grounding, can be helpful. Make sure the conduit grounding at the meter is perfect. The only way to make sure that the pickup of the antenna is not affected by the house wiring is to place the antenna as far away from the house as possible, and use a transmission line leadin to the set. Although developed primarily for man-made static noise reduction these antenna systems apply very well to the problem of intermittent reception.

Our Cover Girl

From a Florida cottage to radio stardom was an overnight hop for petite Frances Langford, deep-voiced singer with the Colgate House Party, heard over an NBC (Red) network each Saturday at 9:00 p. m., EDST.

A local program director heard Frances sing at an American Legion party in her home town of Lakeland, Florida, interested Rudy Vallee in her career, and almost before she knew it she was headed for success on the air waves.

Three days after the vivacious little brunette signed her contract to star on the House Party program, she was given a featured part in "Pure in Heart," a new Broadway show. She also got an offer for her Florida orange ranch—at just twice what she paid for it—but she's holding on because she thinks a Florida land boom is underway.

Frances is just 21, and is trying to add to her 100-pound weight.

A new 10,000 watt station is being built in Capt Town, S. Africa. The erection of the building started on March 9 and is expected to be completed by the end of September.

FIRST AID

(Continued from page 20)

cates an excess of filament voltage, excess plate voltage, or an insufficient bias. Check the bias bypass condenser of the power stage, as well as the .02 mfd. signal coupling condenser. No difficulties should arise from substituting the 2A5 for the -47 as their characteristics are similar.

Antenna Coil Shorted

For perhaps an hour after my Columbia superheterodyn has been turned on there is an annoying crackling sound. This seems to disappear after the set is warmed up. A peculiar thing is that when the antenna is disconnected, all the tubes light up noticeably. The moment the antenna is touched to the post of the set, the lights in the tubes die down as though a load had been connected to them in series. What do you think of this happening?

The only logical explanation for the tubes lighting up noticeably when the antenna is detached is that the antenna is shorted to the ground, and some other short to ground exists in connection with the power transformer primary coil. This trouble has occurred infrequently with d.c. line operated sets. You have not stated the model of the receiver, and as there

(Continued on page 52)

ALL-WAVE Antenna

(Continued from page 8)

tors which enter into the design of an antenna system of this character.

A switch on the transformer eliminates the primary coil and one wire of the lead-in so the system can be converted instantly to the conventional type of "L" antenna. Loading coils are provided for use where space is not available for the full length of antenna. The manufacturer has also devised a number of ingenious arrangements to be used when there is limited roof area. The price of the RCA-Victor "World Wide Antenna" is to be approximately $7.00. The manufacturer is the RCA-Victor Co., Inc., Camden, N. J.

On the Short Waves

(Continued from page 16)

far are W1XAZ, W8XK, W2XE, W3XAL, W1XAL, W9XF, VE9GW, VE9DY, W2XAF, W3XAU, KEZ, TGX, CMCI, HJ1ABB, EAQ, GSB-C, DJA, VQ7LO, LSX, I2RO, FYA, VK2ME-3ME and HRB. Last week I heard KNRA (Seth Parker Ship) testing with New York. The boat at that time was in Miami. It was heard at 6.6 or 6.45 megs."

This is the last RADEX until September, and the Editors wish every reader the very best of DX during the two summer months. Our readers should feel free to continue writing us, however, and communications requesting information will be acknowledged as quickly as possible.

Short Wave Information

(Continued from page 36)

is 6 hours slower than Greenwich.

MST, subtract 7 hours.

PST, subtract 8 hours.

AST, subtract 4 hours.

Hawaii, subtract 10 hours and 30 minutes (1030). Thus, 2145 GMT, minus 1030 gives 1115, or 11:15 am, Hawaiian Time.

Wayne King is a rather old-fashioned fellow—when it rains he still wears unbottoned galoshes which flap loosely around his ankles.

In Radio City there are 325 clocks synchronized with a master clock controlled by the meteorological office.

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 that has the feature you want.

COLUMBIA.....(C)	
Call	Dial

NATIONAL, Red (R)	
Call	Dial

NATIONAL, Blue.(B)	
Call	Dial

TIME: ED Eastern Daylight; E Eastern; C Central; M Mountain.
For Pacific Time subtract one hour from Mountain.

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

ED-6:00 p.m., E-5:00, C-4:00, M-3:00
C — Buck Rogers in 25th Century
CKLW WAAB WABC WADC WBT WCAO WCAU WDRC WEAN WHK WJSV WKBW WOKO

ED-6:15 p.m., E-5:15, C-4:15, M-3:15
C — Bobby Benson; Sunny Jim
WAAB WABC WCAU WDRC WEAN WFBL WGR WHEC WHK WLBZ WMAS WOKO WORC
B — U. S. Army Band
KOIL KSO KWCR KWK KYW WBAL WBZ WBZA WCKY WENR WHAM WJZ WMAL WREN WSYR

ED-6:30 p.m., E-5:30, C-4:30, M-3:30
C — Chas. Barnet and Orchestra
CKLW KLRA KLZ WAAB WADC WBIG WBRC WCAO WDAE WDBJ WDBO WDOD WDRC WDSU WFBL WFEA WGST WHEC WHP WICC WJAS WJSV WKBN WKBW WLAC WLBW WLBZ WMAS WMBG WOKO WORC WQAM WREC WSFA WSJS WSPD WTAR WTOC

ED-6:45 p.m., E-5:45, C-4:45, M-3:45
B — Lowell Thomas
CRCT KDKA WBAL WBZ WBZA WFLA WGAR WHAM WIOD WJAX WJR WJZ WLW WSYR
C — Dixie Circus
CKLW WABC WBBM WBT WCAO WCAU WJSV WNAC WOKO

ED-7:00 p.m., E-6:00, C-5:00, M-4:00
B — Ames 'n' Andy
CRCT KDKA WBAL WBZ WBZA WCKY WFLA WGAR WHAM WIOD WJR WJZ WLW WMAL WPTF WRVA

ED-7:15 p.m., E-6:15, C-5:15, M-4:15
R — Gene and Glenn
WBEN WCSH WEAF WEEI WFLA WGY WIOD WIS WJAR WJAX WKBF WPTF WRC WSAI WTAG WTAM WWJ WWNC
B — Baby Rose Marie
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WCKY WENR WHAM WJZ WMAL WREN WSYR
C — Just Plain Bill
CFRB CKLW WABC WCAO WCAU WGR WHK WJSV WKRC WNAC

ED-7:30 p.m., E-6:30, C-5:30, M-4:30
C — Music in the Air
WABC WCAO WCAU WDRC WEAN WFBL WFEA WGR WHEC WICC WJAS WJSV WLBZ WNAC WOKO WORC
R — Molle Show
KSD WBEN WCAE WCSH WDAF WEAF WFBR WGY WHO WJAR WMAQ WOC WOW WRC WTAG WTAM
B — George Gershwin; Katzman's Orch.
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WENR WHAM WJR WJZ WMAL WREN WSYR WLW

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

ED-8:00 p.m., E-7:00, C-6:00, M-5:00
C — Mary Eastman
CKLW WABC WADC WCAH WDRC WFBM WGN WGR WHEC WHK WICC WJSV WMAS WMBG WMT WNAC WORC WSPD WWVA
R — Soconyland Sketches
WBEN WCAE WCSH WEAF WEEI WGY WJAR WSAI WTAG WTAM WTIC
B — Yeast Foamers; Jan Garber
KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KSO KWCR WBAL WBZ WBZA WGAR WHAM WJR WJZ WKBF WLS WLW WMAL WREN WSYR

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

ED-8:30 p.m., E-7:30, C-6:30, M-5:30
C — Bing Crosby
CKLW KDB KERN KFBK KFPY KFRC 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

R — Voice of Firestone
CFCF CRCT KFYR KPRC KSD KTBS KTHS KVOO WBEN WCSH WDAF WDAY WEAF WEBC WEEI WFAA WFBR 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

ED-8:45 p.m., E-7:45, C-6:45, M-5:45
B — Babe Ruth; Baseball Comment
KDKA KSO KWCR KWK WBAL WBZ WBZA WCKY WGAR WHAM WJZ WLS WMAL WREN WSYR

ED-9:00 p.m., E-8:00, C-7:00, M-6:00
C — Andre Kostelanetz' Orchestra
CKLW KDB KERN KFBK KFH KFPY KFRC KGB KGMB KHJ KLRA KLZ KMBC KMJ KMOX KOH KOIN KOL KOMA KSL KTAT KTSA KVI KWG WABC WADC WBBM WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDRC WDSU WEAN WFBL WFBM WGST WHAS WHEC WHK WICC WISN WJAS WJSV WKBW WKRC WLAC WLBZ WMBG WMT WNAC WOKO WORC WOWO WPG WQAM WREC WRR WSPD WTAR WTOC
R — A. & P. Gypsies
KSD WBEN WCAE WCSH WDAF WEAF WEEI WGY WHO WJAR WLIT WMAQ WOC WOW WRC WSAI WTAG WTAM WTIC WWJ
B — Sinclair Minstrels
KDKA KFYR KOA KOIL KPRC KSO KSTP KTBS KTHS KVOO KWCR KWK WBAL WBZ WBZA WDAY WEBC WFAA WFLA WGAR WHAM WIBA WIOD WIS WJAX WJDX WJR WJZ WKY WLS WLW WMC WOAI WPTF WREN WRVA WSB WSM WSMB WTMJ WWNC

ED-9:30 p.m., E-8:30, C-7:30, M-6:30
C — The Big Show
CFRB CKLW KDB KERN KFBK KFPY 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 WOWO WREC WSPD WTAR
R — Del Monte Ship of Joy
KDYL KOA KPRC KSD KSTP KTBS KVOO WBEN WCAE WCSH WEAF WEBC WEEI WFAA WFBR

MONDAY—*(Continued)*

WFLA WGY WHO WIOD WIS WJAR WJAX WKBF WKY WLIT WMAQ WOAI WOC WOW WRC WRVA WSAI WTAG WTAM WTMJ WWJ WWNC

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

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

R — Contented Program
CFCF CRCT KDYL KFI KFYR KGO KGW KHQ KOA KOMO KPRC KSTP WCSH WEAF WEBC WEEI WFBR WJAR WLIT WMC WOAI WRC WSB WSM WTAG

B — Packard; Walter Damrosch
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WCKY WENR WGAR WHAM WJR WJZ WKBF WMAL WREN WSYR

ED-10:30 p.m., E-9:30, C-8:30, M-7:30
C — Musical Album
CKAC CKLW KFH KLRA KLZ KMBC KRLD KSCJ KSL KTSA WAAB WACO WADC WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDRC WDSU WEAN WFBM WFEA WGLC WHAS WHEC WHK WHP WJAS WJSV WKBW WLAC WLBW WLBZ WMAS WMBD WMBG WMT WNAX WOKO WORC WQAM WREC WSBT WSJS WSPD WTOC

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

C — Fats Waller, Songs
CKLW KLRA KLZ KMBC KRLD KSL KTSA WAAB WABC WACO WADC WBIG WBNS WBRC WBT WCAO WDAE WDBJ WDBO WDRC WDSU WGLC WHAS WHEC WHK WHP WJAS WJSV WKBN WKBW WLAC WLBW WMBG WOKO WPG WQAM WREC WSBT WSJS WSPD WTOC

ED-11:15 p.m., E-10:15, C-9:15, M-8:15
R — Gene and Glenn
KTBS WAPI WAVE WEBC WHO WIBA WJDX WKY WMAQ WMC WOAI WOW WSB WSM WSMB WTMJ

C — News Service
CFRB CKAC CKLW KFAB KFH KLRA KLZ KOMA KSCJ KTRH KTSA KVOR WAAB WABC WACO WADC WBBM WBNS WBRC WCAO WDAE WDBJ WDOD WDRC WDSU WFBL WGST WHEC WHP WIBW WIP WISN WJSV WKBN WKBW WKRC WLAC WLBW WLBZ WMAS WMBD WMBG WMT WNAX WODX WOKO WORC WPG WREC WSJS WSPD WTAR WTOC

ED-11:30 p.m., E-10:30, C-9:30, M-8:30
C — Charlie Davis and Orchestra
CFRB CKLW KFH KLRA KLZ KMBC KOMA KTRH KVOR WABC WADC WBNS WBRC WBT WCAO WDBJ WDBO WDOD WDRC WDSU WEAN WFBM WGLC WHAS WHEC WHP WIBW WICC WIP WJAS WJSV WKBW WLAC WLBW WLBZ WMAS WMBG WNAC WOKO WORC WPG WQAM WREC WSBT WSJS WSPD WTAR

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

TUESDAY

ED-6:00 p.m., E-5:00, C-4:00, M-3:00
C — Buck Rogers, See Monday

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

ED-6:30 p.m., E-5:30, C-4:30, M-3:30
R — Mid-Week Hymn Sing
KDYL KFYR KGIR KPO KPRC KTBS KTHS KVOO WDAY WEAF WFAA WFI WGY WHO WIBA WIS WJAX WJDX WMAQ WOAI WOC WRC WSAI WTAG WWNC

C — Mischa Raginsky and Ensemble
CKLW KLRA WAAB WABC WADC WBRC WBT WCAO WDAE WDBJ WDBO WDOD WDSU WFEA WGLC WGST WHEC WHP WICC WJAS WJSV WLAC WLBW WLBZ WMAS WMBG WOKO WORC WQAM WREC WSFA WSJS WSPD WTAR WTOC

ED-6:45 p.m., E-5:45, C-4:45, M-3:45
B — Lowell Thomas, See Monday

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

C — Morton Downey
CFRB CKLW KFAB KLRA KLZ KMBC KOMA KSCJ KTRH KTSA KVOR WABC WACO WADC WBNS WBRC WCAO WCCO WDAE WDBJ WDBO WDOD WDRC WDSU WFBM WFEA WGLC WGST WHEC WHP WIBW WICC WISN WJAS WLAC WLBW WLBZ WMBG WMT WOKO WORC WQAM WREC WSFA WSJS WSPD WTAR WTOC WWVA

ED-7:15 p.m., E-6:15, C-5:15, M-4:15
R — Gene and Glenn, See Monday

C — Just Plain Bill, See Monday

B — You and Your Government
KDKA KECA KEX KFSD KFYR KGA KGHL KGIR KJR KOA KOIL KPRC KTAR KTBS KTHS KVOO KWCR KWK KYA WAPI WBZ WBZA WCKY WFLA WHAM WIBA WIS WJDX WJZ WMAL WOAI WPTF WREN WSMB WWNC

ED-7:30 p.m., E-6:30, C-5:30, M-4:30
C — Silver Dust Serenaders
WABC WCAU WDRC WFBL WGR WHEC WJAS WMAS WOKO WORC WWVA

R — Tastyeast; East and Dumke
KSD WCSH WEAF WFBR WGY WJAR WMAQ WRC WSAI WTAM WTIC

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

ED-8:00 p.m., E-7:00, C-6:00, M-5:00
R — Leo Reisman's Orchestra
KDYL KFI KGO KGW KHQ KOA KOMO KSD WBEN WCAE WCSH WEAF WEEI WFBR WFI WGY WHO WJAR WKBF WLS WMAQ WOC WOW WRC WSAI WSB WSM WSMB WTAG WTAM WTMJ WWJ

B — Ens Crime Clues
KDKA KWK WBAL WBZ WBZA WGAR WHAM WJR WJZ WLW WMAL WMAQ WREN

C — The Troopers
CKLW KLRA KMBC KMOX WABC WADC WBBM WBIG WBNS WBRC WBT WDAE WDBJ WDBO WDRC WDSU WFBM WGR WHEC WHK WICC WISN WJSV WKBN WKRC WLAC WMAS WMBG WNAC WPG WQAM WREC WSFA WSJS WSPD WTOC WWVA

ED-8:15 p.m., E-7:15, C-6:15, M-5:15
C — Voice of Experience
CKLW KMBC KMOX KTRH WABC WBBM WBT WCAO WCAU WCCO WDRC WDSU WEAN WFBL WGR WHAS WHK WIBW WJAS WJSV WKRC WNAC WOWO

ED-8:30 p.m., E-7:30, C-6:30, M-5:30
B — Hudson; Conrad Thibault
KOIL KSO KWCR KWK WBAL WBZ WBZA WGAR WHAM WJZ WLS WLW WMAL WREN

R — Wayne King and Orchestra
KPRC KSD KSTP WBEN WCAE WCSH WDAF WEAF WEEI WFAA WFI WGY WHO WJAR WKBF WKY WMAQ WMC WOAI WOC WOW WRC WSAI WSB WSM WSMB WTAG WTAM WTMJ WWJ

C — "Accordiana"—Abe Lyman
CFRB CKLW KMBC KMOX WABC WBBM WCAO WCAU WCCO WDRC WEAN WFBL WFBM WGR WHEC WHK WJSV WKRC WNAC WOKO

ED-9:00 p.m., E-8:00, C-7:00, M-6:00
C — Maury H. B. Paul
CFRB CKLW KMBC KMOX KRLD KTRH WABC WBBM WCAO WCAU WCCO WDRC WDSU WEAN WFBM WHAS WHEC WHK WJAS WJSV WKBW WKRC WNAC WSPD

R — Ben Bernie and Orchestra
KFYR KOA KPRC KSD KSTP WBAP WBEN WCAE WCSH WDAY WEAF 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

ED-9:15 p.m., E-8:15, C-7:15, M-6:15
C — James Thurber; Humorist
CKLW KFH KLRA KLZ KMBC KMOX KOMA KSCJ KSL KTRH KTSA WABC WBBM WBNS WBRC WBT 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

TUESDAY—*(Continued)*

ED-9:30 p.m., E-8:30, C-7:30, M-6:30
R — Texaco Fire Chief Program
KDYL KFI KFSD KFYR KGHL KGIR KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTAR KTBS KVOO WBAP WBEN WCAE WCSH WDAF WDAY WEAF WEBC 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
B — Eddie Duchin and Orchestra
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WCKY WENR WGAR WHAM WJR WJZ WMAL WREN WSYR
C — Minneapolis Symphony Orchestra
CKLW KDB KERN KFBK KFPY KFRC KGB KHJ KLZ KMBC KMJ KMOX KOIN KOL KOMA KRLD KSL KVI KWG WABC WADC WBBM WBRC WBT WCAO WCAU WCCO WDRC WDSU WEAN WFBL WFBM WHAS WHK WJAS WJSV WKBW WKRC WMBG WMT WNAC WNAX WOKO WOWO WSPD

ED-10:00 p.m., E-9:00, C-8:00, M-7:00
R — Palmolive Beauty Box
KDYL KFI KFSD KFYR KGHL KGIR KGO KGW KHQ KOA KOMO KSD KTAR KTBS WAPI WAVE WBEN WCAE WCSH WDAY WEAF WEBC WEEI WFBR WFLA WGY WHO WIOD WIS WJAR WJAX WJDX WKY WLW WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSM WSMB WSOC WTAG WTAM WTMJ WWJ WWNC
C — Camel; Glen Gray's Orchestra
CKLW KDB KERN KFBK KFH KFPY KFRC KGB KHJ KLRA KLZ KMBC KMJ KMOX KOIN KOL KOMA KRLD KSCJ KSL KTRH KTSA KVI KWG WAAB WABC WACO 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 WLBZ WMAS WMBD WMBG WMT WNAX WODX WOKO WORC WOWO WPG WQAM WREC WSJS WSPD WTAR WTOC
B — Ray Perkins; Harold Stokes
KDKA KOIL KSO KWCR WBAL WBZ WBZA WCKY WENR WGAR WHAM WJR WJZ WMAL WREN WSYR

ED-10:30 p.m., E-9:30, C-8:30, M-7:30
C — Conflict; Drama
CFRB CKLW KFH KLRA KLZ KMBC KOMA KRLD KSCJ KTRH KTSA KVOR WAAB WABC WACO WADC WBNS WBRC WBT WCAO WDAE WDBJ WDBO WDOD WDRC WDSU WFBL WFBM WFEA WGLC WGST WHEC WHP WICC WIP WISN WJAS WJSV WLAC WLBW WLBZ WMAS WMBD WMBG WMT WNAX WODX WOKO WORC WPG WQAM WREC WSJS WSPD WTAR WTOC

ED-11:00 p.m., E-10:00, C-9:00, M-8:00
B — Ames 'n' Andy, See Monday
C — Harlem Serenade
CKLW KFH KLRA KMBC KOMA KSL KTRH KTSA KVOR WAAB WABC WACO WADC WBNS WBRC WBT WCAO WDAE WDBJ WDBO WDOD WDRC WDSU WGLC WHAS WHEC WHK WHP WIBW WIP WJAS WJSV WLBW WMBG WODX WOKO WREC WSJS WSPD WTAR WTOC WWVA

ED-11:15 p.m., E-10:15, C-9:15, M-8:15
C — News Service! See Monday
R — Gene and Glenn, See Monday

ED-11:30 p.m., E-10:30, C-9:30, M-8:30
C — Charles Barnett and Orchestra
CFRB 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 WLBW WMBD WMBG WMT WNAC WOKO WORC WQAM WREC WSBT WSJS WTAR WTOC WWVA

ED-11:45 p.m., E-10:45, C-9:45, M-8:45
C — Voice of Experience
KDB KERN KFBK KFPY KFRC KGB KHJ KLZ KMJ KOIN KOL KSL KVI KWG

WEDNESDAY

ED-6:00 p.m., E-5:00, C-4:00, M-3:00
C — Buck Rogers. See Monday

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

ED-6:30 p.m., E-5:30, C-4:30, M-3:30
C — Sam Robbins and Orchestra
CKLW KLRA WAAB WADC WBIG WBRC WCAO WDAE WDBJ WDBO WDOD WDRC WDSU WFEA WGST WHEC WHP WICC WJAS WJSV WKBN WLBW WLBZ WMAS WMBG WOKO WORC WQAM WREC WSFA WSJS WSPD WTAR WTOC

ED-6:45 p.m., E-5:45, C-4:45, M-3:45
B — Lowell Thomas, See Monday

ED-7:00 p.m., E-6:00, C-5:00, M-4:00
B — Ames 'n' Andy, See Monday
C — Vera Van, Songs
KSCJ KSL KTSA WABC WBIG WBT WCAO WCAU WDAE WDBO WDRC WDSU WEAN WGLC WHAS WISN WKBN WKBW WLAC WMAS WMBG WMT WNAC WOKO WORC WQAM WREC WSFA WSJS WTOC

ED-7:15 p.m., E-6:15, C-5:15, M-4:15
R — Gene and Glenn, See Monday
C — Just Plain Bill. See Monday

ED-7:30 p.m., E-6:30, C-5:30, M-4:30
C — Music in Air, See Monday
R — Molle Show, See Monday

ED-7:45 p.m., E-6:45, C-5:45, M-4:45
C — Boake Carter, See Monday
R — Goldbergs. See Monday
B — Irene Rich in Hollywood
KDKA WBAL WBZ WBZA WCKY WENR WJZ WMAL WMC WSB WSM WSMB WSYR

ED-8:00 p.m., E-7:00, C-6:00, M-5:00
B — Jack Pearl, Baron Munchausen
CFCF KDYL KFI KFYR KGO KGW KHQ KOA KOMO KSD KTAR KTBS KVOO WAVE WBEN WCAE WCKY WCSH WDAF WDAY WEAF WEBC WEEI WFBR WGY WHO WIBA WJAR WJDX WLIT WMAQ WMC WOAI WOW WPTF WRC WSAI WSMB WTAG WTAM WTIC WTMJ WWJ WWNC
B — Eno Crime. See Tuesday
C — The Columbians
CKLW KFH KLRA KMBC KMOX KOMA KTAT KTUL WABC WADC WBBM WBNS WCCO WDRC WFBM WGR WHEC WHK WIBX WICC WISN WJSV WMAS WMBG WMT WNAC WREC WRR WSPD WWVA

ED-8:15 p.m., E-7:15, C-6:15, M-5:15
C — Easy Aces
CFRB CKLW KMBC KMOX WABC WBBM WCAO WCAU WCCO WFBL WFBM WGR WHAS WHK WJAS WKRC WNAC WOKO WOWO

ED-8:30 p.m., E-7:30, C-6:30, M-5:30
C — Everett Marshall; Victor Alden
CFRB CKAC CKLW KDB, KERN KFBK KFPY KFRC KGB KHJ KLZ KMBC KMJ KMOX KOIN KOL KOMA KRLD KSL KVI KWG WABC WBBM WBT WCAO WCAU WCCO WDSU WGR WHAS WHK WIBW WJAS WJSV WKRC WLAC WNAC
R — Wayne King, See Tuesday

ED-8:45 p.m., E-7:45, C-6:45, M-5:45
B — Babe Ruth, See Monday

ED-9:00 p.m., E-8:00, C-7:00, M-6:00
R — Hour of Smiles; Fred Allen
KPRC KSD KSTP KTBS KVOO WBEN WCAE WCSH WDAF WEAF WEBC WFBR WGY WIOD WIS WJAR WJAX WKY WLIT WLW WMAQ WOAI WOW WPTF WRC WRVA WSB WSM WSMB WTAG WTAM WTIC WTMJ WWJ
C — Andre Kostelanetz, See Monday
B — Ray Knight and Cuckoos
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WCKY WGAR WHAM WJR WJZ WKBF WLS WMAL WREN WSYR

ED-9:30 p.m., E-8:30, C-7:30, M-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 KTSA KVI KWG WABC WADC WBT WCAO WCAU WCCO WDRC WEAN WFBL WFBM WGN WHK WJAS WJSV WKBW WKRC WNAC WOKO WORC WOWO WSPD
B — Non-Spi Program
KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KSO KWCR KWK WBAL WBZ WBZA WCKY WENR WGAR WHAM WJR WJZ WKBF WMAL WREN WSYR

ED-10:00 p.m., E-9:00, C-8:00, M-7:00
R — Corn Cob Pipe Club
KDYL KFI KFYR KGHL KGIR KGO KGW KHQ KOA KOMO KSD KSTP WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WENR WFBR WGY WHO WIBA WJAR WLIT WLW WOC WOW WRC WRVA WTAG WTAM WTIC WTMJ WWJ
B — Vincent Lopez and Orchestra
KDKA KOIL KPRC KSO KTBS KWCR KWK WAPI WAVE WBAL

WEDNESDAY—*(Cont'd)*

WBZ WBZA WCKY WFAA WFLA WGAR WHAM WIOD WIS WJAX WJDX WJZ WKBF WKY WMAL WMAQ WMC WOAI WPTF WREN WSB WSM WSMB WSOC WSYR WWNC

ED-10:30 p.m., E-9:30, C-8:30, M-7:30
B — Harry Richman; Jack Denny
KDYL KFYR KOA KOIL KPRC KSO KSTP KWCR KWK WBAL WCKY WDAY WEBC WENR WFAA WGAR WHAM WIBA WJR WJZ WKY WMAL WREN WRVA WSYR WTMJ
C — Albert Spalding; Conrad Thibault
CFRB CKAC CKLW KDB KERN KFBK KFPY KFRC KGB KHJ KLRA KLZ KMBC KMJ KMOX KOIN KOL KOMA KSL KTAT KTRH KTSA 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 WOWO WREC WRR

ED-11:00 p.m., E-10:00, C-9:00, M-8:00
B — Amos 'n' Andy, See Monday
C — Nick Lucas, Songs
CKLW KFH KLRA KLZ KMBC KOMA KSL KTRH KTSA KVOR WAAB WABC WACO WADC WBNS WBT WCAO WDAE WDBJ WDBO WDOD WDRC WDSU WGLC WHAS WHEC WHP WIBW WIP WJAS WJSV WLAC WLBW WMBG WODX WOKO WOWO WPG WQAM WREC WSJS WSPD WTAR WTOC

ED-11:15 p.m., E-10:15, C-9:15, M-8:15
C — News Service, See Monday
B — Ray Knight and Cuckoos
CFCF CRCT KDYL KFI KFSD KFYR KGHL KGIR KGO KGW KHQ KOA KOMO KPRC KTAR KTBS KTHS WAPI WAVE WBAP WDAY WEBC WFLA WIBA WJDX WKY WMC WOAI WRVA WSB WSM WSMB WSOC WTMJ WWNC
R — Gene and Glenn, See Monday

ED-11:30 p.m., E-10:30, C-9:30, M-8:30
C — Little Jack Little
KLRA WABC WBRC WBT WCAO WDAE WDBJ WDBO WDRC WDSU WEAN WGST WICC WIP WJSV WLAC WLBZ WMAS WMBG WNAC WORC WPG WQAM WREC WSJS WTAR

ED-12:00 mid., E-11:00, C-10:00 M-9:00
R — Hour of Smiles; Fred Allen
KDYL KFI KGO KGW KHQ KOA KOMO

THURSDAY

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

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

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

ED-6:45 p.m., E-5:45, C-4:45, M-3:45
B — Lowell Thomas, See Monday

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

ED-7:15 p.m., E-6:15, C-5:15, M-4:15
C — Just PlainBill, See Monday
R — Gene and Glenn, See Monday

ED-7:30 p.m., E-6:30, C-5:30, M-4:30
B — Romantic Melodies; Don Ameche
KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KSO KWCR KWK WBZ WBZA WCKY WENR WJZ WMAL WREN WSYR
R — Molle Show, See Monday
C — Silver Dust, See Tuesday

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

ED-8:00 p.m., E-7:00, C-6:00, M-5:00
C — Emery Deutsch Gypsy Violin
CKAC CKLW KFAB KFH KLRA KMBC KRLD KSCJ KTSA WABC WACO WADC WBIG WBNS WBRC WBT WCAU WCCO WDAE WDBJ WDBO WDRC WDSU WFBM WFEA WGLC WGR WHEC WHK WHP WICC WISN WJAS WKBN WLAC WLBW WLBZ WMAS WMBG WMT WOKO WORC WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC
R — Rudy Vallee and Orchestra
CFCF CRCT KDYL KFI KFYR KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTAR KTHS WAPI WBAP WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFBR WFI WFLA WGY WHO WIOD WJAR WJAX WJDX WKY WLW WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSB WSM WSMB WTAG WTAM WTMJ WWJ

ED-8:15 p.m., E-7:15, C-6:15, M-5:15
C — Easy Aces, See Wednesday

ED-8:30 p.m., E-7:30, C-6:30, M-5:30
C — Presenting Mark Warnow
CKLW KFAB KFH KLRA KMBC KMOX KRLD KSCJ KTSA WABC WACO WADC WBBM WBIG WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDRC WDSU WEAN WFBL WFBM WGR WHAS WHK WISN WJAS WJSV WKRC WLAC WMBG WMT WNAC WOKO WOWO WPG WQAM WREC WSJS WSPD WTOC WWVA

ED-9:00 p.m., E-8:00, C-7:00, M-6:00
C — Raffles; Amateur Cracksman
CKAC CKLW KFAB KFH KLRA KLZ KMBC KRLD KSCJ KTSA WABC WACO WADC WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDRC WDSU WEAN WFBM WFEA WGLC WHAS WHEC WHK WHP WICC WISN WJAS WJSV WKBN WKBW WLBW WLBZ WMAS WMBG WMT WNAC WNAX WOKO WORC WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC
R — Maxwell House Showboat
KDYL KFI KFSD KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTAR KTBS WAPI WBAP WBEN WCAE WCKY WCSH 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 WWNC
B — Death Valley Days—Drama
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WGAR WHAM WJR WJZ WLS WLW WMAL WREN WSYR

ED-9:30 p.m., E-8:30, C-7:30, M-6:30
C — Ford; Fred Waring's Orchestra
CKLW KDB KFBK KFH KFRC KGB KHJ KLRA KLZ KMBC KMOX KOH KOIN KOMA KRLD KSCJ KSL KTUL KVI KVOR WABC WACO WADC WBBM WBIG WBRC WBT WCAH WCAO WCAU WCCO WDAE WDBJ WDBO WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGLC WGST WHAS WHEC WHK WHP WIBW WICC WJAS WJSV WKBN WKBW WKRC WLAC WLBW WLBZ WMAS WMBD WMBG WMBR WMT WNAC WNAX WODX WOKO WORC WOWO WPG WQAM WREC WSJS WSPD WTAR WTOC
B — Eddie Duchin, See Monday

ED-10:00 p.m., E-9:00, C-8:00, M-7:00
R — Paul Whiteman and Orchestra
KDYL KFI KFYR KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTBS KTHS KVOO WBAP WBEN WCAE WCSH 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 WWNC
C — Camel Program. See Tuesday

ED-10:30 p.m., E-9:30, C-8:30, M-7:30
C — Doris Lorraine; Cadets
KLRA KMOX KOMA KTSA WABC WBRC WBT WCAO WGST WHAS WKRC WLAC WMBR WREC WRR
B — Archer Gibson, Organist
KDKA KSO KWCR KYW WBAL WBZ WBZA WCKY WGAR WHAM WJZ WMAL WREN

ED-10:45 p.m., E-9:45, C-8:45, M-7:45
C — The Playboys
CKAC CKLW KFH KLRA KLZ KMBC KRLD KSCJ KSL KTSA WAAB WABC WACO WADC WBIG WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDRC WDSU WFBM WFEA WGLC WHAS WHEC WHK WHP WJAS WJSV WKBN WKBW WLAC WLBW WLBZ WMBD WMBG WMT WNAX WOKO WORC WQAM WREC WSBT WSJS WSPD WTOC

ED-11:00 p.m., E-10:00, C-9:00, M-8:00
B — Amos 'n' Andy, See Monday
C — Vera Van, Contralto
CFRB CKAC CKLW KDB KFAB KFH KLRA KLZ KMBC KOMA KTRH KTSA KVOR WAAB WABC WACO WADC WBBM WBNS WCAO

THURSDAY—*(Cont'd)*

WCCO WDAE WDBJ WDBO WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGST WHAS WHEC WHK WHP WIBW WICC WIP WISN WJAS WJSV WKBN WKBW WLAC WLBW WLBZ WMAS WMBD WMT WNAX WODX WOKO WORC WQAM WREC WSBT WSJS WSPD WTAR WTOC WWVA

ED-11:15 p.m., E-10:15, C-9:15, M-8:15
C — News Service, See Monday

R — Gene and Glenn, See Monday

ED-11:30 p.m., E-10:30, C-9:30, M-8:30
C — Isham Jones and Orchestra
CFRB CKLW KFH KLRA KLZ KMBC KSL KTSA KVOR WABC WADC WBNS WBRC WBT WCAO WCAU WDAE WDBJ WDBO WDOD WDRC WDSU WEAN WFBL WFBM WGLC WHP WIBW WICC WJAS WJSV WLAC WLBW WLBZ WMAS WMBG WNAC WOKO WORC WPG WQAM WREC WSBT WSJS WSPD WTAR WTOC WWVA

FRIDAY

ED-6:00 p.m., E-5:00, C-4:00, M-3:00
C — H. V. Kaltenborn
CFRB CKLW KLRA WAAB WABC WADC WBIG WBT WCAO WCAU WDAE WDBJ WDBO WDOD WDRC WFEA WGST WHEC WHK WICC WJSV WLAC WLBW WLBZ WMBG WOKO WORC WQAM WREC WSFA WSJS WSPD WTOC

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

ED-6:30 p.m., E-5:30, C-4:30, M-3:30
C — Loretta Lee; Freddie Rich
KLRA WAAB WABC WBIG WBRC WDAE WDBJ WDBO WDRC WLBZ WMAS WMBG WORC WQAM WSJS WTOC

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

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

ED-7:15 p.m., E-6:15, C-5:15, M-4:15
C — Just Plain Bill, See Monday

R — Gene and Glenn, See Monday

ED-7:30 p.m., E-6:30, C-5:30, M-4:30
C — Music in Air, See Monday.
B — George Gershwin, See Monday

ED-7:45 p.m., E-6:45, C-5:45 M-4:45
B — Gus Van; Arlene Jackson
KDKA WBAL WBZ WBZA WCKY WENR WJZ WMAL WMC WSB WSM WSMB WSYR
C — Boake Carter, See Monday
R — Goldbergs, See Monday

ED-8:00 p.m., E-7:00, C-6:00, M-5:00
R — Cities Service Concert
CRCT KDYL KOA KPRC KSD KTBS KTHS KYW WBEN WCAE WCSH WDAF WEAF WEBC WEEI WFAA WFBR WGY WHO WJAR WKY WLIT 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

ED-8:15 p.m., E-7:15, C-6:15, M-5:15
C — Easy Aces, See Wednesday

ED-8:30 p.m., E-7:30, C-6:30, M-5:30
C — True Story Court
CKLW KMBC WABC WADC WBBM WCAO WCAU WCCO WDRC WFAN WFBL WHK WJAS WJSV WKBW WKRC WNAC WOKO

ED-8:45 p.m., E-7:45, C-6:45, M-5:45
B — Babe Ruth, See Monday

ED-9:00 p.m., E-8:00, C-7:00, M-6:00
B — Phil Harris and Orchestra
CFCF 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
R — Frank Munn; Abe Lyman
KSD WBEN WCSH WEAF WEEI WFBR WGY WJAR WLIT WMAQ WOW WRC WSAI WTAG WTAM WWJ

ED-9:15 p.m., E-8:15, C-7:15, M-6:15
C — Little Jack Little
KMBC WABC WADC WBNS WDRC WFBM WHEC WHK WICC WISN WJSV WKBW WKRC WMAS WNAC WSPD WWVA

ED-9:30 p.m., E-8:30, C-7:30, M-6:30
C — Jack Denny; Jack Whiting
CFRB CKAC CKLW KDB KERN KFBK KFH KFPY KFRC KGB KHJ KLRA KLZ KMBC KMJ KMOX KOIN KOL KOMA KRLD KSCJ KSL KTRH KTSA KVI KWG WABC WADC WBBM WBRC WBT WCAO WCAU WCCO WDOD WDRC WDSU WEAN WFBL WFBM WGST WHAS WHK WIBW WICC WJAS WJSV WKBW WKRC WLAC WMBG WMT WNAC WOKO WOWO WREC WSPD WTAR WTOC
B — Armour Program; Phil Baker
KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KPRC KSO KSTP KTAR KWK WAPI WBAL WBZ WBZA WEBC WENR WFAA WGAR WHAM WIOD WJAX WJR WJZ WKY WMC WOAI WREN WRVA WSB WSM WSMB WTMJ WWNC
R — One Night Stand; Pick and Pat
KSD WBEN WCAE WCSH WDAF WEAF WFBR WGY WJAR WLIT WMAQ WOC WOW WRC WSAI WTAG WTAM WTIC WWJ

ED-10:00 p.m., E-9:00, C-8:00, M-7:00
C — Schlitz Program
KDB KERN KFBK KFPY KFRC KGB KHJ KLRA KLZ KMJ KMOX KOIN KOL KOMA KSL KTRH KTSA KTUL KVI KWG WAAB WABC WADC WBBM WBNS WBT WCAO WCAU WCCO WDRC WDSU WEAN WFBL WHAS WHK WJAS WJSV WKBW WKRC WLAC WOKO WOWO WREC WSPD WTAR
B — Fulton Oursler, Stories
CFCF CRCT KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WENR WGAR WHAM WJR WJZ WKBF WMAL WREN WSYR

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

ED-10:30 p.m., E-9:30, C-8:30, M-7:30
R — Jack Benny; Don Bestor
KDYL KFI KFYR KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTBS KTHS WAPI WAVE WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFBR WFLA WGY WHO WIBA WIOD WIS WJAR WJAX WJDX WKBF WKY WLIT WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSB WSM WSMB WTAG WTAM WTIC WTMJ WWJ WWNC
C — Conflict, See Tuesday

ED-10:45 p.m., E-9:45, C-8:45, M-7:45
C — Edith Murray, Songs
CKAC CKLW KFH KLRA KLZ KMBC KRLD KSCJ KSL KTSA WAAB WABC WACO WADC WBIG WBNS WBT WCAO WDAE WDBJ WDBO WDRC WDSU WFBM WFEA WGLC WHEC WHK WHP WIP WJAS WJSV WLAC WLBW WLBZ WMBD WMBG WMT WNAX WOKO WQAM WREC WSBT WSJS WSPD WTOC

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

ED-11:15 p.m., E-10:15, C-9:15, M-8:15
C — News Service, See Monday

R — Gene and Glenn, See Monday

ED-11:30 p.m., E-10:30, C-9:30, M-8:30
C — True Story Court
KDB KERN KFBK KFPY KFRC KGB KHJ KLZ KMJ KMOX KOIN KOL KSL KVI KWG WHAS WOWO
C — Isham Jones, See Thursday

SATURDAY

ED-6:00 p.m., E-5:00, C-4:00, M-3:00
B — Al Pearce and His Gang
KDYL KFI KFYR KGO KGW KHQ KOA KOIL KOMO KPRC KSO KSTP KTBS KTHS KVOO KWCR KYW WBAL WBZ WBZA WCKY WDAY WEBC WFLA WHAM WIBA WIOD WIS WJAX WJDX WJR WJZ WKY WMAL WMC WOAI WREN WSB WSM WSYR WWNC
C — Mischa Raginsky and Ensemble
CFRB CKLW KFH KLRA KLZ KOMA KRLD WAAB WABC WADC WCAO WCAU WDAE WDBJ WDOD WDRC WDSU WEAN WGLC WGST WHK WISN WJAS WKBW WLAC WLBW WMBG WOKO WSBT WSJS WSPD WTOC

ED-6:30 p.m., E-5:30, C-4:30, M-3:30
C — Frederic William Wile
CKLW KLRA WAAB WABC WBIG WBRC WCAO WCAU WDAE WDBJ WDBO WDOD WDRC WDSU WFBL WFEA WGLC WGST WHEC WHP WJSV WKBW WLAC WLBW WLBZ WMAS WMBG WOKO WORC WQAM WREC WSJS WSPD WTAR WTOC

SATURDAY—*(Continued)*

ED-6:45 p.m., E-5:45, C-4:45, M-3:45
B — Flying with Capt. Al Williams
WBAL WBZ WBZA WCKY WGAR WHAM WJR WJZ WSYR
C — Charles Carlile, Tenor
CKLW KFH KLRA KLZ KOMA KRLD WABC WCAO WDAE WDBJ WDOD WDRC WDSU WEAN WFEA WGLC WGST WICC WISN WJAS WKBW WLAC WLBW WLBZ WMAS WMBG WNAC WOKO WSBT WSJS WSPD WTOC

ED-7:00 p.m., E-6:00, C-5:00, M-4:00
B — John Merrick, Baritone
KDKA KOIL KSO KWCR KWK WBAL WKCY WGAR WJZ WKBF WMAL WMAQ
C — Isham Jones and Orchestra
CFRB CKLW KFH KLRA KOMA KRLD KSCJ KTRH KTSA KVOR WABC WACO WADC WBRC WBT WCAH WCAO WCAU WCCO WDAE WDBJ WDBO WDOD WDRC WDSU WEAN WFBL WFEA WGR WGST WIBW WICC WJAS WJSV WLAC WLBW WLBZ WMAS WNAC WOKO WORC WQAM WREC WSJS WSPD WTAR WWVA

ED-7:30 p.m., E-6:30, C-5:30, M-4:30
C — Silver Dust, See Tuesday
B — Don Bestor and Orchestra
KDKA KGIL KWCR KWK KYW WBAL WBZ WBZA WCKY WGAR WHAM WJAR WJR WJZ WMAL WREN WSYR

ED-8:00 p.m., E-7:00, C-6:00, M-5:00
C — Morton Downey Revue
CFRB CKLW KFH KLZ KMBC KMOX KOMA KSL KTAT KTRH KTSA WABC WACO WBBM WBNS WBT WCAO WCAU WCCO WDAE WDBO WDRC WDSU WEAN WFBL WGR WGST WHEC WHK WJAS WJSV WKRC WLAC WMBR WNAC WOKO WQAM WRR WSPD

ED-8:30 p.m., E-7:30, C-6:30, M-5:30
R — Floyd Gibbons
KFYR KPRC KSD KSTP WAPI WBAP WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFBR WFI WFLA WHO WIBA WIOD WIS WJAR WJAX WKY WLW WMAQ WMC WOC WOW WRC WRVA WSB WSM WSMB WTAG WTAM WTIC WTMJ WWJ

ED-8:45 p.m., E-7:45, C-6:45, M-5:45
C — Fats Waller
CFRB CKLW KFH KLRA KLZ KOMA KRLD WABC WACO WADC WCAO WDAE WDBJ WDOD WDRC WDSU WEAN WFBM WFEA WGLC WGR WGST WHK WICC WIP WISN WJAS WLAC WLBW WLBZ WMAS WMBG WNAC WOKO WPG WSBT WSJS WSPD WTOC WWVA

ED-9:00 p.m., E-8:00, C-7:00, M-6:00
C — Andre Kostelanetz, See Monday
R — Donald Novis; Frances Langford
KDYL KFI KFYR KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTBS KTHS WAPI WBAP WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFBR WFI WFLA WGY WIBA WIOD WIS WJAR WJAX WJDX WKY WLW WMAQ WMC WOAI WOW WPTF WRC WRVA WSB WSMB WTAG WTAM WTMJ WWJ WWNC

ED-9:30 p.m., E-8:30, C-7:30, M-6:30
B — Eddie Duchin, See Tuesday
R — Beatrice Fairfax; Dramas
KDYL KFI KGO KGW KHQ KOA KOMO KSD WBEN WCAE WCSH WDAF WEAF WEEI WFBR WFI WGY WJAR WLW WMAQ WOW WRC WTAG WTAM WWJ
C — Roy Helton, Talks
CFRB CKLW KFH KLRA KLZ KOMA KRLD WABC WACO WADC WCAO WCAU WDAE WDBJ WDOD WDRC WDSU WEAN WFBM WFEA WGLC WGST WHK WICC WISN WJAS WKBW WLAC WLBW WLBZ WMAS WMBG WNAC WOKO WSBT WSJS WSPD WTOC

ED-9:45 p.m., E-8:45, C-7:45, M-6:45
C — Fray and Braggiotti
CFRB CKLW KFH KLRA KLZ KOMA KRLD WABC WACO WADC WCAO WCAU WDAE WDBJ WDOD WDRC WDSU WEAN WFBM WFEA WGLC WGST WHK WICC WISN WJAS WKBW WLAC WLBW WLBZ WMAS WMBG WNAC WOKO WSBT WSJS WSPD WTOC

ED-10:00 p.m., E-9:00, C-8:00, M-7:00
R — Terraplane Travelcade
KDYL KFI KGO KGW KHQ KOA KOMO KPRC KSD KSTP WBAP WBEN WCAE WCSH WDAF WEAF WEEI WFBR WFI WFLA WGY WIOD WJAR WJAX WKY WLW WMAQ WOAI WOW WPTF WRC WRVA WSB WSMB WTAG WTAM WTMJ WWJ
C — Byrd Expedition
CKLW KDB KERN KFBK KFH KFPY KFRC KGB KHJ KLRA KMBC KMJ KMOX KOIN KOL KOMA KRLD KTRH KTSA KVI KWG WAAB WABC WACO WADC WBBM WBRC WBT WCAO WCAU WCCO WDAE WEAN WGST WHAS WHEC WHK WHP WIBW WJSV WKBW WKRC WLAC WLBZ WMBG WMT WOKO WORC WQAM WREC

ED-10:30 p.m., E-9:30, C-8:30, M-7:30
B — National Barn Dance
KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KSO KWCR KWK WBAL WBZ WBZA WGAR WHAM WJR WJZ WLS WLW WMAL WREN WSYR
C — Elder Michaux Congregation
CFRB CKLW KFH KLRA KLZ KSCJ KSL KTRH KTSA KVOR WABC WACO WADC WBIG WBRC WCAO WCAU WDAE WDBJ WDBO WDOD WDRC WDSU WFBL WFEA WGLC WGR WGST WHEC WHP WIBW WICC WJAS WJSV WLBW WLBZ WMAS WMBG WMT WOKO WORC WQAM WREC WSJS WSPD WTAR WTOC WWVA

ED-11:00 p.m., E-10:00, C-9:00, M-8:00
C — Sylvia Froos, Songs
CFRB CKLW KLRA KLZ KMBC KMOX KOMA KRLD KSCJ KSL KTRH KTSA KVOR WAAB WABC WACO WADC WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGLC WHAS WHP WIBW WICC WISN WJAS WJSV WLAC WLBW WLBZ WMAS WMBD WMBG WMT WNAX WODX WOKO WORC WPG WQAM WREC WSJS WSPD WTAR WTOC

ED-11:15 p.m., E-10:15, C-9:15, M-8:15
C — News Service, See Monday

ED-11:30 p.m., E-10:30, C-9:30, M-8:30
R — One Man's Family
CFCF 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 WOAI WOC WOW WRC WRVA WSAI WSB WSMB WTAG WTAM WWJ WWNC
C — Little Jack Little
CFRB CKLW KLRA KLZ KOMA WABC WACO WADC WCAO WCAU WDAE WDBJ WDOD WDRC WDSU WEAN WFBM WGLC WHK WICC WKBW WLBW WLBZ WMAS WMBG WNAC WOKO WSBT WSJS WSPD WTOC WWVA

ED-12:00 p.m., E-11:00, C-10:00, M-9:00
C — Ted Fiorito and Orchestra
CFRB CKLW KFH KLRA KLZ KMBC KMOX KOMA KTRH KTSA WABC WBNS WBRC WCAU WDOD WEAN WFBL WFBM WHAS WHP WIBW WICC WJAS WJSV WLAC WLBW WNAC WQAM WREC WSBT WSJS WSPD WTOC
B — Jack Denny and Orchestra
KOIL KSO KWCR KWK KYW WBAL WBZ WBZA WCKY WGAR WHAM WJR WJZ WLW WMAL WREN WSYR
R — Floyd Gibbons
KDYL KFI KFSD KGO KGW KHQ KOA KOMO

SUNDAY

ED-11:15 a.m., E-10:15, C-9:15, M-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 WOAI WOC WRC WRVA WSAI WSMB WTAG WTAM WWNC

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

ED-12:15 p.m., E-11:15, C-10:15, M-9:15
R — Gordon String Quartet
WCSH WEAF WEEI WFBR WFI WJAR WRC WTAG
B — Baby Rose Marie
KDKA WBAL WBZ WBZA WHAM WJR WJZ WLW WMAL WSYR

ED-12:30 p.m., E-11:30, C-10:30, M-9:30
B — Radio City Concert
CFCF CRCT KDKA KDYL KFI KFYR KGO KGW KHQ KOA KOIL KOMO KPRC KSO KVOO WAPI

SUNDAY—*(Continued)*

WBAL WBZ WBZA WCKY WDAY WEBC WGAR WHAM WIS WJDX WJR WJZ WKY WMAL WOAI WREN WSMB WSYR WWNC

R — Chicago Round Table

WBEN WCSH WDAF WEAF WEEI WFBR WFI WGY WHO WJAR WOC WOW WRC WSAI WTAG WTAM WWJ

C — Madison Ensemble

CKLW KFAB KLRA KLZ KMBC KSCJ KSL KTSA WABC WADC WBIG WCAO WCAU WCCO WDAE WDBO WDSU WEAN WFEA WGLC WGR WHP WJSV WKBN WKBW WLAC WLBW WLBZ WMAS WMBD WMT WNAC WOKO WORC WPG WQAM WREC WSPD WTOC

ED-12:45 p.m., E-11:45, C-10:45, M-9:45

C — H. V. Kaltenborn

CFRB CKLW KLRA KLZ KMBC KOMA KSCJ KTRH KVOR WABC WACO WADC WBNS WBRC WCAO WCAU WCCO WDBJ WDOD WDSU WFBL WGLC WGR WHAS WHEC WIBW WISN WJAS WLAC WLBW WMBD WMT WNAC WNAX WODX WOKO WORC WOWO WPG WQAM WREC WSJS WSPD WTAR WTOC WWVA

ED-1:00 p.m., E-12:00, C-11:00, M-10:00

C — Church of the Air

CFRB CKLW KLRA KLZ KOMA KTRH KTSA KVOR WAAB WABC WACO WADC WCCO WDBJ WDRC WDSU WFBL WGR WGST WHAS WHEC WHP WIBW WJAS WJSV WLAC WLBW WMT WOKO WPG WQAM WREC WSBT WSJS WTAQ WTAR WTOC WWVA

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

B — National Youth Conference

KDKA KFI KFSD KFYR KGHL KGIR KGO KGW KHQ KOA KOIL KOMO KPRC KSO KTAR KTBS KVOO 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 WWNC

R — Miss Babo's Surprise Party

KSD WBEN WCAE WCSH WDAF WEAF WEEI WFBR WFI WGY WHO WJAR WMAQ WOC WOW WRC WSAI WTAG WTAM WWJ

C — Compinsky Trio

CKLW KLRA KLZ KMBC KRLD KSCJ KSL KTSA WABC WACO WADC WBIG WBT WCAO WCCO WDAE WDBJ WDBO WDRC WDSU WGLC WHAS WHEC WHK WIP WISN WJSV WKBN WKBW WLAC WLBW WMBD WMT WOKO WORC WQAM WREC WSBT WSJS WSPD WTOC WWVA

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

R — Gene Arnold and Commodores

KDYL KFI KGO KGW KHQ KOA KOMO KPRC KVOO WBEN WCAE WCSH WEAF WEBC WEEI WFAA WFBR WGY WIBA WJAR WKY WLW WMAQ WOAI WOW WPTF WRC WRVA WTAG WTAM WWJ WWNC

C — Edith Murray, Songs

CKLW KLRA KLZ KMBC KRLD KSCJ KSL KTSA WABC WACO WADC WBNS WBT WCAO WCCO WDAE WDBJ WDBO WDSU WEAN WFEA WGLC WHAS WHEC WHP WICC WIP WISN WJSV WKBN WKBW WLAC WLBW WLBZ WMAS WMT WNAC WOKO WORC WQAM WREC WSBT WSFA WSJS WSPD WWVA

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

C — Lazy Dan, Minstrel Man

CKLW KDB KERN KFBK KFPY KFRC KGB KHJ KLZ KMBC KMJ KMOX KOIN KOL KOMA KRLD KSCJ KSL KVI KWG WABC WADC WBBM WBNS WBT WCAO WCAU WCCO WDRC WDSU WGST WHAS WHEC WHK WJAS WJSV WKBW WKRC WLAC WMBG WMT WNAC WOWO WTAR

ED-3:00 p.m., E-2:00, C-1:00, M-12:00

C — Symphonic Hour

CKAC CKLW KFAB KFH KLRA KLZ KMBC KRLD KSCJ KSL KTSA WABC WACO WADC WBNS WBT WCAO WCCO WDAE WDBJ WDBO WDRC WDSU WEAN WFBM WFEA WGLC WHAS WHEC WHK WHP WICC WISN WJSV WKBN WKBW WLAC WLBW WLBZ WMAS WMBD WMT WNAC WOKO WORC WQAM WREC WSFA WSJS WSPD WTOC

R — Talkie Picture Time

KSD WAPI WBEN WCAE WCSH WDAF WEAF WEEI WFBR WGY WHO WJAR WJDX WLIT WMAQ WMC WOC WOW WRC WSAI WSB WSM WSMB WTAG WTAM WWJ

B — Bar X Days and Nights

CRCT KDKA KOIL KSO KWCR KWK KYW WBAL WBZ WBZA WCKY WGAR WJR WJZ WMAL WREN WSYR

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

R — Romance of Meat, Drama

KFYR WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFBR WGY WIBA WJAR WLIT WMAQ WOW WRC WSAI WTAG WTAM WWJ

B — Dion Kennedy, Organist

KDKA KDYL KFI KFYR KGHL KGIR KGO KGW KHQ KOA KOIL KOMO KPRC KSO KTBS KTHS KVOO KWCR KWK WAPI WBAL WBAP WBZ WBZA WDAY WEBC WFLA WHAM WIBA WIOD WIS WJAX WJDX WJZ WKBF WKY WLS WMAL WMC WOAI WPTF WREN WRVA WSB WSM WSMB WSYR WWNC

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

B — Princess Pat Pageant

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

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

B — National Vespers

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

C — Chicago Knights

CKLW KFAB KFH KLRA KLZ KMBC KRLD KSCJ KTSA WAAB WABC WADC WBIG WBNS WBO WCAO WCCO WDAE WDBJ WDBT WDRC WDSU WEAN WFBM WFEA WGLC WHAS WHEC WHK WHP WICC WIP WISN WJSV WKBN WKBW WLAC WLBW WLBZ WMAS WMBD WMT WOKO WORC WQAM WREC WSBT WSFA WSJS WSPD WTOC WWVA

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

C — Tony Wons; Keenan-Phillips

CKLW KMBC KMOX WAAB WABC WADC WCAO WCAU WCCO WDRC WEAN WFBL WFBM WGR WHAS WHK WJAS WJSV WKRC WOKO WOWO WSPD

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

R — Hoover Sentinels Concert

KSD WBEN WCAE WCSH WDAF WEAF WEEI WFBR WFI WGY WJAR WMAQ WOW WRC WTAG WTAM WWJ

C — Frank Crumit; Julia Sanderson

CKLW KFAB KFH KMBC KMOX KOMA WAAB WABC WADC WCAH WCAO WCAU WDRC WDSU WEAN WFBL WFBM WGR WHEC WHK WICC WJSV WMAS WOKO WORC WSPD WTAR WWVA

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

R — Catholic Hour

KDYL KECA KFYR KGHL KGIR KGW KOA KOMO KPO KPRC KSTP KTAR KTBS KVOO WAPI WBAP WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WENR WFBR WFLA WGY WHO WIBA WIOD WIS WJAR WJAX WJDX WKY WLIT WMC WOAI WOC WOW WRC WRVA WSAI WSB WSM WSMB WTAG WTAM WWJ WWNC

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

C — Smiling Ed McConnell

CKLW KDB KERN KFAB KFBK KFH KFPY KFRC KGB KHJ KLZ KMBC KMOX KOIN KOL KRLD KSL KVI KWG WAAB WABC WBBM WBT WCAH WCAU WCCO WDSU WEAN WFBL WHAS WHEC WHP WJAS WJSV WKBW WKRC WLAC WMT WOKO WQAM WSPD WTAR WWVA

R — Our American Schools

CFCF CRCT KDYL KECA KFSD KFYR KGW KOMO KPO KPRC KSD KSTP KTAR KTBS KVOO WAPI WBAP WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFBR WFLA WGY WHO WIBA WIOD WJAR WJAX WJDX WKY WLIT WMAQ WMC WOAI WOC WRC WRVA WSAI WSB WSM WSMB WTAG WTAM WWJ WWNC

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

B — Silken Strings; Charles Previn

KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KPRC KSO KTHS KWCR KWK WBAL WBZ WBZA WEBC WFLA WGAR WHAM WIBA WIS WJDX WJR WJZ WKY WLS WLW WMAL WMC WOAI WPTF WREN WRVA WSB WSM WSMB WSYR WTMJ

C — Hampton Institute Choir

CKLW KFAB KFH KLRA KLZ KRLD KSCJ KTSA WABC WACO WBIG WBNS WBT WCAO WDAE WDBJ WDBO WDRC WDSU WEAN WFBM WFEA WGLC WGR WHAS WHEC WIIP WICC WIP WISN

SUNDAY—*(Continued)*

WJSV WKBN WLAC WLBW WLBZ WMAS WNAC WOKO WORC WQAM WREC WSBT WSFA WSJS WSPD WTOC WWVA

ED-7:30 p.m., E-6:30, C-5:30, M-4:30
B — Ozzie Nelson; Joe Penner
KDKA KDYL KFI KFYR KGO KGW KHQ KOA KOIL KOMO KPRC KSO KSTP KTAR KVOO KWCR KWK WBAL WBZ WBZA WDAY WEBC WFAA WFLA WGAR WHAM WIBA WIOD WJAX WJDX WJR WJZ WKY WLS WLW WMAL WMC WOAI WPTF WREN WRVA WSB WSM WSMB WTMJ WWNC
C — Nick Lucas, Songs
CKLW KFAB KFH KLRA KLZ KMBC KRLD KSCJ KSL KTSA WABC WADC WBIG WBNS WBT WCAO WCCO WDAE WDBJ WDRC WDSU WEAN WFEA WGLC WGR WHEC WHK WHP WICC WIP WISN WJSV WKBN WLAC WLBW WLBZ WMAS WMT WNAC WOKO WORC WQAM WREC WSBT WSFA WSJS WSPD WTOC

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

ED-8:00 p.m., E-7:00, C-6:00, M-5:00
B — Chase and Sanborn Hour
CFCF CRCT KDYL KFI KFYR KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTAR KTHS KVOO WBEN WCAE WCSH WDAF WDAY WEAF WEBC WFAA WFBR WFLA WGY WHO WIOD WIS WJAR WJAX WJDX WKY WLIT WLW WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSB WSM WSMB WTAG WTAM WTIC WTMJ WWJ WWNC
C — Freddie Rich Entertains
CKLW KFAB KFH KLRA KLZ KMBC KRLD DSCJ KSL KTSA WABC WACO WADC WBIG WBNS WBT WCAO WCCO WDAE WDBJ WDBO WDRC WDSU WEAN WFBM WFEA WGLC WGR WHAS WHEC WHP WIP WISN WJSV WKBN WLAC WLBW WLBZ WMAS WMT WNAC WOKO WORC WQAM WREC WSBT WSFA WSJS WSPD WTOC WWVA

ED-8:30 p.m., E-7:30, C-6:30, M-5:30
C — California Melodies
CKLW KFAB KFH KLRA KLZ KMBC KRLD KSCJ KTSA WABC WACO WADC WBIG WBNS WBT WCAO WCCO WDAE WDBJ WDBO WDRC WDSU WEAN WFBM WFEA WGLC WGR WHAS WHK WHP WICC WIP WISN WJSV WKBN WLAC WLBW WLBZ WMAS WMT WNAC WOKO WORC WQAM WREC WSBT WSFA WSJS WSPD WTOC WWVA

ED-9:00 p.m., E-8:00, C-7:00, M-6:00
C — Ward's Family Theatre
CKLW KMOX WABC WADC WBBM WBNS WBRC WCAO WCAU WDRC WEAN WFBL WFEA WHK WICC WJAS WKBN WLBZ WMAS WMBR WNAC WOKO WORC WSFA WWVA
R — Manhattan Merry-Go-Round
KDYL KFI KGO KGW KHQ KOA KOMO KSD WDAF WEAF WFBR 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 WSMB WSYR WWNC

ED-9:30 p.m., E-8:30, C-7:30, M-6:30
C — Ford; Fred Waring's Orchestra
CFRB CKAC CKLW KFAB KFH KLRA KLZ KMBC KMOX KOH KOMA KRLD KSL KTRH KTSA KVOR WAAB WABC WACO WADC WBBM WBIG WBRC WBT WCAH WCAO WCAU WCCO WDAE WDBJ WDBO WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGST WHAS WIEC WHK WHP WIBW WICC WISN WJAS WJSV WKBN WKBW WKRC WLAC WLBW WLBZ WMAS WMBD WMBG WMT WOKO WORC WOWO WPG WQAM WREC WSFA WSPD WTAQ WTAR WTOC WWVA
R — Album of Familiar Music
CFCF CRCT KDYL KFI KGO KGW KHQ KOA KOMO KPRC KSD KSTP WAPI WBEN WCAE WCKY WCSH WDAF WEAF WEEI WFAA WFBR WFI WFLA WGY WHO WIOD WJAR WJAX WJDX WKY WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSAI WSB WSM WSMB WTAG WTAM WTMJ WWJ

ED-9:45 p.m., E-8:45, C-7:45, M-6:45
B — Horlick's Health Adventures
KDKA KOIL KSO KWK WBAL WBZ WBZA WENR WHAM WJR WJZ WREN

ED-10:00 p.m., E-9:00, C-8:00, M-7:00
C — Wayne King and Orchestra
CKLW KDB KERN KFBK KFPY KFRC KGB KHJ KLZ KMBC KMJ KMOX KOIN KOL KRLD KSL KVI KWG WAAB WABC WADC WBBM WCAO WCAU WCCO WDRC WDSU WFBL WHAS WHK WJAS WJSV WKBW WKRC WOKO WOWO WSPD
R — Chevrolet Program
KDYL KFI KFSD KFYR KGHL KGIR KGO KGW KHQ KOA KOMO KPRC KSTP KTAR KTBS WAPI WBAP WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFBR WFI WFLA WGY WIBA WIOD WIS WJAR WJDX WKY WMAQ WMC WOAI WOW WRC WRVA WSB WSM WSMB WTAG WTAM WTIC WTMJ WWJ WWNC
B — Madame Schumann-Heink
CFCF CRCT KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WCKY WENR WGAR WHAM WJR WJZ WMAL WREN WSYR

ED-10:30 p.m., E-9:30, C-8:30, M-7:30
C — 45 Minutes in Hollywood
CFRB CKLW KFH KLZ KMBC KMOX KOMA KSL KTAT KTSA WABC WACO WBBM WBNS WBT WCAO WCAU WCCO WDAE WDBO WDRC WDSU WEAN WFBL WGR WGST WHEC WHK WJAS WJSV WKRC WLAC WMBR WNAC WOKO WQAM WRR WSPD
R — Hall of Fame
KDYL KFI KGO KGW KHQ KOA KOMO KPRC KTBS KTHS WAPI WBAP WBEN WCAE WCSH WDAF WEAF WEEI WFRB WFI WGY WJAR WJDX WKY WLW WMAQ WMC WOAI WOW WRC WSM WTAG WTAM WTIC WWJ

ED-11:15 p.m., E-10:15, C-9:15, M-8:15
C — Little Jack Little
CFRB CKAC CKLW KDB KFAB KFH KLRA KLZ KOMA KSCJ KTRH KTSA KVOR WABC WACO WADC WBBM WBNS WBRC WCAO WCAU WDAE WDBJ WDBO WDOD WDRC WDSU WFBL WFBM WGR WGST WHAS WHEC WHK WHP WIBW WICC WISN WJAS WJSV WKBN WKRC WLAC WLBW WLBZ WMAS WMBD WMT WNAC WNAX WOKO WPG WQAM WREC WSBT WSJS WSPD WTAR WTOC

Lanny Ross returned from Hollywood with the conviction that professional jealousy is the cause of many divorces in the cinema capital. "It is difficult for movie stars to stay happily married," he told Captain Henry. "Well," observed the Show Boat's skipper, "you've got to give 'em credit—they all keep on tryin' and tryin'."

Amos 'n' Andy are the most punctual of performers. In their many years of association they have never been late for a broadcast, or even a rehearsal. Once in Chicago when the elevator service was temporarily suspended they climbed eighteen flights of stairs to be on time to the split second for a scheduled appointment.

CLASSIFIED INDEX TO CHAIN PROGRAMS

Time in Eastern Daylight Saving

CONCERTS

Walter Damrosch, 10:00 p.m., Monday, B
Hoover Sentinels, 5:30 p.m., Sunday, R
Andre Kostelanetz, 9:00 p.m., Mon., Wed. and Sat., C
Radio City, 12:30 p.m., Sunday, B
Mischa Raginsky, 6:30 p.m., Tues.; 6:00 p.m., Sat., C
Albert Spalding, 10:30 p.m., Wednesday, C
Symphonic Hour, 3:00 p.m., Sunday, C

DANCE BANDS

Victor Alden, 8:30 p.m., Wednesday, C
Charles Barnet, 6:30 p.m., Mon.; 11:30 p.m., Tues.; 7:45 p.m., Sat., C
Leon Belasco, 6:45 p.m., Tuesday, C
Ben Bernie, 9:00 p.m., Tuesday, R
Don Bestor, 10:30 p.m., Friday, R
Charlie Davis, 11:30 p.m., Monday, C
Jack Denny, 10:30 p.m., Wed., B; 9:30 p.m., Fri., C
Emery Deutsch, 8:00 p.m., Thursday, C
Bobby Dolan, 8:00 p.m., Friday, B
Eddie Duchin, 9:30 p.m., Tues., Thurs. and Sat., B
Ted Fiorito, 12:00 mid., Saturday, C
Jan Garber, 8:00 p.m., Monday, B
Glen Gray, 10:00 p.m., Tues. and Thurs., C
Phil Harris, 9:00 p.m., Friday, B
Lennie Hayton, 10:00 p.m., Saturday, R
Isham Jones, 11:30 p.m., Thurs. and Fri.; 7:00 p.m., Sat. C
Wayne King, 8:30 p.m., Tues. and Wed., R; 10:00 p.m., Sun. and Mon., C
Little Jack Little, 11:15 p.m., Sun.; 11:30 p.m., Wed.; 9:15 p.m., Fri.; 11:30 p.m., Sat., C
Guy Lombardo, 9:30 p.m., Wednesday, C
Vincent Lopez, 10:00 p.m., Wednesday, B
Abe Lyman, 9:00 p.m., Fri., R; 8:30 p.m., Tues., C
Ozzie Nelson, 7:30 p.m., Sunday, B
Zoel Parenteau, 6:45 p.m., Friday, C
Charles Previn, 7:00 p.m., Sunday, B
Leo Reisman, 8:00 p.m., Tuesday, R
Freddie Rich, 8:00 p.m., Sunday, C
Sam Robbins, 6:30 p.m., Wednesday, C
Rudy Vallee, 8:00 p.m., Thursday, R
Fred Waring, 9:30 p.m., Sun. and Thurs., C
Mark Warnow, 8:30 p.m., Thursday, C
Ted Weems, 9:30 p.m., Friday, B
Paul Whiteman, 10:00 p.m., Thursday, R
Vietor Young, 10:00 p.m., Sunday, R

DIALOG

Fred Allen, 9:00 and 12:00 p.m., Wednesday, R
Amos 'n' Andy, 7:00 and 11:00 p.m., daily, ex. Sat. and Sun., B
Phil Baker, 9:30 p.m., Friday, B
Jack Benny, 10:30 p.m., Friday, R
Burns and Allen, 9:30 p.m., Wednesday, C
Cuckoos, 9:00 and 11:15 p.m., Wednesday, B
Jimmy Durante, 8:00 p.m., Sunday, R
East and Dumke, 7:30 p.m., Tuesday, R
Easy Aces, 8:15 p.m., Wed., Thurs. and Fri., C
Gene and Glenn, 7:15 and 11:15 p.m., daily, except Sat. and Sun., R
Lean and Mayfield, 9:00 p.m., Sunday, C
Walter O'Keefe, 8:00 p.m., Friday, B
Jack Pearl, 8:00 p.m., Wednesday, R
Joe Penner, 7:30 p.m., Sunday, B
Ray Perkins, 10:00 p.m., Tuesday, B
Pick and Pat, 9:30 p.m., Friday, R
Stoopnagle and Budd, 10:00 p.m., Tues. and Thurs., C
Ed Wynn, 9:30 p.m., Tuesday, R

DRAMA

Bar X Days, 3:00 p.m., Sunday, B
Bobby Benson, 6:15 p.m., daily, except Sat. and Sun., C
Big Show, 9:30 p.m., Monday, C
Conflict, 10:30 p.m., Tuesday and Friday, C
Death Valley Days, 9:00 p.m., Thursday, B
Eno Crime Clues, 8:00 p.m., Tues. and Wed., B
Beatrice Fairfax, 9:30 p.m., Saturday, R
First Nighter, 10:00 p.m., Friday, R
Goldbergs, 7:45 p.m., daily, ex. Sat. and Sun., R
Just Plain Bill, 7:15 p.m., daily, except Sat. and Sun., C
One Man's Family, 11:30 p.m., Saturday, R
Princess Pat, 4:30 p.m., Sunday, B
Raffles, 9:00 p.m., Thursday, C
Irene Rich, 7:45 p.m., Wednesday, B
Rin Tin Tin Thriller, 7:45 p.m., Sunday, C
Buck Rogers, 6:00 p.m., Mon. to Thurs., inc., C
Romance of Meat, 4:00 p.m., Sunday, R
Soconyland Sketches, 8:00 p.m., Monday, R
Talkie Picture Time, 3:00 p.m., Sunday, R
True Story Court, 8:30 and 11:30 p.m., Friday, C
Ward's Family Theatre, 9:00 p.m., Sunday, C

PIANO AND ORGAN

Fray and Braggiotti, 9:45 p.m., Saturday, C
George Gershwin, 7:30 p.m., Mon. and Fri., B
Archer Gibson, 10:30 p.m., Thursday, B
Keenan and Phillips, 5:15 p.m., Sunday, C
Dion Kennedy, 4:00 p.m., Sunday, B
Ohman and Arden, 9:30 p.m., Sun., R; 8:30 Wed., C
Playboys, 10:45 p.m., Thursday, C

POPULAR PROGRAMS

A. & P. Gypsies, 9:00 p.m., Monday, R
Album of Familiar Music, 9:30 p.m., Sunday, R
Gene Arnold and Commodores, 2:00 p.m., Sunday, R
Miss Babo's Surprise, 1:30 p.m., Sunday, R
Major Bowes' Family, 11:15, a.m., Sunday, R
Byrd Expedition, 10:00 p.m., Saturday, C
California Melodies, 8:30 p.m., Sunday, C
Chase and Sanborn, 8:00 p.m., Sunday, R
Chevrolet Program, 10:00 p.m., Sunday, R
Chicago Knights, 5:00 p.m., Sunday, C
Cities Service Concert, 8:00 p.m., Friday, R
Colgate House Party, 9:00 p.m., Saturday, R
Contented Program, 10:00 p.m., Monday, R
Corn Cob Pipe Club, 10:00 p.m., Wednesday, R
Del Monte Ship, 9:30 p.m., Monday, R
Dixie Circus, 6:45 p.m., Monday, C
Fitch Program, 7:45 p.m., Sunday, R
Fleischmann Hour, 8:00 p.m., Thursday, R
Forty-Five Minutes in Hollywood, 10:30 p.m., Sunday, C
Jack Frost's Melody, 9:30 p.m., Monday, B
General Tire, 10:30 p.m., Friday, R
Gulf Headliners, 9:00 p.m., Sunday, B
Hall of Fame, 10:30 p.m., Sunday, R
Hour of Smiles, 9:00 and 12:00 p.m., Wednesday, R
Household Musical, 9:00 p.m., Tuesday, B
Hudson Vocalians, 8:30 p.m., Tuesday, B
Manhattan Merry-Go-Round, 9:00 p.m., Sunday, R
Maxwell House Show Boat, 9:00 p.m., and 1:00 a.m., Thursday, R
Molle Show, 7:30 p.m., Mon., Wed., Thurs, R
Music on the Air, 7:30 p.m., Mon., Wed., Fri., C
National Barn Dance, 10:30 p.m., Saturday, B
Palmer House Promenade, 10:00 p.m., Tuesday, B
Palmolive Beauty Box, 10:00 p.m., Tuesday, R
Al Pearce and Gang, 6:00 p.m., Saturday, B
Romantic Melodies, 7:30 p.m., Thursday, B
Schlitz Program, 10:00 p.m., Friday, C
Silken Strings, 7:00 p.m., Sunday, B
Sinclair Minstrels, 9:00 p.m., Monday, B
Terraplane Travelcade, 10:00 p.m., Saturday, R
Texaco Fire Chief, 9:30 p.m., Tuesday, R
Voice of Firestone, 8:30 and 11:30 p.m., Monday, R
Yeast Foamers, 8:00 p.m., Monday, B

RELIGIOUS

Catholic Hour, 6:00 p.m., Sunday, R
Church of the Air, 1:00 p.m., Sunday, C
Elder Michaux, 10:30 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

Baby Rose Marie, 7:15, p.m., Monday, B
Irene Beasley, 9:30 p.m., Friday, B
Connie Boswell, 10:00 p.m., Tues. and Thurs., C
Charles Carlile, 6:45 p.m., Saturday, C
Richard Crooks, 8:30 and 11:30 p.m., every other Mon., R
Bing Crosby, 8:30 p.m., Monday, C
Morton Downey, 7:00 p.m., Tues.; 8:00 p.m., Sat., C
Jessica Dragonette, 8:00 p.m., Friday, R

Mary Eastman, 8:00 p.m., Monday, C
Sylvia Froos, 11:00 p.m., Saturday, C
Tito Guizar, 6:30 p.m., Thursday, C
Wendell Hall, 7:45 p.m., Sunday, R
Harlem Serenade, 10:45 p.m., Tuesday, C
Harriet Hilliard, 7:30 p.m., Sunday, B
Jeannie Lang, 9:30 p.m., Friday, C
Frances Langford, 9:00 p.m., Sat., R; 10:00 p.m., Wed., B
Lazy Dan, 2:30 p.m., Sunday, C
Loretta Lee, 6:30 p.m., Friday, C
Doris Lorraine, 10:30 p.m., Thursday, C
Nick Lucas, 7:30 p.m., Sun.; 11:00 p.m., Wed., C
Madison Ensemble, 12:30 p.m., Sunday, C
Everett Marshall, 8:30 p.m., Wednesday, C
Nino Martini, 9:00 p.m., Wednesday, C
James Melton, 9:00 p.m., Sunday, C
Frank Munn, 9:30 p.m., Sun.; 9:00 p.m., Fri., R
Edith Murray, 2:00 p.m., Sun.; 10:45 p.m., Fri., C
Gertrude Niesen, 9:30 p.m., Monday, C
Donald Novis, 9:00 p.m., Saturday, R
Frank Parker, 9:00 p.m., Monday, R
Rosa Ponselle, 9:00 p.m., Monday, C
Virginia Rea, 9:30 p.m., Sunday, R
Revelers Quartet, 9:00 p.m., Sunday, B
Harry Richman, 10:30 p.m., Wednesday, B
Sanderson-Crumit, 5:30 p.m., Sunday, C
Schumann-Heink, 10:00 p.m., Sunday, B
Ethel Shutta, 8:00 p.m., Friday, B
Silver Dust Serenaders, 7:30 p.m., Tues., Thurs. and Sat., C
Mary Small, 1:30 p.m., Sunday; 6:45 p.m., Tuesday, R
Smiling Ed McConnell, 6:30 p.m., Sunday, C
Grete Stueckgold, 9:00 p.m., Saturday, C
Gladys Swarthout, 10:00 p.m., Tuesday, R
Tamara, 9:00 p.m., Sunday, R
Conrad Thibault, 8:30 p.m., Tues., B; 10:30 p.m., Wed., C
Lawrence Tibbett, 8:30 and 11:30 p.m., every other Mon., R
Vera Van, 7:00 p.m., Wed.; 11:00 p.m., Thurs., C
Fats Waller, 11:00 p.m., Monday; 8:45 p.m., Saturday, C
Jack Whiting, 9:30 p.m., Friday, C

TALKS

Boake Carter, 7:45 p.m., daily, except Sat. and Sun., C
Chicago Round Table, 12:30 p.m., Sunday, R
Flying Capt. Williams, 6:45 p.m., Saturday, B
Floyd Gibbons, 8:30 and 12:00 p.m., Saturday, R
Roy Helton, 9:30 p.m., Saturday, C
Edwin C. Hill, 8:15 p.m., Monday, C
Horlick's Health, 9:45 and 12:00 p.m., Sunday, B
H. V. Kaltenborn, 12:45 p.m., Sun.; 6:00 p.m., Fri., C
News Service, 11:15 p.m., daily, except Sunday, C
Our American Schools, 6:30 p.m., Sunday, R
Maury H. B. Paul, 9:00 p.m., Tuesday, C
Babe Ruth, 8:45 p.m., Mon., Wed. and Fri., B
Stories That Should Be Told, 10:00 p.m., Friday, B
Lowell Thomas, 6:45 p.m., daily, ex. Sat. and Sun., B
James Thurber, 9:15 p.m., Tuesday, C
Voice of Experience, 8:15 and 11:45 p.m., Tues., C
Frederick William Wile, 6:30 p.m., Saturday, C
Your Government, 7:15 p.m., Tuesday, B

FIRST AID

(Continued from page 42)

are nearly 40 types of this make, we cannot be specific.

The crackling may undoubtedly be traced to a high resistor carrying appreciably no current, such as a grid resistor, or a bypass condenser which arcs across until the heat fuses the di-electric at the point of arcing. Tests of such parts should be made only by substitution, as direct test methods rarely disclose the trouble.

Dial Reads Off

The dial of my Philco model 15X is off in its tuning and I wish to bring it back to its normal setting. The higher the frequency the further off the dial reads from its normal setting.

It is our belief that the high frequency padding condenser, which is also called the high frequency compensating condenser, is out of adjustment. The condenser is placed in shunt with the oscillator tuning condenser. You should set the receiver dial to 1400 kcs., and obtain an oscillator and set it also for 1400 kilocycles. Then adjust the padding condenser for maximum signal response. Any serviceman should be able to make this adjustment very quickly.

Buzzes and Hums

My RCA model 60 has developed a strong buzzing hum. A serviceman tried to repair it, but admitted he could not stop the noise. He thinks that I need a new set of coils. But I am not certain about that. What do you believe?

We think that this trouble is quite characteristic of improper neutralization of the r.f. or i.f. stages. This receiver uses triode tubes, as it was manufactured before the day of screen grid tubes, and requires neutralization adjustments.

Each of the intermediate-frequency stages and the radio-frequency stages, therefore, requires the proper adjustment for neutralization. In the March issue of RADEX you will find complete instructions for this work. Be sure to neutralize with the tubes that are to be used in their sockets. There is no reason why a good serviceman cannot properly adjust this receiver. We cannot understand what is meant by a new set of coils because, if they are r.f. or i.f. coils, there is nothing to wear out, and if a wire is broken it can easily be located and repaired.

INDEX BY FREQUENCIES AND DIAL NUMBERS

Stations in North America are shown in black type. Power is shown in kilowatts, thus .025 is 25 watts. Odd frequencies are given in parenthesis. Kilocycles in larger type; meters in parenthesis.

520 (576.6)

LKH	.7	Hamar, Nor. (519)
OFH	13.2	Viipuri, Fin. (527)
.....	.5	Innsbruck, Aust. (519)
.....	5.	Ljubljana, Yug. (527)

530 (565.7)

11BZ	1.	Bolzano, I. (536)
RW24	2.	Smolensk, USR (531)
.....	16.	Wilno, Pol. (536)

540 (555.2)

CJRM	**1.**	**Moose Jaw, Sask.**
HAL	120.	Budapest, Hun. (546)

550 (545.1)

KFUO	**.5**	**St. Louis, Mo.**
KFYR	**1.**	**Bismarck, N. D.**
KOAC	**1.**	**Corvallis, Ore.**
KSD	**.5**	**St. Louis, Mo.**
RW48	1.2	Tomsk, U. S. R.(554)
TISO	**.25**	**San Jose, C. R.**
WDEV	**.5**	**Waterbury, Vt.**
WGR	**1.**	**Buffalo, N. Y.**
WKRC	**1.**	**Cincinnati, Ohio**
.....	60.	Beromunster,Swi.(556)

560 (535.4)

IPA	3.	Palermo, I. (565)
KFDM	**.5**	**Beaumont, Tex.**
KLZ	**1.**	**Denver, Colo.**
KTAB	**1.**	**San Francisco, Calif.**
KWTO	**1.**	**Springfield, Mo.**
RW41	1.2	Syktyvkar, U.S.R.(563)
WFI	**.5**	**Philadelphia, Pa.**
WIND	**1.**	**Gary, Ind.**
WLIT	**.5**	**Philadelphia, Pa.**
WNOX	**1.**	**Knoxville, Tenn.**
WQAM	**1.**	**Miami, Fla.**
XEAO	**.25**	**Mexicali, B. C.**
2CO	7.5	Corowa, Ausl.
.....	60.	Athlone, 7FS (565)
.....	120.	Makhatch, U. S. R. (563)

570 (526)

FQN	**.25**	**St. Pierre, Miq.**
KGKO	**.25**	**Wichita Falls, Tex.**
KMTR	**.5**	**Hollywood, Calif.**
KVI	**.5**	**Tacoma, Wash.**
MYCY	1.	Skinkvo, Mnch.
WKBN	**.5**	**Youngstown, Ohio**
WMCA	**.5**	**New York, N. Y.**
WNAX	**1.**	**Yankton, S. D.**
WOSU	**.75**	**Columbus, Ohio**
WSYR	**.25**	**Syracuse, N. Y.**
WWNC	**1.**	**Asheville, N. C.**
2YA	5.	Wellington, N.Z.
.....	100.	Stuttgart, G. (574)
.....	20.	Cairo, Eg. (571)
.....	10.	Magnitogorsk, U. S. R. (571)

580 (516.9)

CE58	1.	SantiagoChl. (585)
CHRC	**.1**	**Quebec, Que.**
CKCL	**.1**	**Toronto, Ont.**
CKUA	**.5**	**Edmonton, Alta.**
KMJ	**.5**	**Fresno, Calif.**
KSAC	**.5**	**Manhattan, Kans.**
RW35	10.	Astrakhan, U.S.R.(589)
RW38	1.2	Alexandrovsk, U. S. R.
WCHS	**.5**	**Charleston, W. Va.**
WDBO	**.25**	**Orlando, Fla.**
WIBW	**1.**	**Topeka, Kans.**
WTAG	**.5**	**Worcester, Mass.**
YLZ	15.	Riga, Lat. (583)
ZTB	.5	Bloemtn, S. Af. (589)
7ZL	3.	Hobart, Ausl.

590 (508.2)

CMW	**1.4**	**Havana, Cuba (595)**
HIX	**1.5**	**Santo Domingo, D. R.**
JOAK2	10.	Tokyo, Jap.
KHQ	**1.**	**Spokane, Wash.**
LS10	3.5	Buenos Aires, Arg.
RW42	10.	Gorki, U. S. R. (598)
WEEI	**1.**	**Boston, Mass.**
WKZO	**1.**	**Kalamazoo, Mich.**
WOW	**1.**	**Omaha, Neb.**
XEPN	**50.**	**Piedras Ngs. Coah**
.....	10.	Nijni, U. S. R. (598)
.....	120.	Vienna, Aust. (592)

600 (499.7)

CFCF	**.5**	**Montreal, Que.**
CFCO	**.1**	**Chatham, Ont.**
CJOR	**.5**	**Vancouver, B. C.**
KFQD	**.25**	**Anchorage, Alas.**
KFSD	**1.**	**San Diego, Calif.**
SBD	10.	Sundsvall, Swe. (601)
WCAC	**.5**	**Storrs, Conn.**
WCAO	**.5**	**Baltimore, Md.**
WICC	**.5**	**Bridgeport, Conn.**
WMT	**.5**	**Waterloo, Iowa**
WREC	**.5**	**Memphis, Tenn.**
XMHA	.6	Shanghai, Chn.
.....	6.5	R'dio Maroc,Mor.(601)
.....	....	Cairo, Eg.

610 (491.5)

CX4	1.	Montevideo, Uru.
IFI	20.	Florence, I.
JODK2	10.	Keijo, Ko.
KFRC	**1.**	**San Francisco, Calif.**
KZEG	1.	Manila, P. I. (618.5)
KZRM	50.	Manila, P. I. (618.5)
RW22	10.	Oufa, U. S. R. (617)
TIXA	**.0075**	**San Jose, C. R. (614)**
WDAF	**1.**	**Kansas City, Mo.**
WIP	**.5**	**Philadelphia, Pa.**
WJAY	**.5**	**Cleveland, Ohio**
XFX	**1.**	**Mexico City, D. F.**
3AR	5.	Melbourne, Ausl.
.....	10.	Murmansk, U.S.R.

620 (483.6)

CE62	1.	Santiago, Chl. (625)
JOTK	.5	Matsuye, Jap. (625)
KGW	**1.**	**Portland, Ore.**
KTAR	**1.**	**Phoenix, Ariz.**
LV1	1.5	San Juan, Arg.
RW31	10.	Ivan-Vozn.U.S.R.(625)
WFLA	**1.**	**Clearwater, Fla.**
WLBZ	**5**	**Bangor, Me.**
WSUN	**1.**	**St. Petersburg, Fla.**
WTMJ	**1.**	**Milwaukee, Wis.**
XOTN	.5	Tientsin, Chn. (625)
4ZP	.5	Invercargill, N. Z.
No. 1	15.	Brussels, Belg.
.....	1.2	Trondheim, Nor. (629

630 (475.9)

CFCY	**.5**	**Charlottetown, P. E. I.**
CJGX	**.5**	**Yorkton, Sask.**
JODG	.3	Hamamatsu, Jap. (635)
KFRU	**.5**	**Columbia, Mo.**
KGFX	**.2**	**Pierre, S. D.**
KTRH	**.25**	**Houston, Tex.**
LS3	4.5	Buenos Aires, Arg.
OKP	120.	Prague, Cz. (638)
RW28	.7	Vladivost'k,U.S.R.(635)
WGBF	**.5**	**Evansville, Ind.**
WMAL	**.25**	**Washington, D. C.**
WOS	**.5**	**Jefferson City, Mo.**
XEZ	**.5**	**Merida, Yuc.**
XFG	**2.**	**Mex. City, D. F. (638.3)**
5CK	7.5	Crys, Brook. Aus. (635)

640 (468.5)

CMQ	**.5**	**Havana, Cuba (645)**
JOUK	.3	Akita, J. (645)
KFI	**50.**	**Los Angeles, Cal.**
RW17	10.	Kazan, USR. (644)
RW56	1.2	Penza, USR.
WAIU	**.5**	**Columbus, Ohio**
WOI	**5.**	**Ames, Iowa**
XEOX	**.25**	**Saltillo, Coah.**
YN	15.	Lyons, F. (648)
.....	10.	Petrozavodsk, U.S.R.

650 (461.3)

CAB	1.	Canton, Chn. (658)
CX6	5.	Montevideo, Uru.
JOCG	.3	Asahikawa, J. (655)
JQAK	.5	Dairen, Mnch. (652)
KPCB	**.25**	**Seattle, Wash.**
RW46	10.	Karaganda, USR. (653)
WSM	**50.**	**Nashville, Tenn.**
1YA	.5	Auckland, N. Z.
.....	60.	Langenberg, G. (658)

660 (454.3)

CE66	1.	Santiago, Ch. (665)
EAJ22	1.	Salamanca, Sp. (662)
NR	50.	Manchester,G.B. (668)
WAAW	**.5**	**Omaha, Neb.**
WEAF	**50.**	**New York, N. Y.**
XEAL	**1.**	**Mexico City, D. F.**
XGOA	75.	Nanking, Chn.
ZTJ	15.	Johannesburg, S. Af.
2FC	5.	Sydney, Aus. (665)
.....	.5	Bjorneborg, Fin. (662)

670 (447.5)

CMB	1.	Kwangchow, Chn.(677)
JFAK	10.	Taihoku, For.
LS4	6.	Buenos Aires, Arg.
MOIIB	1.	Harbin, Mnch. (674)
MTFY	1.	Harbin, Mnch. (674)
RW23	1.2	Groznyi, USR. (676)
WMAQ	**50.**	**Chicago, Ill.**
.....	25.	Sottens, Swi. (677)

INDEX BY FREQUENCIES AND DIAL NUMBERS

680 (440.9)

CMAF	**1.**	**Havana, Cuba**
CMCQ	**1.**	**Havana, Cuba**
HJN	1.	Bogota, Col. (681)
JOLK	.5	Fukuoka, J.
JOVK	.5	Hakodate, J.
KFEQ	**2.5**	**St. Joseph, Mo.**
KPO	**50.**	**San Francisco, Cal.**
RDN	**.5**	**San Salvador, E. S.**
RW27	4.	Mak.-Kala, USR. (689)
RW46	1.2	Karang., USR. (686.5)
RW74	1.2	Tcheboksarv. USR
VAS	**2.**	**Glace Bay, N. S. (685)**
WESG	**1.**	**Elmira, N. Y.**
WPTF	**1.**	**Raleigh, N. C.**
.....	2.5	Belgrade, Yug. (686)

690 (434.5)

CFRB	**10.**	**Toronto, Ont.**
CJCJ	**.1**	**Calgary, Alta.**
CX8	1.	Montevideo, Uru.
NAA	**1.**	**Arlington, Va.**
XET	**.5**	**Monterrey, N. L.**
XGOY	.5	Yunnan, Chn. (698)
6WF	5.	Perth, Aus.
.....	7.	Paris, F. (695)

700 (428.3)

CE70	1.	Santiago, Chl. (705)
JOKK	.5	Okayama, J.
SBA	55.	Stockholm, Swe. (704)
SCN	.25	Malmberget, Swe. (704)
VOWR	**.5**	**St. John's, N. F.**
VPB	1.75	Colombo, Cey. (705)
WLW	**50.**	**Cincinnati, Ohio**
XHHA	.1	Shanghai, Chn.

710 (422.3)

I1RO	50.	Rome, I. (713
JOJK	3.	Kanazawa, J.
KMPC	**.5**	**Beverly Hills, Cal.**
TIFB	**.03**	**San Jose, C. R. (714)**
WOR	**5.**	**Newark, N. J.**
XEN	**1.**	**Mex. City, D. F.**

720 (416.4)

JFBK	1.	Tainan, For.
JORK	.5	Kochi, J.
RV9	100.	Kiev, USR. (722)
RW28	10.	Vladivos., USR. (725)
RW52	10.	Simferopol, USR. (725)
WGN	**50.**	**Chicago, Ill.**
XEFI	**.25**	**Chihuahua, Chih.**
ZTD	1.	Durban S. Af (723)
3YA	2.5	Christchurch, N. Z.

730 (410.7)

CFPL	**.1**	**London, Ont.**
CJCA	**1.**	**Edmonton, Alta.**
CKAC	**5.**	**Montreal, Que.**
CMK	**2.**	**Havana, Cuba**
CX10	1.	Montevideo, Uru.
EAJ2	3.	Madrid, Sp. (731)
EAJ5	1.5	Seville, Sp. (731)
JOSK	1.	Kokura, J. (735)
5CL	5.	Adelaide, Aus.
.....	20.	Tallin, Est. (731)

740 (405.2)

CE74	1.	Santiago, Chl. (745)
KMMJ	**1.**	**Clay Center, Neb.**
KTRB	**.25**	**Modesto, Cal.**
OFD	.5	Pori, Fin. (749)
RW51	1.2	Naltchik, USR. (748.1)
WHEB	**.25**	**Portsmouth, N. H.**
WSB	**50.**	**Atlanta, Ga.**
XEPR	**.25**	**Mexico City, D. F.**
.....	100.	Munich, G.
.....	5.	Marseilles, F (749)

750 (399.8)

HS7PJ		Bangkok, Siam
JOBK1	10.	Osaka, J.
KGU	**2.5**	**Honolulu, T. H.**
OAX	1.5	Lima, Peru
PRA2	1.5	Rio de Janeiro, Brz.
PRA8	.5	Recife, Brz.
RW64	10.	Vladikav., USR. (752)
VQ7LO	1.	Nairobi, Ken.
WJR	**10.**	**Detroit, Mich.**
XEMC	**.25**	**Merida, Yuc.**
2YB	.1	New Plymouth, N. Z.
.....	12.	Katowice, Pol. (758)

760 (394.5)

CMBS	**.2**	**Havana, Cuba**
CMCQ	**1.**	**Havana, Cuba (767)**
KXA	**.25**	**Seattle, Wash.**
MR	25.	Daventry, G. B. (767)
WBAL	**10.**	**Baltimore, Md.**
WEW	**1.**	**St. Louis, Mo.**
WJZ	**50.**	**New York, N. Y.**
4QG	5.	Brisbane, Aus.

770 (389.4)

CX12	1.	Montevideo, Uru.
JOHK	10.	Sendai, J.
KFAB	**5.**	**Lincoln, Neb.**
RW26	10.	Stalino, USR. (776)
RW36	10.	Arkhangelsk, USR.
VUM	.2	Madras, In.
WBBM	**25.**	**Chicago, Ill.**
1ZH	.04	Hamilton, N. Z.
.....	2.	Toulouse, F. (776)

780 (384.4)

CE78	1.	Valparaiso, Chl. (785)
CHWK	**.1**	**Chilliwack, B. C.**
CJCS	**.5**	**Sudbury, Ont.**
CKY	**5.**	**Winnipeg, Man.**
JOPK	.5	Shizuoka, J.
KELW	**.5**	**Burbank, Cal.**
KFDY	**1.**	**Brookings, S. D.**
KTM	**.5**	**Los Angeles, Cal.**
LT1	5.	Rosario, Arg.
WEAN	**.5**	**Providence, R. I.**
WMC	**.5**	**Memphis, Tenn.**
WTAR	**.5**	**Norfolk, Va.**
XEYZ	**10.**	**Mexico City**
.....	.2	Alexandria, Eg.
.....	120.	Leipsig, G. (785)

790 (379.5)

CMJK	**.5**	**Camaguey, Cuba**
EAJ1	5.	Barcelona, Sp. (795)
JOGK	10.	Kumamoto, J.
KGO	**7.5**	**San Francisco, Cal.**
LR10	8.	Buenos Aires, Arg.
RW37	1.	Moskva, USR. (792.5)
WGY	**50.**	**Schenectady, N. Y.**
4YA	.5	Dunedin, N. Z.
.....	16.	Lwow, Pol. (795)
.....	.5	Santiago, Sp. (795)

800 (374.8)

LU2	.5	Bahia Blanca, Arg.
PRB7	.5	Rio de Janeiro, Brz.
TIGP	**.075**	**San Jose, C. R.**
SR	50	Falkirk, G. B. (804)
WBAP	**50.**	**Fort Worth, Tex.**
WFAA	**50.**	**Dallas, Tex.**
3LO	5.	Melbourne, Aus.
.....	20.	Salonica, Gr. (804)

810 (370.2)

CX14	1.	Montevideo, Uru.
EAJ4	1.5	Galicia, Sp. (815)
F8GC	1.2	Paris, F.
IMI	50.	Milan, I. (814)
JOCK1	10.	Nagoya, J.
PRA6	1.	Sao Paulo, Brz. (815)
VUC	3.	Calcutta, In.
WCCO	**50.**	**Minneapolis, Minn.**
WNYC	**.5**	**New York, N. Y.**
XFC	**.35**	**Aguascalientes, Ags.**
ZTC	1.	Cape Town, S. Af.

820 (365.6)

CE82	1.	Santiago, Chl. (825)
CMGC	**.03**	**Matanzas, Cuba**
LV7	.5	Tucuman, Arg.
RW68	1.5	Tchelia., USR. (824)
RW69	4.	Ijevsk, USR. (825)
WHAS	**50.**	**Louisville, Ky.**
XETW	**.5**	**Mexico City, D. F.**
XQHB	.1	Shanghai, Chn.
2ZH	.065	Napier, N. Z.
.....	12.	Bucharest, Ru. (823)

830 (361.2)

CMC	**.5**	**Havana, Cuba (835)**
CMGA	**.1**	**Colon, Cuba (834)**
JOIK	10.	Sapporo, J.
KOA	**12.5**	**Denver, Colo.**
LL	2.	Paris, Fr. (832)
LR5	.16	Buenos Aires, Arg.
RW39	100.	Moscow, U.S.R. (832)
TIEA	**.0075**	**San Jose, C. R. (833)**
WEEU	**1.**	**Reading, Pa.**
WHDH	**1.**	**Boston, Mass.**
WRUF	**5.**	**Gainesville, Fla.**

840 (356.9)

CJOC	**.1**	**Lethbridge, Alta.**
CKLW	**5.**	**Windsor, Ont.**
F31CD	12.	Saigon, Indo.
LT8	.35	Rosario, Arg.
VUB	3.	Bombay, In.
ZBW	2.	Hongkong, C. (845)
2YC	.2	Wellington, N. Z.
.....	100.	Berlin, G. (841)

850 (352.7)

CX16	.2	Montevideo, Uru.
EAJ3	1.5	Valencia, Sp.
HSP1	2.5	Bangkok, Siam (857
JOFK	10.	Hiroshima, J.
KIEV	**.1**	**Glendale, Cal.**
KWKH	**10.**	**Shreveport, La.**
LKA	.35	Aalesund, Nor.
LKB	1.	Bergen, Nor.
LKP	.7	Porsgrund, Nor.
PRB3	.25	Juiz de Fora, Brz. (857)
RW52	10.	Simferopol. USR (859)
WWL	**10.**	**New Orleans, La.**
XETZ	**.5**	**Mexico City, D. F.**
XOST	.5	Tsinan, Chn. (857.1)
XQHA	1.	Shanghai, Chn.
2BL	3.4	Sydney, Aus. (855)
.....	1.	Sofia, Bul.
.....	15.	Strasbourg, F. (859)

860 (348.6)

CE86	1.	Santiago, Chl. (865)

LKF .7 Fredriksstad, Nor. (868)
LV10 .5 Buenos Aires, Arg.
PRA3 2.5 Rio de Janeiro, Brz.
TIVL .03 San Jose, C. R. (869)
WABC 50. New York, N. Y.
WHB .5 Kansas City, Mo.
XEMO 2.5 Tijuana, L. C.
..... .1 Santiago, Chl.
..... 16. Poznan, Pol. (868)

870 (344.6)

CMCF .25 Havana, Cuba (873)
CMX 1. Havana, Cuba (875)
JOAK1 10. Toyko, J.
LR 50. London, G. B. (877)
LR6 2.1 Buenos Aires, Arg.
WENR 50. Chicago, Ill.
WLS 50. Chicago, Ill.
YNCRG 1.5 Granada Venz

880 (340.7)

CE88 .1 Valparaiso, Chl. (885)
CJCB .05 Sydney, N. S.
CRCO 1. Ottawa, Ont.
CT1GL .15 Lisbon, Por. (885)
KFKA .5 Greeley, Colo.
KLX 1. Oakland, Cal.
KPOF .5 Denver, Colo.
PRB2 .25 Curityba, Brz. (882)
WCOC .5 Meridian, Miss.
WGBI .5 Scranton, Pa.
WQAN .25 Scranton, Pa.
WSUI .5 Iowa City Iowa
XHHV .1 Shanghai, Chn.
YV2BC .1 Caracas, Venz. (882)
6PR .5 Perth, Aus.
1ZR .1 Auckland, N. Z.
..... 7. Graz, Aust. (886)

890 (326.9)

CX18 .75 Montevideo, Uru.
KARK .25 Little Rock, Ark.
KFNF .5 Shenandoah, Ia.
KFPY 1. Spokane, Wash.
KSEI .25 Pocatello, Ida.
KUSD .5 Vermillion, S. D.
MTBY 1.5 Hoten, Mnch. (897)
OFA 10. Helsinki, Fin. (895)
WGST .25 Atlanta, Ga.
WILL .25 Urbana, Ill.
WJAR .5 Providence, R. I.
WMMN .25 Fairmont, W. Va.
XETU .1 Pachuca, Hdo.
XEW 50. Mexico City
7HO .05 Hobart, Aus.
..... 5.5 Cadiz, Sp. (896)
..... 10. Toulouse, Fr. (895)

900 (333.1)

CE90 1. Santiago, Chl. (905)
JODK1 10. Keijo, Ko.
KGBU .5 Ketchikan, Alas.
KHJ 1. Los Angeles, Cal.
LV9 .5 Salta, Arg.
WBEN 1. Buffalo, N. Y.
WJAX 1. Jacksonville, Fla.
WKY 1. Oklahoma City, Okla.
WLBL 2.5 Stevens Pt., Wis.
XHHI .1 Shanghai, Chn.
Z1LY 2. Hoten, Mnch.
2ZP .105 Wairoa, N. Z.
3MA .05 Mildura, Aus.
..... 100. Hamburg, G. (904)

910 (329.6)

CMDE .15 Havana, Cuba
CMJF .2 Camaguey, Cuba
CRCM 5. Montreal, Que.
LR2 8.5 Buenos Aires, Arg.
RW30 10. Dnepropetrovsk, USR (913)
TICR .075 San Jose, C. R. (911)
4RK 5. Rockhamton, Aus.
..... .5 Limoges, F. (913)

920 (325.9)

CE92 .1 Temuco, Chl.
CMCD .5 Havana, Cuba (925)
HHK 1. Port-au-Prince, Haiti
JOQK .5 Niigata, J.
KFEL .5 Denver, Colo.
KFXF .5 Denver, Colo.
KOMO 1. Seattle, Wash.
KPRC 1. Houston, Tex.
LV2 .8 Cordoba, Arg.
OKB 32. Brno, Cz. (922)
PRC3 .25 Pelotas, Brz.
WAAF .5 Chicago, Ill.
WBSO .5 Babson Pk., Mass.
WWJ 1. Detroit, Mich.
XEOK 2.5 Tijuana, B. C.

930 (322.4)

CFAC .1 Calgary, Alta.
CFCH .1 North Bay, Ont.
CFLC .1 Prescott, Ont.
CKPC .1 Brantford, Ont.
CKPR .05 Ft. William, Ont.
CT1BO .15 Lisbon, Por. (936)
CX20 2. Montevideo, Uru.
HSP3 Bangkok, Siam (938)
JOAG .5 Nagasaki, J.
KFWI .5 San Francisco, Cal.
KGBZ .5 York, Neb.
KMA .5 Shenandoah, Ia.
KROW .5 Oakland, Cal.
PRD2 1. Sao Paulo, Brz. (935)
WBRC .5 Birmingham, Ala.
WDBJ .5 Roanoke, Va.
XHHX .1 Shanghai, Chn.
XNPP 1. Peiping, Chn. (937)
3UZ .5 Melborne, Aus.
No. 2 15. Brussels, Belg. (932

940 (319)

CE94 1. Santiago, Chl. (945)
JONK .5 Nagano, J.
KOIN 1. Portland, Ore.
VOAS .1 St. John's, Nfld.
WAAT .3 Jersey City, N. J.
WAVE .1 Louisville, Ky.
WCSH 1. Portland, Maine
WDAY 1. Fargo, N. D.
WHA 1. Madison, Wis.
SBB 10. Goteborg, Swe. (941)
XEFO 5. Mexico City (XFO)
XHHE .1 Shanghai, Chn.
3ZR .3 Greymouth, N. Z.
..... 12. Algiers Alg. (941)

950 (315.6)

CMHD .5 Caibarien, Cuba
CT1DH .01 Lisbon, Por. (952)
KFWB 1. Hollywood, Cal.
KGHL 1. Billings, Mont.
KMBC 1. Kansas City, Mo.
LR3 12. Buenos Aires, Arg.
PP 100. Paris, F. (959)
RV 10. Paris, F. (959)
RW55 1. Engels, USR. (959)
RW40 1.2 Gomel, U.S.R. (959)
WRC .5 Washington, D. C.
XEAW 10. Reynosa, Tams.
XOPP .1 Peiping, Chn. (952.3)
2GB 3. Sydney, Aus.
.... Cairo, Eg.
..... 60. Breslau, G.

960 (312.3)

CMBD .25 Havana, Cuba (965)
CMCW .15 Havana, Cuba (965)
CMJL .05 Camaguey, Cuba
CRCT 5. Toronto, Ont.
JOOK .3 Kyoto, J.
OFC .25 Jacobstad, Fin.
PRC6 1. Rio de Janeiro, Brz. (965)
RW13 10. Odessa, USR. (968)
RW57 2. Tiraspol, U.S.R. (968)
XHHF .1 Shanghai, Chn.
YV1BC 5. Caracas, Venz.
2ZF .15 Palmerston, N. Z.
5DN 1. Adelaide, Aus.
..... 20. Grenoble, F. (968)
..... 10. Odessa, U.S.R. (968)
..... 2. Oukhta, USR. (968)

970 (309)

CMQF .1 Matanzas, Cuba (971.5)
CX22 .25 Montevideo, Uru.
JOBG .5 Maebashi, J.
KJR 5. Seattle, Wash.
WCFL 1.5 Chicago, Ill.
WIBG .1 Glenside, Pa.
WR 50. Cardiff, G. B. (977)
XEP .5 Mexico City, D. F.
XES .25 Tampico, Tams.
XGOD 1. Hangchow, C. (977.5)
3BO .2 Bendigo, Aus.

980 (303.9)

CE98 1. Santiago, Chl. (985)
CNO .025 Casablanca, Mor. (983)
IGE 10. Genoa, I. (986)
JOXK .5 Tokushima, J.
KDKA 50. Pittsburgh, Pa.
XEAE .25 Tijuana, B. C.
ZPT .5 Pretoria, S. Af. (985)
2ZJ .25 Gisborne, N. Z.
6BY .05 Bunbury, Aus.
..... 2. Cracow, Pol. (986)

990 (302.8)

JOFG .5 Fukui, J.
LR4 12. Buenos Aires, Arg.
PFBI 20. Hilversum, Hol. (995)
TITV .0075 San Jose, C. R. (999)
WBZ 50. Boston, Mass.
WBZA 1. Springfield, Mass.
WJEM .5 Tupelo, Miss.

1000 (299.8)

CMBZ .15 Havana, Cuba (1006)
CMHI .25 Santa Clara, Cu. (1007)
HJ3ABH 1. Bogota, Col.
KFVD .25 Los Angeles, Cal.
OKR 13.5 Bratislava, Cz. (1004)
PRA4 1. Bahia, Brz.
PRB4 1. Santos, Brz.
PRB8 .05 Mogy das Cruzes, Brz.
WHO 50. Des Moines, Ia.

WORK 1. York, Pa.
ZP3 .3 Asuncion, Par.
4GR .05 Toowoomba, Ausl.
..... .35 Hague, Hol.

1010 (296.9)

CHML .05 Hamilton, Ont.
CHWC .5 Regina, Sask.
CKCD .1 Vancouver, B. C.
CKCK .5 Regina, Sask.
CKCO .1 Ottawa, Ont.
CKIC .05 Wolfville, N. S.
CKWX .1 Vancouver, B. C.
CMJO .05 Ciego de Avila, Cuba
CX24 10. Montevideo, Uru.
KGGF .5 Coffeyville, Kans.
KQW .5 San Jose, Cal.
NN 50. Manchtr.,G.B.(1013)
PH9 6.4 Amsterdam, Ho.(1013)
PRB9 .5 Sao Paulo, Brz. (1017)
TIGA .03 Cartago, CR. (1014)
WHN 1. New York N. Y.
WIS .5 Columbia, S. C.
WNAD .5 Norman, Okla.
XEB 10. Mexico City, D. F.
3HA .2 Hamilton, Ausl.
..... 10. Tchrngv.,USR.(1013)

1020 (293.9)

CE102 .25 Santiago, Chl.
EAJ2 3 Madrid,Sp.(1022)
EAJ15 3. Barcelona, Sp. (1022)
EAJ19 .7 Oviedo, Sp. (1022)
KYW 10. Chicago, Ill.
WRAX .25 Philadelphia, Pa.
XEJ .25 Juarez, Chih.
XHHG .1 Shanghai, Ch.
2UE 3. Sydney, Ausl. (1025)

1030 (291.1)

CFCN 10. Calgary, Alta.
CFNB .5 Fredericton, N. B.
CKNC .1 Toronto, Ont.
CMKC .15 Santiago, C. (1034)
CT2GL 5. Parede, Por.
LR9 5. Buenos Aires, Arg.
..... 60. Heilsberg,G.(1031)
..... 5. Parede, Por. (1031)

1040 (288.3)

CE104 .02 Magallanes, Chl.
CMBG .225 Havana, Cuba (1048)
CMCB .15 Havana, Cuba (1048)
CP4 10. La Paz, Bol.
CMGH .015 Matanzas, Cuba
KRLD 10. Dallas, Tex.
KWJJ .5 Portland, Ore.
RW70 10. Leningrad,USR.
WKAR 1. East Lansing, Mich.
WTIC 50. Hartford, Conn.
XEFG .25 Mexico City, D. F.
XHHH .1 Shanghai, Chn.
5PI .05 Port Pirie, Ausl.(1041)
..... 2.5 Rennes, F.

1050 (285.5)

CHNS .5 Halifax, N. S.
CMJG .05 Camaguey, Cuba
CT1AA 2. Lisbon, Por. (1056)
CT1AN .01 Lisbon, Por. (1056)
CT1BM .05 Lisbon, Por. (1056)
CT1DS .01 Lisbon, Por. (1058)
CT1EB .05 Lisbon, Por. (1056)
CX26 2. Montevideo, Uru.
I1BA 20. Bari, I. (1059)
KFBI 5. Abilene, Kans.
KNX 50. Hollywood, Cal.
RW33 10. Krasnodar, USR.
8N 50. Falkirk, G. B.
VOGY .075 St. John's, Nfld.
2CA .05 Canberra, Ausl.
4ZB .05 Dunedin, N. Z.
4ZM .05 Dunedin, N. Z.
4ZO .025 Dunedin, N. Z.
..... .5 Berlin, G. (1058)

1060 (282.8)

CE106 .02 Santiago, Chl.
CT1GK 2. Lisbon, Por. (1063)
KTHS 10. Hot Springs, Ark.
LT9 .2 Santa Fe, Arg.
RW57 10. Tiraspol, USR. (1068)
WBAL 10. Baltimore, Md.
WJAG 1. Norfolk, Neb.
2ZW .4 Wellington, N. Z.
4MB .05 Maryborough, Ausl.

1070 (280.2)

CE107 .1 Santiago, Chl.
KJBS .1 San Francisco, Cal.
WCAZ .1 Carthage, Ill.
WDZ .1 Tuscola, Ill.
WTAM 50. Cleveland, Ohio
2KY 1.5 Sydney, Ausl.
..... 12. Bordeaux, F.(1077)

1080 (277.6)

JOBK2 10. Asaka, J. (1085)
LT3 3.5 Rosario, Arg.
PRA9 1. Rio de Janeiro, Brz.
SCC 2. Falun, Swe.(1086)
VOKW .03 St. John's, Nf. (1085)
WBT 50. Charlotte, N. C.
WCBD 5. Zion, Ill.
WMBI 5. Chicago, Ill.
XEAF .25 Nogales, Son.
XGOB .25 Lo Yang, Chn.
3SH .05 Swan Hill, Ausl.
..... .7 Zagred, Yu. (1086)
..... .5 Alexandria, Eg.

1090 (275.1)

CE109 .1 Vina del Mar, Chl.
CX25 2. Montevideo, Uru.
EAJ1 7. Barcelona, Sp.(1095)
EAJ7 7. Madrid, Sp. (1095)
KMOX 50. St. Louis, Mo.
PRC7 .25 Bello Horozonte, Brz.
PRG2 .5 Porto Alegre, Brz.
RW75 10. Vinnitsa, USR.(1095)
..... 1.5 Poznan, Pol. (1098)

1100 (272.6)

CE11O .1 Santiago, Chl. (1105)
CMHA .5 Sagua la Grande, Cu. (1103)
CMCU .5 Havana, Cuba
CRCV 1. Vancouver, B. C.
INA 1.5 Naples, I. (1104)
KGDM .25 Stockton, Cal.
TIRCA .5 San Jose, C. R.
WLWL 5. New York, N. Y.
WPG 5. Atlantic City, N. J.
XEA .125 Guadalajara, Jal.
XHHS .1 Shanghai, Chn.
7LA .3 Launceston, Ausl.
..... 20. Madona, Lat. (1104)

1110 (270.1)

HJ3ABD .05 Bogota, Col. (1115)
KSOO 1. Sioux Falls, S. D.
LS5 4.5 Buenos Aires, Arg.
OKK 2.6 Kosice, Cz. (1113)
PRB5 .05 Sao Paulo, Brz.
WRVA 5. Richmond Va.
2HD .2 Newcastle, Ausl.
2ZR .05 Nelson, N. Z.
..... .5 Heliopolis, Eg.
..... 1. Thesalonik, Gr.

1120 (267.7)

CHGS .05 Summerside, P. E. I.
CHLP .1 Montreal, Que.
CKOC .5 Hamilton, Ont.
CMHJ .06 Cienfgos.,Cuba (1125)
EAJ19 .7 Oviedo, Sp. (1121)
HAE 6.2 Nyiregyhaza, Hun. (1122)
KFIO .1 Spokane, Wn.
KFSG .5 Los Angeles, Cal.
KRKD .5 Los Angeles, Cal.
KRSC .1 Seattle, Wn.
LV5 .7 San Juan, Arg.
WDEL .25 Wilmington, Del.
WHAD .25 Milwaukee, Wis.
WISN .25 Milwaukee, Wis.
WTAW .5 College Station, Tex.
XEK .1 Mexico City, D. F.
2UW 1.5 Sydney, Aus. (1125)
..... 1. Belfast, IFS.(1122)

1130 (265.3)

CX30 .5 Montevideo, Uru.
KSL 50. Salt Lake City, Utah
SBH 10. Horby, Swe.(1131)
TGW .5 Guatemala City
WJJD 20. Chicago, Ill.
WOV 1. New York, N. Y.
XEH .25 Monterey, N. L.
SP1 1. Asuncion, Par. (1135)
6ML .3 Perth, Ausl. (1135)

1140 (263)

CE114 .1 Santiago Chl. (1145)
CMBJ .5 Havana, Cuba
CMBW .6 Havana, Cuba
CMCO .5 Havana, Cuba (1145)
CW30 Tucuarembo, Uru.
I1TO 7. Turin, I.
KVOO 25. Tulsa, Okla.
LN 50. London, G. B. (1149)
WAPI 5. Birmingham, Ala.
WN 50. Cardiff, G. B. (1149)
XGCU .1 Shanghai, Chn.
3YB .025 Melbourne, Ausl.(1145)
4BC .6 Brisbane, Aus. (1145)

1150 (260.7)

CMJH .05 Ciego de Avila, Cuba
LR8 5. Buenos Aires, Arg.
PRA7 .05 Ribeirao Preto, Brz. (1153)
WHAM 50. Rochester, N. Y.
YV17BMO .5 Maracaibo, Vens. (1153)
2WG .05 Wagga, Aus. (1155)
2ZM .11 Gisborne, N. Z.
..... 11.2 Moravska, Cs. (1158)

1160 (258.5)

LT5	.5	Resistencia, Arg.
WOWO	**10.**	**Ft. Wayne, Ind.**
WWVA	**5.**	**Wheeling, W. Va.**
XED	**.5**	**Guadalajara, Jal.**
XHHU	.5	Shanghai, Chn.
.....	15.	Mte. Ceneri,Sw.(1167)

1170 (256.3)

CMJE	**.05**	**Camaguey, C. (1175)**
CX32	.5	Montevideo, Uru.
JOCK2	10.	Nagoya, J. (1175)
MRD	.7	Toulouse, F. (1175)
PPAW	.02	Campinas, Brz.
WCAU	**50.**	**Philadelphia, Pa.**
2ZD	.008	Masterton, NZ.
4TO	.1	Townsville, Aus.
.....	10.	Cophgen., Den. (1175)

1180 (254.1)

CMBN	**.15**	**Havana, Cuba (1185)**
CMBX	**.5**	**Havana, Cuba (1185)**
CMCJ	**.5**	**Havana, Cuba**
CW32	.25	Salto, Uru.
KEX	**5.**	**Portland, Ore.**
KOB	**10.**	**Albuquerque, N. M.**
RW20	10.	Kharkov, USR. (1185)
WDGY	**1.**	**Minneapolis, Minn.**
WINS	**.5**	**New York, N. Y.**
WMAZ	**.5**	**Macon, Ga.**
XEFA	**.5**	**Mexico City, D. F.**
XHHM	.1	Shanghai, Chn.
3DB	.5	Melbourne, Aus.

1190 (252)

EAJ15	1.	Barcelona, Sp. (1193)
EAJ18	1.	Almeria, Sp. (1193)
HIJ	**.015**	**S. Dom., D. R. (1195)**
LS2	5.	Buenos Aires, Arg.
VE9EK	**.01**	**Montmgy., Que.(1195)**
VONF	**5.**	**St. John's, Nf. (1195)**
WATR	**.1**	**Waterbury, Conn.**
WOAI	**50.**	**San Antonio, Tex.**
WSAZ	**1.**	**Huntington, W. Va.**
1ZB	.05	Auckland, N. Z.
4MK	.1	Mackay, Aus.
.....	17.	Frankfurt, G. (1195)
.....	5.	Freiburg, G. (1195)
.....	1.5	Kaiserslautern (1195)
.....	...	Trier, G. (1195)
.....	1.5	Cassel, G. (1195)

1200 (249.9)

CHAB	**.1**	**Moose Jaw, Sask.**
CJAT	**.05**	**Trail, B. C.**
CKTB	**.1**	**St. Catharines, Ont.**
CMGB	**.03**	**Matanzas, Cu. (1205)**
CMHW	**.1**	**Cienfuegos, Cuba**
HJ3ABE	**.05**	**Bogota, Colo.**
KBTM	**.1**	**Jonesboro, Ark.**
KFJB	**.1**	**Marshalltown, Ia.**
KFXD	**.1**	**Nampa, Ida.**
KFXJ	**.1**	**Grand Jct., Colo.**
KGDE	**.1**	**Fergus Falls, Minn.**
KGEK	**.1**	**Yuma, Colo.**
KGFJ	**.1**	**Los Angeles, Cal.**
KGHI	**.1**	**Little Rock, Ark.**
KGVO	**.1**	**Missoula, Mont.**
KMLB	**.1**	**Monroe, La.**
KSUN	**.1**	**Lowell, Ariz.**
KVOS	**.1**	**Bellingham, Wn.**
KWG	**.1**	**Stockton, Cal.**
VUL	.1	Labore, In.
WABI	**.1**	**Bangor, Me.**
WBBZ	**.1**	**Ponca City, Okla.**
WBHS	**.1**	**Huntsville, Ala.**
WBNO	**.1**	**New Orleans, La.**
WCAT	**.1**	**Rapid City, S. D**
WCAX	**.1**	**Burlington, Vt.**
WCLO	**.1**	**Janesville, Wis.**
WFAM	**.1**	**South Bend, Ind.**
WFBC	**.1**	**Greenville, S. C.**
WFBE	**.1**	**Cincinnati, Ohio**
WHBC	**.1**	**Canton, Ohio**
WHBY	**.1**	**Green Bay, Wis.**
WIBX	**.1**	**Utica, N. Y.**
WIL	**.1**	**St. Louis, Mo.**
WJBC	**.1**	**LaSalle, Ill.**
WJBL	**.1**	**Decatur, Ill.**
WJBW	**.1**	**New Orleans, La.**
WKBO	**.1**	**Harrisburg, Pa.**
WKJC	**.1**	**Lancaster, Pa.**
WMPC	**.1**	**Lapeer, Mich.**
WNBO	**.1**	**Silverhaven, Pa.**
WNBW	**.01**	**Carbondale, Pa.**
WPHR	**.1**	**Petersburg, Va.**
WRBL	**.1**	**Columbus, Ga.**
WWAE	**.1**	**Hammond, Ind.**
XEMA	**.1**	**Tampico, Tams.**
XEU	**.1**	**Veracruz, Ver.**
XEWZ	**.1**	**Mexico City, D. F.**
XEY	**.01**	**Merida, Yuc.**
XHHN	.1	Shanghai, Chn.
YV3BC	1.	Caracas, Vnz.
3YL	.5	Christchurch, N. Z.
5KA	1.	Adelaide, Aus.
10-AK	**.015**	**Stratford, Ont.**
10-BP	**.015**	**Wingham, Ont.**
10-BQ	**.015**	**Brantford, Ont.**
10-BU	**.015**	**Canora, Sask.**
No. 2	5.	Prague, Cz. (1204)

1210 (247.8)

CFBO	**.1**	**St. John, N. B.**
CHNC	**.1**	**New Carlisle, Que.**
CKBI	**.1**	**Prince Albert, Sask.**
CKCH	**.1**	**Hull, Que.**
CKMC	**.05**	**Cobalt, Ont.**
CKOV	**.05**	**Kelowna, B. C.**
CX34	.5	Montevideo, Uru.
KASA	**.1**	**Elk City, Okla.**
KDLR	**.1**	**Devils Lake, N. D.**
KFJI	**.1**	**Klamath Falls, Ore.**
KFOR	**.1**	**Lincoln, Neb.**
KFPW	**.1**	**Ft. Smith, Ark.**
KFVS	**.1**	**Cape Girardeau, Mo.**
KFXM	**.1**	**San Bernardino, Cal.**
KGCR	**.1**	**Watertown, S. D.**
KGY	**.1**	**Olympia, Wn.**
KIEM	**.1**	**Eureka, Cal.**
KPPC	**.05**	**Pasadena, Cal.**
KWEA	**.1**	**Shreveport, La.**
KWFV	**.1**	**Hilo, Hawaii**
WALR	**.1**	**Zanesville, Ohio**
WBAX	**.1**	**Wilkes-Barre, Pa.**
WBBL	**.1**	**Richmond, Va.**
WCBS	**.1**	**Springfield, Ill.**
WCRW	**.1**	**Chicago, Ill.**
WEBQ	**.1**	**Harrisburg, Ill.**
WEDC	**.1**	**Chicago, Ill.**
WFAS	**.1**	**White Plains, N. Y.**
WGBB	**.1**	**Freeport, N. Y.**
WGCM	**.1**	**Miss. City, Miss.**
WGNY	**.1**	**Chester, N. Y.**
WHBF	**.1**	**Rock Island, Ill.**
WHBU	**.1**	**Anderson, Ind.**
WIBU	**.1**	**Poynette, Wis.**
WJBI	**.1**	**Red Bank, N. J.**
WJBY	**.1**	**Gadsden, Ala.**
WJEJ	**.1**	**Hagerstown, Md.**
WJIM	**.1**	**Lansing, Mich.**
WJW	**.1**	**Akron, Ohio**
WKFI	**.1**	**Greenwood, Miss.**
WKOK	**.1**	**Sunbury, Pa.**
WMBG	**.1**	**Richmond, Va.**
WOCL	**.05**	**Jamestown, N. Y.**
WOMT	**.1**	**Manitowoc, Wis.**
WPRO	**.1**	**Providence, R. I.**
WQDX	**.1**	**Thomasville, Ga.**
WSBC	**.1**	**Chicago, Ill.**
WSEN	**.1**	**Columbus, Ohio**
WSIX	**.1**	**Springfield, Tenn.**
WSOC	**.1**	**Charlotte, N. C.**
WTAX	**.1**	**Springfield, Ill.**
XEA	**.25**	**Guadalajara, Jal.**
XEAB	**.0075**	**Nuevo Laredo, Tams.**
XEC	**.05**	**Toluca, D. F.**
XEE	**.1**	**Durango, Dgo.**
XEFJ	**.1**	**Monterrey, N. L.**
XEFV	**.1**	**Juarez, Chih.**
XEMZ	.03	Tijuana, BC
XETH	**.1**	**Pueblo, Pue.**
2CH	1.	Sydney, Aus.
.....	5.	Lille, F. (1213)

1220 (245.8)

CE122	.1	Santiago, Chl. (1225)
CW34	.25	Salto, Uru.
I1TR	10.	Trieste, I. (1222)
KFKU	**.5**	**Lawrence, Kan.**
KTW	**1.**	**Seattle, Wn.**
KWSC	**1.**	**Pullman, Wn.**
OFG	.6	Abo, Fin.
WCAD	**.5**	**Canton, N. Y.**
WCAE	**1.**	**Pittsburgh, Pa.**
WDAE	**1.**	**Tampa, Fla.**
WREN	**1.**	**Lawrence, Kan.**
2GF	.05	Grafton, Ausl.
4ZF	.007	Dunedin, N. Z.
4ZL	.1	Dunedin, N. Z.
6KG	.1	Kalgoorlie, Aus.
.....	....	Bloemendaal, Hol.
.....	.4	Cartegena, Sp.

1230 (243.8)

CFQC	**.5**	**Saskatoon, Sask.**
CMBY	**.25**	**Havana, Cuba**
CMCA	**.15**	**Havana, Cuba**
KGGM	**.25**	**Albuquerque, N. M.**
KYA	**1.**	**San Francisco. Cal.**
LS8	2.	Buenos Aires, Arg.
WFBM	**1.**	**Indianapolis, Ind.**
WNAC	**1.**	**Boston, Mass.**
WSBT	**.5**	**South Bend, Ind.**
XGLS	.1	Soochow, Chn.
.....	5.	Gleiwitz, G. (1231

1240 (241.8)

CMAB	**.02**	**Pinar del Rio, C. (1249)**
CMJN	**.05**	**Camaguey, Cu.**
KGCU	**.25**	**Mandan, N. D**
KLPM	**.25**	**Minot, N. D.**
KTAT	**1.**	**Ft. Worth, Tex.**
KTFI	**1.**	**Twin Falls. Idaho**
PRP1	1.5	Oporto, Por. (1249)
SCB	.2	Ekilstuna, Swe.
SCP	.4	Saffle, Swe.
SCU	.3	Varberg, Swe.
WKAQ	**1.**	**San Juan, P. R.**
WXYZ	**1.**	**Detroit, Mich.**
XFD	**.25**	**Orozaba, Ver.**
2NC	2.	Newcastle, Aus. (1245)
2ZL	.048	Hastings, N. Z.
6CK	1.	Cork, I. F. S.
.....	2.	Nice, F. (1249)

1250 (239.9)

CE125	.1	Valparaiso, Chl.
CPX	5.	La Paz, Boi.

CX36	.25	Montevideo, Uru.
EAJ8	3.	Sn.Sebastian, Sp.(1258)
KFOX	1.	Long Beach, Cal.
SCL	.2	Kiruna, Swe. (1258)
WCAL	1.	Northfield, Minn.
WDSU	1.	New Orleans, La.
WQCP	1.	Newark, N. J.
WLB	1.	Minneapolis, Minn.
WNEW	1.	Newark, N. J.
WRHM	1.	Minneapolis, Minn.
No. 3	1.	Rome, I. (1258)

1260 (238)

CE126	.1	Santiago, Chl. (165)
CFTP	.1	Edmonton, Alta.
CW36	.03	Salto, Uru.
KOIL	1.	Council Bluffs, Ia.
KRGV	.5	Harlingen, Tex.
KUOA	1.	Fayetteville, Ark.
KVOA	.5	Tucson, Ariz.
KWWG	.5	Brownsville, Tex.
SCV	.2	Orebro, Swe. (1258)
WLBW	.5	Erie, Pa.
WNBX	.5	Springfield, Vt.
WTOC	.5	Savannah, Ga.
1ZM	.017	Manurewa, N. Z.
3WR	.05	Wangaratta, Aus.
.....	2.	Augsberg, G. (1267)
.....	2.	Nurnberg, G. (1267)
.....	.25	Dresden, G. (1267)

1270 (236.1)

CMBC	.15	Havana, Cuba
CMCP	.15	Havana, Cuba
CT1BP	.05	Lisbon, Por. (1275)
KGCA	.1	Decorah, Ia.
KOL	1.	Seattle, Wn.
KVOR	1.	Colorado Springs, Colo.
KWLC	.1	Decorah, Ia.
LKD	.5	Bodo, Nor. (1276)
LKK	.5	Kristiansaand, Nor. (1274)
LKS	.5	Stavanger, Nor. (1276)
LS9	5.	Buenos Aires, Arg.
TUA	.5	Tunis, Tun. (1275)
WASH	.5	Grand Rapids, Mich.
WFBR	.5	Baltimore, Md.
WJDX	1.	Jackson, Miss.
WOOD	.5	Grand Rapids, Mich.
XQHC	.5	Shanghai, Chn.
ZP4	.15	Asuncion, Par. (1275)
2BM	1.	Sydney, Aus.

1280 (234.2)

CE128	.5	Temuco, Chl.
KFBB	1.	Great Falls, Mont.
LU7	.2	Bahia Blanca, Arg.
ON4EX	.1	Ottomont, Belg.(1285)
ON4FG	.1	Dampremy, Blg.(1285)
ON4FO	.1	Brussels, Belg.(1285)
ON4GT	.1	Brussels, Belg.(1285)
ON4RC	.1	Brussels, Belg.(1285)
ON4RG	.1	Ghent, Belt.(1285)
ON4RW	.2	Liege, Belg.(1285)
WCAM	.5	Camden, N. J.
WCAP	.5	Asbury Park, N. J.
WDOD	1.	Chattanooga, Tenn.
WIBA	.5	Madison, Wis.
WORC	.5	Worcester, Mass.
WRR	.5	Dallas, Tex.
WTNJ	.5	Trenton, N. J.
XCBL	.4	Shanghai, Chn.
XEBC	5.	Agua Caliente, L. C.
XEFW	.07	Tampico, Tams.
3TR	.05	Sale, Aus.
4ZC	.025	Cromwell, N. Z.
.....	1.	Sao Paula, Brs. (1284)
.....	1.	Aberdeen, G. B. (1285)

1290 (232.4)

CMHL	.02	Cienfuegos, Cuba
CX38	.25	Montevideo, Uru.
KDYL	1.	Salt Lake City, Utah
KLCN	.1	Blytheville, Ark.
KTSA	1.	San Antonio, Tex.
PRA5	.1	Sao Paulo, Brs. (1295)
WEBC	1.	Superior, Wis.
WJAS	1.	Pittsburgh, Pa.
WNBZ	.05	Saranac Lake, N. Y.
WNEL	.5	San Juan, P. R.
XEAC	.1	S. L. Pot., SLP. (1295)
XFB	1.	Jalapa, Ver.
4BK	.2	Brisbane, Aus.
.....	.25	Kiel, G. (1292)
.....	.5	Linz, Aust.(1294)
.....	.5	Dornbirn, Aust. (1294)
.....	.5	Klagenfurt, Aust. (1294)

1300 (230.6)

CE130	.1	Santiago, Chl. (1305)
CMCG	.5	Havana, Cuba
CMKJ	.02	Guantanamo, Cuba
CW38	.03	Salto, Uru.
HIZ	.01	San Domingo, D. R.
KALE	.5	Portland, Ore.
KFAC	1.	Los Angeles, Cal.
KFH	1.	Wichita, Kan.
KFJR	.5	Portland, Ore.
PRC4	.05	Amparo, Brz. (1304)
VOAC	.04	St. John's, Nfld.
WBBR	1.	Brooklyn, N. Y.
WEVD	1.	New York, N. Y.
WFAB	1.	New York, N. Y.
WHAZ	.5	Troy, N. Y.
WIOD	1.	Miami, Fla.
WOQ	1.	Kansas City, Mo.
3BA	.05	Ballarat, Aus.
3ZE	.05	Greymouth, N. Z.
.....	.25	Oliveira, Por. (1304)
.....	.5	Dansig, Dan.(1303)

1310 (228.9)

CE131	.1	Santiago, Chl. (1315)
CFJC	.1	Kamloops, B. C.
CHCK	.05	Charlottetown, P. E. I.
CJKL	.1	Kirkland Lake Ont.
CJLS	.1	Yarmouth, N. S.
CKCV	.05	Quebec, Que.
CMCY	.5	Havana, Cuba (1316)
KCRJ	.1	Jerome, Ariz.
KFBK	.1	Sacramento, Cal.
KFGQ	.1	Boone, Ia.
KFPL	.1	Dublin, Tex.
KFPM	.015	Greenville, Tex.
KFXR	.1	Oklahoma City
KFYO	.1	Lubbock, Tex.
KGBX	.1	Springfield, Mo.
KGCX	.1	Wolf Point, Mont.
KGEZ	.1	Kalispell, Mont.
KGFW	.1	Kearney, Neb.
KIFH	.1	Juneau, Alas.
KIT	.1	Yakima, Wn.
KMED	.1	Medford, Ore.
KRMD	.1	Shreveport, La.
KTSM	.1	El Paso, Tex.
KXRO	.1	Aberdeen, Wn.
XFA	.1	Aguascalientes, Ags.
SBC	1.25	Malmo, Swe. (1312)
SBI	.25	Norrkoping, Swe. (1312)
SBJ	.25	Trollhattan, Swe. (1312)
SBK	.25	Karlstad, Swe. (1312)
WAML	.1	Laurel, Miss.
WBEO	.1	Marquette, Mich.
WBOW	.1	Terre Haute, Ind.
WBRE	.1	Wilkes-Barre, Pa.
WCLS	.1	Joliet, Ill.
WDAH	.1	El Paso, Tex.
WEBR	.1	Buffalo, N. Y.
WEXL	.05	Royal Oak, Mich.
WFBG	.1	Altoona, Mich.
WFDF	.1	Flint, Mich.
WGH	.1	Newport News, Va.
WHAT	.1	Philadelphia, Pa.
WJAC	.1	Johnstown, Pa.
WLBC	.05	Muncie, Ind.
WLNH	.1	Laconia, N. H.
WMBO	.1	Auburn, N. Y.
WNBH	.1	New Bedford, Mass.
WOL	.1	Washington, D. C.
WRAW	.1	Reading, Pa.
WROL	.1	Knoxville, Tenn.
WSAJ	.1	Grove City, Pa.
WSGN	.1	Birmingham, Ala.
WSJS	.1	Winston-Salem, N. C.
WTEL	.1	Philadelphia, Pa.
WTJS	.1	Jackson, Tenn.
WTRC	.05	Elkhart, Ind.
XECW	.01	Mexico City
XEFC	.1	Merida, Yuc.
XEFW	.07	Tampico, Tams.
XEI	.125	Morelia, Mch.
XETB	.125	Torreon, Coah.
XEX	.05	Monterrey, N. L.
1ZJ	.05	Auckland, N. Z.
5AD	.3	Adelaide, Aus.
.....	.5	Flensburg, G. (1319)

1320 (227.1)

CE132	.1	Rancagua, Chl. (1325)
CW39	.075	Florida, Uru.
KGHF	.5	Pueblo, Colo.
KGMB	.25	Honolulu, T. H.
KID	.25	Idaho Falls, Idaho
KSO	.5	Des Moines, Iowa
WADC	1.	Akron, Ohio
WSMB	.6	New Orleans, La.
2MO	.05	Gunnedah, Aus.
No. 2	.8	Budapest, Hun. (1321)

1330 (225.4)

CMJI	.045	Cgo. de Avia., Cu. (1335)
CX40	.5	Montevideo, Uru.
KGB	1.	San Diego, Cal.
KMO	.25	Tacoma, Wn.
KSCJ	1.	Sioux City, Ia.
WDRC	1.	Hartford, Conn.
WSAI	1.	Cincinnati, Ohio
WTAQ	1.	Eau Claire, Wis.
4RO	.25	Rockhampton, Aus.
.....	5.	Montpellier, F. (1339)
.....	1.5	Bremen, G.
.....	1.5	Flensburg, G.
.....	1.5	Hanover, G.
.....	1.5	Madgeburg, G.
.....	1.5	Stettin, G.

1340 (223.7)

CE134	.15	Santiago, Chl.
CW40	.03	Paysandu, Uru.
KGDY	.25	Huron, S. D.
KGIR	.5	Butte, Mont.
KGNO	.25	Dodge City, Kan.
LKN	.08	Notodden, Nor. (1348

LKR .15 Rjukan, Nor. (1348)
WCOA .5 Pensacola, Fla.
WLEC .25 Portland, Me.
WSPD 1. Toledo, Ohio
XENT 30. Nuevo Laredo, Tams.
2XN .05 Lismore, Aus.
4ZR .004 Balclutha, N. Z.
2RN 1.2 Dublin, IFS.(1348)
No. 2 4. Milan, I.(1348)
..... 2. Radio-Vitus ,F. (1348)
..... .5 Salzburg, Aust. (1348)
..... .5 Tartu, Est.(1348)
..... 2.2 Tartu, Est.(1348)
..... 1.7 Lodz, Pol.(1348)
..... .5 Konigsberg, G.(1348)

1350 (222.4)

CMCN .25 Havana, Cuba (1357)
CMCR .15 Havana, Cuba (1357)
KIDO 1. Boise, Ida.
KWK 1. St. Louis, Mo.
LKM .1 Tromso, Nor. (1357)
LS6 3.5 Buenos Aires, Arg.
WAWZ .25 Zarephath, N. J.
WBNX .25 New York, N. Y.
WEHC .6 Charlottesville, Va.
3KZ .2 Melbourne Aus.
No. 2 1. Turin, I. (1357)
..... .5 Christianssand, Nor. (1357)

1360 (220.4)

CMJP .075 Moron, Cuba
CW41 .05 San Jose, Uru.
KGER 1. Long Beach, Cal.
PRC5 .1 Belem, Brz.
WCSC .5 Charleston, S. C.
WFBL 1. Syracuse, N. Y.
WGES .5 Chicago, Ill.
WQBC .5 Vicksburg, Miss.
XQHD 2. Shanghai, Chn.
..... 1.7 Torun, Pol. (1366)

1370 (218.8)

CHSJ .1 St. John, N. B.
CMGE .03 Cardenas, Cuba (1375)
CX42 1. Montevideo, Uru.
KCRC .1 Enid, Okla.
KERN .1 Bakersfield, Calif.
KFBL .05 Everett, Wn.
KFJM .1 Grand Forks, N. D.
KFJZ .1 Ft. Worth, Tex.
KGAR .1 Tucson, Ariz.
KGFG .1 Oklahoma City
KGFL .1 Roswell, N. M.
KGKL .1 San Angelo, Tex.
KICA .1 Clovis, N. M.
KLUF .1 Galveston, Tex.
KMAC .1 San Antonio, Tex.
KONO .1 San Antonio, Tex.
KOOS .1 Marshfield, Ore.
KRE .1 Berkeley, Cal.
KUJ .1 Walla Walla, Wn.
KVL .1 Seattle, Wn.
KWKC .1 Kansas City, Mo.
KWYO .1 Sheridan, Wyo.
SCF .15 Hudiksvall, Swe. (1375)
WBTM .1 Danville, Va.
WCBM .1 Baltimore, Md.
WDAS .1 Philadelphia, Pa.
WGL .1 Ft. Wayne, Ind.
WGLC .1 Hudson Falls, N. Y.
WHBO .1 Mt. Orab, Ohio
WHBQ .1 Memphis, Tenn.
WHOF .1 Calumet, Mich.
WHET .1 Oothan, Ala.
WIBM .1 Jackson, Mich.
WJTL .1 Atlanta, Ga.
WLEY .1 Lexington, Mass.
WLVA .1 Lynchburg, Va.
WMBR .1 Jacksonville, Fla.
WPFB .1 Hattiesburg, Miss.
WQDM .1 St. Albans, Vt.
WRAK .1 Williamsport, Pa.
WRDO .1 Augusta, Me.
WRJN .1 Racine, Wis.
WSVS .05 Buffalo, N. Y.
XEFE .1 Nuevo Laredo, Tams.
XEFZ .1 Mexico City, D. F.
XEL .01 Saltillo, Coah.
XEZZ .1 San Luis Potosi
3HS .05 Horsham, Ausl.
..... .5 Basle, Swi. (1375)
..... .5 Berne, Swi. (1375)

1380 (217.3)

CE138 .1 Santiago, Chl. (1385)
CMJC .15 Camaguey, Cu. (1382)
CW42 .02 Artigas, Uru.
KOH .5 Reno, Nev.
KQV .5 Pittsburgh, Pa.
SCG .2 Halsingborg, Swe. (1384)
TGX .075 Guatemala City, Gua.
WKBH 1. LaCrosse, Wis.
WSMK .2 Dayton, Ohio
4BH .6 Brisbane, Ausl.
No. 2 2. Warsaw, Pol.(1384)

1390 (215.7)

CE139 .1 Rancagua, Chl.
CJRC .1 Winnipeg, Man.
HIH .015 San Pedro de M., D. R. (1395)
KLRA 1. Little Rock, Ark.
KOY .5 Phoenix, Ariz.
SCR .05 Uddevalla, Swe. (1393)
SCS .2 Umea, Swe. (1393)
WHK 1. Cleveland, Ohio
2GN .05 Goulburn, Ausl.
..... .01 Valparaiso, Chl.
..... 5. Radio-Lyons, F. (1393)

1400 (214.2)

CMCM .05 Havana, Cuba (1405)
CW43 .02 Melo, Uru.
FFZ .25 Shanghai, Chn.
KLO .5 Ogden, Utah
KTUL .25 Tulsa, Okla.
SCE .2 Halmstad, Swe. (1402)
WARD .5 Brooklyn, N. Y.
WBAA .5 Lafayette,,Ind.
WBBC .5 Brooklyn, N. Y.
WKBF .5 Indianapolis, Ind.
WLTH .5 Brooklyn, N. Y.
WVFW .5 Brooklyn, N. Y.
2ZO .05 Palmerston, N. Z.
3GL .05 Geelong, Ausl.

1410 (212.6)

CKFC .05 Vancouver, B. C.
CKMO .1 Vancouver, B. C.
CMCH .05 Havana, Cuba
CX44 1. Montevideo, Uru.
SCW .2 Ornskoldsvik, Swe (1411)
KGRS 1. Amarillo, Tex.
WAAB .5 Boston, Mass.
WALA .5 Mobile, Ala.
WBCM .5 Bay City, Mich.
WOAG 1. Amarillo, Tex.
WHBL .5 Sheboygan, Wis.
WHIS .25 Bluefield, W. Va.
WRBX .25 Roanoke, Va.
WROK .5 Rockford, Ill.
WSFA .5 Montgomery, Ala.
2KO .2 Newcastle, Ausl. (1415)

1420 (211.1)

CE142 .1 Santiago, Chl. (1425)
CKGB .1 Timmins, Ont.
CW44 .1 Paysandu, Uru.
KABC .1 San Antonio, Tex.
KBPS .1 Portland, Ore.
KCMC .1 Texarkana, Ark.
KFIZ .1 Fond du Lac, Wis.
KGFF .1 Shawnee, Okla.
KGGC .1 San Francisco, Calif.
KGIW .1 Alamosa, Colo.
KGIX .1 Las Vegas, Nev.
KICK .1 Carter Lake, Iowa
KIDW .1 Lamar, Colo.
KORE .1 Eugene, Ore.
KUMA .1 Yuma, Ariz.
KXL .1 Portland, Ore.
OFE 1.2 Tampere, Fin.
OFR 1.2 Tampere, Fin.
WACO .1 Waco, Tex.
WAGM .1 Presque Isle, Me.
WAMC .1 Anniston, Ala.
WAZL .1 Hazleton, Pa.
WEED .1 Greenville, N. C.
WEHS .1 Cicero, Ill.
WELL .05 Battle Creek, Mich.
WENC .1 Albany, Ga.
WHDL .1 Tupper Lake, N. Y.
WHFC .1 Cicero, Ill.
WILM .1 Wilmington, Del.
WJBO .1 Baton Rouge, La.
WJMS .1 Ironwood, Mich.
WKBI .1 Cicero, Ill.
WLAP .1 Lexington, Ky.
WLBF .1 Kansas City, Kans.
WLEU .1 Erie, Pa.
WMAS .1 Springfield, Mass.
WMBC .1 Detroit, Mich.
WMBH .1 Joplin, Mo.
WNRA .1 Muscle Shoals, Ala.
WPAD .1 Paducah, Ky.
WSPA .1 Spartanburg, S. C.
WTBO .1 Cumberland, Md.
XEAI .1 Mexico City, D. F.
XEAZ .1 Leon, Guan.
XEFB .1 Monterrey, N. L.
XHHK .1 Shanghai Chn.
1ZS .05 Auckland, N. Z.
3AW .3 Melbourne, Ausl. (1425)
..... 1. Newcastle, G. B.(1429)
..... 2. Beziers, F. (1429)

1430 (209.7)

CE143 .1 Magallanes, Chl.
HAE2 1.25 Magyarovar, Hun.(1435)
HAE3 1.25 Miskolc, Hun.(1438)
HAE4 1.25 Pecs, Hun.(1438)
KECA 1. Los Angeles, Calif.
KGNF .6 No. Platte, Neb.
KWCR .25 Cedar Rapids, Iowa
RV10 100. Minsk, USR. (1438)
WBNS .5 Columbus, Ohio
WFEA .5 Manchester, N. H.
WHEC .5 Rochester, N. Y.
WHP .5 Harrisburg, Pa.
WNBR .5 Memphis, Tenn.
WOKO .6 Albany, N. Y.
2WL .05 Wollongong, Ausl. (1435)

1440 (208.2)

CMBL .2 Havana, Cuba (1445)
CS1RS 1. Oporto, Por. (1448)

INDEX BY FREQUENCIES AND DIAL NUMBERS

KDFN	**.5**	**Casper, Wyo.**
KLS	**.25**	**Oakland, Calif.**
KXYZ	**.25**	**Houston, Tex.**
TIFS	**.0075**	**Cartago, C. R. (1441)**
WBIG	**.5**	**Greensboro, N. C.**
WCBA	**.25**	**Allentown, Pa.**
WMBD	**.5**	**Peoria, Ill.**
WSAN	**.25**	**Allentown, Pa.**
WTAD	**.5**	**Quincy, Ill.**

1450 (206.8)

CE145	.1	Rancagua, Chl.
CFCT	**.05**	**Victoria, B. C.**
CKX	**.5**	**Brandon, Man.**
CX46	.25	Montevideo, Uru.
KTBS	**1.**	**Shreveport, La.**
SCA	.15	Boras, Swe.
SCI	.2	Kalmar, Swe.(1456)
TIEP	**.0075**	**San Jose, C. R.**
WGAR	**.5**	**Cleveland, Ohio**
WHOM	**.25**	**Jersey City, N. J.**
WSAR	**.5**	**Fall River, Mass.**
WTFI	**.5**	**Athens, Ga.**
3ZM	.05	Christchurch, N. Z.
.....	.01	Valparaiso, Chl.
.....	1.5	Radio-Agen, F. (1456)
.....	10.	Fecamp, F. (1456)
.....	10.	Normandie, F. (1456)

1460 (205.4)

CE146	.5	Santiago, Chl. (1465)
CW46	.03	Tucuarembo, Uru.
KSTP	**.10**	**St. Paul, Minn.**
WJSV	**10.**	**Washington, D. C.**
XQHT	1.	Shanghai, Chn.
ZP5	.15	Asuncion, Par. (1465
7UV	.2	Ulverstone, Aust.
.....	1.5	Dresden, G. (1465)

1470 (204)

KGA	**5.**	**Spokane, Wash.**
WLAC	**5.**	**Nashville, Tenn.**
3AK	.05	Melbourne, Aust.
4ZW	.05	Dunedin, N. Z.
.....	.3	Plymouth,G.B.(1474)
.....	.25	Bilbao, Sp. (1477)
.....	1.	Bournemouth, G. B. (1474)

1480 (202.6)

CMBK	**.015**	**Havana, Cu.(1485)**
CW47	.1	Canelones, Uru.
KOMA	**5.**	**Oklahoma City, Okla**
SCD	.2	Gavle, Swe. (1483)
WKBW	**5.**	**Buffalo, N. Y.**
6IX	.05	Perth, Aust.

1490(201.2)

CX48	2.5	Montevideo, Uru.
EAJ28	.25	Bilbao, Sp. (1492)
ON4CE	.1	Chatelineau, Blg. (1492)
ON4EB	.1	Antwerp, Blg. (1492)
SCT	.15	Upsala, Swe. (1492)
WCKY	**5.**	**Covington, Ky.**
.....	1.	Bordeaux, F. (1492)
.....	.1	Binche, Blg. (1492)
.....	.2	Nimes, F. (1492)
.....	.6	Turku, Fin. (1492)

1500 (199.9)

CRCS	**.1**	**Chicoutimi, Que.**
KDB	**.1**	**Santa Barbara, Calif.**
KGFI	**.1**	**Corpus Christi, Tex.**
KGFK	**.1**	**Moorhead, Minn.**
KGKB	**.1**	**Tyler, Texas**
KGKY	**.1**	**Scottsbluff, Neb.**
KNOW	**.1**	**Austin, Tex.**
KOTN	**.1**	**Pine Bluff, Ark.**
KPJM	**.1**	**Prescott, Ariz.**
KPQ	**.1**	**Wenatchee, Wash.**
KREG	**.1**	**Santa Ana, Calif.**
KXO	**.1**	**El Centro, Calif.**
SCM	.25	Kristinehamn, Swe.
WCNW	**.1**	**Brooklyn, N. Y.**
WDNC	**.1**	**Durham, N. C.**
WGAL	**.1**	**Lancaster, Pa.**
WHEF	**.1**	**Kosciusko, Miss.**
WJBK	**.05**	**Detroit, Mich.**
WKBB	**.1**	**E. Dubuque, Ill.**
WKBV	**.1**	**Richmond, Ind.**
WKBZ	**.1**	**Ludington, Mich.**
WKEU	**.1**	**LaGrange, Ga.**
WMBQ	**.1**	**Brooklyn, N. Y.**
WMEX	**.1**	**Chelsea, Mass.**
WNBF	**.1**	**Binghamton, N. Y.**
WOPI	**.1**	**Bristol, Tenn.**
WPEN	**.1**	**Philadelphia, Pa.**
WRDW	**.1**	**Augusta, Ga.**
WRGA	**.1**	**Rome, Ga.**
WSYB	**.1**	**Rutland, Vt.**
WWRL	**.1**	**Woodside, N. Y.**
WWSW	**.1**	**Pittsburgh, Pa.**
2AY	.05	Albury, Aust.
.....	10	Riga, Lat.(1510)

1510 (198.6)

CFRC	**.1**	**Kingston, Ont.**
CKCR	**.1**	**Waterloo, Ont.**
KIFS	**.1**	**Ft. Klamath, Ore. (1518)**
SCH	.25	Jonkoping, Swe. (1515)
.....	.1	Liege Exp., Blg.
.....	.1	Verviers, Blg.
.....	.1	Verviers, Blg.

1530 (196.0)

.....	1.	**Waterbury, Conn.**
.....	1.	**Kansas City, Mo.**
SCJ	.2	Karlskrona, Swe.

1550 (193.4)

.....	1.	**Long Island City, N. Y.**
.....	1.	**Bakersfield, Calif.**

INDEX BY COUNTRIES, STATES AND CITIES

Frequency in second column, power in watts in third

ALABAMA

Anniston
WAMC 1420 100

Birmingham
WAPI 1140 5000
WBRC 930 500
WSGN 1310 100

Dothan
WHET 1370 100

Gadsden
WJBY 1210 100

Huntsville
WBHS 1200 100

Mobile
WALA 1410 500

Montgomery
WSFA 1410 500

Muscle Shoals
WNRA 1420 100

ALASKA

Anchorage
KFQD 600 250

Juneau
KIFH 1310 100

Ketchikan
KGBU 900 500

ARIZONA

Jerome
KCRJ 1310 100

Lowell
KSUN 1200 100

Phoenix
KOY 1390 1000
KTAR 620 1000

Prescott
KPJM 1500 100

Tucson
KGAR 1370 100
KVOA 1260 500

Yuma
KUMA 1420 100

ARKANSAS

Blytheville
KLCN 1290 100

Fayetteville
KUOA 1260 1000

Fort Smith
KFPW 1210 100

Hot Springs
KTHS 1060 10000

Jonesboro
KBTM 1200 100

Little Rock
KARK 890 250
KGHI 1200 100
KLRA 1390 1000

Pine Bluff
KOTN 1500 100

Texarkana
KCMC 1420 100

CALIFORNIA

Bakersfield
KERN 1370 100
..... 1550 1000

Berkeley
KRE 1370 100

Beverly Hills
KMPC 710 500

Burbank
KELW 780 500

El Centro
KXO 1500 100

Eureka
KIEM 1210 100

Fresno
KMJ 580 500

Glendale
KIEV 850 100

Hollywood
KFWB 950 1000
KMTR 570 500
KNX 1050 50000

Long Beach
KFOX 1250 1000
KGER 1360 1000

Los Angeles
KECA 1430 1000
KFAC 1300 1000
KFI 640 50000
KFSG 1120 500
KFVD 1000 250
KGFJ 1200 100
KHJ 900 1000

Presque Isle
WAGM 1420 100

MARYLAND

Baltimore
WBAL 1060 10000
WCAO 600 250
WCBM 1370 100
WFBR 1270 500
Cumberland
WTBO 1420 100
Hagerstown
WJEJ 1210 100

MASSACHUSETTS

Babson Park
WBSO 920 500
Boston
WAAB 1410 500
WBZ 990 50000
WEEI 590 1000
WHDH 830 1000
WNAC 1230 1000
Chelsea
WMEX 1500 100
Fall River
WSAR 1450 250
Lexington
WLEY 1370 100
New Bedford
WNBH 1310 100
Springfield
WBZA 990 1000
WMAS 1420 100
Worcester
WORC 1280 500
WTAG 580 500

MICHIGAN

Battle Creek
WELL 1420 50
Bay City
WBCM 1410 500
Calumet
WHDF 1370 100
Detroit
WJBK 1500 50
WJR 750 10000
WMBC 1420 100
WWJ 920 1000
WXYZ 1240 1000
East Lansing
WKAR 1040 1000
Flint
WFDF 1310 100
Grand Rapids
WASH 1270 500
WOOD 1270 500

Ironwood
WJMS 1420 100
Jackson
WIBM 1370 100
Kalamazoo
WKZO 590 1000
Lansing
WJIM 1210 100
Lapeer
WMPC 1200 100
Ludington
WKBZ 1500 100
Marquette
WBEO 1310 100
Royal Oak
WEXL 1310 50

MINNESOTA

Fergus Falls
KGDE 1200 100

Minneapolis
WCCO 810 50000
WDGY 1180 1000
WLB 1250 1000
WRHM 1250 1000
Moorhead
KGFK 1500 100
Northfield
WCAL 1250 1000
St. Paul
KSTP 1460 10000

MISSISSIPPI

Greenwood
WKFI 1210 100
Hattiesburg
WPFB 1370 100
Jackson
WJDX 1270 1000
Koeciusko
WHEF 1500 100
Laurel
WAML 1310 100
Meridian
WCOC 880 500
Mississippi City
WGCM 1210 100
Tupelo
WJEM 990 500
Vicksburg
WQBC 1360 500

MISSOURI

Cape Girardeau
KFVS 1210 100
Columbia
KFRU 630 500
Jefferson City
WOS 630 500
Joplin
WMBH 1420 100
Kansas City
KMBC 950 1000
KWKC 1370 100
WDAF 610 1000
WHB 860 500
WOQ 1300 1000
. . . . . 1530 1000
St. Joseph
KFEQ 680 2500
St. Louis
KFUO 550 500
KMOX 1090 50000
KSD 550 500
KWK 1350 1000
WEW 760 1000
WIL 1200 100
Springfield
KGBX 1310 100
KWTO 560 1000

MONTANA

Billings
KGHL 950 1000
Butte
KGIR 1340 500
Great Falls
KFBB 1280 1000
Kalispell
KGEZ 1310 100
Missoula
KGVO 1200 100
Wolf Point
KGCX 1310 100

NEBRASKA

Clay Center
KMMJ 740 1000
Kearney
KGFW 1310 100
Lincoln
KFAB 770 5000
KFOR 1210 100
Norfolk
WJAG 1060 1000
North Platte
KGNF 1430 500
Omaha
WAAW 660 500
WOW 590 1000
Scottsbluff
KGKY 1500 100
York
KGBZ 930 500

NEVADA

Las Vegas
KGIX 1420 100
Reno
KOH 1380 500

NEW HAMPSHIRE

Laconia
WLNH 1310 100
Manchester
WFEA 1430 500
Portsmouth
WHEB 740 250

NEW JERSEY

Asbury Park
WCAP 1280 500
Atlantic City
WPG 1100 5000
Camden
WCAM 1280 500
Jersey City
WAAT 940 300
WHOM 1450 250
Newark
WGCP 1250 250
WNEW 1250 1000
WOR 710 5000
Red Bank
WJBI 1210 100
Trenton
WTNJ 1280 500
Zarephath
WAWZ 1350 250

NEW MEXICO

Albuquerque
KGGM 1230 250
KOB 1180 10000
Clovis
KICA 1370 100
Roswell
KGFL 1370 100

NEW YORK

Albany
WOKO 1430 500
Auburn
WMBO 1310 100
Binghamton
WNBF 1500 100
Brooklyn
WARD 1400 500
WBBC 1400 500
WBBR 1300 1000
WCNW 1500 100
WLTH 1400 500
WMBQ 1500 100
WVFW 1400 500
Buffalo
WBEN 900 1000
WEBR 1310 100
WGR 550 1000
WKBW 1480 5000
WSVS 1370 50
Canton
WCAD 1220 500
Chester
WGNY 1210 100
Elmira
WESG 680 1000
Freeport
WGBB 1210 100
Hudson Falls
WGLC 1370 100
Jamestown
WOCL 1210 50
Long Island City
. . . . . 1550 1000
New York
WABC 860 50000
WBNX 1350 250
WBOQ 860 50000
WEAF 660 50000
WEVD 1300 1000
WFAB 1300 1000
WHN 1010 1000
WINS 1180 500
WJZ 760 50000
WLWL 1100 5000
WMCA 570 500
WNYC 810 500
WOV 1130 1000
Rochester
WHAM 1150 50000
WHEC 1430 500
Saranac Lake
WNBZ 1290 50
Schenectady
WGY 790 50000
Syracuse
WFBL 1360 1000
WSYR 570 250
Troy
WHAZ 1300 500
Tupper Lake
WHDL 1420 100
Utica
WIBX 1200 100
White Plains
WFAS 1210 100
Woodside
WWRL 1500 100

NORTH CAROLINA

Asheville
WWNC 570 1000
Charlotte
WBT 1080 50000
WSOC 1210 100
Durham
WDNC 1500 100
Greensboro
WBIG 1440 500
Greenville
WEED 1420 100
Raleigh
WPTF 680 5000
Winston-Salem
WSJS 1310 100

NORTH DAKOTA

Bismarck
KFYR 550 1000

Devils Lake
KDLR 1210 100
Fargo
WDAY 940 1000
Grand Forks
KFJM 1370 100
Mandan
KGCU 1240 250
Minot
KLPM 1240 250

OHIO

Akron
WADC 1320 1000
WJW 1210 100
Canton
WHBC 1200 100
Cincinnati
WFBE 1200 100
WKRC 550 1000
WLW 700 50000
WSAI 1330 1000
Cleveland
WGAR 1450 500
WHK 1390 1000
WJAY 610 500
WTAM 1070 50000
Columbus
WAIU 640 500
WBNS 1430 500
WOSU 570 750
WSEN 1210 100
Dayton
WSMK 1380 200
Mount Orab
WHBD 1370 100
Toledo
WSPD 1340 1000
Youngstown
WKBN 570 500
Zanesville
WALR 1210 100

OKLAHOMA

Elk City
KASA 1210 100
Enid
KCRC 1370 100
Norman
WNAD 1010 500
Oklahoma City
KFXR 1310 100
KGFG 1370 100
KOMA 1480 5000
WKY 900 1000
Ponca City
WBBZ 1200 100
Shawnee
KGFF 1420 100
Tulsa
KTUL 1400 250
KVOO 1140 25000

OREGON

Corvallis
KOAC 550 1000
Eugene
KORE 1420 100
Klamath Falls
KFJI 1210 100
KIFS 1518 100
Marshfield
KOOS 1370 100
Medford
KMED 1310 100
Portland
KALE 1300 500
KBPS 1420 100
KEX 1180 5000
KFJR 1300 500
KGW 620 1000
KOIN 940 1000
KWJJ 1040 500
KXL 1420 100

PENNSYLVANIA

Allentown
WCBA 1440 250
WSAN 1440 250
Altoona
WFBG 1310 100
Carbondale
WNBW 1200 10
Erie
WLBW 1260 500
WLEU 1420 100
Glenside
WIBG 970 100
Grove City
WSAJ 1310 100
Harrisburg
WHP 1430 500
WKBO 1200 100
Hazleton
WAZL 1420 100
Johnstown
WJAC 1310 100
Lancaster
WGAL 1500 100
WKJC 1200 100
Philadelphia
WCAU 1170 50000
WDAS 1370 100
WFI 560 500
WHAT 1310 100
WIP 610 500
WLIT 560 500
WPEN 1500 100
WRAX 1020 250
WTEL 1310 100
Pittsburgh
KDKA 980 50000
KQV 1380 500
WCAE 1220 1000
WJAS 1290 1000
WWSW 1500 100
Reading
WEEU 830 1000
WRAW 1310 100
Scranton
WGBI 880 250
WQAN 880 250
Silverhaven
WNBO 1200 100
Sunbury
WKOK 1210 100
Wilkes-Barre
WBAX 1210 100
WBRE 1310 100
Williamsport
WRAK 1370 100
York
WORK 1000 1000

PHILIPPINES

Manila
KZEG 618.5 1000
KZRM 618.5 50000

PORTO RICO

San Juan
WKAQ 1240 1000
WNEL 1290 500

RHODE ISLAND

Providence
WEAN 780 500
WJAR 890 500
WPRO 1210 100

SOUTH CAROLINA

Charleston
WCSC 1360 500
Columbia
WIS 1010 500
Greenville
WFBC 1200 100
Spartanburg
WSPA 1420 100

SOUTH DAKOTA

Brookings
KFDY 780 1000
Huron
KGDY 1340 250
Pierre
KGFX 630 200
Rapid City
WCAT 1200 100
Sioux Falls
KSOO 1110 1000
Vermillion
KUSD 890 500
Watertown
KGCR 1210 100
Yankton
WNAX 570 1000

TENNESSEE

Bristol
WOPI 1500 100
Chattanooga
WDOD 1280 1000
Jackson
WTJS 1310 100
Knoxville
WNOX 560 1000
WROL 1310 100
Memphis
WHBQ 1370 100
WMC 780 500
WNBR 1430 500
WREC 600 500
Nashville
WLAC 1470 5000
WSM 650 50000
Springfield
WSIX 1210 100

TEXAS

Amarillo
KGRS 1410 1000
WDAG 1410 1000
Austin
KNOW 1500 100
Beaumont
KFDM 560 500
Brownsville
KWWG 1260 500
College Station
WTAW 1120 500
Corpus Christi
KGFI 1500 100
Dallas
KRLD 1040 10000
WFAA 800 50000
WRR 1280 500
Dublin
KFPL 1310 100
El Paso
KTSM 1310 100
WDAH 1310 100
Fort Worth
KFJZ 1370 100
KTAT 1240 1000
WBAP 800 50000
Galveston
KLUF 1370 100
Greenville
KFPM 1310 15
Harlingen
KRGV 1260 500
Houston
KPRC 920 1000
KTRH 630 250
KXYZ 1440 250
Lubbock
KFYO 1310 100
San Angelo
KGKL 1370 100
San Antonio
KABC 1420 100
KMAC 1370 100
KONO 1370 100
KTSA 1290 1000
WOAI 1190 50000
Tyler
KGKB 1500 100
Waco
WACO 1420 100
Wichita Falls
KGKO 570 250

UTAH

Ogden
KLO 1400 500
Salt Lake City
KDYL 1290 1000
KSL 1130 50000

VERMONT

Burlington
WCAX 1200 100
Rutland
WSYB 1500 100
St. Albans
WQDM 1370 100
Springfield
WNBX 1260 500
Waterbury
WDEV 550 500

VIRGINIA

Arlington
NAA 690 1000
Charlottesville
WEHC 1350 500
Danville
WBTM 1370 100
Lynchburg
WLVA 1370 100
Newport News
WGH 1310 100
Norfolk
WTAR 780 500
Petersburg
WPHR 1200 100
Richmond
WBBL 1210 100
WMBG 1210 100
WRVA 1110 5000
Roanoke
WDBJ 930 500
WRBX 1410 250

WASHINGTON

Aberdeen
KXRO 1310 100
Bellingham
KVOS 1200 100
Everett
KFBL 1370 50

Olympia
KGY 1210 100
Pullman
KWSC 1220 1000
Seattle
KJR 970 5000
KOL 1270 1000
KOMO 920 1000
KPCB 650 250
KRSC 1120 100
KTW 1220 1000
KVL 1370 100
KXA 760 250
Spokane
KFIO 1120 100
KFPY 890 1000
KGA 1470 5000
KHQ 590 1000
Tacoma
KMO 1330 250
KVI 570 500
Walla Walla
KUJ 1370 100
Wenatchee
KPQ 1500 100
Yakima
KIT 1310 100

WEST VIRGINIA

Bluefield
WHIS 1410 250
Charleston
WCHS 580 500
Fairmont
WMMN 890 250
Huntington
WSAZ 1190 1000
Wheeling
WWVA 1160 5000

WISCONSIN

Eau Claire
WTAO 1330 1000
Fond du Lac
KFIZ 1420 100
Green Bay
WHBY 1200 100
Janesville
WCLO 1200 100
LaCrosse
WKBH 1380 1000
Madison
WHA 940 1000
WIBA 1280 500
Manitowoc
WOMT 1210 100
Milwaukee
WHAD 1120 250
WISN 1120 250
WTMJ 620 1000
Poynette
WIBU 1210 100
Racine
WRJN 1370 100
Sheboygan
WHBL 1410 500
Stevens Point
WLBL 900 2500
Superior
WEBC 1290 1000

WYOMING

Casper
KDFN 1440 500
Sheridan
KWYO 1370 100

CANADA

ALBERTA

Calgary
CFAC 930 100
CFCN 1030 10000
CJCJ 690 100
Edmonton
CFTP 1260 100
CJCA 730 1000
CKUA 580 500
Lethridge
CJOC 840 100

BRT. COLUMBIA

Chilliwack
CHWK 780 100
Kamloops
CFJC 1310 100
Kelowna
CKOV 1210 50
Trail
CJAT 1200 50
Vancouver
CJOR 600 500
CKCD 1010 100
CKFC 1410 50
CKMO 1410 100
CKWX 1010 100
CRCV 1100 1000
Victoria
CFCT 1450 50

MANITOBA

Brandon
CKX 1450 500
Winnipeg
CJRC 1390 100
CKY 780 5000

NEW BRUNSWICK

Fredericton
CFNB 1030 500
St. John
CFBO 1210 100
CHSJ 1370 100

NOVA SCOTIA

Glace Bay
VAS 685 2000
Halifax
CHNS 1050 500
Sydney
CJCB 880 50
Wolfville
CKIC 1010 50
Yarmouth
CJLS 1310 100

ONTARIO

Brantford
CKPC 930 100
10-BQ 1200 15
Chatham
CFCO 600 100
Cobalt
CKMC 1210 50
Fort William
CKPR 930 50
Hamilton
CHML 1010 50
CKOC 1120 500
Kingston
CFRC 1510 100
Kirkland Lake
CJKL 1310 100
London
CFPL 730 100
North Bay
CFCH 930 100
Ottawa
CKCO 1010 100
CRCO 880 1000
Prescott
CFLC 930 100
St. Catharines
CKTB 1200 100
Stratford
10-AK 1200 15
Sudbury
CJCS 780 500
Timmins
CKGB 1420 100
Toronto
CFRB 690 10000
CKCL 580 100
CRCT 960 5000
CKNC 1030 100
Waterloo
CKCR 1510 100
Windsor
CKLW 840 5000
Wingham
10-BP 1200 15

PRINCE EDWARD ISLAND

Charlottetown
CFCY 630 500
CHCK 1310 50
Summerside
CHGS 1120 50

QUEBEC

Chicoutimi
CRCS 1500 100
Hull
CKCH 1210 100
Montmagny
VE9EK 1195 10
Montreal
CFCF 600 500
CHLP 1120 100
CKAC 730 5000
CRCM 910 5000
New Carlisle
CHNC 1210 100
Quebec
CHRC 580 100
CKCV 1310 50

SASKATCHEWAN

Canora
10-BU 1200 15
Moose Jaw
CHAB 1200 100
CJRM 540 1000
Prince Albert
CKBI 1210 100
Regina
CHWC 1010 500
CKCK 1010 500
Saskatoon
CFQC 1230 500
Yorkton
CJGX 630 500

NEWFOUNDLAND

St. John's
VOAC 1300 40
VOAS 940 100
VOGY 1050 75
VOKW 1085 30
VONF 1195 5000
VOWR 700 500

MIQUELON

St. Pierre
FQN 574 250

CENTRAL AMERICA

COSTA RICA

Cartago
TIFS 1441 7.5
TIGA 1014 30
San Jose
TICR 912 75
TIEA 833 7.5
TIEP 1450 7.5
TIFB 714 30
TIGP 800 75
TIRCA 1100 500
TISO 550 250
TITV 999 7.5
TIVL 869 30
TIXA 614 7.5

GUATEMALA

Guatemala City
TGW 1350 500
TGX 1380 75

NICARAGUA

Granada
YNCRG 870 150

EL SALVADOR

San Salvador
RDN 680 500

MEXICO

AGUASCALIENTES

Aguascalientes
XFA 1310 100
XFC 810 350

BAJA CALIFORNIA

Agua Caliente
XEBC 1280 5000
Mexicali
XEAO 560 250
Tijuana
XEAE 980 250
XEMO 860 2500
XEMZ 1210 30
XEOK 920 2500

CHIHUAHUA

Chihuahua
XEFI 720 250
Juarez
XEFV 1210 100
XEJ 1020 250

COAHUILA

Piedras Negras
XEPN 590 50000
Saltillo
XEL 1370 10
XEOX 640 250
Torreon
XETB 1310 125
D. F.
Mexico City
XEAI 1420 100
XEAL 660 1000
XEB 1010 10000
XECW 1310 10
XEFA 1180 500
XEFG 1040 250
XEFO 940 5000
XEFZ 1370 100
XEK 1120 100
XEN 710 1000

XEO	940	5000
XEP	970	500
XEPR	740	250
XETW	820	500
XETZ	850	500
XEW	890	50000
XEWZ	1200	100
XEYZ	780	10000
XFG	638	2000
XFO	940	5000
XFX	610	1000
Toluca		
XEC	1200	50
DURANGO		
Durango		
XEE	1210	100
GUANAJUATO		
Leon		
XEAZ	1420	100
HIDALGO		
Pachuca		
XETU	890	100
JALISCO		
Guadalajara		
XEA	1200	250
XED	1160	500
MICHOACAN		
Morelia		
XEI	1310	250
NUEVO LEON		
Monterrey		
XEFB	1420	100
XEFJ	1210	100
XEH	1130	250
XET	690	500
XEX	1310	50
PUEBLA		
Puebla		
XETH	1210	100
SAN LUIS POTOSI		
San Luis Potosi		
XEAC	1295	100
XEZZ	1370	100
SONORA		
Nogales		
XEAF	1080	250
TAMAULIPAS		
Nuevo Laredo		
XEAB	1210	7.5
XEFE	1370	100
XENT	1340	30000
Reynosa		
XEAW	950	10000
Tampico		
XEFW	1310	70
XEMA	1200	100
XES	970	250
VERACRUZ		
Jalapa		
XFB	1290	1000
Orizaba		
XFD	1240	250
Veracruz		
XEU	1200	100
YUCATAN		
Merida		
XEFC	1310	100
XEMC	750	250
XEY	1200	10
XEZ	630	500

WEST INDIES

CUBA

Caibarien		
CMHD	950	500
Camaguey		
CMJC	1382	150
CMJE	1170	50
CMJF	910	200
CMJG	1050	50
CMJK	790	500
CMJL	960	50
CMJN	1240	50
Cardenas		
CMGE	1375	30
Ciego de Avila		
CMJH	1150	50
CMJI	1335	45
CMJO	1010	50
Cienfuegos		
CMHJ	1125	60
CMHL	1290	20
CMHW	1200	100
Colon		
CMGA	834	100
Cruces		
CMHK	1215	50
Guantanamo		
CMKJ	1300	20
Havana		
CMAF	680	1000
CMBC	1270	150
CMBD	965	250
CMBG	1048	225
CMBJ	1147	500
CMBK	1485	15
CMBL	1445	200
CMBN	1185	150
CMBS	765	200
CMBW	1140	600
CMBX	1185	500
CMBY	1230	250
CMBZ	1005	150
CMC	835	500
CMCA	1230	150
CMCB	1048	150
CMCD	925	500
CMCF	873	250
CMCG	1305	500
CMCH	1410	50
CMCJ	1180	500
CMCM	1405	50
CMCN	1357	250
CMCO	1145	500
CMCP	1270	150
CMCQ	680	1000
CMCR	1357	150
CMCU	1100	500
CMCW	965	150
CMCY	1316	500
CMDE	915	150
CMK	730	2000
CMQ	645	500
CMW	595	1400
CMX	875	1000
Matanzas		
CMGB	1205	30
CMGC	820	30
CMGF	971.5	100
CMGH	1040	15
Moron		
CMJP	1360	75
Pinar del Rio		
CMAB	1249	20
Sagua la Grande		
CMHA	1103	500
Santa Clara		
CMHI	1007	250
Santiago		
CMKC	1034	150

DOMINICAN REPUBLIC

San Pedro de Marcoris		
HIH	1395	15
Santo Domingo		
HIJ	1195	15
HIX	598	1500
HIZ	1300	10

HAITI

Port-au-Prince		
HHK	920	1000

SOUTH AMERICA

ARGENTINE

Bahia Blanca		
LU2	800	500
LU7	1280	200
Buenos Aires		
LR2	910	6000
LR3	950	12000
LR4	990	12000
LR5	830	16000
LR6	870	2100
LR8	1150	5000
LR9	1030	5000
LR10	790	8000
LS2	1190	5000
LS3	630	4500
LS4	670	6000
LS5	1110	4500
LS6	1350	3500
LS8	1230	2000
LS9	1270	5000
LS10	590	3500
LV	10860	500
Cordoba		
LV2	880	500
Resistencia		
LT5	1160	500
Rosario		
LT1	780	5000
LT3	1080	3500
LT8	840	350
Salta		
LV9	900	500
San Juan		
LV1	620	1500
LV5	1120	700
Tucuman		
LV7	820	500

BOLIVIA

La Paz		
CPX	1250	5000
CP4	1040	10000

BRAZIL

Amparo		
PRC4	1304	.05
Bahia		
PRA4	1000	.05
Belem		
PRC5	1360	.1
Bello Horizonte		
PRC7	1090	.25
Campinas		
PRAW	1170	.02
Curityba		
PRB2	882	.25
Juiz de Fora		
PRB3	857	.25
Mogy das Cruzes		
PRB8	1000	.05
Pelotas		
PRC3	920	.25
Porto Alegre		
PRG2	1090	.5
Recife		
PRA8	750	.5
Riberirao Preto		
PRA7	1153	.05
Rio de Janeiro		
PRA2	750	1.5
PRA3	860	2.5
PRA9	1080	1.
PRB7	800	.5
PRC6	965	1.
Santos		
PRB4	1000	1.
Sao Paulo		
PRA5	1295	.1
PRA6	815	1.
PRB5	1110	.05
PRB9	1017	.5
PRD2	935	1.

CHILE

Chillan		
CE113	1130	100
Concepcion		
CE108	1080	100
Magallanes		
CE104	1040	100
CE119	1190	100
CE143	1430	100
Rancagua		
CE132	1325	100
CE139	1390	100
CE145	1450	100
Santiago		
CE58	585	1000
CE62	625	1000
CE66	665	1000
CE70	705	1000
CE74	745	1000
CE78	785	1000
CE82	825	1000
CE86	865	1000
CE90	905	1000
CE94	945	1000
CE98	985	1000
CE100	1005	100
CE102	1025	250
CE106	1065	500
CE107	1075	100
CE110	1105	100
CE114	1145	100
CE118	1185	100
CE122	1225	100
CE126	1265	100
CE130	1305	100
CE131	1315	100
CE134	1345	150
CE138	1385	100
CE142	1425	100
CE146	1465	500
Temuco		
CE92	920	100
CE128	1280	500
Valparaiso		
CE88	885	100
CE105	1050	100
CE121	1210	100
CE125	1250	100
Vina del Mar		
CE101	1010	100
CE109	1090	105

COLOMBIA

Bogota		
HJN	681	1000

Belfast
..... 1122 1000
Cork
6CK 1240 1000
Dublin
2RN 1348 1000

ITALY

Bari
I1BA 1059 20000
Bolzano
I1BZ 536 1000
Firenze
IFI 610 20000
Genoa
IGE 986 10000
Milan
IMI 814 50000
No. 2 1348 4000
Naples
INA 1104 1500
Palermo
IPA 565 3000
Rome
I1RO 713 50000
No. 2 1258 500
Trieste
I1TR 1222 10000
Turin
I1TO 1140 7000
No. 2 1357 1000

LATVIA

Madonna
..... 1104 20000
Riga
YLZ 583 15000
..... 1510 10000

NORWAY

Aalesund
LKA 850 350
Bergen
LKB 850 1000
Bodo
LKD 1276 500
Fredrikstad
LKF 868 700
Hamar
LKH 519 700
Kristianssand
LKK 1274 500
Notodden
LKN 1348 80
Porsgrund
LKP 850 700
Rjukan
LKR 1348 150
Stavanger
LKS 1276 500
Tromsoe
LKM 1357 100
Trondheim
..... 629 1200

POLAND

Cracow
..... 986 2000
..... 1366 1700
Katowice
..... 758 12000
Lodz
..... 1348 1700
Lwow
..... 795 16000
Poznan
..... 868 16000
..... 1098 1500
Torun
..... 1366 1700
Warsaw
No. 2 1384 2000
Wilno
..... 536 16000

PORTUGAL

Lisbon
CT1AA 1056 2000
CT1AN 1056 10
CT1BM 1056 50
CT1BO 936 150
CT1BP 1275 50
CT1DH 952 10
CT1DS 1058 10
CT1EB 1056 50
CT1GK 1063 2000
CT1GL 885 150
Oliveira
..... 1304 250
Oporto
CS1RS 1448 1000
PRP1 1249 1500
Parede
CT1GL 1031 5000

ROUMANIA

Bucharest
..... 823 12000

SPAIN

Barcelona
EAJ1 795 5000
EAJ15 1022 3000
Bilbao
EAJ28 1492 250
Madrid
EAJ2 731 3000
EAJ7 1095 7000
Oviedo
EAJ19 1022 700
Salamanca
EAJ22 662 1000
San Sebastian
EAJ8 1258 3000
Seville
EAJ5 731 1500
Valencia
EAJ3 850 1500
Spain has many stations of 100 watts or less on 1492 and 1500 kcs. For complete list see Index by Calls.

SWEDEN

Boras
SCA 1450 150
Eskilstuna
SCB 1240 200
Falun
SCC 1086 2000
Goteborg
SBB 941 10000
Gavle
SCD 1483 200
Halmstad
SCE 1402 200
Halsingborg
SCG 1384 200
Horby
SBH 1131 10000
Hudiksvall
SCF 1375 150
Jonkoping
SCH 1515 250
Kalmar
SCI 1456 200
Karlskrona
SCJ 1530 200
Karlstad
SBK 1312 250
Kiruna
SCL 1258 200
Kristinehamn
SCM 1500 250
Malmberget
SCN 704 250
Malmo
SBC 1312 1250
Norrkoping
SBI 1312 250
Orebro
SCV 1258 200
Ornskoeldsvik
SCW 1411 200
Saffle
SCP 1240 400
Stockholm
SBA 704 55000
Sundsvall
SBD 601 10000
Trollhattan
SBJ 1312 250
Uddevalla
SCR 1393 50
Umea
SCS 1393 200
Upsala
SCT 1492 150
Varberg
SCU 1240 300

SWITZERLAND

Basle
..... 1375 500
Berne
..... 1375 500
Beromunster
556 60000
Monte Ceneri
..... 1167 15000
Sottens
..... 677 25000

U. S. S. R.

Alexandrovsk
RW38 580 1200
Arkhangelsk
RW36 770 10000
Astrakhan
RW35 589 10000
Dnepropetrovsk
RW30 913 10000
Engels
RW55 959 1000
Gomel
RW40 959 1200
Gorki
RW42 598 10000
Groznyi
RW23 676 1200
Ijevsk
RW69 825 4000
Ivanovo
RW31 625 10000
Karaganda
RW46 653 10000
RW46 686.5 1200
Kazan
RW17 644 10000
Kharkov
RW20 1185 10000
Kiev
RV9 722 100000
Krasnodar
RW33 1050 10000
Leningrad
RW70 1040 10000
Magnitogorsk
..... 571 10000
Makhatch
RW27 689 4000
..... 563 120000
Minsk
RV10 1438 100000
Moskva
RW37 792.5 1000
RW39 832 100000
Mourmansk
..... 610 10000
Naltchik
RW51 748.1 1200
Nijni
..... 598 10000
Odessa
RW13 968 10000
Oufa
RW22 617 10000
Oukhta
..... 968 2000
Penza
RW56 640 1200
Petrozavodsk
..... 648 10000
Simferopol
RW52 859 10000
Smolensk
RW24 531 2000
Stalino
RW26 776 10000
Syktyvkar
RW41 563 1200
Tcheboksary
RW74 680 1200
Tchellabinsk
RW68 824 1500
Tchernigov
..... 1013 10000
Tiraspol
RW57 1068 10000
Tomsk
RW48 554 1200
Vinnitza
RW75 1095 10000
Vladikavkaz
RW64 752 10000
Vladivostok
RW28 635 700
RW28 725 10000

YUGOSLAVIA

Belgrade
..... 686 2500
Ljubljana
..... 527 5000
Zagreb
..... 1086 700

ASIA

CEYLON

Colombo
VPB 705 1750

CHINA

Canton
CAB 658 1000
Hangchow
XGOD 977.5 1000

Hongkong
ZBW 845 2000
Kwangchow
CMB 677 1000
Lo Yang
XGOB 1090 250
Nanking
XGOA 660 75000
Peiping
XNPP 937 1000
XOPP 952.3 100
Shanghai
FFZ 1400 250
XGCU 1140 100
XHHE 940 100
XHHF 960 100
XHHG 1020 100
XHHH 1040 100
XHHI 900 100
XHHK 1420 100
XHHM 1180 100
XHHN 1200 100
XHHS 1100 100
XHHU 1160 500
XHHV 880 100
XHHX 920 100
XMHA 600 600
XQHA 850 1000
XQHB 820 100
XQHC 1270 500
XQHD 1360 200
XQHT 1460 1000
Soochow
XGLS 1230 100
Tientsin
XOTN 625 500
Tsinan
XOST 857.1 500
Yunnan
XGOY 698 500

FORMOSA
Taihoku
JFAK 670 10000
Tainan
JFBK 720 1000

INDIA
Bombay
VUB 840 2000
Calcutta
VUC 810 2000
Lahore
VUL 1200 100
Madras
VUM 770 200

INDO-CHINA
Saigon
F31CD 840 12000

JAPAN
Akita
OUK 645 300
Asahikawa
JOCG 655 300
Fukui
JOFG 990 500
Fukuoka
JOLK 680 500
Hakodate
JOVK 680 500
Hamamatsu
JODG 635 300
Hiroshima
JOFK 850 10000
Kanazawa
JOJK 710 3000
Kochi
JORK 720 500
Kokura
JOSK 735 1000
Kumamoto
JOGK 790 10000
Kyoto
JOOK 960 300
Maebashi
JOBG 970 500
Matsuye
JOTK 625 500
Nagano
JONK 940 500
Nagasaki
JOAG 930 500
Nagoya
JOCK-1 810 10000
JOCK-2 1175 10000
Niigata
JOQK 920 500
Okayama
JOKK 700 500
Osaka
JOBK-1 750 10000
JOBK-2 1085 10000
Sapporo
JOIK 830 10000
Sendai
JOHK 770 10000
Shizuoka
JOPK 780 500
Tokushima
JOXK 980 500
Tokyo
JOAK-1 870 10000
JOAK-2 590 10000

KOREA
Keijo
JODK-1 900 10000
JODK-2 610 10000

MANCHURIA
Dairen
JQAK 652 500
Harbin
MOHB 674 1000
MTFY 674 1000
Hoten
MTBY 897 1500
Z1LY 900 2000
Skinkyo
MYCY 570 1000

SIAM
Bangkok
HSPI 857 2500
HSP3 938 ...
HS7PJ 750 ...

AFRICA

ALGERIA
Algiers
..... 941 12000

EGYPT
Alexandria
..... 780 200
..... 1080 500
Cairo
..... 571 20000
..... 600 ...
..... 950 ...
Heliopolis
..... 1110 500

KENYA
Nairobi
VQ7LO 750 1000

MOROCCO
Casablanca
CNO 983 25
Rabat
..... 601 6500

TUNISIA
Tunis
TUA 1275 500

UNION S. AFRICA
Bloemfontaine
ZTB 589 500
Cape Town
ZTC 810 1000
Durban
ZTD 723 1000
Johannesburg
ZTJ 667 15000
Pretoria
ZTP 985 500

OCEANIA

AUSTRALIA
Adelaide
5AD 1310 300
5CL 730 5000
5DN 960 1000
5KA 1200 1000
Albury
2AY 1500 50
Ballarat
3BA 1300 50
Bendigo
3BO 970 200
Brisbane
4BC 1145 600
4BH 1380 600
4BK 1290 200
4QG 760 5000
Bunbury
6BY 980 50
Canberra
2CA 1050 50
Corowa
2CO 560 7500
Crystal Brook
5CK 635 7500
Geelong
3GL 1400 50
Goulburn
2GN 1390 50
Grafton
2GF 1220 50
Gunnedah
2MO 1320 50
Hamilton
3HA 1010 200
Hobart
7HO 890 50
7ZL 580 3000
Horsham
3HS 1370 50
Kalgoorlie
6KG 1220 100
Launceston
7LA 1100 300
Lismore
2XN 1340 50
Mackay
4MK 1190 100
Maryborough
4MB 1060 50
Melbourne
3AK 1470 50
3AR 610 5000
3AW 1425 300
3DB 1180 500
3KZ 1350 200
3LO 800 5000
3UZ 930 500
3YB 1145 25
Mildura
3MA 900 50
Newcastle
2HD 1110 200
2KO 1415 200
2NC 1245 2000
Perth
6IX 1480 50
6ML 1135 300
6PR 880 500
6WF 690 5000
Port Pirie
5PI 1041 50
Rockhampton
4RK 910 5000
4RO 1330 250
Sale
3TR 1280 50
Swan Hill
3SH 1080 50
Sydney
2BL 855 3400
2CH 1210 1000
2FC 665 5000
2GB 950 3000
2KY 1070 1500
2SM 1270 1000
2UE 1025 3000
2UW 1125 1500
Toowoomba
4GR 1000 50
Townsville
4TO 1170 100
Ulverstone
7UV 1460 200
Wagga
2WG 1155 50
Wangaratta
3WR 1260 50
Wollongong
2WL 1435 50

NEW ZEALAND
Auckland
1YA 650 500
1ZB 1190 50
1ZJ 1310 50
1ZR 880 100
1ZS 1420 50
Balclutha
4ZR 1340 5
Christchurch
3YA 720 2500
3YL 1200 500
3ZM 1450 50
Cromwell
4ZC 1280 25
Dunedin
4YA 790 500
4ZB 1050 50
4ZF 1220 7
4ZL 1220 100
4ZM 1050 50
4ZO 1050 25
4ZW 1470 50
Gisborne
2ZJ 980 250
2ZM 1150 110
Greymouth
3ZE 1300 50
3ZR 940 300
Hamilton
1ZH 770 40
Hastings
2ZL 1240 48

INDEX BY LOCATIONS

Invercargill			2ZD	1170	8	**New Plymouth**			**Wairoa**		
4ZP	620	500	**Napier**			2YB	750	100	2ZP	900	108
Manurewa			2ZH	820	65	**Palmerston N.**			**Wellington**		
IZM	1260	17	**Nelson**			2ZF	960	150	2YA	570	5000
Masterton			2ZR	1110	50	2ZO	1400	50	2YC	840	200

INDEX BY CALL LETTERS

CAB	Canton, Ch.	658	CHWC	Regina, Sask.	1010	CMCW	Havana, Cuba	965
CE58	Santiago, Chl.	585	CHWK	Chilliwack, B. C.	780	CMCY	Havana, Cuba.	1316
CE62	Santiago, Chl.	625	CJAT	Trail, B. C.	1200	CMDE	Havana, Cul a,	915
CE66	Santiago, Chl.	665	CJCA	Edmonton, Alta.	730	CMGA	Colon, Cuba.	834
CE70	Santiago, Chl.	705	CJCB	Sydney, N. S.	880	CMGB	Matanzas, Cuba.	1206
CE74	Santiago, Chl.	745	CJCJ	Calgary, Alta.	690	CMGC	Matanzas, Cuba.	828
CE78	Santiago, Chl.	785	CJCS	Sudbury, Dnt.	780	CMGE	Cardenas, Cuba.	1375
CE82	Santiago, Chl.	825	CJGX	Yorkton, Sask.	630	CMGF	Matanzas, Cuba.	971.5
CE86	Santiago, Chl.	865	CJKL	Kirkland Lake, Dnt.	1310	CMGH	Matanzas, Cuba.	1040
CE88	Valparaiso, Chl.	885	CJLS	Yarmouth, N. S.	1310	CMHA	Sagua la Grande, Cuba	1103
CE90	Santiago, Chl	905	CJOC	Lethbridge, Alta.	840	CMHD	Caibarien, Cuba.	950
CE92	Temuco, Chl.	920	CJOR	Vancouver, B. C.	600	CMHI	Santa Clara, Cuba.	1007
CE94	Santiago, Chl.	945	CJRC	Winnipeg, Man.	1390	CMHJ	Cienfuegos, Cuba	1125
CE98	Santiago. Chl.	985	CJRM	Moose Jaw, Sask.	540	CMHK	Cruces, Cuba.	1215
CE100	Santiago, Chl.	1005	CKAC	Montreal, Que.	730	CMHL	Cienfuegos, Cuba.	1250
CE101	Vina del Mar, Chl.	1010	CKBI	Prince Albert, Sask.	1210	CMHW	Cienfuegos, Cuba.	1200
CE102	Santiago. Chl.	1020	CKCD	Vancouver, B. C.	1010	CMJC	Camaguey, Cuba.	1382
CE104	Magallanes, Chl.	1040	CKCH	Hull, Que.	1210	CMJE	Camaguey, Cuba.	1170
CE105	Valparaiso, Chl.	1050	CKCK	Regina, Sask.	1010	CMJF	Camaguey, Cuba.	919
CE106	Santiago, Chl.	1065	CKCL	Toronto, Ont.	590	CMJG	Camaguey, Cuba.	1650
CE107	Santiago, Chl.	1075	CKCO	Ottawa. Ont.	1010	CMJH	Ciego de Avila, Cuba.	1150
CE108	Concepcion, Chl.	1080	CKCR	Waterloo, Ont.	1510	CMJI	Ciego de Avila, Cuba.	1335
CE109	Vina del Mar, Chl.	1090	CKCV	Quebec, Que.	1310	CMJK	Camaguey. Cuba.	790
CE110	Santiago, Chl.	1105	CKFC	Vancouver, B. C.	1410	CMJL	Camaguey, Cuba.	980
CE113	Chillan, Chl.	1130	CKGB	Timmins, Ont.	1420	CMJN	Camaguey, Cuba.	1240
CE114	Santiago, Chl.	1145	CKIC	Wolfville, N. S.	1010	CMJO	Ciego de Avila, Cuba.	1010
CE118	Santiago, Chl.	1185	CKLW	Windsor, Ont.	840	CMJP	Moron, Cuba.	1360
CE119	Magallanes, Chl.	1190	CKMC	Cobalt, Ont.	1210	CMK	Havana, Cuba.	730
CE121	Valparaiso, Chl.	1215	CKMO	Vancouver, B. C.	1410	CMKC	Santiago, Cuba.	1034
CE122	Santiago, Chl.	1220	CKNC	Toronto, Ont.	1030	CMKJ	Guantanamo, Cuba.	1300
CE125	Valparaiso, Chl.	1255	CKOC	Hamilton, Ont.	1120	CMQ	Havana, Cuba.	646
CE126	Santiago, Chl.	1260	CKOV	Kelowna. B. C.	1210	CMW	Havana, Cuba.	595
CE128	Temuco, Chl.	1285	CKPC	Preston, Ont.	930	CMX	Havana, Cuba.	875
CE130	Santiago, Chl.	1305	CKPR	Fort William, Ont.	930	CNO	Casablanca, Mor.	983
CE131	Santiago, Chl.	1315	CKTB	St. Catherines, Ont.	1200	CPX	La Paz, Bol.	1258
CE132	Rancagua, Chl.	1325	CKUA	Edmonton, Alta.	580	CP4	La Paz, Bol.	1040
CE134	Santiago, Chl.	1345	CKWX	Vancouver, B. C.	1010	CRCM	Montreal, Que.	910
CE138	Santiago, Chl.	1380	CKX	Brandon, Man.	1450	CRCO	Ottawa, Ont.	880
CE139	Rancagua, Chl.	1390	CKY	Winnipeg, Man.	780	CRCS	Chicoutimi, Que.	1500
CE142	Santiago, Chl.	1425	CMAB	Pinar del Rio, Cuba.	1249	CRCT	Toronto, Ont.	960
CE143	Magallanes, Chl.	1430	CMAF	Havana, Cuba.	680	CRCV	Vancouver, B. C.	1100
CE145	Rancagua, Chl.	1450	CMB	Kwangchow, Chn.	677	CS1RS	Oporto, Por.	1442
CE146	Santiago, Chl.	1465	CMBC	Havana, Cuba.	1270	CT1AA	Lisbon, Por.	1056
CFAC	Calgary, Alta.	930	CMBD	Havana, Cuba.	965	CT1AN	Lisbon, Por.	1056
CFBO	St. John, N. B.	1210	CMBG	Havana, Cuba.	1048	CT1BM	Lisbon. Por.	1056
CFCF	Montreal, Que.	600	CMBJ	Havana, Cuba.	1147	CT1BO	Lisbon. Por.	936
CFCH	North Bay, Ont.	930	CMBK	Havana, Cuba.	1485	CT1BP	Lisbon, Por.	1275
CFCN	Calgary, Alta.	1030	CMBL	Havana, Cuba.	1445	CT1DH	Lisbon, Por.	952
CFCO	Chatham, Ont.	600	CMBN	Havana, Cuba.	1185	CT1DS	Lisbon. Por.	1058
CFCT	Victoria, B. C.	1450	CMBS	Havana, Cuba.	765	CT1EB	Lisbon, Por.	1056
CFCY	Charlottetown, P. E. I.	630	CMBW	Havana, Cuba.	1140	CT1GK	Lisbon, Por.	1063
CFJC	Kamloops, B. C.	1310	CMBX	Havana, Cuba	1185	CT1GL	Parede, Por.	1031
CFLC	Prescott, Ont.	930	CMBY	Havana, Cuba.	1230	CW30	Tucuarembo, Uru.	1140
CFNB	Fredericton, N. B.	1030	CMBZ	Havana, Cuba.	1005	CW32	Salto, Uru.	1190
CFPL	London, Ont.	730	CMC	Havana, Cuba.	835	CW34	Salto, Uru.	1220
CFQC	Saskatoon, Sask.	1230	CMCA	Havana, Cuba.	1230	CW36	Salto, Uru.	1260
CFRB	Toronto, Ont.	690	CMCB	Havana, Cuba.	1048	CW38	Salto, Uru.	1300
CFRC	Kingston, Ont.	1510	CMCD	Havana, Cuba.	925	CW39	Florida, Uru.	1320
CFTP	Edmonton, Alta.	1260	CMCF	Havana, Cuba.	873	CW40	Paysandu, Uru.	1340
CHAB	Moose Jaw, Sask.	1200	CMCG	Havana, Cuba	1305	CW41	San Jose, Uru.	1360
CHCK	Charlottetown, P. E. I.	1310	CMCH	Havana, Cuba.	1410	CW42	Artigas, Uru.	1380
CHGS	Summerside, P. E. I.	1120	CMCJ	Havana, Cuba.	1180	CW43	Melo, Uru.	1400
CHLP	Montreal, Que.	1120	CMCM	Havana, Cuba.	1405	CW44	Paysandu, Uru.	1420
CHML	Hamilton, Ont.	1010	CMCN	Havana, Cuba.	1357	CW46	Tucuarembo, Uru.	1460
CHNC	New Carlisle, Que.	1210	CMCP	Havana. Cuba.	1270	CW47	Canelones, Uru.	1480
CHNS	Halifax, N. S.	1050	CMCO	Havana, Cuba.	1145	CX4	Montivideo, Uru.	610
CHPR	St. John, N. B.	1370	CMCQ	Havana, Cuba.	680	CX6	Montivideo, Uru.	650
CHRC	Quebec, Que.	580	CMCR	Havana, Cuba.	1357	CX8	Montivideo, Uru.	690
CHSJ	St. John, N. B.	1370	CMCU	Havana, Cuba.	1100	CX10	Montivideo, Uru.	730

CX12	Montivideo, Uru.	770
CX14	Montivideo, Uru.	810
CX16	Montivideo, Uru.	850
CX18	Montivideo, Uru.	890
CX20	Montivideo, Uru.	930
CX22	Montivideo, Uru.	970
CX24	Montivideo, Uru.	1010
CX26	Montivideo, Uru.	1050
CX28	Montivideo, Uru.	1090
CX30	Montivideo, Uru.	1130
CX32	Montivideo, Uru.	1170
CX34	Montivideo, Uru.	1210
CX36	Montivideo, Uru.	1250
CX38	Montivideo, Uru.	1290
CX40	Montivideo, Uru.	1330
CX42	Montivideo, Uru.	1370
CX44	Montivideo, Uru.	1410
CX46	Montivideo, Uru.	1450
CX48	Montivideo, Uru.	1490
EAJ1	Barcelona, Sp.	795
EAJ2	Madrid, Sp.	731
EAJ3	Valencia, Sp.	850
EAJ4	Santiago, Sp.	492
EAJ5	Seville, Sp.	731
EAJ6	Pampeluna, Sp.	1492
EAJ7	Madrid, Sp.	1095
EAJ8	San Sebastian, Sp.	1258
EAJ9	Malaga, Sp.	1492
EAJ10	Saragossa, Sp.	1492
EAJ11	Tarragona, Sp.	1500
EAJ12	Alcoy, Sp.	1492
EAJ13	Palma de Mjrca, Sp.	1492
EAJ14	Castillon, Sp.	1500
EAJ15	Barcelona, Sp.	1022
EAJ16	Grenada, Sp.	1492
EAJ17	Morcia, Sp.	1492
EAJ18	Logrona, Sp.	1193
EAJ19	Oviedo, Sp.	1022
EAJ20	Sabadell, Sp.	1492
EAJ21	Mellilla, Sp.	1492
EAJ22	Salamance, Sp.	682
EAJ23	Gandia, Sp.	1492
EAJ24	Cordoba, Sp.	1492
EAJ25	Tarrasa, Sp.	1500
EAJ26	Antequerra, Sp.	1500
EAJ27	Burgos, Sp.	1492
EAJ28	Bilbao, Sp.	1492
EAJ29	Alcala de Hrs., Sp.	1500
EAJ30	Onteniente, Sp.	1500
EAJ31	Alicante, Sp.	1492
EAJ32	Santander, Sp.	1500
EAJ33	Tarragona, Sp.	1492
EAJ34	Gijon, Sp.	1492
EAJ35	Villaneva, Sp.	1500
EAJ36	Jatiba, Sp.	1500
EAJ37	Linares, Sp.	1500
EAJ38	Gerona, Sp.	1500
EAJ39	Badalona, Sp.	1492
EAJ40	Pontevedra, Sp.	1500
EAJ41	La Corogna, Sp.	1492
EAJ42	Lleida, Sp.	1492
EAJ43	Santa Crus de Tnrf., Sp.	1492
EAJ44	Albaceta, Sp.	1492
EAJ45	Senia, Sp.	1500
EAJ46	Ceuta, Sp.	1492
EAJ47	Valladolid, Sp.	1492
EAJ48	Pontevedra, Sp.	1492
EAJ49	Toledo, Sp.	1500
EAJ50	Las Palmas, Sp.	1500
EAJ51	Manresa, Sp.	1492
EAJ52	Badajos, Sp.	1492
FFZ	Shanghai, Chn.	1400
FQN	St. Pierre, Miq.	574
F8GC	Paris, F.	810
F31CD	Saigon, Indo.	840
HAC	Budapest, Hun.	546
HAE	Nyiregyhaza, Hun.	1122
HAE2	Magyarovar, Hun.	1438
HAE3	Miskolc, Hun.	1438
HAE4	Pecs. Hun.	1438
HAL	Budapest, Hun.	546
HAL2	Budapest, Hun.	1321
HHK	Port-au-Prince, Haiti	920
HIH	San Pedro de M., D. R.	1396
HIJ	Santo Domingo, D. R.	1195
HIX	Santo Domingo, D. R.	698
HIZ	Santo Domingo, D. R.	1300
HJN	Bogota, Colombia	681
HJ3ABD	Bogota, Colombia	1115
HJ3ABE	Bogota, Columbia	1200
HJ3ABH	Bogota, Columbia	1000
HSPI	Bangkok, Siam	857
HSP3	Bangkok, Siam	938
HS7PJ	Bangkok, Siam	750
IFI	Firenze, I.	610
IGE	Genoa, I.	986
IMI	Milan, I.	814
INA	Naples, I.	1104
IPA	Palermo, I.	665
I1BA	Bari, I.	1059
I1BZ	Bolzano, I.	536
I1RO	Rome, I.	713
I1TO	Turin. I.	1140
I1TR	Trieste, I.	1222
JFAK	Taihoku, For.	670
JFBK	Tainan, For.	720
JOAG	Nagasaki, J.	903
JOAK-1	Tokyo, J.	870
JOAK-2	Tokyo, J.	590
JOBG	Maebashi, J.	970
JOBK-1	Osaka, J.	750
JOBK-2	Osaka, J.	1085
JOCG	Asahikawa, J.	655
JOCK-1	Nagoya, J.	810
JOCK-2	Nagoya, J.	1175
JODG	Hamamatsu, J.	635
JODK-1	Keijo, Ko.	900
JODK-2	Keijo, Ko.	610
JOFG	Fukui, J.	990
JOFK	Hiroshima, J.	850
JOGK	Kumamoto, J.	790
JOHK	Sendai, J.	770
JOIK	Sapporo, J.	830
JOJK	Kanazawa, J.	710
JOKK	Okayama, J.	700
JOLK	Fukuoka, J.	680
JONK	Nagano, J.	940
JOOK	Kyoto, J.	960
JOPK	Shizuoka, J.	780
JOQK	Niigata, J.	920
JORK	Kochi, J.	720
JOSK	Kokura, J.	735
JOTK	Matsuye, J.	625
JOUK	Akita, J.	645
JOVK	Hakodate, J.	680
JOXK	Tokushima, J.	980
JQAK	Dairen, Mnch.	652
KABC	San Antonio, Texas	1420
KALE	Portland, Ore.	1300
KARK	Little Rock, Ark.	890
KASA	Elk City, Okla.	1210
KBPS	Portland, Ore.	1420
KBTM	Jonesboro, Ark.	1200
KCMC	Texarkana, Ark.	1420
KCRC	Enid, Okla.	1370
KCRJ	Jerome, Ariz.	1310
KDB	Santa Barbara, Calif.	1500
KDFN	Casper, Wyo.	1440
KDKA	Pittsburgh, Pa.	980
KDLR	Devils Lake, N. D.	1210
KDYL	Salt Lake City, Utah	1290
KECA	Los Angeles, Calif.	1430
KELW	Burbank, Calif.	780
KERN	Bakersfield, Calif.	1370
KEX	Portland, Ore.	1180
KFAB	Lincoln, Neb.	770
KFAC	Los Angeles, Calif.	1300
KFBB	Great Falls, Mont.	1280
KFBI	Abilene, Kans.	1050
KFBK	Sacramento. Calif.	1310
KFBL	Everett, Wash.	1370
KFDM	Beaumont, Texas	560
KFDY	Brookings, S. D.	780
KFEL	Denver, Colo.	920
KFEQ	St. Joseph, Mo.	680
KFGQ	Boone, Iowa	1310
KFH	Wichita, Kans.	1300
KFI	Los Angeles, Calif.	640
KFIO	Spokane, Wash.	1120
KFIZ	Fond du Lac, Wis.	1420
KFJB	Marshalltown, Iowa	1200
KFJI	Klamath Falls, Ore.	1210
KFJM	Grand Forks, N. D.	1370
KFJR	Portland, Ore.	1300
KFJZ	Fort Worth, Texas	1370
KFKA	Greeley, Colo.	880
KFKU	Lawrence, Kans.	1220
KFNF	Shenandoah, Iowa	890
KFOR	Lincoln, Neb.	1210
KFOX	Long Beach, Calif.	1250
KFPL	Dublin, Texas	1310
KFPM	Greenville, Texas	1310
KFPW	Fort Smith, Ark.	1210
KFPY	Spokane, Wash.	890
KFQD	Anchorage, Alaska	600
KFRC	San Francisco, Calif.	610
KFRU	Columbia, Mo.	630
KFSD	San Diego, Calif.	600
KFSG	Los Angeles, Calif.	1120
KFUO	St. Louis, Mo.	550
KFVD	Los Angeles, Calif.	1000
KFVS	Cape Girardeau, Mo.	1210
KFWB	Hollywood, Calif.	950
KFWI	San Francisco, Calif.	930
KFXD	Nampa, Idaho	1200
KFXF	Denver, Colo.	920
KFXJ	Grand Jct., Colo.	1200
KFXM	San Bernardino, Calif.	1210
KFXR	Oklahoma City, Okla.	1310
KFYO	Lubbock, Texas	1310
KFYR	Bismarck, N. D.	550
KGA	Spokane, Wash.	1470
KGAR	Tucson, Ariz.	1370
KGB	San Diego, Calif.	1330
KGBU	Ketchikan, Alaska	900
KGBX	Springfield, Mo.	1310
KGBZ	York, Neb.	930
KGCA	Decorah, Iowa	1270
KGCR	Watertown, S. D.	1210
KGCU	Mandan, N. D.	1240
KGCX	Wolf Point, Mont.	1310
KGDE	Fergus Falls, Minn.	1200
KGDM	Stockton, Calif.	1100
KGDY	Huron, S. D.	1340
KGEK	Yuma, Colo.	1200
KGER	Long Beach, Calif.	1360
KGEZ	Kalispell, Mont.	1310
KGFF	Shawnee, Okla.	1420
KGFG	Oklahoma City, Okla.	1370
KGFI	Corpus Christi, Texas	1500
KGFJ	Los Angeles, Calif.	1200
KGFK	Moorhead, Minn.	1500
KGFL	Roswell, N. M.	1370
KGFW	Kearney, Neb.	1310
KGFX	Pierre, S. D.	630
KGGC	San Francisco, Calif.	1420
KGGF	Coffeyville, Kans.	1010
KGGM	Albuquerque, N. M.	1230
KGHF	Pueblo, Colo.	1320
KGHI	Little Rock, Ark.	1200
KGHL	Billings, Mont.	950
KGIR	Butte, Mont.	1340
KGIW	Alamosa, Colo.	1420
KGIX	Las Vegas, Nev.	1420
KGKB	Tyler, Texas	1500
KGKL	San Angelo, Texas	1370
KGKO	Wichita Falls, Texas	570
KGKY	Scottsbluff, Neb.	1500
KGMB	Honolulu, T. H.	1320
KGNF	North Platte, Neb.	1430

KGNO	Dodge City, Kans.	1340	KSTP	St. Paul, Minn.	1460	LV1	San Juan, Arg.	620
KGO	San Francisco, Calif.	790	KSUN	Lowell, Ariz.	1200	LV2	Cordoba, Arg.	920
KGRS	Amarillo, Texas	1410	KTAB	San Francisco, Calif.	560	LV5	San Juan, Arg.	1120
KGU	Honolulu, T. H.	750	KTAR	Phoenix, Ariz.	620	LV7	Tucuman, Arg.	820
KGVO	Missoula, Mont.	1200	KTAT	Fort Worth, Texas	1240	LV9	Salta, Arg.	900
KGW	Portland, Ore.	620	KTBS	Shreveport, La.	1450	LV10	Buenos Aires, Arg.	880
KGY	Olympia, Wash.	1210	KTFI	Twin Falls, Idaho	1240	MOHB	Harbin, Mnch.	674
KHJ	Los Angeles, Calif.	900	KTHS	Hot Springs, Ark.	1060	MRD	Toulouse, Fr.	1175
KHQ	Spokane, Wash.	590	KTM	Los Angeles, Calif.	780	MTBY	Hoten, Mnch.	897
KICA	Clovis, N. M.	1370	KTRB	Modesto, Calif.	740	MTFY	Harbin, Mnch.	674
KICK	Carter Lake, Iowa	1420	KTRH	Houston, Texas	630	MYCY	Skinkyo, Mnch.	570
KID	Idaho Falls, Idaho	1320	KTSA	San Antonio, Texas	1290	NAA	Arlington, Va.	690
KIDO	Boise, Idaho	1350	KTSM	El Paso, Texas	1310	OAX	Lima, Peru	750
KIDW	Lamar, Colo.	1420	KTUL	Tulsa, Okla.	1400	OFA	Helsinki, Fin.	895
KIEM	Eureka, Calif.	1210	KTW	Seattle, Wash.	1220	OFC	Jacobstad, Fin.	1500
KIEV	Glendale, Calif.	850	KUJ	Walla Walla, Wash.	1370	OFD	Pori, Fin.	749
KIFH	Juneau, Alaska	1310	KUMA	Yuma, Ariz.	1420	OFE	Tampere, Fin.	1450
KIFS	Fort Klamath, Ore.	1518	KUOA	Fayetteville, Ark.	1260	OFG	Abo, Fin.	1220
KIT	Yakima, Wash.	1310	KUSD	Vermillion, S. D.	890	OFH	Viipuri, Fin.	527
KJBS	San Francisco, Calif.	1070	KVI	Tacoma, Wash.	570	OFR	Tampere, Fin.	1420
KJR	Seattle, Wash.	970	KVL	Seattle, Wash.	1370	OKB	Brno, Cz.	922
KLCN	Blytheville, Ark.	1290	KVOA	Tucson, Ariz.	1260	OK K	Kosice, Cz.	1113
KLO	Ogden, Utah	1400	KVOO	Tulsa, Okla.	1140	OKP	Praha, Cz.	638
KLPM	Minot, N. D.	1240	KVOR	Colorado Springs, Colo.	1270	OKR	Bratislava, Cz.	1004
KLRA	Little Rock, Ark.	1390	KVOS	Bellingham, Wash.	1200	ON4CE	Chatelineau, Blg.	1492
KLS	Oakland, Calif.	1440	KWCR	Cedar Rapids, Iowa	1430	ON4CE	Verviers, Blg.	1500
KLUF	Galveston, Texas	1370	KWEA	Shreveport, La.	1213	ON4EB	Antwerp, Blg.	1492
KLX	Oakland, Calif.	880	KWFV	Hilo, Hawaii	1210	ON4EX	Ottomont, Blg.	1285
KLZ	Denver, Colo.	560	KWG	Stockton, Calif.	1200	ON4FG	Dampremy, Blg.	1285
KMA	Shenandoah, Iowa	930	KWJJ	Portland, Ore.	1040	ON4FO	Brussels, Blg.	1285
KMAC	San Antonio, Texas	1370	KWK	St. Louis, Mo.	1350	ON4GT	Brussels, Blg.	1285
KMBC	Kansas City, Mo.	950	KWKC	Kansas City, Mo.	1370	ON4RC	Brussels, Blg.	1285
KMED	Medford, Ore.	1310	KWKH	Shreveport, La.	850	ON4RG	Ghent, Blg.	1285
KMJ	Fresno, Calif.	580	KWLC	Decorah, Iowa	1270	ON4RW	Liege, Blg.	1500
KMLB	Monroe, La.	1200	KWSC	Pullman, Wash.	1220	PFBI	Hilversum, Hol.	995
KMMJ	Clay Center, Neb.	740	KWTO	Springfield, Mo.	560	PH9	Amsterdam, Hol.	1013
KMO	Tacoma, Wash.	1330	KWWG	Brownsville, Texas	1260	PP	Paris, F.	959
KMOX	St. Louis, Mo.	1090	KWYO	Sheridan, Wyo.	1370	PRAW	Campinas, Brz.	1170
KMPC	Beverly Hills, Calif.	710	KXA	Seattle, Wash.	760	PRA2	Rio de Janeiro, Brz.	750
KMTR	Hollywood, Calif.	570	KXL	Portland, Ore.	1420	PRA3	Rio de Janeiro, Brz.	860
KNOW	Austin, Texas	1600	KXO	El Centro, Calif.	1500	PRA4	Bahia, Brz.	1000
KNX	Hollywood, Calif.	1050	KXRO	Aberdeen, Wash.	1310	PRA5	Sao Paulo, Brz.	1295
KOA	Denver, Colo.	830	KXYZ	Houston, Texas	1440	PRA6	Sao Paulo, Brz.	815
KOAC	Corvallis, Ore.	550	KYA	San Francisco, Calif.	1230	PRA7	Ribeirao Preto, Brz.	1153
KOB	Albuquerque, N. M.	1180	KYW	Chicago, Ill.	1020	PRA8	Recife, Brz.	750
KOH	Reno, Nev.	1380	KZRM	Manila, P. I.	618.5	PRA9	Rio de Janeiro, Brz.	1080
KOIL	Council Bluffs, Iowa	1260	LKA	Aalesund, Nor.	850	PRB2	Curityba, Brz.	882
KOIN	Portland, Ore.	940	LKB	Bergen, Nor.	853	PRB3	Juiz de Fora, Brz.	857
KOL	Seattle, Wash.	1270	LKD	Bodo, Nor.	1276	PRB4	Santos, Brz.	1000
KOMA	Oklahoma City, Okla.	1480	LKF	Fredrikstad, Nor.	868	PRB5	Sao Paulo, Brz.	1110
KOMO	Seattle, Wash.	920	LKH	Hamar, Nor.	519	PRB7	Rio de Janeiro, Brz.	800
KONO	San Antonio, Texas	1370	LKK	Kristianssand, Nor.	1274	PRB8	Mogy das Cruzes, Brz.	1000
KOOS	Marshfield, Ore.	1370	LKM	Tromsoe, Nor.	1357	PRB9	Sao Paulo, Brz.	1017
KORE	Eugene, Ore.	1420	LKN	Notodden, Nor.	1348	PRC3	Pelotas, Brz.	920
KOTN	Pine Bluff, Ark.	1500	LKP	Porsgrund, Nor.	850	PRC4	Amparo, Brz.	1304
KOY	Phoenix, Ariz.	1390	LKR	Rjukan, Nor.	1348	PRC5	Belem, Brz.	1360
KPCB	Seattle, Wash.	650	LKS	Stavanger. Nor.	1276	PRC6	Rio de Janeiro, Brz.	965
KPJM	Prescott, Ariz.	1500	LR2	Buenos Aires, Arg.	910	PRC7	Bello Horizonte, Brz.	1090
KPO	San Francisco, Calif.	680	LR3	Buenos Aires, Arg.	950	PRD2	Sao Paulo, Brz.	935
KPOF	Denver, Colo.	880	LR4	Buenos Aires, Arg.	990	PRG2	Porto Alegre, Brz.	1090
KPPC	Pasadena, Calif.	1210	LR5	Buenos Aires, Arg.	830	PRP10	Porto, Por.	1249
KPQ	Wenatchee, Wash.	1500	LR6	Buenos Aires, Arg.	870	RDN	San Salvador, E. S.	680
KPRC	Houston, Texas	920	LR8	Buenos Aires, Arg.	1150	RV9	Kiev, USR.	722
KQV	Pittsburgh, Pa.	1380	LR9	Buenos Aires, Arg.	1030	RV10	Minsk, USR.	722
KQW	San Jose, Calif.	1010	LR10	Buenos Aires, Arg.	790	RW13	Odessa, USR.	968
KRE	Berkeley, Calif.	1370	LS2	Buenos Aires, Arg.	1190	RW17	Kazan, USR.	644
KREG	Santa Ana, Calif.	1500	LS3	Buenos Aires, Arg.	630	RW20	Kharkov, USR.	1185
KRGV	Harlingen, Texas	1260	LS4	Buenos Aires, Arg.	670	RW22	Oufa, USR.	617
KRKD	Los Angeles, Calif.	1120	LS5	Buenos Aires, Arg.	1110	RW23	Groznyi. USR.	676
KRLD	Dallas, Texas	1040	LS6	Buenos Aires, Arg.	1350	RW24	Smolensk, USR.	531
KRMD	Shreveport, La.	1310	LS8	Buenos Aires, Arg.	1230	RW26	Stalino, USR.	770
KROW	Oakland, Calif.	930	LS9	Buenos Aires, Arg.	1270	RW27	Makhatch-Kala, USR.	689
KRSC	Seattle, Wash.	1120	LS10	Buenos Aires, Arg.	690	RW28	Vladivostok, USR.	635
KSAC	Manhattan, Kans.	580	LT1	Rosario, Arg.	780	RW28	Vladivostok, USR.	725
KSCJ	Sioux City, Iowa	1330	LT3	Rosario, Arg.	1080	RW30	Dnepropetrovsk, USR.	913
KSD	St. Louis, Mo.	550	LT5	Resistencia, Arg.	1160	RW31	Ivanvoe-Voznesensk, USR.	625
KSEI	Pocatello, Idaho	890	LT8	Rosario, Arg.	840	RW33	Krasnodar, USR.	1050
KSL	Salt Lake City, Utah	1130	LT9	Santa Fe, Arg.	1060	RW35	Astrakhan, USR.	589
KSO	Des Moines, Iowa	1320	LU2	Bahia Blanca, Arg.	800	RW36	Arkhangelsk, USR.	770
KSOO	Sioux Falls. S. D.	1110	LU7	Bahia Blanca, Arg.	1280	RW37	Moskva, USR.	792.5

RW38	Alexandrovsk, USR.	580	WABC	New York, N. Y.	860	WDGY	Minneapolis, Minn.	1180
RW39	Moskva Stalina, USR.	832	WABI	Bangor, Maine	1200	WDNC	Durham, N. C.	1500
RW40	Gomel, USR.	959	WACO	Waco, Texas	1420	WDOD	Chattanooga, Tenn.	1280
RW41	Syktyvkar, USR.	663	WADC	Akron, Ohio	1320	WDRC	Hartford, Conn.	1330
RW42	Gorki, USR.	698	WAGM	Presque Isle, Me.	1420	WDSU	New Orleans, La.	1250
RW46	Karaganda, USR.	653	WAIU	Columbus, Ohio	640	WDZ	Tuscola, Ill.	1070
RW48	Karanganda, USR.	686.5	WALA	Mobile, Ala.	1410	WEAF	New York, N. Y.	660
RW48	Tomsk, USR.	554	WALR	Zanesville, Ohio	1210	WEAN	Providence, R. I.	780
RW51	Naltchik, USR.	748.1	WAMC	Anniston, Ala.	1420	WEBC	Superior, Wis.	1290
RW52	Simferopol, USR.	859	WAML	Laurel, Miss.	1310	WEBQ	Harrisburg, Ill.	1210
RW55	Engels, USR.	959	WAPI	Birmingham, Ala.	1140	WEBR	Buffalo, N. Y.	1310
RW56	Penza, USR.	640	WARD	Brooklyn, N. Y.	1400	WEDC	Chicago, Ill.	1210
RW57	Tiraspol, USR.	1068	WASH	Grand Rapids, Mich.	1270	WEED	Greenville, N. C.	1420
RW64	Vladikavkaz, USR.	752	WATR	Waterbury, Conn.	1190	WEEI	Boston, Mass.	590
RW68	Tcheliabinsk, USR.	824	WAVE	Louisville, Ky.	940	WEEU	Reading, Pa.	830
RW69	Ijevsk, USR.	825	WAWZ	Zarephath, N. J.	1350	WEHC	Charlottesville, Va.	1350
RW70	Leningrad, USR.	1040	WAZL	Hazleton, Pa.	1420	WEHS	Cicero, Ill.	1420
RW74	Tcheboksary, USR.	680	WBAA	West Lafayette, Ind.	1400	WELL	Battle Creek, Mich.	1420
RW75	Vinnitza, USR.	1095	WBAL	Baltimore, Md.	1060	WENC	Albany, Ga.	1420
SBA	Stockholm, Swe.	704	WBAP	Fort Worth, Texas	800	WENR	Chicago, Ill.	870
SBB	Goteborg, Swe.	941	WBAX	Wilkes-Barre, Pa.	1210	WESG	Elmira, N. Y.	680
SBC	Malmo, Swe.	1312	WBBC	Brooklyn, N. Y.	1400	WEVD	New York, N. Y.	1300
SBD	Sundsvall, Swe.	601	WBBL	Richmond, Va.	1210	WEW	St. Louis, Mo.	760
SBH	Horby, Swe.	1131	WBBM	Chicago, Ill.	770	WEXL	Royal Oak, Mich.	1310
SBI	Norrkoping, Swe.	1312	WBBR	Brooklyn, N. Y.	1300	WFAA	Dallas, Texas	800
SBJ	Trollhattan, Swe.	1312	WBBZ	Ponca City, Okla.	1200	WFAB	New York, N. Y.	1300
SBK	Karlstad, Swe.	1312	WBCM	Bay City, Mich.	1410	WFAM	South Bend, Ind.	1200
SCA	Boras, Swe.	1450	WBEN	Buffalo, N. Y.	900	WFAS	White Plains, N. Y.	1210
SCB	Eskilstuna, Swe.	1240	WBEO	Marquette, Mich.	1310	WFBC	Greenville, S. C.	1200
SCC	Falun, Swe.	1086	WBHS	Huntsville, Ala.	1200	WFBE	Cincinnati, Ohio	1200
SCD	Gavle, Swe.	1483	WBIG	Greensboro, N. C.	1440	WFBG	Altoona, Pa.	1310
SCE	Halmstad, Swe.	1391	WBNO	New Orleans, La.	1200	WFBL	Syracuse, N. Y.	1360
SCF	Hudiksvall. Swe.	1375	WBNS	Columbus, Ohio	1430	WFBM	Indianapolis, Ind.	1230
SCG	Halsingborg, Swe.	1384	WBNX	New York, N. Y.	1350	WFBR	Baltimore, Md.	1270
SCH	Jonkoping, Swe.	1515	WBOQ	New York, N. Y.	860	WFDF	Flint, Mich.	1310
SCI	Kalmar, Swe.	1456	WBOW	Terre Haute, Ind.	1310	WFEA	Manchester, N. H.	1430
SCJ	Karlskrona, Swe.	1530	WBRC	Birmingham, Ala.	930	WFI	Philadelphia, Pa.	560
SCL	Kiruna, Swe.	1258	WBRE	Wilkes-Barre, Pa.	1310	WFLA	Clearwater, Fla.	620
SCM	Kristinehamn, Swe.	1500	WBSO	Babson Park, Mass.	920	WGAL	Lancaster, Pa.	1500
SCN	Malmberget, Swe.	704	WBT	Charlotte, N. C.	1080	WGAR	Cleveland, Ohio	1460
SCP	Saffle, Swe.	1240	WBTM	Danville, Va.	1370	WGBB	Freeport, N. Y.	1210
SCR	Uddevalla, Swe.	1393	WBZ	Boston, Mass.	990	WGBF	Evansville, Ind.	630
SCS	Umea, Swe.	1393	WBZA	Springfield, Mass.	990	WGBI	Scranton, Pa.	880
SCT	Upsala, Swe.	1493	WCAC	Storrs, Conn.	600	WGCM	Mississippi City, Miss.	1210
SCU	Varberg, Swe.	1240	WCAD	Canton, N. Y.	1220	WGCP	Newark, N. J.	1250
SCV	Orebro, Swe.	1258	WCAE	Pittsburgh, Pa.	1220	WGES	Chicago, Ill.	1360
SCW	Ornskoeldsvik, Swe.	1411	WCAL	Northfield, Minn.	1250	WGH	Newport News, Va.	1310
SPTT	Strasburg, F.	859	WCAM	Camden, N. J.	1280	WGL	Fort Wayne, Ind.	1370
TGW	Guatemala, Gua.	1130	WCAO	Baltimore, Md.	600	WGLC	Hudson Falls, N. Y.	1370
TGX	Guatemala City	1380	WCAP	Asbury Park, N. J.	1280	WGN	Chicago, Ill.	720
TICR	San Jose, C. R.	912	WCAT	Rapid City, S. D.	1200	WGNY	Chester, N. Y.	1210
TIEA	San Jose, C. R.	833	WCAU	Philadelphia, Pa.	1170	WGR	Buffalo, N. Y.	550
TIEP	San Jose, C. R.	1450	WCAX	Burlington, Vt.	1200	WGST	Atlanta, Ga.	890
TIFB	San Jose, C. R.	714	WCAZ	Carthage, Ill.	1070	WGY	Schenectady, N. Y.	790
TIFS	Cartago, C. R.	1441	WCBA	Allentown, Pa.	1440	WHA	Madison, Wis.	940
TIGA	Cartago, C. R.	1014	WCBD	Zion, Ill.	1080	WHAD	Milwaukee, Wis.	1120
TIGP	San Jose, C. R.	800	WCBM	Baltimore, Md.	1370	WHAM	Rochester, N. Y.	1150
TIRCA	San Jose, C. R.	1100	WCBS	Springfield, Ill.	1210	WHAS	Louisville, Ky.	820
TISO	San Jose, C. R.	550	WCCO	Minneapolis, Minn.	810	WHAT	Philadelphia, Pa.	1310
TITV	San Jose, C. R.	999	WCFL	Chicago, Ill.	970	WHAZ	Troy, N. Y.	1300
TIVL	San Jose, C. R.	869	WCHS	Charleston, W. Va.	580	WHB	Kansas City, Mo.	860
TIXA	San Jose, C. R.	614	WCKY	Covington, Ky.	1490	WHBC	Canton, Ohio	1200
TUA	Tunis, Tun.	1276	WCLO	Janesville, Wis.	1200	WHBD	Mount Orab, Ohio	1370
VAS	Glace Bay, N. S.	685	WCLS	Joliet, Ill.	1310	WHBF	Rock Island, Ill.	1210
VE9EK	Montmagny, Que.	1195	WCNW	Brooklyn, N. Y.	1500	WHBL	Sheboygan, Wis.	1410
VOAC	St. John's, Nfld.	1300	WCOA	Pensacola, Fla.	1340	WHBQ	Memphis, Tenn.	1370
VOAS	St. John's, N. F.	940	WCOC	Meridian, Miss.	880	WHBU	Anderson, Ind.	1210
VOGY	St. John's, N. F.	1050	WCRW	Chicago, Ill.	1210	WHBY	Green Bay, Wis.	1200
VOKW	St. John's, N. F.	1085	WCSC	Charleston, S. C.	1360	WHDF	Calumet, Mich.	1370
VONF	St. John's, N. F.	1195	WCSH	Portland, Me.	940	WHDH	Boston, Mass.	830
VOWR	St. John's, N. F.	700	WDAE	Tampa, Fla.	1220	WHDL	Tupper Lake, N. Y.	1420
VQ7LO	Nairobi, Ken.	750	WDAF	Kansas City, Mo.	610	WHEB	Portsmouth, N. H.	740
VUB	Bombay, In.	840	WDAG	Amarillo, Texas	1410	WHEC	Rochester, N. Y.	1430
VUC	Calcutta, In.	810	WDAH	El Paso, Texas	1310	WHEF	Kosciusko, Miss.	1500
VUL	Lahore, In.	1200	WDAS	Philadelphia, Pa.	1370	WHET	Dothan, Ala.	1370
VUM	Madras, In.	770	WDAY	Fargo, N. D.	940	WHFC	Cicero, Ill.	1420
WAAB	Boston, Mass.	1410	WDBJ	Roanoke, Va.	930	WHIS	Bluefield, W. Va.	1410
WAAF	Chicago, Ill.	920	WDBO	Orlando, Fla.	580	WHK	Cleveland, Ohio	1390
WAAT	Jersey City, N. J.	940	WDEL	Wilmington, Del.	1120	WHN	New York, N. Y.	1010
WAAW	Omaha, Neb.	660	WDEV	Waterbury, Vt.	550	WHO	Des Moines, Iowa	1000

WHOM	Jersey City, N. J.	1450
WHP	Harrisburg, Pa.	1430
WIBA	Madison, Wis.	1280
WIBG	Glenside, Pa.	970
WIBM	Jackson, Mich.	1370
WIBU	Poynette, Wis.	1210
WIBW	Topeka, Kans.	580
WIBX	Utica, N. Y.	1200
WICC	Bridgeport, Conn.	600
WIL	St. Louis, Mo.	1200
WILL	Urbana, Ill.	890
WILM	Wilmington, Del.	1420
WIND	Gary, Ind.	560
WINS	New York, N. Y.	1180
WIOD	Miami, Fla.	1300
WIP	Philadelphia, Pa.	610
WIS	Columbia, S. C.	1010
WISN	Milwaukee, Wis.	1120
WJAC	Johnstown, Pa.	1310
WJAG	Norfolk, Neb.	1060
WJAR	Providence, R. I.	890
WJAS	Pittsburgh, Pa.	1290
WJAX	Jacksonville, Fla.	900
WJAY	Cleveland, Ohio	610
WJBC	LaSalle, Ill.	1200
WJBI	Red Bank, N. J.	1210
WJBK	Detroit, Mich.	1500
WJBL	Decatur, Ill.	1200
WJBO	Baton Rouge, La.	1420
WJBW	New Orleans, La.	1200
WJBY	Gadsden, Ala.	1210
WJDX	Jackson, Miss.	1270
WJEJ	Hagerstown, Md.	1210
WJEM	Tupelo, Miss.	990
WJIM	Lansing, Mich.	1210
WJJD	Chicago, Ill.	1130
WJMS	Ironwood, Mich.	1420
WJR	Detroit, Mich.	750
WJSV	Washington, D. C.	1460
WJTL	Atlanta, Ga.	1370
WJW	Akron, Ohio	1210
WJZ	New York, N. Y.	760
WKAQ	San Juan, P. R.	1240
WKAR	East Lansing, Mich.	1040
WKBB	East Dubuque, Ill.	1500
WKBF	Indianapolis, Ind.	1400
WKBH	LaCrosse, Wis.	1380
WKBI	Cicero, Ill.	1420
WKBN	Youngstown, Ohio	570
WKBO	Harrisburg, Pa.	1200
WKBV	Richmond, Ind.	1500
WKBW	Buffalo, N. Y.	1480
WKBZ	Ludington, Mich.	1500
WKEU	LaGrange, Ga.	1500
WKFI	Greenwood, Miss.	1210
WKJC	Lancaster, Pa.	1200
WKOK	Sunbury, Pa.	1210
WKRC	Cincinnati, Ohio	550
WKY	Oklahoma City, Okla.	900
WKZO	Kalamazoo, Mich.	590
WLAC	Nashville, Tenn.	1470
WLAP	Lexington, Ky.	1420
WLB	Minneapolis, Minn.	1250
WLBC	Muncie, Ind.	1310
WLBF	Kansas City, Kans.	1420
WLBL	Stevens Point, Wis.	900
WLBW	Erie, Pa.	1260
WLBZ	Bangor, Me.	620
WLEU	Erie, Pa.	1420
WLEY	Lexington, Mass.	1370
WLIT	Philadelphia, Pa.	560
WLNH	Laconia, N. H.	1310
WLS	Chicago, Ill.	870
WLTH	Brooklyn, N. Y.	1400
WLVA	Lynchburg, Va.	1370
WLW	Cincinnati, Ohio	700
WLWL	New York, N. Y.	1100
WMAL	Washington, D. C.	630
WMAQ	Chicago, Ill.	670
WMAS	Springfield, Mass.	1420
WMAZ	Macon, Ga.	1180
WMBC	Detroit, Mich.	1420
WMBD	Peoria, Ill.	1440
WMBG	Richmond, Va.	1210
WMBH	Joplin, Mo.	1420
WMBI	Chicago, Ill.	1080
WMBO	Auburn, N. Y.	1310
WMBQ	Brooklyn, N. Y.	1500
WMBR	Jacksonville, Fla.	1370
WMC	Memphis, Tenn.	780
WMCA	New York, N. Y	570
WMEX	Chelsea, Mass.	1500
WMMN	Fairmont, W. Va.	890
WMPC	Lapeer, Mich.	1200
WMT	Waterloo, Iowa	600
WNAC	Boston, Mass.	1230
WNAD	Norman, Okla.	1010
WNAX	Yankton, S. D.	570
WNBF	Binghamton, N. Y.	1500
WNBH	New Bedford, Mass.	1310
WNBO	Silver Haven, Pa.	1200
WNBR	Memphis, Tenn.	1430
WNBW	Carbondale, Pa.	1200
WNBX	Springfield, Vt.	1260
WNBZ	Saranac Lake, N. Y.	1290
WNEL	San Juan, P. R.	1290
WNEW	Newark, N. J.	1250
WNOX	Knoxville, Tenn.	560
WNRA	Muscle Shoals, Ala.	1420
WNYC	New York, N. Y.	810
WOAI	San Antonio Texas	1190
WOCL	Jamestown, N. Y.	1210
WOI	Ames, Iowa	640
WOKO	Albany, N. Y.	1430
WOL	Washington, D. C.	1310
WOMT	Manitowoc, Wis.	1210
WOOD	Grand Rapids, Mich.	1270
WOPI	Bristol, Tenn.	1500
WOQ	Kansas City, Mo.	1300
WOR	Newark, N. J.	710
WORC	Worcester, Mass.	1280
WORK	York, Pa.	1060
WOS	Jefferson City, Mo.	630
WOSU	Columbus, Ohio	570
WOV	New York, N. Y.	1130
WOW	Omaha, Neb.	590
WOWO	Fort Wayne, Ind.	1160
WPAD	Paducah, Ky.	1420
WPEN	Philadelphia, Pa.	1500
WPFB	Hattiesburg, Miss.	1370
WPG	Atlantic City, N. J.	1100
WPHR	Petersburg, Va.	1200
WPRO	Providence, R. I.	1210
WPTF	Raleigh, N. C.	680
WQAM	Miami, Fla.	560
WQAN	Scranton, Pa.	880
WQBC	Vicksburg, Miss.	1360
WQDM	St. Albans, Vt.	1370
WQDX	Thomasville, Ga.	1210
WRAK	Williamsport, Pa.	1370
WRAW	Reading, Pa.	1310
WRAX	Philadelphia, Pa.	1020
WRBL	Columbus, Ga.	1200
WRBX	Roanoke, Va.	1410
WRC	Washington, D. C.	950
WRDO	Augusta, Me.	1370
WRDW	Augusta, Ga.	1500
WREC	Memphis, Tenn.	600
WREN	Lawrence, Kans.	1220
WRGA	Rome, Ga.	1500
WRHM	Minneapolis, Minn	1250
WRJN	Racine, Wis.	1370
WROK	Rockford, Ill.	1410
WROL	Knoxville, Tenn.	1310
WRR	Dallas, Texas	1280
WRUF	Gainesville, Fla.	830
WRVA	Richmond, Va.	1110
WSAI	Cincinnati, Ohio	1330
WSAJ	Grove City, Pa.	1310
WSAN	Allentown, Pa.	1440
WSAR	Fall River, Mass.	1450
WSAZ	Huntington, W. Va.	1190
WSB	Atlanta, Ga.	740
WSBC	Chicago, Ill.	1210
WSBT	South Bend, Ind.	1230
WSEN	Columbus, Ohio	1210
WSFA	Montgomery, Ala.	1410
WSGN	Birmingham, Ala.	1310
WSIX	Springfield, Tenn.	1210
WSJS	Winston-Salem, N. C.	1310
WSM	Nashville, Tenn.	650
WSMB	New Orleans, La.	1320
WSMK	Dayton, Ohio	1380
WSOC	Charlotte, N. C.	1210
WSPA	Spartanburg, S. C.	1420
WSPD	Toledo, Ohio	1340
WSUI	Iowa City, Iowa	880
WSUN	St. Petersburg, Fla.	620
WSVS	Buffalo, N. Y.	1370
WSYB	Rutland, Vt.	1500
WSYR	Syracuse, N. Y.	570
WTAD	Quincy, Ill.	1440
WTAG	Worcester, Mass.	580
WTAM	Cleveland, Ohio	1070
WTAQ	Eau Claire, Wis.	1330
WTAR	Norfolk, Va.	780
WTAW	College Station, Texas	1120
WTAX	Springfield, Ill.	1210
WTBO	Cumberland, Md.	1420
WTEL	Philadelphia, Pa.	1310
WTFI	Athens, Ga.	1460
WTIC	Hartford, Conn.	1040
WTJS	Jackson, Tenn.	1310
WTMJ	Milwaukee, Wis.	620
WTNJ	Trenton, N. J.	1280
WTOC	Savannah, Ga.	1260
WTRC	Elkhart, Ind.	1310
WVFW	Brooklyn, N. Y.	1400
WWAE	Hammond, Ind.	1200
WWJ	Detroit, Mich.	920
WWL	New Orleans, La.	850
WWNC	Asheville, N. C.	570
WWRL	Woodside, N. Y.	1500
WWSW	Pittsburgh, Pa.	1500
WWVA	Wheeling, W. Va.	1160
WXYZ	Detroit, Mich.	1240
XEA	Guadalajara, Jal.	1200
XEAB	Nuevo Laredo, Tams.	1210
XEAC	San Luis Potosi, S.L.P.	1295
XEAE	Tijuana, L. C.	980
XEAF	Nogales, Son.	1080
XEAI	Mexico City, D. F.	1420
XEAL	Mexico City, D. F.	660
XEAO	Mexicali, L. C.	660
XEAW	Reynosa, Tams.	950
XEAZ	Leon, Guan.	1420
XEB	Mexico City, D. F.	1010
XEBC	Agua Caliente, L. C.	1280
XEC	Toluca, D. F.	1200
XECW	Mexico City, D. F.	1310
XED	Guadalajara, Jal.	1150
XEE	Durango, Dgo.	1210
XEFA	Mexico City, D. F.	1180
XEFB	Monterrey, N. L.	1420
XEFC	Merida, Yuc.	1310
XEFE	Laredo, Tams.	1370
XEFG	Mexico City	1040
XEFI	Chihuahua, Chih.	720
XEFJ	Monterrey, N. L.	1 210
XEFO	Mexico City, D. F.	940
XEFV	Juarez, Chih.	1210
XEFW	Tampico, Tams.	1310
XEFZ	Mexico City, D. F.	1370
XEH	Monterrey, N. L.	1130
XEI	Morelia, Mch.	1310
XEJ	Juarez, Chih.	1029
XEK	Mexico City, D. F.	1120
XEL	Saltillo, Coah.	1370

XEMA	Tampico, Tams.	1200	YN	Lyons, F	648	3DB	Melbourne, Ausl.	1180
XEMC	Merida, Yuc.	750	YNCRG	Granada, Venz.	870	3GL	Geelong, Ausl.	1400
XEMO	Tijuana, L. C.	860	YV1BC	Caracas, Venz.	960	3HA	Hamilton, Ausl.	1010
XEMZ	Tijuana, L. C.	1210	YV2BC	Caracas, Venz.	882	3HS	Horsham, Ausl.	1370
XEN	Mexico City, D. F.	710	YV3BC	Caracas, Venz.	1200	3KZ	Melbourne, Ausl.	1350
XENT	Nuevo Laredo, Tams.	1340	YV17BMO	Maracaibo, Venz.	1153	3LO	Melbourne, Ausl.	800
XEOK	Tijuana, B. C.	920	ZBW	Hongkong, Chn.	845	3MA	Mildura, Ausl.	900
XEOX	Saltillo, Coah.	640	Z1LY	Hoten, Mnch.	900	3SH	Swan Hill, Ausl.	1080
XEP	Mexico City, D. F.	970	ZP1	Asuncion, Par.	1135	3TR	Sale, Ausl.	1280
XEPN	Piedras Negras, Coah.	590	ZP3	Asuncion, Par.	1000	3UZ	Melbourne, Ausl.	930
XEPR	Mexico City, D. F.	740	ZP4	Asuncion, Par.	1275	3WR	Wangaratta, Ausl.	1260
XES	Tampico, Tams.	970	ZP5	Asuncion, Par.	1465	3YA	Christchurch, N. Z.	720
XET	Monterrey, N. L.	690	ZTB	Bloemfontaine, S. Af.	589	3YB	Melbourne, Ausl.	1145
XETB	Torreon, Coah.	1310	ZTC	Cape Town, S. Af.	810	3YL	Christchurch, N. Z.	1200
XETH	Puebla, Pue.	1210	ZTD	Durban, S. Af.	723	3ZE	Greymouth, N. Z.	1300
XETU	Pachuca, Hdgo.	890	ZTJ	Johannesburg, S. Af.	667	3ZM	Christchurch, N. Z.	1450
XETW	Mexico City, D. F.	820	ZTP	Pretoria, S. Af.	985	3ZR	Greymouth, N. Z.	940
XETZ	Mexico City	850	1YA	Auckland, N. Z.	650	4BC	Brisbane, Ausl.	1145
XEU	Veracruz, Ver.	1200	1ZB	Auckland, N. Z.	1190	4BH	Brisbane, Ausl.	1380
XEW	Mexico City, D. F.	890	1ZH	Hamilton, N. Z.	770	4BK	Brisbane, Ausl.	1290
XEWZ	Mexico City, D. F.	1200	1ZJ	Auckland, N. Z.	1310	4GR	Toowoomba, Ausl.	1000
XEX	Mexico City, D. F.	1310	1ZM	Manurewa, N. Z.	1260	4MB	Maryborough, Ausl.	1060
XEY	Merida, Yuc.	1200	1ZR	Auckland, N. Z.	880	4MK	Mackay, Ausl.	1190
XEYZ	Mexico City, D. F.	780	1ZS	Auckland, N. Z.	1420	4QG	Brisbane, Ausl.	780
XEZ	Merida, Yuc	630	2AY	Albury, Ausl.	1500	4RK	Rockhampton, Ausl.	910
XEZZ	San Luis Potosi	1370	2BL	Sydney, Ausl.	855	4RO	Rockhampton, Ausl.	1330
XFA	Aguascalientes	1310	2CA	Canberra, Ausl.	1050	4TO	Townsville, Ausl.	1170
XFB	Jalapa, Ver.	1290	2CH	Sydney, Ausl.	1210	4YA	Dunedin, N. Z.	790
XFC	Aguascalientes, Ags.	810	2CO	Corowa, Ausl.	560	4ZB	Dunedin, N. Z.	1050
XFD	Orizaba, Ver.	1240	2FC	Sydney, Ausl.	665	4ZC	Cromwell, N. Z.	1280
XFG	Mexico City, D. F.	838.3	2GB	Sydney, Ausl.	950	4ZF	Dunedin, N. Z.	1220
XFO	Mexico City, D. F.	840	2GF	Grafton, Ausl.	1220	4ZL	Dunedin, N. Z.	1220
XFX	Mexico City, D. F.	610	2GN	Goulburn, Ausl.	1390	4ZM	Dunedin, N. Z.	1050
XGCU	Shanghai, Chn.	1140	2HD	Newcastle, Ausl.	1110	4ZO	Dunedin, N. Z.	1050
XGLS	Soochow, Chn.	1230	2KO	Newcastle, Ausl.	1415	4ZP	Invercargill, N. Z.	620
XGOA	Nanking, Chn.	660	2KY	Sydney, Ausl.	1070	4ZR	Balclutha, N. Z.	1340
XGOB	Lo Yang, Chn.	1090	2MO	Gunnedah, Ausl.	1320	4ZW	Dunedin, N. Z.	1470
XGOD	Hangchow, Chn	977.5	2NC	Newcastle, Ausl.	1248	5AD	Adelaide, Ausl.	1310
XGOY	Yunnan, Chn.	698	2RN	Dublin, I. F. S.	1348	5CK	Crystal Brook, Ausl.	635
XHHE	Shanghai, Chn.	840	2SM	Sydney, Ausl.	1270	5CL	Adelaide, Ausl.	730
XHHF	Shanghai, Chn.	960	2UE	Sydney, Ausl.	1026	5DN	Adelaide, Ausl.	960
XHHG	Shanghai, Chn.	1020	2UW	Sydney, Ausl.	1125	5KA	Adelaide, Ausl.	1200
XHHH	Shanghai, Chn.	1040	2WG	Wagga, Ausl.	1155	5PI	Port Pirie, Ausl.	1041
XHHI	Shanghai, Chn.	900	2WL	Wollongong, Ausl.	1435	6BY	Bunbury, Ausl.	980
XHHK	Shanghai, Chn.	1420	2XN	Lismore, Ausl.	1340	6CK	Cork, I. F. S.	1240
XHHM	Shanghai, Chn.	1180	2YA	Wellington, N. Z.	570	6IX	Perth, Ausl.	1480
XHHN	Shanghai, Chn.	1200	2YB	New Plymouth, N. Z.	750	6KG	Kalgoorlie, Ausl.	1220
XHHS	Shanghai, Chn.	1100	2YC	Wellington, N. Z.	840	6ML	Perth, Ausl.	1135
XHHU	Shanghai, Chn.	1160	2ZD	Masterton, N. Z.	1170	6PR	Perth, Ausl.	880
XHHV	Shanghai, Chn.	880	2ZF	Palmerston, N. N. Z.	960	6WF	Perth, Ausl.	890
XHHX	Shanghai, Chn.	920	2ZH	Napier, N. Z.	820	7HO	Hobart, Ausl.	890
XMHA	Shanghai, Chn.	600	2ZJ	Gisborne, N. Z.	980	7LA	Launceston, Ausl.	1100
XNPP	Peiping, Chn.	937	2ZL	Hastings, N. Z.	1240	7UV	Ulverstone, Ausl.	1460
XOPP	Peiping, Chn.	952.3	2ZM	Gisborne, N. Z.	1150	7ZL	Hobart, Ausl.	580
XOST	Tsinan, Chn.	857.1	2ZO	Palmerston, N. N. Z.	1400	10-AK	Stratford, Ont.	1200
XOTN	Tientsin, Chn.	625	2ZP	Wairoa, N. Z.	900	10-BP	Wingham, Ont.	1200
XQHA	Shanghai, Chn.	850	2ZR	Nelson, N. Z.	1110	10-BQ	Brantford, Ont.	1200
XQHB	Shanghia, Chn.	820	3AK	Melbourne, Ausl.	1470	10-BU	Canora, Sask.	1200
XQHC	Shanghai, Chn.	1270	3AR	Melbourne, Ausl.	610			
XQHD	Shanghai, Chn.	1360	3AW	Melbourne, Ausl.	1425			
XQHT	Shanghai, Chn.	1460	3BA	Ballarat, Ausl.	1308			
YLZ	Riga, Lat.	583	3BO	Bendigo, Ausl.	970			

Jack Benny's easy manner on the air conveys no hint to listeners of the mental distress he suffers just before a broadcast. The NBC comedian goes in for floor-pacing and finger-nail biting a few minutes before time to go on the air. But once the microphone is his, all trace of nervousness vanishes.

George M. Cohan, who at 56 is scoring the greatest triumphs of his triumphant career, has produced forty plays of his own, collaborated on as many more and has written two hundred songs. His tremendous success as a Gulf Headliner on NBC is but another evidence of his amazing adaptability.

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
	DJB W1XAZ W3XAL W3XAU W4XB W8XK W9XF	DJB VK2ME W1XAZ W9XF	DJB VK2ME	RV15 VQ7LO	PK1WK RV15	HVJ J1AA RNE RV15 VK2ME VK3ME PK1WK VQ7LO	GSF GSG HSJ RV15 VK2ME VK3ME W1XAZ ZGE ZHI	GSF GSG PHI Rabat RV15 VK2ME W1XAZ ZGE	DJA DJB GSE GSF GSG PHI Pont. Rabat VE9GW VK2ME W1XAZ W3XAL	DJA DJB GSE GSF PHI Pont. VE9GW VK2ME W1XAZ W3XAL	CT1AA CP5 DJA DJB GSE GSF Pont. VE9GW W1XAL W1XAZ W8XK W3XAL	GSB GSE VE9GW W1XAL W2XE W3XAL W3XL W8XK W9XAA

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
	GSB GSE I2RO Pont. VE9GW W1XAL W2XE W3XAL W3XAU W3XL W8XK W9XAA	GSD GSF I2RO Pont. VE9GW W1XAZ W3XAL W3XAU W3XL W8XK W9XAA	GSD GSF I2RO OXY Rabat VE9GW W1XAZ W3XAU W3XL W8XK W9XF	GSB GSD I2RO OXY Pont. Rabat RV59 VE9GW W2XE W3XAU W3XL W8XK	CT1AA GSB GSD I2RO OXY Pont. Rabat RV59 VE9GW W2XAD W2XE W3XAU W3XL W8XK W9XF YV3BC	CT1AA DJA EAQ GSB GSD HBL HBP HC2RL HIZ I2RO OXY Pont. RV59 VE9GW VE9HX W1XAL W3XAL W3XAU W8XK W9XF YV1BC YV3BC	COC CP5 CT1AA DJA EAQ GSC GSD HBL HBP HC2RL HJ1ABB OXY Pont. VE9GW VE9HX W1XAL W1XAZ W2XE W3XAL W8XK W9XF XETE YV1BC YV3BC	COC CP5 DJA GSC GSD HC2RL HJ1ABB HJ4ABE PSK Pont. VE9GW VE9HX W1XAL W1XAZ W2XAF W2XE W3XAL W3XAU W8XK XETE YV1BC YV3BC	DJC DJD G6RX HCJB HIX HJ1ABB 4ABE LSX VE9CS VE9GW VE9HX W1XAL W2XAF W2XE W3XAL W3XAU W8XK XETE YV1BC YV3BC	CP5 DJC DJD HC2RL HJ1ABB HJ3ABD PRADO VE9CS VE9GW VE9HX W1XAL W2XAF W2XE W3XAL W3XAU W8XK W9XF XETE YV1BC YV3BC	CP5 DJC DJD HC2RL PRADO VE9DN VE9GW VE9HX W1XAL W1XAZ W2XAF W2XE W3XAL W3XAU W8XK W9XF XETE	CP5 VE9DN W1XAZ W3XAL W3XAU W8XK W9XF XETE

One Hundred Best S.W. Stations by Calls

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
CNR, Morocco, 12.820
COC, Cuba, 5.996. 4-6 p.m.
CP5, Bolivia, 15.300. 9-11 a.m.
CP5, Bolivia, 6.081. 6:30 to 7:30 or 8 p.m., daily, exc. Sun.; 9-11:30 p.m. daily
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. 8-11 a.m.; 5-7:30 p.m.
DJB, Germany, 15.190. 8-11 a.m.; 12:35-2 a.m.
DJC, Germany, 6.017. 12:50-4:30 p.m.; 8-11 p.m.
DJD, Germany, 11.753. 12:50-4:30 p.m.; 8-11 p.m.
DJL, Germany, 15.110
EAQ, Spain, 9.862. 5:30-7 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
GSB, England, 9.510. 11 a.m. to 12:45 p.m.; 3-5:30 p.m.
GSC, England, 9.585. 6-8 p.m.
GSD, England, 11.750. 1-5:30 p.m.; 6-8 p.m.
GSE, England, 11.865. 8:45 a.m. to 12:45 p.m.
GSF, England, 15.140. 6-8:30 a.m.; 8:45-11 a.m.; 1-3 p.m.
GSG, England, 17.770. 6-8:30 a.m.
G6RX, England, 4.972. Testing nights
4.302. 8-10 p.m.
HBL, Switzerland, 9.580. Sat., 5:30 to 6:15 p.m.
HBP, Switzerland, 7.872. Sat., 5:30 to 6 15 p.m.
HC2RL, Ecuador, 6.659. Tues., 9:14 to 11:14 p.m.; Sun., 5:45 to 7:45 p.m.
HCJB, 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
*HJY, Colombia, 18.444
HJ1ABB, Colombia, 6.447. 7:30-10 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, 5.900. 7-11 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.-12:30 p.m ; 1:15-6 p.m
J1AA, Japan, 9.862. 5 to 8 a.m.
KAY, Philippines, 14.980
KAZ, Philippines, 9.990
*KKP, Hawaii, 16.024
LSN, Argentina, 9.895
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.
PK1WK, Java, 6.116. 4:15-6 a.m.
PLE, Java, 18.820
PLV, Java, 9.410
Pontoise, France, 15.234. 8-11 a.m.
11.898. 11:15 a.m. to 2:15 p.m.; 3 to 8 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.
Radio-Tananarive, Madagascar, 6.00. 2:30-4 a.m.; Sun., 3-3:45 a.m., daily exc. Sun and Mon.
RNE, USSR., 11.923. Testing irregularly
RV15, Siberia, 4.273. 3-9 a.m., daily
RV59, USSR., 5.996. 3-6 p.m., daily
TGA, Guatemala, 14.545
TIN-TIU, Costa Rica, 14.545
VE9BJ, Canada, 6.090. Irreg.
VE9CA, Canada, 6.030
VE9CS, Canada, 6.074. 8-10 p.m.
VE9DN, Canada, 6.005. Testing irreg.
VE9GW, Canada, 6.092. 3 p.m.-midnight
VE9HX, Canada, 6.110. 5-11 p.m., daily
VK2ME, Australia, 10.520.
9.585. Sun., 1 to 3 a.m.; 5 to 11 a.m
VK3LR, Australia, 9.580. Daily, exc. Sun., 3-5:30 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.
W1XAZ, USA, 9.570
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. 9 a.m.-3 p.m., except Sat.
6.096. 3 p.m., to midnight, Saturday
W3XAU, U. S. A., 9.585. Noon to 6 p.m.
6.057. 8 p.m. to 1 a.m.
W3XL, U. S. A., 6.421. Irregular
W4XB, U. S. A., 6.040. 4 p.m. to 1 a.m.
W8XAL, U. S. A., 6.060. Relay WLW irreg.
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., 6.425
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
XETE, Mexico, 9.600. 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.
YV3BC, Venezuela, 9.510. 9:30 to 10 p.m.
6.150. 10:30 a.m. to 1 p.m. and 4:30-9:30 p.m.; Sun., 8:30 a.m. to noon and 3-6:30 p.m.
*ZFA, Bermuda, 5.045
*ZFB, Bermuda, 10.060
ZFS, Bahamas, 4.513
ZGE, Malaya, 5.996. Tues., Fri., 6:30-8:30 a.m. and Sun. 7-9 a.m.

TWO HUNDRED DEPENDABLE S. W. STATIONS

Frequencies are shown in megacycles and wavelengths in meters. Key to symbols in parentheses: Capital letters indicate type of service, as follows:

A—Point-to-Point, Condition A, inverted modulation
B—Point-to-Point, Condition B, Intelligible speech
E—Experimental
R—Relay (broadcasting)
SS—Ship to shore, or, shore to ship

Small letters concern verifications as follows:
a—Verifies for return postage
b—Verifies only occasionally
c—Does not verify
x—Address given alphabetically in address list
y—Address not given
z—No information available
123—figures indicate key numbers in address list

Megs.	Meters	Location
4.107	73.00	HCJB, Quito, Ecuador (R-ax)
4.273	70.65	RV15, Khabarovsk, USSR (R-cy)
4.320	69.40	G6RX, Rugby, England (E-ax)
4.348	68.96	CGA9, Drummondville, P. Q. (B-c-6)
4.465	67.14	CFA2, Drummondville, P. Q. (B-b-6)
4.753	63.08	WOO, Ocean Gate, N. J. (SS-cy)
4.755	63.05	CFU, Rossland, B. C. (B-z)
4.785	66.66	CZA, Drummondville, P. Q. (SS-c-6)
4.972	60.30	G6RX, Rugby, England (E-ax)
5.045	59.42	ZFA, St. George, Bermuda (A-cy)
5.660	51.21	CFU, Rossland, B. C. (B-z)
5.825	51.47	HJA2, Bogota, Colombia (B-cy)
5.900	50.82	CMBI, Havana, Cuba (B-a-3)
5.900	50.82	HJ4ABE, Medellin, Colombia (R-ax)
5.948	50.40	HIX, Santo Domingo, D. R. (R-ax)
5.996	50.00	RV59, Moscow, USSR (R-ax)
		Tananarive, Madagascar (R-ax)
6.000	49.97	YV2BC, Caracas, Venez. (R-z)
6.005	49.93	VE9DN, Drummondville, P. Q. (R-a6)
6.017	49.83	DJC, Zeesen, Germany (R-a14)
6.040	49.64	W4XB, Miami, Fla. (R-cy)
6.045	49.60	HJ3ABI, Bogota, Colombia (R-ax)
6.050	49.56	GSA, Daventry, Eng. (R-a17)
6.060	49.48	W3XAU, Newtown Sq., Pa. (R-ax)
		W8XAL, Mason, Ohio (R-ax)
6.069	49.40	OXY, Skamlebaek, Denmark (R-ax)
6.070	49.39	VE9CS, Vancouver, B. C. (R-bx)
		YV5BMO, Maracaibo, Venez. (R-z)
6.080	49.31	W9XAA, Chicago, Ill. (R-ax)
6.081	49.30	CP5, LaPaz, Bolivia (R-ax)
6.095	49.19	VE9GW, Bowmanville, Ont. (R-ax)
6.100	49.15	W3XAL, Boundbrook, N. J. (R-a37)
		W9XF, Chicago, Ill. (R-ax)
6.110	49.07	VE9HX, Halifax, N. S. (R-ax)
6.112	49.10	YV1BC, Caracas, Venez. (R-ax)
6.116	49.02	HJ1ABD, Cartagena, Col. (R-z)
		PK1WK, Bandoeng, Java (R-ax)
6.120	48.99	W2XE, Wayne, N. J. (R-ax)
6.140	48.83	W8XK, Saxonburg, Pa. (R-ax)
6.150	48.78	YV3BC, Caracas, Venz. (R-ax)
6.150	48.75	CJRO, Winnipeg, Man. (R-z-33)
6.378	47.00	HJ5ABB, Cali, Colombia (R-by)
6.379	47.50	HIZ, Santo Domingo, D. R. (R-ax)
6.425	46.66	W3XL, Boundbrook, N. J. (ER-a37)
6.447	46.50	HJ1ABB, Barranquilla, Col. (R-ax)
6.618	45.31	PRADO, Riobamba, Ecuador (R-ax)
6.648	45.10	IAC, Coltano, Italy (SS-a19)
6.659	45.02	HC2RL, Guyaquil, Ecuador (R-ax)
6.672	44.94	YVQ, Maracay, Venez. (B-cy)
6.675	44.91	DGK, Nauen, Germany (B-a13)
6.900	43.45	GDS, Rugby, England (A-a16)
6.966	43.04	EDO, Madrid, Spain (B-a28)
6.990	42.89	LCL, Jeloy, Norway (R-ax)
7.138	42.00	HJ4ABB, Manizales, Col. (R-ax)
		HKN, Medellin, Colombia (R-by)
7.220	43.86	HAT2, Budapest, Hungary (R-az)
7.402	40.50	HJ3ABB, Bogota, Col. (R-by)
		HJ3ABD, Bogota, Col. (R-z)
7.501	39.97	RKI, Moscow, USSR (B-cz)
7.621	39.34	RIM, Irkutsk, USSR (B-cz)
7.785	39.01	TIR, Cartago, Costa Rica (B-b-9)
7.797	38.47	HBP, Prangins, Switz. (R-b-30)
7.980	37.57	HSJ, Bangkok, Siam (B-a-27)
8.180	36.65	PSK, Rio de Janeiro, Braz. (A-b-4)
		PSK, Rio de Janeiro, Braz. (R-a-38)
8.218	36.36	Rabat, Morocco (R-ax)
8.464	35.42	DAF, Norden, Germany (SS-a-15)
8.760	34.34	PNI, Macassar, Celebes (B-z22?)
9.014	33.26	GCS, Rugby, England (A-a-16)
9.104	32.93	LST, Olivos, Argentina (B-b-1)
9.120	32.87	CP5, La Paz, Bolivia (R-ax)
9.580	31.29	VK3LR, Melbourne, Australia (R-ax)
9.585	31.28	GSC, Daventry, England (R-a-17)
		VK2ME, Sydney, Aust. (R-a-3)
9.590	31.26	W3XAU, Newtown Sq., Pa. (R-ax)
9.592	31.25	CT1AA, Lisbon, Portugal (R-ax)
9.595	31.30	HBL, Prangins, Switz. (R-a-30)
9.600	31.23	XETE, Mexico City, D. F. (R-bx)
9.609	31.20	DGU, Nauen, Germany (B-a-13)
9.670	31.00	TI4NRII, Heredia, C. R. (R-ax)
9.702	30.90	GCA, Rugby, England (A-a-16)
9.750	30.75	VK2ME, Sydney, Aust. (B-a-3)
9.798	30.60	GCW, Rugby, England (A-a-16)
9.823	30.52	IRM, Rome, Italy (B-a-20)
9.830	30.50	LSI, Buenos Aires, Arg. (B-b-1)
9.862	30.40	EAQ, Aranjuez, Spain (R-a-29)
		J1AA, Kemikawa-cho, Japan (R-bx)
9.895	30.30	LSN, Buenos Aires, Arg. (A-b-1)
9.942	30.15	GCU, Rugby, England (A-a-16)
10.014	29.84	SUV, Abu Zabal, Egypt (B-a-10)
10.060	29.80	ZFB, St. George, Bermuda (A-cy)
10.163	29.50	German Ships
10.164	29.79	EHY, Madrid, Spain (B-a-28)
10.212	29.35	PSH, Rio de Janeiro, Braz. (B-b-5)
10.250	29.25	PMN, Bandoeng, Java (B-a-22)
10.285	29.15	DIQ, Zeesen, Germany (E-a-13)
10.290	29.14	HPC, Panama City, Pan. (B-cy)
10.296	29.12	LSL, Hurlingham, Arg. (B-b-1)
10.335	29.01	ZFD, St. George, Bermuda (A-cy)
10.350	28.98	LSX, Monte Grande, Arg. (B-cy)
		LSX, Monte Grande, Arg. (R-b-2)
10.410	28.80	YBG, Medan, Sumatra (B-ay)
10.520	28.50	VK2ME, Sydney, Aust. (B-a-3)
10.613	28.25	EDN, Madrid, Spain (B-a-28)
		EDX, Madrid, Spain (B-a-28)
10.850	27.63	DFL, Nauen, Germany (B-a-13)
10.990	27.28	ZLT, Wellington, N. Z. (A-ax)
11.187	26.80	XAM, Merida, Yuc. (B-ax)
11.680	25.67	YVQ, Maracay, Venez. (B-cy)
11.711	25.60	Pontoise, France (B-ax)
11.720	25.58	CJRX, Winnipeg, Man. (R-z-33)
11.725	25.57	PHI, Huizen, Holland (R-ax)
11.750	25.51	GSD, Daventry, England (R-a-17)
11.760	25.50	XDM-XDS, Chapultepec, D. F. (B-cy)
11.780	25.45	W1XAL, Boston, Mass. (R-ax)
11.800	25.40	I2RO, Rome, Italy (R-bx)
11.830	25.34	W2XE, Wayne, N. J. (R-ax)
11.865	25.27	GSE, Daventry, Eng. (R-a-17)
11.870	25.25	W8XK, Saxonburg, Pa. (R-ax)
11.898	25.20	Pontoise, France (R-ax)
11.923	25.16	RNE, Moscow, USSR. (E-ax)
11.935	25.12	FTA, St. Assise, France (B-a-11)
11.983	25.02	FZS, Saigon, Indo-China (B-a-12)
12.148	24.68	GBS, Rugby, England (A-a-16)
12.241	24.41	GBU, Rugby, England (A-a-16)
12.394	24.19	DAF, Norden, Germany (SS-a-15)
12.780	23.46	GBC, Rugby, England (SS-a-16)
12.785	23.45	IAC, Coltano, Italy (SS-a-19)
12.820	23.38	CNR, Rabat, Morocco (B-ax)
		Rabat, Morocco (R-ax)
12.830	23.36	HJA3, Barranquilla, Col. (B-cz)
13.135	23.00	German Ships
13.220	22.68	British Ships
13.337	22.48	YVQ, Maracay, Venez. (B-cy)
13.500	22.09	GBB, Rugby, England (A-a-16)
13.671	21.93	HAS, Budapest, Hungary (R-az)
14.450	20.75	GBW, Rugby, England (A-a-16)
14.480	20.70	YNA, Managua, Nicaragua (B-cy)
14.545	20.69	HPF, Panama City, Pan. (B-cy)
		TGF, Guatemala City, Guat. (B-by)
		TIN-TIU, Cartago, C. R. (B-b-9)
14.682	20.42	PSF, Rio de Janeiro, Braz. (A-b-4)
14.930	20.08	HJB, Bogota, Colombia (B-cy)
14.969	20.03	EDQ, Madrid, Spain (B-a-28)

15.110	19.84	DJL, Zeesen, Germany (R-a-14)
15.120	19.83	HVJ, Vatican City (R-ax)
15.140	19.81	GSF, Daventry, Eng. (R-a-17)
15.190	19.73	DJB, Zeesen, Germany (R-a-14)
15.210	19.71	W8XK, Saxonburg, Pa. (R-ax)
15.234	19.68	Pontoise, France (R-ax)
15.242	19.67	W1XAL, Boston, Mass. (R-ax)
15.280	19.62	W2XE, Wayne, N. J. (R-ax)
15.300	19.70	CP5, La Paz, Bolivia (R-ax)
15.310	19.55	W2XAD, Schenectady, N. Y. (R-ax)
15.350	19.53	CT1AA, Lisbon, Portugal (R-ax)
15.454	19.40	Pontoise, France (R-ax)
15.863	18.90	FTK, St. Assise, France (B-a-11)
17.287	17.34	Italian Ships
17.300	17.33	W3XL, Boundbrook, N. J. (E-a-37)
17.512	17.12	DFB, Nauen, Germany (B-a-13)
17.533	17.10	VWZ, Kirkee, India (B-z)
17.580	17.05	British Ships
17.719	16.92	HSP, Bangkok, Siam (B-a-27)
17.760	16.88	DJE, Zeesen, Germany (E-a-14)
17.770	16.87	IAC, Coltano, Italy (SS-b-19)
17.775	16.87	PHI, Huizen, Holland (R-ax)
17.780	16.86	W3XAL, Boundbrook, N. J. (R-a-37)
17.790	16.85	GSG, Daventry, Eng. (R-a-17)
18.116	16.55	LSY, Buenos Aires, Arg. (E-b-2)
18.170	16.50	PMC, Bandoeng, Java (B-a-22)
18.237	16.44	FTE, St. Assise, France (B-a-11)
18.296	16.39	YVR, Maracay, Venez. (B-cy)
18.304	16.38	GAS, Rugby, Eng. (A-a-16)
18.400	16.29	PCK, Kootwijk, Holland (B-cy)
18.444	16.25	HJY, Bogota, Colombia (B-cy)
18.611	16.11	GAU, Rugby, Eng. (A-a-16)
18.670	16.06	OCI, Valverde, Peru (B-cy)
18.820	15.93	PLE, Bandoeng, Java (E-a-22)
18.856	15.90	ZSS, Klipheubel, South Afr. (A-z)
18.963	15.81	GAG, Rugby, England (A-a-16)
19.121	15.68	LSM, Hurlingham, Arg. (B-b-1)
19.240	15.58	DFA, Nauen, Germany (B-a-13)
19.270	15.57	PPU, Rio de Janeiro, Braz. (B-a-5)
19.506	15.37	IRW, Rome, Italy (B-2-20)
19.519	15.36	EDX, Madrid, Spain (B-a-28)
19.678	15.24	CEC, La Granja, Chile (B-cy)
19.684	15.23	EAQ, Aranjuez, Spain (B-c-29)
20.368	14.72	GAA, Rugby, Eng. (A-a-16)
21.020	14.27	LSN, Hurlingham, Arg. (A-b-1)
21.540	13.92	W8XK, Saxonburg, Pa. (R-ax)

For a complete list of the short wave stations of the world, consult the Summer Edition of the *DX Log of the World* now on sale at all newsstands.

* * *

Eddie Cantor, whose contract with Chase & Sanborn still has eight months to run, has already been signed by Lehn & Fink Company for a new series of Sunday night shows for Pebeco toothpaste, beginning in 1935. As it is expected that Chase & Sanborn will stay on one NBC network from 8:00 to 9:00 p. m. EST, and Lehn & Fink want this same hour, it is probable that the new program will go to CBS but time contracts have not been signed as yet.

* * *

A special program for DX fans throughout the world will be broadcast over WABC from 1:00 to 1:30 a. m. EDST Saturday morning, May 26. The program has been arranged in cooperation with the International DXers Alliance and will be dedicated to that organization's world-wide membership.

Charlie Barnet and his orchestra will perform for the DXers from their bandstand in Park Central Hotel, New York. Barnet is probably the youngest prominent band leader in the country, being just twenty.

SHORT WAVE RELAY BROADCASTING STATIONS OF NORTH AMERICA

Arranged Alphabetically by the call letters of the Broadcasting Stations which they relay. The frequencies preceded by an asterisk are not in operation at the present time.

CFBO, St. John, N. B.
VE9BJ, St. John, N. B.
6,090 kcs., 49.23 meters

CFCF, Montreal, P. Q.
VE9DN, Drummondville, P. Q.
*15,130 kcs., 19.82 meters
*11,780 kcs., 25.45 meters
* 9,555 kcs., 31.38 meters
6,005 kcs., 49.93 meters

CFCN, Calgary, Alta.
VE9CA, Calgary, Alta.
*11,860 kcs., 25.28 meters
* 6,030 kcs., 49.72 meters

CFCY, Charlottetown, P. E. I.
VE9EH, Charlottetown, P. E. I.
* 6,080 kcs., 49.31 meters

CHNS, Halifax, N. S.
VE9HX, Halifax, N. S.
*11,835 kcs., 25.33 meters
6,110 kcs., 49.07 meters

CKCL, Toronto, Ont.
VE9AO, Toronto, Ont.

CKFC, Vancouver, B. C.
VE9CS, Vancouver, B. C.
6,070 kcs., 49.39 meters

CKIC, Wolfville, N. S.
VE9CX, Wolfville, N. S.
* 6,015 kcs., 49.85 meters

CRCT, Tortonto, Ont.
VE9GW, Bowmanville, Ont.
*24,380 kcs., 12.30 meters
*11,810 kcs., 25.39 meters
6,095 kcs., 49.19 meters

KDKA, Pittsburgh, Pa.
W8XK, Saxonburg, Pa.
21,540 kcs., 13.92 meters
*17,780 kcs., 16.86 meters
15,210 kcs., 19.71 meters
11,870 kcs., 25.25 meters
* 9,570 kcs., 31.33 meters
6,140 kcs., 48.83 meters

WABC, New York, N. Y.
W2XE, Wayne, N. J.
15,280 kcs., 19.62 meters
11,840 kcs., 25.32 meters
6,120 kcs., 48.99 meters

WBZ, Boston, Mass.
WBZA, Springfield, Mass.
WIXAZ, Millis, Mass.
9,570 kcs., 31.33 meters

WCAU, Philadelphia, Pa.
W3XAU, Newton Square, Pa.
9,590 kcs., 31.26 meters
6,060 kcs., 49.48 meters

WCFL, Chicago, Ill.
W9XAA, Chicago, Ill.
*17,780 kcs., 16.86 meters
*11,840 kcs., 25.32 meters
6,080 kcs., 49.31 meters

WEEI, Boston, Mass.
WIXAL, Boston, Mass.
15,242 kcs., 19.67 meters
11,780 kcs., 25.45 meters

WENR, Chicago, Ill.
W9XF, Downer's Grove, Ill.
6,100 kcs., 49.15 meters

WGY, Schenectady, N. Y.
W2XAD, Schenectady, N. Y.
15,340 kcs., 19.55 meters

WGY, Schenectady, N. Y.
W2XAF, Schenectady, N. Y.
9,530 kcs., 31.46 meters

WIOD, Miami, Fla.
W4XB, Collins Isl., Miami, Fla.
* 6,036 kcs., 49.67 meters

WJZ, New York, N. Y.
W3XAL, Boundbrook, N. J.
17,772 kcs., 16.87 meters
6,100 kcs., 49.15 meters

WJZ, New York, N. Y.
W3XL, Boundbrook, N. J.
6,425 kcs., 46.66 meters

WLW, Cincinnati, Ohio.
W8XAL, Mason, Ohio.
6,060 kcs., 49.48 meters

The CONSENSUS *of* OPINION

"I take five other monthly radio publications but I would give them all for one issue of RADEX. I read every word from cover to cover."

L. N. Henry, 65 Pride Road, Wilkensburg, Pa.

"I feel I must write and tell you how much I look forward to RADEX each month. I find it extraordinarily helpful."

H. M. Campbell, 204 London Rd., Twickenham, Middlesex, England.

"I have been enjoying radio with the help of RADEX for two years and I want to say you have the finest radio magazine on the market."

Donald W. Shields, Box 345, Roseville, Ohio.

"RADEX has been a great help to me and I look forward each month to the interesting articles and information it contains."

Laurence Wolcott, 207 Railroad Ave., California, Mo.

"Your magazine certainly is in a class by itself; I have never been able to find at any price any other which offers such a wealth and variety of information."

Kenneth C. McCartt, 213 State St., Lexington, Ky.

"Without doubt, the best radio magazine on the market today without which, I am sure, I would never have been able to log half the number of stations that I have."

Donald C. Little, 54 Deepdale Dr., Great Neck, L. I.

"I think you have one of the finest magazines I have ever read."

Charlie L. Gochenour, Spray, Oregon.

"What other radio periodical is so attractive outside and in, so human, personal and helpful, so crammed with information of every sort on all phases of radio?"

Gustave Solomon, 404 Bon Accord Block, Winnipeg, Man.

"I read RADEX so much that I can just about recite any issue from cover to cover from memory. Very interesting to say the least."

Clifford Drain, 622 Camden St., Parkersburg, W. Va.

"Whenever your splendid magazine comes, I take about two or three hours out to read and digest it thoroughly. For compactness, helpfulness and versatility, it cannot be approached let alone equalled."

Warren E. Winkley, Hughson, California.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY ACT OF CONGRESS OF AUGUST 24, 1912

Of Radio Index, published monthly except July and August, at Cleveland, Ohio, for April, 1, 1934.

State of Ohio }
County of Cuyahoga } ss.

Before me, a notary public in and for the State and county aforesaid, personally appeared Fred C. Butler, who, having been duly sworn according to law, deposes and says that he is the Editor and Publisher of the Radio Index, and that the following is to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher, Fred C. Butler, Hanna Bldg., Cleveland, O.
Editor, Fred C. Butler, Hanna Bldg., Cleveland, O.
Managing Editor, none.
Business Manager, none.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)
The Radex Press, Inc., Hanna Bldg., Cleveland, O.
Fred C. Butler, Hanna Bldg., Cleveland, O.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is. (This information is required from daily publications only.)

FRED C. BUTLER.

Sworn to and subscribed before me this 3rd day of May, 1934.

(Seal) EDITH C. PHALEN,
Notary Public.

My commission expires May 11, 1935.

QUICK INDEX *to* Station Data

Broadcast Band

Short Waves

Note: The May-June-July issue of the DX Log of the World contains several hundred short wave stations by frequencies and by call letters.

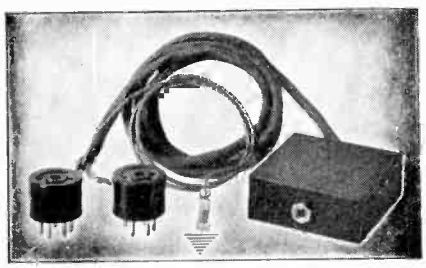
For Summer Reception

USE HEAD PHONES

Loud Speaker volume brings out the static. Use phones and keep the signals above the noise level.

THE PERFECT PHONE ADAPTER

may be used on any receiver without any change in the wiring or in the load or balance of the set. Not necessary to remove and put back tubes. Socket adapters go under the power tubes; the little clip goes to the ground and the Adapter is installed. Pushing in the phone-plug automatically switches the signals from speaker to phones. Pulling it out returns the set to loud speaker operation. The jack-box may be placed in back of set or screwed underneath out of sight and yet convenient for instant use.



PRICES

Perfect Phone Adapter, postpaid	$ 3.95
Adapter with Phones and Plug	5.95
Adapter with 2000-ohm Phones and Plug	6.70
Adapter with Plug and 24000-ohm featherweight phones (made especially for sensitive work)	12.50

With a few circuits, it is necessary to use a small B battery in the ground lead to provide grid bias. There is no drain on the battery and it should last indefinitely.

We now have a model of the Adapter for midget sets which uses the volume of all the tubes. PROVIDED the midget set uses a power tube with five, six or seven prongs. It is not suitable for power tubes with four prongs.

When ordering give make and model of your receiver and number and type of power tubes. It will help us if you can send diagram of your set.

RADIO PARTS CO.

1401 Prospect Ave. CLEVELAND, OHIO

The Perfect Station Finder

For Broadcast, All-Wave and Short-Wave Receivers

This Beat Note Oscillator will bring in every station your receiver is capable of picking up. No missing or skipping of weak signals. Better than a tuning meter—more precise and more sensitive to weak signals.

The Perfect Station Finder requires one Screen Grid Tube (Type 24-A or 36)

PRICE

$8.95

less tube

Requires no change in wiring

As you pass a signal or even a carrier wave, the Station Finder gives a mild whistle. Tune this whistle to its loudest, snap off the switch on the Finder and you have your station at its very peak. On the broadcast band, the Finder will detect the weak signals of far-distant stations. On the short waves, where tuning is extremely critical and where weak signals may easily be passed over, the Finder is invaluable. Even when the station has faded and no signals are audible, the Finder will catch and announce the presence of a wave.

SIMPLE TO INSTALL AND TO OPERATE

The socket adapter goes under one of the power tubes. The little clip goes to the ground. The eyelet at end of wire is slipped over the plate or cathode pin of the last i. f. tube. The tuning dial is turned. The whistle is tuned in. The switch is thrown. The whistle disappears and there is your station.

MODEL A HAS SWITCH ON FINDER AS SHOWN.
MODEL B HAS SWITCH ON END OF FIVE-FOOT CABLE

In ordering give make and model of receiver (superheterodynes only). If possible give the intermediate frequency of your set, the type of power tube and the type of the last i. f. tube (preceding the second detector).

RADIO PARTS CO.

1401 Prospect Ave. CLEVELAND, OHIO