THE OCTOBER, 1934

RADIO INDEX

THE ALL-WAVE RADIO MAGAZINE

25c

A Study of the Short Waves
Sunday's Time on the Air
The A-B-C of the Aerial
The October DX Calendar
with Frequency Checks

No. 82

N. S. E.

THE OCTOBER DX CALENDAR

of frequency checks and special programs for distant listeners arranged by the stations outside of their regular hours. All time is EST so that programs may be arranged in order.

DAILY

12:00-12:05	VAS	685	2000	Glace Bay
12:00-1:00	WFLA	620	1000	Clearwater
	WMC	780	1000	Memphis
12:00-6:00	KFAC	1300	1000	Los Angeles
12:00-8:00	KJBS	1070	100	San Francisco
1:00-7:00	WEDC	1210	100	Chicago
5:30-7:00	WSPA	1420	100	Spartanburg
6:00-7:00	KFBI	1050	5000	Abilene

Sunday Mornings

October 7

1:00-2:00	WWAE	1200	100	Hammond
2:00-3:30	KVOA	1260	500	Tucson
3:00-3:20	KLCN	1290	100	Blytheville
3:30-3:50	KXYZ	1440	250	Houston
3:50-4:10	KTUL	1400	250	Tulsa
4:00-4:20	KPAC	1260	500	Pt. Arthur
4:10-4:30	KGDY	1340	250	Huron
4:20-4:40	KRGV	1260	500	Weslaco
4:50-5:10	KARK	890	250	Little Rock
5:00-5:20	KGKO	570	500	Wichita Falls
5:20-5:40	WNAD	1010	500	Norman
5:40-6:00	KUOA	1260	1000	Fayetteville

October 14

2:00-5:00	VOGY	840	400	St. John's
3:00-4:00	WOS	630	500	Jefferson City

October 28

2:00-3:00	KGEK	1200	100	Yuma, Colo.
2:30-4:30	CKBI	1210	100	Pr. Albert

Oct. 7, 14, 21, 28

1:00-1:15	KOMA	1480	5000	Oklahoma City
3:00-5:00	CKOV	630	100	Kelowna
4:00-5:00	CFJC	880	100	Kamloops

Monday Mornings

October 1

2:00-2:15	WAVE	940	1000	Louisville
2:00-2:20	WCNW	1500	100	Brooklyn
	WJAC	1310	100	Johnstown
2:10-2:30	WFAS	1210	100	White Plains
	WRAK	1370	100	Williamsport
2:20-2:40	WNBF	1500	100	Binghamton
	WCHS	580	500	Charleston
2:30-2:50	WAGM	1420	100	Presque Isle
	WBTM	1370	100	Danville
2:30-3:30	CHWK	780	100	Chilliwack
2:50-3:10	WHDL	1420	100	Tupper Lake
	WHAT	1310	100	Philadelphia
3:00-3:20	WCAX	1200	100	Burlington
	WLVA	1200	100	Lynchburg
3:10-3:30	WSYB	1500	100	Rutland
	WTEL	1310	100	Philadelphia
3:20-3:40	WIBX	1200	100	Utica
3:30-3:50	WQDM	1370	100	St. Albans
	WKOK	1210	100	Sunbury
3:40-4:00	WMBO	1310	100	Auburn
3:45-4:00	KUJ	1370	100	Walla Walla
3:50-4:10	WGLC	1370	100	Hudson Falls
	WBAX	1210	100	Wilkes-Barre
4:00-4:20	WCAD	1220	500	Canton
	KPQ	1500	100	Wenatchee
4:10-4:30	WBBL	1210	100	Richmond
	KGBU	900	500	Ketchikan
4:20-4:40	WNBZ	1290	50	Saranac Lake
	WBRE	1310	100	Wilkes-Barre
	KGVO	1200	100	Missoula
4:30-4:50	WNBO	1200	100	Washington
	KOOS	1200	250	Marshfield
4:40-5:00	WRAW	1310	100	Reading
	KGY	1210	100	Olympia
4:50-5:10	WAAT	940	300	Jersey City
	KRKO	1370	50	Everett
5:00-5:20	WSYR	570	250	Syracuse
	KFXD	1200	100	Nampa
5:10-5:30	KVL	1370	100	Seattle
5:20-5:40	KGEZ	1310	100	Kalispell
5:30-5:50	KUJ	1370	100	Walla Walla
5:40-6:00	KGCX	1310	100	Wolf Point
5:50-6:10	KFQD	780	250	Anchorage
6:00-6:20	KSEI	900	250	Pocatello
6:10-6:30	KVOS	1200	100	Bellingham
6:20-6:40	KIT	1310	100	Yakima
6:30-6:50	KRSC	1120	100	Seattle
6:40-7:00	KXRO	1310	100	Aberdeen
6:50-7:10	KFIO	1120	100	Spokane
7:00-7:20	KFJI	1210	100	Klamath Falls
7:10-7:30	KMED	1310	100	Medford
7:20-7:40	KORE	1420	100	Eugene

October 8

3:00-3:30	KSO	1320	250	Des Moines

October 15

1:00-1:30	WDNC	1500	100	Durham
5:00-5:10	KFNF	890	500	Shenandoah

October 22

2:00-3:00	VE9EK	1195	10	Montmagny

Oct. 1, 8, 15, 22, 29

12:00-3:00	WCNW	1500	100	Brooklyn
12:30-1:00	KDKA	980	50000	Pittsburgh
1:00-2:30	XEX	1310	125	Monterrey
2:30-4:30	CKMO	1410	100	Vancouver
4:30-5:00	WNBO	1200	100	Washington

Tuesday Mornings

October 2

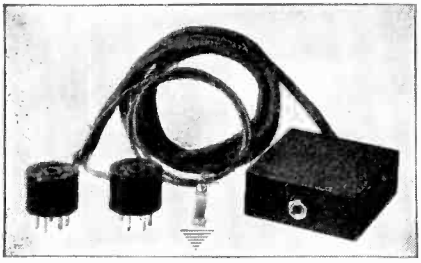
2:00-2:20	WQDX	1210	100	Thomasville
2:10-2:30	WBHS	1200	100	Huntsville
2:20-2:40	WHBQ	1370	100	Memphis
2:30-2:50	WEED	1420	100	Rocky Mount
2:40-3:00	WOPI	1500	100	Bristol
2:50-3:10	WSMB	1320	500	New Orleans
3:00-3:20	WMBR	1370	100	Jacksonville
3:10-3:30	WNRA	1420	100	Muscle Shoals
3:20-3:40	WSJS	1310	100	Winston-Salem
3:30-3:50	WHEF	1500	100	Kosciusko
3:40-4:00	KMLB	1200	100	Monroe
3:50-4:10	WAGF	1370	100	Dothan
4:00-4:20	WKFI	1210	100	Greenwood
	KWG	1200	100	Stockton
4:10-4:30	WTJS	1310	100	Jackson
	KPJM	1500	100	Prescott
4:20-4:40	WPFB	1370	100	Hattiesburg
	KERN	1370	100	Bakersfield
4:30-4:50	WGPC	1420	100	Albany
	KXO	1500	100	El Centro
4:40-5:00	WBNO	1200	100	New Orleans
	KIEM	1210	100	Eureka
4:50-5:10	WROL	1310	100	Knoxville
	KLS	1440	250	Oakland
5:00-5:20	WDNC	1500	100	Durham
	KGIX	1420	100	Las Vegas
5:10-5:30	WJBW	1200	100	New Orleans
	KGMB	1320	250	Honolulu
5:20-5:40	WAML	1310	100	Laurel
	KRE	1370	100	Berkeley
5:30-5:50	WSIX	1210	100	Springfield
	KGU	750	2500	Honolulu
5:40-6:00	KGAR	1370	100	Tucson
5:50-6:10	KCRJ	1310	100	Jerome
6:00-6:20	KGDM	1100	250	Stockton
6:10-6:30	KSUN	1200	100	Lowell
6:20-6:40	KTRB	740	250	Modesto

Wednesday Mornings

October 3

1:00-2:00	KFYR	550	1000	Bismarck
1:30-2:00	WHBL	1410	500	Sheboygan
1:30-2:30	WSUI	880	500	Iowa City
2:00-2:20	WEBR	1310	100	Buffalo
2:10-2:30	WPEN	920	100	Philadelphia
2:20-2:40	WSAJ	1310	100	Grove City
2:30-2:50	WHIS	1410	250	Bluefield
2:40-3:00	WFBG	1310	100	Altoona
2:50-3:10	WPHR	880	100	Petersburg
3:00-3:20	WDAS	1370	100	Philadelphia
	WKBB	1500	100	East Dubuque

(*Continued on page* 49)



Here is the simplest and most effective method yet devised for attaching headphones to all makes of receivers. No change whatever is required in the wiring and the load or balance of the set is not disturbed.

THE PERFECT PHONE ADAPTER

automatically transfers the signals from speaker to phones when the phone plug is inserted in the jack. The little box containing the jack may be placed in back of the set or screwed to the underside of cabinet. The small socket adapters are placed under the power tubes, the little clip goes to the ground and the Adapter is installed.

Use Headphones to reduce the noise level and bring out those faint calls you can't quite hear on the speaker. Don't shut off your radio when others retire; use phones.

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 using 5-, 6-, or 7-prong tubes which uses the volume of all the tubes. 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

October 1, 1934

RADIO INDEX

Reg. U. S. Patent Office

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Short Wave Editor

ELEVENTH YEAR

NUMBER 82

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Is Your Antenna 100 Per Cent Effective?

PART ONE

• • • *By* B. FRANCIS DASHIELL

THE antenna or aerial—whichever you choose to call it—leads a rather uneventful existence. It is a simple device, and has only a single purpose in life. The antenna must intercept and collect energy from the radio waves that come its way. But it must perform this duty well, for, when the antenna fails properly to function, it is impossible to get the full measure of usefulness from our radio receivers.

As we glance at the forests of swinging, tangled antennas that top the roofs of every city block, and examine the usual slip-shod methods of construction, it seems amazing that they can work as well as they do. But, given even the slightest chance, the antenna will get results, due, most likely, to the fact that any piece of metal in the world becomes a radio antenna when it gets in the path of a passing electro-magnetic wave.

Radio Antennas Everywhere

Attach your radio set to a bed spring, bird cage, window screen, dishpan, wire fence, tin roof or automobile body, and the usual programs will be heard. Neither the nails in our homes are too small, nor miles of railroad track too long or heavy, to intercept radio signals. But there is a happy medium which provides the ideal antenna size, as the reader shall learn.

It is natural, of course, that the reader should wonder why all metallic bodies in the world, when not actually an electrical part of the earth, will swarm constantly with tiny radio currents that can be detected only by a radio receiver. Let us, then, review briefly the simple phenomena that make electro-magnetic induction possible.

It is commonly known that, if a length of wire be moved quickly across the face of a steel magnet so as to pass through its magnetic field, a surge of electric current will be induced in the wire. This is the simple principle of electro-magnetic induction. Because of it the electric dynamo and magneto can generate an electric current as its armature, wound with many turns of wire, spins rapidly between the magnetic poles of the machine.

This motion, which sends the wires through the magnetic field of force, creates an electrical current. It does not matter, however, whether the magnetic field is stationary with the wires moving, or whether the wires are fixed in one position while the magnetic field moves. The effect of induction is the same in either case. The wire cuts through a magnetic field, or a magnetic field sweeps past the wire—it is the motion that counts.

How The Antenna Works

It is obvious that we cannot rush a radio antenna across the surface of the earth. The antenna is permanently fixed. But it is not necessary that the wires of the antenna move; we know that the radio field of energy moves in all directions away from the broadcasting station. And, as it sweeps outward at a speed of 186,000 miles a second, it cuts across the wires of the receiving antenna and induces a very weak current in them. Every wire and piece of metal, whether used as an antenna or not, is subject to the same phenomenon.

The frequency, or rate of alterna-

tions in the onrushing radio wave, determines the frequency of the current induced in the antenna. The frequency of the alternating-current oscillations in the transmitting station; the frequency of the waves coming through the air; and the frequency of the radio-frequency current induced in the receiving antenna, is, in every case mentioned, always the same.

Thousands of radio stations broadcast simultaneously throughout the world, but most of them are on different wave lengths or frequencies. So, if a hundred different alternating waves swing past, they will induce a hundred different alternating currents in the antenna. Each current has a frequency that is identical to that of its parent wave passing through the air.

Selecting The Signals

The duty of a radio receiver is to select, or tune in, one at a time, the different radio-frequency currents flowing through the antenna. The ability of a set to perform in this manner is determined by its selectivity. A highly selective set will separate the many different antenna currents, tuning out all unwanted signals, and permitting only the selected wave to enter the set for amplification. A non-selective set will make audible many of the different currents flowing in the antenna, and the result is interference and a jumble of meaningless sounds.

The antenna can provide selectivity and sensitivity if it is carefully designed and erected. When an antenna is thoughtlessly constructed of any indefinite length of unsuitably sized wire, supported with little or no insulation between improper hangers, and connected to the receiver by poor contacts, it cannot be expected to give good results. Location, height above ground, length, insulation, arrangement of overhead wires and the design of its lead-in conductor, play important parts in making possible good radio reception on all wave lengths. The best antenna is never too good. And we must be on guard constantly to prevent energy losses. The amount of local static picked up from nearby sources must be held down to a minimum. Electric machines, light switches, power lines, street cars and automobiles, are the worst offenders in this respect.

"Skin Effect" Resistance

Antennas of unusual length serve no practical purpose. The length of an antenna has a direct relationship to the wave lengths it will pick up. If the antenna is too long it cannot pick up the shorter waves, except on certain harmonics. This tends to weaken or eliminate many of the waves that could otherwise be intercepted. All radio-frequency currents, because of the high rate of their alternations, travel on the surface of a wire. They do not penetrate into the solid interior. Only low-frequency and direct currents flow through the entire cross-section of a wire. A copper tube is as good a conductor of high-frequency currents as a solid wire of the same diameter. In fact, an iron wire with a thin copper-plated surface is just as good for an antenna as a solid copper wire.

If the wire is too long it presents a high surface resistance to the flow of the induced radio currents. This also is known as the "skin effect" of the wire. To overcome this resistance antenna wires that are woven or stranded so as to present a larger area than a solid single wire are used for antennas. It must be remembered that the lead-in wire must also have a surface area equal to the wire or wires in the antenna top; otherwise it will introduce objectionable resistance in the down lead and partially nullify the conductivity of a good antenna top.

Antenna Insulation

Insulation is of prime importance. The very high frequencies at which the induced currents in the antenna alternate back and forth, particularly

on the short waves, permits the electricity accumulated in the antenna to leak off rapidly to the earth. Most readers know that it requires only a very small condenser capacity to pass high-frequency currents. The smallest capacity or condenser effect between the antenna wires and adjacent grounded surfaces carries a portion of these high frequencies off to the earth. Short-wave reception calls for careful consideration of the subject of antenna insulation. The higher the frequency of an electric current the more difficult it is to control and hold in place by means of insulation.

Antenna Height

The effective height for the antenna still is a debated subject. There is a mathematical relationship between its natural frequency or wave length, particularly with transmitting antennas. The wire should be far enough above the surface of the earth, or the metal roof of a building (such a roof is considered an earth surface) to prevent condenser effects. The antenna should reach up into the unobstructed sweep of passing radio waves. Adjacent tall buildings, and other nearby obstructions, tend to throw an electrical shadow that prevents an otherwise good antenna from collecting a maximum amount of energy.

Location And Noise

Location of the antenna is important under certain conditions. In the open, far removed from electrical machines, power lines and other local sources of "man-made" static noises, any antenna will work nicely. It is in the city, and congested areas, that we hear the annoying hums, buzzes, clicks, crashes, sputters and howls of local static impulses. Fortunately, however, this form of noisy disturbances does not carry very far, and will not be picked up by the antenna when it is from 50 to 100 feet from the source.

We are forced to accept natural static or "atmospherics." Such static is heard during hot, humid weather, and during the thunderstorm season. Rains and snows bring static that is annoying but not particularly severe. Lightning static is the worst type of static discharge there is. Clear, cold weather, such as winter nights, is always free of natural static. It is then that DXing is at its best. But a steady increase in static noises foretells the coming of bad weather within about 12 hours. There is no antenna system that can check or prevent natural static. The only solution is to tune to powerful stations so the volume controls are at a minimum. This keeps the ratio of static

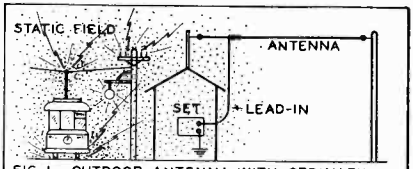


FIG. 1 – OUTDOOR ANTENNA WITH ORDINARY UNPROTECTED LEAD-IN

noise to signal strength low enough to drown out much of the static.

But there is something we can do about man-made static. Let us look at Figure 1. It shows a standard flat-top "L" antenna of the old Marconi style. The lead-in passes down through a field of local static impulses that do not carry very far. These tiny electric waves impinge on the antenna lead and the static surges are carried into the radio receiver. The antenna itself is removed from

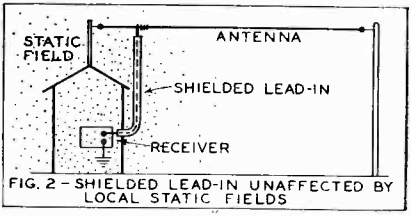


FIG. 2 – SHIELDED LEAD-IN UNAFFECTED BY LOCAL STATIC FIELDS

this static field and does not pick up the impulses.

Noise-Reducing Antennas

Now we can place a metallic shield around the lead-in wire. It will pre-

vent the static impulses from reaching the wire. This is shown in Figure 2. The proximity of the shield will cause severe energy losses, however, and the signal strength will be reduced and frequently lost entirely on the shorter waves. This form of shielded lead-in is used on standard antennas, such as the "L" and "T" types shown in Figure 3.

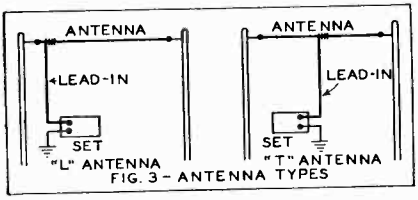


FIG. 3 - ANTENNA TYPES

There are a number of noise-reducing antennas available—RCA, Lynch, Philco, Tobe, Akaformer, etc., ready for erection. Or the antenna can be built by any enterprising experimenter. With the coming of interest in the short waves the question of noiseless short-wave, and all-wave, antennas, is being seriously considered. In all cases the noise-reducing antennas operate on the so-called Hertz principle. Hertz was the discoverer of the method of sending and receiving electrical oscillations through the air for short distances. Marconi discovered the practical application of using these waves to send messages over long distances. The Hertz antenna is much older than the Marconi antenna, such as the conventional "L" and "T" antennas shown in Figure 3, which use a ground connection.

The Hertz antenna, simply stated, consists of two antennas or *horizontal* wires, not necessarily *pointing* in the same straight line, with the radio receiver inserted in series in the center. There is no ground connection. This type is useful in short wave reception, but can also be used for broadcast work. Thus it is actually an "all-wave" antenna. The single wire, and grounded, Marconi "L" or "T" top antennas are best only for long and broadcast waves. However, we cannot place the receiver high up in the antenna, so we insert an insulator between the two halves of the antenna, as shown in Figure 4. So far, this antenna will pick up local static noise, for it really consists of two "L" type antennas. The two sections are called "doublets", and the antenna becomes a doublet antenna. Some change must now be made so the lead-in will not pick up local static in the noise zone close to the ground.

The "Doublet" Antenna

The doublet antenna, which is very effective on short waves, can be turned into a noise-reducing antenna, by preventing its lead-in wires from being affected by the local static field. Some designs favor a twisted-wire transmission line or lead-in; others place the two wires within a metallic, flexible shield. This cable is grounded and tends to prevent local static impulses from reaching the receiver. Some makes of antennas use two lead-in wires, transposed and separated by insulating blocks, as shown in Figure 4. This is called a transposition lead.

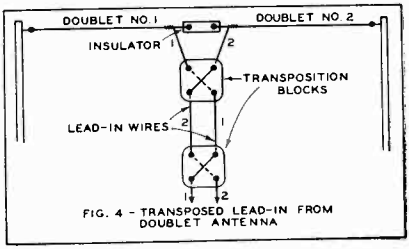


FIG. 4 - TRANSPOSED LEAD-IN FROM DOUBLET ANTENNA

Shielded Leads

When a metallic shield is placed over the lead-in from the antenna, as shown in Figures 1 and 2, there is a loss of signal energy. The shield grounds all the local static impulses before they get into the lead-in wire. That is just what we wish to do, of course, but we must realize, also, that the antenna must be strung high outside the field of local interference. The metal shield should extend only

through the zone of static and not always entirely up to the antenna itself. Do not use more shielding than is necessary to get results. The shielding must be grounded directly, and *not* to the ground terminal of the receiver.

Shielded leads are not satisfactory. Their tendency to absorb energy that is needed by the receiver rules them out. When from 20 to 50 feet of rubber-insulated wire is surrounded by metal it is easy to realize that a condenser exists—the inner wire as one plate and the outer shield as the other plate. The shield is grounded, and naturally there is a large leakage of high frequency radio currents into the earth.

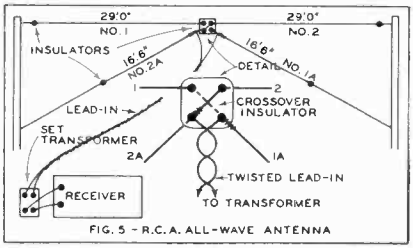


FIG. 5 - R.C.A. ALL-WAVE ANTENNA

This comely young singer, Joy Hodges, is one of several heard with Carol Lefner and his Orchestra from San Francisco. The orchestra broadcasts as a sustaining feature over WABC and the Columbia network.

Transposed Leads

In order to bring the lead down from the flat top of the Hertz antenna, with its doublets outside the local static field, and eliminate the signal absorbing effects of a metallic shield, the transposed lead-in or transmission line is used. This type of lead, however, is used only with the doublet antenna. The method of transposing the two leads is shown in Figures 4 and 5.

The two leads are transposed every 15 or so inches by means of the transposition blocks shown in Figure 4. The spacing must be carefully arranged throughout the construction. If a voltage is induced in the lead-in wires, as they pass down through the local static field (shown in Figures 1 and 2), the potential immediately will be canceled out. This cancellation effect is a rather complicated electrical phenomena, but it is sufficient to state that it is caused by the fact that the voltage induced in one wire is not in phase with that induced in the adjoining wire. Transposition brings about effective cancellation, and there is little or no loss of signals because of the very slight capacity, with no grounded surfaces, between the spaced wires. In the antenna lead-in shown in Figure 5, the RCA "World-Wide" system uses a specially twisted pair of wires. Any static pickup in this transmission line as it passes down through the zone of man-made static between the double-doublets and the radio receiver, will be balanced and electrically neutralized.

(Next month the second and concluding installment of this article will deal with the theory and construction of modern all-wave noise-reducing antennas.)

Organized DX *in* New Zealand

By N. C. Manchester*

THE New Zealand DX Radio Association is the only amateur DX Club in New Zealand, and was formed in January 1933, in response to numerous requests throughout the Dominion. The membership roll now stands at over 500, and DXers from as far afield as England, United States, and Canada have joined up.

The chief object of the Association is to further the DX hobby as much as possible, and all officials, editors, and representatives are experienced DXers who do all the necessary work gratuitously. Per medium of the Association's magazine —"Tune In," DXers are kept advised of the latest station changes, DX programmes, etc. It is the intention of the Association to, as far as it is able, put a stop to fake DXing, and any DXers proved guilty of obtaining verifications by fraudulent methods will be severely dealt with.

Active branches are established throughout New Zealand, and the Association also has representatives in Australia, U. S. A., Canada, Nova Scotia, France and England. Regular meetings are held by the branches, and DXers congregate to discuss their loggings and listen to lectures.

Electrical interference has engaged the close attention of the Association, and it is mainly through its efforts that legislation is now being made to control interference with radio reception.

In keeping with the times, the subscription has been made as small as possible. There is no annual subscription to pay, the 2/6d which a member pays for his badge and certificate constitutes life membership. We extend a cordial invitation to join up, the only qualification necessary being a genuine interest in the DX hobby. All correspondence should be addressed to the Secretary, 29 Flockton St., St. Albans, Christchurch, New Zealand.

The Association's official organ is its fortnightly DX magazine, "Tune In." This publication is the only magazine in Australasia devoted exclusively to DX. It is something similar to "Radex," but on a necessarily reduced scale. Starting as a modest monthly, it blossomed forth in 1934 into a fortnightly publication, each issue being eagerly sought after by thousands of readers. Great care is taken by the Editors in the compiling of "Tune In," careful checking being made of call signs and data. Special sections are devoted to advanced DX, including DX programmes and tips, beginners loggings, DX competitions for all grades, and a "DX Chat" section where correspondents describe their current loggings. There is plenty of up-to-date information available, and a feature worthy of note is the re-addressing of reports to China, in the Chinese handwriting. This service is given free of charge by the magazine committee, who also, by pre-arrangement, send postcards to members of any important news between issues.

The subscription rates to "Tune In" are as follows: Non-members, 3/— a quarter, 5/9 a half-year, 9/6 a year; members of the Association, 2/9 a quarter, 5/— a half-year, 9/6 a year. Single copies 6d each. All subscriptions include postage.

**Secretary, The New Zealand DX Radio Association, Inc., 29 Flockton St., St. Albans, Christchurch, New Zealand.*

To pick up foreign programs you must be able to convert their time into your own. The RADEX Map of the World with Time Converting Dial does this instantly. Price only twenty-five cents.

In the IDA CONTEST

THE IDA contest on overseas reception which has just been concluded, has demonstrated as perhaps never before, the ability of DXers in North America to reach out over the world on the broadcast band. We hope we may be permitted to publish the experiences of a number of those entered in this contest.

"As I was taking part in the recent IDA world-wide b. c. b. contest, I have until now refrained from reporting to RADEX my overseas reception during the last DX season," explains Wm. H. Ansell, 168 Wascana St., N., Regina, Sask. "However, by the time this appears in print, the final standing of the contest will be known. During the contest I had to contend with a howling in my set which persisted on the low and intermediate frequencies when the volume was turned up from two-thirds to full maximum. I corrected this condition only two days ago after several attempts. It was due to a moisture corrosion between the top plate and mica strip of the antenna trimmer condenser.

"I operate a Northern Electric 7-tube t. r. f. 'Lucerne.' I have erected four directional antennae of various lengths up to 100 feet with an overall length of 320 feet, and make use of either or double up as DX conditions required. Have four separate leadins, four ground leads and posts with 100 pounds of rock salt as a base. The verifications received during the past season are as follows:

3YA, 2YA, 3ZR, 5CL, 4BC, 4BH, 4QG, 2CO, 5CK, 3HA, 3AR, 3LO, 4RK, 2BL, 2FC, 2GB, 2SM, 2UE, 2UW, 4TO, LR5, KGU, KGMB, WKAQ, CMJK, CMBD, CMBZ, CMK, CMW, CMGF, CMHI, JOUK, JOCG, JOLK, JOFK, JOJK, JORK, JOSK, JOGK, JOOK, JOBG, JOAG, JOCK-1, JOCK-2, JOQK, JOKK, JOIK, JOHK, JOPK, JOAK-1, JOAK-2 and JFBK. All are OK'd for the IDA contest except 3HA and 2FC which were received outside of the contest period.

Raven-haired Arlene Francis and Fred Uttal. You may have heard Arlene as Kay Francis, Jean Harlow, Lupe Velez or Constance Bennett and Fred as Ronald Colman, H. B. Warner, Leslie Howard and Boris Karloff, in their "Forty-five Minutes in Hollywood" on the CBS. These two are frequently cast as hero and heroine in these radio previews. Both are master mimics.

You will note that I have verified three of the four Brisbane stations and six of the eight Sydney stations, and the grand overall total air-line mileage is over 317,000 miles.

"Have a total log of 673 stations, including 183 100-watters: 46 States including D. of C. and 7 Provinces. Total foreign stations logged include 7 New Zealand, 30 Australian, 30 Japan, 1 China, 1 Argentine, 13 Cuban and 28 Mexican.

"In making this record, I was aided materially by the Perfect Phone Adapter which I purchased last fall. It gave splendid service exactly as advertised in RADEX. Station signals were received much more clearly and above normal noise level, being much superior to loud speaker volume when DXing."

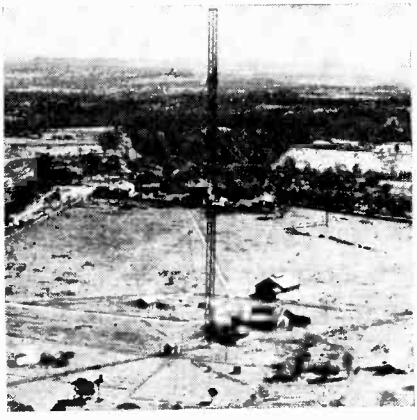
POSSIBILITIES *in* OLD SETS

SOME of the old-time sets are capable of exceedingly good results when they are slightly modernized. For instance William I. Miller, 46 Oak St., Galt, Ont., is using a 4-tube Browning-Drake that he built in 1927 and rebuilt in 1929 adding the then modern refinements such as vernier dials. Says he: "This set covers an unusually large wave band for a set of this class. It covers from 150 to 625 meters (480 to 2000 kcs). When I rebuilt it in 1929, I made two new tapped coils (antenna coil and regenerative r. f. coils). There are three taps on each coil which lead to contact points inside of set which are controlled by a shaft extending through to the panel with a knob. This switch has three positions to be shifted in covering this band, thus: 625 to 310 m., 350 to 245 m., and 270 to 150 m. This gives a good overlapping of bands.

"I use 201-C tubes (.06 amps.) and only 45 volts B battery on this set. With these tubes I found it much easier to neutralize this set than was possible with the old 201-A and 199 tubes. An 80-amp. storage battery now runs for five months on one charging with the 201-c tubes. I use a 50-foot tinsel cord for an aerial. It is just hung around the room. This tinsel cord gives me positive 9-kc. separation on all stations as well as greater volume and sensitivity than is possible on any outdoor aerial I have tried. It has helped me to almost double my DX log and also to bring in KFI as early as 8:00 p. m. EST. I tried all kinds of wire such as bell-wire, stranded copper, etc., in lengths from 50 to 100 feet, but with no satisfactory results whatever. So I think the tinsel cord has a lot to do with it as it seems to be extremely sensitive to signals. I cannot attain anything like 10-kc. separation on my outdoor antenna.

"For s. w. reception, I built a standard three-circuit regenerative set from junk material I had on hand. I made it into a one-tube converter so I could plug it into the detector socket of my Browning-Drake to use the audio amplifier. This makes three tubes in use for s. w. reception. The results obtained on this little set were amazing, considering that I use only 45 volts B, and the 50-foot speaker cord as an indoor antenna. Since November last I have heard GSA-B-C-D-E-F, Daventry; DJB-C-D, Germany; EAQ, VK2ME, DOA, G6RX, Pontoise, I2RO, HVJ, PHI, HBP, HBL, YV1BC, YV3BC, HJ1, ABB, VE9HX, VE9GW, CJRX, VE9JR, COC, as well as most of the USA s. w. stations and a number of other foreigners not fully identified.

"All of my DXing, both s. w. and b. c. b., is done before 1:00 p. m. and occasionally 5:00 to 6:00 a. m. The s. w. DX, of course, is best here in the daytime with exceptionally strong signals and distance between 9 and 11 a. m., 3 and 5 p. m. and 8 and 11 p. m. All of my reception was on the magnetic speaker on my Browning-Drake. I will be glad to answer any queries from owners of B-D sets provided a stamped and self-addressed envelope is sent for reply." (Canadian postage of course.)



Here we have a glimpse of the transmitter of VK2ME, "The Voice of Australia." It is located near Sydney, New South Wales. VK2ME is one of the "old reliables" long a favorite with listeners in America.

In the BUSINESS OFFICE

• • • *With the* EDITOR

IN THIS issue our readers will find the latest time on the air for all of those stations in North America which were kind enough to fill out and return the postal we sent them. The time for Sunday is given in this issue and that for other days of the week will appear in subsequent numbers. In order to save space and avoid the confusing light and dark face type to signify a. m. and p. m., we are adopting the 24-hour clock in this department. At first our readers may find it somewhat puzzling but we are sure if they will bear with us, it will soon be much more convenient than the old method.

As a matter of fact, the 24-hour clock is the only sensible way to designate time. It is folly to have two different ten o'clocks every day while "1:00 a. m." under the old method or "midnight" are often impossible to identify, whether Monday or Tuesday. We have no doubt that sooner or later the 24-hour clock will be universally used and RADEX does not hesitate to take the lead in this reform as it has in many others.

Under the "24-hour clock" midnight is either "24:00" or "0:00"; thus, 23:00-24:00 means from 11:00 p. m. to midnight. 0:00-1:30 means from midnight to 1:30 a. m. Noon is always 12:00. In changing these times to your own clock merely subtract 12. Thus 16:15 is obviously 4:15 p. m., 22:30 is 10:30 p. m.

About the NRC

Luther E. Grim, publicity manager of the National Radio Club, writes the following "piece for the paper." "The Club was organized a year ago by a group of seasoned DX club workers. Through their untiring efforts and the merging of the Atlantic Radio Club and the Central DX Club, the NRC has grown to a goodly size and enjoyed a successful season. The weekly bulletins will appear regularly after September first and will contain four pages of red-hot DX gossip, radio news of interest and DX tips. The popular Singleton-Eliminator contest is to be continued. The dues in this hustling club are $1.25 per year. Robert H. Weaver, 603 W. Market St., York, Pa., is the club president and will handle applications for membership."

Luther adds the following postscript: "While touring the West I stopped at these stations: KDKA, KFBK, KGDM, KWG, KMJ, KRE. KROW, KLS, KFRC, KQW, KGFJ, KPJM, and KGNO. Curiosity led me to KGFJ in Los Angeles. I wanted to see why this station refused to leave the air as so many were complaining of its nightly clogging of the 1210 channel. Miss Kirchner of the station was rather indignant that the DX fraternity should think so harshly of them. She informed me that they have a sponsor for those early morning hours and explained that every morning they missed, due to frequency checks, had to be made up under their contract. KGFJ is by contract duty bound to broadcast all night. It made me wonder how many of us DXers would close down a station if we were in Mr. McGlashen's position."

Those Blurbs and Plugs

The old bugaboo, Advertising, draws the fire of the C. M. Whelan, 2133 South Gilpin St., Denver, Colo. "The radio advertising profession in the USA ought to be ashamed. The quality of their product exhibited over the radio is woefully poor in technique and in verbiage. It is incessantly repetitive. I figure I have had to listen to anywhere from 7,000 to 15,000 advertising 'plugs' in the last thirty months. It's the old railroad notion, 'The public be damned.' Radio can be handled without advertising and Americans

can do it. Canada is doing it. Why not we?" Like so many others, however, Mr. Whelan's pet abmonination is the "local advertising plug which cuts off the head and tail of sustaining programs." He would like to send a postal card to each advertiser using these "plugs" somewhat as follows: "Radio listeners like their music whole. Your advertising, thrust in between two programs, violates this liking. Until you shorten your plugs this family will pass up your products. The broadcasting companies are deaf to our appeals: our last resort is not to heed your appeals for custom."

The New CKY

A newsy letter comes to us from Gustave Solomon, 404 Bon Accord Block, Winnipeg, Minn. "CKY will be using 15,000 watts on 960 kcs. around the end of October. The new transmitter, building and equipment, will be located at Headingly, west of Winnipeg, a new location. The tower will be the single vertical type, 200 feet high. The total cost comes to $100,000. The CRC asked for the improvement. With 5,000 watts at 780 and 910 kcs. CKY wasn't satisfactorily received by listeners outside of Winnipeg which is the reason why CKX, CKY's old 500-watt transmitter, was used to help better service to Manitobans. Now, however, CKX will no longer be required and will leave the air. The new equipment is of the same type as that used by CJRC, Northern Electric, which can be stepped up immediately to practically any greater power desired. CKY's studios are in the building which you give in RADEX as the mail address, one of the Manitoba Telephone System buildings. CJRM is now using its new Northern Electric equipment. New studios have been opened in Regina and Moose Jaw."

And a Bigger WOR

Walter W. Erneman, 108 Seventh Ave., Belmar, N. J., sends us clippings relative to the construction of a new station for WOR, Newark, N. J., which, he says, will easily make WOR New Jersey's best, strongest and most powerful station. It is to cost $250,000 and will be ready by December first. It is expected that the new transmitter will have three times greater range than the present one. The site is at Carteret, N. J., adjacent to the Rahway River, twelve miles from Newark. In addition to the new transmitter, the building will house the 5000-watt set now in use at Kearny, N. J., an airway radio-beacon and a short-wave transmitter. Two radio towers, each 385 feet high, will hold what is known as a "three-array" antenna system, a new development having its first application in s. w. transmission. The entire plant, including aerial and ground installations, will occupy 34 acres. The network of ground wires alone will cover ten acres and will consist of more than 35 miles of copper, part of which will be laid in the Rahway River.

A New Club

"The Summit Radio Club of this

Jeanie Lang, diminutive singer, finds it difficult to reach both the high notes and the high mike, so gallant Buddy Rogers acts as her supporting cast. You may hear this team of stars in "Family Theatre" program of music and romance. They are assisted by Buddy's Green Stripe Orchestra and the Three Rascals, male harmony trio.

city wishes to be listed as an active, international, all-wave organization," says a letter from that organization, Richard Haskell, Secretary, 49 Overlook Road, Summit, N. J. "For almost two years, the club has existed locally, limited to local members only. Effective August first, however, membership was extended to anyone regardless of location. Our club is about equally divided among bcl's and amateurs, although we have several members interested in s. w. DX. A monthly bulletin is issued by the club, tipsheets when necessary. The club lab is willing to undertake experiments not requiring too much expense and to provide diagrams for members. There are usually two or three contests running of varying natures. A club file is maintained, indexing all stations now on the air, giving full details, slogans, and hours of operation. We have a file of some 400 stations now deleted. For those unable to attend meetings, dues are $1.50 a year."

Station Notes

"The new Lansing station, WJIM, is on the air," contributes Marion Canniff, 2112 S. Cedar Street, of that city. "I am anxious to see if it is reported from any great distance. I am rather expecting it will be, because, although it uses only 100 watts power, it has the most modern of equipment—in fact they are using as a slogan, 'The most modern broadcasting station in the middle West.' Its antenna is a single tower, 200 feet in height, erected on top of the 15-story building which houses the studios. The station is on from 8:00 a. m. to midnight, EST."

Leslie F. Biebl, Red Bank, N. J., writes us regarding the change in call letters of their station WJBI to WBRB and says that the change in call symbolizes a new management and better programs. WJBI was one of the first broadcast stations to hold a license in New Jersey, originating from the amateur station W2AWL when only WJZ and WOR were operating in that state. Red Bank is situated in the midst of villages peopled by artists and has a wealth of material upon which to draw for radio programs.

Here is Rowene Williams, of Chicago, the winner among 20,000 young women who competed in the nationwide auditions conducted by the CBS during the last month for the coveted role of co-star with Dick Powell in "Hollywood Hotel" series which starts on October 5th.

Richard W. Watts, 19695 Beach Cliff Blvd., Rocky River, Ohio, writes us from Mexico City through which he is now touring, that he visited XEYZ, and found them planning a short wave transmitter which will be in operation in a few months. Richard will also visit XEB, XEW, XEAL, XETE, and several other stations.

The Mid-Co Exchange, 247 S. Hillside, Wichita, Kans., will give space in their bulletin to DX tips furnished by any club. These tips will also be broadcast on their regular daily period over KFH. The Exchange also presents a DX program the last Thursday of each month from 2:30 to 2:45 a. m. CST. All letters will be verified and all reports acknowledged.

The BEGINNERS' STORY *of* RADIO

PART ELEVEN

The Short Waves of Radio

• • • *By* **B. FRANCIS DASHIELL**

TO THE experienced student of radio the short waves present an old story. On the other hand, however, to the average broadcast listener or newcomer in the field of radio, the realm of the short waves appears to be a region of mystery. Now that a rapidly multiplying host of enthusiastic short-wave listeners is springing up throughout the land, it will not be amiss to discuss the fascinating and useful short waves of radio.

The average radio listener has confined his tuning to that limited portion of the *wave band* which is the broadcast region. It is embraced between the upper and lower limits of the tuning dial, or 550 meters to 200 meters. Or, speaking in terms of frequencies, these limits are 545 kilocycles and 1,500 kilocycles. For years only commercial radio men were familiar with the vastness of the ether outside of these limits. A great army of amateur radio operators confined their activities to a portion of the wave band. Most of the transmissions outside of the broadcast range were, and still are, in *code*. But there are stations in every country of the world broadcasting programs on short waves, and all of these furnish entertainment and thrills on the short waves.

The Long Waves

Above the 550 meters (or *below* 545 kilocycles) limit of the broadcast band are the *long waves*. They extend upward to more than 20,000 meters (15 kcs.) in length. Great power is needed to send these waves through the air; they are not economical, but commercial code signals are sent this way to relieve some of the congestion in the more efficient short-wave band.

Below 200 meters (or *above* 1,500 kilocycles) will be found the interesting *short waves* of radio. Immediately below the 200 meters limit the waves really are not of the short variety; most experts contend that the short waves are below 100 meters. The lower practical limit of the short-wave band is about 10 meters (30,000 kilocycles, or 30 megacycles). Below this is an experiemental radio band about ten meters wide.

The Short Waves

In the short-wave band (200 to 10 meters, or 1,500 to 30,000 kcs.) will be found both sound broadcasting and code signals, each confined to an individual portion of the band. It should be remembered that *all* of the radio business of the world must be placed in an electrical wave band hemmed in by an upper limit of about 20,000 meters and a lower limit of 10 meters (15 to 30,000 kcs.). In the familiar broadcast band a total of 345 meters separates its upper and lower limits; a difference of but 950 kilocycles. Yet, in the short-wave band, where only 190 meters separates its upper and lower limits, there is a spread of 28,500 kilocycles as compared to the 950 in the broadcast band. But, in the long-wave band, where a difference of 19,455 meters separates the upper and lower limits, there is a frequency difference of only 535 kilocycles.

This means, then, that if radio stations were assigned frequencies which differ by ten kilocycles: In the long-

Ferde Grofe, master of dance rhythms, composer of outstanding American music and noted for his orchestration of George Gershwin's "Rhapsody in Blue." Grofe is a descendant of four generations of musicians; he was a pianist at five and a composer at nine.

wave band, where tuning is not sharp and such a frequency difference too small, only 53 stations could operate; in the broadcast band 95 stations can broadcast nicely without interference; but, in the short-wave band, a total of 2,850 stations can be placed. In the entire electrical wave band a total of 2,998 stations could thus be assigned. Ninety-six per cent of the total, however, would be in the short-wave band. Perhaps this explanation will prove to the reader something of the great value of short waves to radio.

Many Short-Wave Stations

It is a fact, however, that many times 3,000 stations are scattered throughout the world in this wave band. Distance weakens signals, and widely separated stations can be operated on the same frequency without interference. And, in the short waves, where operation is more economical and efficient, stations are crowded much closer than in our example of an ideal separation of ten kilocycles.

The reader has studied wave motion as well as the characteristics of radio or electrical waves (Chapters 2 and 7). It might be well for the reader to understand that radio transmission on short waves or by high frequencies is the most economical method. The rapid electrical vibrations of the transmitting station carry farther than the slow vibrations or oscillations of the long-wave stations. Of two stations with equal power, one operating on 10,000 meters (30 kcs.) will not carry as far as the station sending out a wave 100 meters in length (3,000 kcs.). The short-wave station will send its wave with only a small fraction of the power needed by a long-wave station to cover the same distance. This is due, in part, to the rapid vibration and penetrating power of the high radio frequencies from the short-wave stations. The same effect is noted with sounds; a shrill, high-pitched whistle can be heard at a greater distance than a deep, low-toned whistle.

Reflected Waves

But this is not the only reason why the short waves are so efficient. We know that heat and light rays can be *reflected*. The short radio waves have high frequencies of vibration but not as high as heat and light. But they are high enough to reflect to some degree.

Now, a radio wave, when it is shot away from its sending antenna, will travel outward by two routes—one, the *ground wave*, and the other, the *sky wave*. The ground wave soon disappears. This is the reason why we can hear nearby stations with only a ground wire and no antenna. The sky wave is a *radiated* wave (see Chapter 7). High above us in the outer air is an electrical region called the *Kennelly-Heaviside Layer*. When radio waves reach this outer atmosphere

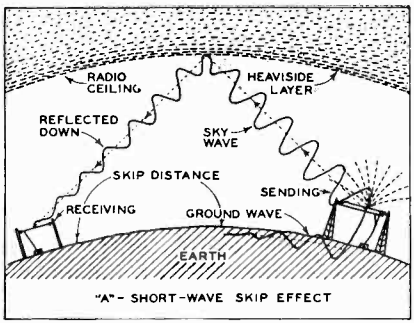
they are turned back toward the earth. Changes in the reflecting surfaces of this distance layer are believed to cause the fading with which we are so familiar.

But reflection of the sky wave results in what is termed a *skip-distance effect*. This phenomenon varies according to the wave lengths used and whether daylight or darkness exists. Darkness always aids radio transmissions, particularly on the longer waves. Certain of the short waves seem just as strong during the day as at night.

Skip-Distance Effect

When the radio wave is reflected from the sky it comes down at an angle, far beyond the limits of the ground wave. Between the vanishing point of the quickly absorbed ground wave and the beginning of the area covered when the reflected wave strikes the earth there will be a wide area not reached by any radiation from this particular wave. Signals cannot be heard, for the receiver is located *within* the skip-distance region. These skip distances are seldom noticed on the broadcast waves, never on the very long waves but are troublesome on most of the short waves. Most likely this effect is the cause for much dissatisfaction when certain short-wave stations cannot be heard on the best receiving sets.

When the reflected sky wave reaches earth it may be many hundreds of miles from its starting point. It will be of full strength when it strikes and then slowly die out over a distance of thousands of miles. This accounts for the reports of long distance reception on short waves. For instance, a 30-meter (10 megacycles) signal can be heard regularly on its ground wave up to about 60 miles from its starting point. Then the ground wave dies out. The reflected sky wave does not strike earth until about 400 miles farther away. Thus there is a dead area, skipped over by



"A"- SHORT-WAVE SKIP EFFECT

the sky wave, where the skip-effect will be noted. From the point 400 miles away to about 4,500 miles the reflected sky waves cover the surface, and the station can be heard. This is shown by the illustration "A."

Wave Motion

Let us consider wave motion and its four *components*—power, intensity or *amplitude;* speed or *velocity; wave length* (distance between successive waves); and *frequency* (number of times waves occur in one unit of time). Amplitude is determined by the power or energy applied at the transmitter. Velocity is a fixed speed; it is that of light, 186,000 miles a second, or 300,000,000 meters (299,820,000 meters to be exact) a second (see Chapters One and Seven). Since velocity is fixed by nature's law, but wave length and frequency are variable by tuning the inductances and capacities of the transmitter, we find there is a direct relationship between the latter two variables. For instance, if a radio signal that measures 100 meters between its waves, passes a fixed point during one second, a total of 3,000,000 waves would appear. This figure, then, is the frequency of the waves, and would be written 3,000 kilocycles.

Amplitude and Attenuation

Water waves may be used to visualize radio waves in a popular way Radio waves, however, move out in *all* directions, while water waves move only along the surface. On the ocean, if waves travel 1,000 feet a minute

and the distance between crests is 200 feet (a wave length), then five such waves will pass by in one minute. This is the frequency of the waves. The amplitude will be the height of the wave. Great storms stir up high waves of considerable amplitude. Such waves move out far from the center of the storm that creates them. On the other hand, tiny ripples caused by tossing a stone into a pond soon disappear because their amplitude is insignificant. The rate at which the amplitude of waves dies down to a level surface (an absence of all energy) is called the *attenuation* of the waves. The above examples serve to explain wave actions in radio.

Because of the relationship between frequency and wave length it is possible to determine either one of these factors if the other is known. To find the *frequency* in *cycles* divide the fixed speed of 300,000,000 meters (for absolute accuracy use 299,820,000) by the wave length in meters. To find the *wave length* in *meters* divide the same constant by the frequency in *cycles*.

Above 20,000 Meters

The practical limits of the radio wave band lie between 10 meters, for short waves, and 20,000 meters, for very long waves. But what lies beyond these limits? Why stop there? Can radio use wave lengths below 10 meters and above 20,000 meters? The interested student and reader will want to know the answer, so let us take a brief excursion into Nature's laboratory of wave lengths and frequencies and their vibrating sources.

In the region above 20,000 meters (below 15,000 cycles) there is still a small part available for radio. It is neither satisfactory nor efficient. It is the upper limit of the radio frequencies and approaches the audio frequencies (see Chapter Two). When the frequency of vibrations becomes less than 10,000 a second the human ear will respond and hear the waves as *sound*. The lowest vibration frequency is about 25. Soon all vibration ceases and we have reached the end of the long wave lengths.

Below 10 Meters

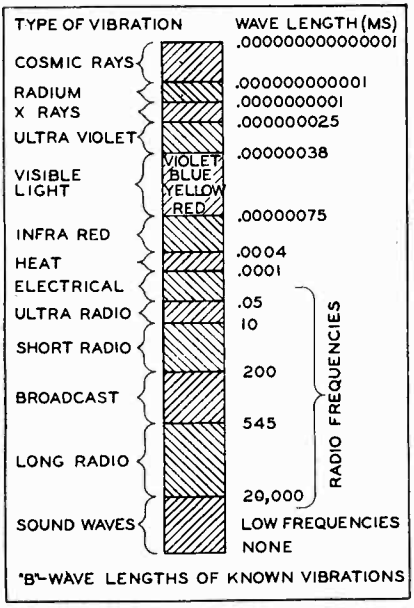
But it is the region below the ten-meter end of the radio band that holds our interest. From ten to one meter (30,000 to 300,000 kilocycles, or 30 to 300 megacycles) is a continuation of the *ultra* short-wave band, and is used principally for experimental purposes. Below one meter we find the end of the radio-wave band just as we found its top up around 25,000 meters.

What lies below one meter of wave length, or a frequency of 300,000 kilocycles? First there is a region where high-frequency electrical vibrations can be created. They are not radio waves. Interesting experiments have been conducted in this band—between one meter and one thousandth of a meter. Such vibrations can burn without heat, create fever, and actually kill. Visions of lethal rays are being pictured by experimenters in this field.

The Realm of Light

Next in the shortening wave band is a region of *heat* waves, closely followed by *infra-red rays*. The latter have wave lengths of less than one millionth of a meter, or frequencies of over 300 billion kilocycles a second! Infra-red vibrations are not visible. They will penetrate fog and smoke and affect certain plates so as to give photographs through fog and haze. There is no known source of infra-red short waves other than Nature so that man can use them to penetrate fog. The discovery of a way to produce such artificial radiation would be as great as radio.

The next wave band is visible *light*. Light is a wave motion; it comes to us in a wave-length band which lies between 75 one-hundred millionths of a meter to 35 one-hundred millionths of a meter. The frequency limits range from 4,000,000,000,000 cycles (4 billion kilocycles) a second to 8 billion kilocycles! Light, as we see it, is white. But all of us are familiar



with the spreading out of a tiny beam of white light by means of a glass prism into the red, orange, yellow, green, blue and violet colors of the *spectrum*. The spectrum spreads out the component colors of white light in the order of their wave lengths, the longest waves being at the red end and the shortest waves at the violet end. It is this effect that has given the name spectrum to the radio wave-length band, as, for instance, *broadcast spectrum*, etc.

Cosmic Rays

Next come the *ultra-violet rays* with waves about 25 billionths of a meter in length—about 6,500,000 waves to one inch! Then appear the *x-rays*, about one ten-billionth of a meter in length. *Radium*, which emits short, penetrating rays, has still even shorter waves. Still unknown and constantly sought after, are the *cosmic rays*. They are believed to have the shortest wave lengths known—the bottom of the wave-motion band of Nature. Scientists have estimated the cosmic ray to vibrate so rapidly that its waves measure only one one-millionth of a billionth of a meter in length!

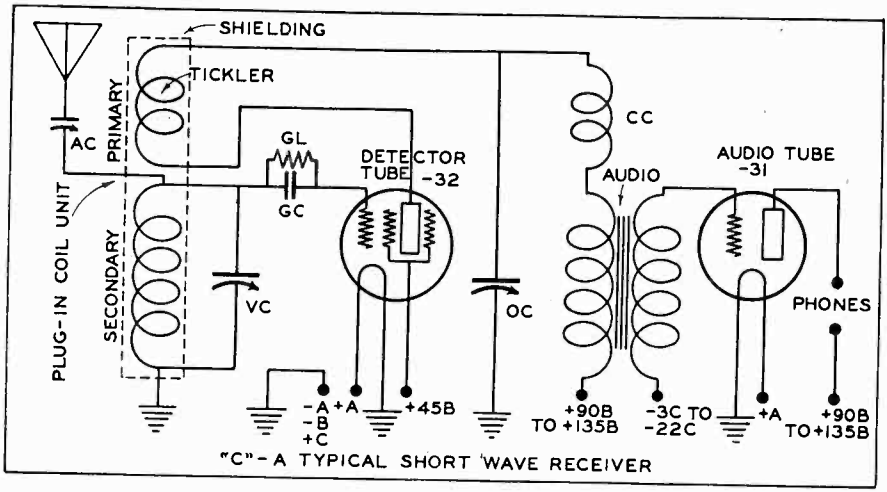
Thus we have seen that the vibrations in Nature's wave-length band appear between limits of .00000000000001 meter up to 30,000 meters. Radio occupies only a small portion of the total. The entire band, with the radio portion, is shown at "B." And, as the short waves control nearly all of the radio spectrum; they are the key to the future of radio.

A Short-Wave Receiver

Because the short-wave spectrum holds nine-tenths of all radio operations, it is natural that most listeners, after their initiation to radio through the regular broadcast channels, turn to the short waves. There happen to be four methods by which we can listen to short waves. First, and the best of all, is by means of specially built *short-wave receivers;* second, with *all-wave receivers;* third, by using a *short-wave converter*, in combination with a broadcast set; and fourth, the plugging in of a *short-wave adapter.*

The short-wave receiver is not essentially different from the broadcast sets described in Chapters 7, 9 and 10. Its r. f. coils are smaller and divided into groups, each to cover a particular wave band. One coil will not be sufficient to pass all the alternating current frequencies between 10 and 200 meters. Therefore, it is a common practice to use sets of r.f. transformers, usually interchangeable, but often arranged with switches instead, having windings that are resonant over the 10-20, 20-40, 40-80, and 80-200 meters wave bands. These inductances are tuned in the conventional manner, but the variable condensers are smaller than those used in broadcast sets.

The smaller the coil and the fewer its turns of wire, the less a.c. resistance (reactance) it offers to the fast vibrations of the short wave (see Chapter Three). For the very short waves —10 to 25 meters—the coils of the r.f. transformer consist of about half a dozen turns of wire. Because of the nature of the high frequencies, from 12,-



"C"- A TYPICAL SHORT WAVE RECEIVER

000 to 30,000 kilocycles a second, insulation is difficult. For instance, in Chapter Four we saw that high frequencies will pass through a very tiny condenser or capacity. This is why energy losses with short waves are difficult to control. The least capacity effect causes some energy to leak away. Unless a receiver intended to operate in the short waves is properly constructed it will be next to useless.

Typical Circuit

At "C" is shown the circuit of a typical two-tube short-wave receiver. It closely resembles the average small broadcast receiver. However, in order to obtain the necessary sensitivity these types of sets use the *feed-back* principle, as explained in Chapter Nine.

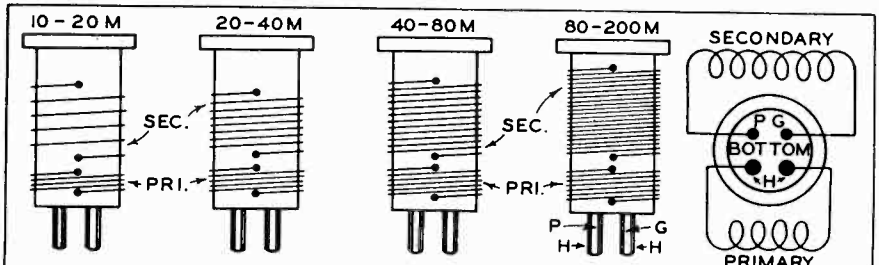
A set of four *plug-in coils* is required to cover the entire band in this short-wave receiver. They are wound on the forms sold for the purpose, as shown at "D." The forms are standard four-pin bases, about 1¼ inches in diameter and 2½ inches high.

The first coil covers the 10 to 20 meters band. Its secondary is wound with 6 turns of No. 22 enameled wire. The turns are kept about 3/16 inch apart. The primary or *tickler* is closely wound with 4 turns of No. 30 enameled wire. A space of ⅛ inch is left between the primary and secondary windings. All the coils use the same size wire, as above specified.

The r.f. Coils

For the 20 to 40 meters coil place 12 turns on the secondary and wind it in a space one inch long; the prim-

(*Continued on page* 32)



"D"- TYPICAL PLUG-IN SHORT-WAVE R. F. TRANSFORMER COILS

The PRIVATE LIVES *of your* Radio Friends

• • • *By* "BETTY"

JOE COOK, whose hilarious clowning on the Colgate House Party show has won him a firm niche in radio's hall of fame, started life in Chicago under the name of Lopez. Both his parents had been in the show business, but at the time of Joe's arrival his father was specializing in portrait painting on a chain store scale, with studios in Grand Rapids, Chicago and Pierceton, Indiana. His mother died and his father was drowned before Joe had his fourth birthday. He and his brother, Leo, were adopted by the Cook family of Evansville, Indiana.

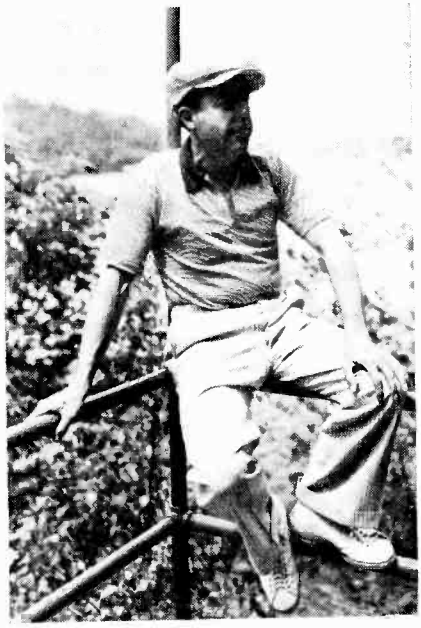
In his early days Joe learned to juggle and do stunts on a wooden ball. He also practiced on a tight rope and a slack rope even when the family washing was getting a sunning. They put on back-yard shows and charged a nickel admission, when the other children in the neighborhood were afraid to charge more than twelve pins. But the first really professional engagement for young Joe came when he was twelve years old. He was engaged for a dollar a night to appear in Dr. Buckner's Corak Wonder Company show in Evansville. It was a traveling medicine show that played one town each week. When Joe quit the show, the doctor gave him twelve bottles of his wonderful medicine in lieu of the seven dollars coming to him.

When Joe was sixteen, his family moved to New York and he went to St. Francis Xavier Academy. Out of his allowance he bought Indian clubs and stuck doggedly to his juggling practice. After playing in amateur nights, he got a booking with Juggling Barretts and later did a single in black face.

Wins Fame as Juggler

Soon Cook's "One Man Vaudeville Show" was famous. He walked tight ropes and rolling balls, juggled everything from cannon balls to lighted matches and demonstrated his genius for sharpshooting. Quite incidentally, Joe developed his natural gift for goofy yarn spinning—beginning with an accurate description of an event or predicament and winding up with a rapid, ludicrous ending.

Joe's success in vaudeville netted him a bid to the Vanities. Then fol-



Joe Cook.

lowed three shows of his own—"Rain or Shine," "Fine and Dandy," and "Hold Your Horses." With this mounting fame, Joe's glib, gleeful foolery became a likely prospect for the microphone. But one obstacle intervened. Joe refused to give an audition. Then came the Colgate House Party. Joe acted as guest host three times and proved an uproarious success. He was signed immediately for his first radio series—to head the House Party festivities for the run of the show.

Joe's hobby is his "Sleepless Hollow" estate at Lake Hopatcong. The famous comedian keeps his home a perpetual House Party with a show every minute. His servants are old actors who gleefully put on a show—sometimes to the surprise and discomfiture of unwary guests.

Meet Miss Martha Mears

Earning a living as a radio star is already old stuff to Martha Mears, although she has been heard over NBC networks for only a few months. She was graduated from the University of Missouri last June, but she started her radio career before that, paying her way through her senior year with the proceeds from commercial broadcasts. When she was graduated from college she intended to take up teaching as a career, but she stuck to radio on local St. Louis stations until Gus Edwards signed her for his vaudeville troupe. She came to New York and within three weeks was singing on NBC networks.

Martha Marie Mears was born in Mexico, Missouri, on July 18, 1910. She was educated at Moberly Junior College and the University of Missouri. She was awarded a life certificate for teaching in the State of Missouri when she was graduated. But music and radio came along in the meantime to interfere with a teaching career.

A chance audition at a local station in Columbia, Missouri, led to an engagement for Martha for a series of programs which before long had a commercial sponsor. That was in March, 1931, and from that time on she has been on the air continuously in one type of program or another. At different times while on the air in St. Louis she was ballad singer, classical singer, director of a kiddies' club, advisor to housewives on recipes, style and beauty expert, imitator and half of a song and patter team.

Martha Mears.

Martha's musical background included study with some of the most famous vocal teachers in the country and five years of professional church solo and choir work before she ever sang popular tunes. Her sudden success has left her thrilled but otherwise unaffected. She is of Swedish decent and shows it in her light blonde hair and blue eyes. She is five feet two inches tall and weighs 105 pounds. Unmarried, for the usual reason, she says—just hasn't met the right man. One of the biggest influences in her life is numerology. Her last name should really be spelled "Meers" but she insists

on "Mears" because since changing it she has met with success. Well, it might have been the numbers and then again it might have been her smooth contralto voice and engaging radio personality that brought her success. At any rate, a success she is.

A Young Maestro

Richard Himber, who was born on February 20, 1906, in Newark, N. J., made his professional debut at the age of fourteen as a violin soloist in a Newark high school. During the early days of his career he met Ted Fiorito and Rudy Vallee, and it was on one of the Vallee radio programs that Dick made his first appearance before the microphone. The young maestro has been studying music for the past fifteen years and this consistent training led to engagements conducting an orchestra for Sophie Tucker and leading the instrumentalists at Essex House and the Ritz-Carlton Hotel in New York.

Dick takes time off every now and then from conducting bands and composes tunes, one of which, "It Isn't Fair," serves as the theme song for the Champions. His latest composition was for a lyric by Ned Washington, entitled "I'm Living a Lie."

Maestro Himber finds plenty for his never-idle hands to do besides conducting and composing. He's clever with a cue and billiard balls and can sever a cigarette with a rifle shot; transform a quarter into a matchbox, or deal his bridge partner thirteen cards of the same suit.

Dick likes to read the works of Victor Hugo, W. Somerset Maugham, Dumas and Shakespeare . . . hates raw vegetables and high sopranos . . . weighs 175 pounds, is five feet eight inches tall, has red hair and blue eyes . . . used to weigh 210 pounds, but went on a diet, losing a pound a day . . . first job was as a wrapper in a department store, earning six dollars a week. Dick is pictured here with the songstress, Vera Van.

* * *

Jack Benny, whose 26-week contract with General Tire expires early in October, will be back on the air again for that company early in the spring of 1935, with Mary Livingstone, Frank Parker and Don Bestor's orchestra. In the meantime, however, Jack will be on the air for General Foods.

* * *

Wendell Hall, the Red Headed Music Maker, carried off first honors in the official song writing contest conducted by A Century of Progress. Hall's "Meet Me on the Midway" won the contest and a silver loving cup for its composer emblematic of victory over more than 150 entrants, both professional and amateur.

* * *

Buddy Rogers and his orchestra, at present starred on the Ward Family Theatre program with Jeanie Lang over CBS Sunday nights, is reported to have broken Ben Bernie's

(*Continued on page* 38)

Richard Himber and Vera Van.

ON *the* RADIO *in* AUSTRALIA

By Roy W. Arthur*

IT GOES without saying that I am a DXer and a very ardent one as well. DXing here in "Down Under" is only in its infancy so to speak, that is very few evidence any inclination to become enthusiastic over it. As for myself, I have been chasing the elusive overseas signals for more than four years and have met with extraordinary success in logging them. Up to this moment I have played in the proximity of 400 broadcasters located outside this fair land of ours—Australia.

Over 100 have been heard emanating from over your way in America with KFI the best of them all, notwithstanding all the half-million watts of W8XO or WLW. However, WLW is certainly effective. KPO, too, is well up with the above mentioned. The station at Cleveland where you are, WTAM, is one that can be classified outstanding also but is only heard through our summer months, taking the air on their early morning sessions and then on for around an hour subsequent. In Mexico the loquacious doctor's station, XER, leads the way or did so. (They've woke up to him over there too, haven't they?) Anyhow a wonderful station for reception here in this country (even if we didn't believe all that the Doc had to say.) XEPN is also received fine down this way. XENT is not heard very well here.

Other stations worthy of mention are as follows: WABC, WSB, WBBM, KGO, WFAA, WCCO, KOA, WLW, WHO, KRLD, KFBI, KNX, WTIC, KMOX, KSL and WOAI. Even among the lesser-powered brigade many are exceptionally well heard. Conditions here at present time (May 12) are tending towards good reception of an afternoon from stations over in America. This is brought about by weather heralding the winter season for us folk for the next three months or so.

Presenting the Royal Canadians—Guy Lombardo (upper right), Victor (top left), Liebert (bottom left) and Carmen—all members of the famous dance orchestra which is heard in a series of weekly broadcasts over the NBC Red net.

It might be of interest to you if I give you some information relative to this location. Wollongong is right in the midst of the "Garden of Australia," 52 miles south of Sydney in the glorious Illawarra district on the south coast of New South Wales, and within eight miles of the world-famous "Bulli Pass and Sublime Point lookout" and on the shores of the Pacific Ocean. More than 150 miles of the world's best scenery is here—a veritable garden of Eden. All the world tourists visit these parts of the Antipodes.

*10 *Kenny Street, Wollongong, New South Wales, Australia.*

A subscription blank is printed on page 96 for your convenience. Won't you use it?

The Department *of* FIRST AID

• • • *By the* TECHNICAL EDITOR

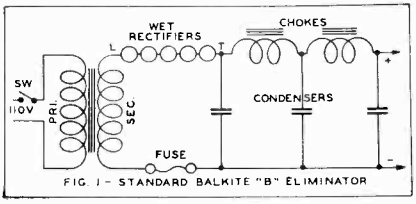


FIG. 1 – STANDARD BALKITE "B" ELIMINATOR

I HAVE a Balkite "B" eliminator and it is giving me much trouble. I have tried replacing the liquid, but the results are not satisfactory. A service man has advised me to get a rectifying tube and place it in the Balkite unit in place of the jars. I believe he said to use the -80 type of tube. Will this work, and if so, will it be noise-free operation? Please show me how to make this alteration in the eliminator.

The Balkite "B" eliminator uses a half-wave electrolytic rectifier, as shown in Fig. 1. It uses a single power transformer and its secondary has no center tap for proper rectifier or tube connections. Also, there is no provision made for heating the filament of the rectifying tube.

A type -80 rectifier tube with its two plates connected together will make a satisfactory substitute for the wet rectifier jars, as shown in Fig. 2. A small filament transformer will be needed to heat the filament of the tube, and the primary of the transformer is connected as shown. We do not believe it will be necessary to add more capacity to the filter condensers due to the removal of the internal capacity of the wet electrolytic jars.

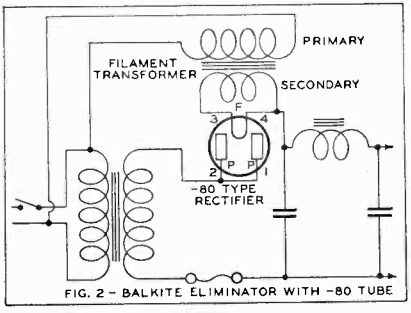


FIG. 2 – BALKITE ELIMINATOR WITH -80 TUBE

Crystal vs. Tube

I wish to know whether a fixed type of crystal could be used in the signal booster shown in the April, 1934, issue of RADEX, instead of the tube.

A crystal could not be used because the crystal is primarily a rectifier only, or detector. The tube in the booster is a radio-frequency amplifier and not a detector-rectifier. A combination of tube and crystal in the booster would fail to give results. The current delivered from the booster is a high-frequency type even if of a long-wave characteristic. That delivered from the crystal would be an audio-frequency current, much too low to pass through the tuned i.f. stages of the broadcast receiver.

Two-Volt Adapter

I wish to use a short-wave adapter with a 2-volt battery Crosley receiver. What do you suggest?

You can use the 2-volt tube from the detector of your receiver. You do not say whether this set is a superheterodyne circuit, but if it is, you must use the second detector tube. The tube in question is placed in the adapter socket and the adapter plug is inserted in the empty socket of the receiver. It will not matter if the adapter is made to run on 6 volts, and to use that type of tube in it. Of course, you could not expect any remarkable results and cover great distances. The adapter principle does not admit of great power

or sensitivity, and you lose the radio-frequency amplification features of your broadcast receiver.

Zenith and 2-Volt Tubes

Can the two-volt tubes be used in my battery Zenith No. 10 receiver? This set now utilizes the type -01A tubes.

The two-volt tubes may be used to replace 6-volt tubes in any battery receiver. Replace the -01As with -30s. You must provide a source of *exactly* two volts to the filaments of the -30 tubes. The filament rheostat may inject some resistance and should be turned full on or removed by short circuiting. The "B" and "C" batteries will not require changing.

Band Spread

I would like to add the band spread coils to my Philco 470 receiver. Please tell me how this is done.

We do not recommend the adding of band spread coils to this receiver. It would mean a complete rebuilding of the set with its coils and condensers. Tuning would be changed and the dial might become more or less useless. Such an alteration would call for work by an experienced serviceman, new material, and a general reduction of the present tuning limits of the set.

Automatic Volume Control

Please tell me how the automatic volume control on my receiver works. I am much interested in its actions.

There are a number of types of automatic volume control used in modern receivers, all of which, for obvious reasons, cannot be discussed here. Most of the circuits employ a method by which the negative bias applied to the grids of the radio-frequency tubes and amplifiers of the broadcast receiver is increased as the volume of the incoming signals increases. This increase in grid bias reduces the amplification of the r.f. tubes and holds the signal at a predetermined level, and prevents it from "blasting" forth in a loud

Few radio speakers dare to try to talk extemporaneously before the microphone. H. V. Kaltenborn, the veteran commentator, is said to be the only one. He uses only a page of brief notes in his broadcasts over the Columbia network.

sound. Then, as the volume of the incoming signal decreases, due to fading of the signal waves, the grid bias is automatically reduced and the amplification of the tubes increases. This tends to bring up the strength of the signal to the predetermined level just mentioned. However, this striving to increase a fading signal with high amplification is a source of some distortion and poor tone qualities. The latter feature is one of the difficulties of a.v.c. on very weak and far distant signals that tend to fade badly.

Transformer Output

To settle an argument will you tell me what kind of current is obtained from the secondary of a transformer. I mean all types of transformers; audio, i.f. and r.f. types.

The output of any transformer is a pure form of alternating current. The frequency of its alternations is equal to the frequency of the changes

in voltage-pulsations, alternations or interruptions of the current flowing through the primary coil. The output of an ordinary spark coil that fires the plugs in gasoline motors is an alternating current, although the current that flows in the primary is a direct current that is interrupted quickly by a vibrating contact. It is not necessary to have an alternating current in the primary of a transformer. It is only necessary to vary or change from an even flow the potential of the direct current in the primary. Each tube of a radio receiver gives out a pulsating or rectified current that passes into the primary of the immediately following transformer, either of the radio-frequency, intermediate-frequency or audio-frequency types. These pulsations and changes in voltage will produce perfect alterations of potential in the secondary of the transformer. In this respect we wish to refer you to an article on page 5 of the December, 1933, issue of RADEX.

Signal Booster

Can I use the signal booster described in the April, 1934, RADEX, with my Atwater-Kent 20 receiver? Please give me a few more constructional details.

It will cost very little to build one of these i.f. amplifying units. It consists of an antenna coil of about 60-70 turns of No. 26 or 28 cotton covered wire. This coil is tuned by a .0005 mfd. variable condenser connected between the two ends of the coil. The tube may be a -01A and connected to your present "A" battery source. The .01 mfd. condenser and 700-ohm resistor with cathode resistor connections to the tube can then be removed from the circuit. They were shown in our diagram in the April issue. If you use a -01A tube only 90 volts will be required for the plate instead of 180 as indicated.

Booster Tunes High

Please give me more information about using your signal booster with my Philco converter and a Rogers receiver. I can not get low wave stations at all.

We think likely that the reason you are not getting all signals through the booster is due to the fact that the booster's r.f. coil is too high in value for the lower frequencies of your broadcast receiver. We suggest that you try removing some of the wire from the coil L of the booster, a turn at a time, until the signals passed into the broadcast receiver seem to be of a maximum strength on the wave lengths in question.

Noisy Short Waves

There is a strange noise in my Atwater Kent 711 All-Wave receiver when listening to the short waves. Some people tell me it is static. What do you think?

A "rushing" sound is more or less part of short-wave reception. A set is tuned so sharply and the tubes are working at their utmost to bring in weak short-wave signals. Tube noises, or a characteristic rushing sound, can be heard. Then, too, there is the question of natural static. This annoyance is with us always; science has been unable to eliminate it from radio. It is recognized by its crashing, sputtering, hissing, and frying sounds.

It is possible that the noise is due to a defective electrolytic condenser, or some resistor within the set. These parts can be tested and replaced if necessary. A gassy tube may cause such trouble. If the trouble is in the set a serviceman should be able quickly to locate the cause. Some of the Atwater Kent wire-wound volume controls have caused similar noises.

Silencing the Speaker

In connecting headphones to my Knight 5-tube receiver I find it impos-

sible to silence the speaker by cutting one of the voice coils. Please help me further.

The phone connections can be made only to the -42 power tube. This tube is a standard 6-prong tube, and if an adapter is used beneath the tube to make the contact it must be a 6-hole adapter. The connection is made to the plate of the tube socket. The phones should be connected in series with a large fixed condenser of about 0.1 mfd. capacity, and the chassis.

If you cut the proper wire you can silence the speaker entirely. Examine the parchment cone; at its apex is a small coil of wire that "floats" with the cone between the poles of the large field magnet. There is also a coil of wire—the field—on this field magnet. Its wires should *not* be touched. Two flexible leads run from the voice coil on the cone to the secondary of the power or output transformer. It is only necessary to cut one of the flexible wires in two, and insert a small switch so the cone can be cut on or off, as desired.

A recent portrait of Howard Barlow, Columbia's outstanding conductor of classical and symphonic works.

Atwater Kent Detector

How can I locate the detector tube in my Atwater Kent No. 70 receiver? Also, is it possible to replace the 485 tubes in a Sparton 69 receiver with the 56 types?

There are three or four designs of the A-K 70, and we have selected the most popular type D-1 chassis since you have indicated only the model number. A row of four tubes extends from the front to the rear of the chassis. The first tube, at the front of the set, is the detector. Other tubes in the row are: 3rd, 2nd and 1st radio-frequency tubes, the latter being the last.

If 485s are being used in the Sparton 69 receiver you will find them similar to type -27s, and the -27 can be replaced with 56s in most cases. All the sockets in your set can be fitted with type 56s when either 484s and 485s are being used.

Overlapping Stations

I have noticed the overlapping of stations in my Westone model 40 receiver. Why is this and what can be done to prevent it?

The overlapping of stations with this circuit cannot easily be avoided as there is only one tuned circuit preceding the first detector. Undesirable signals find their way into the first tube through capacity coupling; through the tuned antenna circuit; or through what is called image relationship.

Undoubtedly the set is sharp in tuning as the "desirable to undesirable signal ratio" is such that the latter will not be detected. Since this ratio reduces as the frequency increases the only remedy is to use a well designed bandpass tuner preceding the first detector. One additional tuned r.f. circuit weakly coupled to the present r.f. tuner will

be satisfactory. A three-gang tuning condenser unit can be used to replace the present two-gang unit if the additional tuned circuit is added. Your serviceman can make this addition without excessive cost.

A Choking Set

There is, at times, a choking-up of my Knight 8-tube set. It seems to go on and off, and I am at a loss to account for it. I hope you can help me by telling what should be done.

Intermittent reception, as you have described it, is the most difficult trouble there is to locate in a radio set. The choking of the signals seems to indicate a defective plate circuit. A defective grid circuit will cause choking but this usually is accompanied by motorboating. A defective bias resistor or condenser in any of the audio stages or the detector will cause intermittent choking.

Bypass condensers give this trouble. However, defective condensers of this type seldom show up on ordinary tests. We believe in the substitution method of shunting each defective condenser temporarily with a new one to see if the trouble again reappears. If the trouble stops when substitution has been made you can be assured that the trouble has been located. However, a good serviceman with testing equipment is better qualified to locate the trouble quickly.

Detrola S-W Converter

Please advise me how to make connections to a Detrola short-wave converter and my radio receiver. There are three wires on the converter—two red and one black. I have tried all kinds of connections but none of them work.

The three wires on the Detrola short wave converter are: Antenna lead-in to the converter; lead from converter to the antenna terminal on the receiver; and the ground connection. Although we cannot identify the wires by colors, we feel confident the black wire is the ground. A red wire, which should be marked "Antenna," goes to the outdoors antenna, and the remaining red wire goes to the binding post of the receiver, marked "Ant."

The usual trouble with a short-wave converter when connections are correct is the failure of the oscillator to oscillate. If a higher plate voltage is supplied to the converter it might work. Or sometimes replacing the oscillator with a new tube remedies the trouble.

Regulating Tone

How can I regulate the pitch or tone quality of my Model 91B *Philco receiver? The set is in good condition but the tone always seems too high in pitch or sharp, especially with voices. Because of this words are not clear. A serviceman made an adjustment very quickly, which did not last, and I would like to know how to make this adjustment myself when required.*

This receiver is provided with a tone control and a fixed tone compensator, none of which have any variable components in them. Several tone adjustments can be made with the tone control switch, but these remain fixed after the tone control knob is set. Adjustment of the r.f. and i.f. stages for alignment will have some effect on tone quality but when the proper alignment is made this adjustment should *not* be changed under any conditions. When the receiver is in proper working order all adjustments should be made with the tone control knob. Therefore, we are at a loss to account for the adjustments quickly made by the serviceman. There is the possibility, of course, of defective condensers in the tone control assembly. Your serviceman can tell you about this.

Day Fan Set

Will you tell me what new tubes to

place in my Day Fan receiver, model 5065?

The -27 tube can be replaced with a 56. The -26s cannot be replaced. The -71A is the best type of tube to use in this particular circuit. No changes, then, are recommended.

Loop Antenna

How can I construct a directional loop antenna that will be satisfactory to use with my Majestic 90 type of receiver? Can it be used indoors or must it be erected outside?

A good loop antenna can be wound on a frame of wood that is about four feet square. About 20 turns of No. 26 cotton covered wire should be used, spacing the turns flat and about ¼ inch apart. The frame is hung vertically from the ceiling so it can be rotated about its axis through 360 degrees. The two ends of the winding connect to the antenna and ground posts of the receiver. A ground wire is used as normally. Some receivers may require a small fixed condenser in *series* with the loop coil and the antenna post of the receiver so as to prevent a short circuit between the antenna and the ground. It is not necessary with your Majestic set

"All" Waves

Please advise me whether I can get better reception with a short-wave receiver than with an all-wave set when listening to the short waves.

Any receiver designed to perform a single purpose is, of course, more effective than combination outfits. Therefore, a specially built short-wave receiver of careful design will give better results than the short-wave portion of an all-wave receiver. If you invest in a good short-wave set, carefully built and shielded, using good plug-in coils, you will be more than pleased with the results. However, good all-wave receivers are so excellent in their design and action that the s. w. reception now being obtained is very satisfactory.

The Canadian DX Relay

By B. L. Ahman, Jr.

THE CDXR will be two years old in December of this year In these two years it has jumped to second place in size of radio clubs. Organized originally as a Canadian club exclusively it wasn't long before other American DXers began to apply for membership until now about 45 per cent are Canadian, 45 per cent are U. S. and the other ten per cent are from Egypt, Holland, Belgium, Scotland, England, South Africa, Australia, New Zealand, Alaska, Newfoundland, Porto Rico, Cuba and Hawaii.

The Club has a Courtesy Programs Committee of 35 members with a coast-to-coast international tip period broadcast weekly over the best known and most popular radio stations. A list of the stations which have agreed to participate in broadcasting CDXR tips is given below.

The CDXR Bulletin is published weekly. The Club plans for a number of contests to be conducted next year. The CDXR is behind any plan for interclub co-operation and is particularly interested in helping the novices in DX by educating them in the proper way to make radio reports and in identifying foreign stations.

Members may join for one month for 25 cents as a trial. They may then join for a half-year for one dollar or a full year for $1.75. Further information may be secured from F. H. Bisset, President, Goderich, Ont., or from B. L. Ahman, Jr., Publicity Manager, 3313 Westerwald Ave, Baltimore, Md.

The following stations comprise the international chain which will broadcast a weekly period of DX tips CFCF, Montreal; CFCT, Victoria; CFCY, Charlottetown; CFNB,

Fredericton; CFQC, Saskatoon; CFRB, Toronto; CHAB, Moose Jaw; CHNS, Halifax; CHWC, Regina; CJCA, Edmonton; CJOR, Vancouver; CKBI, Prince Albert; CKCK, Regina; KECA and KFI, Los Angeles; KFYR, Bismarck; KDKA, Pittsburgh (KDKA DX Club program) KUOA, Fayetteville; KIDO, Boise; KOA, Denver; WBBM, Chicago; WBZ, Boston; WCAU, Philadelphia; WCCO, Minneapolis; WCSC, Charleston; WFEA, Manchester; WCSH, Portland; WJSV, Washington; WOWO, Fort Wayne; WQAM, Miami; WSB, Atlanta. All stations will broadcast either on Friday or Saturday nights.

On All Waves *In* ENGLAND

By Dudley C. Stent*

WE DXers in England concentrate mostly on reception of stations in North and South America, although one of the British members of the IDA has two Aussies verified. In England we do not count anything as DX unless it is over 2000 miles away, therefore reception of foreign stations in Europe does not interest us.

Reception of American stations in England is seldom possible before 9:30 p.m. GMT and after 6:30 a.m., so most of our DX work is done during the early hours of the morning. Many of the more powerful stations in the USA are regarded by us as 'locals' and in this group are WTIC, WCAU, WIOD, WBZ, etc. These stations can be received regularly at full loudspeaker volume any day between October and April.

It is generally accepted among British DXers that the best medium wave DX reception occurs about a week before the new moon. It is a curious phenomenon that whenever North American stations are inaudible, the South Americans are heard at very good strength.

I am 16 and have been DXing on the medium waves for just over two years and on the short waves for nearly nine months. During that time I have heard on the m. w. about 40 stations in the U. S. and Canada and on the s. w., using a PYE 3-tube receiver with an R. I. superhet converter, France, Germany, Africa, America, Spain, Portugal, Denmark, China, Italy, USSR, Argentine, Holland, Belgium, Canada, and Norway. I have thus heard four continents and only want VK2ME to have heard all continents. My log contains 220 s. w. stations. Some of the m. w. stations I have received on my 3-tube all-mains receiver are WNAC, WPG, WTAM, WBAL, WEAF, WGY, WSB, WJZ, KDKA, WABC, WKAQ, WBT, WHAM, WENR, WOR, KSL, WJSV, XER, LR3-4-9.

"Trusting that this report of reception in England will be of interest both to American and English readers of your fine magazine and that any American reader who is interested in radio in England will get in touch with me, I am, yours faithfully."

**Esperance, High Road, Whetstone, London N 20, England.*

DX Troubles *in* California

By Sheridan H. Martin

I BOUGHT my first copy of RADEX in November, 1932, when I got my Eveready Model 52. It was then I became a convert. I dabbled in DX that winter, running up a log of about 60 stations. This included two catches which I have never clearly heard since—KGMB and KGU. Such is DX. In 1933 I went in a little harder for DXing. In 1933 my log grew about 200. In 1934 I began to get RADEX regularly. As a result my log now stands at 635 active stations. This includes seven South Americans, 40

Asiatics and 21 from Oceania. I have all the Japanese stations. This season I intend to begin all over again and start collecting verifications.

"A word about reception conditions here in Pasadena. The Japanese are excellent here from September to December, inclusive. In fact they are so good that they are a nuisance. Last year I used to listen to the English news practically every night at 2 a.m. over JOIK—this in September in summer static that most of the middle-westerners couldn't punch through. The more powerful Japs start coming in as early as 10 p.m. PST on good nights. KZRM, Manila, usually comes in faint but clear about 2 a. m. if the Japs are very good. XGOA is another one heard here almost every night. I find the Alaskans and Hawaiians very hard to tune in, even their carriers being seldom heard. In February the Aussies and New Zealanders start coming in well. They are heard with fair volume until that old demon static rears its ugly head. The most reliable is 2YA which can be heard almost every night in season. On the 'miracle nights' I have heard 2YA, 4YA, 6WF, F31CD, ZBW, XGOD, RW28, YV1BC, YV3BC, CP4, HJN, CX24, CX26, XOST, JOUK, JOCG, JODG, JQAK, 5DN, 4BC, 4BH, 7ZL, 2KY, 2GB and 2UE.

"I want to urge radio stations to give more consideration to the Pacific Coast when making up their DX programs. Do you realize that there are 52 channels occupied by Coast stations until midnight, many of them on until 1 a.m.? This means that from 60 to 85 channels are worthless for DXing according to the selectivity of the receiver. DX programs should *never* start until after midnight PST and 1 a. m. is even better.

"One more thing to get off my soul. May all 24-hour stations blow out their tubes, burn out their mikes and, finally, get caught seven kilocycles off frequency with a raw a. c. note and get their licenses revoked. I am afflicted with nine of them."

New West Coast S. W. Club

By Don H. Townsend

FOR a long time there has been recognized a need for the formation of an organization to foster cooperation between the short-wave fans of the Pacific region in supplying each other with station information. Eastern and middle-Western clubs receive most of their station information on reception in their sections. Stations heard in the West go unnoticed because they are not heard in the other sections and therefore are reported only by a few western fans. Because of the small number of reports on these stations and because they are heard only in the West, little notice is given them.

Stations heard in the other sections of the country are not always heard in the West and the members of this region are therefore confused and try for many stations that are not to be heard in this part of the U. S.

Several prominent short-wave fans of the Pacific Coast region have got together and are organizing the "Pacific States Short Wave Club." This club is primarily designed to supply fans west of the Rockies with an efficient s. w. news service on stations being heard in the Pacific states. It will publish a monthly bulletin containing information on and a list of, stations being heard in the West. Special news will be supplied members by tip cards between issues of the bulletin. Other activities will be arranged later.

The membership dues in this organization will be one dollar per year. Active membership is open to all fans interested in the short waves that live in or west of the Rockies. All such fans are asked to advise the

Pacific States Short Wave Club in care of either the business manager, John D. Clark, 752 Contra Costa Ave., Berkeley, Calif., or the president Don H. Townsend, Jr., 208 Stillwater Ave., Fallon, Nevada.

Principals in the coming DX duel—Dick Arlen and Bing Crosby—listening to the short wave receiver manufactured by McMurdo Silver.

Radio Stars *are* DX Rivals

AS SOON as a pair of super short wave radio sets arrive in Hollywood, Bing Crosby and Dick Arlen are to stage a station-finding battle that will last a week, the loser to write a check for one thousand dollars. The two stars, both enthusiastic dial twirlers, have ordered identical sets from McMurdo Silver, Chicago radio expert, who designed the equipment taken to the Antarctic by Rear Admiral Richard E. Byrd.

The sets are due to arrive in Hollywood soon and the great contest will start. With special doublet antennae raised above their Toluca Lake homes, Arlen and Crosby will then begin combing the ether for Russia, Germany, Japan, Australia and all countries sending out radio broadcasts. At the end of the week the star having logged the most stations will receive the prize money. Both Crosby and Arlen plan to add the money to a trust fund they are creating for their children.

Since Crosby realizes that the comparatively weak Byrd station, KFZ, will clinch the championship honors, he is erecting an antennae which is tuned to 8,820 kcs. Arlen, on the other hand, plans to concentrate on Skameback, Denmark; Geneva, Switzerland, ZGE in the Malayan States, Rabat, Morocco; Nairobi, Kenya; and Sydney, Australia.

The Beginner's Story

(*Continued from page* 19)

ary has 6 turns also closely wound, as on the first coil. The 40 to 80 meters coil has 24 turns on the secondary wound so as to average 16 turns to one inch of length: the primary has 7 turns. The 80 to 200 meters coil has 50 turns on the secondary and 15 turns on the primary, all closely wound.

The variable condenser (VC) used to tune the secondaries of the r.f. transformers or plug-in coils, has a maximum capacity of .00014 microfarad. The tiny antenna condenser (AC) is about 35 mmfds. capacity. The choke coil (CC) should have an inductance of 2.7 millihenrys. Regeneration or feed-back is controlled by the oscillation condenser (OC) which has a capacity of 250 mmfds. The detector gridleak (GL) has a resistance of 2 to 5 megohms, and its condenser (GC) has a capacity of 100 mmfds. The audio amplifying stage is the conventional type and is connected to the detector output through a high-ratio (6 to 1) audio-frequency transformer.

(Next month we shall discuss still further the different methods of receiving short waves—converters and all-wave receivers).

The Foreign Station DX CONTEST

AS A demonstration of the ability of present-day receivers to cover the world, the recent contest of the International DXers Alliance of Bloomington, Illinois, was a huge success. Altogether there were 95 entrants in this contest from four continents and a grand total of 1530 vertifications were submitted to the Judges. Verifications were entered from 45 countries including all continents.

This contest was for the reception and verification of stations on the broadcast band only and short wave stations did not count. The reception was in the period from October first, 1933, to March 31st, 1934. The fact that in these six months 95 listeners were able to hear and verify 1530 stations, all of them at least 2000 miles distant from their receivers, is ample proof that foreign reception on the b. c. b. is fairly consistent and not too difficult.

Many Different Sets

The variety of sets used by the contestants is interesting. Twelve used sets of their own constructions, nine used Philco, six Majestic, five RCA-Victor, four Scott, four Crosley, three Midwest, three Pilot, two GE, two Kolster, two Lincoln, two Zenith, two Atwater Kent and two Patterson. Other sets represented were Radiotrope, Stromberg-Carlson, Silver-Marshall, Arborphone, Western Electric, Lyric, Jackson-Bell, Balkite, Serenade, Brunswick and several foreign receivers.

D. L. Davis, Jr., with the Fleet Air Base, Pearl Harbor, Hawaii, turned in a total of 114 verifications from stations in Canada, Japan, Mexico, Philippines, Australia, New Zealand and the U. S. His receiver is an RCA-Victor R-24A, 8-tube, a. c.

R. T. Coales, 54-Chelsea Road, Southsea, England, using a home-built 6-valve Superheterodyne, reported 71 verifications from the U. S., Canada, Mexico, Newfoundland, Cuba, Bolivia and Argentine.

H. Harding Jones, 2531 Rainbow Drive, Honolulu, Hawaii, received 74 verifications from stations in the U. A., Australia, New Zealand, Mexico, Canada and Japan. He does not give the make of his set.

John S. Bohm, Gronland, 105 Malung, Sweden, using a five-valve Telefunken, turned in 70 verifications from Newfoundland, Venezuela, Bolivia, Canada, Algeria, Canada, Argentine, Mexico, Porto Rico, and 59 from the U. S.

Francis Wiseman, 517a Finchley Road, London, using a Scott 1934 12-tube Deluxe, submitted a total of 69 veries from the U. S., Newfoundland, Argentine, Mexico, Canada, and Porto Rico.

Covering the World

Evan B. Roberts, Wenham Street, Danvers, Mass., using a Scott All-Wave, 1933 model, submitted seven verifications from Japan, seven from Australia, five from Italy, and one each from the following cities: Moravska-Ostrava, Bratislava, Brno, Prague, Flensburg, Geilsburg, Koln, Stuttgart, Frankfurt, Hamburg, Leipzig, Munich, Stockholm, Goteborg, Paris, Fecamp, Strasburg, Lyons, Lille, Sottens, Beromunster, Cork, Athlone, Lodz, Lwow, Copenhagen, Alger, Rabat, Belgrade, Zagreb, Modonna, Budapest, Viipuri, Danzig, Bergen, Graz, Wein, Barcelona, Buenos Aires, La Paz and St. Pierre, Miquelon Islands. From his home in Massachusetts, Mr. Roberts covered practically the entire world from Japan and Australia on the west to Russia and Hungary on the east. "The World at his Finger Tips" may well be the slogan of Mr. Roberts.

As this is written the judges have not finished their tabulations and the winners of the contest have not been announced. The results of this contest which was most efficiently

staged by the IDA, may well prove encouraging to DXers everywhere. Excellent logs were submitted from British Columbia and California on the West Coast to Nova Scotia and Florida on the East Coast. The interior was well represented by contestants from Nevada, Michigan, Ohio, Tennessee, Illinois, Montana, and other states.

Where All Radio is DX

A rather remarkable record is that of A. C. Lyell, P. O. Box 4536, Johannesburg, Union of South Africa. Located as he is in the extreme southern part of the African continent, practically all of his reception must come from stations more than 2000 miles distant while the great majority of the stations are more than 6000 miles away. Mr. Lyell did not get into the contest until the latter part of January thus having a three-month handicap. It required two months at the fastest for his reports and verifications to travel even if answered immediately. He was not clear whether s. w. stations were to be counted and wasted much time tuning in s. w. stations. In spite of all these handicaps, however, Mr. Lyell submitted 53 verifications within the time limits of the contest. He was caught with 35 more outstanding which he had to sacrifice. Included in Mr. Lyell's log are KOB, Albuquerque, KZRM in Manila, KNX in Hollywood, KFI in Los Angeles, XEPN in Piedras Negras, WBT in Charlotte, KSL in Salt Lake City and LR-2-4-5 and 9 in Buenos Aires—a remarkable record. On the short waves he brought in VE9GW, Bowmanville, PRADO, LSX, PLV, KWX, J1AA, HJ4ABE and HC2RL among many.

Mr. Lyell uses a Pilot Dragon receiver, A. C. with eight tubes.

Don't miss that program you want to hear. Use the RADEX Program "Slates." Mark down your favorite programs in the spaces provided. See subscription blank on page 96.

As I See *the*

THE successful rebroadcasting of programs from overseas by the National Broadcasting Company and the Columbia Broadcasting System has caused a tremendous interest in shortwaves. Many persons who have never had an interest in radio reception other than picking up their favorite programs from local stations are contemplating the purchase of shortwave equipment with which they can hear international programs directly from the country of origination. To these prospective high frequency fans many problems present themselves, and the biggest problem, naturally, is the choice of a good receiver.

Buying a Set

We cannot tell anyone what kind of a set he should get because this depends on his previous experience in tuning radios, the type of entertainment he wants, and the amount he can spend on a set. We can, however, point out some things to be avoided.

Because of the fact that RADEX is a DXer's magazine, it is reasonable to assume that 98% of our readers are DXers at heart. They are not as interested in hearing the commonplace stations as they are in hearing the seldom-heard little fellows. Therefore, one must not pay too much attention to what some owners say about their receivers. A friend may recommend an "Oompah 12" because he has had it only two weeks and already logged DJC and EAQ with it; because of this being his first foreign reception he naturally is quite enthusiastic about it. An old timer, trying the same set, is apt to be thoroughly disgusted if it fails to bring in some much closer but harder to get station, such as

SHORT WAVES

• • • *By* PAGE TAYLOR

VE9HX in Halifax or XETE in Mexico City.

Times Have Changed

A few years ago, a broadcast band DXer, living, let us say, in New York City, certainly would not buy a set on a salesman's recommendation that he would hear WCAU, WBZ, WTAM or even KFI. The same man today, turning to shortwaves, is usually attracted by an advertisement reading: "Log regularly such stations as GSB England! EAQ Spain! Reach out 10,000 miles to bring in VK2ME in Sydney, Australia."

Such stations as GSB, EAQ, VK2ME, DJC and many others are *locals* on a shortwave receiver just as WLW is a local on a conventional set. EAQ in Madrid is even more regularly and satisfactorily received than KFI or WTAM.

Two Tubes or Twelve?

A big radio set with from 10 to 20 tubes, equipped with "static eliminators", multi-pronged tubes and enclosed in the latest style "Console Mcderne" may be the pride of its owner, but it isn't much good if his reception is limited to a few local s.w. stations. The owner of such a set, if a genuine DXer, is usually pained to learn that the kid next door is listening to Java and Nazaki in the mornings and tiny 5 to 10 watt South Americans in the evenings, with a much simpler receiver.

A good s.w. set can be gotten for nearly any price, varying from twenty to a thousand dollars or more. We know of very good receivers selling for as low as $35 and we know of some very poor ones for $400. Buyers with a limited budget can get a good radio if they demand a carefully built set using dependable parts and a simple but time-tested circuit, rather than try to get the largest

This vivacious and golden haired contralto, Carolyn Rich, is Ferde Grofe's choice in soloists. She was recruited from vaudeville to radio in 1932 and has been featured as the "Lady of the Cameo" on her own sustaining program.

number of tubes and doo-dads he can for his money.

The Phenomena of Short Waves

There are some salesmen who will try to convince an unknowing customer that a multi-tubed set is necessary to pick up distant stations, and this is an argument that is rather easy to put over because it seems logical. A brief discussion of the propogation of shortwaves will prove the fallacy of this statement.

The one thing that makes long distance reception possible on shortwaves is neither a powerful receiver nor a fancy circuit, but a physical fact, the fact that surrounding the earth at a distance of from 80 to 200 miles is a layer of ionized particles, called the Kennelly-Heaviside layer. Newer theories mention another, the Appleton layer, and it may be possible that shortwave fans owe a vote of thanks to sun spots (or the lack of

them), ultra-violet rays and cosmic rays as well.

The Sky Wave

The generally accepted theory of shortwave transmission is that high frequencies are transmitted out towards space and that they are reflected back to earth by the Kennelly-Heaviside layer. These waves are called sky waves. A ground wave is also emitted but this is soon absorbed by buildings, mountains, or the earth itself. Let us take, as an example, W2XAF in Schenectady, N. Y. W2XAF, like all s.w. stations, emits two waves. The ground wave is strong enough to be heard for some distance but it is completely absorbed before reaching the Pacific Coast. The height of the Kennelly-Heaviside layer at the particular time is such that the sky wave is reflected back to earth in the vicinity of Australia, permitting our friends "down under" to hear the station, while it is inaudible in California.

Skip Distance Varies

As the height of the Kennelly-Heaviside layer is dependent, among many other things, upon the sun, the height varies during the day, and also with the seasons. These ionized layers are at their minimum height when the sun is brightest and at their maximum height at night. As the height of the layer varies, so the angle at which a radio wave is reflected from it varies, a fact which accounts for the variance in signal intensity throughout the day or night from a given station.

We know, from many years experience, that it is not possible for American East Coast listeners to hear VK2ME on its 28.5 meter wavelength at noon-time, although they are on the air daily at that time in telephone communication with London. The best receiver in the world will not receive it because neither the ground wave nor the sky wave is present in Eastern USA at that time.

The Varying Factors

When signals from VK2ME *are* being reflected towards America (Sunday mornings just before daybreak on 31.28 meters), and the height of the layers of ionized particles out in space is right, when the sun spots are behaving, when magnetic storms are still, when local disturbances are quiet and a thousand and one other conditions permit, perfect reception of VK2ME can be obtained. The chap with a two-tube rig and a pair of headphones will have to remove the phones from his head to save his ears, and the fellow with a four tube regenerative outfit will have to hook in the loudspeaker to save his headset. The man with a ten-tube superhet will get louder reception, but will not be able to use the added volume. He will get somewhat clearer reception, but not much more intelligible than the chap with the two-tuber.

When none of the above mentioned conditions prevail, no one will hear VK2ME, regardless of equipment used.

Picking Up KFZ Direct

If the prospective purchaser does much shopping around he will surely hear the old bromide about listeners picking up stations better than Riverhead. "Oh yes," the salesman will say, "one of our men hears Byrd direct from Little America even better than the rebroadcast."

This statement might have been true in 1930 but it is hardly true in 1934. Signals from KFZ are not radiated in all directions, but are concentrated into a beam which is directed towards the central receiving station located at Platanos, Argentina. The signals are then sent over land wires to Buenos Aires, thence to the powerful beam transmitters at Hurlingham. Here 20 kilowatt station LSX relays the signals to Riverhead, Long Island, where they are picked up on highly directional, diversity antennae. It is this diversity array that accounts

for the high quality of reception obtained by Riverhead.

The station on Long Island rereives LSX on three separate aerials, and each aerial is connected to a separate receiver, each of which is accurately tuned to LSX. The aerials are separated from each other at a distance of about a thousand feet, an arrangement which tends to minimize fading; it has been found that at the moment a signal is weak on one aerial it is strong on another. The outputs of these three receivers are fed into a control section where they are combined, then "piped" to New York City and out over the networks.

It seems unreasonable to believe that a casual shortwave listener, located in midst of electrical interference, can do better than Riverhead, which is miles away from any kind of electrical device. Riverhead uses directional antennae, pointed accurately towards Hurlingham, while our own aerials are put up more or less haphazardly, as concerns direction, and might even be highly directional towards the North Pole. Our own receivers are usually A. C. operated, while Riverhead uses batteries; our own sets are not always at their best as we cannot constantly work on them nor can we change the tubes too often. The RCA sets are kept constantly at their highest efficiency. And, with our admittedly inferior apparatus, we attempt to reach all the way to Little America, while Riverhead resorts to a relay.

There are, of course, many fortunate tuners who have had KFZ, but surely not as well nor as consistently as Buenos Aires. Mr. Geo. Acker's reception is typical. "On KFZ's 22.64 meter wavelength I came across a *very weak* voice transmission in English," he writes. "This was *evidently* the Byrd Expedition, as LSX was on the air at the time talking to KFZ." Note, however, that Mr. Acker was not *positive* of the identification.

The transmitting studio of VK3ME installed at Braybrook, near Melbourne, Victoria, Australia. This short wave transmitter was designed and manufactured in Australia by Amalgamated Wireless (A'sia) Ltd.

When Sets Are "All-Wave"

Some irresponsible manufacturers describe their radios as "All-Wave Sets," while in reality they are merely duo-wave receivers. An all-wave set should really receive *all waves*, from 15 meters up through the conventional broadcast band. There are too many radios on the market today advertised as all-wave sets which only go down to 100 meters or so. Such sets will receive police calls and amateurs, and very little else. All foreign shortwave broadcasting is done under 70 meters and satisfactory reception is obtained only below 50 meters. To obtain the utmost in results, a receiver, whether all-wave or just straight shortwave, should tune at least as low as 15 meters (20,000 kilocycles or 20 megacycles). We mean, they should *tune* that low; many sets have the dials calibrated to read 15 meters or even less, but will not tune in stations below 19 or 20 meters.

It is probable that an overanxious salesman will say that this is an insignificant difference, because these high frequencies are too much in their infancy for satisfactory reception. This statement would be true if he were speaking of 10 meters or lower, but we have a list of 30 stations using voice between 10 and 15 meters, and there are 131 stations on voice between 15 and 19 meters. The

30 stations below 15 meters are heard once in a while by experienced dial twisters, but a large majority of the 131 stations in the 15 to 19 meter group is regularly heard and enjoyed.

Number of Tubes

For reliable loud speaker reception it is generally agreed that no less than four or five tubes should be used. If four tubes, one radio frequency stage, a regenerative detector, and two audio stages. If five tubes, a radio frequency stage followed by a regenerative detector, an audio stage and a push-pull audio stage. Superheterodynes employing 8 or more tubes are reliable. Super-regenerative and t.r.f. sets are not generally available nor are they recommended, unless one is experimenting in ultra-shortwaves, in which case super-regeneration is used.

Regenerative sets continue to be the favorite of many veteran tuners. When radio was young, regenerative sets were called "bloopers" because they had the disagreeable habit of getting into all the neighbors' radios. This fault no longer exists, however. Regenerative sets are usually straight shortwave, or if they do offer a broadcast band, this band is not very satisfactory except for local stations. All-wave sets are generally superheterodynes. One type is as good as the other. The RCA Receiving Station on Long Island uses both types, although foreign s.w. broadcasts are picked up on superhets. Contrary to popular belief, these receivers are comparatively simple in design, using only three intermediate stages and two audio stages.

Adapters and Converters

Adapters are no longer used and should be avoided. Converters are used if one has a good broadcast band set which he does not care to discard for one of the all-wave type. A converter is employed to convert a broadcast receiver into a shortwave receiver without any mechanical connection between the two units. Good converters give very nearly as good results as straight shortwave sets but require a little knack in tuning, a knack which is easily acquired, however.

Your Radio Friends

(*Continued from page* 22)

attendance record at the College Inn in Chicago for the second consecutive year. Rogers has proved to be one of the greatest all-time drawing cards for the young folks of the Windy City.

* * *

The billing of "radio's loveliest lark" by which Jane Froman is known in theatres, grew out of a remark by Dr. Sigmund Spaeth, world-famous music critic, author and commentator. Dr. Spaeth happened to be passing one of the NBC studios and walked in while Jane was singing. After a minute, Dr. Spaeth turned to a companion and said, "There is the loveliest lark radio has." The billing has stuck to her ever since.

* * *

A waiter spilled a cup of coffee in a New York restaurant a few years ago. And two young men at a table, until that moment total strangers, fell into conversation over the incident. When they got up to leave a new blackface team of entertainers had been formed. The diners were Pat Padgett and Pic Malone, now well known to audiences as Pic and Pat and Molasses 'n' January.

* * *

Ralph Kirbery, NBC's Dream Singer, is still single and fancy free. He remains a bachelor, according to his own explanation, because of his love of fishing and other outdoor activities. Says Ralph: "I like the girls too much to play a mean trick and marry one of them. I'd leave her home alone too much while I went fishing, hunting and golfing."

Vital Statistics *of the* SHORT WAVES

• • • *By* PAGE TAYLOR

RECEPTION on the conventional broadcast band has always been very nearly impossible in tropical countries because of the severe atmospherics prevalent for about ten months in the year, so it is not strange that these countries have remained several years behind the times as far as radio is concerned.

With the increased reliability of shortwave equipment and the availability of good receivers at a reasonable cost, however, it is pleasing to note how quickly some countries have grasped the opportunities offered by shortwaves. The Netherland East Indies were first to use shortwaves extensively for local broadcasting, with the Republic of Colombia following a close second. These countries now are veritably teeming with high frequency stations. And now Venezuela is building up a broadcasting system based on shortwaves. We understand that YV3RC in Caracas is the key station of a network which includes YV5RMO in Maracaibo, YV4RV in Caracas, and occasionally YVQ in Maracay on 6.672 megacycles.

A New Venezuelan

We are indebted to the Chicago Shortwave Radio Club for information on a new Venezuelan station which will commence broadcasting at about the time this magazine is mailed to our readers. YV6RV, in the city of Valencia, State of Carabobo, will work simultaneously on 675 and 6030 kilocycles; 6030 kilocycles equals 49.72 meters. YV6RV will be known as "La Voz de Carabobo," and its owners, the Sres. Hermann and Williams Degwitz, will appreciate reports from listeners intercepting programs on either frequency. The Degwitz brothers will honor the Chicago Club by dedicating their inaugural program to its members.

According to information received from H. N. Walker, our Australian reporter, there are two radio networks in Netherlands India, with key stations in Bandoeng and Sourabaya. No information is available at this time concerning the Sourabaya network.

Data From Oceania

The Bandoeng group is owned by the Netherland India Broadcasting Co., and goes under the name NIROM, a word formed from the initials of the Dutch name of the company, N. V. Nederlandsch In-

Introducing Peter Biljo, batoneer of the Russian Balalaika Orchestra. This is one of Columbia's first features now back on the air after an absence of several years.

dische Radio Omroep Moatschappij. The stations operated by this group are: YDA, Bandoeng, 6,116 kcs., 49.02 meters, 1.5 kilowatts. YDA is now on the air.,

YDA2, Batavia, 4382 kcs., 69.28 meters, 150 watts. YDA2 was formerly known as Tandjong Priok.

YDB, Sourabaya, 6136 kcs., 49.67 meters.

YDB2, Samarang, 4360 kcs., 68.65 meters.

YDB and YDB2 will be on the air before winter, and there is a possibility that the Bandoeng and Sourabaya transmitters will be heard here.

Mr. Walker also contributes the following data on Javanese telephone stations:

PMN, Bandoeng, 10260 kcs., works Sydney.

PLP, Bandoeng, 11000 kcs., works Sumatra and the Celebes.

YBG, Medan, Sumatra, 10425 kcs., works Bandoeng, PLP.

PNI, Macassar, Celebes, 8775 kcs., works PLP and YBZ. Menado, Celebes, 7680 kcs., works PLP and PNI.

A Change in Names

We have become so used to calling France, France, and Germany, Germany, that it is only with an effort that we remember to call a country by its new name when a change is made. Countries do change their names occasionally. When Russia and Siberia became the Union of Socalist Soviet Republics it took us several years to become reconciled to the change. (After a few letters addressed to "Russia" were returned we remember to address them to the U. S. S. R.). Now another major change has been made. In fact, it occurred a year ago. The Dutch East Indies no longer exist, but are now known as Netherland India. When the world governments were officially notified of the change by The Hague, they were also reminded that the Netherlands is the correct name for Holland. RADEX will try to remember these changes in future listings.

Logs New Peruvian

"I have a Midwest 16-tube radio which offers all the variety one could ask for," writes an enthusiastic user, Volney Blanchard, 7229A St. James St., Wanwatosa, Wisc. "I have been getting JVM, Tokio (Nazaki) regularly around 6 a. m., CST, with fair quality and good volume on 10740 kcs. Last Saturday night I logged a new station, OA4AP, Lima, Peru, which I heard until 11 p. m. They announced in Spanish and English after every selection, and asked for reports on reception. They have practically dispensed with English since. Last night I heard PRADO calling "La Voz del Tropico" in Costa Rica. It was all in Spanish and I didn't get the name of the city and do not believe any call letters were given. This conversation lasted from about 10 o'clock until midnight. I received the Costa Rican on approximately 6700 kcs. I also heard HC2RL calling relatives and friends around New York.

"I have had 11 South Americans, KNRA, IRM, I2RO, VK2 and 3ME, Daventry, Zeesen, CT1AA, COC, etc., etc. My DXing is limited to Sundays and evenings as a rule." No wonder Mr. Blanchard is proud of his radio.

Verifies HJ3ABD

Supplementing the Peruvian data in the paragraph preceding, Robert L. Weber, West McHenry, Ill., thoughtfully mentions the wavelength used, 38.5 meters. He believes the call sign is OA4AB, and gives the address as All American Cables Co., Box 858, Lima. Mr. Weber heard them announce that they were moving up to 51.9 meters but could not hear them on the higher wavelength. "I also received a verification from JYR, from the Chief Engineer, giving their frequency as 7880 kcs., and saying that they relay JOAK," Mr. Weber's letter continues. "One of my prizes is a veri from HJ3ABD, received just five and a half months after writing for it. ORK, Brussels, in their letter of verification, say that they work daily on 29.04 meters from 12:45 to 2:15

p. m., EST. From 12:45 to 1 p. m. there is a daily talk in French, then for the next hour a musical program, followed by a fifteen minute talk in Flemish to conclude the broadcasting. They sign off with the national hymn, Brabanconne."

OA4AB is also reported by O. Ingmar Oleson of Ambrose, N. Dak., who says they are heard almost nightly from 9 until 11:30 p. m. or midnight. He says their programs feature primarily American popular recordings.

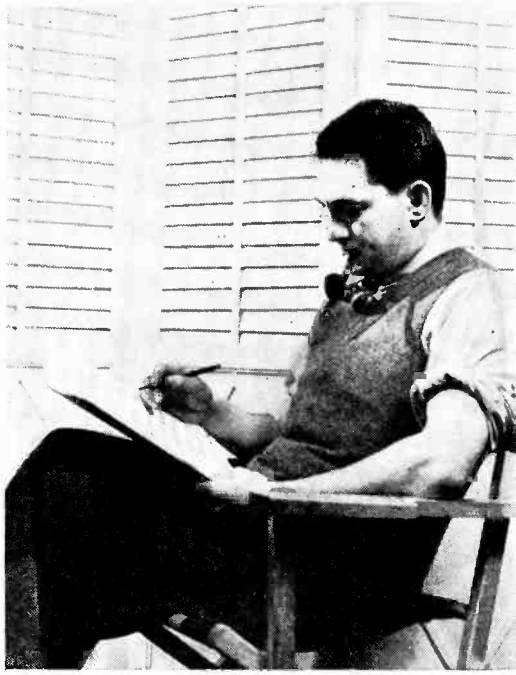
Picks Up KNRA

"I note that several fans report Berlin and London the best Europeans on the air," comments D. I. Gross, P. O. Box 6052, W. Asheville, N. Car. "I heartily agree with them as I have had wonderful reception every night all summer, except during electrical storms. DJC and DJD were not on several nights at about the time of the Nazi uprising, however. Here is some news regarding KNRA: I picked them up one night, a Friday, about 9:30 p. m., EST, on about 6.2 megs. Signals was about QSA4, R7 with some QRM, but on the whole, quite good. I now use, almost exclusively for Europeans, an RCA World-Wide antenna. It runs due North and South. I find this far better than any Lynch antenna but believe this may be because it runs N. and S., whereas the Lynch runs Northeast by Southwest. The Lynch works very good for South Americans and brings in less static than a straight aerial.

BBC Verifications

"I see that Mr. A. C. Lyell, Cape Town, reports that the British Broadcasting Corp. does not verify. The chief engineer writes me that this is not due to lack of courtesy, but because they broadcast on two wavelengths, using two transmitters simultaneously, making exact identification difficult. Their programs are published in advance in 'World-Radio.'"

Mr. Gross uses a Scott All-Wave-15 and would like to hear from other users. The BBC does not give explicit verifications because of the fact that



Victor Young, featured with his orchestra on the Chevrolet program every Sunday evening over an NBC-WEAF network, and author of "Sweet Sue" and many other songs. He wrote the basic melody of "Sweet Sue" on the back of an envelope, under a lamp-post, while on the way to a show.

their programs are published in advance all over the world, but they do acknowledge reports, which is all that can be expected of them. The courtesy cards from Daventry can be considered verifications, and all contest judges so far have so accepted them. In the recent Denton Trophy Contest, one card was considered as a QSL from all the Daventry transmitters, GSA through GSG.

Mr. Gross also brought up some important points concerning International Reply Coupons. Coupons should always be sent to stations when requesting a reply, and when purchasing Coupons, care must be exercised that they are properly stamped. A coupon is made void if no postmark appears, or if the postmark is on the wrong side. It must be stamped in the circle on the left side, labelled "Timbre du bureau d'origine."

The "Seth Parker"

The good ship "Seth Parker" has

finally heaved anchor and resumed its "round the world cruise." The split between the NBC and the skipper Phillips Lord has, to all appearances, been patched up. Rocky Point has been heard testing with KNRA, and a program was heard over the networks from Haiti. Probably the "South African" picture, being filmed in Jamaica, is finished, or it may be that the appearance on the scene of RCA engineers for the purpose of dismantling the transmitter caused him to have a change of heart. Anyway, station KNRA has been re-inserted in our lists, and tuners who have not yet logged the station should try to do so, as it is problematical how long the "cruise" will continue.

Home-Made Reception

"I wish to report reception of a few catches during the summer months on my 3-tube Doerle, battery operated set which I built myself," states Leon Papernow, 2204 Cralendon Rd., Brooklyn, N. Y. "In the recent international commercial rebroadcasts on Sundays at 9 p. m., the following phone circuits were heard: GSW, R9, sending the London program; DIQ, R8-9, sending Berlin's portion; GBS, R7, relaying Paris to New York. During the rebroadcasts from Austria and the Swiss phones did all the relaying. HBJ on 20.6 meters returned to the air to send the program to the NBC. Their identifying signal is a beat of a metronome, as is that of most European broadcasting stations. Incidentally, has anyone heard PRADO on the 19 meter band? I heard them on a special program on a Sunday from 5:45 to 6:15 p. m., EST. The announcements were all Spanish: "Allo, allo, Estacion El Prado, Riobamba, Ecuador."

Weak Signals from KFZ

"I am sending in some information which I gleaned during the past week." contributes Geo. W. Acker, 267 N. Ly man St., Wadsworth, Ohio. "On Monday afternoon I came across LSX near 5 p. m. I decided that they were on the air to talk with Little America, so started on a hunt. On KFZ's 22.64 meter wavelength I came across a very weak voice transmission, in English. This was evidently the Byrd Expedition, as I managed to hear must talk concerning KFZ. LSX was coming up in good shape. The next evening they were no doubt at it again, as I caught LSX talking to the Bay of Whales station around 9 p. m. Conditions, however, were so bad that I could not manage KFZ direct. VK3ME and VK3LR were also best around 6 and 6:30 a. m., after which they began to drop out, although they held on until signing off at 7. This morning W1XAZ was extra strong. They come on at 6 a. m. and as they develop strength they almost completely engulf VK3LR, being but a hair-line away. However, when Boston is not so extra strong, which is often enough, 3LR rides in right beside them nicely.

The Egyptian Station

"What time does SUV, Cairo, work? I caught a weak swish on its freq. (10014 kcs.) Sunday morning around 6-7 a. m. I hung onto it for a long time, and came back to it time and again, but could hear no speech. I have had this station several times and one morning could just faintly make out that English was used."

According to our British reporter, Robt. M. Pybus, VUB at Bombay, India, has moved down to 9565 kcs. and is conducting tests on this frequency irregularly between 10 a. m. and 2 p. m., EST. We do not believe it has been heard in North America, but it may be worth trying for.

Schedule of Singapore

Station ZHI, Broadcast House, 2 Orchard Road, Singapore, Straits Settlements, works on 49.8 meters with a power of only 90 watts, which almost precludes any possibility of the station being heard in this country. The schedule, according to information received from the Radio Service Co., operators of the station, is Monday, Wednesday and Thursday from 5:40 to 8:40 a. m., EST. Our readers "down under" who have the good fortune of hearing ZHI should report on

the Wednesday programs only, when requesting a QSL, as these are the only programs of which a log is kept.

Some Queries

"The other morning I logged JVM, 27.9 meters, from 7 a. m. until a quarter to nine, when they signed off," commences a note from Norman F. Kriebel, 116 Bethlehem Pike, Ambler, Pa. "I believe this station is in Nagaski, Japan, and I would like to have the address so I can write for a confirmation.

"Also, I would like the address of ORK in Belgium, which I find broadcasting daily from 2:45 to 4:15 p. m., EDST, on about 29 meters.

"What boat has the call letters NABD?"

We do not yet the street address of the new Japanese telephone stations. The stations with the JY- prefix should be addressed to the Chief Engineer, Kemikawa-Cho, Chiba-Ken, Japan, and the stations with the JV- prefix, to the Japan International Telephone Company at Nazaki, Japan.

The address of ORK is, Regie des Telegraphes et des Telephones, Direction des Radiocommunications, Bruxelles, Belgium.

NABD is the call assigned the warship Indianapolis.

Has 65 of 100 Best

Mr. M. Horlick, 22 N. Glenellen Ave., Youngstown, Ohio, is another Midwest 16 booster. His letter follows: "I see where different radio fans were inquiring about the Midwest 16. I have one and can only say that it is OK. I have 65 shortwavers out of the 100 Best as given in your lists. I get Germany, England, France, LSX at Buenos Aires on Monday and Thursday from 9 to 11 p. m., and stations on the broadcast band from all over the country. All my stations are logged between the hours of 8:30 a. m. and 11:30 p. m., on an aerial running east and west, 100 feet long and about 33 feet high."

For Canadian Fans

"I am listing a few shortwave stations that perhaps will be a help to your Canadian readers," surmises S. H. Watson, 14 Arlington Apt., Edmonton, Alta. "These are sure bets and should not take much finding, even for new fans. These stations were picked up on my Victor 6-tube Globe Trotter. GSA, Daventry, England, 49 meter band, every night, and VK2ME, Sydney, Australia, 31 meter band, Saturday night and Sunday morning, comes in better at night, while a few months ago it was best in the late afternoon. I have not mentioned stations in the States as I can always pick them up, such as Wayne, Schenectady, Chicago, etc."

Verifying EAQ

We have been asked why some persons get QSL cards from EAQ, verifying their reception, while other only get program sheets from the International Broadcasting Co. of London, although reports are sent to Madrid. Transradio Espanola, operators of EAQ, will always verify by QSL card when an International Reply Coupon is enclosed, never otherwise. When no Coupon is sent, the report is turned over to the IBC, a London organization which broadcasts commercial programs over the Madrid station.

A New Serial

Beginning in the November issue, Mr. Dashiell will present a series of articles each dealing with the new radio sets offered by the leading manufacturers. In each issue for several months, Mr. Dashiell will discuss these receivers, their circuits and unusual features so that our readers may have full knowledge regarding the new sets.

This series of articles should be of general interest as well as of particular value to those who desire to purchase new receivers.

Among the makes to appear in early issues are the Midwest, Scott, Atwater Kent, Philco, and General Electric.

The Old DX Season *and* THE NEW

WHAT spring is to the golf addict, the autumn months are to the radio enthusiast. Before the mud of spring has dried, the golfer gets out his clubs and polishes them up lovingly. This time of the year the DXer gets out his old log, notes the season's changes and prepares to add the new stations to his list. In the September issue we published nearly 200 changes that were made in frequencies, locations, calls and power during the summer vacations. Many of these changes will make it possible for our readers to hear stations they never heard before. When a station changes frequencies, it oftentimes eliminates interference that has theretofore prevented listeners from logging stations on adjacent channels. The scientific DXer consequently studies these changes with great care and notes the effect they will have upon his possible reception of stations he needs. A few copies of the September issue containing these changes, are still available.

From "Old Kentucky"

"I had a very successful season last year," reports James T. Spalding, 2012 Alexander, Louisville, Ky. "A careful check of my log shows the following received from Dec. 22, 1933 to July 15, 1934 using a Philco 16-L part of the time: U. S. s. w., 36; U. S. b. c. b., 206; Foreign s. w. 121; Foreign b. c. b. 29; Police, 91; hams, planes, ships, etc., bring the total up to 854. Up to this time I haven't had any luck with TP's or TA's owing to bad location and indifferent aerial but I have lately moved to a more suitable place and erected a long L aerial for b. c. so watch my smoke. Some of my latest veries include Pontoise on all three frequencies, I2RO, HBP, the German s. w. stations, VE9GW and CJRX, XETE. I also have reports out to HJ1ABB, PRA3, PHI. The latter comes in on 17,775 early mornings until Boundbrook interferes. I also have HI1A, 7½ watts in Dominica and VK2ME. According to information received, COC had a bad fire and is off the air while rebuilding a more powerful station. HVJ is on Saturdays 9:00-9:30 a. m. CST and irregular the rest of the week according to a letter from the station director. A careful check of RADEX for the last six months shows only three reports from Kentucky. Are we lazy down here or what's wrong? Let's have more reports from Kentucky. Would be glad to have letters from any DXers especially foreigners."

Learns Code

"After listening to dozens of code stations which had merely been interference to me, I began to learn code a few months ago," observes Dr. Harold R. Jacobs, 91-05 Boulevard, Rockaway Beach, N. Y. "There are always dozens of code stations on so that the DXer need never lack material for practice. And logging these stations is easier than it would seem. Of course one must memorize the dots and dashes. I find dozens of stations which appear to do nothing all day and night except announce their call letters. For example, OXR or HAS or FXK can be heard at any hour, it seems, sending VVVV de OXR-OXR-OXR or whatever the call may be, over and over, interminably. There is no difficulty in logging them and they are a great help to one trying to learn the code by himself. I think that this field, which represents a step in the logical progression of the DXer, has been largely overlooked. Where these steps lead, I don't know—maybe to delirium! My log now totals 1089, including 607 on the b. c. b. with veries from PP, LR-5, HJN, YV1BC, Radio Normandie. I have 212 on s. w. excluding amateurs which I do not log. I also have 270 code stations. All in

all, I have heard 51 countries." Clement Van Velsor, writes that WCNW, Brooklyn, 1500 kcs., gives lessons in code daily from 4:15 to 4:30 p. m. EST.

"Iowa on the Air"

Robert W. Gorsuch, 431 Main St., Grinnell, Iowa, advises us that the radio stations of that state will join in presenting "Iowa on the Air" on Sunday morning, December 16th. The leading DX clubs are co-operating by not scheduling any program for the morning mentioned. Prizes are to be offered for the most distant reports and the most complete reports. These prizes will cover the reception of each of the stations taking part. The CDXR, the IDA and the NNRC will each offer two one-year memberships as prizes.

The following stations have signified their intention to take part in the "Iowa on the Air" program: WHO, KFNF, KFJB, WOI, KMA, WMT, KSO, KSCJ, KGCA, KWLC, KFGQ, KOIL and KWCR. WHO has purchased a new $30,000 vertical antenna, 500 feet in height, which it is hoped will be erected in time for this program. DXers everywhere are urged to give this program publicity in their correspondence, bulletins, tip broadcasts, and otherwise and Courtesy Program Committees are asked to keep the morning of December 16th clear.

Further details of the program and the prize awards will appear in later issues of this magazine.

All Continents, 28 Countries

"I find in checking the log I compiled while living in Claremont, N. H., that I have heard 956 stations and have verified 840, the last one being PXI, 1015 kcs., Hilversum, Holland. Can anyone give me the power of this station? I find that my New Hampshire residence brought me 28 countries including every continent and that very little fellow, TJW, Bermuda, with seven and one-half watts." This report comes from Robert R. Rawstron, "The Cordial Granite State DX Fan," who has recently returned to his former home in Massachusetts and will live at 96 Leeds Street, Worcester. "I have done no DXing in Worcester as yet, but find reception rather poorer than in New Hampshire due to the numerous factories working double shifts. I have no high hopes of Worcester equalling my former home and so I won't be disappointed. Won't some of you fellow DXers in Worcester and vicinity drop me a line? My veries are bound and easy to look at. I still have the B-16 Midwest and feel I bought the best for my money."

The Season's Signal

"I was glad to see the September issue of RADEX in the mail this morning for it means a new DX season is about to start," exclaims Robert Base, 4105 Alto Road, Windsor Hills, Baltimore, Md. "Also it meant the addition of another station to my log without even turning on my radio! This is how—one August 7th, I got up to see how my new Scott, which I recently bought, would work on the frequency checks. I received quite a few stations including KXO, KLS, KGDM, KFAC, KPJM, KWG, WBNO. I also received the Dothan, Ala., station but I could not seem to get the exact call letters although I knew they were not WHET. When my RADEX came this morning, I looked up the call letters and found that they had been changed to WAGF, so I added it to my log. Short wave verifications received this summer were YV4BSG, YV5BMO, HC2RL, IRM and HI1A. I am looking forward to the 1934 DX season with 726 heard and 605 verified. My 2000-mile stations total 90 heard and 71 verified."

Great Luck with TP's

"I want to thank you for getting me started on foreign DX. This was through the February, 1933, copy of RADEX," begins H. H. Diedrich, 2420 Fifth Ave., Moline, Ill. "During the past season, I have logged the following trans-Pacific stations with a good portion verified: 3AR, 4QG, 5CK, 5CL, 2BL, 2CO, 3LO, 2UW, 4RK, 2KY, 4BC, 2GB, 2UE, 2SM, 2HD, 3UZ, 3BO, 4TO,

3DB, 3HA, 2YA, 3YA, 4YA, JOAK-1, JOBK-2, JOHK, JOIK, KZRM, KGU and KGMB. In South America, I have logged and verified LR4, LR5, HJN, YV1BC, and CX26. I have used a small battery set about eight years old, t. r. f., the power of which would equal about two of the modern tubes. I find that the smaller the set, the greater the thrill, the greater the feeling of achievement. I have a total of 850 stations, foreign and domestic. I do not recognize short wave or count any s. w. stations in my total." There's a claim to set the critics wild.

The Port of Entry

Nova Scotia continues to be the American terminus for the foreign signals. Philip H. Robinson, Shelburne, N. S., writes: "My verified include FQN, LR5, YV1BC, OKP, Copenhagen, Lyons, Poste Parisien, Breslau, Frankfurt, Hamburg, Heilsberg, Langenberg (Koln), Leipsig, Hilversum, Budapest, Athlone, Milan, Rome, Trieste, Turin, Barcelona EAJ1, Beromunster, Sottens, Rabat, Algiers, 4QG, 2UE and 2YA. My best catch was the verified reception of XGOA, Nanking. Letters are out to LR2, LR3, LR6, CP4, ZP1, CX12, CX26, OKB, Fecamp, Bordeaux, Toulouse, Berlin, Nurnberg, Stuttgart, 3YA and 4YA, all positively identified. My receiver is a 1929 eight-tube Balkite using 227s and 245s. I use an 'Ollie Ross' ground and a 300 foot aerial although in the evenings I have to cut this down to fifty feet or less in order to gain selectivity which my set lacks, being a t. r. f."

Uses a 1924 Relic

"I have been a DX fan for several years, but not until the fall of 1932 did I start to go in for verifications," narrates Joe Enz, 97 Morgan Ave., Brooklyn, N. Y. "I was like several other persons writing to radio stations, I did not enclose postage. I have changed now since I have started reading RADEX and up to date I have logged over 500 stations. I use an old 1924 battery set which regenerates, a Grebe five-tube using A battery and 135 volts eliminator. This set is a wonderful DXer and had brought me KGW, KXL, KGBU, KERN, KXA, KRKD, KMTR among many. I have received one European, Berlin on about 842. I never write to the station unless I am positive and I send a report covering from half to an hour with information concerning selections, volume, fading, static and weather conditions."

Needs New England

L. D. Irvine, Box 652, Abilene, Texas, picked up his first copy of RADEX on an Abilene news stand in August, 1933, and began DXing at once. "To date, I have heard and definitely identified 412 stations," he reports. "On short waves I have heard 48 stations including airport, police and commercial broadcast and phone; the best of these are VE9GW, XETE, HJ1ABB, XEBT, and YV3BC. On the b. c. b. my log now stands at 364, of which 96 are 100 watts or less. I have all states except Maine, Vermont and New Hampshire. Can anyone give me tips on these three states? I have 26 Mexicans, E Porto Rico, 1 Cuban, 2 SA's, 3 Canadians and 1 Alaskan. Not so bad for one year considering the reputation of bad reception here in Texas. My set is an all-wave Emerson."

Need Only 57 More

"And now a little resume of my log," adds Carl Forestieri, "The Bronx Owl," 463 E. 185 St., New York City. "On the b. c. b. I have heard 734 stations and verified 681. Of these 84 were over 200 miles from my location with 82 verified. I have 35 states complete with 31 of them completely verified. According to the midsummer RADEX I have to log 57 more stations in the U. S. with only four W's which, I believe, are not on the air as yet. I started on the short waves only last March and have heard 72 stations in 21 countries. Of these 47 are already verified. My best are VK2-VK3ME, VK3LR, HI1A, Rabat, CT1AA, HCJB, HCRL and YVQ. The best clear foreign station is DJD. A dandy catch was LS2 on June 18th, testing its new

transmitter built entirely in Argentine."

News From West Coast

"After today KQW belongs to Ralph Brunton who also owns KJBS," informs Henri DePaulin, 3366 Pierce St., San Francisco. "He is going to remodel KQW with new equipment and the two stations will now be known as the Northern California Broadcasting System. I have a Majestic Century Six with which I have logged 200 stations with most of them verified. Of these 64 are 500 watts or under with CFCT at Victoria the lowest at 50 watts. A week or so ago I bought a Stewart-Warner converter and an RCA World-wide Antenna. I now have a few more on the log including three of Japan's and GSB at Daventry. GSB came in great out here for four nights and then was heard no more. Would be glad to hear from anyone having the same sets I have."

Uses Umbrella Aerial

"When I wrote you last fall, I had about 450 stations," recalls T. R. Grosvenor, S. Hillside, Wichita, Kans. "Now I have 688. Not having started verifying until about January 1st, 1933, I only have about 275 veries on hand now. Best veri to date is HJN but have a report out to LR5. I now have an umbrella-type aerial 40 feet high with six ribs totaling 200 feet. The east coast monitor tests rip through on that like nobody's business. During the past season, I logged nine of the "big ten" in Japan, 3UZ, 2YA on 570, KGU, CX26, LR5."

Mr. Grosvenor encloses the following in regard to their organization. "The Mid-continent Letter Exchange is something new in the DX field. We are not a DX club in the strict sense. We gather letters from all parts of the world and forward the condensed version to our members. These letters contain queries, station changes, DX experiences, etc. We do not attempt to issue a DX calendar leaving that to the DX clubs and established publications. Further information may be had by writing to Mid-continent Letter Exchange, 247 S. Hillside, Wichita, Kans. Dues are fifteen cents a month with a joining fee of 25 cents. Will be very glad to hear from all those interested especially those in foreign countries."

KTRB Now on the Air

Warren E. Winkley, P. O. Box 12, Hughson, Calif., wrote under date of April 28th that, in spite of the fact that DXers in various parts of the country were reporting KTRB in Modesto, Calif., those who live within nine miles are unable to secure any information concerning them. He and a friend went to Modesto but found no signs of a transmitter so he concluded that they had not yet started to build. This, of course, was three months ago and the station may now be testing. Mr. Winkley reports that the experimental television station in Bakersfield, W6XE, are broadcasting every Wednesday and Friday night from 8 to 9 PST. In spite of the terrific intermittent static," he says, "I have pushed my log up to 570 but so far have only 130 verified with 25 reports out. My latest veries are from JOJK, KNOW, CHAB, KGCR, JOQK and KGMB. Of the Aussies 2BL is still the most consistent and 3YA of the Zedders. XGOA is very weak with only occasional snatches being heard."

With reference to KTRB at Modesto, Fred W. Hanssen, 220 S. Santa Cruz St., Ventura, Calif., writes that this station came on the air Monday morning, May 21, with their first test program. Their slogan, he says, is "The Voice of Central California." "LR2 in Buenos Aires," says Mr. Janssen, "has been coming through out here fine business on the 910 kc. channel since XEW moved to 890. We are located far enough away from CRCM in Montreal so that we are not bothered by their signals a great deal when looking for LR2. This tip might prove helpful to some of your readers out here on the West Coast.

"Incidentally, I won the first prize for being the farthest listener reporting on the last CMPN DX program," confesses Mr. Janssen, "It was a handsome Cuban police club with my name engraved on it and was donated by the Havana Police department through the kindness of Captain Octavio Soler. I am much enthused about it as it is the first prize I have ever won although I have tuned in and verified nearly 630 broadcasting stations.

More DX News from Britain

"In a former letter I said I would be pleased to correspond with American DXers," writes F. R. Crowder, 12, Belle Vue Place, Belle Vue Road, Leeds 3, Yorkshire, England. "Since writing, however, I have been appointed General European Representative for the IDA. We have about 50 members over here with whom I keep up a regular correspondence. In view of this, I fear I would not be able to answer any of the USA fellows that might write to me. I thought it only fair to let you and them know.

"I myself have just completed a fairly successful DX season, having received 52 verifications from stations on the b. c. b. all more than 2000 miles distant. My best veri is KDB, 100 watts. Other notable veries are KGO, KFI, KGB, KGW, KOH, KSO, WREN, KVOR, etc. Some of the above veries (so I am told by my American friends) are considered quite good catches even in the USA."

The Frequency Checks

The frequency checks last season were manna for our DXers. We have no information as yet as to whether or not these checks are to be continued. A number of the broadcasting stations are listing them, however, instead of regular DX programs so it is probable that they are to be continued for some little time longer. "Last week I received 30 new stations, 29 of them on frequency checks," Frank Wheeler, 406 Eagle Point, Lakeside, Erie, Pa., wrote in

This is Maxine whose deep contralto voice is heard to the accompaniment of Phil Spitalny's girl ensemble. Maxine is nineteen. Spitalny has made a great orchestra out of his girls.

May. These boosted my all time log (192801934) to 568, and my current log (Sept., 1932, to May, 1934) to 464. The frequency checks surely increase a fellow's log. Wouldn't it be great if other countries did the same?"

Fun Logging Amateurs

"I have a Halson 5-tube superhet and a home-made 2-tube receiver," preambles Arthur Phillips, Jr., 720 Linwood Road, Birmingham, Ala. "In January I started logging amateur stations on the 20, 80 and 160 meter bands. I now have 400 amateurs in the U. S., Mexico, Hawaii, Puerto Rico and South America. On the two-tube set I have 25 foreign stations. My best are GSB-GSA, DJC, VK2ME and KNRA. KNRA was logged May 5th at 7:30 p.m. EST coming in Q5R9 on 32 meters. He was talking to WDN. I am fourteen years old and would like to hear from any other SWL's that would like to write."

October DX Calendar

Continued from front cover

Wednesday Morning (*Continued*)

3:10-3:30	WRBX	1410	250	Roanoke
	WHBC	1200	100	Canton
	KGIW	1420	100	Alamosa
3:20-3:40	WMBG	1210	100	Richmond
	WTRC	1310	50	Elkhart
	KICA	1370	100	Clovis
3:30-3:50	WBCM	1410	500	Bay City
	KGHI	1200	100	Little Rock
3:40-4:00	WGH	1310	100	Newport News
	WGBF	630	500	Evansville
	KIDW	1420	100	Lamar
3:50-4:10	WOCL	1210	50	Jamestown
	WROK	1410	500	Rockford
	KBTM	1200	100	Jonesboro
4:00-4:20	WQAN	880	250	Scranton
	WBOW	1310	100	Terre Haute
	KFBB	1280	1000	Great Falls
4:10-4:30	WHEC	1430	500	Rochester
	WOSU	570	750	Columbus
	KGFL	1370	100	Roswell
4:20-4:40	WSAZ	1190	1000	Huntington
	WBEO	1310	100	Marquette
4:30-4:50	WGAL	1500	100	Lancaster
	WKBN	570	500	Youngstown
	WCAL	1250	1000	Northfield
4:40-5:00	WCAZ	1070	100	Carthage
	KFJB	1200	100	Marshalltown
4:50-5:10	WKBF	1400	500	Indianapolis
	WACO	1420	100	Waco
5:00-5:20	WDZ	1070	100	Tuscola
	KGDE	1200	100	Fergus Falls
5:10-5:30	WLBL	900	2500	Stevens Point
	WLB	1250	1000	Minneapolis
5:20-5:40	WBAA	1400	500	W. Lafayette
	WIL	1200	100	St. Louis
5:30-5:50	WTAD	1440	500	Quincy
	KGHF	1320	250	Pueblo
5:40-6:00	WXYZ	1240	1000	Detroit
	October 17			
2:00-2:30	KWTO	560	1000	Springfield
3:00-3:30	KSO	1320	250	Des Moines
3:00-5:00	WOPI	1500	100	Bristol
	October 24			
3:00-5:00	XED	1160	500	Guadalajara
	October 31			
5:30-5:45	WFBG	1310	100	Altoona
5:30-6:00	WRAW	1310	100	Reading
	October 10, 17, 24, 31			
2:00-2:30	WROK	1410	500	Rockford
	October 3, 10, 17, 24, 31			
10:00-1:00	CMBX	1185	250	Havana
2:30-4:30	CKMO	1410	100	Vancouver
6:00-6:30	WASH	1270	500	Grand Rapids

Thursday Mornings

	October 4			
2:00-2:20	WSOC	1210	100	Charlotte
2:10-2:30	WSPA	1420	100	Spartanburg
2:20-2:40	WFBC	1300	250	Greenville
2:30-2:50	WSGN	1310	100	Birmingham
2:40-3:00	WJBO	1420	100	Baton Rouge
2:50-3:10	WGCM	1210	100	Gulfport
3:00-3:15	KREG	1500	100	Santa Ana
3:00-3:20	WRDW	1500	100	Augusta
	WHBY	1200	100	Green Bay
	WDAH	1310	100	El Paso
3:10-3:30	WKAQ	1240	1000	San Juan
	WJMS	1420	100	Ironwood
	KLUF	1370	100	Galveston
3:20-3:40	WCSF	1360	500	Charleston
	WEDC	1210	100	Chicago
	KTSM	1310	100	El Paso
3:30-3:50	WBIG	1440	500	Greensboro
	KGKL	1370	100	San Angelo
3:40-4:00	WCOA	1340	500	Pensacola
	WSBC	1210	100	Chicago
	KFPM	1310	15	Greenville
3:50-4:10	WQBC	1360	500	Vicksburg
	KFIZ	1420	100	Fond du Lac
	KMAC	1370	100	San Antonio
4:00-4:20	WDBO	580	250	Orlando
	WEBQ	1210	100	Harrisburg
	KFYO	1310	100	Lubbock
4:10-4:30	WNBR	1430	500	Memphis
	WMPC	1200	100	Lapeer
	KONO	1370	100	San Antonio
4:20-4:40	WQAM	560	1000	Miami
	WHBF	1210	100	Rock Island
4:30-4:50	WDAE	1220	1000	Tampa
	WKBZ	1500	100	Muskegon
	KFJM	1370	100	Grand Forks
4:40-5:00	WJEM	990	500	Tupelo
	WCBS	1210	100	Springfield
4:50-5:10	WCOC	880	500	Meridian
	WKBV	1500	100	Richmond
	KFGQ	1370	100	Boone
5:00-5:20	WTAX	1210	100	Springfield
	KGBX	1310	100	Springfield
5:10-5:30	WTOC	1260	1000	Savannah
	WHBD	1370	100	Mount Orab
	KCMC	1420	100	Texarkana
5:20-5:40	WHBU	1210	100	Anderson
5:30-5:50	WIBM	1370	100	Jackson
	KGFF	1420	100	Shawnee
5:40-6:00	WOMT	1210	100	Manitowoc
	KNOW	1500	100	Austin
	October 18			
1:01-1:09	CFCY	630	500	Charlottetown
	October 25			
2:00-3:00	CMJP	1360	75	Moron
3:15-3:45	KFH	1300	1000	Wichita
	October 4, 11, 18, 25			
12:00-3:00	WCNW	1500	100	Brooklyn
3:00-4:00	XEFI	720	250	Chihuahua

Friday Mornings

	October 5			
2:00-3:00	CMJP	1360	75	Moron
3:00-3:20	WJW	1210	100	Akron
	KRMD	1310	100	Shreveport
3:10-3:30	WPAD	1420	100	Paducah
	KOTN	1500	100	Pine Bluff
3:20-3:40	WSEN	1210	100	Columbus
3:30-3:50	WELL	1420	50	Battle Creek
	KGEK	1200	100	Sterling
3:40-4:00	WALR	1210	100	Zanesville
	KFPL	1310	100	Dublin
3:50-4:10	WMBC	1420	100	Detroit
	WCAT	1200	100	Rapid City
4:00-4:20	WFDF	1310	100	Flint
	KGCU	1240	250	Mandan
4:10-4:30	WFBE	1200	100	Cincinnati
4:20-4:40	WGAR	1450	500	Cleveland
	KLPM	1240	250	Minot
4:30-4:40	WCLO	1200	100	Janesville
	KGFG	1370	100	Okla. City
4:40-5:00	WCLS	1310	100	Joliet
	KABC	1420	100	San Antonio
4:50-5:10	WJBL	1200	100	Decatur
	KFJZ	1370	100	Fort Worth
5:00-5:20	WJBK	1500	100	Detroit
	KWCR	1430	250	Cedar Rapids
5:10-5:30	WIBU	1210	100	Poynette
	KGFI	1500	100	Corpus Christi
5:20-5:40	WHDF	1370	100	Calumet
	WLBF	1420	100	Kansas City
5:30-5:50	WCRW	1210	100	Chicago
	KGKB	1500	100	Tyler
5:40-6:00	WTAQ	1330	1000	Eau Claire
	WMBH	1420	100	Joplin
	October 19			
1:01-1:09	CFCY	630	500	Charlottetown
3:01-3:09	CHSJ	1120	100	St. John
	October 5, 12, 19, 26			
10:00-1:00	CMBX	1185	250	Havana
1:00-2:30	XEX	1310	125	Monterrey
2:30-4:30	CKMO	1410	100	Vancouver

Saturday Mornings

	October 6			
2:10-2:30	WBRB	1210	100	Red Bank
2:20-2:40	WWRL	1500	100	Woodside
2:30-2:50	WGNY	1210	100	Chester
2:40-3:00	WMBQ	1500	100	Brooklyn

(*Continued on page* 62)

THE SHORTWAVE STATIONS OF THE WORLD BY FREQUENCIES

In the list of stations arranged by frequencies, the frequency is given first, in megacycles followed by the wavelength in meters. The location of each station given in the frequency list is given as it is announced over the air.

A complete list of station addresses appears in the May issue of RADEX.

Continued from the September Number

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.
- F, Forestry service.
- G, Airway ground station.
- P, Police.
- R, Relay (broadcasting).
- SS, Ship to shore, or shore to ship, communication.

Small letters following the hyphen 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.
- 1, 2, 3, figures indicate key numbers in address list.

10.290 29.14

HPC, Panama City, Panama (B-cy) Phones Hialeah

10.296 29.12

LSL, Buenos Aires, Argentina (A-b-1)

10.330 29.02

ORK, Brussels, Belgium (B-bx)
ORK, Brussels, Belgium (R-ax), Daily at 1 p.m.

10.335 29.01

ZFD, Hamilton, Bermuda (A-cy)

10.350 28.97

LSX, Buenos Aires, Argentina (B-cy)
LSX, Buenos Aires, Arg. (R-ax; address letters to LR4)

10.370 28.91

WCG, Rocky Point, N. Y. (E-cy)

10.400 28.83

KEZ, Bolinas, Calif. (E-cy)

10.410 28.80

KES, Bolinas, Calif. (E-cy)

10.465 28.64

WKC, Rocky Point, N. Y. (E-cy)

10.520 28.50

CFA4, Drummondville, P. Q. (B-a-6)
VK2ME, Sydney, Australia (A-a-3)

10.550 28.42

WOK, Lawrenceville, N. J. (A-cy)

10.610 28.25

WEA, Rocky Point, N. Y. (E-cy)

10.613 28.25

EDN, Madrid, Spain (B-a-28), Phones Canaries
EDX, Madrid, Spain (B-a-28), Phones Chile

10.630 28.20

WED, Rocky Point, N. Y. (E-cy)

10.660 28.12

JVN, Nazaki, Japan (B-z)

10.740 27.92

JVM, Nazaki, Japan (A-z)

10.761 27.86

GBP, Rugby, England (A-a-16)

10.840 27.66

KWV, Dixon, Calif. (A-cy)

10.890 27.53

CMA, Havana, Cuba (B-b-31)

10.962 27.35

OCI, Lima, Peru (B-c-25)

11.187 26.80

XAM, Merida, Mex. (B-bx), Phones Mexico City

11.711 25.60

Radio Coloniale, Pontoise, France (R-ax)

11.720 25.58

CJRX, Winnipeg, Man. (R-a-33)

11.725 25.57

PHI, Huizen, Holland (R-ax)

11.750 25.51

GSD, Daventry, England (R-a-17)

11.760 25.50

DJD, Zeesen, Germany (R-a-14)

11.790 25.43

W1XAL, Boston, Mass. (R-ax), Relays WEEI

11.800 25.40

I2RO, Rome, Italy (R-ax)

11.830 25.34

W2XE, Wayne, N. J. (R-ax), Relays WABC

11.865 25.27

GSE, Daventry, England (R-a-17)

11.870 25.25

W8XK, Pittsburgh, Pa. (R-ax), Relays KDKA

11.898 25.20

Rdo., Coloniale, Pontoise, France (R-ax)

11.950 25.08

KKQ, Bolinas, Calif. (E-cy)

12.000 24.99

RNE, Moscow, USSR. (R-ax)

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)

12.660 23.68

CZA, Drummondville, P. Q. (SS-a-6)

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-a-same address as "Rabat")
....., Rabat, Morocco (R-ax)

12.830 23.36

HJA3, Barranquilla, Colombia (B-cy)

12.840 23.35

WOO, Ocean Gate, N. J. (SS-cy)
WOY, Lawrenceville, N. J.

12.930 23.18

WAW, Hialeah, Fla. (B-cy)

13.074 22.94

JYK, Tokio, Japan

13.185 22.74

KFY, Forward Base, Little America (B-cy)
KFZ, Main Base, Little America (B-cy)

13.200 22.71

CFU, Rossland, B. C. (Consolidated Mining & Smelting Co. of Canada, Ltd.)
KFY, Forward Base, Little America (B-cy)
KFZ, Main Base, Little America (B-cy)
KNRA, "Seth Parker" (B-a-37)

13.245 22.64

KFY, Forward Base, Little America (B-cy)
KFZ, Main Base, Little America (B-cy)

13.260 22.61

KFY, Forward Base Little America (B-cy)
KFZ, Main Base, Little America (B-cy)

13.337 22.48

YVQ, Maracay, Venezuela (B-cy) Phones Hialeah

13.390 22.39

WMA, Lawrenceville, N. J. (A-cy)

13.435 22.31

WKD, Rocky Point, N. Y. (E-cy)

13.465 22.26

WKC, Rocky Point, N. Y. (E-cy)

13.480 22.24

WAJ, Rocky Point, N. Y. (E-cy)

13.500 22.09

GBB, Rugby, England (A-a-16)

13.610 22.03

JYK, Kemikawa-Cho, Chiba-Ken, Japan (R-z)

13.671 21.93

HAS, Budapest, Hungary (E-a-39)

13.690 21.90

KKZ, Bolinas, Calif. (E-cy)

13.780 21.75

KKW, Bolinas, Calif. (E-cy)

13.816 21.70

SUZ, Cairo, Egypt (B-a-10)

13.870 21.61

WIY, Rocky Point, N. Y. (E-cy)

13.900 21.57

WQP, Rocky Point, N. Y. (E-cy)

13.984 21.44

GBA, Rugby, England (A-a-16)

14.000 to 14.400

(20.82 to 21.42 meters), amateur band. Phones from 14.150 to 14.250 megs.

14.450 20.75

GBW, Rugby, England (A-a-16)

14.470 20.72

WMF, Lawrenceville, N. J. (A-cy)

14.480 20.70

LSN, Buenos Aires, Arg. (A-b-1)
YNA, Managua, Nicaragua (B-cy), Phones

14.530 20.65

LSA, Buenos Aires, Arg. (A-b-1)

14.545 20.69

HPF, Panama City, Panama (B-cy) Phones Hialeah
TGF, Guatemala City, Guatemala (B-cy) Phones Hialeah
TIN, Cartago, Costa Rica (B-b-9)
TIU, Cartago, Costa Rica (B-b-9)

14.590 20.55

WMN, Lawrenceville, N. J. (A-cy)

14.682 20.42

PSF, Rio de Janeiro, Brazil (A-b-4)

14.800 20.26

WQV, Rocky Point, N. Y. (E-cy)

14.815 20.23

WQL, Rocky Point, N. Y. (E-cy)

14.830 20.21

WKU, Rocky Point, N. Y. (E-cy)

14.930 20.08

HJB, Bogota, Colombia (B-cy)

14.969 20.03

EDQ, Madrid, Spain (B-a-28)

14.980 20.01

KAY, Manila, P. I. (A-cy)

15.040 19.93

WQG, Rocky Point, N. Y. (E-cy)

15.055 19.91

WNC, Hialeah, Fla. (B-cy)

15.104 19.85

RAU, Tashkent, USSR. (B-cy)

15.120 19.83

HVJ, Vatican City (R-ax)

15.140 19.81

GSF, Daventry, England (R-a-17)

15.200 19.73

DJB, Zeesen, Germany (R-a-14)

15.210 19.71

W8XK, Pittsburgh, Pa. (R-ax), Relays KDKA

15.234 19.68

Rdo., Coloniale, Pontoise, France (R-ax)

15.250 19.66

W1XAL, Boston, Mass. (R-ax), Relays WEEI

15.270 19.64

W2XE, Wayne, N J. (R-ax), Relays WABC

15.300 19.70

CP5, La Paz, Bolivia (R-ax)

15.340 19.55

W2XAD, Schenectady, N. Y. (R-ax) Relays WGY

15.355 19.52

KWU, Dixon, Calif. (A-cy)

15.415 19.45

KWO, Dixon, Calif. (A-cy)

15.454 19.40

Rdo., Coloniale, Pontoise, France (R-ax)

15.620 19.19

JVS, Nazaki, Japan (A-z)

15.650 19.16

JVE, Nazaki, Japan (A-z)

15.762 19.02

JYT, Kemikawa-Cho, Chiba-Ken, Japan (R-z)

15.821 18.95

OCJ, Lima, Peru (B-c-25)

15.860 18.90

CEC, Santiago, Chile (B-c-7)

15.863 18.90

FTK, Ste. Assise, France (B-a-11)

16.030 18.71

KKP, Kahuku, Hawaii (A-cy)

16.150 18.56

GBX, Rugby, England (A-a-16)

16.162 18.55

PSA, Rio de Janeiro, Brazil (A-b-4)

16.270 18.48

WLK, Lawrenceville, N. J. (A-cy)

16.380 18.30

XGN, Shanghai, China (B-a-8)

17.080 17.55

GBC, Rugby, England (SS-a-16)

17.122 17.51

HAT, Budapest, Hungary (B-a-39)

17.120 17.51

WOO, Ocean Gate, N. J. (SS-cy)
WOY, Lawrenceville, N. J.

17.260 17.37

CMA1, Havana, Cuba (B-c-31)
DAF, Norden, Germany (SS-a-15)

17.310 17.32

CZA, Drummondville, P. Q. (SS-c-6)
W3XL, Boundbrook, N. J. (R-a-37)

17.512 17.12

DFB, Nauen, Germany (B-a-13)

17.533 17.10

VWZ, Kirkee, Poona, India (B-z)

17.600 17.04

KFY, Forward Base, Little America (B-cy)
KFZ, Main Base, Little America (B-cy)

17.620 17.01

KFY, Forward Base, Little America (B-cy)
KFZ, Main Base, Little America (B-cy)

17.710 16.93

CJAS, Drummondville, P. Q. (A-c-6)

17.720 16.92

HSP, Bangkok, Siam (BX-a-27)

17.760 16.88

DJE, Zeesen, Germany (E-a-14)

17.770 16.87

IAC, Coltano, Italy (SS-a-10)

17.775 16.87

PHI, Huizen, Holland (R-ax)

17.780 16.86

W3XAL, Boundbrook, N. J. (R-a-37)
W8XK, Pittsburgh, Pa. (R-ax)
W9XAA, Chicago, Ill. (R-ax)

17.790 16.85

GSG, Daventry, England (R-a-17)

17.830 16.82
PCV, Kootwijk, Holland (A-b-18)

17.860 16.78
WQC, Rocky Point, N. Y. (E-cy)

17.880 16.76
WQI, Rocky Point, N. Y. (E-cy)

18.020 16.64
KQJ, Bolinas, California (E-cy)

18.116 16.55
LSY, Buenos Aires, Arg. (B-b-2)

18.170 16.50
PMC, Bandoeng, Java (A-a-22)

18.180 16.49
CGA, Drummondville, P. Q. (A-c-6)

18.193 16.48
GAW, Rugby, England (A-cy)

18.296 16.39
YVR, Maracay, Venezuela (B-cy)

18.304 16.38
GAS, Rugby, England (A-a-16)

18.350 16.34
WLA, Lawrenceville, N. J. (A-cy)

18.400 16.29
PCK, Kootwijk, Holland (A-b-18)

18.444 16.25
HJY, Bogota, Colombia (B-cy)

18.611 16.11
GAU, Rugby, England (A-a-16)

18.670 16.06
OCI, Lima, Peru (B-cy)

18.690 16.04
XGK, Shanghai, China (B-b-8)

18.820 15.93
PLE, Bandoeng, Java (A-a-22)

18.856 15.90
ZSS, Capetown, Union of S. Africa (A-z)

18.860 15.89
WKM, Rocky Point, N. Y. (E-cy)

18.958 15.82
LSR, Buenos Aires, Arg. (B-b-1)

18.963 15.81
GAG, Rugby, England (A-a-16)

19.121 15.68
LSM, Buenos Aires, Arg. (A-b-1)

19.182 15.63
ORG, Brussels, Belgium (B-ax)

19.220 15.60
WKF, Lawrenceville, N. J. (A-cy)

19.240 15.58
DFA, Nauen, Germany (B-a-13)

19.270 15.57
PPU, Rio de Janeiro, Brazil (A-b-5)

19.282 15.55
FTM, Ste. Assise, France (B-a-11)

19.418 15.44
EDQ, Madrid, Spain (B-a-28)

19.500 15.38
LSQ, Hurlingham, Buenos Aires, Arg.

19.506 15.37
IRW, Rome, Italy (B-a-20)

19.519 15.36
EDN, Madrid, Spain (B-a-28) Phones Canaries
EDX, Madrid, Spain (B-a-28) Phones Chile

19.596 15.30
LSF, Buenos Aires, Arg. (A-b-1)

19.680 15.24
CEC, Santiago, Chile (B-c-7)

19.684 15.23
EAQ, Madrid, Spain (B-a-29)

19.820 15.13
WKN, Lawrenceville, N. J. (A-cy)

19.895 15.07
LSG, Buenos Aires, Arg. (A-b-1)

19.980 15.01
KAX, Manila, P. I. (A-cy)

20.028 14.97
DHO, Nauen, Germany (B-a-13)
OPL, Leopoldville, Belgian Congo (B-ax)

20.100 14.91
WQY, Rocky Point, N. Y. (E-cy)

20.368 14.72
GAA, Rugby, England (A-a-16)

20.606 14.55
PMB, Bandoeng, Java (A-a-22)

20.820 14.40
LSY, Buenos Aires, Arg. (B-b-2)

20.849 14.38
EDM, Madrid, Spain (B-a-28)
EHY, Madrid, Spain (B-a-28)

21.020 14.27
LSN, Buenos Aires, Arg. (A-b-1)

21.060 14.24
KWN, Dixon, Calif. (A-cy) Phones Kokohead, Hawaii
WKA, Lawrenceville, N. J. (A-cy)

21.069 14.23
PSA, Rio de Janeiro, Brazil (A-b-4)

21.128 14.19
LSM, Buenos Aires, Arg. (A-b-1)

21.410 14.00
WKK, Lawrenceville, N. J. (A-cy)

21.460 13.97
W1XAL, Boston, Mass. (R-ax)

21.470 13.96
GSH, Daventry, England (R-a-17)

21.540 13.92
W8XK, Pittsburgh, Pa. (R-ax)

22.291 13.45
GBU, Rugby, England (A-a-16)

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

RADEX is the only publication listing stations in alphabetical order for your convenience. While these programs are correct at the time of going to press changes are made from time to time.

MONDAY

E-6:30 p.m., C-5:30, M-4:30, P-3:30
C — The Shadow
KLRA WABC WBIG WBRC WCAU WDAE WDBJ WDBO WDOD WDSU WGST WHEC WKBN WKBW WLAC WMBG WNOX WQAM WREC WSFA WSJS WTOC

E-6:45 p.m., C-5:45, M-4:45, P-3:45
R — Billy Batchelor
WBEN WCAE WCSH WEAF WEEI WFBR WFI WGY WJAR WRC WTAG WTAM WTIC WWJ

B — Lowell Thomas
CFCF CRCT KDKA WBAL WBZ WBZA WFLA WGAR WHAM WIOD WJAX WJR WJZ WLW WMAL WSYR

E-7:00 p.m., C-6:00, M-5:00, P-4:00
B — Amos 'n' Andy
CRCT KDKA WBAL WBZ WBZA WENR WFLA WIOD WJZ WLW WMAL WPTF WRVA

C — Myrt and Marge
CKLW KRLD WABC WADC WBT WCAO WCAU WDAE WDBO WDRC WEAN WFBL WGR WHK WJAS WJSV WKRC WNAC WOKO WQAM WSPD WTOC WWVA

E-7:15 p.m., C-6:15, M-5:15, P-4:15
R — Gene and Glenn
WBEN WCSH WEAF WEEI WFBR WFLA WGY WIOD WIS WJAR WJAX WPTF WRC WTAG WWNC

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

E-7:45 p.m., C-6:45, M-5:45, P-4:45
C — Boake Carter
CKLW KMBC KMOX WABC WBBM WBT WCAO WCAU WCCO WGR WHAS WHK WJAS WJSV WNAC

R — Frank Buck Adventures
KSD WBEN WCAE WCSH WDAF WEAF WGY WLIT WMAQ WOW WRC WSAI WTAM

E-8:00 p.m., C-7:00, M-6:00, P-5:00
R — Richard Himber and Orchestra
KSD WBEN WCAE WCSH WDAF WEAF WEEI WFBR WGY WHO WJAR WLIT WMAQ WOW WRC WSAI WTAG WTAM WTIC

B — Jan Garber and Orchestra
KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KSO KWCR KWK WBAL WBZ WBZA WGAR WHAM WJR WJZ WKBF WLS WLW WMAL WREN WSYR

E-8:15 p.m., C-7:15, M-6:15, P-5:15
C — Edwin C. Hill
CFRB CKAC CKLW KGKO KMBC KMOX KOH KRLD KVOR WABC WADC WBIG WBT WCAU WCCO WDAE WDBJ WDNC WDRC WFBL WGST WHP WICC WJSV WLBZ WMT WNAC WORC WQAM WREC WSFA WTOC WWVA

E-8:30 p.m., C-7:30, M-6:30, P-5:30
R — Voice of Firestone
CFCF CRCT WBEN WCAE WCSH WDAF WEAF WEEI WFBR WGY WJAR WLIT WMAQ WRC WSAI WTAG WTAM WTIC WWJ

E-9:00 p.m., C-8:00, M-7:00, P-6:00
C — Evan Evans, Baritone
CFRB CKAC KDB KERN KFBK KFH KFPY KFRC KGB KGKO KGMB KHJ KLRA KLZ KMJ KMOX KOH KOIN KOL KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVI KWG WABC WACO WADC WALA WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDSU WFBL WFEA WGST WHAS WHEC WHP WIBW WICC WISN WJAS WKBW WKRC WLAC WLBW WLBZ WMAS WMBG WMBR WMT WNAC WNOX WOKO WORC WPG WQAM WREC WSFA WSJS WSPD WTOC

R — A. & P. Gypsies
KSD WBEN WCAE WCSH WDAF WEAF WEEI WGY WHO WJAR WLIT WMAQ WOC WOW WTAG WTAM WTIC WWJ

B — Sinclair Minstrels
KDKA KFYR KOA KOIL KPRC KSO KSTP KTBS KTHS KVOO KWK WAPI 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 WSOC WTMJ WWNC

E-9:15 p.m., C-8:15, M-7:15, P-6:15
C — Fray and Braggiotti
CFRB CKAC CKLW KFAB KFH KGKO KLRA KLZ KMOX KOH KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVOR WABC WACO WADC WALA WBBM WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGST WHAS WHK WHP WIBW WICC WISN WJAS WJSV WKBW WKRC WLAC WLBW WLBZ WMAS WMBG WMBR WMT WNAC WNOX WOKO WORC WPG WQAM WREC WSFA WSJS WSPD WTOC

C — Billy Batchelor
KDB KERN KFBK KFPY KFRC KGB KHJ KOIN KOL KVI KWG

E-9:30 p.m., C-8:30, M-7:30, P-6:30
C — Lud Gluskin and Orchestra
CKLW KMBC KMOX WABC WADC WBBM WCAO WCAU WDRC WEAN WFBL WFBM WHAS WHK WJAS WJSV WKBW WKRC WNAC WOKO WOWO WSPD

R — Colgate House Party
KDYL KFI KFYR KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTBS KVOO WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFAA WFBR WFLA WGY WHO WIBA WIOD WIS WJAR WJAX WJDX WKY WLIT WLW WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSAI WSB WSM WSMB WTAG WTAM WTMJ WWJ WWNC

B — Princess Pat Players
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WCKY WENR WGAR WHAM WJR WJZ WMAL WREN WSYR

E-10:00 p.m., C-9:00, M-8:00, P-7:00
C — Wayne King and Orchestra
CKLW KDB KERN KFAB KFBK KFPY KFRC KGB KHJ KLZ KMBC KMJ KMOX KOIN KOL KRLD KSL KVI KWG WAAB WABC WADC WBBM WBNS WCAO WCAU WCCO WDRC WDSU WEAN WFBL WFBM WHAS WHK WIBW WJAS WJSV WKBW WKRC WOKO WOWO WSPD

R — Contented Program
KDYL KFI KGO KGW KHQ KOA KOMO KSD WBEN WCAE WCSH WDAF WEAF WEEI WFAA WFBR WGY WHO WJAR WLIT WLW WMAQ WOC WOW WRC WTAG WTAM WTIC WWJ

E-11:00 p.m., C-10:00, M-9:00, P-8:00
C — Fats Waller, Songs
CKAC KDB KFH KGKO KLRA KLZ KMBC KOH KOIN KOMA KRLD KTRH KTSA KTUL KVOR WAAB WABC WACO WALA WBIG

MONDAY (*Continued*)

WBRC WBT WCAO WADC WDAE WDBJ WDBO WDNC WDOD WDSU WFBL WFBM WGST WHAS WHEC WHP WIBW WIP WJAS WJSV WKBN WKBW WLAC WLBW WMBG WNOX WOKO WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC

C — Myrt and Marge
KDB KERN KFBK KFPY KFRC KGB KHJ KLRA KLZ KMBC KMJ KMOX KOIN KOL KOMA KSL KVI KWG WBBM WBRC WCCO WDSU WFBM WGST WHAS WLAC WREC

B — Amos 'n' Andy
KOIL KPRC KSTP KTHS KWK WBAP WCKY WDAF WENR WFAA WGAR WHAM WJR WKY WMC WOAI WREN WSB WSM WSMB WTMJ

E-11:15 p.m., C-10:15, M-9:15, P-8:15
C — Glen Gray and Orchestra
CFRB CKAC CKLW KDB KFH KGKO KLRA KLZ KMBC KMOX KOH KOMA KRLD KSL KTRH KTSA KVOR WABC WACO WADC WALA WBIG WBNS WBRC WBT WCAO WCAU WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGST WHAS WHEC WHK WICC WISN WJAS WJSV WKBN WKBW, WLAC WLBW WLBZ WMAS WMBG WNAC WNOX WOKO WORC WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC

R — Gene and Glenn
KDLY KFI KFSD KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTAR KTBS KTHS WAVE WCAE WDAF WEBC WFAA WHO WIBA WJDX WKBF WKY WMAQ WMC WOAI WOC WOW WSAI WSB WSM WSMB WTAM WWJ

C — Edwin C. Hill
KDB KERN KFBK KFPY KFRC KGB KHJ KLZ KMJ KOIN KOL KSL KVI KWG

E-11:30 p.m., C-10:30, M-9:30, P-8:30
R — Voice of Firestone
KDYL KFI KFSD KFYR KGHL KGIR KGO KGU KGW KHQ KOA KOMO KSD KSTP KTAR WDAF WDAY WEBC WHO WIBA WKBF WOC WOW WTMJ

E-11:45 p.m., C-10:45, M-9:45, P-8:45
C — Enoch Light and Orchestra
CFRB CKAC CKLW KDB KFH KGKO KLRA KLZ KMBC KOH KOIN KOMA KRLD KTRH KTSA KTUL KVOR WABC WACO WADC WALA WBIG WBNS WBRC WBT WCAO WCAU WDAE WDBJ WDBO WDNC WDOD WDSU WEAN WFBL WFBM WFEA WHEC WHK WHP WJAS WJSV WKBW WLAC WLBW WLBZ WMAS WMBG WNAC WOKO WPG WQAM WREC WSBT WSFA WSJ WSPD WTOC

TUESDAY

E-6:15 p.m., C-5:15, M-4:15, P-3:15
C — Edward Wurtzebach's Orchestra
CKLW KFAB KFH KGKO KLRA KLZ KOH KOMA KRLD KSCJ KTRH KTSA KTUL KVOR WBBM WBIG WBRC WCAO WCCO WDAE WDBJ WDBO WDOD WHP WIBW WISN WJSV WKRC WMT WNAX WNOX WSFA WSJS WSPD WTOC

E-6:45 p.m., C-5:45, M-4:45, P-3:45
C — Modern Mountaineers
CKLW KGKO KLRA KLZ KMBC KMOX KOH KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVOR WAAB WABC WBIG WBRC WCAU WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFEA WGST WHAS WHEC WHK WHP WISN WJAS WJSV WKBW WLAC WLBW WLBZ WMAS WMT WNAX WNOX WOKO WORC WQAM WREC WSFA WSJS WSPD WTOC WWVA

R — Billy Batchelor, See Monday

B — Lowell Thomas, See Monday

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

B — Amos 'n' Andy, See Monday

E-7:15 p.m., C-6:15, M-5:15, P-4:15
C — Peter Biljo and Orchestra
CFRB CKLW KFAB KFH KGKO KLRA KLZ KOH KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVOR WABC WACO WALA WBIG WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFEA WGR WGST WHEC WHP WICC WISN WJAS WKBN WLAC WLBW WLBZ WNAC WNAX WNOX WOKO WORC WQAM WREC WSFA WSJS WSPD WTOC

R — Gene and Glenn, See Monday

E-7:30 p.m., C-6:30, M-5:30, P-4:30
C — Whispering Jack Smith
WABC WCAO WCAU WDRC WEAN WFBL WGR WJAS WJSV WNAC WOKO WORC

B — Household Musical Memories
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WENR WJZ WMAL WREN

E-7:45 p.m., C-6:45, M-5:45, P-4:45
R — Frank Buck, See Monday

C — Boake Carter, See Monday

E-8:00 p.m., C-7:00, M-6:00, P-5:00
C — Frank Munn; Muriel Wilson
CKLW KMBC KMOX WABC WADC WBBM WCAO WCAU WDRC WEAN WFBL WFBM WGR WHAS WHK WJAS WJSV WKRC WNAC WOKO WOWO WSPD

R — Leo Reisman and Orchestra
WBEN WCAE WCSH WEAF WEEI WFBR WFI WGY WJAR WKBF WMAQ WRC WTAG WTAM WTIC WWJ

B — Eno Crime Clues
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WGAR WJR WJZ WLS WLW WMAL WREN WSYR

E-8:30 p.m., C-7:30, M-6:30, P-5:30
B — Lawrence Tibbett
CFCF CRCT KDKA KOIL KSO KWCR WBAL WBZ WBZA WGAR WHAM WJZ WLS WMAL WREN WSYR

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

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 WTIC WTMJ WWJ

E-8:45 p.m., C-7:45, M-6:45, P-5:45
C — Billy Batchelor
KDB KERN KFBK KFPY KFRC KGB KHJ KMJ KOIN KOL KVI KWG

E-9:00 p.m., C-8:00, M-7:00, P-6:00
C — Bing Crosby; Boswell Sisters
CKLW KDB KERN KFBK KFPY KFRC KGB KHJ KLZ KMBC KMJ KMOX KOIN KOL KRLD KSL KTUL KVI KWG WABC WADC WBBM WBT WCAO WCAU WCCO WDSU WEAN WFBL WFBM WHAS WHK WJAS WJSV WKBW WKRC WNAC WOKO WORC WOWO WREC WSPD

E-9:30 p.m., C-8:30, M-7:30, P-6:30
B — Mrs. Franklin D. Roosevelt
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WCKY WENR WGAR WHAM WJR WJZ WMAL WREN WSYR

R — Soconyland Sketches
WBEN WCSH WEAF WEEI WGY WJAR WTAG WTIC

E-10:00 p.m., C-9:00, M-8:00, P-7:00
C — Glen Gray; Walter O'Keefe
CFRB CKAC CKLW KDB KERN KFAB KFBK KFPY KFRC KGB KGKO KGMB KHJ KLO KLRA KLZ KMBC KMJ KMOX KOH KOIN KOL KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVI KVOR KWG WABC WACO WADC WALA WBBM WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGR WGST WHAS WHEC WHK WHP WIBW WICC WIP WISN WJAS WJSV WKBN WKRC WLAC WLBW WLBZ WMAS WMBD WMBG WMBR WMT WNAC WNAX WNOX WOKO WORC WOWO WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC WWVA

R — Palmolive Beauty Box Theatre
CFCF CRCT KDYL KFI KFSD KFYR KGHL KGIR KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTAR KTBS KVOO WAVE WBAP WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFBR WFLA WGY WHO WIOD WIS WJAR WJAX WJDX WKBF WKY WLW WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSB WSM WSMB WSOC WTAG WTAM WTMJ WWJ WWNC

E-10:30 p.m., C-9:30, M-8:30, P-7:30
C — Melodic Strings
KDB KGKO KOIN KSL KTRH WABC WADC WBBM WBIG WBNS WCAO WDBJ WDOD WDSU WFBM WHEC WHK WHP WICC WMT WNAX WSBT WSFA

E-11:00 p.m., C-10:00, M-9:00, P-8:00
C — Al Kavelin and Orchestra
KLRA WAAB WABC WBIG WBRC WBT WCAO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WGST

TUESDAY (*Continued*)

WJSV WLAC WMBG WNOX WQAM WREC WSFA WSJS

B — Amos 'n' Andy, See Monday

C — Myrt and Marge, See Monday

E-11:15 p.m., C-10:15, M-9:15, P-8:15
Frank Dailey and Orchestra
CKAC CKLW KDB KFAB KFH KGKO KLRA KLZ KMBC KOH KOMA KSCJ KTRH KTSA KTUL KVOR WABC WACO WADC WALA WBBM WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGST WHAS WHEC WHP WICC WISN WJAS WJSV WKBW WLAC WLBW WLBZ WMAS WMBD WMBG WNAC WNAX WNOX WOKO WORC WQAM WREC WSBT WSFA WSJS WSPD

R — Gene and Glenn, See Monday

E-11:30 p.m., C-10:30, M-9:30, P-8:30
R — Leo Reisman and Orchestra
KDYL KFI KGO KGW KHQ KOA KOMO KSD WDAF WHO WLW WOC WOW WSB WSM WSMB WTMJ

WEDNESDAY

E-6:15 p.m., C-5:15, M-4:15, P-3:15
C — Edw. Wurtzebach, See Tuesday

E-6:30 p.m., C-5:30, M-4:30, P-3:30
C — The Shadow, See Monday

E-6:45 p.m., C-5:45, M-4:45, P-3:45
R — Billy Batchelor, See Monday

B — Lowell Thomas, See Monday

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

C — Myrt and Marge, See Monday

E-7:15 p.m., C-6:15, M-5:15, P-4:15
C — Vera Van, Songs
CFRB CKAC CKLW KFAB KFH KGKO KLRA KLZ KOH KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVOR WABC WACO WADC WALA WBIG WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFEA WGR WGST WHEC WHK WHP WJAS WKBN WLAC WLBW WLBZ WMBG WNAC WNAX WNOX WOKO WORC WQAM WREC WSFA WSJS WSPD WTOC

R — Gene and Glenn, See Monday

E-7:30 p.m., C-6:30, M-5:30, P-4:30
B — Irene Rich for Welch
KDKA KOIL KSO KWCR WAVE WBAL WBZ WBZA WCKY WENR WJZ WMAL WMC WREN WSB WSM WSYR

C — Silver Dust, See Monday

E-7:45 p.m., C-6:45, M-5:45, P-4:45
R — Frank Buck, See Monday

C — Boake Carter, See Monday

E-8:00 p.m., C-7:00, M-6:00, P-5:00
CFRB CKLW KMBC KMOX WAAB WABC WBBM WCAO WCAU WCCO WFBL WFBM WGR WHAS WHK WJAS WKRC WOKO WOWO WSPD

B — Eno Crime, See Tuesday

R — Jack Pearl with Cliff Hall
CFCF CRCT KDYL KFI KFYR KGO KGW KHQ KOA KOMO KPRC KSD KTAR KTBS KTHS KVOO WAVE WBAP WBEN WCAE WCKY WCSH WDAF WDAY WEAF WEBC WEEI WFBR WFLA WGY WHO WIBA WIOD WIS WJAR WJAX WJDX WKV WLIT WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSAI WSB WSM WSMB WTAG WTAM WTIC WWJ WWNC

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

E-8:30 p.m., C-7:30, M-6:30, P-5:30
C — Everett Marshall and Vanities
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

E-9:00 p.m., C-8:00, M-7:00, P-6:00
C — Mickey Cochrane, Baseball
CKLW KMBC KMOX WABC WADC WBBM WCAO WCAU WDRC WEAN WFBL WFBM WHAS WHK WJAS WJSV WKBW WKRC WNAC WSPD

B — Warden Lawes in Sing Sing
KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KSO KWCR WKW WBAL WBZ WBZA WGAR WJZ WKBF WLS WMAL WREN WSYR

R — Fred Allen; Lennie Hayton
KPRC KSD KSTP KTBS KVOO WBEN WCAE WCSH WDAF WEAF WEBC WEEI WFAA WFBR WGY WHO WIOD WIS WJAR WJAX WKY WLIT WLW WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSB WSM WSMB WTAG WTAM WTIC WTMJ WWJ

E-9:15 p.m., C-8:15, M-7:15, P-6:15
C — Emery Deutsch and Orchestra
CFRB CKAC CKLW KFAB KFH KGKO KLRA KLZ KMBC KMOX KOH KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVI WABC WACO WADC WALA WBBM WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGST WHEC WHK WHP WIBW WICC WISN WJAS WJSV WKBW WKRC WLAC WLBW WLBZ WMAS WMBG WMBR WMT WNAC WNAX WNOX WOKO WORC WPG WQAM WREC WSFA WSJS WSPD WTOC

C — Billy Batchelor, See Monday

E-9:30 p.m., C-8:30, M-7:30, P-6:30
C — Burns and Allen
CKLW KMBC KMOX KOMA KRLD KSCJ KTRH KTSA WABC WADC WBBM WBIG WBT WCAO WCAU WCCO WDRC WDSU WEAN WFBL WFBM WHK WJAS WJSV WKBW WKRC WNAC WOKO WORC WOWO WSPD

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

E-10:00 p.m., C-9:00, M-8:00, P-7:00
C — Byrd Expedition Broadcast
CKLW KDB KERN KFAB KFBK KFH KFPY KFRC KGB KHJ KLRA KLZ KMBC KMJ KMOX KOIN KOL KOMA KRLD KSL KTRH KTSA KVI KWG WABC WACO WADC WBBM WBNS WBT WCAO WCAU WCCO WDAE WDRC WDSU WEAN WFBL WFBM WGST WHAS WHEC WHK WHP WIBW WJAS WJSV WKBW WKRC WLAC WLBW WMBG WMT WNAC WNAX WOKO WORC WOWO WQAM WREC

R — Guy Lombardo and Orchestra
KPRC KSD KTBS KTHS KVOO WAVE WBEN WCAE WCSH WDAF WEAF WEEI WFAA WFBR WFLA WGY WHO WIOD WIS WJAR WJAX WJDX WKBF WKY WLIT WLW WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSB WSM WSMB WTAG WTAM WTIC WWJ WWNC

B — Dennis King; Louis Katzman
KDKA KDYL KFI KFYR KGO KGW KHQ KOA KOIL KOMO KSO KSTP KWCR KWK WBAL WBZ WBZA WCKY WDAY WEBC WENR WGAR WHAM WIBA WJR WJZ WMAL WREN WSYR WTMJ

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

B — Harry Richman; Jack Denny
KDYL KFYR KOA KOIL KPRC KSO KVOO KWCR KWK WBAL WCKY WDAY WEBC WENR WFAA WGAR WHAM WJR WJZ WKY WMAL WREN WRVA WSYR WTMJ

E-11:00 p.m., C-10:00, M-9:00, P-8:00
C — Nick Lucas, Songs
CKAC CKLW KFH KGKO KLRA KLZ KMBC KOH KOIN KOMA KRLD KSL KTRH KTSA KTUL KVOR WAAB WABC WACO WADC WALA WBIG WBRC WBT WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFBL WFBM WGST WHEC WHP WIBW WIP WJAS WJSV WKBW WLAC WLBW WMBG WNOX WOKO WQAM WREC WSBT WSFA WSJS WSPD WTOC

C — Myrt and Marge, See Monday

B — Amos 'n' Andy, See Monday

E-11:15 p.m., C-10:15, M-9:15, P-8:15
C — Edwin C. Hill, See Monday

R — Gene and Glenn, See Monday

E-12:00 p.m., C-11:00, M-10:00, P-9:00
R — Fred Allen; Lennie Hayton
KDYL KFI KGO KGW KHQ KOA KOMO

THURSDAY

E-6:15 p.m., C-5:15, M-4:15, P-3:15
C — Edw. Wurtzebach, See Tuesday

E-6:30 p.m., C-5:30, M-4:30, P-3:30
C — Eddie Dooley, Football Talks
WABC WBIG WBT WCAU WDBJ WDRC WEAN WFBL WFEA WHEC WHP WIBX WICC WJAS WKBW WLBZ WMAS WMBG WNAC WOKO WORC WSJS

E-6:45 p.m., C-5:45, M-4:45, P-3:45
C — Fats Waller's Rhythm Club
CKLW KFH KGKO KLRA KMBC KMOX KOH KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVOR WBIG WBRC WCAO WDAE WDBJ

THURSDAY (*Continued*)

WDBO WDNC WDOD WDSU WFBL WGLC WHAS WHEC WHK WHP WISN WJAS WKBW WLAC WLBW WMAS WMT WNAX WNOX WOKO WQAM WREC WSFA WSJS WSPD WTOC

R — Billy Batchelor, See Monday

B — Lowell Thomas, See Monday

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

B — Amos 'n' Andy, See Monday

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

E-7:30 p.m., C-6:30, M-5:30, P-4:30
C — Jack Smith, See Tuesday

E-7:45 p.m., C-6:45, M-5:45, P-4:45
R — Frank Buck, See Monday

C — Boake Carter, See Monday

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

CFRB CKAC CKLW KDB KFAB KFH KGKO KLRA KLZ KMBC KOH KSCJ KTRH KTSA KTUL KVOR WABC WACO WADC WALA WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGLC WGR WGST WHEC WHK WHP WICC WISN WJAS WLAC WLBW WLBZ WMAS WMBG WMT WNAC WNOX WOKO WORC WPG WQAM WREC WSFA WSJS WSMK WSPD WWVA

R — Rudy Vallee and Orchestra

CFCF CRCT KDYL KFYR KHQ KPRC KSD KSTP KTAR KTHS KVOO WAPI WBAP WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFBR WFI WFLA WGY WHO WIOD WIS WJAR WJAX WJDX WKY WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSM WSMB WTAG WTAM WTIC WTMJ WWJ WWNC

E-8:30 p.m., C-7:30, M-6:30, P-5:30
C — Glen Gray; Walter O'Keefe

CFRB CKAC CKLW KDB KERN KFAB KFBK KFPY KFRC KGB KGKO KGMB KHJ KLO KLRA KLZ KMBC KMJ KMOX KOH KOIN KOL KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVI KVOR KWG WABC WACO WADC WALA WBBM WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGR WGST WHAS WHEC WHK WHP WIBW WICC WIP WISN WJAS WJSV WKBN WKRC WLAC WLBW WLBZ WMAS WMBD WMBG WMBR WMT WNAC WNAX WNOX WOKO WORC WOWO WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC WWVA

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

C — Bar X Days and Nights

CKLW KMBC KMOX WABC WBBM WCAO WCAU WDRC WEAN WFBL WFBM WHAS WHK WJAS WJSV WKBW WKRC WNAC

R — Maxwell House Show Boat

KDYL KFI KFSD KGHL KGIR KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTAR KTBS WAPI WAVE WBAP WBEN WCAE WCSH WDAF WEAF WEEI WFBR WFI WFLA WGY WHO WIOD WIS WJAR WJAX WJDX WKBF WKY WLW WMAQ WMC WOAI WOC WOW WRC WRVA WSAI WSB WSM WSMB WTAG WTAM WTIC WTMJ WWJ WWNC

B — Death Valley Days

KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WGAR WHAM WJR WJZ WLS WLW WMAL WREN WSYR

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

E-9:30 p.m., C-8:30, M-7:30, P-6:30
C — Fred Waring's Pennsylvanians

CKLW KDB KERN KFAB KFBK KFH KFPY KFRC KGB KHJ KLRA KLZ KMBC KMJ KMOX KOH KOIN KOL KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVI KVOR KWG WABC WACO WADC WALA WBBM WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGLC WGST WHAS WHEC WHK WHP WIBW WICC WISN WJAS WJSV WKBN WKBW WKRC WLAC WLBW WLBZ WMAS WMBR WMT WNAC WNAX WNOX WOKO WORC WOWO WPG WQAM WREC WSFA WSJS WSPD WTOC

E-10:00 p.m., C-9:00, M-8:00, P-7:00
C — 45 Minutes In Hollywood

CFRB CKAC CKLW KLZ KMBC KMOX KOMA KRLD KSL KTRH KTSA KTUL WABC WACO WBBM WBNS WBT WCAO WCAU WCCO WDAE WDBO WDRC WDSU WEAN WFBL WGST WHEC WHK WJAS WJSV WKRC WLAC WMBR WNAC WOKO WQAM WSPD

R — Paul Whiteman; Al Jolson

CFCF CRCT KDYL KFI KFYR KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTAR KTBS KTHS WBAP WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFBR WFI WGY WHO WIBA WJAR WKY WLW WMAQ WOAI WOC WOW WRC WTAG WTAM WTMJ WWJ

E-10:30 p.m., C-9:30, M-8:30, P-7:30
B — Archer Gibson, Organist

KDKA KSO KWCR KYW WBAL WBZ WBZA WCKY WGAR WHAM WJZ WMAL WREN

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

CFRB CKLW KFAB KFH KLRA KLZ KMBC KMOX KOH KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVOR WAAB WABC WACO WADC WALA WBBM WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGLC WGST WHP WIBW WICC WISN WJAS WJSV WKBN WKBW WLAC WLBW WLBZ WMAS WMBD WMBG WMT WNAX WNOX WOKO WORC WPG WQAM WREC WSBT WSFA WSJS WSMK WSPD WTOC

E-11:00 p.m., C-10:00, M-9:00, P-8:00
C — Myrt and Marge, See Monday

B — Amos 'n' Andy, See Monday

C— Vera Van, Songs

CKLW KDB KFH KGKO KLRA KLZ KMBC KOH KOIN KOMA KRLD KTRH KTSA WAAB WABC WACO WADC WALA WBIG WBRC WBT WCAO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFBL WFBM WGST WHAS WHEC WHP WIBW WIP WJAS WJSV WKBW WLAC WLBW WMBG WNOX WOKO WQAM WREC WSBT WSFA WSJS WSPD WTOC

E-11:15 p.m., C-10:15, M-9:15, P-8:15
Joe Haymes and Orchestra

CFRB CKLW KDB KFAB KFH KGKO KLRA KLZ KMBC KOH KOMA KRLD KSCJ KSL KTSA KTUL KVOR WABC WACO WBBM WBIG WBNS WBRC WBT WCAO WCCO WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFEA WGST WHAS WHEC WHK WIBW WICC WIP WJAS WJSV WKBN WKBW WLAC WLBW WLBZ WMAS WMBD WMBG WMT WNAC WNAX WNOX WOKO WORC WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC

R — Gene and Glenn, See Monday

FRIDAY

E 6:00 p.m., C-5:00, M-4:00, P-3:00
C — H. V. Kaltenborn

CFRB CKLW KFAB KFH KGKO KLRA KLZ KMOX KOH KOMA KSCJ KSL KTRH KTSA KTUL KVOR WAAB WABC WADC WBBM WBIG WBNS WBRC WBT WCAO WCAU WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFBL WGLC WGST WHAS WHEC WHP WIBW WISN WJSV WKBW WLAC WLBW WMBG WMT WNAX WOKO WORC WQAM WREC WSFA WSJS WSMK WSPD WTOC WWVA

E-6:15 p.m., C-5:15, M-4:15, P-3:15
C — Edw. Wurtzebach, See Tuesday

E-6:30 p.m., C-5:30, M-4:30, P-3:30
C — Eddie Dooley, See Thursday

E-6:45 p.m., C-5:45, M-4:45, P-3:45
C — Esther Velas and Orchestra

CKLW KFH KGKO KLRA KLZ KMBC KMOX KOH KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVOR WABC WADC WBBM WBIG WBNS WBRC WCAU WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFEA WGST WHAS WHEC WHP WISN WJAS WKBW WLAC WLBU WLBZ WMAS WMT WNAX WNOX WOKO WORC WQAM WREC WSFA WSJS WSPD WTOC WWVA

B — Lowell Thomas, See Monday

R — Billy Batchelor, See Monday

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

B — Amos 'n' Andy, See Monday

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

E-7:30 p.m., C-6:30, M-5:30, P-4:30
C — Silver Dust, See Monday

E-7:45 p.m., C-6:45, M-5:45, P-4:45
R — Frank Buck, See Monday

C — Boake Carter, See Monday

FRIDAY (*Continued*)

E-8:00 p.m., C-7:00, M-6:00, P-5:00
R — Cities Service Concert
CRCT KDYL KOA KPRC KSD KSTP KTBS KTHS KVOO KYW WBAP 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

C — Easy Aces, See Wednesday

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

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

E-9:00 p.m., C-8:00, M-7:00, P-6:00
C — March of Time
CKLW KDB KERN KFBK KFPY KFRC KGB KHJ KLZ KMBC KMJ KMOX KOIN KOL KSL KTRH KVI KWG WABC WCAO WCAU WCCO WDRC WDSU WEAN WFBL WFBM WGN WGR WGST WHAS WHK WJAS WJSV WKRC WNAC WOKO WSPD

R — Frank Munn; Abe Lyman
KSD WBEN WCAE WCSH WDAF WEAF WEEI WFBR WGY WJAR WLIT WLW WMAQ WOW WRC WTAG WTAM WWJ

B — Phil Harris and Orchestra
KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KSO KWCR KWK WAPI WBAL WBZ WBZA WCKY WFAA WGAR WHAM WJZ WKY WLS WMAL WOAI WREN WSB WSM WSMB WSYR

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

E-9:30 p.m., C-8:30, M-7:30, P-6:30
C — Hollywood Hotel
CFRB CKAC CKLW KALE KDB KERN KFAB KFBK KFH KFPY KFRC KGB KGKO KGMB KHJ KLO KLRA KLZ KMBC KMJ KMOX KOH KOIN KOL KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVI KVOR KWG WABC WACO WADC WALA WBBM WBIG WBNS WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGR WGST WHAS WHEC WHK WHP WIBW WICC WIP WISN WJSV WKBN WKRC WLAC WLBW WLBZ WMAS WMBD WMBG WMBR WMT WNAC WNAX WNOX WOKO WORC WOWO WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC WWVA

R — Pick and Pat
KSD WBEN WCAE WCSH WDAF WEAF WFBR WGY WHO WJAR WLIT WMAQ WOC WOW WRC WSAI WTAG WTAM WTIC WWJ

B — Armour Program
KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KPRC KSO KSTP KTAR KWK WAPI WAVE WBAL WBZ WBZA WEBC WENR WFAA WFLA WGAR WHAM WIOD WJAX WJR WJZ WKY WMC WOAI WREN WRVA WSB WSM WSMB WTMJ WWNC

E-10:00 p.m., C-9:00, M-8:00, P-7:00
R — First Nighter, Drama
KDYL KFI KGO KGW KHQ KOA KOMO KPRC KSD KSTP WBEN WCAE WCSH WDAF WEAF WEBC WEEI WFAA WFBR WGY WHO WJAR WKY WLIT WMAQ WMC WOAI WOC WOW WRC WSAI WSB WSM WSMB WTAG WTAM WTIC WTMJ WWJ

E-10:45 p.m., C-9:45, M-8:45, P-7:45
C — Carlile, London, Warwick Sisters
CFRB CKAC CKLW KDB KFH KGKO KLRA KLZ KMBC KMOX KOH KOMA KRLD KSCJ KSL KTRH KTSA KTUL WAAB WABC WACO WADC WALA WBIG WBNS WBRC WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBM WFEA WGR WGST WHAS WHK WHP WIBW WICC WJAS WJSV WLAC WLBW WMAS WMBD WMBG WMT WNAX WNOX WOKO WORC WQAM WREC WSFA WSJS WSPD WTOC

E-11:00 p.m., C-10:00, M-9:00, P-8:00
C — Cliff Edwards, Ukelele Ike
CKAC CKLW KFH KGKO KLRA KLZ KMBC KOH KOMA KRLD KSL KTRH KTSA KTUL KVOR WAAB WABC WACO WADC WALA WBBM WBIG WBRC WBT WCAO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFBL WFBM WGLC WGST WHAS WHK WHP WIBW WJAS WJSV WKBW WLAC WLBW WMBG WNOX WOKO WQAM WREC WSFA WSJS WSPD WTOC

C — Myrt and Marge, See Monday

B — Amos 'n' Andy, See Monday

E-11:15 p.m., C-10:15, M-9:15, P-8:15
C — Edwin C. Hill, See Monday

R — Gene and Glenn, See Monday

E-11:30 p.m., C-10:30, M-9:30, P-8:30
C — True Story Court
KDB KERN KFBK KFPY KFRC KGB KHJ KLZ KMBC KMJ KMOX KOIN KOL KSL KVI KWG WHAS WOKO

SATURDAY

E-6:30 p.m., C-5:30, M-4:30, P-3:30
C — Eddie Dooley, See Thursday

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

B — John Herrick, Baritone
KDKA KOIL KSO KWCR KWK WBAL WCKY WGAR WJZ WKBF WMAL WMAQ

E-7:00 p.m., C-6:00, M-5:00, P-4:00
C — Jerry Cooper, Baritone
CFRB CKAC CKLW KFAB KFH KGKO KLRA KLZ KOH KOIN KOMA KRLD KSCJ KTRH KTSA KTUL KVOR WABC WACO WADC WALA WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFEA WGLC WGR WGST WHAS WHEC WHK WHP WIBW WICC WISN WJAS WJSV WLAC WLBW WLBZ WMAS WMBD WMBG WMT WNAX WNOX WOKO WORC WQAM WREC WSFA WSJS WSMK WSPD WTOC

E-7:30 p.m., C-6:30, M-5:30, P-4:30
C — Jack Smith, See Tuesday

E-7:45 p.m., C-6:45, M-5:45, P-4:45
C — Mary Eastman, Soprano
CFRB CKLW KFAB KGKO KLRA KLZ KMBC KMOX KOH KOMA KRLD KSCJ KTRH KTSA KTUL KVOR WABC WACO WADC WALA WBBM WBNS WBRC WBT WCAO WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGLC WGR WGST WHEC WHK WICC WJAS WJSV WLAC WLBW WLBZ WMAS WMBD WMBG WMT WNAC WNAX WNOX WOKO WORC WQAM WREC WSFA WSJS WSMK WSPD WWVA

R — Floyd Gibbons; Nat Shilkret
KPRC KSTP WAPI WBAP WBEN WCSH WEAF WFI WFLA WGY WHO WIOD WJAR WKY WLW WMAQ WMC WOW WRC WRVA WSB WSMB WTAG WTAM WTIC WWJ

E-8:00 p.m., C-7:00, M-6:00, P-5:00
C — Roxy Revue
CFRB CKAC KLRA KLZ KMBC KMOX KOMA KRLD KSL KTRH KTSA WABC WBBM WBRC WCAO WCAU WCCO WDOD WDRC WDSU WEAN WFBL WFBM WGR WGST WHAS WHK WIBW WJAS WJSV WKRC WLAC WMT WNAC WOKO WORC WOWO WREC

R — Swift Program
KDYL KFI KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTBS WBAP WBEN WCAE WCSH WDAF WEAF WEBC WEEI WFAA WFBR WFI WGY WHO WIBA WJAR WKY WLIT WLW WMAQ WOAI WOC WOW WRC WTAG WTAM WTIC WTMJ WWJ

E-8:45 p.m., C-7:45, M-6:45, P-5:45
C — Fats Waller's Rhythm Club
CKAC CKLW KFH KGKO KLRA KLZ KMBC KMOX KOH KOMA KRLD KSCJ KSL KTRH KTSA KVOR WABC WADC WALA WBBM WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGLC WGR WGST WHEC WHK WHP WICC WISN WJAS WJSV WLAC WLBW WLBZ WMBD WMBG WMT WNAC WNOX WOKO WORC WPG WQAM WREC WSFA WSJS WSMK WSPD WTOC WWVA

E-9:00 p.m., C-8:00, M-7:00, P-6:00
C — Leith Stevens and Orchestra
CFRB CKLW KFH KGKO KLRA KLZ KMBC KOH KOMA KRLD KSCJ KTRH KTSA KTUL KVOR WAAB WABC WACO WADC WALA WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFBL WFBM WFEA WGLC WGR WGST WHEC WHK WHP WIBW WICC WJAS WJSV WLAC WLBW WLBZ WMAS WMBD WMBG WMT WNOX WOKO WORC WQAM WREC WSFA WSJS WSMK WSPD WTOC WWVA

B — Frank Black; John B. Kennedy
KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KSO KWCR KWK WBAL WBZ WBZA WCKY WGAR WHAM WJR WJZ WLS WMAL WREN WSYR

SATURDAY (*Continued*)

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

E-9:30 p.m., C-8:30, M-7:30, P-6:30
R — Gibson Family Musical
KDYL KFI KFYR KGO KGW KHQ KOA KOMO KSD WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFBR WFI WGY WIBA WJAR WLW WMAQ WOW WRC WTAG WTAM WTIC WTMJ WWJ

E-10:00 p.m., C-9:00, M-8:00, P-7:00
C — Manhattan Serenaders
CFRB CKLW KFH KGKO KLRA KLZ KMBC KOH KOMA KRLD KSCJ KTRH KTSA KTUL KVOR WAAB WABC WACO WADC WALA WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFBL WFBM WFEA WGL WGLC WGR WGST WHEC WHK WHP WIBW WICC WJAS WJSV WLAC WLBW WLBZ WMAS WMBD WMBG WMT WNOX WOKO WORC WQAM WREC WSFA WSJS WSMK WSPD WTOC WWVA

E-10:30 p.m., C-9:30, M-8:30, P-7:30
C — Elder Michaux and Congregation
CFRB CKLW KDB KFH KGKO KLRA KLZ KMBC KOH KOIN KOMA KRLD KSCJ KTRH KTSA KTUL KVOR WAAB WABC WACO WADC WALA WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFBL WFBM WFEA WGR WGST WHEC WHK WHP WIBW WICC WJAS WJSV WLAC WLBW WLBZ WMAS WMBD WMBG WMT WNOX WOKO WORC WQAM WREC WSFA WSJS WSPD WTOC WWVA

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

E-11:00 p.m., C-10:00, M-9:00, P-8:00
C — Sylvia Froos, Songs
CFRB CKAC CKLW KDB KFH KGKO KLRA KLZ KOH KOIN KOMA KRLD KSL KTRH KTSA KTUL WAAB WABC WADC WALA WBRC WBT WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFBL WFBM WFEA WGST WHAS WHP WIBW WIP WJAS WJSV WLAC WLBW WMBG WNOX WOKO WQAM WREC WSFA WSJS WSPD WTOC

E-11:45 p.m., C-10:45, M-9:45, P-8:45
C — Joe Haymes and Orchestra
CFRB CKAC CKLW KDB KFAB KFH KGKO KLZ KMBC KMOX KOH KOIN KRLD KSCJ KSL KTRH KTSA KTUL KVOR WABC WACO WADC WALA WBBM WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGST WHEC WHP WIBW WICC WISN WJAS WJSV WKBW WLAC WLBW WLBZ WMAS WMBD WMBG WMT WMAC WNAX WNOX WOKO WORC WQAM WREC WSFA WSJS WSPD

E-12:00 p.m., C-11:00, M-10:00, P-9:00
R — Floyd Gibbons; Nat Shilkret
KDYL KFI KFSD KGO KGW KHQ KOA KOMO

SUNDAY

E-11:30 a.m., C-10:30, M-9:30, P-8:30
C — Salt Lake Tabernacle Choir
CKLW KFAB KFH KGKO KLRA KLZ KMOX KOMA KRLD KSCJ KSL KTRH KTUL WACO WADC WALA WBBM WBIG WBNS WBT WCAO WCCO WDAE WDBJ WDBO WDOD WDSU WFBL WFEA WGST WHAS WHEC WHK WHP WIBW WICC WISN WJAS WJSV WKBN WLAC WLBW WLBZ WMAS WMBD WMT WNAX WNOX WOKO WORC WPG WQAM WREC WSFA WSJS WSPD WTOC

R — Major Bowes' 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

E-12:30p.m., C-11:30, M-10:30, P-9:30
C — Tito Guizar
CKLW KMBC KMOX WABC WADC WBBM WCAO WCAU WDRC WEAN WFBL WFBM WGR WHAS WHK WJAS WJSV WKRC WMAS WNAC WOKO WORC WOWO WSPD

R — Chicago Round Table
WBEN WCSH WDAF WEAF WEEI WFBR WFI WGY WHO WJAR WOC WOW WRC WSAI WTAG WTAM WWJ

B — Radio City Symphony
CFCF CRCT KDKA KDYL KFI KFYR KGO KGW KHQ KOA KOIL KOMO KPRC KSO KVOO WAPI WBAL WBZ WBZA WCKY WDAY WEBC WGAR WHAM WIS WJDX WJR WJZ WKY WMAL WOAI WREN WSMB WSYR WWNC

E-1:00 p.m., C-12:00, M-11:00, P-10:00
C — Church of the Air
CFRB CKLW KFH KLRA KLZ KMBC KOH KOMA KRLD KSCJ KSL KTRH KTUL KVOR WAAB WABC WACO WALA WBBM WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFBL WGR WGST WHAS WHEC WHP WISN WJAS WJSV WKBN WLAC WLBW WMBD WMT WNAX WOKO WORC WPG WQAM WREC WSBT WSJS WSPD WWVA

R — Dale Carnegie, Talks
WBEN WCAE WEAF WEEI WFBR WFI WGY WJAR WRC WSAI WTAG WTAM WTIC WWJ

E-1:30 p.m., C-12:30, M-11:30, P-10:30
C — Compinsky Trio
CFRB CKAC CKLW KDB KFH KGKO KLRA KLZ KMBC KOH KOIN KOMA KRLD KSCJ KSL KTRH KTUL KVOR WABC WACO WADC WALA WBBM WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFBL WGR WGST WHEC WHK WHP WJAS WJSV WKBN WLAC WLBW WMBD WMT WNAX WOKO WORC WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC WWVA

R — Miss Bab-o's Surprise
WBEN WCAE WCSH WDAF WEAF WEEI WFBR WFI WGY WHO WJAR WMAQ WOW WRC WSAI WTAG WTAM WWJ

E-2:00 p.m., C-1:00, M-12:00, P-11:00
C — Manhattan Moods
CFRB CKLW KFH KGKO KLRA KLZ KMBC KMOX KOH KOMA KRLD KSCJ KSL KTRH KTSA KTUL WABC WACO WADC WALA WBBM WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFEA WGST WHAS WHEC WHP WIBW WICC WJAS WKBN WKBW WLAC WLBW WLBZ WMAS WMT WNAC WNOX WOKO WORC WPG WQAM WREC WSBT WSFA WSJS WSPD WWVA

R — Mohawk Treasure Chest
KDYL KFI KGO KGW KHQ KOA KOMO WBEN WCAE WCSH WEAF WEEI WFBR WGY WHO WJAR WLIT WLW WMAQ WOC WOW WRC WTAG WTAM WTIC WWJ

E-2:15 p.m., C-1:15, M-12:15, P-11:15
C — Abram Chasins, Piano Pointers
CFRB CKLW KFH KGKO KLRA KLZ KMBC KMOX KOH KOMA KRLD KSCJ KSL KTRH KTSA KTUL WABC WACO WADC WALA WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFEA WGST WHAS WHEC WHP WIBW WICC WJAS WJSV WKBN WKBW WLAC WLBW WLBZ WMAS WMT WNAC WNOX WOKO WORC WPG WQAM WREC WSBT WSFA WSJS WSPD WWVA

E-2:30 p.m., C-1:30, M-12:30, P-11:30
C — Lazy Dan, Minstrel Man
CKLW KMBC KMOX KRLD WABC WBBM WCAO WCAU WCCO WHAS WHK WJAS WJSV WKBW WKRC WMBG

E-3:00 p.m., C-2:00, M-1:00, P-12:00
C — Symphonic Hour
CFRB CKAC CKLW KFAB KFH KGKO KLRA KLZ KMBC KMOX KOH KOIN KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVOR WABC WADC WALA WBIG WBNS WBRC WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGR WGST WHAS WHEC WHK WHP WIBW WICC WISN WJAS WJSV WKBN WLAC WLBW WLBZ WMAS WMBG WMT WNAC WNOX WOKO WORC WQAM WREC WSBT WSJS WSPD WTOC

R — Talkie Picture Time
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

E-3:30 p.m., C-2:30, M-1:30, P-12:30
R — Maybelline Musical Romance
KDYL KFI KGO KGW KHQ KOA

SUNDAY (*Continued*)

KOMO WBEN WCAE WCSH WDAF WEAF WEEI WFBR WGY WJAR WLIT WLW WMAQ WOW WRC WTAG WTAM WTIC WWJ

E-4:00 p.m., C-3:00, M-2:00, P-1:00
C — Buffalo Variety Workshop
CFRB CKAC CKLW KDB KFH KLRA KLZ KMBC KMOX KOH KOIN KOMA KRLD KSCJ KSL KTRH KTUL KVOR WABC WADC WALA WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGR WGST WHEC WHP WIBW WICC WISN WJAS WJSV WLBW WLBZ WMAS WMBD WMT WNAC WNOX WOKO WQAM WREC WSBT WSFA WSJS WSPD WTOC

E-4:30 p.m., C-3:30, M-2:30, P-1:30
R — Tony Wons
KDYL KFI KFSD KFYR KGO KGW KHQ KOA KOMO KSTP KTAR WAPI WEBC WJDX WMC WSB WSM WSMB

C — Oregon on Parade
CFRB CKAC CKLW KDB KFH KGKO KLRA KLZ KMBC KMOX KOH KOIN KOMA KRLD KSCJ KSL KTRH KTUL KVOR WABC WADC WALA WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDSU WEAN WFBL WFBM WFEA WGR WGST WHAS WHEC WHK WHP WIBW WICC WISN WJAS WKBN WLAC WLBW WLBZ WMAS WMBD WMT WNAC WNOX WOKO WORC WPG WQAM WREC WSFA WSJS WSPD WTOC

E-4:45 p.m., C-3:45, M-2:45, P-1:45
R — Big Ben Dream Drama
WBEN WCAE WCSH WDAF WEAF WEEI WFBR WFI WGY WJAR WMAQ WOC WOW WRC WSAI WTAG WTAM WTIC

E-5:00 p.m., C-4:00, M-3:00, P-2:00
C — Freddie Martin and Orchestra
CKLW KDB KERN KFBK KFH KFPY KFRC KGB KHJ KLRA KLZ KMBC KMJ KMOX KOIN KOL KOMA KRLD KSL KTRH KTSA KTUL KVI KWG WABC WADC WBBM WBIG WBNS WBRC WBT WCAO WCAU WCCO WDOD WDRC WDSU WEAN WFBL WFBM WGR WGST WHAS WHEC WHK WIBW WJAS WJSV WKBN WKRC WLAC WLBZ WMAS WMBG WNAC WOKO WORC WOWO WREC WSPD

B — Roses and Drums
KDKA KOIL KPRC KSO KTHS KWCR KWK WBAL WBAP WBZ WBZA WENR WGAR WHAM WJZ WKY WLW WMAL WOAI WREN WSYR

R — Sentinels Serenade
WBEN WCAE WCSH WDAF WEAF WEEI WFBR WFI WGY WJAR WMAQ WOW WRC WSAI WTAG WTAM WTIC WWJ

E-5:15 p.m., C-4:15, M-3:15, P-2:15
C — Poets' Gold; David Ross
CFRB CKAC KDB KFH KGKO KLRA KLZ KMBC KMOX KOH KOIN KOMA KRLD KSCJ KTRH KTSA KTUL KVOR WAAB WABC WADC WBIG WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGR WGST WHAS WHEC WHK WHP WIBW WICC WISN WJAS WJSV WKRC WLAC WLBW WLBZ WMBD WNOX WOKO WORC WOWO WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC

E-5:30 p.m., C-4:30, M-3:30, P-2:30
R — Tony Wons
CFCF CRCT KPRC KTHS KVOO WBAP WBEN WCAE WCSH WDAF WEAF WEEI WFI WGY WHO WIS WJAR WKY WLW WMAQ WOAI WOW WPTF WRC WRVA WSOC WTAM WTIC WWJ WWNC

C — Frank Crumit; Julia Sanderson
CKLW KFH KMBC KMOX KOMA KTUL WAAB WABC WADC WBNS WCAO WCAU WDRC WDSU WEAN WFBL WFBM WGR WHAS WHEC WHK WICC WJSV WMAS WOKO WORC WSPD WWVA

B — American Bosch Explorers Club
KDKA KDYL KFI KFYR KGO KGW KHQ KOA KOIL KOMO KSO KSTP KWCR KWK WAPI WAVE WBAL WBZ WBZA WCKY WDAY WEBC WENR WGAR WHAM WIBA WJDX WJR WJZ WKBF WMAL WMC WREN WSB WSM WSYR

E-6:00 p.m., C-5:00, M-4:00, P-3:00
C — Nick Lucas, Songs
CFRB CKAC CKLW KDB KFAB KGKO KLRA KLZ KMBC KMOX KOH KOIN KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVOR WABC WADC WBBM WBIG WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WFBL WHK WHP WIBW WJAS WJSV WKBN WKBW WLAC WMT WNOX WOKO WORC WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC WWVA

R — Catholic Hour
KDYL 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

E-6:15 p.m., C-5:15, M-4:15, P-3:15
C — Summer Musicale
CFRB CKAC CKLW KDB KFAB KFH KGKO KLRA KLZ KMBC KMOX KOH KOIN KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVOR WABC WADC WBBM WBIG WBNS WBRC WBT WCAO WCAU WCCO WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGR WGST WHAS WHEC WHK WHP WIBW WICC WJAS WJSV WKBN WKBW WLAC WLBW WLBZ WMAS WMT WNAC WNAX WNOX WOKO WORC WQAM WREC WSBT WSFA WSJS WSPD WTOC WWVA

E-6:30 p.m., C-5:30, M-4:30, P-3:30
C — Smiling Ed McConnell
CKLW KMBC KMOX WABC WBBM WBNS WCAU WCCO WDRC WEAN WFBL WFBM WFEA WHAS WHK WHP WISN WJAS WJSV WKBW WKRC WNAC WWVA

E-6:45 p.m., C-5:45, M-4:45, P-3:45
C — Voice of Experience
CKLW KMBC KMOX WAAB WABC WBBM WBT WCAO WCAU WCCO WDRC WEAN WFBL WGR WHAS WHK WJAS WJSV WKBW WKRC WNAC WOWO WWVA

E-7:00 p.m., C-6:00, M-5:00, P-4:00
C — Richard Himber and Orchestra
CKLW KFH KMBC KMOX KOMA KRLD KTUL WABC WADC WBBM WBNS WBT WCAO WCAU WCCO WDRC WDSU WEAN WFBL WFBM WHK WJAS WJSV WKBN WKBW WKRC WNAC WOKO WSBT WSPD

R — Jack Benny
KDYL KFYR KGO KGW KHQ KOA KOMO KPRC KSD KTBS KTHS WAVE WBEN WCAE WCSH WDAF WDAY WEAF WEBC WEEI WFAA WFBR WFI WFLA WGY WHO WIBA WIOD WIS WJAR WJAX WJDX WKY WLIT WLW WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSB WSM WSMB WTAG WTAM WTAR WTIC WTMJ WWJ WWNC

B — Charles Previn and Orchestra
KDKA KDYL KFI KGO KGW KHQ KOA KOIL KOMO KPRC KSO KSTP KWCR KWK WBAL WBAP WBZ WBZA WEBC WGAR WHAM WIBA WJDX WJR WJZ WKY WLS WLW WMAL WMC WOAI WREN WSB WSM WSMB WSYR WTMJ

E-7:30 p.m., C-6:30, M-5:30, P-4:30
C — Buddy Rogers; Jeanie Lang
CKLW KMOX WABC WADC WBBM WBNS WBRC WCAO WCAU WDRC WEAN WFBL WFEA WHK WICC WJAS WKBN WLBZ WMAS WMBR WNAC WOKO WORC WSBT WSFA WWVA

E-7:45 p.m., C-6:45, M-5:45, P-4:45
R — Fitch Program; Wendell Hall
CFCF KSD WBEN WCAE WCSH WEAF WFBR WGY WHO WJAR WKBF WLIT WMAQ WOC WOW WRC WSAI WTAG WTAM WTIC WWJ

E-8:00 p.m., C-7:00, M-6:00, P-5:00
C — Columbia Variety Hour
CFRB CKLW KDB KFAB KFH KGKO KLRA KLZ KMBC KMOX KOH KOIN KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVOR WABC WADC WALA WBIG WBNS WBRC WBT WCAO WCAU WCCO WDBJ WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGR WGST WHAS WHEC WHK WHP WIBW WICC WISN WJAS WKBN WLAC WLBW WLBZ WMAS WMT WNAC WNAX WNOX WOKO WORC WREC WSBT WSFA WSJS WTOC WWVA

R — Chase and Sanborn Hour
CFCF CRCT KDYL KFI KFYR KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTAR KTHS KVOO WAPI WAVE WBEN WBZ WBZA 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

SUNDAY (*Continued*)

WTAG WTAM WTIC WTMJ WWJ WWNC

E-9:00 p.m., C-8:00, M-7:00, P-6:00
R — Manhattan Merry-Go-Round
CFCF KDYL KFI KGO KGW KHQ KOA KOMO KSD KSTP WDAF WEAF WEBC WFBR WFI WGY WHO WJAR WMAQ WOC WOW WRC WSAI WTAG WTAM WTIC WTMJ WWJ

B — Gulf Headliners
KDKA KPRC KTBS WAVE WBAL WBZ WBZA WFAA WFLA WGAR WHAM WIOD WIS WJAX WJDX WJR WJZ WLW WMAL WOAI WRVA WSM WSMB WSYR WWNC

E-9:30 p.m., C-8:30, M-7:30, P-6:30
C — Fred Waring's Pennsylvanians
CFRB CKAC CKLW KDB KERN KFAB KFBK KFH KFPY KFRC KGB KHJ KLRA KLZ KMBC KMJ KMOX KOH KOIN KOL KOMA KRLD KSCJ KSL KTRH KTSA KTUL KVI KVOR KWG WABC WACO WADC WALA WBBM WBNS WBRC WBT WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGR WGST WHAS WHEC WHK WHP WIBW WICC WISN WJAS WJSV WKBN WKRC WLAC WLBW WLBZ WMAS WMBR WMT WNAC WNAX WNOX WOKO WORC WOWO WPG WQAM WREC WSFA WSJS WSPD WTOC

R — Album of Familiar Music
CFCF CRCT KDYL KFI KGO KGW KHQ KOA KOMO KPRC KSD KSTP KVOO WBEN WCAE WCSH WDAF WEAF WEEI WEAA WFBR WFI WFLA WGY WHO WIOD WIS WJAR WJAX WJDX WKY WMAQ WMC WOAI WOC WOW WPTF WRC WRVA WSAI WSB WSMB WTAG WTAM WTMJ WWJ WWNC

B — Walter Winchell
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WENR WGAR WHAM WJZ WLW WMAL WREN WSYR

E-9:45 p.m., C-8:45, M-7:45, P-6:45
B — Tastyeast Theatre
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WCKY WENR WGAR WHAM WJR WJZ WMAL WREN WSYR

E-10:00 p.m., C-9:00, M-8:00, P-7:00
R — Hall of Fame
CFCF CRCT KDYL KFI KGO KGW KHQ KOA KOMO KPRC KSD KSTP KTBS KTHS WBEN WCAE WCSH WDAF WEAF WEEI WFAA WFBR WFI WGY WHO WJAR WJDX WKBF WKY WLW WMAQ WMC WOAI WOC WOW WRC WSB WSM WSMB WTAG WTAM WTIC WWJ

B — Mme. Schumann-Heink
KDKA KOIL KSO KWCR KWK WBAL WBZ WBZA WCKY WENR WGAR WHAM WJR WJZ WMAL WREN WSYR

C — Wayne King, See Monday

E-10:30 p.m., C-9:30, M-8:30, P-7:30
C — Howard Barlow; Mary Eastman
CFRB CKAC CKLW KFH KGKO KLZ KMBC KMOX KOMA KRLD KSL KTRH KTSA KTUL KVOR WAAB WABC WACO WADC WBBM WBIG WBNS WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WJAS WJSV WKRC WLAC WMBR WMT WOKO WPG WQAM WREC WSJS WSPD WTOC

E-11:00 p.m., C-10:00, M-9:00, P-8:00
R — Fitch Program; Wendell Hall
KDYL KFI KFYR KGO KGW KHQ KOA KOMO KPRC KSTP KTBS WAVE WBAP WDAF WDAY WEBC WIBA WKY WOAI WTMJ

E-11:15 p.m., C-10:15, M-9:15, P-8:15
B — Mme. Schumann-Heink
KDYL KFI KGO KGW KHQ KOA KOMO KPRC WBAP WKY WOAI

E-11:30 p.m., C-10:30, M-9:30, P-8:30
C — Glen Gray and Orchestra
CFRB CKAC CKLW KFAB KFH KGKO KLRA KLZ KMBC KOH KRLD KSCJ KTRH KTSA KTUL KVOR WABC WACO WADC WALA WBBM WBNS WBRC WBT WCAO WCAU WCCO WDAE WDBJ WDBO WDNC WDOD WDRC WDSU WEAN WFBL WFBM WFEA WGR WGST WHAS WHEC WHK WHP WIBW WICC WISN WJAS WJSV WKBN WLAC WLBW WLBZ WMAS WMBD WMT WNAC WNAX WOKO WPG WQAM WREC WSBT WSFA WSJS WSPD WTOC

C — Richard Himber and Orchestra
KDB KERN KFBK KFPY KFRC KGB KHJ KLZ KMJ KOIN KOL KSL KVI KWG

CLASSIFIED INDEX TO CHAIN PROGRAMS

Time in Eastern Standard

C—Columbia; R—National (Red); B—National (Blue)

CONCERTS

Complinsky Trio, 1:30 p.m. Sunday, C
Emery Deutsch, 9:15 p.m. Wednesday, C
Radio City Symphony, 12:30 p.m. Sunday, B
Symphonic Hour, 3:00 p.m. Sunday, C

DANCE BANDS

Victor Arden, 8:30 p.m. Wednesday, C
Frank Black, 9:00 p.m. Saturday, B
Frank Dailey, 11:15 p.m. Tuesday, C
Jack Denny, 10:30 p.m. Wednesday, B
Jan Garber, 8:00 p.m. Monday, B
Lud Gluskin, 9:30 p.m. Monday, C
Glen Gray, 10:00 p.m. Tues.; 9:00 p.m. Thurs., C
Phil Harris, 9:00 p.m. Friday, B
Joe Haymes, 11:15 p.m. Thurs.; 11:45 p.m. Sat., C
Lennie Hayton, 9:00 and 12:00 p.m. Wednesday, R
Richard Himber, 8:00 p.m. Monday, R; 7:00 and 11:30 p.m. Sunday, C
Al Kavelin, 11:00 p.m. Tuesday, C
Wayne King, 8:30 p.m. Tues. and Wed., R; 10:00 p.m. Sunday and Monday, C
Enoch Light, 11:45 p.m. Monday, C
Guy Lombardo, 10:00 p.m. Wednesday, R
Abe Lyman, 9:00 p.m. Friday, R; 8:30 p.m. Tuesday, C
Freddie Martin, 5:00 p.m. Sunday, C
Charles Previn, 7:00 p.m. Sunday, B
Leo Reisman, 8:00 and 11:30 p.m. Tuesday, R
Buddy Rogers, 7:30 p.m. Sunday, C
Leith Stevens, 9:00 p.m. Saturday, C
Rudy Vallee, 8:00 p.m. Thursday, R
Esther Velas, 6:45 p.m. Friday, C
Fred Waring, 9:30 p.m. Sunday and Thursday, C
Paul Whiteman, 10:00 p.m. Thursday, R

DIALOG

Fred Allen, 9:00 and 12:00 p.m. Wednesday, R
Amos 'n' Andy, 7:00 and 11:00 p.m. daily, except Sat. and Sun., B
Jack Benny, 7:00 p.m. Sunday, R
Burns and Allen, 9:30 p.m. Wednesday, C
Joe Cook, 9:30 p.m. Monday, R
Easy Aces, 8:00 p.m. Wed., Thurs. and Fri., C
Jake and Lena, 7:15 and 11:15 p.m. daily, except Sat. and Sun., R
Walter O'Keefe, 10:00 p.m. Tues.; 9:00 p.m. Thurs., C
Jack Pearl, 8:00 p.m. Wednesday, R
Pick and Pat, 9:30 p.m. Friday, R

DRAMA

Bar X Days, 9:00 p.m. Thursday, C
Big Ben Dream, 4:45 p.m. Sunday, R
Billy Batchelor, 6:45 p.m. daily, except Sat. and Sun., R; 9:15 p.m. daily, except Sat. and Sun., C
Frank Buck, 7:45 p.m. daily, except Sat. and Sun., R
Death Valley Days, 9:00 p.m. Thursday, B
Eno Crime Clues, 8:00 p.m. Tues. and Wed., B
First Nighter, 10:00 p.m. Friday, R
Warden Lawes, 9:00 p.m. Wednesday, B

Myrt and Marge, 7:00 and 11:00 p.m. daily, except Sat. and Sun., C
One Man's Family, 9:00 p.m. Saturday, R
Princess Pat Players, 9:30 p.m. Monday, B
Irene Rich, 7:30 p.m. Wednesday, B
Roses and Drums, 5:00 p.m. Sunday, B
The Shadow, 6:30 p.m. Mon. and Wed., C
Soconyland Sketches, 9:30 p.m. Tuesday, R
Talkie Picture Time, 3:00 p.m. Sunday, R
Tastyeast Theatre, 9:45 p.m. Sunday, B
True Story Court, 8:30 and 11:30 p.m. Friday, C

PIANO AND ORGAN

Abram Chasins, 2:15 p.m. Sunday, C
Carlile and London, 10:45 p.m. Friday, C
Fray and Braggiotti, 9:15 p.m. Monday, C
Archer Gibson, 10:30 p.m. Thursday, B
Ohman and Arden, 9:30 p.m. Sunday, R

POPULAR PROGRAMS

Album Familiar Music, 9:30 p.m. Sunday, R
A & P Gypsies, 9:00 p.m. Sunday, R
Miss Babo's Surprise, 1:30 p.m. Sunday, R
Major Bowes' Family, 11:30 a.m. Sunday, R
Buffalo Variety, 4:00 p.m. Sunday, C
Byrd Expedition, 10:00 p.m. Wednesday, C
Camel Program, 10:00 p.m. Tues.; 9:00 p.m. Thurs., C
Chase and Sanborn, 8:00 p.m. Sunday, R
Cities Service, 8:00 p.m. Friday, R
Columbia Variety, 8:00 p.m. Sunday, C
Contented Program, 10:00 p.m. Monday, R
Colgate House Party, 9:30 p.m. Monday, R
Fleischmann Variety, 8:00 p.m. Thursday, R
Forty-Five Minutes in Hollywood, 10:00 p.m. Thursday, C
Gibson Family Musical, 9:30 p.m. Saturday, R
Gulf Headliners, 9:00 p.m. Sunday, B
Hall of Fame, 10:00 p.m. Sunday, R
Hollywood Hotel, 9:30 p.m. Friday, C
Household Musical, 7:30 p.m. Tuesday, B
Manhattan Merry-Go-Round, 9:00 p.m. Sunday, R
Manhattan Moods, 2:00 p.m. Sunday, C
Manhattan Serenaders, 10:00 p.m. Saturday, C
March of Time, 9:00 p.m. Friday, C
Maxwell House Show Boat, 9:00 p.m. Thursday, R
Maybelline Musical, 3:30 p.m. Sunday, R
Mohawk Treasure Chest, 2:00 p.m. Sunday, R
National Barn Dance, 10:30 p.m. Saturday, B
Oregon on Parade, 4:30 p.m. Sunday, C
Palmolive Beauty Box, 10:00 p.m. Tuesday, R
Poet's Gold, 5:15 p.m. Sunday, C
Radio City Party, 9:00 p.m. Saturday, B
Roxy Revue, 8:00 p.m. Saturday, C
Silken Strings, 7:00 p.m. Sunday, B
Silver Dust Serenaders, 7:30 p.m. Mon., Wed., and Fri., C
Sinclair Minstrels, 9:00 p.m. Monday, B
Sentinels Serenade, 5:00 p.m. Sunday, R
Swift Program, 8:00 p.m. Saturday, R
Tony Wons, 4:30 and 5:30 p.m. Sunday, R
Voice of Firestone, 8:30 and 11:30 p.m. Monday, R
Ward's Family Theatre, 7:30 p.m. Sunday, C

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
Salt Lake Choir, 11:30 a.m. Sunday, C

SINGERS

Irene Beasley, 9:30 p.m. Friday, B
Boswell Sisters, 9:00 p.m. Tuesday, C
Jerry Cooper, 7:00 p.m. Saturday, C
Bing Crosby, 9:00 p.m. Tuesday, C
Jessica Dragonette, 8:00 p.m. Friday, R
Mary Eastman, 10:30 p.m. Sunday; 7:45 p.m. Saturday, C
Cliff Edwards, 11:00 p.m. Friday, C
Evan Evans, 9:00 p.m. Monday, C
Sylvia Froos, 11:00 p.m. Saturday, C
Gene and Glenn, 7:15 and 11:15 p.m. daily, except Sat. and Sun., R
Tito Guizar, 12:30 p.m. Sunday, C
Wendell Hall, 7:45 and 11:00 p.m. Sunday, R
Annette Hanshaw, 9:00 p.m. Thursday, R
John Herrick, 6:45 p.m. Saturday, B
Dennis King, 10:00 p.m. Wednesday, B
Jeanie Lang, 7:30 p.m. Sunday, C
Frances Langford, 9:30 p.m. Monday, R
Lazy Dan, 2:30 p.m. Sunday, C
Elizabeth Lennox, 8:30 p.m. Wednesday, C
Nick Lucas, 6:00 p.m. Sunday; 11:00 p.m. Wednesday, C
Smiling Ed McConnell, 6:30 p.m. Sunday, C
John McCormack, 9:30 p.m. Wednesday, B
Everett Marshall, 8:30 p.m. Wednesday, C
Martha Mears, 7:30 p.m. Saturday, R
James Melton, 9:00 and 12:00 p.m. Wednesday, R
Modern Mountaineers, 6:45 p.m. Tuesday, C
Frank Munn, 9:30 p.m. Sunday; 9:00 p.m. Friday, R; 8:00 p.m. Tuesday, C
Gertrude Niesen, 9:30 p.m. Monday, C
Donald Novis, 9:30 p.m. Monday, R
Virginia Rea, 9:30 p.m. Sunday, R
Harry Richman, 10:30 p.m. Wednesday, B
Carson Robison, 9:00 p.m. Thursday, C
Lanny Ross, 9:00 p.m. Thursday, R
Sanderson-Crumit, 5:30 p.m. Sunday, C
Mme. Schumann-Heink, 10:00 and 11:15 p.m. Sunday, B
Vivienne Segal, 9:00 p.m. Friday, R; 8:30 p.m. Tuesday, C
Mary Small, 1:30 p.m. Sunday, R
Whispering Jack Smith, 7:30 p.m. Tues., Thurs. and Sat., C
Kate Smith, 8:00 p.m. Thursday, C
Gladys Swarthout, 8:30 and 11:30 p.m. Sunday; 10:00 p.m. Tuesday, R
Tamara, 9:00 p.m. Sunday, R
Conrad Thibault, 9:00 p.m. Thursday, R
Lawrence Tibbett, 8:30 p.m. Tuesday, B
Vera Van, 7:15 p.m. Wednesday; 11:00 p.m. Thursday, C
Fats Waller, 11:00 p.m. Monday; 6:45 p.m. Thurs.; 8:45 p.m. Sat., C
Muriel Wilson, 8:00 p.m. Tuesday, C

TALKS

American-Bosch Explorers, 5:30 p.m. Sunday, B
Boake Carter, 7:45 p.m. daily, except Sat. and Sun., C
Chicago Round Table, 12:30 p.m. Sunday, R
Mickey Cochrane, 9:00 p.m. Wednesday, C
Eddie Dooley, 6:30 p.m. Thurs., Fri. and Sat., C
Floyd Gibbons, 7:45 and 12:00 p.m. Saturday, R; 9:30 p.m. Friday, B
Edwin C. Hill, 8:15 and 11:15 p.m. Mon., Wed. and Fri., C
H. V. Kaltenborn, 6:00 p.m. Friday, C
John B. Kennedy, 8:30 p.m. Tuesday; 10:30 p.m. Wednesday; 9:00 p.m. Saturday, B
Mrs. Franklin D. Roosevelt, 9:30 p.m. Tuesday, B
Lowell Thomas, 6:45 p.m. daily, except Sat. and Sun., B
Voice of Experience, 6:45 p.m. Sunday, C
Walter Winchell, 9:30 p.m. Sunday, B

Don Bestor's romance with his wife started when she bandaged his hurt thumb; she was a dancer in the Terrace Garden chorus in Chicago and he the band-leader . . . . It cost Dan Landt $500 to marry Lois Benson because the Landt Trio (all brothers) had agreed that the first to succumb to Cupid would pay that forfeit. . . . Fred Allen observed his 39th birthday on May 31.

October DX Calendar

(*Continued from page* 49)

2:50-3:10	WGBB	1210	100	Freeport
3:00-3:20	WOKO	1430	500	Albany
	WTNJ	1280	500	Trenton
	KTRH	1330	1000	Houston
3:10-3:30	WGL	1370	100	Fort Wayne
	KFPW	1210	100	Fort Smith
3:20-3:40	KFXR	1310	100	Okla. City
	WNYC	810	500	New York
	WWAE	1200	100	Hammond
	WTAW	1120	500	College Station
3:30-3:50	WOV	1130	1000	New York
	WLBC	1310	100	Muncie
	KASA	1210	100	Elk City
3:40-4:00	WINS	1180	1000	New York
	WFAM	1200	100	South Bend
	KWLC	1270	100	Decorah
3:50-4:10	WCAP	1280	500	Asbury Park
	KWKC	1370	100	Kansas City
4:00-4:20	WJAY	610	500	Cleveland
	KGCA	1270	100	Decorah
4:10-4:30	WBNS	1430	500	Columbus
	KFVS	1210	100	Cape Girardeau
4:20-4:40	WWJ	920	1000	Detroit
	KGHL	780	1000	Billings
4:30-4:50	KQV	1380	500	Pittsburgh
	KDLR	1210	100	Devils Lake
4:50-5:10	WSMK	1380	200	Dayton
	KFXJ	1200	100	Grand Junction
5:00-5-20	WAVE	940	1000	Louisville
	KFDM	960	500	Beaumont
5:10-5:30	WADC	1320	1000	Akron
	KWTN	1210	100	Watertown
5:15-6:15	WSUI	880	500	Iowa City
5:20-5:40	WSPD	1340	1000	Toledo
	WEW	760	1000	St. Louis
5:30-5:50	KWEA	1210	100	Shreveport
5:40-6:00	WLAP	1420	100	Lexington
5:50-6:10	KGGM	1230	250	Albuquerque
		October 20		
3:01-3:09	CHSJ	1120	100	St. John
		October 27		
12:00-8:00	KGIR	1360	1000	Butte
		October 6, 13, 20, 27		
12:00-12:30	WGAR	1450	500	Cleveland
12:00-3:00	WGES	1360	500	Chicago
1:00-3:00	TGX	1400	150	Guatemala

The Revelers, who are real veterans in the radio game, will celebrate their thirteenth anniversary on the air this October. The famous quartette began broadcasting from the old Westinghouse studio in Newark in the days when it was a triumph if their program was picked up by a workman stationed on the roof with a crystal set.

* * *

Wilfred Glenn, the Reveler's famous basso, entertains his weekend guests with plenty of good fishing. Glenn goes out in his sloop Halcyon every morning and any of his guests who care to join him are always welcome.

* * *

If you like dude ranches, you'd enjoy yourself at Carson Robison's Pleasant Valley Farm. For the famous radio hillbilly wears the big hat, flannel shirt and leather chaps of the cowpuncher and conducts his farm just like a ranch.

KEY TO SYMBOLS

As Shown In the Index by Frequencies and Dial Numbers

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

Second Column Symbols

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

Fourth Column Symbols

- B National "Blue" network.
- C Columbia network.
- D Daytime only.
- Dn Daytime with occasional evening hours.
- F Canadian Radio Brdcstg. Commission.
- N National "Red" and "Blue" networks.
- P Has construction permit only.
- R National "Red" network.
- S Sunday only.
- Sy Synchronized.
- X Has permit to increase power.
- Y Has permit to change location.
- Z Has permit to change frequency.

a-b-c. Small letters show stations using same transmitter.

1-2-3. Figures denote stations sharing time.

..... No information.

Time on the Air

The time is given in accordance with the "24-hour clock." Noon is always 12:00, but midnight may be either 0:00 or 24:00. To change to time of your own clock, subtract twelve. Thus, 18:00-24:00 is 6:00 p. m. to midnight. 23:00-0:30 is 11:00 p. m. to 12:30 a.m. A signifies Atlantic Standard Time (AST). E is Eastern Standard Time (EST). C is Central Standard Time (CST). P is Pacific Standard Time (PST).

540 kilocycles 555.2 meters

CJRM	ak	1000	F	Moose Jaw, Sask.	M—10:30-22

550 kilocycles 545.1 meters

CFNB	ak	500	F	Fredericton, N. B.	A—11-24
KFUO	ae	500	2 (1)	St. Louis, Mo.	C—8:30-12:30; 15-16:30; 21:15-22:15
KFYR	ae	1000	N (2.5)	Bismarck, N. D.	C—8-24
KOAC	ak	1000	.....	Corvallis, Ore.	P—Silent
KSD	ak	500	2R (1)	St. Louis, Mo.	C—12:30-15; 16:30-21:15
KTSA	ak	1000	C	San Antonio, Texas	C—7-14; 15-23:30
TISO	ak	250	.....	San Jose, C. R.	C—.....
WDEV	ae	500	D	Waterbury, Vt.	E—10:45-12
WGR	ae	1000	C	Buffalo, N. Y.	E—9-1
WKRC	ak	1000	C (2.5)	Cincinnati, Ohio	E—7-1

560 kilocycles 535.4 meters

KFDM	ak	500	(1)	Beaumont, Texas	C—8:30-15; 18-22
KLZ	ae	1000	C (2.5)	Denver, Colo.	M—8-23:30
KTAB	ak	1000	.....	San Francisco, Calif.	P—8:30-1
KWTO	ak	1000	D	Springfield, Mo.	C—7:45-17:45
TGW	ak	10000	565	Guatemala City	C—12-14:30
WFI	ae	500	1R (1)	Philadelphia, Pa.	E—10:20-14; 16:30-18; 21-24
WIND	ak	1000	(2.5)	Gary, Ind.	C—8-1
WLIT	ak	500	1R (1)	Philadelphia, Pa.	E—6-13; 14-16:30; 18-21; 24-1
WNOX	ak	1000	C (2)	Knoxville, Tenn.	C—8-24
WQAM	ae	1000	C	Miami, Fla.	E—8-23
XEAO	ak	250	(.15)	Mexicali, B. C.	P—7-23

570 kilocycles 526.0 meters

FQN	z	250	574	St. Pierre, Miquelon	L—.....
KGKO	ak	250	C (1)	Wichita Falls, Texas	C—8-23:30
KMTR	ak	500	.....	Hollywood, Calif.	P—8-23
KVI	ak	1000	.....	Tacoma, Wash.	P—7:45-24
WKBN	ae	500	1C	Youngstown, Ohio	E—9-24
WMCA	ak	500	.....	New York, N. Y.	E—9-1
WNAX	ak	1000	C (2.5)	Yankton, S. D.	C—8-24
WOSU	ak	750	1 (1)	Columbus, Ohio	E—Silent
WSYR	ak	250	B	Syracuse, N. Y.	E—8-24
WWNC	ae	1000	N	Asheville, N. C.	E—7:30-0:30

580 kilocycles 516.9 meters

CHRC	ak	100	F	Quebec, Que.	E—12-23:30
CKCL	ae	100	F	Toronto, Ont.	E—11-14; 16-20:30
CKUA	ak	500	.....	Edmonton, Alta.	M—Silent
KMJ	ak	500	C	Fresno, Calif.	P—8:30-23
KSAC	ak	500	2 (1)	Manhattan, Kans.	C—Silent
WCHS	ak	500	(1)	Charleston, W. Va.	E—12-18
WDBO	ae	250	C (1)	Orlando, Fla.	E—8-24
WIBW	ak	1000	C2	Topeka, Kans.	C—8-24
WTAG	ae	500	R (1)	Worcester, Mass.	E—10-24

590 kilocycles 508.2 meters

CMW	ae	1400	595	Havana, Cuba	E—10-15
KHQ	ak	1000	N (2.5)	Spokane, Wash.	P—9-24
WEEI	ak	1000	R	Boston, Mass.	E—10-23:30
WKZO	ae	1000	D	Kalamazoo, Mich.	E—9-18
WOW	ae	1000	R (2.5)	Omaha, Neb.	C—6:30-0:30
XEPN	ak	50000	.....	Piedras Negras, Coah.	C—5-24

600 kilocycles 499.7 meters

CFCF	ae	500	.....	Montreal, Que.	E—12:30-23
CFCO	ak	100	F	Chatham, Ont.	E—9:30-12:15; 13:30-15; 19-20:15
CJOR	ak	500	.....	Vancouver, B. C.	P—10:30-21
KFSD	ae	1000	N	San Diego, Calif.	P—8-24
WCAC	ak	500	2	Storrs, Conn.	E—Silent
WCAO	ae	500	C	Baltimore, Md.	E—9-24
WICC	ae	250	2 C (1)	Bridgeport, Conn.	E—8-1
WMT	af	1000	C (2.5)	Waterloo, Iowa	C—8-24
WREC	ak	1000	C (2.5)	Memphis, Tenn.	C—7-24

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610 kilocycles 491.5 meters

KFRC	ak	1000	C (2.5)	San Francisco, Calif.	P—8-24
KZRM	ak	50000	618.5	Manila, P. I.	L—10:30-13:15; 15-22:30
TIXA	z	7.5	614	San Jose, C. R.	C—.....
WDAF	ak	1000	R (2.5)	Kansas City, Mo.	C—8-23
WIP	ae	500	C (1)	Philadelphia, Pa.	E—8-1
WJAY	ae	500	D	Cleveland, Ohio	E—8-17:45
XFX	ak	500	.....	Mexico City, D. F.	C—.....

620 kilocycles 483.6 meters

KGW	ak	1000	N (2.5)	Portland, Ore.	P—8-24
KTAR	ae	1000	N	Phoenix, Ariz.	M—8-23
WFLA	ae	1000	Na (2.5)	Clearwater, Fla.	E—8-24
WHJB	z	250	P	Greensburg, Pa.	E—9-Sunset
WLBZ	ak	500	C	Bangor, Maine	E—8:45-24
WSUN	ae	1000	Na (2.5)	St. Petersburg, Fla.	E—8-24
WTMJ	ae	1000	N (2.5)	Milwaukee, Wis.	C—7:30-0:30
.....	z	250	P	Pittsburgh, Pa.	E—.....

630 kilocycles 475.9 meters

CFCY	ae	500	F	Char't'w'n, P.E.I.	A—8:30-23:30
CJGX	ck	500	F	Yorkton, Sask.	C—7-21:30
CKOV	ak	100	F	Kelowna, B. C.	P—0-2; 11-16; 17:30-22
KFRU	ak	500	1	Columbia, Mo.	C—7:30-21
KGFX	ak	200	D	Pierre, S. D.	C—.....
WGBF	ae	500	1	Evansville, Ind.	C—8:30-19
WMAL	ak	250	B (.5)	Washington, D. C.	E—8-24
WOS	ak	500	1D	Jefferson City, Mo.	C—Silent
WPRO	ak	250	.....	Providence, R. I.	E—9-24

640 kilocycles 468.5 meters

CMQ	z	340	645	Havana, Cuba	E—.....
KFI	ak	50000	N	Los Angeles, Calif.	P—9-23
WAIU	ae	500	.....	Columbus, Ohio	E—6:15-18
WOI	ae	5000	D	Ames, Iowa	C—Irregular
XEOX	ak	250	.....	Saltillo, Coah.	C—.....

650 kilocycles 461.3 meters

WSM	ae	50000	N	Nashville, Tenn.	C—8-23:30

660 kilocycles 454.3 meters

WAAW	ak	500	D	Omaha, Neb.	C—8-17
WEAF	ak	50000	R	New York, N. Y.	E—8-1
XEAL	z	1000	.....	Mexico City, D. F.	C—.....

670 kilocycles 447.5 meters

WMAQ	ck	50000	N	Chicago, Ill.	C—8-1

680 kilocycles 440.9 meters

CMAF	ak	1000	.....	Havana, Cuba	E—12:30-15; 19-23
CMCQ	z	1000	.....	Havana, Cuba	E—.....
HJN	ak	500	681	Bogota, Colombia	L—.....
KFEQ	ae	2500	D	St. Joseph, Mo.	C—8-17:45
KPO	ak	50000	N	San Francisco, Calif.	P—8-24
RDN	z	500	.....	San Salvador, E. S.	L—.....
VAS	ak	2000	685	Glace Bay, N. S.	A—23-23:10; 0-0:10
VOWR	ck	500	681	St. John's, Nfld.	L—11-18:30
WPTF	ae	1000	DnN	Raleigh, N. C.	E—10-Sunset

690 kilocycles 434.5 meters

CFRB	ae	10000	C	Toronto, Ont.	E—10-0:30
CJCJ	ak	100	F	Calgary, Alta.	M—9:30-10:45; 18-19:15
NAA	ak	1000	.....	Arlington, Va.	E—10:10-10:15; 11:15-12; 21:55-22
XET	ck	500	.....	Monterrey, N. L.	C—9-15

700 kilocycles 428.3 meters

WLW	ak	500000	N	Cincinnati, Ohio	E—8-1:30

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710 kilocycles 422.3 meters

KMPC	ae	500	Dn	Beverly Hills, Calif.	P—6:30-17:15; 20-1
KPCB	ae	250	.....	Seattle, Wash.	P—5:30-Sunset; 22-4
TIFB	z	30	714	San Jose, C. R.	C—.....
WOR	ak	5000	.....	Newark, N. J.	E—10-0:30
XEN	ak	1000	711	Mexico City, D. F.	C—9-10; 13-16; 19-24

720 kilocycles 416.4 meters

KZEG	ak	1000	.....	Manila, P. I.	L—9-10:30; 13:15-15
WGN	ck	50000	.....	Chicago, Ill.	C—9-1:30
XEFI	ae	250	.....	Chihuahua, Chih.	C—11-15; 20-22:30

730 kilocycles 410.7 meters

CFPL	ak	100	F	London, Ont.	E—11-12:30; 18:30-23:30
CJCA	ah	500	F	Edmonton, Alta.	M—10:45-16; 17-22:30
CKAC	ak	5000	C	Montreal, Que.	E—10:30-1
CMK	ae	3150	.....	Havana, Cuba	E—10-12; 18-24

740 kilocycles 405.2 meters

KMMJ	ae	1000	D	Clay Center, Neb.	C—8-9:30; 13-16:30
KTRB	ak	250	D	Modesto, Calif.	P—.....
WHEB	ak	250	D	Portsmouth, N. H.	E—8-12; 14-17:30
WSB	ah	50000	N	Atlanta, Ga.	C—6:55-24

750 kilocycles 399.8 meters

KGU	aj	2500	N	Honolulu, T. H.	L—8:45-22:30
WJR	ak	10000	B	Detroit, Mich.	E—8-24
XEAM	z	50	.....	Nuevo Laredo, Tams.	C—.....

760 kilocycles 394.5 meters

CMCQ	z	1000	767	Havana, Cuba	E—.....
KXA	ae	250	(.5)	Seattle, Wash.	P—7-Sunset; 21-22
WBAL	ae	10000	BSy	Baltimore, Md.	E—21-24
WEW	ae	1000	D	St. Louis, Mo.	C—9:30-17
WJZ	ck	50000	BSy	New York, N. Y.	E—8-1
XEBC	ak	5000	.....	Agua Caliente, L. C.	P—.....

770 kilocycles 389.4 meters

KFAB	ae	5000	CSy	Lincoln, Neb.	C—9-17:45; 20:30-21:30; 22-24
WBBM	ae	25000	CSy	Chicago, Ill.	C—8-2:15

780 kilocycles 384.4 meters

CHWK	ak	100	F	Chilliwack, B. C.	P—17:55-22
CMBS	ak	150	.....	Havana, Cuba	E—Silent
CMCF	ak	250	.....	Havana, Cuba	E—12-14
KELW	ae	500	2	Burbank, Calif.	P—10-13; 17-20; 4-6
KFDY	ae	1000	D	Brookings, S. D.	C—Silent
KFQD	ck	250	.....	Anchorage, Alaska	L—17-19
KGHL	ak	1000	N (2.5)	Billings, Mont.	M—9-16; 19-23
KTM	ak	500	2 (1)	Los Angeles, Calif.	P—6-10; 13-17; 20-4
WEAN	ae	500	C (.25)	Providence, R. I.	E—8-1
WMC	aj	1000	N (2.5)	Memphis, Tenn.	C—8-24
WTAR	ae	500	N	Norfolk, Va.	E—9-24
XEYZ	z	10000	.....	Mexico City, D. F.	C—10-23

790 kilocycles 379.5 meters

CMJK	ak	150	.....	Camaguey, Cuba	E—10-12:30; 16-23
KGO	ak	7500	N	San Francisco, Calif.	P—8-24
WGY	ak	50000	R	Schenectady, N. Y.	E—9-0:30

800 kilocycles 374.8 meters

TIGP	z	75	.....	San Jose, C. R.	C—.....
WBAP	ak	50000	Na	Fort Worth, Tex.	C—10-12; 15-18; 21-24
WFAA	ak	50000	Na	Dallas, Tex.	C—8-10:30; 12-15; 18-21
WTBO	ae	250	.....	Cumberland, Md.	E—Silent

KCYS.
800
DIAL

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810 kilocycles 370.2 meters

WCCO	ae	50000	C	Minneapolis, Minn.	C—8-24
WNYC	ak	500	N	New York, N. Y.	E—10-19:30
XFC	z	350	.....	Aguascalientes, Ags.	C—.....

820 kilocycles 365.6 meters

WHAS	aj	50000	C	Louisville, Ky.	C—8-24
XEP	z	500	.....	Mexico City, D. F.	C—.....
XETW	dk	500	.....	Mexico City, D. F.	C—.....

830 kilocycles 361.2 meters

CMC	ae	500	835	Havana, Cuba	E—8-23
KOA	ak	50000	N	Denver, Colo.	M—8-24
TIEA	z	7.5	833	San Jose, C. R.	C—.....
TIVL	z	30	835	San Jose, C. R.	A—10-11; 15-16
WEEU	ak	1000	D	Reading, Pa.	E—8-17:30
WHDH	ae	1000	Dn	Boston, Mass.	E—7-21
WRUF	ae	5000	Dn	Gainesville, Fla.	E—8:30-19:15

840 kilocycles 356.9 meters

CFQC	z	1000	F	Saskatoon, Sask.	M—11-23
CRCT	ak	5000	F	Toronto, Ont.	E—11-24
VOGY	ak	400	.....	St. John's, Nfld.	L—Silent

850 kilocycles 352.7 meters

KIEV	aj	250	D	Glendale, Calif.	P—6-17:15
WWL	ae	10000	.....	New Orleans, La.	C—10-19:45
XEXX	z	500	.....	Mexico City, D. F.	C—.....

860 kilocycles 348.6 meters

WABC	ae	50000	C	New York, N. Y.	E—8-1
WHB	ae	500	D	Kansas City, Mo.	C—7-17:45
XEMO	ak	2000	865	Tijuana, B. C.	P—.....

870 kilocycles 344.6 meters

WENR	ak	50000	Na	Chicago, Ill.	C—8-12:30; 15:30-18; 20-1
WLS	ae	50000	Na	Chicago, Ill.	C—12:30-15:30; 18-20

880 kilocycles 340.7 meters

CFJC	ak	100	F	Kamloops, B. C.	P—18-19:30
CRCO	ak	1000	F	Ottawa, Ont.	E—17-24
KFKA	ak	500	2 (1)	Greeley, Colo.	M—Silent
KLX	ae	1000	.....	Oakland, Calif.	P—12-23
KPOF	ak	500	2	Denver, Colo.	M—7:30-9; 15-16; 19:30-21
KSEI	ck	250	(.5)	Pocatello, Idaho	M—10-23
WCOC	ae	500	(1)	Meridian, Miss.	C—7:30-14
WGBI	ae	500	1	Scranton, Pa.	E—13-22:30
WPHR	z	500	.....	Petersburg, Va.	E—.....
WQAN	ae	250	1	Scranton, Pa.	E—Silent
WSUI	ae	500	.....	Iowa City, Iowa	C—16-17; 18-22
YV2RC	z	100	882	Caracas, Venz.	L—.....

890 kilocycles 336.9 meters

CJIC	z	100	D	S. Ste. Marie, Ont.	E—Irregular
CMX	ae	1000	.....	Havana, Cuba	E—Silent
COA	z	500	.....	Havana, Cuba	E—.....
KARK	ak	250	(.5)	Little Rock, Ark.	C—8-9:45; 11-12; 16:30-18; 19:45-21
KFNF	ak	500	2 (1)	Shenandoah, Iowa	C—8-9:30; 14-16; 17-18:45
KUSD	ae	500	2	Vermillion, S. D.	C—Silent
WGST	aeh	250	C (1)	Atlanta, Ga.	C—7-24
WILL	ak	250	2 (1)	Urbana, Ill.	C—Silent
WJAR	ae	500	R	Providence, R. I.	E—9-1
WMMN	ae	250	(.5)	Fairmont, W. Va.	E—10:40-21
XEW	ak	50000	.....	Mexico City, D. F.	C—10-24

900 kilocycles 333.1 meters

KGA	ak	5000	N	Spokane, Wash.	P—8-24

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KGBU	ak	500	.....	Ketchikan, Alaska	L—10-24
KHJ	ae	1000	C (2.5)	Los Angeles, Calif.	P—8-24
WBEN	ae	1000	R	Buffalo, N. Y.	E—9-24
WJAX	aeh	1000	N	Jacksonville, Fla.	E—9-24
WKY	ae	1000	N	Oklahoma City, Ok.	C—8-24
WLBL	ak	2500	D	Stevens Point, Wis.	C—Silent

910 kilocycles 329.6 meters

CJAT	ak	250	F	Trail, B. C.	P—10:30-13:30; 17:30-22
CMHW	z	100	.....	Cienfuegos, Cuba	E—18:30-21:30
CRCM	ak	5000	F	Montreal, Que.	E—.....
TICR	z	75	911	San Jose, C. R.	C—.....

920 kilocycles 325.9 meters

CMCD	ah	500	925	Havana, Cuba	E—12-23:30; 1-3
HHK	ae	1000	.....	Fort-au-Prince, Haiti	E—Silent
KOMO	ak	1000	N	Seattle, Wash.	P—8-23
KPRC	ae	1000	N (2.5)	Houston, Texas	C—7-24
KVOD	ae	500	.....	Denver, Colo.	M—8-1
WAAF	ak	500	D	Chicago, Ill.	C—6-Sunset
WBSO	ae	500	D	Babson Park, Mass.	E—8-16:30
WPEN	ak	100	(.25)	Philadelphia, Pa.	E—8-22
WRAX	ak	250	D	Philadelphia, Pa.	E—8-22
WWJ	ak	1000	R	Detroit, Mich.	E—8-24
XEAA	z	200	.....	Mexicali, B. C.	P—12-14; 17-19
XEKL	z	500	.....	Leon, Guan.	C—13-16
XEOK	z	2500	.....	Tijuana, B. C.	P—.....

930 kilocycles 322.4 meters

CFAC	ak	100	F	Calgary, Alta.	M—9-11; 13-17; 18:30-20:30
CFCH	ak	100	F	North Bay, Ont.	E—11-12:15; 18:30-23
CFLC	ae	100	.....	Prescott, Ont.	E—19-20:30
CHNS	ae	500	F	Halifax, N. S.	A—18-24
CKPC	ae	100	F	Brantford, Ont.	E—9:30-23
CKPR	ak	50	F	Fort William, Ont.	E—17-22
CMJF	z	200	.....	Camaguey, Cuba	E—.....
KGBZ	ak	1000	2 (2.5)	York, Neb.	C—9:15-11; 13:30-16; 16:30-18; 19-20:30
KMA	ak	1000	2 (2.5)	Shenandoah, Iowa	C—8-9:15; 11:15-13:30; 15-16:30; 18-19; 20:30-23
KROW	ak	500	(1)	Oakland, Calif.	P—8-1
WBRC	ak	1000	C	Birmingham, Ala.	C—8:30-23
WDBJ	ae	1000	C	Roanoke, Va.	E—8-24

940 kilocycles 319.0 meters

CMKM	z	100	.....	Manzanillo, Cuba	E—.....
KOIN	ak	1000	C (2.5)	Portland, Ore.	P—8-24
VOAS	ak	100	.....	St. John's, Nfld.	L—Silent
WAAT	ae	500	D	Jersey City, N. J.	E—6:30-18
WAVE	ak	1000	N	Louisville, Ky.	C—8-24
WCSH	ae	1000	R (2.5)	Portland, Maine	E—9-24
WDAY	ae	1000	N (2.5)	Fargo, N. D.	C—8-24
WHA	ak	1000	D (2.5)	Madison, Wis.	C—Silent
XEFO	ak	5000	.....	Mexico City, D. F.	C—11-15; 18-24

950 kilocycles 315.6 meters

CMHD	dk	250	.....	Caibarien, Cuba	E—8-21
CRCS	z	100	F	Chicoutimi, Que.	E—.....
KFWB	ak	1000	(2.5)	Hollywood, Calif.	P—8-23:30
KMBC	ae	1000	C (2.5)	Kansas City, Mo.	C—8-24
WRC	ae	500	R (1)	Washington, D. C.	E—8-24
XEAW	ak	10000	.....	Reynosa, Tams.	C—17-1

960 kilocycles 312.3 meters

CKY	ak	15000	F	Winnipeg, Man.	C—11-13:30; 18:30-22:30
CMBY	z	250	.....	Havana, Cuba	E—.....
CMCW	dk	150	965	Havana, Cuba	E—15-22
CMJL	z	50	.....	Camaguey, Cuba	E—.....
YV1RC	ak	5000	.....	Caracas, Venz.	L—9:30-12; 15-16; 20-23

970 kilocycles 309.1 meters

KJR	z	5000	N	Seattle, Wash.	P—8-24
WCFL	ae	1500	B	Chicago, Ill.	C—8-24

WIBG	ak	100	D	Glenside, Pa.	E—9:30-Sunset
XES	dk	250	.....	Tampico, Tams.	C—11-15

980 kilocycles 303.9 meters

CMGF	ak	100	987	Matanzas, Cuba	E—.....
KDKA	bk	50000	B	Pittsburgh, Pa.	E—9-1
XEAE	ak	200	.....	Mexicala, B. C.	P—12-24
XEU	ak	250	.....	Veracruz, Ver.	C—7-8; 12-16; 18-23

990 kilocycles 302.8 meters

TITV	z	7.5	999	San Jose, C. R.	C—.....
WBZ	ak	50000	BSy	Boston, Mass.	E—7-1
WBZA	ak	1000	BSy	Springfield, Mass.	E—7-1
WJEM	z	500	DP	Tupelo, Miss.	C—.....
XEK	ak	100	.....	Mexico City, D. F.	C—.....

1000 kilocycles 299.8 meters

KFVD	ak	250	Dn	Los Angeles, Calif.	P—8-18:30; 21:15-24
WHO	ak	50000	R	Des Moines, Iowa	C—9-24

1010 kilocycles 296.9 meters

CHML	aei	50	F	Hamilton, Ont.	E—11-21
CHWC	ak	500	3F	Regina, Sask.	M—16:30-21:30
CKCD	ak	100	.....	Vancouver, B. C.	P—20:45-21
CKCK	ak	500	3F	Regina, Sask.	M—11-16:30; 21-23
CKCO	z	100	.....	Ottawa, Ont.	E—.....
CKIC	ak	50	.....	Wolfville, N. S.	A—Irregular
CKWX	ak	100	.....	Vancouver, B. C.	P—7-24
CMBD	z	150	.....	Ciego de Avila, Cuba	E—.....
CMBZ	ak	100	.....	Havana, Cuba	E—12-18
CMJO	ak	50	.....	Ciego de Avila, Cuba	E—9-13; 18-22
KGGF	ak	1000	2	Coffeyville, Kans.	C—13:30-17
KQW	ae	1000	.....	San Jose, Calif.	P—9-22
TIGA	z	30	1014	Cartago, C. R.	C—.....
WHN	ae	1000	.....	New York, N. Y.	E—8-1
WIS	ae	1000	N (2.5)	Columbia, S. C.	E—9-24
WNAD	ae	500	2	Norman, Okla.	C—Silent

1020 kilocycles 293.9 meters

KYW	ak	10000	NY	Chicago, Ill.	C—8-1
XEJ	ak	250	.....	Juarez, Chih.	C—10-14; 17-23:30

1030 kilocycles 291.1 meters

CFCN	ak	10000	F	Calgary, Alta.	M—11-22:30
CKLW	ae	5000	C	Windsor, Ont.	E—8-1
CMHI	ak	150	1037	Santa Clara, Cuba	E—10-12; 16-17; 21-22
CMKC	z	150	1034	Santiago, Cuba	E—.....
XEB	ak	10000	.....	Mexico City, D. F.	C—9-23

1040 kilocycles 288.3 meters

CMGH	ak	15	.....	Matanzas, Cuba	E—.....
KRLD	ae	10000	C	Dallas, Texas	C—8-24
KWJJ	ak	500	.....	Portland, Ore.	P—7-Sunset; 21-3:15
WKAR	ak	1000	D	East Lansing, Mich.	E—Silent
WTIC	ak	50000	R	Hartford, Conn.	E—9-24

1050 kilocycles 285.5 meters

CMJG	z	50	.....	Camaguey, Cuba	E—.....
CRCK	z	1000	.....	Quebec, Que.	E—.....
KFBI	ak	5000	Dn	Abilene, Kans.	C—8-19:15
KNX	ak	50000	.....	Hollywood, Calif.	P—7-22:30

1060 kilocycles 282.8 meters

CMBG	z	225	.....	Havana, Cuba	E—.....
CMCB	ak	150	.....	Havana, Cuba	E—11-13; 21-24
KTHS	ae	10000	N	Hot Springs, Ark.	C—7-24
WBAL	ae	10000	B	Baltimore, Md.	E—7-21
WJAG	ak	1000	D	Norfolk, Neb.	C—9:30-Sunset
XEA	ak	125	.....	Guadalajara, Jal.	C—8:30-9; 20-23

1070 kilocycles 280.2 meters

KJBS	ak	100	Dn	San Francisco, Calif.	P—O-Sunset
WCAZ	dk	100	D	Carthage, Ill.	C—Silent
WDZ	ak	100	D	Tuscola, Ill.	C—9:30-16
WTAM	ck	50000	R	Cleveland, Ohio	E—7-1

1080 kilocycles 277.6 meters

VOKW	z	30	1085	St. John's Nfld.	L—.....
WBT	ae	50000	C	Charlotte, N. C.	E—10-24
WCBD	ak	5000	1Dn	Zion, Ill.	C—8:30-11:30; 15-Sunset
WMBI	ae	5000	1Dn	Chicago, Ill.	C—11-15:30
XEAF	z	750	.....	Nogales, Son.	C—.....
XEMA	z	50	.....	Tampico, Tams.	C—.....

1090 kilocycles 275.1 meters

CMGI	z	30	1094	Colon, Cuba	E—.....
KMOX	ak	50000	C	St. Louis, Mo.	C—8-24
WESG	ak	1000	.....	Elmira, N. Y.	E—10-18:15

1100 kilocycles 272.6 meters

CMCU	ak	150	.....	Havana, Cuba	E—10-12; 13-16; 18-21
CMHA	z	50	1103	Sagua la Grande, C.	E—.....
COX	z	200	.....	Havana, Cuba	E—.....
CRCV	ak	1000	F	Vancouver, B. C.	P—11-15:15
KGDM	ak	250	D	Stockton, Calif.	P—O-Sunset
KWKH	ae	10000	C	Shreveport, La.	C—19:45-24
TIRCA	ak	500	.....	San Jose, C. R.	C—.....
WLWL	ae	5000	1	New York, N. Y.	E—15:15-16; 20-21:15
WPG	ak	5000	1C	Atlantic City, N. J.	E—9-15:15; 16:30-19:30; 21:15-1
XEFG	ak	250	1105	Mexico City, D. F.	C—.....

1110 kilocycles 270.1 meters

KSOO	ak	1000	Dn (2.5)	Sioux Falls, S. D.	C—9:30-18:30
WRVA	ae	5000	N	Richmond, Va.	E—10-23

1120 kilocycles 267.7 meters

CHLP	z	100	.....	Montreal, Que.	E—17-23
CHSJ	ae	100	F	St. John, N. B.	A—.....
CKOC	ae	500	F (1)	Hamilton, Ont.	E—10:30-23
CMHJ	ae	40	1125	Cienfuegos, Cuba	E—11-14; 18-22
KFIO	ak	100	D	Spokane, Wash.	P—8-17
KFSG	ag	500	a	Los Angeles, Calif.	P—10:30-12:45; 14:30-16:30; 18:30-24
KRKD	ae	500	a	Los Angeles, Calif.	P—7:45-10:30; 12:30-19
KRSC	ck	100	D	Seattle, Wash.	P—7-Sunset
WDEL	ak	250	(.5)	Wilmington, Del.	E—10:30-22
WISN	ak	250	(1)	Milwaukee, Wis.	C—8:30-16; 17-24
WTAW	ae	500	.....	College Station, Tex.	C—Silent
XENT	ck	50000	.....	Nuevo Laredo, Tams.	C—7:30-24

1130 kilocycles 265.3 meters

KSL	ae	50000	C	Salt Lake City, Utah	M—7:30-24
WJJD	ak	20000	Dn	Chicago, Ill.	C—7-18:45
WOV	ag	1000	D	New York, N. Y.	E—8-15:15; 16:30-18

1140 kilocycles 263.0 meters

CMCG	z	150	.....	Havana, Cuba	E—.....
CMCO	z	150	1145	Havana, Cuba	E—.....
KVOO	ak	25000	1N	Tulsa, Okla.	C—7:30-20:15
WAPI	ae	5000	1N	Birmingham, Ala.	C—8:30-Sunset; 20:15-23:30

1150 kilocycles 260.7 meters

CMJH	ak	50	.....	Ciego de Avila, Cuba	E—8-8:30; 10-15; 17:30-22:30
WHAM	ae	50000	B	Rochester, N. Y.	E—9-1
XEH	ak	250	.....	Monterrey, N. L.	C—Silent
XEWZ	z	100	.....	Mexico City, D. F.	C—.....

1160 kilocycles 258.5 meters

WOWO	ae	10000	1C	Fort Wayne, Ind.	C—7:30-18:45; 19:30-24
WWVA	ak	5000	1C	Wheeling, W. Va.	E—7:30-20:30
XED	ck	500	.....	Guadalajara, Jal.	C—8-9; 12-15:30; 19-23

KCYS.
1160
DIAL

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1170 kilocycles 256.3 meters

CMJE	z	50	.....	Camaguey, Cuba	E—.....
WCAU	ae	50000	C	Philadelphia, Pa.	E—9-1

1180 kilocycles 254.1 meters

CMBX	ak	150	1185	Havana, Cuba	E—.....
CMCJ	ak	400	1185	Havana, Cuba	E—.....
KEX	ak	5000	2N	Portland, Ore.	P—8-17:30; 20-24
KOB	ae	10000	2	Albuquerque, N. M.	M—Silent
WDGY	ak	1000	D (2.5)	Minneapolis, Minn.	C—6:30-20:15
WINS	ae	1000	.....	New York, N. Y.	E—7-19:30
WMAZ	ak	1000	.....	Macon, Ga.	E—10-16:30
XEFA	z	500	.....	Mexico City, D. F.	C—.....

1190 kilocycles 252.0 meters

HIJ	z	15	1195	Santo Domingo, D. R.	E—.....
VE9EK	ak	10	1195	Montmagny, Que.	E—.....
VONF	ak	5000	1195	St. John's Nfld.	L—12:30-14; 20-21
WATR	ak	100	D	Waterbury, Conn.	E—10-17:15
WOAI	ak	50000	N	San Antonio, Texas.	C—8-23:30
WSAZ	ak	1000	.....	Huntington, W. Va.	E—13-18:30

1200 kilocycles 249.9 meters

CHAB	ak	100	.....	Moose Jaw, Sask.	M—8:45-22
CKTB	ak	100	F	St. Catharines, Ont.	E—13-23:30
KADA	z	100	PD	Ada, Okla.	C—.....
KBTM	ak	100	D	Jonesboro, Ark.	C—7:30-17
KFJB	ak	100	(.25)	Marshalltown, Iowa	C—8-9; 12-15; 18-21
KFXD	ae	100	.....	Nampa, Idaho	M—11-16:30
KFXJ	ak	100	.....	Grand Junction, Col.	M—9-21
KGDE	ak	100	(.25)	Fergus Falls, Minn.	C—9-21
KGEK	ak	100	.....	Sterling, Colo.	M—11-12:15
KGFJ	ae	100	.....	Los Angeles, Calif.	P—24 hours
KGHI	ak	100	(.25)	Little Rock, Ark.	C—11-14
KGVO	ak	100	.....	Missoula, Mont.	M—10-18:15
KMLB	ak	100	.....	Monroe, La.	C—9-13; 18-22
KOOS	ae	100	.....	Marshfield, Ore.	P—Irregular
KSUN	ck	100	D	Lowell, Ariz.	M—.....
KVOS	ak	100	.....	Bellingham, Wash	P—9-21
KWG	ak	100	C	Stockton, Calif.	P—8-24
WABI	ak	100	.....	Bangor, Maine	E—9-14; 18-22
WBBZ	ak	100	.....	Ponca City, Okla.	C—8-15
WBHS	z	100	.....	Huntsville, Ala.	C—.....
WBNO	ck	100	1	New Orleans, La.	C—17-19:30
WCAT	ak	100	D	Rapid City, S. D.	C—Silent
WCAX	ak	100	.....	Burlington, Vt.	E—Silent
WCLO	ak	100	.....	Janesville, Wis.	C—Silent
WFAM	ak	100	8	South Bend, Ind.	C—8-24
WFBE	ak	100	(.25)	Cincinnati, Ohio	E—8-23
WHBC	ak	100	2	Canton, Ohio	E—12-15; 18-21
WHBY	ak	100	.....	Green Bay, Wis.	C—10-22
WIBX	ak	100	(.3)	Utica, N. Y.	E—9:30-24
WIL	ak	100	(.25)	St. Louis, Mo.	C—9-22:30
WJBC	ak	100	6	LaSalle, Ill.	C—9-10:30; 14-18
WJBL	ae	100	6	Decatur, Ill.	C—10-12; 18-22
WJBW	ak	100	1	New Orleans, La.	C—8-10; 13-17; 21-24
WKBO	ak	100	3	Harrisburg, Pa.	E—12-18
WKJC	ae	100	3 (.25)	Lancaster, Pa.	E—Silent
WLVA	ck	100	.....	Lynchburg, Va.	E—9-15
WMPC	ak	100	.....	Lapeer, Mich.	E—10-14; 15:30-18; 19:30-23
WNBO	ae	100	2	Washington, Pa.	E—9-12; 15-18; 21-24
WRBL	ak	100	.....	Columbus, Ga.	C—8-15; 18-21
WWAE	ae	100	8	Hammond, Ind.	C—11-14:15; 16-24
YV3BC	ak	1000	.....	Caracas, Venz.	L—9-13; 20-23
10-AK	ak	15	.....	Stratford, Ont.	E—17-18
10-BP	ak	25	.....	Wingham, Ont.	E—11-12; 16-17; 19-20
10-BQ	ak	15	.....	Brantford, Ont.	E—11-19
10-BU	ak	50	.....	Canora, Sask.	C—.....

1210 kilocycles 247.8 meters

CHNC	ak	100	F	New Carlisle, Que.	A—12:30-13:30; 15-24
CKBI	ak	100	F	Prince Albert, Sask.	M—.....
CKCH	ak	100	F	Hull, Que.	E—12:30-13:30; 19:30-22:30
CKMC	ak	50	.....	Cobalt, Ont.	E—15-19
CMJI	ak	150	.....	Ciego de Avila, Cuba	E—10-13:30; 18-22

KASA	ck	100	.....	Elk City, Okla.	C—8:45-12; 13-17
KDLR	ak	100	.....	Devils Lake, N. D.	C—Silent
KFJI	ak	100	.....	Klamath Falls, Ore.	P—Silent
KFOR	ak	100	(.25)C	Lincoln, Neb.	C—8-22
KFPW	ak	100	.....	Fort Smith, Ark.	C—11-14; 17-21
KFVS	ae	100	6 (.25)	Cape Girardeau, Mo.	C—9-16; 21:30-24
KFXM	ak	100	9	San Bernardino, Cal.	P—15-18; 21-24
KGY	ak	100	.....	Olympia, Wash.	P—Silent
KIEM	ak	100	.....	Eureka, Calif.	P—10-21
KPPC	ak	50	9	Pasadena, Calif.	P—9:30-12:30; 19:30-21
KWEA	z	100	.....	Shreveport, La.	C—.....
KWFV	z	100	.....	Hilo, Hawaii	L—.....
KWTN	ak	100	.....	Watertown, S. D.	C—9-15
WALR	ak	100	.....	Zanesville, Ohio	E—10-22
WBAX	ae	100	1	Wilkes Barre, Pa.	E—13-24
WBBL	ak	100	7S	Richmond, Va.	E—10:55-12:15; 19:45-21
WBRB	ak	100	3	Red Bank, N. J.	E—Silent
WCBS	ak	100	2	Springfield, Ill.	C—10:45-14; 19-19:30
WCRW	ae	100	4	Chicago, Ill.	C—11-14; 17-19
WEBQ	ae	100	6 (.25)	Harrisburg, Ill.	C—6-9; 16-21:30
WEDC	ae	100	4	Chicago, Ill.	C—8:30-10; 15:30-17; 19-20; 22-23
WFAS	ak	100	3	White Plains, N. Y.	E—18-21
WGBB	ae	100	3	Freeport, N. Y.	E—9-18
WGCM	ae	100	(.25)	Gulfport, Miss.	C—9:45-13
WGNY	ak	100	3	Chester, N. Y.	E—21-22:30
WHBF	ak	100	.....	Rock Island, Ill.	C—12-23
WHBU	ak	100	.....	Anderson, Ind.	C—10:30-17
WIBU	ak	100	.....	Poynette, Wis.	C—8:30-17
WJBY	ak	100	.....	Gadsden, Ala.	C—6-12:10
WJEJ	ah	100	D	Hagerstown, Md.	E—9-17:45
WJIM	z	100	P	Lansing, Mich.	E—8-24
WJW	ak	100	.....	Akron, Ohio	E—9-23:30
WKFI	ak	100	Y	Greenwood, Miss.	C—10-14
WKOK	ak	100	1P	Sunbury, Pa.	E—6-13
WMBG	ak	100	7C	Richmond, Va.	E—13:30-17
WOCL	ak	50	.....	Jamestown, N. Y.	E—9-9:45; 11-13
WOMT	ae	100	.....	Manitowoc, Wis.	C—Silent
WQDX	ae	100	.....	Thomasville, Ga.	E—10:45-12:30; 19:45-21:30
WSBC	ae	100	4	Chicago, Ill.	C—6-8:30; 10-11; 14-15:30; 20-22; 23-24
WSEN	ak	100	.....	Columbus, Ohio	E—10-22
WSIX	ak	100	.....	Springfield, Tenn.	C—11-12
WSOC	ak	100	N (.25)	Charlotte, N. C.	E—9-24
WTAX	ak	100	2	Springfield, Ill.	C—8-10:45; 15-19; 19:30-22:15
XEC	z	50	.....	Toluca, D. F.	C—.....
XEE	z	50	.....	Durango, Dgo.	C—.....
XEFJ	ak	100	.....	Monterrey, N. L.	C—Silent
XEFV	ae	100	.....	Juarez, Chih.	M—9-15; 17-22
XEMZ	z	30	.....	Tijuana, B. C.	P—.....
XETH	ak	100	.....	Puebla, Pue.	C—8:30-11; 13-15; 19-23

KCYS.
1240
DIAL

1220 kilocycles 245.8 meters

CMHK	z	50	1225	Cruces, Cuba	E—9:30-12; 13-15:30
KFKU	ae	1000	a	Lawrence, Kas.	C—16-17
KTW	ak	1000	S2	Seattle, Wash.	P—11-12:30; 14-22
KWSC	ae	1000	2 (2)	Pullman, Wash.	P—Silent
WCAD	ak	500	D	Canton, N. Y.	E—Irregular
WCAE	ak	1000	R	Pittsburgh, Pa.	E—10:30-1
WDAE	ae	1000	C (2.5)	Tampa, Fla.	E—9-24
WREN	ak	1000	Ba	Lawrence, Kas.	C—8-24

1230 kilocycles 243.8 meters

CJOC	ak	100	F	Lethbridge, Alta.	M—12-22
CMCA	z	150	2	Havana, Cuba	E—11-14; 21-22
COK	z	250	.....	Havana, Cuba	E—.....
KGGM	ak	250	(.5)	Albuquerque, N. M.	M—10-14
KYA	ae	1000	N	San Francisco, Calif.	P—8:15-23
WFBM	ae	1000	1C	Indianapolis, Ind.	C—6:30-24
WNAC	ak	1000	C (2.5)	Boston, Mass.	E—8-1

1240 kilocycles 241.8 meters

CJCB	ak	1000	F	Sydney, N. S.	A—12-14:30; 17:30-23:30
CMHB	z	30	1245	San Spiritus, Cuba	E—.....
KGCU	ak	250	1	Mandan, N. D.	M—10:45-12:30; 13:30-16; 19-21
KLPM	ak	250	1	Minot, N. D.	C—9-11:45; 13:30-14:30; 17:30-20
KTAT	ak	1000	C	Fort Worth, Texas	C—7-23:30
KTFI	ae	1000	(1.5)	Twin Falls, Idaho	M—10-23:15

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WKAQ	ae	1000	.....	San Juan, P. R.	E—11-17
WXYZ	ak	1000	.....	Detroit, Mich.	E—9-24
XEAI	z	100	.....	Mexico City, D. F.	C—.....

1250 kilocycles 239.9 meters

KFOX	ae	1000	.....	Long Beach, Calif.	P—6-24
WCAL	ah	1000	2 (2.5)	Northfield, Minn.	C—8:15-9:30; 15-16
WDSU	ak	1000	C	New Orleans, La.	C—8-24
WHBI	ak	1000	1 (2.5)	Newark, N. J.	E—7-10; 12:30-18:30; 21-24
WLB	ak	1000	2	Minneapolis, Minn.	C—Silent
WNEW	ae	1000	1 (2.5)	Newark, N. J.	E—10-12; 18:30-20; 0-4
WTCN	ak	1000	2	Minneapolis, Minn.	C—9:30-15; 16-19; 20-24

1260 kilocycles 238.0 meters

CFTP	ak	100	.....	Edmonton, Alta.	M—.....
KOIL	ak	1000	B (2.5)	Council Bluffs, Iowa	C—8-1
KPAC	z	500	D	Port Arthur, Texas	C—.....
KRGV	ak	500	.....	Weslaco, Texas	C—12-15
KUOA	ak	1000	D	Fayetteville, Ark.	C—11-13; 16-17:30
KVOA	ak	500	.....	Tucson, Ariz	M—7-9; 11-15; 18-21
WLBW	ae	1000	C	Erie, Pa.	E—7-1
WNBX	ak	500	D	Springfield, Vt.	E—10:30-12
WTOC	ae	1000	C	Savannah, Ga.	E—8-24

1270 kilocycles 236.1 meters

CMBC	ae	150	1	Havana, Cuba	E—14-23
CMCP	z	150	1	Havana, Cuba	E—.....
HIX	ak	1000	.....	Santo Domingo, D.R.	E—.....
KGCA	ak	100	2D	Decorah, Iowa	C—10:45-24
KOL	ae	1000	C (2.5)	Seattle, Wash.	P—8-24
KVOR	ae	1000	C	Colorado Spgs., Colo.	M—8-23
KWLC	ak	100	2D	Decorah, Iowa	C—Silent
WASH	ak	500	a	Grand Rapids, Mich.	E—9-24
WFBR	ae	500	R	Baltimore, Md.	E—8-1
WJDX	ae	1000	N (2.5)	Jackson, Miss.	C—10:30-23
WOOD	ak	500	a	Grand Rapids, Mich.	E—9-24
XFB	ak	1000	.....	Jalapa, Ver.	C—.....

1280 kilocycles 234.2 meters

KFBB	ae	1000	(2.5)	Great Falls, Mont.	M—9-21
WCAM	ae	500	1	Camden, N. J.	E—10:15-12:30; 15-17
WCAP	ae	500	1	Asbury Park, N. J.	E—6-10:15; 12:30-15; 20-21
WDOD	ae	1000	C (2.5)	Chattanooga, Tenn.	C—7-23:30
WIBA	ae	500	N (1)	Madison, Wis.	C—7:30-24
WORC	ak	500	C	Worcester, Mass.	E—9-23:30
WRR	ak	500	.....	Dallas, Texas	C—7:30-23
WTNJ	ak	500	1	Trenton, N. J.	E—17-20; 21-24

1290 kilocycles 232.4 meters

KDYL	ak	1000	N	Salt Lake City, Utah	M—6:30-1
KLCN	z	100	D	Blytheville, Ark.	C—10:30-16:30
WEBC	ae	1000	N (2.5)	Superior, Wis.	C—7-23
WJAS	ak	1000	C (2.5)	Pittsburgh, Pa.	E—9-24
WNBZ	z	50	D	Saranac Lake, N. Y.	E—.....
WNEL	z	500	P	San Juan, P. R.	A—.....

1300 kilocycles 230.6 meters

CMKJ	z	20	.....	Guantanamo, Cuba	E—.....
HIZ	z	10	.....	Santo Domingo, D.R.	E—.....
KALE	ak	500	3C	Portland, Ore.	P—9-22:30
KFAC	ak	1000	.....	Los Angeles, Calif.	P—8-23
KFH	ak	1000	C2	Wichita, Kans.	C—8-24
KFJR	ag	500	3	Portland, Ore.	P—Silent
VOAC	z	40	.....	St. John's, Nfld.	L—.....
WBBR	ae	1000	1	Brooklyn, N. Y.	E—8-11; 15-20
WEVD	ak	1000	1	New York, N. Y.	E—11-15; 20-21; 22-23; 0-1
WFAB	ae	1000	1	New York, N. Y.	E—21-22; 23-24
WFBC	ak	250	(1)	Greenville, S. C.	E—8:30-14; 18-22:15
WHAZ	ae	500	1	Troy, N. Y.	E—Silent
WIOD	ae	1000	N	Miami, Fla.	E—8-24

1310 kilocycles 228.9 meters

CHCK	ak	50	.....	Charlottetown, P.E.I.	A—11-13:30; 16-17; 19-20:30
CJKL	z	100	.....	Kirkland Lake, Ont.	E—.....

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CJLS	z	100	.....	Yarmouth, N. S.	A—.....
CKCV	ak	50	.....	Quebec, Que.	E—Silent
CMCY	ak	500	1316	Havana, Cuba	E—20:30-22:30
KCRJ	ak	100	D	Jerome, Ariz.	M—Silent
KFBK	ak	100	C	Sacramento, Calif.	P—8-24
KFPL	dkh	100	.....	Dublin, Texas	C—Silent
KFPM	ae	15	.....	Greenville, Texas	C—Silent
KFXR	ak	100	(.25)	Oklahoma City, Ok.	C—9:30-21:30
KFYO	ak	100	(.25)	Lubbock, Texas	C—8-12; 16-18
KGBX	ak	100	.....	Springfield, Mo.	C—17:45-22
KGCX	ak	100	(.25)	Wolf Point, Mont.	M—11-12:30
KGEZ	aj	100	.....	Kalispell, Mont.	M—9-14
KGFW	ak	100	.....	Kearney, Neb.	C—8:30-13
KIT	ak	100	.....	Yakima, Wash.	P—9-17; 19:30-21:30
KMED	ck	100	(.25)	Medford, Ore.	P—10-12
KRMD	ak	100	.....	Shreveport, La.	C—7-21
KTSM	ak	100	.....	El Paso, Texas	M—8-9:15; 13-16
KXRO	ak	100	.....	Aberdeen, Wash.	P—10-19
WAML	ak	100	.....	Laurel, Miss.	C—12-19
WBEO	ae	100	.....	Marquette, Mich.	C—9-13:30
WBOW	ak	100	.....	Terre Haute, Ind.	C—9-22:30
WBRE	ak	100	.....	Wilkes Barre, Pa.	E—10:30-21:30
WCLS	ae	100	.....	Joliet, Ill.	C—9-14; 18-20
WDAH	ak	100	S	El Paso, Texas	M—9:30-12; 19:30-20:30
WEBR	ae	500	.....	Buffalo, N. Y.	E—9-24
WEXL	ak	50	.....	Royal Oak, Mich.	E—8-24
WFBG	ae	100	3	Altoona, Pa.	E—10:45-12:45; 15:30-16:30; 18:15-22
WFDF	am	100	.....	Flint, Mich.	E—9-24
WGH	ae	100	.....	Newport News, Va.	E—9-15:30; 18-22:30
WHAT	ak	100	4	Philadelphia, Pa.	E—9-10:15; 20-24
WJAC	ae	100	3	Johnstown, Pa.	E—16:30-22:15
WLBC	ak	50	6 (.1)	Muncie, Ind.	C—10-16:30
WLNH	ak	100	.....	Laconia, N. H.	E—.....
WMBO	ak	100	.....	Auburn, N. Y.	E—17-19
WNBH	ae	100	(.25)	New Bedford, Mass.	E—11:45-23:20
WOL	ae	100	(.25)	Washington, D. C.	E—12-18
WRAW	ak	100	.....	Reading, Pa.	E—18:30-20:30
WROL	ak	100	.....	Knoxville, Tenn.	C—8:30-23
WSAJ	ae	100	.....	Grove City, Pa.	E—16:30-17:30
WSGN	ak	100	(2.5)	Birmingham, Ala.	C—9-21
WSJS	ak	100	C	Winston-Salem, N.C.	E—8-24
WTEL	ah	100	4	Philadelphia, Pa.	E—11:30-14; 16-19
WTJS	ak	100	(.25)	Jackson, Tenn.	C—10-15:30
WTRC	ak	50	6 (.1)	Elkhart, Ind.	C—11-12; 17-21
XECW	z	10	.....	Mexico City, D. F.	C—.....
XEFC	ak	100	.....	Merlda, Yuc.	C—12-18
XEFW	ak	250	.....	Tampico, Tams.	C—11-14
XETB	z	125	.....	Torreon, Coah.	C—.....
XEX	ak	125	.....	Monterrey, N. L.	C—.....
XFA	z	5	.....	Aguascalientes, Ags.	C—.....

1320 kilocycles 227.1 meters

KGHF	ak	500	.....	Pueblo, Colo.	M—10-16
KGMB	ak	250	C	Honolulu, T. H.	L—8:30-22
KID	ae	250	(.5)	Idaho Falls, Idaho	M—6-23
KSO	ak	250	B	Des Moines, Iowa	C—7-1
WADC	ae	1000	C (2.5)	Akron, Ohio	E—8-24
WORK	ak	1000	.....	York, Pa.	E—10:45-18
WSMB	ak	500	N	New Orleans, La.	C—7-24

KCYS.
1340
DIAL

1330 kilocycles 225.4 meters

KGB	ag	1000	C (2.5)	San Diego, Calif.	P—8-24
KMO	ak	250	.....	Tacoma, Wash.	P—6:45-23
KSCJ	aj	1000	1C (2.5)	Sioux City, Iowa	C—8-23
KTRH	z	500	C (2.5)	Houston, Texas	C—8-24
WDRC	ae	1000	C	Hartford, Conn.	E—10-24
WSAI	ak	1000	R (2.5)	Cincinnati, Ohio	E—8-24
WTAQ	ae	1000	1	Eau Claire, Wis.	C—8-17:45

1340 kilocycles 223.7 meters

KFPY	ak	1000	C	Spokane, Wash.	P—9-24
KGDY	ak	250	D	Huron, S. D.	C—.....
KGNO	ak	250	.....	Dodge City, Kans.	C—10:30-19
WCOA	ak	500	.....	Pensacola, Fla.	C—10:30-15

WFEA	ae	500	C	Manchester, N. H.	E—8:45-23
WSPD	ae	1000	C (2.5)	Toledo, Ohio	E—9-24
XFD	z	250	.....	Orizaba, Ver.	C—.....

1350 kilocycles 222.1 meters

KIDO	ak	1000	(2.5)	Boise, Idaho	M—10:30-16:30
KWK	ae	1000	B (2.5)	St. Louis, Mo.	C—7-24
WAWZ	ae	250	1	Zarephath, N. J.	E—6-9; 11-12:30; 15-16:30; 19-20:30
WBNX	ae	250	1	New York, N. Y.	E—12:30-15; 16:30-18
WEHC	ae	500	D	Charlottesville, Va.	E—10-12

1360 kilocycles 220.4 meters

CMJP	ak	75	.....	Moron, Cuba	E—10-12; 20:22
CMKF	z	30	1363	Holquin, Cuba	E—.....
KGER	ak	1000	.....	Long Beach, Calif.	P—7-23
KGIR	ak	1000	N	Butte, Mont.	M—9-23:15
WCSC	ae	500	(1)	Charleston, S. C.	E—9-14; 19-21
WFBL	ak	1000	C (2.5)	Syracuse, N. Y.	E—9-1
WGES	ae	500	.....	Chicago, Ill.	C—8-17; 23-1
WQBC	ak	500	(1)	Vicksburg, Miss.	C—10-21
WSBT	ak	500	.....	South Bend, Ind.	C—8-24

1370 kilocycles 218.8 meters

CKCW	z	100	.....	Moncton, N. B.	A—.....
CMCN	z	250	1375	Havana, Cuba	E—.....
CMCR	z	150	1375	Havana, Cuba	E—9-23
CMGE	z	30	1375	Cardenas, Cuba	E—.....
KCRC	ak	100	2 (.25)	Enid, Okla.	C—11-15
KERN	ak	100	.....	Bakersfield, Calif.	P—8-24
KFGQ	ak	100	.....	Boone, Iowa	C—8:30-9; 14:30-16; 19:30-21; 23-24
KFJM	ak	100	.....	Grand Forks, N. D.	C—7-21
KFJZ	ae	100	.....	Fort Worth, Texas	C—8-23
KGAR	ae	100	(.25)	Tucson, Ariz.	M—9:30-21
KGFG	bk	100	2	Oklahoma City, Ok.	C—8-11; 15-18; 19-24
KGFL	ak	100	4	Roswell, N. M.	M—15-17:30
KGKL	ak	100	(.25)	San Angelo, Texas	C—8:15-14
KICA	ak	100	4	Clovis, N. M.	M—9:30-14
KLUF	z	100	(.25)	Galveston, Texas	C—.....
KMAC	ak	100	5	San Antonio, Texas	C—7-9; 11-12:30; 14-16; 18-20; 22-0:30
KONO	ak	100	5	San Antonio, Texas	C—9-11; 12:30-14; 16-18; 20-22
KRE	ak	100	.....	Berkeley, Calif.	P—10-22
KRKO	ak	50	.....	Everett, Wash.	P—12-14
KSLM	z	100	.....	Salem, Ore.	P—.....
KUJ	ak	100	.....	Walla Walla, Wash.	P—7:45-22
KVL	ak	100	.....	Seattle, Wash.	P—16:30-19; 21:30-24
KWKC	z	100	.....	Kansas City, Mo.	C—.....
KWYO	z	100	.....	Sheridan, Wyo.	M—10-23
WAGF	ak	100	D	Dothan, Ala.	C—8-17:15; 19-21
WBTM	ak	100	.....	Danville, Va.	E—10-1
WCBM	ae	100	(.25)	Baltimore, Md.	E—.....
WDAS	ae	100	(.25)	Philadelphia, Pa.	E—9-23
WGL	ak	100	C	Fort Wayne, Ind.	C—14-24
WGLC	ak	100	.....	Hudson Falls, N. Y.	E—9-24
WHBD	ak	100	.....	Mount Orab, Ohio	E—10-19
WHBQ	ak	100	.....	Memphis, Tenn.	C—10:30-21
WHDF	ak	100	(.25)	Calumet, Mich.	E—10-14; 16:30-20:30
WIBM	ak	100	.....	Jackson, Mich.	E—9-24
WJTL	ae	100	.....	Atlanta, Ga.	E—11-17:30; 19:45-21:30
WLLH	ak	100	(.25)	Lowell, Mass.	E—13:30-15
WMBR	ak	100	C	Jacksonville, Fla.	E—7-24
WPFB	ak	100	.....	Hattiesburg, Miss.	C—11-12; 13:30-16:30; 19-20:30
WQDM	ae	100	D	St. Albans, Vt.	E—10-14
WRAK	ak	100	.....	Williamsport, Pa.	E—18-22
WRDO	ae	100	.....	Augusta, Maine	E—10:30-13:30
WRJN	ak	100	.....	Racine, Wis.	C—10:30-14:30; 17-22:30
WSVS	ak	50	D	Buffalo, N. Y.	E—Silent
XEFE	z	100	.....	Nuevo Laredo, Tams.	C—.....
XEFZ	ae	100	.....	Mexico City, D. F.	C—20-22
XEI	ak	125	.....	Morelia, Mch.	C—19-21
XEZZ	z	100	.....	San Luis Potosi, SLP	C—9:30-15; 17-22

1380 kilocycles 217.3 meters

CMJC	z	150	1382	Camaguey, Cuba	E—.....
KOH	ak	500	C	Reno, Nev.	P—8-24
KQV	ak	500	2C	Pittsburgh, Pa.	E—9-24

WALA	ae	50	0	C	Mobile, Ala.	C—9-22
WKBH	ae	1000		.....	LaCrosse, Wis.	C—10-12:15
WSMK	ak	200		2C	Dayton, Ohio	E—8-24

1390 kilocycles 215.7 meters

CJRC	ck	100		.....	Winnipeg, Man.	C—.....
HIH	ak	15	1395		San Ped. de Macoris, DR	E—12:30-14:30; 18:30-20:30
KLRA	ae	1000		C (2.5)	Little Rock, Ark.	C—7-23
KOY	ae	500		(1)	Phoenix, Ariz.	M—.....
WHK	ae	1000		C (2.5)	Cleveland, Ohio	E—8:30-24

1400 kilocycles 214.2 meters

KLO	ae	500		C	Ogden, Utah	M—9-24
KTUL	ak	250		(.5) C	Tulsa, Okla.	C—6:30-24
TGX	ak	150		.....	Guatemala City, Gt.	C—.....
WARD	ak	500		2	Brooklyn, N. Y.	E—10:30-11:30; 19-20:30
WBAA	z	500		.....	W. Lafayette, Ind.	C—Silent
WBBC	ae	500		2 (1)	Brooklyn, N. Y.	E—7-10:30; 15-16:30; 21-22:30
WKBF	ak	500		N (1)	Indianapolis, Ind.	C—8-24
WLTH	ak	500		2	Brooklyn, N. Y.	E—13:30-16:30; 22:30-0:30
WVFW	ak	500		2	Brooklyn, N. Y.	E—12-13:30; 16:30-18

1410 kilocycles 212.6 meters

CKFC	ak	50		5	Vancouver, B. C.	P—10:45-18; 19:30-21
CKMO	ag	100		5	Vancouver, B. C.	P—.....
KGRS	ae	1000		1	Amarillo, Texas	C—6-10; 11-15; 17-19:30; 22-24
WAAB	ak	500		C	Boston, Mass.	E—9-23
WBCM	ae	500		.....	Bay City, Mich.	E—9-24
WDAG	ae	1000		1 (2.5)	Amarillo, Texas	C—10-11; 15-17; 19:30-22
WHBL	ae	500		4	Sheboygan, Wis.	C—13-16:30; 18-19:30
WHIS	ak	250		2	Bluefield, W. Va.	E—9-17
WRBX	ae	250		2 (.5)	Roanoke, Va.	E—17-23
WROK	ak	500		4	Rockford, Ill.	C—10-13; 16:30-18; 19:30-22:30
WSFA	ak	500		C	Montgomery, Ala.	C—7-22:30

1420 kilocycles 211.1 meters

CKGB	ak	100		.....	Timmins, Ont.	E—.....
CKNC	ak	100		P	Toronto, Ont.	E—11-23:15
KABC	ak	100		.....	San Antonio, Texas	C—8:30-21:30
KBPS	aj	100		4	Portland, Ore.	P—Silent
KCMC	ak	100		.....	Texarkana, Ark.	C—11-14; 18-20
KFIZ	ak	100		.....	Fond du Lac, Wis.	C—Silent
KGFF	ak	100		.....	Shawnee, Okla.	C—10:15-21
KGGC	ak	100		.....	San Francisco, Cal.	P—9-12:30
KGIW	ak	100		1	Alamosa, Colo.	M—Silent
KGIX	ak	100		P	Las Vegas, Nev.	M—Silent
KICK	z	100		.....	Carter Lake, Iowa	C—.....
KIDW	z	100		1	Lamar, Colo.	M—6-10; 12:30-15:30; 18-21
KORE	ae	100		.....	Eugene, Ore.	P—10-15; 18-21
KUMA	ak	100		.....	Yuma, Ariz.	M—11-12; 18-21
KXL	ae	100		4 (.25)	Portland, Ore.	P—8-24
WACO	ak	100		C	Waco, Texas	C—8-14; 17-22:30
WAGM	ae	100		.....	Presque Isle, Maine	E—10:30-0:30
WAZL	ak	100		2	Hazleton, Pa.	E—11-20
WEED	ak	100		D	Rocky Mount, N. C.	E—9-14
WEHS	ak	100		a	Cicero, Ill.	C—16-20
WELL	ak	50		.....	Battle Creek, Mich.	E—10-23
WGPC	ak	100		D	Albany, Ga.	C—8-14
WHDL	ak	100		D	Tupper Lake, N. Y.	E—11:15-14:15
WHFC	ae	100		a	Cicero, Ill.	C—7-16; 20-1
WILM	aj	100		2	Wilmington, Del.	E—Silent
WJBO	z	100		D	Baton Rouge, La.	C—.....
WJMS	ak	100		.....	Ironwood, Mich.	C—10-19
WKBI	ak	100		a	Cicero, Ill.	C—Silent
WLAP	ak	100		(.25)	Lexington, Ky.	C—9-23
WLBF	ak	100		.....	Kansas City, Kans.	C—9-23
WLEU	z	100		DP	Erie, Pa.	E—.....
WMAS	ak	100		C (.25)	Springfield, Mass.	E—8-24
WMBC	ae	100		(.25)	Detroit, Mich.	E—9:30-24
WMBH	ak	100		(.25)	Joplin, Mo.	C—10-15:30; 19:30-21:30
WNRA	ak	100		D	Muscle Shoals, Ala.	C—9-13; 16-21
WPAD	ak	100		.....	Paducah, Ky.	C—7-9; 10-14; 15-22:30
WSPA	ae	100		(.25)	Spartanburg, S. C.	E—10-22

KCYS.
1420
DIAL

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1430 kilocycles 209.7 meters

KECA	ak	1000	(2.5)	Los Angeles, Calif.	P—7-23
KGNF	ak	500	D	North Platte, Neb.	C—Silent
KWCR	ak	250	B (.5)	Cedar Rapids, Iowa	C—8-24
WBNS	ae	500	C (1)	Columbus, Ohio	E—8-24
WHEC	ae	500	C (1)	Rochester, N. Y.	E—8-24
WHP	ak	500	C (1)	Harrisburg, Pa.	E—9-1
WNBR	ae	500	.....	Memphis, Tenn.	C—9:30-12; 17-21
WOKO	ae	500	C (1)	Albany, N. Y.	E—9-1

1440 kilocycles 208.2 meters

KDFN	ak	500	.....	Casper, Wyo.	M—10-11
KLS	ae	250	D	Oakland, Calif.	P—10-16:30
KXYZ	ak	500	.....	Houston, Texas	C—8:15-13; 14:30-22
TIFS	z	7.5	1441	Cartago, C. R.	C—.....
WBIG	ae	500	C (1)	Greensboro, N. C.	E—8-23
WCBA	aj	250	a	Allentown, Pa.	E—12-13:30; 18-23
WMBD	ae	500	3C (1)	Peoria, Ill.	C—8-12; 20:30-24
WSAN	aj	250	a	Allentown, Pa.	E—Silent
WTAD	ak	500	3	Quincy, Ill.	C—12-13:30; 15:30-20:30

1450 kilocycles 206.8 meters

CFCT	ae	50	.....	Victoria, B. C.	P—11-12:30; 18:30-21
CKX	ak	500	F	Brandon, Man.	C—18:45-20:30
KTBS	ck	1000	N	Shreveport, La.	C—8-24
TIEP	z	7.5	.....	San Jose, C. R.	C—.....
WGAR	ak	500	B (1)	Cleveland, Ohio	E—7-1
WHOM	ae	250	....	Jersey City, N. J.	E—8-24
WSAR	ae	250	.....	Fall River, Mass.	E—Silent
WTFI	ak	500	.....	Athens, Ga.	E—9-14:30; 20-21:30

1460 kilocycles 205.4 meters

KSTP	ae	10000	N (25)	St. Paul, Minn.	C—8-24
WJSV	ak	10000	C	Washington, D. C.	E—8-1

1470 kilocycles 204.0 meters

WLAC	ak	5000	C	Nashville, Tenn.	C—8-23:30

1480 kilocycles 202.6 meters

KOMA	ak	5000	C	Oklahoma City, Ok.	C—8-24
WKBW	ae	5000	C	Buffalo, N. Y.	E—9:30-24

1490 kilocycles 201.2 meters

WCKY	ae	5000	B	Covington, Ky.	E—8-24

1500 kilocycles 199.9 meters

CHGS	ae	50	F	Summerside, P.E.I.	A—11-13; 15-23
KDB	ak	100	C	Santa Barbara, Calif.	P—8-24
KGFI	ak	100	(.25)	Corpus Christi, Tex.	C—7-15; 18-22
KGFK	ak	100	.....	Moorhead, Minn.	C—9-21
KGKB	ak	100	.....	Tyler, Texas	C—9:15-13; 18:30-20
KGKY	ck	100	.....	Scottsbluff, Neb.	M—10-24
KNOW	ak	100	.....	Austin, Texas	C—9-14:30; 18-22
KOTN	ak	100	D	Pine Bluff, Ark.	C—11-17:30
KPJM	ak	100	.....	Prescott, Ariz.	M—17:30-19
KPQ	ak	100	.....	Wenatchee, Wash.	P—8:30-20:30
KREG	ak	100	.....	Santa Ana, Calif.	P—11-12:45; 19-23
KXO	ae	100	.....	El Centro, Calif.	P—9-15
WCNW	ak	100	1 (.25)	Brooklyn, N. Y.	E—9-11; 23-3
WDNC	ak	100	C	Durham, N. C.	E—7:30-24
WGAL	ae	100	.....	Lancaster, Pa.	E—11-20
WHEF	z	100	(.25)	Kosciusko, Miss.	C—6-24
WJBK	ae	100	.....	Detroit, Mich.	E—9-Sunset; 21-24
WKBB	ae	100	.....	E. Dubuque, Ill.	C—9-14
WKBV	ak	100	.....	Richmond, Ind.	C—Silent
WKBZ	ak	100	.....	Muskegon, Mich.	E—Silent
WKEU	ak	100	.....	LaGrange, Ga.	C—15-18
WMBQ	ae	100	1	Brooklyn, N. Y.	E—7-23
WMEX	z	100	P (.25)	Chelsea, Mass.	E—.....

WNBF	ae	100	.....	Binghamton, N. Y.	E—10:30-12; 13:30-21:30
WOPI	ae	100	.....	Bristol, Tenn.	E—10:30-14; 16-21:15
WRDW	ak	100	.....	Augusta, Ga.	E—9:45-21:30
WRGA	ak	100	.....	Rome, Ga.	C—9-15; 18-21
WSYB	ak	100	.....	Rutland, Vt.	E—10-12
WWRL	ak	100	1 (.25)	Woodside, N. Y.	E—8-9; 11-19
WWSW	ae	100	(.25)	Pittsburgh, Pa.	E—10:30-23

1510 kilocycles 198.6 meters

CFRC	ak	100	.....	Kingston, Ont.	E—Silent
CKCR	ak	100	.....	Waterloo, Ont.	E—10-13; 17-22

1530 kilocycles 196.0 meters

W1XBS	z	1000	.....	Waterbury, Conn.	E—.....
W9XBY	z	1000	.....	Kansas City, Mo.	C—8-1

1550 kilocycles 193.4 meters

W2XR	z	1000	.....	Long Isl. City, N. Y.	E—Silent
W6XAI	z	1000	.....	Bakersfield, Calif.	P—.....

INDEX BY LOCATIONS

Frequency in kilocycles in second column. Night power in watts in third column. Net work affiliations in fourth column: C Columbia, R National Red, B National Blue, N National Red and Blue. F Canadian.

ALABAMA

Birmingham
WAPI 1140 5000 N
WBRC 930 1000 C
WSGN 1310 100
Dothan
WAGF 1370 100
Gadsden
WJBY 1210 100
Huntsville
WBHS 1200 100
Mobile
WALA 1380 500 C
Montgomery
WSFA 1410 500 C
Muscle Shoals
WNRA 1420 100

ALASKA

Anchorage
KFQD 780 250
Ketchikan
KGBU 900 500

ARIZONA

Jerome
KCRJ 1310 100
Lowell
KSUN 1200 100
Phoenix
KOY 1390 500
KTAR 620 1000 N
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 N
Jonesboro
KBTM 1200 100
Little Rock
KARK 890 250
KGHI 1200 100
KLRA 1390 1000 C
Pine Bluff
KOTN 1500 100
Texarkana
KCMC 1420 100

CALIFORNIA

Bakersfield
KERN 1370 100 C
W6XAI 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 C
Glendale
KIEV 850 250
Hollywood
KFWB 950 1000
KMTR 570 1000
KNX 1050 50000
Long Beach
KFOX 1250 1000
KGER 1360 1000
Los Angeles
KECA 1430 1000
KFAC 1300 1000
KFI 640 50000 N
KFSG 1120 500
KFVD 1000 250
KGFJ 1200 100
KHJ 900 1000 C
KRKD 1120 500
KTM 780 500
Modesto
KTRB 740 250
Oakland
KLS 1440 250
KLX 880 1000
KROW 930 1000
Pasadena
KPPC 1210 50
Sacramento
KFBK 1310 100 C
San Bernardino
KFXM 1210 100
San Diego
KFSD 600 1000 N
KGB 1330 1000 C
San Francisco
KFRC 610 1000 C
KGGC 1420 100
KGO 790 7500 N
KJBS 1070 100
KPO 680 50000 N
KTAB 560 1000
KYA 1230 1000 N
San Jose
KQW 1010 1000
Santa Ana
KREG 1500 100
Santa Barbara
KDB 1500 100 C
Stockton
KGDM 1100 250
KWG 1200 100 C

COLORADO

Alamosa
KGIW 1420 100
Colorado Springs
KVOR 1270 1000 C
Denver
KLZ 560 1000 C
KOA 830 50000 N
KPOF 880 500
KVOD 920 500
Grand Junction
KFXJ 1200 100
Greeley
KFKA 880 500
Lamar
KIDW 1420 100
Pueblo
KGHF 1320 500
Sterling
KGEK 1200 100

CONNECTICUT

Bridgeport
WICC 600 250 C
Hartford
WDRC 1330 1000 C
WTIC 1040 50000 R
Storrs
WCAC 600 500
Waterbury
WATR 1190 100
W1XBS 1530 1000

DELAWARE

Wilmington
WDEL 1120 250
WILM 1420 100

DISTRICT OF COLUMBIA

Washington
WJSV 1460 10000 C
WMAL 630 250 B
WOL 1310 100
WRC 950 500 R

FLORIDA

Clearwater
WFLA 620 1000 N
Gainesville
WRUF 830 5000
Jacksonville
WJAX 900 1000 N
WMBR 1370 100 C
Miami
WIOD 1300 1000 N
WQAM 560 1000 C
Orlando
WDBO 580 250 C
Pensacola
WCOA 1340 500
St. Petersburg
WSUN 620 1000 N
Tampa
WDAE 1220 1000 C

GEORGIA

Albany
WGPC 1420 100
Athens
WTFI 1450 500

Atlanta
WGST 890 500 C
WJTL 1370 100
WSB 740 50000 N
Augusta
WRDW 1500 100
Columbus
WRBL 1200 100
LaGrange
WKEU 1500 100
Macon
WMAZ 1180 1000
Rome
WRGA 1500 100
Savannah
WTOC 1260 1000 C
Thomasville
WQDX 1210 100

HAWAII

Hilo
KWFV 1210 100
Honolulu
KGMB 1320 250 C
KGU 750 2500 N

IDAHO

Boise
KIDO 1350 1000
Idaho Falls
KID 1320 250
Nampa
KFXD 1200 100
Pocatello
KSEI 900 250
Twin Falls
KTFI 1240 500

ILLINOIS

Bloomington
WJBC 1200 100
Carthage
WCAZ 1070 100
Chicago
KYW 1020 10000 N
WAAF 920 500
WBBM 770 25000 C
WCFL 970 1500 B
WCRW 1210 100
WEDC 1210 100
WENR 870 50000 N
WGES 1360 500
WGN 720 50000
WJJD 1130 20000
WLS 870 50000 N
WMAQ 670 50000 N
WMBI 1080 5000
WSBC 1210 100
Cicero
WEHS 1420 100
WHFC 1420 100
WKBI 1420 100
Decatur
WJBL 1200 100
East Dubuque
WKBB 1500 100
Harrisburg
WEBQ 1210 100
Joliet
WCLS 1310 100
Peoria
WMBD 1440 500 C
Quincy
WTAD 1440 500
Rockford
WROK 1410 500
Rock Island
WHBF 1210 100
Springfield
WCBS 1210 100
WTAX 1210 100
Tuscola
WDZ 1070 100
Urbana
WILL 890 250
Zion
WCBD 1080 5000

INDIANA

Anderson
WHBU 1210 100
Elkhart
WTRC 1310 50
Evansville
WGBF 630 500
Fort Wayne
WGL 1370 100 C
WOWO 1160 10000 C
Gary
WIND 560 1000
Hammond
WWAE 1200 100
Indianapolis
WFBM 1230 1000 C
WKBF 1400 500 N
Muncie
WLBC 1310 100
Richmond
WKBV 1500 100
South Bend
WFAM 1200 100
WSBT 1360 500 C
Terre Haute
WBOW 1310 100
West Lafayette
WBAA 1400 500

IOWA

Ames
WOI 640 5000
Boone
KFGQ 1370 100
Carter Lake
KICK 1420 100
Cedar Rapids
KWCR 1430 250 B
Council Bluffs
KOIL 1260 1000 B
Decorah
KGCA 1270 100
KWLC 1270 100
Des Moines
KSO 1320 250 B
WHO 1000 50000 R
Iowa City
WSUI 880 500
Marshalltown
KFJB 1200 100
Shenandoah
KFNF 890 500
KMA 930 1000
Sioux City
KSCJ 1330 1000 C
Waterloo
WMT 600 1000 C

KANSAS

Abilene
KFBI 1050 5000
Coffeyville
KGGF 1010 1000
Dodge City
KGNO 1340 250
Kansas City
WLBF 1420 100
Lawrence
KFKU 1220 1000
WREN 1220 1000 B
Manhattan
KSAC 580 500
Topeka
WIBW 580 1000 C
Wichita
KFH 1300 1000 C

KENTUCKY

Covington
WCKY 1490 5000 B
Lexington
WLAP 1420 100
Louisville
WAVE 940 1000 N
WHAS 820 50000 C
Paducah
WPAD 1420 100

LOUISIANA

Baton Rouge
WJBO 1420 100
Monroe
KMLB 1200 100
New Orleans
WBNO 1200 100
WDSU 1250 1000 C
WJBW 1200 100
WSMB 1320 500 N
WWL 850 10000
Shreveport
KRMD 1310 100
KTBS 1450 1000 N
KWEA 1210 100
KWKH 1100 10000 C

MAINE

Augusta
WRDO 1370 100
Bangor
WABI 1200 100
WLBZ 620 500 C
Portland
WCSH 940 1000 R
Presque Isle
WAGM 1420 100

MARYLAND

Baltimore
WBAL 1060 10000 B
WCAO 600 500 C
WCBM 1370 100
WFBR 1270 500 R
Cumberland
WTBO 800 250
Hagerstown
WJEJ 1210 100

MASSACHUSETTS

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

MICHIGAN

Battle Creek
WELL 1420 50
Bay City
WBCM 1410 500
Calumet
WHDF 1370 100
Detroit
WJBK 1500 100
WJR 750 10000 B
WMBC 1420 100
WWJ 920 1000 R
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
Marquette
WBEO 1310 100
Muskegon
WKBZ 1500 100
Royal Oak
WEXL 1310 50

MINNESOTA

Fergus Falls
KGDE 1200 100
Minneapolis
WCCO 810 50000 C
WDGY 1180 1000
WLB 1250 1000
WTCN 1250 1000
Moorhead
KGFK 1500 100
Northfield
WCAL 1250 2500
St. Paul
KSTP 1460 10000 N

MISSISSIPPI

Greenwood
WKFI 1210 100
Gulfport
WGCM 1210 100
Hattiesburg
WPFB 1370 100
Jackson
WJDX 1270 1000 N
Kosciusko
WHEF 1500 100
Laurel
WAML 1310 100
Meridian
WCOC 880 500
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 C
KWKC 1370 100
WDAF 610 1000 R

INDEX BY LOCATIONS

WHB	860	500
W9XBY	1530	1000
St. Joseph		
KFEQ	680	2500
St. Louis		
KFUO	550	500
KMOX	1090	50000 C
KSD	550	500 R
KWK	1350	1000 B
WEW	760	1000
WIL	1200	100
Springfield		
KGBX	1310	100
KWTO	560	1000
MONTANA		
Billings		
KGHL	780	1000 N
Butte		
KGIR	1360	1000 N
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 C
KFOR	1210	100 C
Norfolk		
WJAG	1060	1000
North Platte		
KGNF	1430	500
Omaha		
WAAW	660	500
WOW	590	1000 R
Scottsbluff		
KGKY	1500	100
York		
KGBZ	930	1000
NEVADA		
Las Vegas		
KGIX	1420	100
Reno		
KOH	1380	500 C
NEW HAMPSHIRE		
Laconia		
WLNH	1310	100
Manchester		
WFEA	1340	500 C
Portsmouth		
WHEB	740	250
NEW JERSEY		
Asbury Park		
WCAP	1280	500
Atlantic City		
WPG	1100	5000 C
Camden		
WCAM	1280	500
Jersey City		
WAAT	940	500
WHOM	1450	250
Newark		
WHBI	1250	250
WNEW	1250	1000
WOR	710	5000
Red Bank		
WBRB	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 C
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 R
WEBR	1310	500
WGR	550	1000 C
WKBW	1480	5000 C
WSVS	1370	50
Canton		
WCAD	1220	500
Chester		
WGNY	1210	100
Elmira		
WESG	1090	1000
Freeport		
WGBB	1210	100
Hudson Falls		
WGLC	1370	100
Jamestown		
WOCL	1210	50
Long Island City		
W2XR	1550	1000
New York		
WABC	860	50000 C
WBNX	1350	250
WBOQ	860	50000
WEAF	660	50000 R
WEVD	1300	1000
WFAB	1300	1000
WHN	1010	1000
WINS	1180	1000
WJZ	760	50000 B
WLWL	1100	5000
WMCA	570	500
WNYC	810	500
WOV	1130	1000
Rochester		
WHAM	1150	50000 B
WHEC	1430	500 C
Saranac Lake		
WNBZ	1290	50
Schenectady		
WGY	790	50000 R
Syracuse		
WFBL	1360	1000 C
WSYR	570	250 B
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 N
Charlotte		
WBT	1080	50000 C
WSOC	1210	100 N
Durham		
WDNC	1500	100 C
Greensboro		
WBIG	1440	500 C
Raleigh		
WPTF	680	5000 N
Rocky Mount		
WEED	1420	100
Winston-Salem		
WSJS	1310	100 C
NORTH DAKOTA		
Bismarck		
KFYR	550	1000 N
Devils Lake		
KDLR	1210	100
Fargo		
WDAY	940	1000 N
Grand Forks		
KFJM	1370	100
Mandan		
KGCU	1240	250
Minot		
KLPM	1240	250
OHIO		
Akron		
WADC	1320	1000 C
WJW	1210	100
Canton		
WHBC	1200	100
Cincinnati		
WFBE	1200	100
WKRC	550	1000 C
WLW	700	500000 N
WSAI	1330	1000 R
Cleveland		
WGAR	1450	500 B
WHK	1390	1000 C
WJAY	610	500
WTAM	1070	50000 R
Columbus		
WAIU	640	500
WBNS	1430	500 C
WOSU	570	750
WSEN	1210	100
Dayton		
WSMK	1380	200 C
Mount Orab		
WHBD	1370	100
Toledo		
WSPD	1340	1000 C
Youngstown		
WKBN	570	500 C
Zanesville		
WALR	1210	100
OKLAHOMA		
Ada		
KADA	1200	100
Elk City		
KASA	1210	100
Enid		
KCRC	1370	100
Norman		
WNAD	1010	500
Oklahoma City		
KFXR	1310	100
KGFG	1370	100
KOMA	1480	5000 C
WKY	900	1000 N
Ponca City		
WBBZ	1200	100
Shawnee		
KGFF	1420	100
Tulsa		
KTUL	1400	250 C
KVOO	1140	25000 N
OREGON		
Corvallis		
KOAC	550	1000
Eugene		
KORE	1420	100
Klamath Falls		
KFJI	1210	100
Marshfield		
KOOS	1200	250
Medford		
KMED	1310	100
Portland		
KALE	1300	500 C
KBPS	1420	100
KEX	1180	5000 N
KFJR	1300	500
KGW	620	1000 N
KOIN	940	1000 C
KWJJ	1040	500
KXL	1420	100
Salem		
KSLM	1370	100
PENNSYLVANIA		
Allentown		
WCBA	1440	250
WSAN	1440	250
Altoona		
WFBG	1310	100
Erie		
WLBW	1260	1000 C
WLEU	1420	100
Glenside		
WIBG	970	100
Greensburg		
WHJB	620	250
Grove City		
WSAJ	1310	100
Harrisburg		
WHP	1430	500 C
WKBO	1200	100
Hazleton		
WAZL	1420	100
Johnstown		
WJAC	1310	100
Lancaster		
WGAL	1500	100
WKJC	1200	100
Philadelphia		
WCAU	1170	50000 C
WDAS	1370	100
WFI	560	500 R
WHAT	1310	100
WIP	610	500 C
WLIT	560	500 R
WPEN	920	500
WRAX	920	500
WTEL	1310	100
Pittsburgh		
KDKA	980	50000 B
KQV	1380	500 C
WCAE	1220	1000 R
WJAS	1290	1000 C
WWSW	1500	100
.....	620	250
Reading		
WEEU	830	1000
WRAW	1310	100
Scranton		
WGBI	880	500
WQAN	880	250
Sunbury		
WKOK	1210	100
Washington		
WNBO	1200	100

Wilkes-Barre
WBAX 1210 100
WBRE 1310 100
Williamsport
WRAK 1370 100
York
WORK 1320 1000

PHILIPPINES

Manila
KZEG 720 1000
KZRM 618.5 50000

PORTO RICO

San Juan
WKAQ 1240 1000
WNEL 1290 500

RHODE ISLAND

Providence
WEAN 780 500 C
WJAR 890 500 R
WPRO 630 250

SOUTH CAROLINA

Charleston
WCSC 1360 500
Columbia
WIS 1010 1000 N
Greenville
WFBC 1300 250
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
KWTN 1210 100
Yankton
WNAX 570 1000 C

TENNESSEE

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

TEXAS

Amarillo
KGRS 1410 1000
WDAG 1410 1000
Austin
KNOW 1500 100
Beaumont
KFDM 560 500
College Station
WTAW 1120 500
Corpus Christi
KGFI 1500 100
Dallas
KRLD 1040 10000 C
WFAA 800 50000 N
WRR 1280 500
Dublin
KFPL 1310 100
El Paso
KTSM 1310 100
WDAH 1310 100
Fort Worth
KFJZ 1370 100
KTAT 1240 1000 C
WBAP 800 50000 N
Galveston
KLUF 1370 100
Greenville
KFPM 1310 15
Houston
KPRC 920 1000 N
KTRH 1330 1000 C
KXYZ 1440 500
Lubbock
KFYO 1310 100
Port Arthur
KPAC 1260 500
San Angelo
KGKL 1370 100
San Antonio
KABC 1420 100
KMAC 1370 100
KONO 1370 100
KTSA 550 1000 C
WOAI 1190 50000 N
Tyler
KGKB 1500 100
Waco
WACO 1420 100 C
Weslaco
KRGV 1260 500
Wichita Falls
KGKO 570 500 C

UTAH

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

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 1200 100
Newport News
WGH 1310 100
Norfolk
WTAR 780 500 N
Petersburg
WPHR 880 500
Richmond
WBBL 1210 100
WMBG 1210 100 C
WRVA 1110 5000 N
Roanoke
WDBJ 930 1000 C
WRBX 1410 250

WASHINGTON

Aberdeen
KXRO 1310 100
Bellingham
KVOS 1200 100
Everett
KRKO 1370 50
Olympia
KGY 1210 100
Pullman
KWSC 1220 1000
Seattle
KJR 970 5000 N
KOL 1270 1000 C
KOMO 920 1000 N
KPCB 710 250
KRSC 1120 100
KTW 1220 1000
KVL 1370 100
KXA 760 250
Spokane
KFIO 1120 100
KFPY 1340 1000 C
KGA 900 1000 N
KHQ 590 1000 N
Tacoma
KMO 1330 250
KVI 570 1000 C
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 C

WISCONSIN

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

WYOMING

Casper
KDFN 1440 500
Sheridan
KWYO 1370 100

CANADA

ALBERTA

Calgary
CFAC 930 100 F
CFCN 1030 10000 F
CJCJ 690 100 F
Edmonton
CFTP 1260 100
CJCA 730 500 F
CKUA 580 500
Lethridge
CJOC 1230 100 F

BRITISH COLUMBIA

Chilliwack
CHWK 780 100 F
Kamloops
CFJC 880 100 F
Kelowna
CKOV 630 100 F
Trail
CJAT 910 250 F
Vancouver
CJOR 600 500
CKCD 1010 100
CKFC 1410 50
CKMO 1410 100
CKWX 1010 100
CRCV 1100 1000 F
Victoria
CFCT 1450 50

MANITOBA

Brandon
CKX 1450 500 F
Winnipeg
CJRC 1390 100
CKY 960 15000 F

NEW BRUNSWICK

Fredericton
CFNB 550 500 F
Moncton
CKCW 1370 100
St. John
CHSJ 1120 100 F

NOVA SCOTIA

Glace Bay
VAS 685 2000
Halifax
CHNS 930 500 F
Sydney
CJCB 1240 1000 F
Wolfville
CKIC 1010 50
Yarmouth
CJLS 1310 100

ONTARIO

Brantford
CKPC 930 100 F
10-BQ 1200 15
Chatham
CFCO 600 100 F
Cobalt
CKMC 1210 50

Fort William
CKPR 930 50 F
Hamilton
CHML 1010 50 F
CKOC 1120 500 F
Kingston
CFRC 1510 100
Kirkland Lake
CJKL 1310 100
London
CFPL 730 100 F
North Bay
CFCH 930 100 F
Ottawa
CKCO 1010 100
CRCO 880 1000 F
Prescott
CFLC 930 100
St. Catharines
CKTB 1200 100 F
Sault Ste. Marie
CJIC 890 100
Stratford
10-AK 1200 15
Timmins
CKGB 1420 100
Toronto
CFRB 690 10000 C
CKCL 580 100 F
CKNC 1420 100 F
CRCT 840 5000 N
Waterloo
CKCR 1510 100
Windsor
CKLW 1030 5000 C
Wingham
10-BP 1200 25

PRINCE EDWARD ISLAND

Charlottetown
CFCY 630 500 F
CHCK 1310 50
Summerside
CHGS 1500 50 F

QUEBEC

Chicoutimi
CRCS 950 100 F
Hull
CKCH 1210 100 F
Montmagny
VE9EK 1195 10
Montreal
CFCF 600 500 N
CHLP 1120 100
CKAC 730 5000 C
CRCM 910 5000 F
New Carlisle
CHNC 1210 100 F
Quebec
CHRC 580 100 F
CKCV 1310 50
CRCK 1050 1000

SASKATCHEWAN

Canora
10-BU 1200 50
Moose Jaw
CHAB 1200 100
CJRM 540 1000 F
Prince Albert
CKBI 1210 100 F
Regina
CHWC 1010 500 F
CKCK 1010 500 F
Saskatoon
CFQC 840 1000 F
Yorkton
CJGX 630 500 F

NEWFOUNDLAND

St. John's
VOAC 1300 40
VOAS 940 100
VOGY 840 400
VOKW 1085 30
VONF 1195 5000
VOWR 681 500

MIQUELON

St. Pierre
FQN 574 250

CENTRAL AMERICA

COSTA RICA

Cartago
TIFS 1441 7.5
TIGA 1014 30
San Jose
TIGR 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 835 30
TIXA 614 7.5

GUATEMALA

Guatemala City
TGW 565 10000
TGX 1400 150

EL SALVADOR

San Salvador
RDN 680 500

MEXICO

AGUASCALIENTES

Aguascalientes
XFA 1310 5
XFC 810 350

BAJA CALIFORNIA

Agua Caliente
XEBC 760 5000
Mexicali
XEAA 920 200
XEAO 560 250
Tijuana
XEAE 980 250
XEMO 860 2000
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
XEOX 640 250
Torreon
XETB 1310 125

D. F.

Mexico City
XEAI 1240 100
XEAL 660 1000
XEB 1030 10000
XECW 1310 10
XEFA 1180 500
XEFG 1100 250
XEFO 940 5000
XEFZ 1370 100
XEK 990 100
XEN 710 1000
XEO 940 5000
XEP 820 500
XETW 820 500
XEW 890 50000
XEWZ 1150 100
XEXX 850 500
XEYZ 780 10000
XFX 610 1000

DURANGO

Durango
XEE 1210 50

GUANAJUATO

Leon
XEAZ 1420 7
XEKL 920 500

JALISCO

Guadalajara
XEA 1060 125
XED 1160 500

MICHOACAN

Morelia
XEI 1370 125

NUEVO LEON

Monterrey
XEFB 1420 100
XEFJ 1210 100
XEH 1150 250
XET 690 500
XEX 1310 125

PUEBLA

Puebla
XETH 1210 100

SAN LUIS POTOSI

San Luis Potosi
XEZZ 1370 100

SONORA

Nogales
XEAF 1080 250

TAMAULIPAS

Nuevo Laredo
XEAM 750 50
XEFE 1370 100
XENT 1120 50000
Reynosa
XEAW 950 10000
Tampico
XEFW 1310 250
XEMA 1080 50
XES 970 250

VERACRUZ

Jalapa
XFB 1270 250
Orizaba
XFD 1340 350
Veracruz
XEU 980 250

YUCATAN

Merida
XEFC 1310 100

WEST INDIES

CUBA

Caibarien
CMHD 950 250
Camaguey
CMJC 1382 150
CMJE 1170 50
CMJF 930 200
CMJG 1050 50
CMJK 790 150
CMJL 960 50
Cardenas
CMGE 1375 30
Ciego de Avila
CMJH 1150 50
CMJI 1210 150
CMJO 1010 50
Cienfuegos
CMHJ 1125 40
CMHW 910 100
Colon
CMGI 1094 30
Cruces
CMHK 1225 50
Guantanamo
CMKJ 1300 20
Havana
CMAF 680 1000
CMBC 1270 150
CMBD 1010 150
CMBG 1060 225
CMBS 780 150
CMBX 1185 150
CMBY 965 250
CMBZ 1010 100
CMC 835 500
CMCA 1230 150
CMCB 1060 150
CMCD 925 250
CMCF 780 250
CMCG 1140 150
CMCJ 1185 400
CMCN 1375 250
CMCO 1145 150
CMCP 1270 150
CMCQ 680 1000
CMCR 1375 150
CMCU 1100 150
CMCW 965 150
CMCY 1316 500
CMK 730 3150
CMQ 645 340
CMW 595 1400
CMX 890 1000
COA 890 500
COK 1230 250
COX 1100 200
Holquin
CMKF 1363 30
Manzanillo
CMKM 940 100
Matanzas
CMGF 987 100
CMGH 1040 15
Moron
CMJP 1360 75
Sagua la Grande
CMHA 1103 50
San Spiritus
CMHB 1245 30
Santa Clara
CMHI 1037 150
Santiago
CMKC 1034 150

DOMINICAN REPUBLIC

San Pedro de Marcoris
HIH 1395 15
Santo Domingo
HIJ 1195 15
HIX 1270 1000
HIZ 1300 10

HAITI

Port-au-Prince
HHK 920 1000

CFAC 930 100 Calgary, Alta.
Calgary Herald, Southam Bldg.

CFCF 600 500 Montreal, Que.
Mt. Royal Hotel

CFCH 930 100 North Bay, Ont.
Capitol Theatre Bldg.

CFCN 1030 10000 Calgary, Alta.
Toronto Gen. Trust Bldg.

CFCO 600 100 Chatham, Ont.
Wm. Pitt Hotel

CFCT 1450 50 Victoria, B. C.
620 View St.

CFCY 630 500 Charlottetown, P.E.I.
143 Great George St.

CFJC 880 100 Kamloops, B. C.
Wilcox-Hall Bldg.

CFLC 930 100 Prescott, Ont.
Victoria Hall

CFNB 550 500 Fredericton, N. B.
York St.

CFPL 730 100 London, Ont.
Richmond St.

CFQC 840 1000 Saskatoon, Sask.
216 First Ave., No.

CFRB 690 10000 Toronto, Ont.
37 Bloor St. W.

CFRC 1510 100 Kingston, Ont.
Queens University

CFTP 1260 100 Edmonton, Alta.
Birks Bldg.

CHAB 1200 100 Moose Jaw, Sask.
Grant Hall Hotel

CHCK 1310 50 Charlottetown, P.E.I.
36 Upper Hillsboro St.

CHGS 1500 50 Summerside, P. E. I.
190 Water St.

CHLP 1120 100 Montreal, Que.
Sun Life Bldg.

CHML 1010 50 Hamilton, Ont.
47 Main St. E.

CHNC 1210 100 New Carlisle, Que.
Dr. Charles Houde

CHNS 930 500 Halifax, N. S.
Lord Nelson Hotel

CHRC 580 100 Quebec, Que.
CHRC, Ltd., Victoria Hotel

CHSJ 1120 100 St. John, N. B.
Admiral Beatty Hotel

CHWC 1010 500 Regina, Sask.
Kitchener Hotel

CHWK 780 100 Chilliwack, B. C.
Wellington Ave.

CJAT 910 250 Trail, B. C.
Trail Amateur Radio Assn.

CJCA 730 500 Edmonton, Alta.
10122—100A St.

CJCB 1240 1000 Sydney, N. S.
318 Charlotte St.

CJCJ 690 100 Calgary, Alta.
New Albertan Bldg.

CJGX 630 500 Yorkton, Sask.
188 Grain Exchange Bldg.

CJIC 890 100 S. Ste. Marie, Ont.
72 Pine St.

CJKL 1310 100 Kirkland Lake, Ont.
O. J. Thorpe

CJLS 1310 100 Yarmouth, N. S.
Laurie L. Smith, Grand Hotel

CJOC 1230 100 Lethbridge, Alta.
Marquis Hotel

CJOR 600 500 Vancouver, B. C.
G. C. Chandler, Hotel Grosvenor

CJRC 1390 100 Winnipeg, Man.
Royal Alexandra Hotel

CJRM 540 1000 Moose Jaw, Sask.
311 Main St. No.

CKAC 730 5000 Montreal, Que.
980 St. Catherine St. W.

CKBI 1210 100 Prince Albert, Sask.
Canada Bldg.

CKCD 1010 100 Vancouver, B. C.
142 Hastings St. W.

CKCH 1210 100 Hull, Que.
Standish Hall Hotel

CKCK 1010 500 Regina, Sask.
1853 Hamilton St.

CKCL 580 100 Toronto, Ont.
444 University Ave.

CKCO 1010 100 Ottawa, Ont.
272 Somerset St. W.

CKCR 1510 100 Waterloo, Ont.
24 King St. So.

CKCV 1310 50 Quebec, Que.
254 Ave. Marguerite

CKCW 1370 100 Moncton, N. B.
Moncton Brdcstg. Co., Ltd.

CKFC 1410 50 Vancouver, B. C.
Hemlock & 12th Ave.

CKGB 1420 100 Timmins, Ont.
R. H. Thompson, Press Bldg.

CKIC 1010 50 Wolfville, N. S.
Acadia University

CKLW 1030 5000 Windsor, Ont.
Guaranty Trust Bldg.

CKMC 1210 50 Cobalt, Ont.
R. L. MacAdam

CKMO 1410 100 Vancouver, B. C.
1604 Bekins Bldg.

CKNC 1420 100 Toronto, Ont.
805 Davenport Road

CKOC 1120 500 Hamilton, Ont.
Wentworth Bldg.

CKOV 630 100 Kelowna, B. C.
Okanagan Broadcasters, Ltd., Box 243

CKPC 930 100 Brantford, Ont.
Arcade Bldg.

CKPR 930 50 Fort William, Ont.
Royal Edward Hotel

CKTB 1200 100 St. Catharines, Ont.
E. T. Sandell, Welland House

CKUA 580 500 Edmonton, Alta.
University of Alberta.

CKWX 1010 100 Vancouver, B. C.
Hotel Georgia

CKX 1450 500 Brandon, Man.
Rosser Ave.

CKY 960 15000 Winnipeg, Man.
Sherbrooke St.

CMAF 680 1000 Havana, Cuba
1 y 8 Rept. Miramar

CMBC 1270 150 Havana, Cuba
Domingo Fernandez, Maximo Gomez No. 139

CMBD 1010 150 Havana, Cuba
Luis Perez Garcia, Centre Gallege

CMBG 1060 225 Havana, Cuba
John L. Stowers, Hospital No. 100

CMBS 780 150 Havana, Cuba
Calzada y H. St., Vedado

CMBX 1185 150 Havana, Cuba
Alberto Alvarez, Belascoain No. 32

CMBY 965 250 Havana, Cuba
Infanta 132 esq-Jevellar

CMBZ 1010 100 Havana, Cuba
Manuel y G. Salas, San Rafael No. 14

CMC 835 500 Havana, Cuba
Aguila y Dragones

CMCA 1230 150 Havana, Cuba
J. M. Gonzales, Galiano No. 102

CMCB 1060 150 Havana, Cuba
Metropolitan Bldg.

CMCD 925 250 Havana, Cuba
Calle G y 25, Vedado

CMCF 780 250 Havana, Cuba
RaoulKarman, P. O. Box 647

CMCG 1140 150 Havana, Cuba
Emilie Perera, San Miguel No. 62

CMCJ 1185 400 Havana, Cuba
RafaelRodriquez, Estevez No. 4

CMCN 1375 250 Havana, Cuba
Reina y Ave. Buen Ritiroe, Marianao

CMCO 1145 150 Havana, Cuba
Ass. Detes. del Comercio

CMCP 1270 150 Havana, Cuba
Calzada de Luyane No. 132

CMCQ 680 1000 Havana, Cuba
Vista Alegre No. 80, Vibora

CMCR 1375 150 Havana, Cuba
Milagros No. 35, Vibora

CMCU 1100 150 Havana, Cuba
San Francisco No. 13, Vibora

CMCW 965 150 Havana, Cuba
Galiano y San Lazaro Sts.

CMCY 1316 500 Havana, Cuba
Manuel D. Autran, Calle G 215, Vedado

CMGE 1375 30 Cardenas, Cuba
Genaro Sebater, Cespedes No. 180

CMGF 987 100 Matanzas, Cuba
G. Betancourt No. 51

CMGH 1040 15 Matanzas, Cuba
B. Byrne No. 113

CMGI 1094 30 Colon, Cuba
Armando Linanza, Marti No. 35

CMHA 1103 50 SagualaGrande, Cuba
Abelardo Menocal, Carrillo No. 1

CMHB 1245 30 San Spiritus, Cuba
Independencia No. 33

CMHD 950 250 Caibarien, Cuba
Manuel Alvarez, M. Escobar 17

CMHI 1037 150 Santa Clara, Cuba
Lavis y Paz, Independencia No. 34

CMHJ 1125 40 Cienfuegos, Cuba
Romoualde Ugalde, Hotel Bristol

CMHK 1225 50 Cruces, Cuba
Heredia No. 61

CMHW 910 100 Cienfuegos, Cuba
Arguelles No. 200

CMJC 1382 150 Camaguey, Cuba
Feliciano Isaac, Cisneros y G. Gomez

CMJE 1170 50 Camaguey, Cuba
Manuel Fernandez, Hnos. Aguere No. 2

CMJF 930 200 Camaguey, Cuba
John L. Stowers, Republica No. 88

CMJG 1050 50 Camaguey, Cuba
Jose Antonio Lefran, Maceo No. 1

CMJH 1150 50 Ciego de Avila, Cuba
Luis Marauri, Vista Hermosa

CMJI 1210 150 Ciego de Avila, Cuba
Gilberto Gessa Lopez, Independencia 95

CMJK 790 150 Camaguey, Cuba
Cia. Nacional de Radio, Finlay

CMJL 960 50 Camaguey, Cuba
Enrique Artime, Cuba No. 27

CMJO 1010 50 Ciego de Avila, Cuba
Jose M. Rey, C. Central & Maceo

CMJP 1360 75 Moron, Cuba
Cesar Canall, Callejas No. 28

CMK 730 3150 Havana, Cuba
Hotel Plaza

CMKC 1034 150 Santiago, Cuba
J. A. Saco, Alta 23

CMKF 1363 30 Holquin, Cuba
Libertad esq. Arias

CMKJ 1300 20 Guantanamo, Cuba
Luis Morlote, East Giro 11

CMKM 940 100 Manzanillo, Cuba
Jesus Armeste, Merchant y P. Figuerado

CMQ 645 340 Havana, Cuba
25 Numero 445, Vedado

CMW 595 1400 Havana, Cuba
Troncoso y Gil, Apdo. 1010

CMX 890 1000 Havana, Cuba
Casa "Lavin," Ave. de la Republica 99A

COA 890 500 Havana, Cuba
Juan Fernandez, Aguiar 126, Altes

COK 1230 250 Havana, Cuba
Rafael Valdez, Marques Gonzales 52

COX 1100 200 Havana, Cuba
10 entre 17 y 19, Vedado

CRCK 1050 1000 Quebec, Que.
Chateau Frontenac Hotel

CRCM 910 5000 Montreal, Que.
1231 St. Catherine St. W.

CRCO 880 1000 Ottawa, Ont.
Chateau Laurier Hotel

CRCS 950 100 Chicoutimi, Que.
4 Rue Larouche

CRCT 840 5000 Toronto, Ont.
805 Davenport Road

CRCV 1100 1000 Vancouver, B. C.
C. N. R. Station Bldg.

FQN 574 250 St. Pierre, Miq.

HHK 920 1000 Port-au-Prince, Haiti
Haitian Government

HIH 1395 15 San Pedro de M.,D.R.
Domingo Dominguez

HIJ 1195 15 Santo Domingo, D. R.
Tuto Baez, Hostos 34

HIX 1270 1000 Santo Domingo, D. R.
J. R. Saladin, Director General

HIZ 1300 10 Santo Domingo, D. R.
Abbes and Garcia

KABC 1420 100 San Antonio, Texas
Texas Theatre Bldg.

KADA 1200 100 Ada, Okla.
C. C. Morris

KALE 1300 500 Portland, Ore.
Kale, Inc., New Heathman Hotel

KARK 890 250 Little Rock, Ark.
N. S. L. Bldg.

KASA 1210 100 Elk City, Okla.
E. M. Woody, Casa Grande Hotel

KBPS 1420 100 Portland, Ore.
E. 12th & Hoyt Sts.

KBTM 1200 100 Jonesboro, Ark.
Jay P. Beard

KCMC 1420 100 Texarkana, Ark.
M. P. Mims, Box 865

KCRC 1370 100 Enid, Okla.
Enid Radiophone Co., Oxford Hotel

KCRJ 1310 100 Jerome, Ariz.
Chas. C. Robinson, Drawer D.

KDB 1500 100 Santa Barbara, Calif.
15-17 E. Haley St.

KDFN 1440 500 Casper, Wyo.
Donald Lewis Hathaway

KDKA 980 50000 Pittsburgh, Pa.
Hotel Wm. Penn

KDLR 1210 100 Devils Lake, N. D.
KDLR, Inc., 1025 3rd Street

KDYL 1290 1000 Salt Lake City, Utah
Ezra Thompson Bldg.

KECA 1430 1000 Los Angeles, Calif.
1000 S. Hope St.

KELW 780 500 Burbank, Calif.
3702 Magnolia Park Blvd.

KERN 1370 100 Bakersfield, Calif.
Elk's Club

KEX 1180 5000 Portland, Ore.
Oregonian Bldg.

KFAB 770 5000 Lincoln, Neb.
Cornhusker Hotel

KFAC 1300 1000 Los Angeles, Calif.
E. L. Cord, 645 So. Mariposa

KFBB 1280 1000 Great Falls, Mont.
Buttrey Broadcast., Inc.

KFBI 1050 5000 Abilene, Kans.
Box 345

KFBK 1310 100 Sacramento, Calif.
Sacramento Bee

KFDM 560 500 Beaumont, Texas
Beaumont Hotel, P. O. Box 2950

KFDY 780 1000 Brookings, S. D.
South Dakota State College

KFEQ 680 2500 St. Joseph, Mo.
Schneider Bldg.

KFGQ 1370 100 Boone, Iowa
924 W. 2nd St.

KFH 1300 1000 Wichita, Kans.
124 1/2 S. Market St.

KFI 640 50000 Los Angeles, Calif.
1000 S. Hope St.

KFIO 1120 100 Spokane, Wash.
213 Riverside Ave.

KFIZ 1420 100 Fond du Lac, Wis.
18 W. 1st St.

KFJB 1200 100 Marshalltown, Iowa
1603 W. Main St.

KFJI 1210 100 Klamath Falls, Ore.
KFJI Broadcasters, Inc., Willard Hotel

KFJM 1370 100 Grand Forks, N. D.
University of North Dakota

KFJR 1300 500 Portland, Ore.
622 Lumbermen's Bldg.

KFJZ 1370 100 Fort Worth, Texas
Texas Hotel

KFKA 880 500 Greeley, Colo.
Box 735

KFKU 1220 1000 Lawrence, Kans.
University of Kansas

KFNF 890 500 Shenandoah, Iowa
407 Sycamore St.

KFOR 1210 100 Lincoln, Neb.
Howard Shuman, Hotel Lincoln

KFOX 1250 1000 Long Beach, Calif.
220 E. Anaheim St.

KFPL 1310 100 Dublin, Texas
C. C. Baxter, Box 176

KFPM 1310 15 Greenville, Texas
New Furniture Co.

KFPW 1210 100 Fort Smith, Ark.
Goldman Hotel

KFPY 1340 1000 Spokane, Wash.
Symons Bldg.

KFQD 780 250 Anchorage, Alaska
411—4th Ave.

KFRC 610 1000 San Francisco, Calif.
1000 Van Ness Ave.

KFRU 630 500 Columbia, Mo.
KFRU, Inc., 9th and Elm Sts.

KFSD 600 1000 San Diego, Calif.
U. S. Grant Hotel

KFSG 1120 500 Los Angeles, Calif.
1100 Glendale Blvd.

KFUO 550 500 St. Louis, Mo.
801 De Mun St.

KFVD 1000 250 Los Angeles, Calif.
E. L. Cord, 645 S. Mariposa

KFVS 1210 100 Cape Girardeau, Mo.
Oscar C. Hirsch, Box 275

KFWB 950 1000 Hollywood, Calif.
Warner Bros. Motion Pictures, Inc.

KFXD 1200 100 Nampa, Idaho
Frank E. Hurt, 1024 12th Ave., S.

KFXJ 1200 100 Grand Jct., Colo.
Hillcrest Manor

KFXM 1210 100 San Bernardino, Calif.
California Hotel

KFXR 1310 100 Oklahoma City, Okla.
541 Hightower Bldg.

KFYO 1310 100 Lubbock, Texas
Kirksey Bros., Hotel Lubbock

KFYR 550 1000 Bismarck, N. D.
320 Broadway

KGA 900 1000 Spokane, Wash.
1023 W. Riverside Ave.

KGAR 1370 100 Tucson, Ariz.
142 S. 6th Ave.

KGB 1330 1000 San Diego, Calif.
1012—1st St.

KGBU 900 500 Ketchikan, Alaska
Mile 5, Wards Cove Rd.

KGBX 1310 100 Springfield, Mo.
KGBX, Inc., C. of C. Bldg.

KGBZ 930 1000 York, Neb.
KGBZ Broadcasting Co., 715 Grant Ave.

KGCA 1270 100 Decorah, Iowa
Charles W. Greenley, 201 Water St.

KGCU 1240 250 Mandan, N. D.
404 W. Main St.

KGCX 1310 100 Wolf Point, Mont.
E. E. Krebsbach.

KGDE 1200 100 Fergus Falls, Minn.
C. L. Jaren

KGDM 1100 250 Stockton, Calif.
E. F. Peffer, 42 S. Calif. St.

KGDY 1340 250 Huron, S. D.
Voice of S. D., Inc., 347 Dakota Ave.

KGEK 1200 100 Sterling, Colo.
Elmer G. Beehler, 109 W. 2nd St.

KGER 1360 1000 Long Beach, Calif.
435 Pine Ave.

KGEZ 1310 100 Kalispell, Mont.
Donald C. Treloar, Box 1

KGFF 1420 100 Shawnee, Okla.
9th & Bell Sts.

KGFG 1370 100 Oklahoma City, Okla.
Okla. Broadcasting Co., 1113 N. Broadway

KGFI 1500 100 Corpus Christi, Texas
Eagle Broadcasting Co., Inc., P. O. Box 1508

KGFJ 1200 100 Los Angeles, Calif.
Ben S. McGlashan, 1417 S. Figueroa.

KGFK 1500 100 Moorhead, Minn.
722 Center Ave.

KGFL 1370 100 Roswell, N. M.
KGFL, Inc., 507 N. Main St.

KGFW 1310 100 Kearney, Neb.
Midway Hotel

KGFX 630 200 Pierre, S. D.
Dana McNeil, 510 Summit Ave.

KGGC 1420 100 San Francisco, Calif.
230 Eddy St.

KGGF 1010 1000 Coffeyville, Kans.
Coffeyville Journal Bldg.

KGGM 1230 250 Albuquerque, N. M.
Franciscan Hotel

KGHF 1320 250 Pueblo, Colo.
C. P. Ritchie, 113 Broadway

KGHI 1200 100 Little Rock, Ark.
Lloyd Judd Co., Marion Hotel

KGHL 780 1000 Billings, Mont.
5th & N. Broadway

KGIR 1360 1000 Butte, Mont.
KGIR, Inc., 121 W. Broadway

KGIW 1420 100 Alamosa, Colo.
Leonard E. Wilson, 326 N. Commercial

KGIX 1420 100 Las Vegas, Nev.
J. M. Heaton, Box 656

KGKB 1500 100 Tyler, Texas
115 S. College

KGKL 1370 100 San Angelo, Texas
KGKL, Inc., St. Angelus Hotel

KGKO 570 500 Wichita Falls, Texas
9th St. & Indiana Ave.

KGKY 1500 100 Scottsbluff, Neb.
Hilliard Co., Inc., 1517 1/2 Broadway

KGMB 1320 250 Honolulu, T. H.
Honolulu Broadcasting Co., Box 2663

KGNF 1430 500 North Platte, Neb.
Great Plains Broadcasting Co., W. 12th St.

KGNO 1340 250 Dodge City, Kans.
First Natl. Bank Bldg.

KGO 790 7500 San Francisco, Calif.
111 Sutter St.

KGRS 1410 1000 Amarillo, Texas
E. B. Gish, Bellaire Park

KGU 750 2500 Honolulu, T. H.
Kaplolani at South St.

KGVO 1200 100 Missoula, Mont.
Mosbys, Inc., 240 N. Higgins

KGW 620 1000 Portland, Ore.
325 Adler St.

KGY 1210 100 Olympia, Wash.
KGY, Inc., 11th and Capitol Way

KHJ 900 1000 Los Angeles, Calif.
7th at Bixel

KHQ 590 1000 Spokane, Wash.
Sprague Ave. & Post St.

KICA 1370 100 Clovis, N. M.
Southwest Broadcasting Co.

KICK 1420 100 Carter Lake, Iowa
Red Oak Radio Corp.

KID 1320 250 Idaho Falls, Idaho
Park Ave. & Broadway

KIDO 1350 1000 Boise, Idaho
Hotel Boise

KIDW 1420 100 Lamar, Colo.
Lamar Broadcasting Co., Box 688

KIEM 1210 100 Eureka, Calif.
Redwood Bdcstg. Co., Vance Hotel

KIEV 850 250 Glendale, Calif.
Cannon System, Ltd., Glendale Hotel

KIT 1310 100 Yakima, Wash.
109 1/2 E. Yakima Ave.

KJBS 1070 100 San Francisco, Calif.
1380 Bush St.

KJR 970 5000 Seattle, Wash.
Skinner Bldg.

KLCN 1290 100 Blytheville, Ark.
C. L. Lintzenich, Main and Division St.

KLO 1400 500 Ogden, Utah
405 — 25th St.

KLPM 1240 250 Minot, N. D.
John B. Cooley, Box 707

KLRA 1390 1000 Little Rock, Ark.
Arkansas Broadcasting Co., Box 550

KLS 1440 250 Oakland, Calif.
Warner Bros., 2201 Telegraph Ave.

KLUF 1370 100 Galveston, Texas
Geo. R. Clough, 3327 Ave. P.

KLX 880 1000 Oakland, Calif.
Tribune Tower

KLZ 560 1000 Denver, Colo.
Shirley-Savoy Hotel

KMA 930 500 Shenandoah, Iowa
Earl E. May Seed & Nursery Co.

KMAC 1370 100 San Antonio, Texas
W. W. McAllister, Blue Bonnet Hotel

KMBC 950 1000 Kansas City, Mo.
Pickwick Hotel

KMED 1310 100 Medford, Ore.
Mrs. W. J. Virgin, Sparta Bldg.

KMJ 580 500 Fresno, Calif.
Van Ness & Calaveras Sts.

KMLB 1200 100 Monroe, La.
Francis Hotel

KMMJ 740 1000 Clay Center, Neb.
The M. M. Johnson Co.

KMO 1330 250 Tacoma, Wash.
KMO, Inc., Hotel Winthrop

KMOX 1090 50000 St. Louis, Mo.
401 S. 12th St.

KMPC 710 500 Beverly Hills, Calif.
9631 Wiltshire Blvd.

KMTR 570 500 Hollywood, Calif.
KMTR Radio Corp., 915 N. Formosa Ave.

KNOW 1500 100 Austin, Texas
Driskill Hotel

KNX 1050 25000 Hollywood, Calif.
West. Broadcast Co., Inc., 1558 N. Vine St.

KOA 830 50000 Denver, Colo.
General Electric Co., 1370 Krameria St.

KOAC 550 1000 Corvallis, Ore.
Oregon State Agricultural College

KOB 1180 10000 Albuquerque, N. M.
Albuquerque Journal, Box 667

KOH 1380 500 Reno, Nev.
440 N. Virginia St.

KOIL 1260 1000 Council Bluffs, Iowa
Mona Motor Oil Co.

KOIN 940 1000 Portland, Ore.
KOIN, Inc., New Heathman Hotel

KOL 1270 1000 Seattle, Wash.
Northern Life Tower

KOMA 1480 5000 Oklahoma City, Okla.
Biltmore Hotel

KOMO 920 1000 Seattle, Wash.
Skinner Bldg.

KONO 1370 100 San Antonio, Texas
Mission Broadcast. Co., St. Anthony Hotel

KOOS 1200 250 Marshfield, Ore.
H. H. Hanseth, Hall Bldg.

KORE 1420 100 Eugene, Ore.
733 Willamette St.

KOTN 1500 100 Pine Bluff, Ark.
William H. Chaplin, Hotel Pines

KPAC 1260 500 Port Arthur, Texas
Port Arthur College

KOY 1390 500 Phoenix, Ariz.
621 N. Central Ave.

KPCB 710 100 Seattle, Wash.
Tower Bldg.

KPJM 1500 100 Prescott, Ariz.
Scott & Sturm, P. O. Box 782

KPO 680 50000 San Francisco, Calif.
111 Sutter St.

KPOF 880 500 Denver, Colo.
Pillar Of Fire, 1845 Champa St.

KPPC 1210 50 Pasadena, Calif.
585 E. Colorado St.

KPQ 1500 100 Wenatchee, Wash.
KPQ Bldg.

KPRC 920 1000 Houston, Texas
2204 Shell Bldg.

KQV 1380 500 Pittsburgh, Pa.
KQV Broadcasting Co., Investment Bldg.

KQW 1010 1000 San Jose, Calif.
87 E. San Antonio St.

KRE 1370 100 Berkeley, Calif.
2345 Channing Way

KREG 1500 100 Santa Ana, Calif.
3rd & Sycamore Sts.

KRGV 1260 500 Weslaco, Texas
KRGV, Inc.

KRKD 1120 500 Los Angeles, Calif.
815 Spring Arcade Bldg.

KRKO 1370 50 Everett, Wash.
Lee Mudgett, 2814 Rucker Ave.

KRLD 1040 10000 Dallas, Texas
KRLD Radio Corp., Adolphus Hotel

KRMD 1310 100 Shreveport, La.
Jefferson Hotel

KROW 930 500 Oakland, Calif.
1803 Franklin St.

KRSC 1120 100 Seattle, Wash.
Radio SalesCorp., Washington Athletic Club

KSAC 580 500 Manhattan, Kans.
State College of Agriculture

KSCJ 1330 1000 Sioux City, Iowa
Perkins Bros. Co., 415 Douglas St.

KSD 550 500 St. Louis, Mo.
12th & Olive Sts.

KSEI 900 250 Pocatello, Idaho
Radio Service Corp., 141 S. 6th Ave.

KSL 1130 50000 Salt Lake City, Utah
Vermont Bldg.

KSLM 1370 100 Salem, Ore.
Oregon Radio, Inc.

KSO 1320 250 Des Moines, Iowa
Des Moines Register & Tribune

KSOO 1110 1000 Sioux Falls, S. D.
Sioux Falls Brdcst. Assn., Carpenter Hotel

KSTP 1460 10000 St. Paul, Minn.
St. Paul Hotel

KSUN 1200 100 Lowell, Ariz.
Copper Electrical Co., Drawer C

KTAB 560 1000 San Francisco, Calif.
5th & Mission Sts.

KTAR 620 1000 Phoenix, Ariz.
116 N. Central Ave.

KTAT 1240 1000 Fort Worth, Texas
Ft. Worth Natl. Bank Bldg.

KTBS 1450 1000 Shreveport, La.
Box 1642

KTFI 1240 1000 Twin Falls, Idaho
Radio Broadcasting Corp., Box 521

KTHS 1060 10000 Hot Springs, Ark.
Chamber of Commerce, Box 886

KTM 780 500 Los Angeles, Calif.
214 S. Vermont St.

KTRB 740 250 Modesto, Calif.
McTammany & Bates

KTRH 1330 1000 Houston, Texas
KTRH Broadcasting Co., Rice Hotel

KTSA 550 1000 San Antonio, Texas
Southwest Broadcasting Co., Plaza Hotel

KTSM 1310 100 El Paso, Texas
P. O. Box 1976

KTUL 1400 250 Tulsa, Okla.
National Bank of Tulsa Bldg.

KTW 1220 1000 Seattle, Wash.
77th Ave. & Spring St.

KUJ 1370 100 Walla Walla, Wash.
KUJ, Inc., Marcus Whitman Hotel

KUMA 1420 100 Yuma, Ariz.
Dr. A. H. Schermann, Box 267

KUOA 1260 1000 Fayetteville, Ark.
KUOA, Inc., Washington Hotel

KUSD 890 500 Vermillion, S. D.
University of South Dakota

KVI 570 1000 Tacoma, Wash.
W. R. Rust Bldg.

KVL 1370 100 Seattle, Wash.
KVL, Inc., 5th and Virginia St.

KVOA 1260 500 Tucson, Ariz.
Cons. Natl. Bank Bldg.

KVOD 920 500 Denver, Colo.
Continental Oil Bldg.

KVOO 1140 25000 Tulsa, Okla.
Wright Bldg.

KVOR 1270 1000 Colorado Spg., Colo.
Mining Exchange Bldg.

KVOS 1200 100 Bellingham, Wash.
115 W. Magnolia St.

KWCR 1430 250 Cedar Rapids, Iowa
Hotel Montrose

KWEA 1210 100 Shreveport, La.
Spring & Fannin Sts.

KWFV 1210 100 Hilo, Hawaii
Hilo Broadcasting Co., Ltd.

KWG 1200 100 Stockton, Calif.
Medico-Dental Bldg.

KWJJ 1040 500 Portland, Ore.
622 S. W. Salmon St.

KWK 1350 1000 St. Louis, Mo.
Thomas Patrick, Inc., Hotel Chase

KWKC 1370 100 Kansas City, Mo.
39th & Main Sts.

KWKH 1100 10000 Shreveport, La.
Spring & Fannin Sts.

KWLC 1270 100 Decorah, Iowa
Luther College

KWSC 1220 1000 Pullman, Wash.
State College of Washington

KWTN 1210 100 Watertown, S. D.
Citizens Bank Bldg.

KWTO 560 1000 Springfield, Mo.
KGBX Inc.

KWYO 1370 100 Sheridan, Wyo.
Big Horn Brdcstg. Co.

KXA 760 250 Seattle, Wash.
American Radio Tel. Co., 218 Bigelow Bldg.

KXL 1420 100 Portland, Ore.
KXL Broadcasters, Multnomah Hotel

KXO 1500 100 El Centro, Calif.
F. M. Bowles, Box 140

KXRO 1310 100 Aberdeen, Wash.
KXRO, Inc., Hotel Morck.

KXYZ 1440 250 Houston, Texas
Fannin & Rusk Sts.

KYA 1230 1000 San Francisco, Calif.
988 Market St.

KYW 1020 10000 Chicago, Ill.
310 S. Michigan Ave.

KZEG 720 1000 Manila, P. I.
Erlanger & Gallinger, Inc.

KZRM 618.5 50000 Manila, P. I.
601 Escolta

NAA 690 1000 Arlington, Va.
United States Navy

RDN 680 500 San Salvador, E. S.
Republic of El Salvador
TGW 565 10000 Guatemala, Gua.
Gobierno de Guatemala
TGX 1400 150 Guatemala City

TICR 912 75 San Jose, C. R.
Government of Costa Rica
TIEA 833 7.5 San Jose, C. R.

TIEP 1450 7.5 San Jose, C. R.

TIFB 714 30 San Jose, C. R.

TIFS 1441 7.5 Cartago, C. R.

TIGA 1014 30 Cartago, C. R.

TIGP 800 75 San Jose, C. R.
Gonzalo Pinto H. Apt. 225
TIRCA 1100 500 San Jose, C. R.
Perry Girton, Apt. 225
TISO 550 250 San Jose, C. R.
P. F. Saborio, Apt. 1354
TITV 999 7.5 San Jose, C. R.

TIVL 835 30 San Jose, C. R.

TIXA 614 7.5 San Jose, C. R.
Vincent Lines C
VAS 685 2000 Glace Bay, N. S.
Canadian Marconi Co., Ltd.
VE9EK 1195 10 Montmagny, Que.
J. A. Marquis, P. O. Box 52
VOAC 1300 40 St. John's, Nfld.

VOAS 940 100 St. John's N. F.
Ayre & Sons, Ltd., Water St.
VOGY 840 400 St. John's, N. F.
Newfoundland Hotel
VOKW 1085 30 St. John's, N. F.
Cyril L. Parkins, Box 5039 East
VONF 1195 5000 St. John's N. F.
Dominion Broadcasting Co., Ltd., Box 135
VOWR 681 500 St. John's, N. F.
Wesley United Church, Box 157
WAAB 1410 500 Boston, Mass.
21 Brookline Ave.
WAAF 920 500 Chicago, Ill.
836 Exchange Ave.
WAAT 940 300 Jersey City, N. J.
Bremer Broadcasting Corp., 50 Journal Sq
WAAW 660 500 Omaha, Neb.
Omaha Grain Exchange
WABC 860 50000 New York, N. Y.
485 Madison Ave.
WABI 1200 100 Bangor, Maine
First Universalist Society, Park St.
WACO 1420 100 Waco, Texas
Amicable Bldg.
WADC 1320 1000 Akron, Ohio
Allen T. Simmons, P. O. Box 29
WAGF 1370 100 Dothan, Ala.
P.O.Box 25
WAGM 1420 100 Presque Isle, Me.
Aroostook Broadcasting Corp., Main St.
WAIU 640 500 Columbus, Ohio
Deshler-Wallick Hotel
WALA 1380 500 Mobile, Ala.
Battle House
WALR 1210 100 Zanesville, Ohio
First Trust & Savs. Bank Bldg.

WAML 1310 100 Laurel, Miss.
Southland Radio Corp., Box 26
WAPI 1140 5000 Birmingham, Ala.
Protective Life Bldg.
WARD 1400 500 Brooklyn, N. Y.
427 Flatbush Ave., Ext.
WASH 1270 500 Grand Rapids, Mich.
Grand Rapids Natl. Bank Bldg.
WATR 1190 100 Waterbury, Conn.
47 Grand St.
WAVE 940 1000 Louisville, Ky.
WAVE, Inc., 1525 Brown Hotel
WAWZ 1350 250 Zarephath, N. J.
Pillar of Fire.
WAZL 1420 100 Hazleton, Pa.
Hazleton Broadcasting Service, Inc.
WBAA 1400 500 West Lafayette, Ind.
Purdue University
WBAL 1060 10000 Baltimore, Md.
Lexington Bldg.
WBAP 800 50000 Fort Worth, Texas
Blackstone Hotel
WBAX 1210 100 Wilkes-Barre, Pa.
John H. Stenger, Jr., 70 S. Main St.
WBBC 1400 500 Brooklyn, N. Y.
552-54 Atlantic Ave.
WBBL 1210 100 Richmond, Va.
1627 Monument Ave.
WBBM 770 25000 Chicago, Ill.
WBBM Broadcasting Corp., Wrigley Bldg.
WBBR 1300 1000 Brooklyn, N. Y.
124 Columbia Heights
WBBZ 1200 100 Ponca City, Okla.
C. L. Carrell, 407 W. South Ave.
WBCM 1410 500 Bay City, Mich.
James E. Davidson, Hotel Wenonah
WBEN 900 1000 Buffalo, N. Y.
WBEN, Inc., Hotel Statler
WBEO 1310 100 Marquette, Mich.
146 W. Washington St.
WBHS 1200 100 Huntsville, Ala.
Virgil V. Evans
WBIG 1440 500 Greensboro, N. C.
Box 408
WBNO 1200 100 New Orleans, La.
Hotel Marbero
WBNS 1430 500 Columbus, O.
33 N. High St.
WBNX 1350 250 New York, N. Y.
260 E. 161st St.
WBOQ 860 50000 New York, N. Y.
Atlantic Broadcasting Corp.
WBOW 1310 100 Terre Haute, Ind.
Banks of Wabash, Inc., 19 Beach Block
WBRB 1210 100 Red Bank, N. J.
63 Broad St.
WBRC 930 1000 Birmingham, Ala.
Bankhead Hotel
WBRE 1310 100 Wilkes-Barre, Pa.
Louis G. Baltimore, 16 N. Main
WBSO 920 500 Babson Park, Mass.
Drawer B
WBT 1080 50000 Charlotte, N. C.
Station WBT, Inc., Wilder Bldg.
WBTM 1370 100 Danville, Va.
Miller Bldg.
WBZ 990 50000 Boston, Mass.
Hotel Bradford
WBZA 990 1000 Springfield, Mass.
Hotel Kimball
WCAC 600 500 Storrs, Conn.
Connecticut State College

WCAD 1220 500 Canton, N. Y.
St. Lawrence University
WCAE 1220 1000 Pittsburgh, Pa.
6th Ave. & Smithfield St.
WCAL 1250 1000 Northfield, Minn.
St. Olaf College
WCAM 1280 500 Camden, N. J.
City of Camden, City Hall
WCAO 600 500 Baltimore, Md.
811 W. Lanvale St.
WCAP 1280 500 Asbury Park, N. J.
Convention Hall
WCAT 1200 100 Rapid City, S. D.
South Dakota State School of Mines
WCAU 1170 50000 Philadelphia, Pa.
WCAU Broadcasting Co., 1622 Chestnut
WCAX 1200 100 Burlington, Vt.
203 College St.
WCAZ 1070 100 Carthage, Ill.
97 1/2 Adams St.
WCBA 1440 250 Allentown, Pa.
B. Bryan Musselman, 39-41 10th St.
WCBD 1080 5000 Zion, Ill.
75 E. Wacker Drive, Chicago
WCBM 1370 100 Baltimore, Md.
Keith Theatre Bldg.
WCBS 1210 100 Springfield, Ill.
WCBS, Inc., 208 1/2 S. 5th.
WCCO 810 50000 Minneapolis, Minn.
Nicollet Hotel
WCFL 970 1500 Chicago, Ill.
666 Lake Shore Drive
WCHS 580 500 Charleston, W. Va.
WOBU, Inc., Ruffner Hotel
WCKY 1490 5000 Covington, Ky.
6th & Madison Sts.
WCLO 1200 100 Janesville, Wis.
200 E. Milwaukee St.
WCLS 1310 100 Joliet, Ill.
WCLS, Inc., 301 E. Jefferson St.
WCNW 1500 100 Brooklyn, N. Y.
Arthur Faske, 1525 Pitkin Ave.
WCOA 1340 500 Pensacola, Fla.
San Carlos Hotel
WCOC 880 500 Meridian, Miss.
Box 603
WCRW 1210 100 Chicago, Ill.
Clinton R. White, 2756 Pine Grove Ave.
WCSC 1360 500 Charleston, S. C.
Francis Marion Hotel
WCSH 940 1000 Portland, Me.
579 Congress St.
WDAE 1220 1000 Tampa, Fla.
Tampa Times Co., Tampa Terrace
WDAF 610 1000 Kansas City, Mo.
1729 Grand Ave.
WDAG 1410 1000 Amarillo, Texas
Box 306
WDAH 1310 100 El Paso, Texas
Box 1976
WDAS 1370 100 Philadelphia, Pa.
WDAS Brdcstg. Co., Inc., Broadwood Hotel
WDAY 940 1000 Fargo, N. D.
WDAY, Inc., Black Bldg., 118 Broadway
WDBJ 930 1000 Roanoke, Va.
Times World Corp., P. O. Box 150
WDBO 580 250 Orlando, Fla.
555 N. Orange Ave.
WDEL 1120 250 Wilmington, Del.
WDEL, Inc., 10th and King Sts.
WDEV 550 500 Waterbury, Vt.
Harry C. Whitehill, Stowe St.
WDGY 1180 1000 Minneapolis, Minn.
Dr. Geo. W. Young, 909 W. Broadway
WDNC 1500 100 Durham, N. C.
Washington Duke Hotel
WDOD 1280 1000 Chattanooga, Tenn.
WDOD Broadcasting Corp., Hotel Patten
WDRC 1330 1000 Hartford, Conn.
WDRC, Inc., Corning Bldg., 11 Asylum St.
WDSU 1250 1000 New Orleans, La.
Jos. H. Uhalt, Hotel Monteleone
WDZ 1070 100 Tuscola, Ill.
James L. Bush, Star Store Bldg.
WEAF 660 50000 New York, N. Y.
30 Rockefeller Plaza
WEAN 780 500 Providence, R. I.
New Crown Hotel
WEBC 1290 1000 Superior, Wis.
Spaulding Hotel, Duluth, Minn.
WEBQ 1210 100 Harrisburg, Ill.
100 E. Poplar St.
WEBR 1310 100 Buffalo, N. Y.
Howell Broadcasting Co., Inc., 735 Main
WEDC 1210 100 Chicago, Ill.
Emil Denemark, 3860 Ogden Ave.
WEED 1420 100 Rocky Mount, N. C.
Wm. Avera Wynne, Box 221
WEEI 590 1000 Boston, Mass.
182 Tremont St.
WEEU 830 1000 Reading, Pa.
Berks Broadcasting Co., 533 Penn.
WEHC 1350 500 Charlottesville, Va.
7th & Main Sts.
WEHS 1420 100 Cicero, Ill.
WEHS, Inc., 6138 W. Cermak Rd.
WELL 1420 50 Battle Creek, Mich.
Enquirer News, 38 W. State St.
WENR 870 50000 Chicago, Ill.
222 N. Bank Drive
WESG 1090 1000 Elmira, N. Y.
Mark Twain Hotel
WEVD 1300 500 New York, N. Y.
Jewish Daily Forward, Hotel Claridge
WEW 760 1000 St. Louis, Mo.
St. Louis University, 221 N. Grand Blvd.
WEXL 1310 50 Royal Oak, Mich.
212 W. 6th St.
WFAA 800 50000 Dallas, Texas
Baker Hotel
WFAB 1300 1000 New York, N. Y.
Fifth Avenue Broadcasting Corp.
WFAM 1200 100 South Bend, Ind.
South Bend Tribune, 225 W. Colfax Ave.
WFAS 1210 100 White Plains, N. Y.
Hotel Roger Smith
WFBC 1300 250 Greenville, S. C.
Imperial Hotel
WFBE 1200 100 Cincinnati, Ohio
WFBE, Inc., Hotel Sinton
WFBG 1310 100 Altoona, Pa.
Gable Broadcasting Co. 12th Av. & 13th St.
WFBL 1360 1000 Syracuse, N. Y.
Onondaga Hotel
WFBM 1230 1000 Indianapolis, Ind.
48 Monument Circle
WFBR 1270 500 Baltimore, Md.
7 St. Paul St.
WFDF 1310 100 Flint, Mich.
Union Industrial Bldg.
WFEA 1340 600 Manchester, N. H.
Carpenter Hotel
WFI 560 500 Philadelphia, Pa.
WFI Broadcasting Co., 801 Market

WFLA 620 1000 Clearwater, Fla.
Box 119

WGAL 1500 100 Lancaster, Pa.
WGAL, Inc., 8 W. King St.

WGAR 1450 500 Cleveland, Ohio
WGAR Broadcasting Co., Hotel Statler

WGBB 1210 100 Freeport, N. Y.
H. H. Carman, 64 S. Grove St.

WGBF 630 500 Evansville, Ind.
519 Vine St.

WGBI 880 500 Scranton, Pa.
116 N. Washington Ave.

WGCM 1210 100 Gulfport, Miss.
Great Southern Hotel

WGES 1360 500 Chicago, Ill.
128 N. Crawford Ave.

WGH 1310 100 Newport News, Va.
2813 Washington Ave.

WGL 1370 100 Fort Wayne, Ind.
F. C. Zieg, 213 W. Main St.

WGLC 1370 100 Hudson Falls, N. Y.
Colonial Display House

WGN 720 50000 Chicago, Ill.
WGN, Inc., Tribune Tower

WGNY 1210 100 Chester, N. Y.
Peter Goelet (Orange County)

WGPC 1420 100 Albany, Ga.
Rylander Theatre Bldg.

WGR 550 1000 Buffalo, N. Y.
Rand Bldg.

WGST 890 250 Atlanta, Ga.
Ansley Hotel

WGY 790 50000 Schenectady, N. Y.
1 River Road

WHA 940 2500 Madison, Wis.
University of Wisconsin

WHAM 1150 50000 Rochester, N. Y.
100 Carlson Road

WHAS 820 50000 Louisville, Ky.
300 W. Liberty St.

WHAT 1310 100 Philadelphia, Pa.
Public Ledger Bldg.

WHAZ 1300 500 Troy, N. Y.
8th St.

WHB 860 500 Kansas City, Mo.
WHB Broadcasting Co., Scarritt Bldg.

WHBC 1200 100 Canton, Ohio
Edw. P. Graham, 319 Tusc. St., W.

WHBD 1370 100 Mount Orab, Ohio
F. P. Moler

WHBF 1210 100 Rock Island, Ill.
Hotel Harms

WHBI 1250 1000 Newark, N. J.
100 Shipman St.

WHBL 1410 500 Sheboygan, Wis.
Press Publishing Co., Press Bldg.

WHBQ 1370 100 Memphis, Tenn.
Brdcstg. Sta. WNBQ, Inc., Hotel Claridge

WHBU 1210 100 Anderson, Ind.
Anderson Broadcasting Corp., Box 816

WHBY 1200 100 Green Bay, Wis.
WHBY, Inc., Bellin Bldg.

WHDF 1370 100 Calumet, Mich.
Box 643

WHDH 830 1000 Boston, Mass.
Matheson Radio Co., 62 Boylston

WHDL 1420 100 Tupper Lake, N. Y.
Iroquois Hotel

WHEB 740 250 Portsmouth, N. H.
Box 522, 39 Congress St.

WHEC 1430 500 Rochester, N. Y.
WHEC, Inc., 40 Franklin St.

WHEF 1500 100 Kosciusko, Miss.
417 W. Adams St.

WHFC 1420 100 Cicero, Ill.
WHFC, Inc., 6138 W. Cermak Road

WHIS 1410 250 Bluefield, W. Va.
Bland St.

WHJB 620 250 Greensburg, Pa.
Penna. Radio Supply House

WHK 1390 1000 Cleveland, Ohio
1311 Terminal Tower

WHN 1010 1000 New York, N. Y.
1540 Broadway

WHO 1000 50000 Des Moines, Iowa
Central Brdcstg. Co., 914 Walnut St.

WHOM 1450 250 Jersey City, N. J.
2870 Boulevard

WHP 1430 500 Harrisburg, Pa.
WHP, Inc., 216 Locust St.

WIBA 1280 1000 Madison, Wis.
111 King St.

WIBG 970 100 Glenside, Pa.
WIBG, Inc., Keswick Bldg.

WIBM 1370 100 Jackson, Mich.
WIBM, Inc., 306 W. Michigan Ave.

WIBU 1210 100 Poynette, Wis.
Wm. C. Forrest, R. F. D. No. 3

WIBW 580 1000 Topeka, Kans.
11th & Topeka Blvd.

WIBX 1200 100 Utica, N. Y.
WIBX, Inc., 1st Natl. Bank Bldg.

WICC 600 250 Bridgeport, Conn.
Southern Conn. Broadcasting Corp.

WIL 1200 100 St. Louis, Mo.
Melbourne Hotel

WILL 890 250 Urbana, Ill.
University of Illinois

WILM 1420 100 Wilmington, Del.
920 King St.

WIND 560 1000 Gary, Ind.
504 Broadway

WINS 1180 1000 New York, N. Y.
110 E. 58th St.

WIOD 1300 1000 Miami, Fla.
Herald Bldg.

WIP 610 500 Philadelphia, Pa.
Gimbel Bldg.

WIS 1010 1000 Columbia, S. C.
Station WIS, Inc., 1811 Main St.

WISN 1120 250 Milwaukee, Wis.
123 W. Michigan St.

WJAC 1310 100 Johnstown, Pa.
WJAC, Inc., Locust St.

WJAG 1060 1000 Norfolk, Neb.
Norfolk Daily News

WJAR 890 500 Providence, R. I.
Outlet Co., Weybossett St.

WJAS 1290 1000 Pittsburgh, Pa.
Chamber of Commerce Bldg.

WJAX 900 1000 Jacksonville, Fla.
City of Jacksonville

WJAY 610 500 Cleveland, Ohio
1224 Huron Road

WJBC 1200 100 Bloomington, Ill.
Kaskaskia Broadcasting Co.

WJBK 1500 100 Detroit, Mich.
6559 Hamilton Ave.

WJBL 1200 100 Decatur, Ill.
Gushard Bldg.

WJBO 1420 100 Baton Rouge, La.
Baton Rouge Broadcasting Co., Inc.

WJBW 1200 100 New Orleans, La.
C. C. Carlson, 2743 Dumaine St.

WJBY 1210 100 Gadsden, Ala.
Gadsden Broadcasting Co., 112 N. 8th St.

WJDX 1270 1000 Jackson, Miss.
Lamar Life Bldg.

WJEJ 1210 100 Hagerstown, Md.
Lovely Dame Bldg.

WJEM 990 500 Tupelo, Miss.
Britt A. Rogers, Jr.

WJIM 1210 100 Lansing, Mich.
Capital City Brdcstg. Co.

WJJD 1130 20000 Chicago, Ill.
WJJD, Inc., 201 N. Wells St.

WJMS 1420 100 Ironwood, Mich.
WJMS, Inc., St. James Hotel

WJR 750 10000 Detroit, Mich.
WJR, Inc., Fisher Bldg.

WJSV 1460 10000 Washington, D. C.
Shoreham Bldg.

WJTL 1370 100 Atlanta, Ga.
Oglethorpe University

WJW 1210 100 Akron, Ohio
WJW, Inc., 41 S. High St.

WJZ 760 50000 New York, N. Y.
30 Rockefeller Plaza

WKAQ 1240 1000 San Juan, P. R.
Radio Corp. of Porto Rico, P. O. Box 358

WKAR 1040 1000 East Lansing, Mich.
Michigan State College

WKBB 1500 100 East Dubuque, Ill.
Richard W. Hoffman

WKBF 1400 500 Indianapolis, Ind.
540 N. Meridian St.

WKBH 1380 1000 LaCrosse, Wis.
WKBH, Inc., 409 Main St.

WKBI 1420 100 Cicero, Ill.
WKBI Inc., 6138 W. Cermak Road

WKBN 570 500 Youngstown, Ohio
17 N. Champion St.

WKBO 1200 100 Harrisburg, Pa.
Penn Harris Hotel

WKBV 1500 100 Richmond, Ind.
Knox Radio Corp., Box 308

WKBW 1480 5000 Buffalo, N. Y.
Rand Bldg.

WKBZ 1500 100 Muskegon, Mich.
Karl L. Ashbacker & Sons

WKEU 1500 100 LaGrange, Ga.
Radio Station WKEU, 906 Hill St.

WKFI 1210 100 Greenwood, Miss.
J. Pat Scully, Box 302

WKJC 1200 100 Lancaster, Pa.
16 W. King St.

WKOK 1210 100 Sunbury, Pa.
1150 N. Front St.

WKRC 550 1000 Cincinnati, Ohio
WKRC, Inc., Hotel Alms

WKY 900 1000 Oklahoma City, Okla.
Plaza Court Bldg.

WKZO 590 1000 Kalamazoo, Mich.
John E. Fetzer, Burdick Hotel

WLAC 1470 5000 Nashville, Tenn.
159—4th Ave. No.

WLAP 1420 100 Lexington, Ky.
Main & Esplanade

WLB 1250 1000 Minneapolis, Minn.
University of Minnesota

WLBC 1310 100 Muncie, Ind.
D. A. Burton, Anthony Bldg.

WLBF 1420 100 Kansas City, Kans.
WLBF Broadcasting Co., Huron Bldg.

WLBL 900 2500 Stevens Point, Wis.
Wisconsin Dept. of Agriculture and Markets

WLBW 1260 1000 Erie, Pa.
Broadcasters of Pennsylvania, Inc.

WLBZ 620 500 Bangor, Me.
Maine Broadcasting Co., Inc., 100 Main

WLEU 1420 100 Erie, Pa.

WLIT 560 500 Philadelphia, Pa.
8th & Market Sts.

WLLH 1370 100 Lowell, Mass.
Albert S. Moffat, Box D

WLNH 1310 100 Laconia, N. H.
523 Main St.

WLS 870 50000 Chicago, Ill.
1230 W. Washington Blvd.

WLTH 1400 500 Brooklyn, N. Y.
305 Washington St.

WLVA 1200 100 Lynchburg, Va.
915 Main St.

WLW 700 50000 Cincinnati, Ohio
1329 Arlington St.

WLWL 1100 5000 New York, N. Y.
415 W. 59th St.

WMAL 630 250 Washington, D. C.
712—11th St., N. W.

WMAQ 670 5000 Chicago, Ill.
Merchandise Mart

WMAS 1420 100 Springfield, Mass.
WMAS, Inc., 70 Chestnut St.

WMAZ 1180 1000 Macon, Ga.
211 Cotton Ave.

WMBC 1420 100 Detroit, Mich.
7310 Woodward Ave.

WMBD 1440 500 Peoria, Ill.
114 N. Madison St.

WMBG 1210 100 Richmond, Va.
914 W. Broad St.

WMBH 1420 100 Joplin, Mo.
1334 Roosevelt St.

WMBI 1080 5000 Chicago, Ill.
153 Institute Place

WMBO 1310 100 Auburn, N. Y.
WMBO, Inc., Metcalf Bldg.

WMBQ 1500 100 Brooklyn, N. Y.
Paul J. Gollhofer, 95 Leonard St.

WMBR 1370 100 Jacksonville, Fla.
F. J. Reynolds, Carling Hotel

WMC 780 1000 Memphis, Tenn.
WMC, Inc., Hotel Gayoso

WMCA 570 500 New York, N. Y.
1697 Broadway

WMEX 1500 100 Chelsea, Mass.
The Northern Corp.

WMMN 890 250 Fairmount, W. Va.
A. M. Rowe, Inc., 325 Main St.

WMPC 1200 100 Lapeer, Mich.
81 Liberty St.

WMT 600 500 Waterloo, Iowa
3rd & Lafayette Sts.

WNAC 1230 1000 Boston, Mass.
21 Brookline Ave.

WNAD 1010 500 Norman, Okla.
University of Oklahoma

WNAX 570 1000 Yankton, S. D.
House of Gurney, Inc., 2nd and Capital St.

WNBF 1500 100 Binghamton, N. Y.
Arlington Hotel

WNBH 1310 100 New Bedford, Mass.
251 Union St.

WNBO 1200 100 Washington, Pa.
319 E. Beau St.

WNBR 1430 500 Memphis, Tenn.
Memphis Broadcasting Co., Hotel DeVoy

WNBX 1260 500 Springfield, Vt.
WNBX Broadcasting Corp., 39 Main St.
WNBZ 1290 50 Saranac Lake, N. Y.
Smith & Mace, 70 Broadway
WNEL 1290 500 San Juan, P. R.
Box 1252
WNEW 1250 1000 Newark, N. J.
Wodaam Corp., 1060 Broad
WNOX 560 1000 Knoxville, Tenn.
WNOX, Inc., Hotel Andrew Johnson
WNRA 1420 100 Muscle Shoals, Ala.
Kathryn Jones, P. O. Box 486, Sheffield, Ala.
WNYC 810 500 New York, N. Y.
Centre & Duane Sts.
WOAI 1190 50000 San Antonio, Texas
Southland Industries, Inc., 1038 Navarro
WOCL 1210 50 Jamestown, N. Y.
A. E. Newton, 840 N. Main St.
WOI 640 5000 Ames, Iowa
Iowa State College
WOKO 1430 500 Albany, N. Y.
WOKO, Inc., Hotel Ten Eyck
WOL 1310 100 Washington, D. C.
American Broadcasting Co., Annapolis Hotel
WOMT 1210 100 Manitowoc, Wis.
Francis M. Kadow, Box 326
WOOD 1270 500 Grand Rapids, Mich.
Grand Rapids Natl. Bank Bldg.
WOPI 1500 100 Bristol, Tenn.
22nd & State Sts.
WOR 710 5000 Newark, N. J.
147 Market St.
WORC 1280 500 Worcester, Mass.
Alfred F. Kleindienst, 60 Franklin St.
WORK 1320 1000 York, Pa.
York Broadcasting Co., 15 S. Beaver St.
WOS 630 500 Jefferson City, Mo.
State Highway Control, Capitol Bldg.
WOSU 570 750 Columbus, Ohio
Ohio State University
WOV 1130 1000 New York, N. Y.
16 E. 42nd St.
WOW 590 1000 Omaha, Neb.
Woodmen of the World, 4th and Farnam
WOWO 1160 10000 Fort Wayne, Ind.
Main Auto Supply Co., 213 W. Main
WPAD 1420 100 Paducah, Ky.
2201 Broadway
WPEN 920 100 Philadelphia, Pa.
22nd & Walnut Sts.
WPFB 1370 100 Hattiesburg, Miss.
Otis P. Eure, Box 530
WPG 1100 5000 Atlantic City, N. J.
Convention Hall
WPHR 880 100 Petersburg, Va.
WLBG, Inc., Medical Arts Bldg.
WPRO 630 250 Providence, R. I.
Cherry & Webb Brdcstg. Co., 15 Chestnut
WPTF 680 5000 Raleigh, N. C.
324 Fayetteville St.
WQAM 560 1000 Miami, Fla.
Miami Brdcstg. Co., Inc., 327 N. E. 1st Ave.
WQAN 880 250 Scranton, Pa.
Scranton Times, 149 Penn Ave.
WQBC 1360 500 Vicksburg, Miss.
Delta Broadcasting Co., Hotel Vicksburg
WQDM 1370 100 St. Albans, Vt.
42 N. Main St.
WQDX 1210 100 Thomasville, Ga.
Stevens Luke, 135 E. Jackson St.
WRAK 1370 100 Williamsport, Pa.
WRAK, Inc., 244 W. 4th St.

WRAW 1310 100 Reading, Pa.
Reading Broadcasting Co., 533 Penn St.
WRAX 920 250 Philadelphia, Pa.
WRAX Broadcasting Co., 217 S. Broad St.
WRBL 1200 100 Columbus, Ga.
Royal Theatre Bldg.
WRBX 1410 250 Roanoke, Va.
P. O. Box 2389
WRC 950 500 Washington, D. C.
National Press Bldg.
WRDO 1370 100 Augusta, Me.
WRDO, Inc., Augusta House
WRDW 1500 100 Augusta, Ga.
Virgil V. Evans Co., 309 8th St.
WREC 600 500 Memphis, Tenn.
WREC, Inc., Hotel Peabody
WREN 1220 1000 Lawrence, Kans.
Jenny Wren Co., 8th and Vermont St.
WRGA 1500 100 Rome, Ga.
10 Third Ave.
WRJN 1370 100 Racine, Wis.
Racine Broadcasting Corp., Hotel Racine
WROK 1410 500 Rockford, Ill.
109 So. Water St.
WROL 1310 100 Knoxville, Tenn.
Stuart Broadcasting Corp., 524 S. Gay
WRR 1280 500 Dallas, Texas
City of Dallas, Hilton Hotel
WRUF 830 5000 Gainesville, Fla.
State University
WRVA 1110 5000 Richmond, Va.
Larus & Bros Co., Inc., 22nd and Gary St.
WSAI 1330 1000 Cincinnati, Ohio
Crosley Radio Corp., 1329 Arlington
WSAJ 1310 100 Grove City, Pa.
Grove City College, 418 Poplar St.
WSAN 1440 250 Allentown, Pa.
WSAN, Inc., 39 10th St.
WSAR 1450 250 Fall River, Mass.
Academy of Music Bldg.
WSAZ 1190 1000 Huntington, W. Va.
WSAZ, Inc., P. O. Box 729
WSB 740 50000 Atlanta, Ga.
Atlanta Journal, 7 N. Forsyth St.
WSBC 1210 100 Chicago, Ill.
Gene T. Dyer, 1258 S. Michigan Ave.
WSBT 1360 500 South Bend, Ind.
South Bend Tribune, 225 W. Colfax Ave.
WSEN 1210 100 Columbus, Ohio
Columbus Broadcasting Corp., 144 S. High
WSFA 1410 500 Montgomery, Ala.
Jefferson Davis Hotel
WSGN 1310 100 Birmingham, Ala.
R. B. Broyles, Tutwiler Hotel
WSIX 1210 100 Springfield, Tenn.
638 Tire & Vulcanizing Co.
WSJS 1310 100 Winston-Salem, N. C.
Winston-Salem Journal Co., 416 N. Marshall
WSM 650 50000 Nashville, Tenn.
301—7th Ave. No.
WSMB 1320 500 New Orleans, La.
WSMB, Inc., Maison Blanche Bldg.
WSMK 1380 200 Dayton, Ohio
S. M. Krohn, Jr., 4th and Main St.
WSOC 1210 100 Charlotte, N. C.
WSOC, Inc., Box 730
WSPA 1420 100 Spartanburg, S. C.
Virgil V. Evans, Ravenel and Avant St.
WSPD 1340 1000 Toledo, Ohio
Toledo Broadcasting Co., 505 Jefferson
WSUI 880 500 Iowa City, Iowa
State University of Iowa

WSUN 620 1000 St. Petersburg, Fla.
Chamber of Commerce

WSVS 1370 50 Buffalo, N. Y.
666 E. Delavan Ave.

WSYB 1500 100 Rutland, Vt.
Philip Weiss Music Co., 80 West St.

WSYR 570 250 Syracuse, N. Y.
E. Onondaga & S. Warren Sts.

WTAD 1440 500 Quincy, Ill.
Illinois Brdcstg. Corp., State and 6th

WTAG 580 500 Worcester, Mass.
18 Franklin St.

WTAM 1070 50000 Cleveland, Ohio
1367 E. 6th St.

WTAQ 1330 1000 Eau Claire, Wis.
Gillette Rubber Co., Hotel Eau Claire

WTAR 780 500 Norfolk, Va.
WTAR Radio Corp., Wainwright Bldg.

WTAW 1120 500 College Station, Tex.
Agricultural and Mechanical College

WTAX 1210 100 Springfield, Ill.
WTAX, Inc., 416 E. Capitol Ave.

WTBO 800 250 Cumberland, Md.
Associated Brdcstg. Corp., Box 794

WTCN 1250 1000 Minneapolis, Minn.
Wesley Temple Bldg.

WTEL 1310 100 Philadelphia, Pa.
Broad & Erie Ave.

WTFI 1450 500 Athens, Ga.
133 E. Washington St.

WTIC 1040 50000 Hartford, Conn.
26 Grove St.

WTJS 1310 100 Jackson, Tenn.
Sun Publishing Co., Sun Bldg.

WTMJ 620 1000 Milwaukee, Wis.
The Journal Co., 333 W. State St.

WTNJ 1280 500 Trenton, N. J.
Trenton Brdcstg. Co., Stacy Trent Hotel

WTOC 1260 1000 Savannah, Ga.
Savannah Brdcstg. Co., P. O. Box 704

WTRC 1310 50 Elkhart, Ind.
Truth Radio Corp., Hotel Elkhart

WVFW 1400 500 Brooklyn, N. Y.
Paramount Brdcstg. Co., 1 Nevins St.

WWAE 1200 100 Hammond, Ind.
402 Hammond Bldg.

WWJ 920 1000 Detroit, Mich.
Evening News Assn., 616 Lafayette Blvd.

WWL 850 10000 New Orleans, La.
Loyola University, Roosevelt Hotel

WWNC 570 1000 Asheville, N. C.
Citizen Brdcstg. Co., Inc., Flatiron Bldg.

WWRL 1500 100 Woodside, N. Y.
4130—58th St.

WWSW 1500 100 Pittsburgh, Pa.
Hotel Schenley

WWVA 1160 5000 Wheeling, W. Va.
Hawley Bldg.

WXYZ 1240 1000 Detroit, Mich.
Madison Theatre Bldg.

W1XBS 1530 1000 Waterbury, Conn.
61 Leavenworth St.

W2XR 1550 1000 Long Island City, N. Y.
John V. L. Hogan

W6XAI 1550 1000 Bakersfield, Calif.
Pioneer Mercantile Co.

W9XBY 1530 1000 Kansas City, Mo.
First National Television Inc.

XEA 1060 125 Guadalajara, Jal.
Alberto Palos Souza, Apdo. 197

XEAA 920 200 Mexicali, B. C.
Apdo. 42

XEAE 980 250 Tijuana, B. C.
Apt. 42

XEAF 1080 750 Nogales, Son.
Francisco G. Elias, Hotel Central

XEAI 1240 100 Mexico City, D. F.
Carlos Gonzales Caballero, Insurgentes 366

XEAL 660 1000 Mexico City, D. F.
Apdo. 1903

XEAM 750 50 Nuevo Laredo, Tams.
Edificio Banco Longoria

XEAO 560 250 Mexicali, B. C.
Luis L. Castro, C. Altamirano 156

XEAW 950 10000 Reynosa, Tams.
Internacional Broadcasting Co., S. A.

XEAZ 1420 7 Leon, Guan.
Pocitos 47

XEB 1030 10000 Mexico City, D. F.
El Buen Tono, S. A., Apdo. 79-44

XEBC 760 2500 Agua Caliente, B. C.
Agua Caliente Hotel

XECW 1310 10 Mexico City, D. F.
Maria Elena Bravo de Cordero Ave. Juarez 104

XED 1160 500 Guadalajara, Jal.
Cia. Radiofonografica, Apdo. 197

XEE 1210 50 Durango, Dgo.
20 de Nov. 112 (Apdo. 148)

XEFA 1180 500 Mexico City, D. F.
Eduardo Limon Segul, Mediterraneo 236

XEFB 1420 100 Monterrey, N. L.
Jesus Quintanilla, P. O. Box 317

XEFC 1310 100 Merida, Yuc.
J. Molina Font. Calle 59, 517

XEFE 1370 100 Laredo, Tams.
R. T. Carranza, Km. 4 Carretera Laredo Mt.

XEFG 1100 250 Mexico City, D. F.
Ricardo Gonzales Montero, Tepic 48

XEFI 720 250 Chihuahua, Chih.
Feliciano Lopez Isles, Ap. 157

XEFJ 1210 100 Monterrey, N. L.
R. Junco de la Vega, P. O. Box 186

XEFO 940 5000 Mexico City, D. F.
Reforma No. 137

XEFV 1210 100 Jaurez, Chih.
J. Onofre Meza Ave., Tlaxcala 1013

XEFW 1310 70 Tampico, Tams.
J. E. Martinez, Salvador Diaz Miron 6

XEFZ 1370 100 Mexico City, D. F.
Manuel Zetina, Calzada Nonoalco 481

XEH 1150 250 Monterrey, N. L.
Tarnava y Cia, P. O. Box 147

XEI 1370 125 Morelia, Mich.
Carlos Gutierrez M., F. I. Madero 545

XEJ 1020 250 Juarez, Chih.
Juan G. Buttner, P. O. Box 111

XEK 990 100 Mexico City, D. F.
Arturo Martinez, Jalapa No. 51

XEKL 920 500 Leon, Guan.
5 de Mayo 26

XEMA 1080 50 Tampico, Tams.
Manuel M. Pier, Aretsanos 10

XEMO 860 1500 Tijuana, B. C.
Savoy Theatre Bldg., San Diego, Calif.

XEMZ 1210 30 Tijuana, B. C.
Adolfo Labsatida, Jr., Ave. D, 542

XEN 710 1000 Mexico City, D. F.
Cerveceria Modelo Ave. Juarez 77

XENT 1120 50000 Nuevo Laredo, Tams.
Box 410, Laredo, Texas

XEOK 920 2500 Tijuana, B. C.
Carlos de la Sierra, Calle 5 a 312

XEOX 640 250 Saltillo, Coah.
Victoria No. 4, Altos.

XEP 820 500 Mexico City, D. F.
Cia Difusora de Mexico S. A., Rembrandt 11
XEPN 590 50000 Piedras Negras, Coah.
Piedras Negras Brdcstg. Co., Madero 53
XES 970 250 Tampico, Tams.
Fernando Sada, Box 309
XET 690 500 Monterrey, N. L.
P. O. Box 203, Hidalgo
XETB 1310 125 Torreon, Coah.
Jose A. Berumen, R. Corona 317
XETH 1210 100 Puebla, Pue.
Ramon Huerta G., Calle 17, Oriente 11
XETW 820 500 Mexico City, D. F.
Rafael M. Pena, Ave. 16 de Sep. 83
XEU 980 250 Veracruz, Ver.
Fernando Pazos Sosa, Independencia 98
XEW 890 50000 Mexico City, D. F.
P. O. Box 2516
XEWZ 1150 100 Mexico City, D. F.
Medellin e Insurgentes
XEX 1310 125 Monterrey, N. L.
L. F. Petit Jean, P. O. Box 10
XEXX 850 500 Mexico City, D. F.
Av. Pino Suarez 9

XEYZ 780 10000 Mexico City, D. F.
Angel M. Diez, Ave. Juarez 48
XEZZ 1370 100 San Luis Potosi, SLP
Emilio Delgado R. Ave. Chicosein 32
XFA 1310 5 Aguascalientes Ags.
Apartado Postal 92
XFB 1270 1000 Jalapa, Ver.
Gobierno del Estado de Veracruz
XFC 810 350 Aguascalientes, Ags.
Gobierno del Estado de Aguascalientes
XFD 1340 350 Orizaba, Ver.
Gobierno Estado de Veracruz
XFO 940 5000 Mexico City, D. F.
Nat. Rev. Party, Ave. Morelos 110
XFX 610 1000 Mexico City, D. F.
Secretaria de Educacion Publica
10-AK 1200 15 Stratford, Ont.
M. I. Higgins, 151 Ontario St.
10-BP 1200 25 Wingham, Ont.
W. T. Cruickshank, Box 65
10-BQ 1200 15 Brantford, Ont.
12 Terrace Hill St.
10-BU 1200 50 Canora, Sask.
Canora Radio Assn.

THE MONTH'S CHANGES IN STATION DATA

POWER

630	WPRO	Providence, R. I. from 100
645	CMQ	Havana, Cuba, 500 to 340
730	CMK	Havana, Cuba, 2000 to 3150
780	CMBS	Havana, Cuba, 200 to 150
790	CMJK	Camaguey, Cuba, 500 to 150
925	CMCD	Havana, Cuba, 500 to 250
950	CMHD	Caibarien, Cuba, 500 to 250
1005	CMBZ	Havana, Cuba, 150 to 100
1010	CMBD	Ciego de Avila, Cuba, 250 to 150
1037	CMHI	Santa Clara, Cuba, 250 to 150
1100	CMCU	Havana, Cuba, 500 to 150
1103	CMHA	Sagua la Grande, Cuba, 500 to 50
1125	CMHJ	Cienfuegos, Cuba, 60 to 40
1140	CMCG	Havana, Cuba, 500 to 150
1145	CMCO	Havana, Cuba, 500 to 150
1185	CMBX	Havana, Cuba, 250 to 150
1185	CMCJ	Havana, Cuba, 500 to 400
1320	WSMB	New Orleans, La., 1000 to 500

DELETED

550	WSVA	Staunton, Va.
820	CMGC	Matanzas, Cuba
834	CMGA	Colon, Cuba
915	CMDE	Havana, Cuba
1140	CMBW	Havana, Cuba
1147	CMBJ	Havana, Cuba
1185	CMBN	Havana, Cuba
1205	CMGB	Matanzas, Cuba
1240	CMJN	Camaguey, Cuba
1249	CMAB	Pinar del Rio, Cuba
1290	CMHL	Cienfuegos, Cuba
1405	CMCM	Havana, Cuba
1410	CMCH	Havana, Cuba
1445	CMBL	Havana, Cuba
1485	CMBK	Havana, Cuba
1518	KIFS	Klamath Falls, Ore.

NEW

750	XEAM	Nuevo Laredo, Tams.
890	COA	Havana, Cuba
940	CMKM	Manzanillo, Cuba
1094	CMGI	Colon, Cuba
1100	COX	Havana, Cuba
1200	KADA	Ada, Okla.
1230	COK	Havana, Cuba
1245	CMHB	San Spiritus, Cuba
1363	CMKF	Holquin, Cuba

FREQUENCIES

550	KTSA	San Antonio, Texas, from 1290
565	TGW	Guatemala City, Guat., from 1350
720	KZEG	Manila, P. I., from 618.5
835	TIVL	San Jose, C. R., from 869
1320	WORK	York, Pa., from 1000
1340	KFPY	Spokane, Wash., from 890
1340	WFEA	Manchester, N. H., from 1430

CALLS

1210	WBRB	Red Bank, N. J., formerly WJBI
1250	WHBI	Newark, N. J., formerly WGCP
1250	WTCN	Minneapolis, Minn., formerly WRHM
1260	KPAC	Port Arthur, Texas, formerly KWWG
1370	WLLH	Lexington, Mass., formerly WLEY

LOCATIONS

1200	KGEK	Sterling, Colo., from Yuma, Colo.
1370	WLEY	Lowell, Mass., from Lexington, Mass.

CHAINS

1100	KWKH	Shreveport, La., new CBS
1380	WSMK	Dayton, Ohio, new CBS

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 GSB GSD W3XAU W8XK W9XF XETE	DJB GSB VK2ME W9XF	GSB VK2ME	RV15	DJA DJB PK1WK RV15 VK3LR	DJA DJB HVJ RV15 VK2ME VK3LR VK3ME	GSF GSG HSJ RV15 VK2ME VK3LR VK3ME W1XAZ ZGE ZHI	GSF GSG PHI Rabat RV15 VK2ME VK3LR W1XAZ ZGE W8XK	DJA DJB GSF GSG PHI Pont. Rabat VE9GW VK2ME W1XAZ W3XAL W8XK	DJA DJB GSE GSF PHI Pont. VE9GW W1XAZ W3XAL W8XK	DJA DJB GSE GSF GSG Pont. VE9GW W1XAL W1XAZ W3XAL W8XK	DJB GSB GSE I2RO Pont. VE9GW W1XAL W1XAZ 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
	DJC DJD EAQ GSE GSF I2RO Pont. VE9GW VUB W1XAL W2XE W3XAL W3XAU W3XL W8XK W9XAA	DJC DJD EAQ GSB GSD I2RO ORK OXY Pont. VE9GW W1XAZ W3XAL W3XAU W3XL W8XK W9XAA XEBT XETE	DJC DJD GSB GSD I2RO OXY Rabat VE9GW W1XAZ W3XAU W3XL W8XK W9XAA XEBT XETE	DJC DJD GSB GSD I2RO OXY Pont. Rabat RV59 VE9GW W1XAZ W2XE W3XAU W3XL W8XK W9XAA XEBT XETE	CT1AA DJC DJD GSB GSD I2RO OXY Pont. Rabat RV59 VE9GW W1XAZ W2XE W3XAU W3XL W8XK W9XF W9XAA XEBT XETE YV3RC	CT1AA DJC DJD EAQ GSB GSD HBL HBP HIZ HJ1ABB I2RO OXY Pont. RV59 VE9GW VE9HX W1XAL W1XAZ W2XE W3XAL W3XAU W8XK W9XF W9XAA XEBT XETE YV2RC YV3RC	COC CT1AA DJA DJD EAQ GSC GSD HBL HBP HC2RL HJ1ABB OXY Pont VE9GW VE9HX W1XAL W1XAZ W2XE W3XAL W8XK W9XAA W9XF XEBT XETE YV2RC YV3RC	COC DJA DJD GSC GSD HC2RL HJ1ABB HJ4ABE Pont. VE9GW VE9HX W1XAL W1XAZ W2XAF W2XE W3XAL W8XK W9XAA W9XF XEBT XETE YV2RC YV3RC	CJRO CJRX CP5 DJC DJD HCJB HC2RL HIX HJ1ABB 4ABE Pont. VE9CS VE9GW VE9HX W1XAL W1XAZ W2XAF W2XE W3XAL W3XAU W8XK W9XAA XEBT XETE YV2RC YV3RC	CJRO CJRX DJC DJD HCJB HC2RL HIX HJ1ABB HJ3ABD PRADO VE9CS VE9GW VE9HX W1XAL W1XAZ W2XAF W2XE W3XAL W3XAU W8XK W9XF W9XAA XEBT XETE YV2RC YV3RC	CJRO CJRX DJC DJD HC2RL Pont. PRADO VE9DN VE9GW VE9HX W1XAL W1XAZ W2XAF W2XE W3XAL W3XAU W8XK W9XAA W9XF XEBT XETE YV2RC	CJRO CJRX Pont. VE9DN W1XAZ W3XAL W3XAU W8XK W9XAA W9XF XETE

100 Best Shortwave Stations by Call Letters

Frequencies are given in megacycles and the time is Eastern Standard. In this list, the location of the transmitter is given.

Amateur phones are heard between
1.875 and 2.000 megs.
3.900 and 4.000 megs.
7.000 and 7.300 megs. (Foreign only).
14.150 and 14.250 megs.

Broadcast Pickup stations: 1.606; 1.622; 1.646; 2.102; 2.150; 2.190; 2.390.

CGA4, Drummondville, P. Q., 9.332. Phones London.

CJRO, Middlechurch, Man., 6.150. Relays Canadian Radio Com. programs, 8-11 p.m. and 11:30 to midnight.

CJRX, Middlechurch, Man., 11.720. Same schedule as CJRO, q. v.

COC, Havana, Cuba, 6.010. 4-6 p.m. daily.

CP5, La Paz, Bolivia, 6.080. 8-9 p.m.

CT1AA, Lisbon, Portugal, 9.600. Tues., Fri., 4:30-7 p.m.

DJA, Zeesen, Germany, 9.560. Sun., 4-5:30 a.m.; daily, 8-11 a.m. and 5:15-9:15 p.m.

DJB, Zeesen, Germany, 15.200. 12:15-2 a.m.; 8-11:30 a.m.; and Sunday, 4-5:30 a.m.

DJC, Zeesen, Germany, 6.020. Noon to 4:30 p.m.; 5:30-10:45 p.m.

DJD, Zeesen, Germany, 11.760. Noon to 4:30 p.m.; 5:30-10:45 p.m.

DJE, Zeesen, Germany, 17.760. Irregularly, Mornings.

EAQ, Aranjuez, Spain, 9.862. 5:30-7 p.m.; Sat. noon to 2 p.m.

GSA, Daventry, England, 6.050.

GSB, Daventry, England, 9.510. 12:15-2:15 a.m.; 1-5:30 p.m.

GSC, Daventry, England, 9.585. 6-8 p.m.

GSD, Daventry, England, 11.750. 12:15-2:15 a.m.; 1-5:30 p.m.; 6-8 p.m.

GSE, Daventry, England, 11.865. 10:45 a.m. to 12:45 p.m.

GSF, Daventry, England, 15.140. 6-8:30 a.m.; 8:45 a.m. to 12:45 p.m.

GSG, Daventry, England, 17.790. 6-10:45 a.m.

GSH, Daventry, England, 21.470.

HBL, Prangins, Switzerland, 9.595. Sat. 5:30-6:15 p.m.

HBP, Prangins, Switzerland, 7.797. Sat. 5:30-6:15 p.m.

HC2RL, Guayaquil, Ecuador, 6.659. Tues. 9:14-11:14 p.m.; Sun. 5:45-7:45 p.m.

HIX, Santo Domingo, D. R., 5.948. Tues. and Fri., 8-10 p.m.

HI1A, Santiago de los Caballeros, D. R., 7:30-9:30 p.m., and Special DX programs at 1 a.m. Sundays.

HJA2, Bogota, Colombia, 5.825.

HJA3, Barranquilla, Colombia, 12.830

HJB, Bogota, Colombia, 14.930.

HJ1ABB, Barranquilla, Colombia, 6.447. 5-10 p.m.

HJ2ABC, Cucuta, Norte de Santanter, Colombia, "La Voz de Cucuta," 5.975 megs. 6-9 p.m. daily exc. Sunday.

HJ3ABD, Bogota, Colombia, 7.406. "Colombia Broadcasting." 6-9 p.m. daily.

HJ3ABF, Bogota, Colombia, 6.200. "La Voz de Bogota." Daily 7-11 p.m.

HJ4ABE, Medellin, Colombia, 5.900. 7-11 p.m.

HPF, Panama City, Panama, 14.545. Phones Hialeah.

HSJ, Bangkok, Siam, 7.980.

HVJ, Vatican City, 15.120. 5-5:15 a.m. daily except Sunday. Occasionally from 10-10:30 a.m.

I2RO, Cecchignola, Italy, 11:30 a.m. to 12:30 p.m.; 1:15 to 6 p.m. "Radio Roma-Napoli."

JVE, Nazaki, Japan, 15.650. Phone.

JVL, Nazaki, Japan, 6.750. Phones California.

JVM, Nazaki, Japan, 10.740. Phones California.

JVN, Nazaki, Japan, 10.660. Phones England.

JVQ, Nazaki, Japan, 7.470. Phone.

JVS, Nazaki, Japan, 15.620. Phone.

JVT, Nazaki, Japan, 6.680. Phone.

JYK, Kemikawa-Cho, Chiba-Ken, Japan, 13.610. 4-8 a.m.

JYM, Kemikawa-Cho, Chiba-Ken, Japan, 11.660. 4-8 a.m.

JYR, Kemikawa-Cho, Chiba-Ken, Japan, 7.880. 4-8 a.m.

JYS, Kemikawa-Cho, Chiba-Ken, Japan, 15.620. 4-8 a.m.

JYT, Kemikawa-Cho, Chiba-Ken, Japan, 15.762. 4-8 a.m.

KAY, Manila, P. I., 14.980. Phones Dixon.

KKH, Kahuku, T. H., 7.520. Phones Dixon.

KFZ, Main Base, Little America, 5.740; 6.650; 6.660; 6.670; 8.820; 8.840; 11.850; 13.185; 13.200; 13.245; 13.260.

KKP, Kahuku, T. H., 16.030. Phones Dixon.

KNRA, "Seth Parker", 6.160; 6.660; 6.670; 8.230; 8.820; 8.840; 13.200

POSTSCRIPTS *from our* READERS' LETTERS

"With the wonderful help of RADEX, your splendid, up-to-the-minute radio publication, I have succeeded in bringing in many broadcasting stations I would not have been able to log otherwise."

Walter W. Erneman, 108 Seventh Ave., Belmar, N. J.

"For the fourth consecutive year, please enter my subscription to the 'One and Only' RADEX. Perhaps you can imagine what a great deal of pleasure I get out of RADEX when I tell you that I have been confined to my bed for nearly five years. My radio is my best pal and without RADEX, it wouldn't be nearly as enjoyable."

R. N. Putnam, 920 12th Ave., N., Fargo N. Dak.

"I have found RADEX to be the most reliable magazine that I have ever used."

L. L. Baker, Elk Ridge, Md.

"Please renew my subscription to RADEX. I could not enjoy my radio without it."

Otto Schmidt, 3811 Bonaventure St., N. S., Pittsburgh, Pa.

"I should like to express my sincere appreciation of your magazine, RADEX. It is unquestionably the only publication which satisfies the needs of the experienced DXer. This is the only magazine I subscribe to but I must have RADEX."

Sheridan H. Martin, 100 W. Washington St., Pasadena, Calif.

"If the end-of-the-month American mail did not bring RADEX, it would be a bigger tragedy than if no American verifications arrived."

A. Merwyn Branks, Winton, Southland, New Zealand.

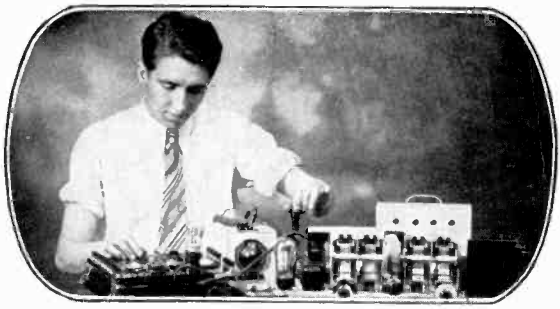
"As long as I can get it, I never intend to be without RADEX. It certainly is a wonderful magazine."

A. E. Thompson, Windham, N. Y.

"I consider RADEX as a part of my radio. Without it I would be lost. Thanks to such a fine magazine for all of its valuable information."

Merle Leavitt, 57½ North Front St., Richmond, Maine.

KWO, Dixon, Calif., 15.415. Phones Hawaii and Manila.
KWU, Dixon, Calif., 15.355. Phones Japan.
KWX, Dixon, Calif., 7.610. Phones Hawaii.
LSX, Monte Grande, Argentina, 10.350. Broadcasts 3-4 and 8-9 p.m. daily; Phones New York and Byrd.
ORK, Ruysselede, Belgium. 10.330. Noon to 2 p.m.
PHI, Hilversuum, Netherlands, 17.775. 7-10:30 a.m.
Police Stations, on frequencies: 1.596; 1.634; 1.642; 1.658; 1.666; 1.674; 1.682; 1.706; 1.712; 2.382; 2.406; 2.414; 2.416; 2.422; 2.430; 2.442; 2.450; 2.452; 2.458; 2.466; 2.474; 2.482; 2.490.
PRADO, Riobamba, Ecuador, 6.618. Thurs., 9-11:30 p.m.
Also Sundays, 5-6 p.m., about 19 meters.
Radio Colonlale, Pontoise, France, 11.711, 3-6 p.m.; 6:15-9 p.m.; 10 p.m. to midnight.
11.898, 3-6 p.m.;
15.234, 8-11 a.m.
RKI, Moscow, U.S.S.R., 7.520. Phones USA. (Replaces RNE temporarily).
RNE, Moscow, U.S.S.R., 12.000. Temporarily off the air.
RV15, Khabarovsk, U.S.S.R., 4.273. 3-9 a.m.
RV59, Moscow, U.S.S.R., 5.996. 3-6 p.m.
TGW, Guatemala City, Guatemala, 5.940. Supposed to commence tests soon.
VE9BJ, St. John, N. B, 6.090. Irregular.
VE9DN, Drummondville, P. Q., 6.005.
VE9GW, Bowmanville, Ont., 6.095. Fri., Sat., 8-noon; Sun., noon to 9 p.m.; other days, 2-11 p.m. Relays CRCT and Canadian Radio Commission programs.
VE9HX, Halifax, N. S., 6.110. 5-11 p.m.
VK2ME, Pennant Hills, Australia, 9.585. Mid. to 2 a.m. and 4:30-8:30 a.m., Sundays only.
VK3LR, Melbourne, Australia, 9.580. Daily exc. Sun., 4-8 a.m.
VK3ME, Braybank, Australia, 9.503. Wed., 5-6:30 a.m.; Sat. 5-7 a.m.
VUB, Bombay, India, 9.565. Testing from noon to 1 p.m.
WOO, Ocean Gate, N. J., 4.273; 4.753; 8.560; 12.840. Phones Ships.
W1XAL, Boston, Mass., 11.790. Sat., 5:30-11 p.m.; Sun., 6:30-8:30 p.m. 15.250, Sun., 10 a.m. to 1 p.m.
W1XAZ, Millis, Mass., 9.570. 6 a.m. to midnight.
W2XAD, Schenectady, N. Y., 15.340. Sun., Mon., Wed., Fri., 4-5 p.m.
W2XAF, Schenectady, N. Y., 9.530. 7:40-11 p.m.
W2XE, Wayne, N. J., 6.120. 6-11 p.m. 11.830. 3-5 p.m. 15.270. 11 a.m. to 1 p.m.
W3XAL, Boundbrook, N. J., 6.100. Mon., Wed., Sat., 5 p.m. to midnight. 17.780. Daily exc. Fri., 8 a.m. to 2 p.m.
W3XAU, Newton Sq., Pa., 6.060. 8 p.m. to 1 a.m. 9.590. Noon to 6 p.m.
W3XL, Boundbrook, N. J., 17.310. Fri., 11 a.m. to 5 p.m.
W4XB, Miami, Fla., 6.040. 4 p.m. to 1 a.m.; (Not heard now, probably off the air).
W8XAL, Mason, Ohio, 6.060. Irregular.
W8XK, Saxonburg, Pa., 6.140. 4:30 p.m. to 12:30 a.m. 11.870. 4:30-10 p.m. 15.210. 10 a.m. to 5:15 p.m. 21.540. 7 a.m. to 2 p.m.
W9XAA, Chicago, Ill., 6.080. Sun., 11:30 a.m. to 9 p.m. Tues., Thur., Sat., 4-12 p.m. Mon., Wed., Fri., 4:30-7 p.m.
W9XF, Downer's Grove, Ill., 6.100. Daily exc. Sat. and Sun., 4:30-8 p.m.; 9:30 p.m. to 2 a.m. Sunday, 4:30-7 p.m. and 9 p.m. to 2 a.m.
XEBT, Mexico City, D. F., 6.010. Relays XEB, 10 a.m. to 11 p.m.
XETE, Mexico City, D. F., 9.600. 1 p.m. to 1 a.m.
XGL, Shanghai, China, 7.960.
XGN, Shanghai, China, 16.380.
XGO, Shanghai, China, 7.575.
YDA, Bandoeng, Java, 6.116. A NIROM station.
YNA, Managua, Nicaragua, 14.480. Phones Hialeah.
YVQ, Maracay, Venezuela, 6.672. Relays Caracas BC stations occasionally.
YVR, Maracay, Venezuela, 9.168. Phones Madrid.
YVQ, Maracay, Venezuela, 6.672.
YV2RC, Caracas, Venezuela, 6.112. 5:15-10 p.m.
YV3RC, Caracas, Venezuela, 6.150. 5-10 p.m.
YV4RC, Caracas, Venezuela, 5.990.
YV5RMO, Maracay, Venezuela, 6.070. and 9.600.
YV6RV, Valencia, Venezuela, 6.030 "La Voz de Carabobo." The Venezuelan Network includes stations YV3RC, YV4RC, YV5RMO and YVQ.
ZFB, St. George, Bermuda, 10.060.
ZFS, Nassua, Bahamas, 4.513.



Sometimes I think there ought to be a law to make everyone do a little studying every week. I didn't think that a year ago because it looked like all the cards were stacked against me. But I am surely making good money now. Maybe my story will show you the way to larger earnings also.

I Thought Radio Was a Plaything

But Now My Eyes Are Opened, and I'm Making Over $50.00 a Week!

$50 a week! Man alive, a year ago I thought anyone making that much was just plain lucky.

Twelve months ago I was just barely getting by. It was the same old story—a little job; a salary as small as the job.

If you had told me that twelve months later I would be making $50 a week in my own Radio business—I'd have thought you were crazy.

But I am getting ahead of my story—let me tell you how it all started. I was hard up a year ago because I had been kidding myself—that's all—not because I had to be. I thought a fellow either had to be lucky or have a string of college degrees a half a mile long to make good money.

One day I picked up a magazine and the headline of an ad attracted me because it seemed to fit my case. It said, "I will show you how to start a spare time or full time Radio service business of your own WITHOUT CAPITAL."

"They're trying to kid somebody," I thought, "but I'll find out what it is all about anyway."

I wrote in and within a few days received a 64-page book telling about the opportunities in Radio, how I could prepare right at home in my spare time, and how they would show me how to start making money in my neighborhood selling and repairing Radio sets. It would probably have sounded too good to be true if the promises had not been backed up by nearly 100 letters from fellows who had taken their Course and were very enthusiastic about it.

What has happened since seems almost like a dream to me now. I started to take their Course and soon I was ready to start making money in my neighborhood—as much as $5 and $15 a week. It wasn't long until I had saved enough money to start a little business of my own.

That business has since grown to the point where I am clearing an average of $50 a week. All this took place under the watchful guidance of my friends at the National Radio Institute. They also offered to train me for other lines—in case I wasn't interested in having my own business. Broadcasting stations, Radio Manufacturers, Operating on Board Ship, Servicing Sets, Aviation Radio, Television, Short Wave, Automobile and Police Radio are other fields their training covers. And to think, until the day I wrote for that book, I'd been wailing, "I have never had a chance—will never have one because I have no pull and have never had the advantage of a good education!"

Friend—you may not be as bad off as I was—but think it over—are you satisfied? Are you making as much money as you need? Would you sign a contract to stay where you are for the next ten years at the same salary? Those are the things you have to think about—because no one is going to make it his business to push you ahead—you must make it your own business.

Take my tip—write for their book. It won't cost you anything—except a postage stamp. It shows you a lot of things which I don't believe you know now—a lot of facts and figures on the opportunities in this new, fast-growing field. Where the jobs are, what they pay, how to get ready for one. Beginners as well as experienced men are making as much as $1,000 to $2,000 a year more as a result of N. R. I. training. You place yourself under no obligation because the book is free and is gladly sent to anyone who is ambitious and wants to get ahead. Just address J. E. Smith, President National Radio Institute, Dept. 4KO, Washington, D. C.

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