



BURGESS INDEX of RADIO BROADCASTING STATIONS

Record & Atlas

Published by

BURGESS BATTERY COMPANY

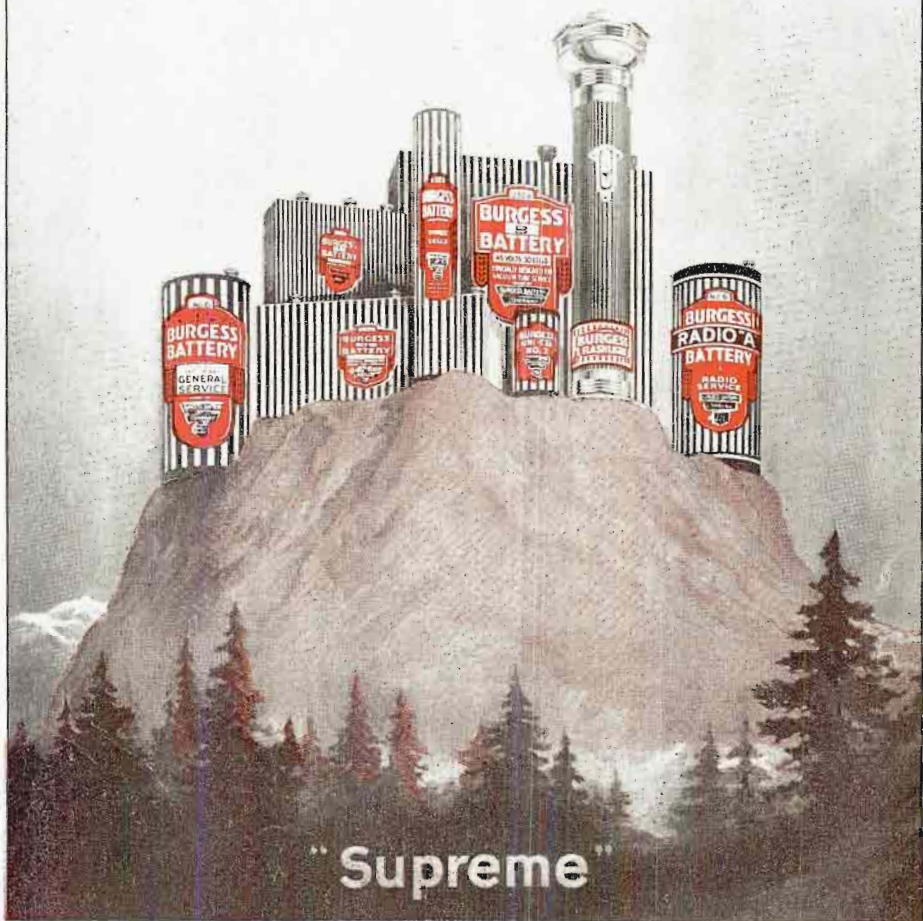
Price 25¢



BURGESS

BATTERIES

Flashlight - Radio - Ignition



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CONCERNING

BURGESS BATTERIES

The unique position of esteem and confidence occupied by Burgess Radio Batteries is a natural development of the conservative policy which has characterized the manufacture, advertising and sale of Burgess products.

Of interest, perhaps, to the thinking battery buyer is the fact that no Burgess product is advertised or sold until its merit has been proven, not only by our own rigid tests, but also those of the foremost radio engineers, manufacturers and experimenters in the country.

Through friendly criticism and suggestions, together with extensive research and engineering by the C. F. Burgess Laboratories, the efficiency of Burgess Batteries has increased to a degree which we believe is not equalled elsewhere.

Ask Any Radio Engineer

BURGESS BATTERY COMPANY

ENGINEERS - - **DRY BATTERIES** - - MANUFACTURERS

FLASHLIGHT - - RADIO - - IGNITION - - TELEPHONE

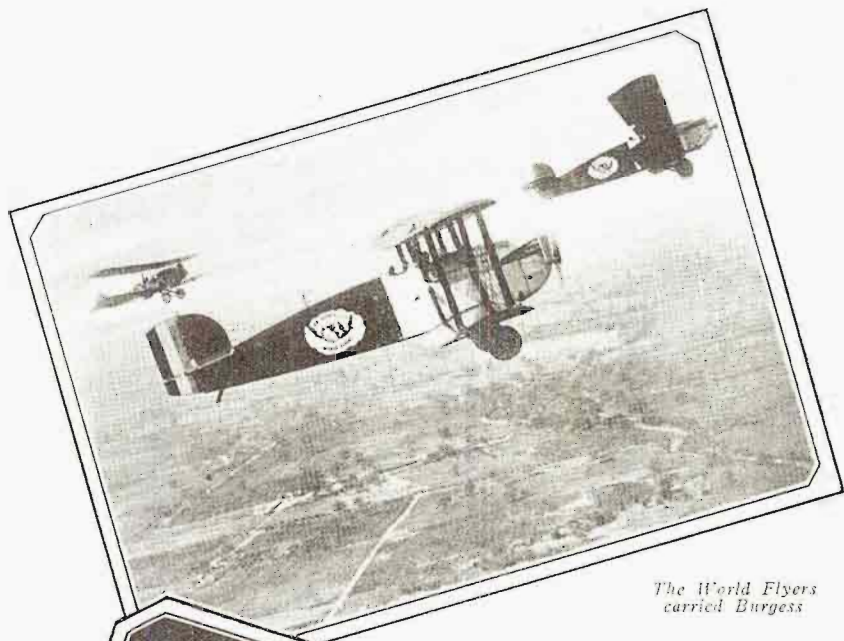
GENERAL SALES OFFICE: HARRIS TRUST BUILDING, CHICAGO
LABORATORIES AND WORKS: MADISON, WISCONSIN

BRANCHES

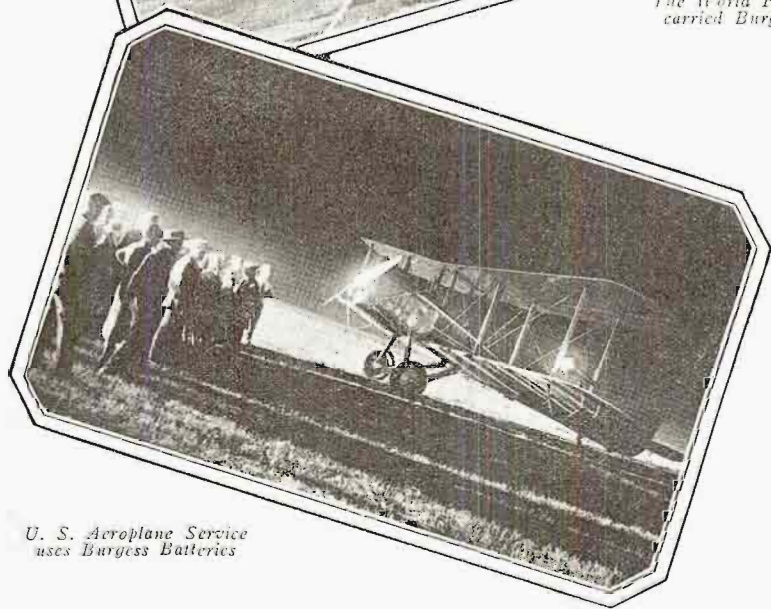
NEW YORK BOSTON KANSAS CITY MINNEAPOLIS
WASHINGTON PITTSBURGH ST. LOUIS NEW ORLEANS

IN CANADA

PLANTS: NIAGARA FALLS AND WINNIPEG
BRANCHES: TORONTO - MONTREAL - ST. JOHN



*The World Flyers
carried Burgess*

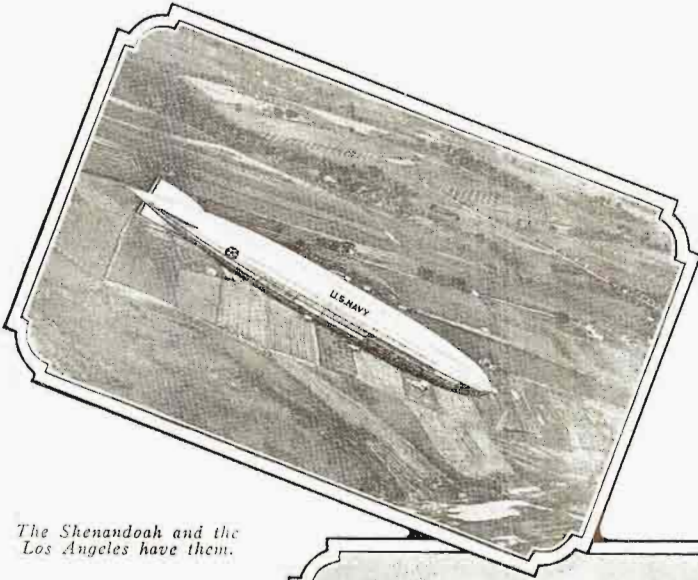


*U. S. Aeroplane Service
uses Burgess Batteries*

UNITED STATES BROADCASTING STATIONS

Call Letters—Meters Wave Length—Location—Owner

KDKA	309.1	East Pittsburgh, Pa.	Westinghouse Electric Mfg. Co.
KDLR	231	Devils Lake, N. D.	Radio Electric Co.
KDPM	250	Cleveland, Ohio.	Westinghouse Electric Mfg. Co.
KDYL	305.9	Salt Lake City, Utah.	Newhouse Hotel.
KDZB	240	Bakersfield, Cal.	Frank E. Siefert.
KFAB	340.7	Lincoln, Nebr.	Nebraska Buick Auto Co.
KFAD	273	Phoenix, Ariz.	McArthur Bros. Mercantile Co.
KFAE	348.6	Pullman, Wash.	State College of Washington.
KFAF	278	Denver, Colo.	Western Radio Corp.
KFAJ	261	Boulder, Colo.	University of Colorado.
KFAN	231	Moscow, Idaho.	University of Idaho.
KFAU	275	Boise, Idaho.	Boise High School.
KFAW	280	Santa Ana, Cal.	The Radio Den.
KFBB	275	Havre, Mont.	F. A. Buttrey & Co.
KFBC	278	San Diego, Cal.	W. K. Azbill.
KFBG	250	Tacoma, Wash.	First Presbyterian Church.
KFBK	283	Sacramento, Cal.	Kimball-Upson Co.
KFBL	224	Everett, Wash.	Leese Brothers.
KFCB	238	Phoenix, Ariz.	Nielsen Radio Supply Co.
KFCC	248	Helena, Mont.	First Congregational Church.
KFCF	256	Walla Walla, Wash.	Frank A. Moore.
KFCY	252	Le Mars, Iowa.	Western Union College.
KFDD	275	Boise, Idaho.	St. Michaels Cathedral.
KFDH	258	Tucson, Ariz.	University of Arizona.
KFDJ	254	Corvallis, Ore.	Oregon Agricultural College.
KFDM	315.6	Beaumont, Tex.	Magnolia Petroleum Co.
KFDX	250	Shreveport, La.	First Baptist Church.
KFDY	273	Brookings, S. D.	S. D. State Coll. of Agri. and Mech. Arts.
KFDZ	231	Minneapolis, Minn.	Harry O. Iverson.
KFEC	248	Portland, Ore.	Meier & Frank Co.
KFEL	254	Denver, Colo.	Winner Radio Corp.
KFEQ	268	Oak, Nebr.	Seroggin & Co., Bank.
KFEY	233	Kellogg, Idaho.	Bunker Hill & Sullivan Min. & Con. Co.
KFFP	266	Moberly, Mo.	First Baptist Church.
KFFV	250	Lamoni, Iowa.	Graceland College.
KFGC	268	Baton Rouge, La.	Louisiana State University.
KFGD	252	Chickasha, Okla.	Oklahoma College for Women.
KFGH	273	Stanford Univ. Cal.	Leland Stanford Jr., University.
KFGQ	226	Boone, Iowa.	Crary Hardware Co.
KFGX	250	Orange, Texas.	First Presbyterian Church.
KFHA	252	Gunnison, Colo.	Western State College of Colorado.
KFHL	240	Oskaloosa, Iowa.	Penn College.
KFI	468.5	Los Angeles, Cal.	Earl C. Anthony, Inc.
KFIF	248	Portland, Oreg.	Benson Polytechnical Institute.
KFIO	266	Spokane, Wash.	North Central High School.
KFIQ	256	Yakima, Wash.	First Methodist Church.
KFIU	226	Juneau, Alaska.	Alaska Electric Light & Power Co.
KFIZ	273	Fond du Lac, Wis.	Daily Commonwealth & Seifert Rad. Corp.
KFJB	248	Marshalltown, Iowa.	Marshall Electric Co.
KFJC	218.8	Junction City, Kan.	R. B. Fegan (Auspices Episcopal Ch.)
9EK		Madison, Wis. (Amateur Station).	Burgess Battery Co.
9XH		Madison, Wis. (Amateur Station).	Burgess Battery Co.
4DM		Burgess Is., Bokeelia, Fla. (Am. Sta.).	Burgess Bat. Co.



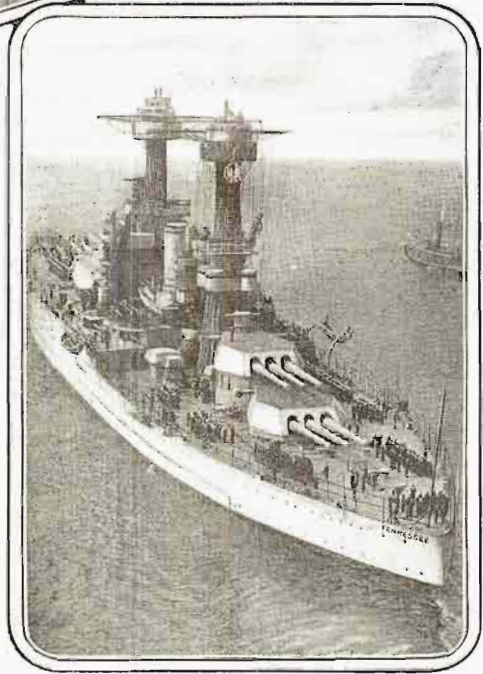
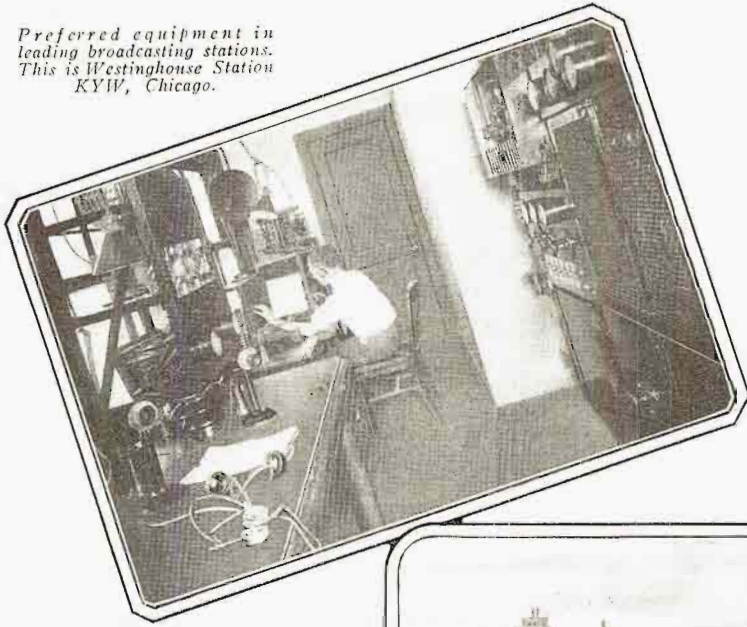
*The Shenandoah and the
Los Angeles have them.*



*McMillan carries them to
the Arctic*

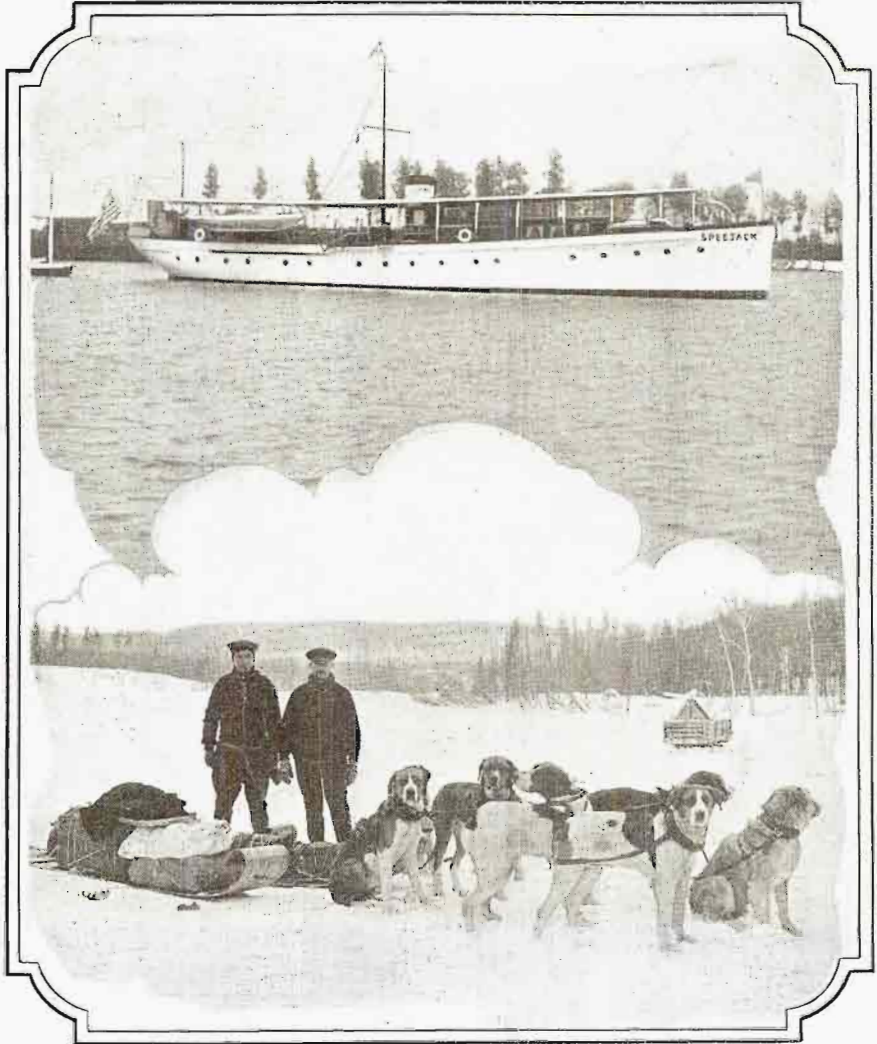
KFJF	261	Oklahoma City, Okla. National Radio Manufacturing Co.
KFJI	252	Astoria, Oreg. Liberty Theatre.
KFJM	278	Grand Forks, N. D. University of North Dakota.
KFJR	263	Portland, Oreg. Ashley C. Dixon & Son.
KFJX	258	Cedar Falls, Iowa. Iowa State Teachers' College.
KFJY	246	Fort Dodge, Iowa. Tunwall Radio Co.
KFKA	273	Greeley, Colo. Colorado State Teachers' College.
KFKQ	250	Conway, Ark. Conway Radio Laboratories.
KFKU	275	Lawrence, Kans. University of Kansas.
KFKX	288.3	Hastings, Nebr. Westinghouse Electric & Mfg. Co.
KFKZ	226	Kirksville, Mo. F. M. Henry.
KFLP	256	Cedar Rapids, Iowa. Everette M. Foster.
KFLR	254	Albuquerque, N. Mex. University of New Mexico.
KFLU	236	San Benito, Texas. San Benito Radio Club.
KFLV	229	Rockford, Ill. Swedish Evangelist Missionary Church.
KFLX	240	Galveston, Tex. George R. Clough.
KFLZ	273	Atlantic, Iowa. Atlantic Automobile Co.
KFMQ	299.8	Fayetteville, Ark. University of Arkansas.
KFMR	261	Sioux City, Iowa. Morningside College.
KFMT	263	Minneapolis, Minn. George W. Young.
KFMW	266	Houghton, Mich. M. G. Sateren.
KFMX	336.9	Northfield, Minn. Carleton College.
KFNF	266	Shenandoah, Iowa. Henry Field Seed Co.
KFNJ	234	Warrensburg, Mo. Central Miss. State Teachers' College.
KFNV	227	Santa Rosa, Cal. L. A. Drake Battery & Radio Sta. Co.
KFOA	384.4	Seattle, Wash. Rhodes Department Store.
KFOL	234	Marengo, Iowa. Leslie M. Schafbuch.
KFON	234	Long Beach, Cal. Echophone Radio Shop.
KFOO	261	Salt Lake City, Utah. Latter Day Saints University.
KFOR	226	David City, Nebr. D. C. Tire & Electric Co.
KFOT	231	Wichita, Kans. College Hill Radio Club.
KFOX	248	Omaha, Nebr. Technical High School.
KFOY	252	St. Paul, Minn. Beacon Radio Service.
KFPG	238	Los Angeles, Cal. Oliver S. Garretson.
KFPL	252	Dublin, Texas. C. C. Baxter.
KFPM	242	Greenville, Texas. New Furniture Co.
KFPR	231	Los Angeles, Cal. Los Angeles County Forestry Dept.
KFPW	268	Cartersville, Mo. St. Johns Church.
KFPY	266	Spokane, Wash. Symons Investment Co.
KFQA	261	St. Louis, Mo. The Principia.
KFQB	254	Fort Worth, Tex. Searchlight Publishing Co.
KFQC	231	Taft, Cal. Kidd Bros. Radio Shop.
KFQH	231	Burlingame, Cal. Radio Service Co.
KFQP	224	Iowa City, Iowa. George S. Carlson, Jr.
KFQT	252	Denison, Texas. Texas National Guard, 36th Signal Corps.
KFQU	234	Holy City, Cal. W. Riker.
KFQW	215.7	North Bend, Wash. Knierim Pho. Radio Electric Shop.
KFQY	273	Belden, Nebr. Farmers State Bank.
KFQZ	240	Hollywood, Cal. Taft Radio Co.
KFRB	248	Beeville, Texas. Hall Bros.
KFRC	268	San Francisco, Cal. City of Paris Dry Goods Co.
KFRL	240	Grand Forks, N. Dak. First Presbyterian Church.
KFRM	263	Fort Sill, Okla. Lieutenant James P. Boland.
KFRU	394.5	Bristow, Okla. Etherical Studios.
KFRW	220	Olympia, Wash. United Churches of Olympia.
KFRX	217	Pullman, Wash. J. Gordon Klemgard.
KFRY	266	State Coll., N. Mex. N. M. Coll. of Agri. and Mech. Arts.

*Preferred equipment in
leading broadcasting stations.
This is Westinghouse Station
KYW, Chicago.*



*The U. S. Navy uses Burgess
Radio Batteries*

KFRZ	222	Hartington, Nebr. Electric Shop.
KFSG	278	Los Angeles, Cal. Echo Park Evang. Association.
KFSY	248	Helena, Mont. Van Blaricom Co.
KFUJ	242	Breckenridge, Minn. Hopper Plumbing & Heating Co.
KFUL	258	Galveston, Texas. T. Goggan & Bro. Music Co.
KFUM	242	Colorado Springs, Colo. W. D. Corley.
KFUO	545.1	St. Louis, Mo. Concordia College.
KFUP	234	Denver, Colo. Fitzsimons General Hospital.
KFUR	224	Ogden, Utah. H. W. Perry & C. Redfield.
KFUS	233	Oakland, Cal. Louis L. Sherman.
KFUT	261	Salt Lake City, Utah. University of Utah.
KFUU	224	San Leandro, Cal. Colburn Radio Laboratories.
KFUV	252	Springfield, Mo. G. Pearson Ward.
KFUY	254	Butte, Mont. Irvine H. Bouchard.
KFUZ	248	Virginia, Minn. Y. M. C. A.
KFVC	242	Camden, Ark. Bensberg's Music Co.
KFVD	205.4	San Pedro, Cal. McWhinnie Electric Co.
KFVE	240	St. Louis, Mo. Film Corporation of America.
KFVF	208.2	Hollywood, Cal. Clarence B. Juneau.
KFVG	236	Independence, Kans. First M. E. Church.
KFVI	248	Houston, Texas. Headquarters Troop, 56th Cavalry Brig.
KFVK	248	Sacramento, Cal. Sacramento Chamber of Commerce.
KFVL	231	Vancouver, Wash. Vancouver Barracks.
KFVN	227	Welcome, Minn. Carl E. Bagley.
KFVR	246	Denver, Colo. Moonlight Ranch Broadcasting Station.
KFVS	224	Cape Girardeau, Mo. Cape Girardeau Battery Station.
KFVU	209.7	Eureka, Cal. The Radio Shop.
KFVW	246	San Diego, Cal. Airfan Radio Corp.
KFVX	236	Bentonville, Ark. Radio Shop.
KFVY	250	Albuquerque, N. Mex. Radio Supply Co.
KFWA	214.2	Ogden, Utah. Browning Bros. Co.
KFWB	252	Hollywood, Cal. Warner Bros. Pictures, Inc.
KFWD	266	Arkadelphia, Ark. Arkansas Light & Power Co.
KFWF	214.2	St. Louis, Mo. St. Louis Truth Center.
KFWH	254	Chico, Cal. F. Wellington Morse, Jr.
KFWI	220	South San Francisco, Calif. Radio Entertainments (Inc.).
KFWM	206.8	Oakland, Calif. Oakland Educational Society.
KFWO	211.1	Avalon, Calif. Lawrence Mott.
KFWP	214.2	Brownsville, Texas. Rio Grande Radio Supply House.
KFWU	238	Pineville, La. Louisiana College.
KGB	250	Tacoma, Wash. Tacoma Daily Ledger.
KGO	361.1	Oakland, Cal. General Electric Co.
KGTT	234	San Francisco, Calif. Glad Tidings Tabernacle.
KGU	270	Honolulu, Hawaii. Marion A. Mulrony.
KGW	491.5	Portland, Oreg. Portland Morning Oregonian.
KGY	246	Lacey, Wash. St. Martins College.
KHJ	405.2	Los Angeles, Cal. Times-Mirror Co.
KHQ	273	Seattle, Wash. Louis Wasmer.
KJBS	236	San Francisco, Cal. Julius Brunton & Sons Co.
KJR	384.4	Seattle, Wash. Northwest Radio Service Co.
KJS	293.9	Los Angeles, Cal. Bible Institute of Los Angeles.
KLDS	268	Independence, Mo. Church of Latter Day Saints.
KLS	242	Oakland, Cal. Warner Bros. Radio Supply Co.
KLX	508.2	Oakland, Cal. Tribune Publishing Co.
KLZ	283	Denver, Colo. Reynolds Radio Co.
KMJ	248	Fresno, Cal. San Joaquin Light & Power Corp.
KMO	250	Tacoma, Wash. Love Electric Co.



(Above) *They roamed the seas in the Speejack radio room.*
(Below) *Dogs carry them to the Arctic outposts of civilization.*

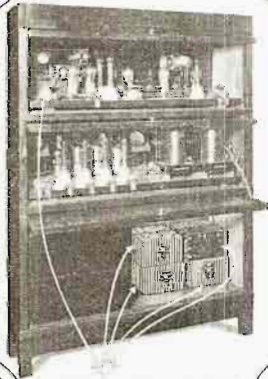
KNX	336.9	Los Angeles, Cal.	Los Angeles Express.
KOA	322.4	Denver, Colo.	General Electric Co.
KOB	348.6	State Coll., N. Mex.	N. M. Coll. of Agri. and Mech. Arts.
KOCH	258	Omaha, Nebr.	Omaha Central High School.
KOIL	278	Council Bluffs, Iowa.	Monarch Manufacturing Co.
KOP	278	Detroit, Mich.	Detroit Police Dept.
KPO	428.3	San Francisco, Cal.	Hale Bros.
KPPC	229	Pasadena, Cal.	Pasadena Presbyterian Church.
KPRC	296.9	Houston, Texas.	Houston Post-Dispatch.
KPSN	315.6	Pasadena, Calif.	Pasadena Star-News.
KQP	270	Hood River, Oreg.	Apple City Radio Club.
KQV	275	Pittsburgh, Pa.	Doubleday-Hill Elec. Co.
KRE	275	Berkeley, Cal.	Berkeley Daily Gazette.
KSAC	340.7	Manhattan, Kan.	Kansas State Agricultural College.
KSD	545.1	St. Louis, Mo.	Post Dispatch.
KSL	299.8	Salt Lake City, Utah.	Radio Service Corp. of Utah.
KTAB	215.7	Oakland, Calif.	Tenth Avenue Baptist Church.
KTCL	305.9	Seattle, Wash.	American Radio Tel. Co., Inc.
KTHS	374.8	Hot Springs, Ark.	New Arlington Hotel Co.
KTW	445	Seattle, Wash.	First Presbyterian Church.
KUO	246	San Francisco, Cal.	Examiner Printing Co.
KUOM	244.8	Missoula, Mont.	State University of Montana.
KWG	248	Stockton, Cal.	Portable Wireless Tel. Co.
KWKC	236	Kansas City, Mo.	Wilson Duncan Studios.
KWKH	273	Shreveport, La.	The W. K. Henderson Iron Wks. & Sup. Co.
KWWG	278	Brownsville, Tex.	City of Brownsville.
KYW	535.4	Chicago, Ill.	Westinghouse Electric & Mfg. Co.
KZKZ	270	Manila, P. I.	Electrical Supply Co.
KZM	242	Oakland, Cal.	Preston D. Allen.
KZRQ	222	Manila, P. I.	Far Eastern Radio, Inc.
WAAB	268	New Orleans, La.	Valdemar Jensen.
WAAC	275	New Orleans, La.	Tulane University.
WAAD	258	Cincinnati, Ohio.	Ohio Mechanics Institute.
WAAF	278	Chicago, Ill.	Chicago Daily Drivers Journal.
WAAM	263	Newark, N. J.	I. R. Nelson Co.
WAAW	278	Omaha, Nebr.	Omaha Grain Exchange.
WABA	227	Lake Forest, Ill.	Lake Forest University.
WABB	266	Harrisburg, Pa.	Harrisburg Sporting Goods Co.
WABI	240	Bangor, Me.	Bangor Ry. & Elec. Co.
WABN	244	La Crosse, Wis.	Ott Radio, Inc.
WABO	278	Rochester, N. Y.	Lake Avenue Baptist Church.
WABQ	261	Haverford, Pa.	Haverford College Radio Club.
WABR	263	Toledo, Ohio.	Scott High School.
WABU	226	Camden, N. J.	Victor Talking Machine Co.
WABW	206.8	Wooster, Ohio.	College of Wooster.
WABX	254	Mt. Clemens, Mich.	Henry B. Joy.
WABY	242	Philadelphia, Pa.	John Magaldi, Jr.
WABZ	263	New Orleans, La.	Coliseum Place Baptist Church.
WAFD	233	Port Huron, Mich.	Albert B. Parfet Co.
WAHG	315.6	Richmond Hill, N. Y.	A. H. Grebe & Co.
WAIT	229	Taunton, Mass.	A. H. Waite & Co.
WAMD	244	Minneapolis, Minn.	Stanley Hubbard.
WBAA	273	West Lafayette, Ind.	Purdue University.
WBAK	275	Harrisburg, Pa.	Pennsylvania State Police.
WBAO	275	Decatur, Ill.	James Millikin University.
WBAP	475.9	Fort Worth, Tex.	Wortham-Carter Publishing Co.
WBAV	293.9	Columbus, Ohio.	Erner & Hopkins Co.



President Coolidge



H. R. H. The Prince of Wales.

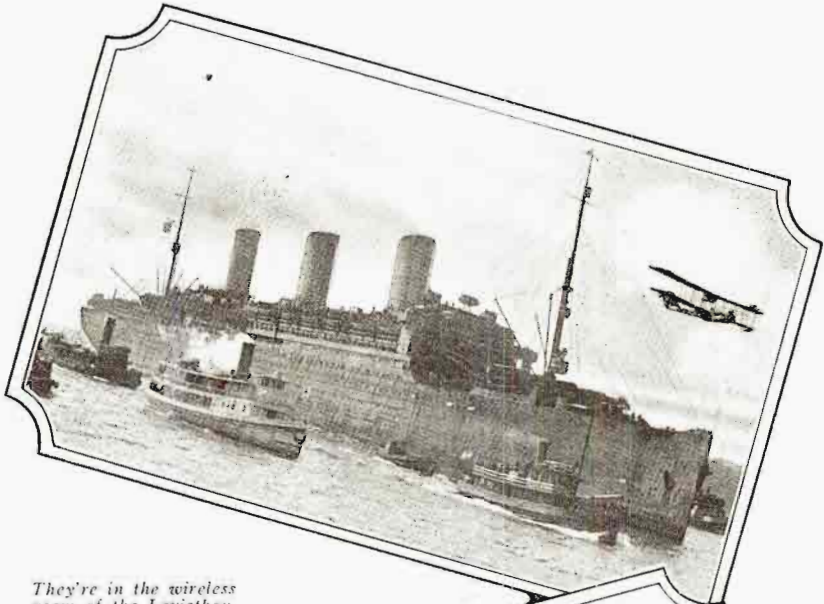


The transmitter that sent the first photos ever sent by RADIO from London to New York. Batteries for energizing the tubes are shown in the lower shelves of the cabinet.

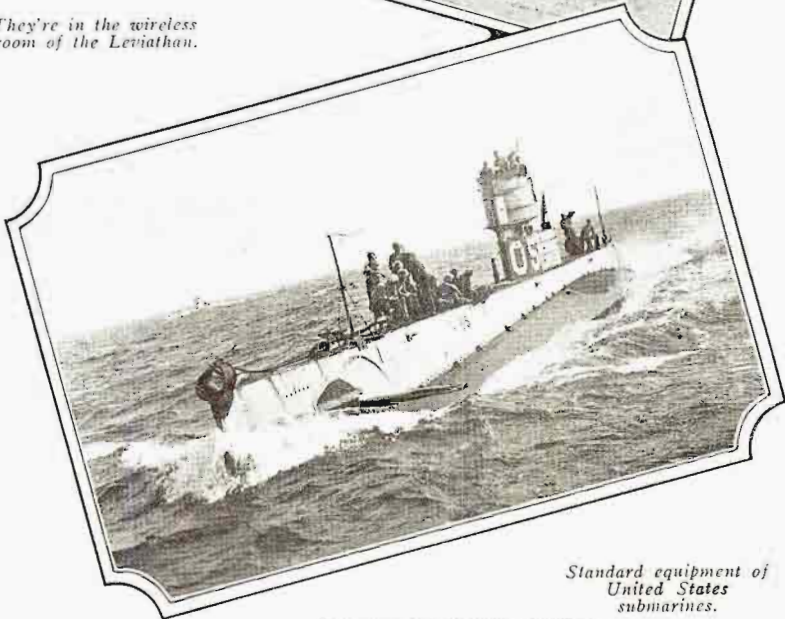


General view obtained through the courtesy of the Radio Corporation of America. Captain Richard Ranger of the R. C. A., inventor of the apparatus, is seen placing film upon drum of transmitter.

WBAX	256	Wilkes-Barre, Pa. John H. Stenger, Jr.
WBBA	226	Newark, Ohio. Plymouth Congregational Church.
WBBG	248	Mattapoisett, Mass. Irving Vermilya.
WBBL	229	Richmond, Va. Grace Covenant Church.
WBBM	226	Chicago, Ill. H. Leslie Atlass.
WBBP	214.2	Petoskey, Mich. Petosky High School.
WBBR	273	Rossville, N. Y. Peoples Pulpit Assn.
WBBS	252	New Orleans, La. First Baptist Church.
WBBU	224	Monmouth, Ill. Jenks Motor Sales Co.
WBBV	248	Johnstown, Pa. Johnstown Radio Co.
WBBW	222	Norfolk, Va. Ruffner Junior High School.
WBBY	268	Charleston, S. C. Washington Light Infantry.
WBCN	266	Chicago, Ill. Foster & McDonnell.
WBDC	256	Grand Rapids, Mich. Baxter Laundry Co.
WBES	222	Takoma Park, Md. Bliss Electrical School.
WBOQ	236	Richmond Hill, N. Y. A. H. Grebe & Co., Inc.
WBRC	248	Birmingham, Ala. Bell Radio Corp.
WBRE	231	Wilkes-Barre, Pa. Baltimore Radio Exchange.
WBT	275	Charlotte, N. C. Southern Radio Corp.
WBZ	331.1	Springfield, Mass. Westinghouse Electric & Mfg. Co.
WCAC	275	Mansfield, Conn. Connecticut Agricultural College.
WCAD	263	Canton, N. Y. St. Lawrence University.
WCAE	461.3	Pittsburgh, Pa. Kaufmann & Baer Co.
WCAG	268	New Orleans, La. Clyde R. Randall.
WCAH	266	Columbus, Ohio. Entrekin Electric Co.
WCAJ	275	University place, Nebr. Nebraska Wesleyan Univ.
WCAL	336.9	Northfield, Minn. St. Olaf College.
WCAO	275	Baltimore, Md. Sanders & Stayman Co.
WCAP	468.5	Washington, D. C. Chesapeake & Potomac Tel. Co.
WCAR	263	San Antonio, Tex. Southern Radio Corp. of Texas.
WCAT	240	Rapid City, S. D. South Dakota School of Mines.
WCAU	278	Philadelphia, Pa. Durham & Co.
WCAX	250	Burlington, Vt. University of Vermont.
WCAY	266	Milwaukee, Wis. Milwaukee Civic Broadcasting Assn.
WCAZ	246	Carthage, Ill. Carthage College.
WCBA	254	Allentown, Pa. C. W. Heimbach Repair Shop.
WCBC	229	Ann Arbor, Mich. University of Michigan.
WCBD	344.6	Zion, Ill. Wilbur G. Voliva.
WCBE	263	New Orleans, La. Uhalt Bros. Radio Co.
WCBG	268	Pascagoula, Miss. (portable). Howard S. Williams.
WCBH	242	Oxford, Miss. (near). University of Mississippi.
WCBM	229	Baltimore, Md. Hotel Chateau.
WCBR	205.4	Providence, R. I. (portable). Charles H. Messter.
WCBT	238	Worcester, Mass. Clark University.
WCBU	220	Arnold, Pa. Arnold Wireless Supply Co.
WCCO	416.4	Minneapolis, Minn. Washburn-Crosby Co.
WCEE	275.1	Elgin, Ill. (near). Charles E. Erbstein.
WCK	273	St. Louis, Mo. Stix, Baer & Fuller Dry Goods Co.
WCM	268	Austin, Tex. Texas Markets and Warehouse Dept.
WCSh	256	Portland, Me. Congress Square Hotel Co.
WCSo	248	Springfield, Ohio. Wittenberg College.
WCTS	268	Worcester, Mass. C. T. Sherer Co.
WCX	516.9	Detroit, Mich. Detroit Free Press.
WDAE	273	Tampa, Fla. Tampa Daily News.
WDAF	365.6	Kansas City, Mo. Kansas City Star.
WDAG	263	Amarillo, Tex. J. Laurance Martin.
WDAH	268	El Paso, Tex. Trinity Methodist Church (South).



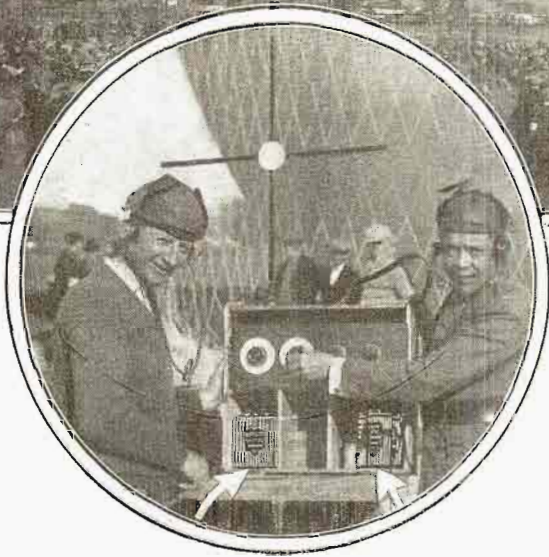
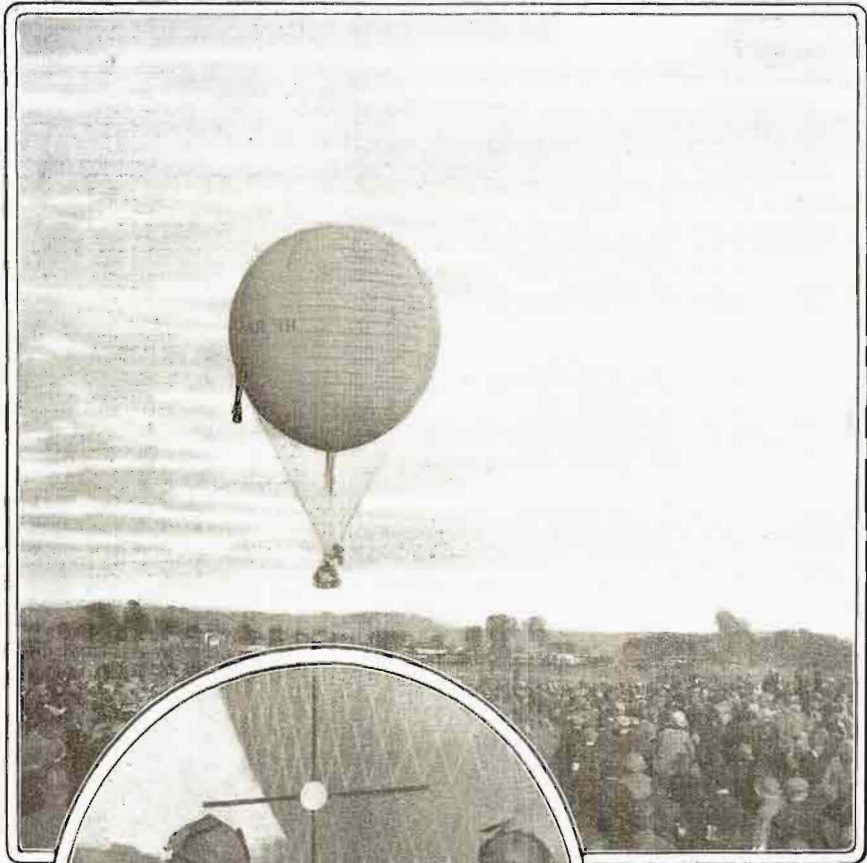
They're in the wireless room of the Leviathan.



Standard equipment of United States submarines.

Underwood & Underwood Photos.

WDAY	244	Fargo, N. D. Radio Equipment Corp.
WDBC	258	Lancaster, Pa. Kirk, Johnson & Co.
WDBE	278	Atlanta, Ga. Gilham-Schoen Electric Co.
WDBJ	229	Roanoke, Va. Richardson-Wayland Electric Co.
WDBK	227	Cleveland, Ohio. M. F. Broz Radio Store.
WDBO	240	Winter Park, Fla. Rollins College.
WDBQ	234	Salem, N. J. Morton Radio Supply Co.
WDBR	256	Boston, Mass. Tremont Temple Baptist Church.
WDBX	233	New York, N. Y. Otto Baur.
WDBY	258	Chicago, Ill. North Shore Congregational Church.
WDBZ	233	Kingston, N. Y. Boy Scouts of America.
WDOD	256	Chattanooga, Tenn. Chattanooga Radio Co.
WDWF	440.9	Cranston, R. I. Dutee W. Flint.
WDZ	278	Tuscola, Ill. James L. Bush.
WEAA	234	Flint, Mich. Frank D. Fallain.
WEAF	491.5	New York, N. Y. American Telephone & Telegraph Co.
WEAH	268	Wichita, Kan. Wichita Board of Trade.
WEAI	254	Ithaca, N. Y. Cornell University.
WEAJ	278	Vermillion, S. D. University of South Dakota.
WEAM	261	N. Plainfield, N. J. Borough of N. Plainfield.
WEAN	270	Providence, R. I. Shepard Co.
WEAO	293.9	Columbus, Ohio. Ohio State University.
WEAR	389.4	Cleveland, Ohio. Goodyear Tire & Rubber Co.
WEAU	275	Sioux City, Iowa. Davidson Bros. Co.
WEAY	270	Houston, Texas. Iris Theatre.
WEBA	233	Highland Park, N. J. The Electric Shop.
WEBC	242	Superior, Wis. Walter C. Bridges.
WEBD	246	Anderson, Ind. Electrical Equipment & Service Co.
WEBE	234	Cambridge, Ohio. Roy W. Waller.
WEBH	370.2	Chicago, Ill. Edgewater Beach Hotel Co.
WEBJ	273	New York, N. Y. Third Ave. Railway Co.
WEBK	242	Grand Rapids, Mich. Grand Rapids Radio Co.
WEBL	226	New York, N. Y. Radio Corp. of America (portable).
WEBM	226	New York, N. Y. Radio Corp. of America (portable).
WEBQ	226	Harrisburg, Ill. Tate Radio Co.
WEBR	244	Buffalo, N. Y. H. H. Howell.
WEBT	256	Dayton, Ohio. Dayton Cooperative Industrial School.
WEBW	268	Beloit, Wis. Beloit College.
WEBZ	234	Savannah, Ga. Savannah Radio Corp.
WEEI	475.9	Boston, Mass. Edison Electrical Illuminating Co.
WEHS	202.6	Evanston, Ill. Evanston Township High School.
WEMC	285.5	Berrien Springs, Mich. Emmanuel Missionary College.
WENR	266	Chicago, Ill. All-American Radio Corp.
WEW	248	St. Louis, Mo. St. Louis University.
WFAA	475.9	Dallas, Texas. Dallas News & Dallas Journal.
WFAM	273	St. Cloud, Minn. Times Publishing Co.
WFAV	275	Lincoln, Nebr. University of Nebraska.
WFBC	250	Knoxville, Tenn. First Baptist Church.
WFBD	234	Philadelphia, Pa. Gethsemane Baptist Church.
WFBE	226	Seymour, Ind. John Van de Walle.
WFBG	278	Altoona, Pa. William F. Gable Co.
WFBH	273	New York, N. Y. Concourse Radio Corp.
WFBI	236	Camden, N. J. Galvin Radio Corp.
WFBJ	236	Collegeville, Minn. St. John's University.
WFBL	252	Syracuse, N. Y. Onondaga Hotel.
WFBM	268	Indianapolis, Ind. Merchants Heat & Light Co.
WFBN	226	Bridgewater, Mass. Radio Sales & Service Co.



The illustration pictures the take-off of the winning flight at St. Louis. Insert is the radio equipment carried. (Burgess "A," "B" and "C" Batteries furnished the electrical energy to operate the set.)

WFBQ	252	Raleigh, N. C. Wynne Radio Co.
WFBR	254	Baltimore, Md. 5th Infantry, Maryland National Guard.
WFBY	258	Fort Benj. Harrison, Ind. U. S. Army, 5th Corp Area.
WFBZ	254	Galesburg, Ill. Knox College.
WFI	394.5	Philadelphia, Pa. Strawbridge & Clothier.
WFKB	217.5	Chicago, Ill. Francis Bridgman.
WGAL	248	Lancaster, Pa. Lancaster Electric Supply & Cons. Co.
WGAZ	275	South Bend, Ind. South Bend Tribune.
WGBA	254	Baltimore, Md. Jones Electric & Radio Mfg. Co.
WGBB	244	Freeport, N. Y. Harry H. Carman.
WGBC	266	Memphis, Tenn. First Baptist Church.
WGBD	256	Spring Valley, Ill. Hub Radio Shop and Valley Theatre.
WGBF	217.3	Evansville, Ind. Finke Furniture Co.
WGBG	226	Thrifton, Va. Breitenbach's Radio Shop.
WGBI	240	Scranton, Pa. Frank S. Megargee.
WGBK	248	Johnstown, Pa. Lawrence W. Campbell.
WGBL	227	Elyria, Ohio. Elyria Radio Association.
WGBM	234	Providence, R. I. Theodore N. Saaty.
WGBQ	234	Menomonie, Wis. Stout Institute.
WGBR	229	Marshfield, Wis. Marshfield Broadcasting Association.
WGBS	315.6	New York, N. Y. Gimbel Bros.
WGBT	236	Greenville, S. C. Furman University.
WGBU	384.4	Miami, Fla. Florida Cities Finance Co.
WGBX	252	Orono, Me. University of Maine.
WGCP	252	Newark, N. J. D. W. May.
WGES	250	Oak Park, Ill. Coyne Electrical School.
WGHP	270	Detroit, Mich. George H. Phelps, Inc.
WGI	261	Medford Hillside, Mass. American Radio & Res'rch Corp.
WGMU	236	Richmond Hill, N. Y. (portable). A. H. Grebe & Co.
WGN	370.2	Chicago, Ill. The Tribune (Drake Hotel).
WGR	319	Buffalo, N. Y. Federal Tel. Mfg. Corp.
WGST	270	Atlanta, Ga. Georgia School of Tech.
WGY	379.5	Schenectady, N. Y. General Electric Co.
WHA	535.4	Madison, Wis. University of Wisconsin.
WHAD	275	Milwaukee, Wis. Marquette University.
WHAG	233	Cincinnati, Ohio. University of Cincinnati.
WHAM	278	Rochester, N. Y. University of Rochester.
WHAP	240	Brooklyn, N. Y. H. Alvin Simmons.
WHAR	275	Atlantic City, N. J. Seaside Hotel.
WHAS	399.8	Louisville, Ky. Courier-Journal & Times.
WHAV	266	Wilmington, Del. Wilmington Elec. Spec. Co.
WHAZ	379.5	Troy, N. Y. Rensselaer Poly. Tech. Institute.
WHB	365.6	Kansas City, Mo. Sweeney School Co.
WHBA	250	Oil City, Pa. Shaffer Music House.
WHBB	240	Stevens Point, Wis. Hebal's Store.
WHBC	254	Canton, Ohio. Rev. E. P. Graham.
WHBD	222	Bellefontaine, Ohio. Chas. W. Howard.
WHBF	222	Rock Island, Ill. Beardsley Specialty Co.
WHBG	231	Harrisburg, Pa. John S. Skane.
WHBH	222	Culver, Ind. Culver Military Academy.
WHBJ	234	Fort Wayne, Ind. Lauer Auto Co.
WHBK	231	Ellsworth, Me. Franklin Street Garage, Inc.
WHBL	220	Logansport, Ind. James H. Slusser.
WHBM	233	Chicago, Ill. C. L. Carroll (Port. Sta.).
WHBN	258	St. Petersburg, Fla. First Ave. Methodist Church.
WHBP	256	Johnstown, Pa. Johnstown Auto. Co.
WHBQ	233	Memphis, Tenn. St. John's M. E. Church, South.

WHBR	215.7	Cincinnati, Ohio. Scientific Electric & Mfg. Co.
WHBV	244	Columbus, Ga. Fred Ray's Radio Shop.
WHBY	250	West De Pere, Wis. St. Norbert's College.
WHDI	278	Minneapolis, Minn. Dunwoody Industrial Institute.
WHEC	258	Rochester, N. Y. Hickson Electric Co., Inc.
WHK	273	Cleveland, Ohio. Radiovox Co.
WHN	361.2	New York, N. Y. George Schubel.
WHO	526	Des Moines, Iowa. Bankers Life Co.
WHT	238	Deerfield, Ill. Radiophone Broadcasting Corp.
WHT	399.8	Deerfield, Ill. Radiophone Broadcasting Corp.
WIAD	250	Philadelphia, Pa. Howard R. Miller.
WIAS	254	Burlington, Iowa. Home Electric Co.
WIBC	222	St. Petersburg, Fla. Tate Post 39, Vet. of Foreign Wars.
WIBD	200	Joliet, Ill. X-L Radio Service.
WIBE	209.7	Martinsburg, W. Va. Martinsburg Radio Broadcasting Co
WIBG	222	Elkins Park, Pa. St. Paul's Protestant Episcopal Church,
WIBH	209.7	New Bradford, Mass. Elite Radio Stores.
WIBI	218.8	Flushing, L. I., N. Y. Frederick B. Zittel, Jr.
WIBJ	215.7	Chicago, Ill. C. L. Carroll.
WIBK	205.4	Toledo, Ohio. University of the City of Toledo.
WIBL	215.7	Joliet, Ill. McDonald Radio Co.
WIBO	226	Chicago, Ill. Nelson Brothers.
WIBR	246	Weirton, W. Va. Thurman A. Owings.
WIBT	211.1	New York, N. Y. (portable). Orlando E. Miller.
WIBU	222	Poynette, Wis. The Electric Farm.
WIBV	263	Henderson, N. C. Jewell Radio Co.
WIBW	220	Logansport, Ind. L. L. Dill.
WIBX	205.4	Utica, N. Y. Grid-Leak (Inc.).
WIL	273	St. Louis, Mo. Benson Radio Co.
WIP	508.2	Philadelphia, Pa. Gimbel Bros.
WJAD	352.7	Waco, Texas. Jackson Radio Engineering Laboratories.
WJAG	270	Norfolk, Nebr. Norfolk Daily News.
WJAK	254	Greentown, Ind. Clifford L. White.
WJAM	268	Cedar Rapids, Iowa. W. D. M. Perham.
WJAR	305.9	Providence, R. I. The Outlet Co.
WJAS	275	Pittsburgh, Pa. Pittsburgh Radio Supply House.
WJAZ	268	Chicago, Ill. (portable). Zenith Radio Corp.
WJBA	206.8	Joliet, Ill., 301 Whitley Ave. D. H. Lentz, Jr.
WJBC	234	La Salle, Ill. Hummer Furniture Co.
WJBD	233	Ashland, Wis. Ashland Broadcasting Comm.
WJBI	214.2	Joliet, Ill. H. M. Couch.
WJD	217.3	Granville, Ohio. Denison University.
WJJD	302.8	Mooseheart, Ill. Supreme Lodge, Loyal Order of Moose.
WJY	405.2	New York, N. Y. Radio Corporation of America.
WJZ	454.3	New York, N. Y. Radio Corporation of America.
WKAA	278	Cedar Rapids, Iowa. H. F. Paar.
WKAD	240	East Providence, R. I. Chas Loeff (Crescent Park).
WKAP	234	Cranston, R. I. Dutee W. Flint.
WKAQ	340.7	San Juan, P. R. Radio Corporation of Porto Rico.
WKAR	285.5	East Lansing, Mich. Michigan Agricultural College.
WKAV	254	Laconia, N. H. Laconia Radio Club.
WKBE	231	Webster, Mass. K. & B. Electric Co.
WKBG	215.7	Chicago, Ill. (portable), 36 S. State St. C. L. Carrell.
WKRC	422.3	Cincinnati, Ohio. Kodel Radio Corp.
WKY	275	Oklahoma, Okla. WKY Radio Shop.
WLAL	250	Tulsa, Okla. First Christian Church.
WLAP	275	Louisville, Ky. W. V. Jorodon.

WLAX	231	Greencastle, Ind. Greencastle Com. Broadcasting Station.
WLB	278	Minneapolis, Minn. University of Minnesota.
WLBL	278	Stevens Point, Wis. Wisconsin Dept. of Markets.
WLIT	394.5	Philadelphia, Pa. Lit Brothers.
WLS	344.6	Chicago, Ill. Sears-Roebuck & Co.
WLTS	258	Chicago, Ill. Lane Technical High School.
WLW	422.3	Cincinnati, Ohio. Crosley Radio Corp.
WMAC	275	Cazenovia, N. Y. Clive B. Meredith.
WMAF	360	Dartmouth, Mass. Round Hills Radio Corp.
WMAH	254	Lincoln, Nebr. General Supply Co.
WMAK	266	Lockport, N. Y. Norton Laboratories.
WMAN	278	Columbus, Ohio. First Baptist Church.
WMAQ	447.5	Chicago, Ill. The Chicago Daily News.
WMAY	248	St. Louis, Mo. Kingshighway Presbyterian Church.
WMAZ	261	Macon, Ga. Mercer University.
WMBB	250	Chicago, Ill. American Bond & Mortgage Co.
WMBF	384.4	Miami Beach, Fla. Fleetwood Hotel.
WMC	499.7	Memphis, Tenn. Commercial Appeal.
WMCA	340.7	New York, N. Y. Greeley Square Hotel Co.
WMU	261	Washington, D. C. Doubleday-Hill Electric Co.
WNAB	250	Boston, Mass. The Shepard Stores.
WNAC	280.2	Boston, Mass. The Shepard Stores.
WNAD	254	Norman, Okla. University of Oklahoma.
WNAL	258	Omaha, Nebr. Omaha Central High School.
WNAR	231	Butler, Mo. First Christian Church.
WNAT	250	Philadelphia, Pa. Lennig Bros. Co.
WNAX	244	Yankton, S. Dak. Dakota Radio Apparatus Co.
WNJ	233	Newark, N. J. Radio Shop of Newark.
WNYC	526	New York, N. Y. City of New York.
WOAC	266	Lima, Ohio. Page Organ Co.
WOAI	394.5	San Antonio, Texas. Southern Equipment Co.
WOAN	282.8	Lawrenceburg, Tenn. James D. Vaughn.
WOAW	526	Omaha, Nebr. Woodmen of the World.
WOAX	240	Trenton, N. J. Franklyn J. Wolff.
WOC	483.6	Davenport, Iowa. Palmer School of Chiro.
WOCL	275	Jamestown, N. Y. Hotel Jamestown.
WODA	202.6	Paterson, N. J. J. O'Dea Radio & Victrola Shop.
WOI	270	Ames, Iowa. Iowa State College.
WOK	248	Homewood, Ill. Coppotelli Bros. Music House.
WOO	508.2	Philadelphia, Pa. John Wanamaker.
WOQ	278	Kansas City, Mo. Unity School of Christianity.
WOR	405.2	Newark, N. J. L. Bamberger & Co.
WORD	275	Batavia, Ill. Peoples Pulpit Association.
WOS	440.9	Jefferson City, Mo. Missouri State Marketing Bureau.
WOWL	270	New Orleans, La. Owl Battery Company.
WOWO	227	Fort Wayne, Ind. Main Auto Supply Co.
WPAJ	268	New Haven, Conn. Doolittle Radio Corp.
WPAK	275	Agric. Coll., N. Dak. North Dakota Agricultural College.
WPG	299.8	Atlantic City, N. J. Municipality of Atlantic City.
WPSC	261	State College, Pa. Pennsylvania State College.
WQAA	220	Parkesburg, Pa. Horace A. Beale, Jr.
WQAC	234	Amarillo, Texas. Gish Radio Service.
WQAE	246	Springfield, Vt. Moore Radio News Station.
WQAM	268	Miami, Fla. Electrical Equipment Co.
WQAN	250	Scranton, Pa. Scranton Times.
WQAO	360	New York, N. Y. Calvary Baptist Church.
WQJ	447.5	Chicago, Ill. Calumet Rainbo Broadcasting Co.

WRAF	224	Laporte, Ind. The Radio Club.
WRAK	256	Escanaba, Mich. Economy Light Co.
WRAM	244	Galesburg, Ill. Lombard College.
WRAY	263	Yellow Springs, O. Antioch College.
WRAW	238	Reading, Pa. Ave. Radio & Electric Shop.
WRAX	268	Gloucester City, N. J. Flexon's Garage.
WRBC	278	Valparaiso, Ind. Immanuel Lutheran Church.
WRC	468.5	Washington, D. C. Radio Corporation of America.
WREO	285.5	Lansing, Mich. Reo Motor Car Co.
WRHF	256	Washington, D. C. Washington Radio Hospital Fund.
WRK	270	Hamilton, Ohio. Doron Bros. Electric Co.
WRL	360	Schenectady, N. Y. Union College.
WRM	273	Urbana, Ill. University of Illinois.
WRMU	236	MU-1 (yacht), Richmond Hill, N. Y. A. H. Grebe & Co.
WRNY	258	New York, N. Y. Experimenter Publishing Co.
WRR	261	Dallas, Texas. City of Dallas, Police & Fire Signal Dept.
WRW	273	Tarrytown, N. Y. Tarrytown Radio Research Laboratories.
WSAG	266	St. Petersburg, Fla. Gospel Tabernacle.
WSAI	325.9	Cincinnati, Ohio. U. S. Playing Card Co.
WSAJ	229	Grove City, Pa. Grove City College.
WSAN	229	Allentown, Pa. Allentown Call Publishing Co.
WSAR	254	Fall River, Mass. Doughty & Welch Electric Co.
WSAV	248	Houston, Texas. Clifford W. Vick Radio Construction Co.
WSAZ	244	Pomeroy, Ohio. Chase Electric Shop.
WSB	428.3	Atlanta, Ga. Atlanta Journal.
WSBC	209.7	Chicago, Ill., 1219 S. Wabash Ave. World Battery Co.
WSDA	263	New York, N. Y. The City Temple.
WSKC	261	Bay City, Mich. World's Star Kntg. Co.
WSMB	319	New Orleans, La. Saenger Amusement Co.
WSMH	240	Owosso, Mich. Shattuck Music House.
WSMK	275	Dayton, Ohio. S. M. K. Radio Corp.
WSOE	246	Milwaukee, Wis. School of Engineering of Milwaukee.
WSRF	233	Broadlands, Ill. Harden Sales & Service.
WSRO	252	Hamilton, Ohio. Fahrlander Radio Co.
WSUI	483.6	Iowa City, Iowa. State University of Iowa.
WSY	250	Auburn, Ala. Alabama Polytechnical Institute.
WTAB	266	Fall River, Mass. Fall River Daily Herald Publishing Co.
WTAC	209.7	Johnstown, Pa. Pennsylvania Traffic Co.
WTAD	236	Carthage, Ill. Robert E. Compton.
WTAL	252	Toledo, Ohio. Toledo Radio & Electric Co.
WTAM	389.4	Cleveland, Ohio. Willard Storage Battery Co.
WTAP	242	Cambridge, Ill. Cambridge Radio & Electric Co.
WTAQ	254	Osseo, Wis. S. H. Van Gorden & Son.
WTAR	261	Norfolk, Va. Reliance Electric Co.
WTAS	302.8	Elgin, Ill. (near). Chas. E. Erbstein.
WTAT	244	Boston, Mass. (portable). Edison Electric Ill. Co.
WTAW	270	College Station, Texas. Agric. & Mech. College of Texas.
WTAX	231	Streator, Ill. Williams Hardware Co.
WTAZ	261	Lambertville, N. J. Thomas J. McGuire.
WTG	273	Manhattan, Kans. Kansas State Agricultural College.
WTIC	348.6	Hartford, Conn. Travelers Insurance Co.
WWAD	250	Philadelphia, Pa. Wright & Wright.
WWAE	242	Plainfield, Ill. Electric Park and L. J. Crowley.
WWAO	244	Houghton, Mich. Michigan College of Mines.
WWI	266	Dearborn, Mich. Ford Motor Co.
WWJ	352.7	Detroit, Mich. Detroit News.
WWL	275	New Orleans, La. Loyola University.

UNITED STATES BROADCASTING STATIONS

By Location

Owners Listed Under Call Letters

- ALABAMA**
AUBURN—WSY
BIRMINGHAM—WBRC
- ALASKA**
JUNEAU—KFIU
- ARIZONA**
PHOENIX—KFAD-KFCB
TUCSON—KFDH
- ARKANSAS**
ARKADELPHIA—KFWD
BENTONVILLE—KFVX
CAMDEN—KFVC
CONWAY—KFKQ
FAYETTEVILLE—KFMQ
HOT SPRINGS—KTHS
LITTLE ROCK—KFMB
- CALIFORNIA**
AVALON—KFWO
BAKERSFIELD—KDZE
BERKELEY—KRE
BURLINGAME—KFQH
CHICO—KFVH
EUREKA—KFUV
FRESNO—KNJ
HOLLYWOOD—KFQZ-
KFVF-KFWB
HOLY CITY—KFQU
LONG BEACH—KFON
LOS ANGELES—KFI-KFPG-
KFPR-KFSG-KHJ-KJS-
KNX
OAKLAND—KFUS-KGO-
KLS-KLX-KZM-KFWM
PASADENA—KPPC-KPSN-
KTAB
SACRAMENTO—KFBK-
KFVK
SAN DIEGO—KFBC-KFVW
SAN FRANCISCO—KFRC-
KJBS-KPO-KUO-KFWI-
KGT
SAN LEANDRO—KFUJ
SAN PEDRO—KFVD
SANTA ANA—KPAW
SANTA ROSA—KFNV
STANFORD UNIVERSITY
—KFGH
STOCKTON—KWG
TAFT—KFQC
- COLORADO**
BOULDER—KFAJ
COLORADO SPRINGS—
KFUM
DENVER—KFAF-KFLE-
KFUP-KFVR-KLZ-
KOA
GREELEY—KFKA
GUNNISON—KFHA
- CONNECTICUT**
HARTFORD—WTIC
MANSFIELD—WCAC
NEW HAVEN—WPAJ
- DELAWARE**
WILMINGTON—WHAU
- DISTRICT OF COLUMBIA**
WASHINGTON—WCAP-
WDM-WMU-WRC-
WRHF
- FLORIDA**
MIAMI—WQAM-WGBU
MIAMI BEACH—WMBF
ST. PETERSBURG—WHBN
WIBC-WSAG-WJBB
TAMPA—WDAE
WINTER PARK—WDBO
- GEORGIA**
ATLANTA—WDBE-WGST-
WSB
COLUMBUS—WABV
MACON—WMAZ
SAVANNAH—WEBZ
- HAWAII**
HONOLULU—KGU
- IDAHO**
BOISE—KFAU-KFDD
KELLOGG—KFEY
MOSCOW—KFAN
- ILLINOIS**
BATAVIA—WORD
BROADLANDS—WSRF
CAMBRIDGE—WTAP
CARTHAGE—WCAZ-WTAD
CHICAGO—KYW-WAAF-
WBBM-WBCN-WGN-
WDBY-WEBH-WENR-
WFKB-WHBM-WIBJ-
WIBM-WIBO-WJAZ-
WLS-WMAQ-WSBC-
WMBB-WQJ-WSAX-
WKBG-WLTS
DECATUR—WBAC
DEERFIELD—WHT
ELGIN—WTAS-WCEE
EVANSTON—WEHS
FARINA—WIBQ
GALESBURG—WRAM-
WFBZ
HARRISBURG—WEBQ
HOMEWOOD—WOK
JOLIET—WIBD-WIBL-
WJBI-WJBA
LAKE FOREST—WABA
LA SALLE—WJBC
- INDIANA**
ANDERSON—WEBD
CULVER—WHBH
EVANSVILLE—WGBF
FT. BEN. HARRISON—
WFBY
FORT WAYNE—WHBJ-
WOWO
GREENCASTLE—WLAX
GREENTOWN—WJAK
INDIANAPOLIS—WFMB
LAGORTE—WRAF
LGGANSPORT—WHBL-
WIBW
SEYMOUR—WFBE
SOUTH BEND—WGAZ
VALPARAISO—WRBC
WEST LAFAYETTE—WBAA
- IOWA**
AMES—WOI
ATLANTIC—KFLZ
BOONE—KFGQ
BURLINGTON—WIAS
CEDAR FALLS—KFJX
CEDAR RAPIDS—KPLP-
WJAM-WKAA
COUNCIL BLUFFS—KOIL
DAVENPORT—WOC
DES MOINES—WHO
FORT DODGE—KFJY
IOWA CITY—KFQP-WSUI
LAMONI—KFFV
LE MARS—KFCY
MARENGO—KFOL
MARSHALLTOWN—KFJB
OSKALOOSA—KFHL
SHENANDOAH—KFNF
SIOUX CITY—KFMR-
WEAU
- KANSAS**
INDEPENDENCE—KFVG
JUNCTION CITY—KFJC
LAWRENCE—KFKU
MANHATTAN—WTG-KSAC
WICHITA—KFOT-WEAH
- KENTUCKY**
LOUISVILLE—WHAS-
WLAP

LOUISIANA

ALEXANDRIA—KFRF
 BATON ROUGE—KFGC
 NEW ORLEANS—WAAB-
 WAAC-WABZ-WBBS-
 WCAG-WCEB-WOWL-
 WWL-WSMB
 PINEVILLE—KFVW
 SHREVEPORT—KFDX-
 KWKH

MAINE

BANGOR—WABI
 ELLSWORTH—WHBK
 ORONO—WGXB
 PORTLAND—WCXH

MARYLAND

BALTIMORE—WCAO-
 WCBM-WFBR-WGBA
 TAKOMA PARK—WBES

MASSACHUSETTS

BOSTON—WDBR-WEEI-
 WNAB-WNAC-WTAT
 BRIDGEWATER—WFBN
 DARTMOUTH—WMAF
 FALL RIVER—WSAR-
 WTAB
 LOWELL—WQAS
 MATTAPANSETT—WBBG
 MEDFORD HILLSIDES—
 WGI
 NEW BRADFORD—WIBH
 SPRINGFIELD—WBZ
 TAUNTON—WAIT
 WEBSTER—WKBE
 WORCESTER—WCBT-WCTS

MICHIGAN

ANN ARBOR—WCBC
 BAY CITY—WSKC
 BERRIEN SPRINGS—
 WEMC
 DEARBORN—WWI
 DETROIT—KOP-WCX-
 WGHP-WWJ
 EAST LANSING—WKAR
 ESCANABA—WRAK
 FLINT—WEAA
 GRAND RAPIDS—WBDC-
 WEBK
 HOUGHTON—KFMW-
 WWAO
 LANSING—WREO
 MT. CLEMENS—WABX
 OWOSSO—WSMH
 PETOSKEY—WBBP
 PORT HURON—WAFD

MINNESOTA

BRECKENRIDGE—KFUJ
 COLLEGEVILLE—WFBJ
 MINNEAPOLIS—KFDZ-
 KFMT-WAMD-WCCO-
 WHDI-WLB
 MOORHEAD—WPAU
 NORTHFIELD—KFMX-
 WCAL
 ST. CLOUD—WFAM
 ST. PAUL—KFOY

VIRGINIA—KFUZ
 WELCOME—KFUN

MISSISSIPPI

COLDWATER—KFNG
 MERIDIAN—WIBP
 OXFORD—WCBH
 PASCAGOULA—WCBG

MISSOURI

BUTLER—WNAR
 CAPE GIRARDEAU—KFVS
 CARTERSVILLE—KFPW
 INDEPENDENCE—KLDL
 JEFFERSON CITY—WCS
 KANSAS CITY—KWKC-
 WDAF-WHB-WOQ
 KIRKSVILLE—KFKZ
 MOBERLY—KFFP
 SPRINGFIELD—KFUV
 ST. LOUIS—KFQA-KFUO-
 KFVE-KFWF-KSD-
 WCK-WEW-WIL-
 WMAV

MONTANA

BUTTE—KFUY
 HARVE—KFBB
 HELENA—KFSY-KFCC
 MISSOULA—KUOM

NEBRASKA

BELDEN—KFQY
 DAVID CITY—KFOR
 HARTINGTON—KFRZ
 HASTINGS—KFKX
 LINCOLN—KFAB-WFAV-
 WMAH
 NORFOLK—WJAG
 OAK—KFEQ
 OMAHA—KFCZ-KFOX-
 WAAW-WIAK-WNAL-
 WOAW
 UNIVERSITY PLACE—
 WCAJ

NEW HAMPSHIRE

CHESHAM—WSAU
 LACONIA—WKAV

NEW JERSEY

ATLANTIC CITY—WHAR-
 WPG
 CAMDEN—WABU-WFBI
 ELIZABETH—WIBS
 GLOUCESTER CITY—
 WRAX
 HIGHLAND PARK—WEBA
 LAMBERTVILLE—WTAZ
 NEWARK—WAAM-WGCP-
 WNJ-WOR
 N. PLAINFIELD—WEAM
 PATERSON—WODA
 SALEM—WDBQ
 TRENTON—WOAX

NEW MEXICO

ALBUQUERQUE—KFLR-
 KFVY
 STATE COLLEGE—KOB-
 KFRY

NEW YORK

BROOKLYN—WHAP
 BUFFALO—WEBR-WGR
 CANTON—WCAD
 CAZENOVIA—WMAC
 FLUSHING—WIBI
 FREEPORT—WGBB
 ITHACA—WEAI
 JAMESTOWN—WOCL
 KINGSTON—WBBZ
 LOCKPORT—WMAK
 NEW YORK—WDBX-WEAF-
 WEBJ-WEBL-WEBM-
 WFBH-WGBS-WHN-
 WIBT - WJY - WJZ-
 WMCA-WNYC-WQAO-
 WRNY-WSDA
 RICHMOND HILL—WAHG-
 WBOQ-WGMU
 ROCHESTER—WABO-
 WHAM-WHEC
 ROSSVILLE—WBRR
 SCHENECTADY—WGY-
 WRL
 SYRACUSE—WFBL
 TARRYTOWN—WRW
 TROY—WHAZ
 UTICA—WIBX

NORTH CAROLINA

ASHEVILLE—WABC
 CHARLOTTE—WBT
 RALEIGH—WFBQ

NORTH DAKOTA

AGRICULTURAL COLLEGE
 —WPAK
 DEVIL'S LAKE—KDRL
 FARGO—WDAY
 GRAND FORKS—KFJM-
 KFRL
 HENDERSON—WIBY

OHIO

BELLEFONTAINE—WHBD
 CAMBRIDGE—WEBE
 CANTON—WHBC
 CINCINNATI—WAAD-
 WHAG-WHBR-WLW-
 WMH-WSAI
 CLEVELAND—KDPM-
 WDBK-WEAR-WHK-
 WTAM
 COLUMBUS—WBAV-
 WCAH-WEAO-WMAN
 DAYTON—WBDS-WEBT
 ELYRIA—WGBL
 GRANVILLE—WJD
 HAMILTON—WRK-WSRO
 LIMA—WOAC
 MECHANICSBURG—WHBS
 NEWARK—WBBA
 POMEROY—WSAZ
 SPRINGFIELD—WNPB
 TOLEDO—WABR-WIBK-
 WTAL
 WOOSTER—WABW
 YELLOW SPRINGS—WRAV

OKLAHOMA
BRISTOW—KFRU
CHICKASHA—KFGD
FORT SILL—KFRM
NORMAN—WNAD
OKLAHOMA CITY—KFJF-
WKY
TULSA—WLAL

OREGON
ASTORIA—KFJI
CORNWALLIS—KFDJ
HOOD RIVER—KQP
PORTLAND—KFEC-KFIF-
KFJR-KGW-KQP

PENNSYLVANIA
ALLENTOWN—WCBA-
WSAN
ALTOONA—WFBG
ARNOLD—WCBU
BUCK HILL FALLS—
WCBY
E. PITTSBURGH—KDKA
ELKINS PARK—WIBG
GROVE CITY—WSAJ
HARRISBURG—WABB-
WBAK-WHBG
HAVERFORD—WABQ
JOHNSTOWN—WBBY-
WGBK-WHBP-WTAC
LANCASTER—WDBC-
WGAL
OIL CITY—WHBA
PARKSBURG—WQAA
PHILADELPHIA—WABY-
WCAU-WFBD-WFI-
WGL-WIAD-WIP-
WLIT-WNAT-WOO-
WWAD
PITTSBURGH—KQV-
WCAE-WJAS
READING—WRAW
SCRANTON—WGBI-WQAN
STATE COLLEGE—WPSC
WILKES-BARRE—WEAX-
WBRE

PHILIPPINE ISLANDS
MANILA—KZKZ-KZRQ
PORTO RICO
SAN JUAN—WKAQ

RHODE ISLAND
CRANSTON—WDWF-WKAP
EAST PROVIDENCE—
WKAD
PAWTUCKET—WHBO
PROVIDENCE—WCBR-
WDWF-WEAN-WGBM-
WJAR

SOUTH CAROLINA
CHARLESTOWN—WBYY
CLEMSON COLLEGE—
WSAC
GREENVILLE—WGBT

SOUTH DAKOTA
BROOKINGS—KFDY
RAPID CITY—WCAT
VERMILLION—WEAJ
YANKTON—WNAX

TENNESSEE
CHATTANOOGA—WDDO
KNOXVILLE—WFBC
LAWRENCEBERG—WOAN
MEMPHIS—WGBC-WHBQ-
WMC

TEXAS
AMARILLO—WQAC-WDAG
AUSTIN—WCM
BEAUMONT—KFDM
BEEVILLE—KFRB
BROWNSVILLE—KWWG-
KFWP
COLLEGE STATION—
WTAW
DALLAS—WFAA-WRR
DENISON—KFQT
DUBLIN—KFPL
EL PASO—WDAH
FORT WORTH—KFQB-
WBAP
GALVESTON—KFLX-KFUL
GREENVILLE—KFPM
HOUSTON—KFVI-KPRC-
WEAY-WRAA-WSAV
ORANGE—KFGX
SAN ANTONIO—WCAR-
WOAI
SAN BENITO—KFLU
WACO—WJAD

UTAH
OGDEN—KFUR-KFWA
SALT LAKE CITY—KDYL-
KFOO-KSL-KFUT

VERMONT
BURLINGTON—WCAX
SPRINGFIELD—WQAE

VIRGINIA
NORFOLK—WBBW-WTAR
RICHMOND—WBBL
ROANOKE—WDBJ
THRIFTON—WGBG

WASHINGTON
EVERETT—KFBL
LACEY—KGY
NORTH BEND—KFQW
OLYMPIA—KFRW
PULLMAN—KFAE-KFRX
SEATTLE—KFOA-KHQ-
KJR-KTCL-KTW
SPOKANE—KFIO-KFPY
TACOMA—KFBG-KGB-KMO
VANCOUVER—KFVL
WALLA WALLA—KFCF
YAKIMA—KFIQ

WEST VIRGINIA
CHARLESTON—WPAZ
MARTINSBURG—WIBE
WEIRTON—WIBR

WISCONSIN
ASHLAND—WJBD
BELOIT—WEBW
FOND DU LAC—KFIZ
I.A. CROSSE—WABN
MADISON—WHA
MARSHFIELD—WGBR
MENOMONIE—WGBQ
MILWAUKEE—WCAY-
WHAD-WSOE
OSSEO—WTAQ
POYNETTE—WIBU
STEVENS POINT—WHBB-
WLBL
SUPERIOR—WEBG
WHEATLAND—WIBF
WEST De PERE—WHBY

CANADIAN BROADCASTING STATIONS

Arranged Alphabetically by Province and City

ALBERTA
CALGARY—CFAC-CFCN-
CHBC-CHCM-CFHC-
CKCX-CKLC-CNRC
EDMONTON—CFCK-CJCA-
CNRE
BRITISH COLUMBIA
VANCOUVER—CFYC-CKOD
VICTORIA—CFCT
NEW WESTMINSTER—
CFXC
MANITOBA
WINNIPEG—CKY-CNRW

NEW BRUNSWICK
MONCTON—CNRA

ONTARIO
HAMILTON—CFCU-CHCS-
CKOC
IROQUOIS FALLS—CFCH
KINGSTON—CFRC
KITCHENER—CJCF
LONDON—CHCS-CJGC
OTTAWA—CHXC-CKCO-
CNRO
THOROLD—CFKC

TORONTO—CFCA-CHIC-
CHNC-CKCE-CKNC-
CNRT

QUEBEC
MONT JOLI—CJCM
MONTREAL—CFCF-CHYC-
CJCL-CKAC-CNRM

SASKATCHEWAN
REGINA—CKCK-CNRR
SASKATOON—CFQC-
CHUC-CNRS
MONT JOLI—CJCM

CANADIAN BROADCASTING STATIONS

Call Letters—Meters Wave Length—Location—Owner

Alphabetically by call signal.

CFAC	434.5	Calgary, Alta.	The Calgary Herald.
CFCA	356.9	Toronto, Ont.	Star Publishing & Printing Co.
CFCF	410.7	Montreal, P. Q.	Marconi Wireless Tel. Co. of Canada, Ltd.
CFCH	499.7	Iroquois Falls, Ont.	Abitibi Power & Paper Co., Ltd.
CFCK	516.9	Edmonton, Alta.	Radio Supply Co., Ltd.
CFCN	434.5	Calgary, Alta.	W. W. Grant Radio, Ltd.
CFCQ	410.7	Vancouver, B. C.	Radio Specialties, Ltd.
CFCT	329.5	Victoria, B. C.	Geo. W. Deaville.
CFCU	340.7	Hamilton, Ont.	Jack V. Elliot, Ltd.
CFKU	248	Thorold, Ont.	D. J. Fendell.
CFQC	429.5	Saskatoon, Sask.	The Electric Shop, Ltd.
CFRC	267.7	Kingston, Ont.	Queen's University (Department of Electrical Engineering).
CFXC	291.9	New Westminster, B. C.	Westminster Trust Co.
CFYC	410.7	Municipality of Burnaby, B. C.	Radio Corporation of Vancouver, Ltd.
CHCS	340.7	Hamilton, Ont.	The Hamilton Spectator.
CHIC	356.9	Toronto, Ont.	Northern Electric Co., Ltd.
CHNC	356.9	Toronto, Ont.	Toronto Radio Research Society.
CHUC	329.5	Saskatoon, Sask.	International Bible Students' Assn.
CHXC	434.5	Ottawa, Ont.	J. R. Booth, Jr.
CHYC	410.7	Montreal, P. Q.	Northern Electric Co., Ltd.
CJCA	516.9	Edmonton, Alta.	The Edmonton Journal, Ltd.
CJCD	356.9	Toronto, Ont.	The T. Eaton Co., Ltd.
CJCF	329.5	Kitchener, Ont.	The News Record.
CJGC	329.5	London, Ont.	London Free Press Printing Co.
CKAC	410.7	Montreal, P. Q.	La Presse Publishing Co., Ltd.
CKCD	410.7	Vancouver, B. C.	Vancouver Daily Province.
CKCK	475.9	Regina, Sask.	Leader Publishing Co., Ltd.
CKCL	356.9	Toronto, Ont.	The Dominion Battery Co., Ltd.
CKCO	434.5	Ottawa, Ont.	Dr. G. M. Geldert.
CKFC	410.7	Vancouver, B. C.	First Congregational Church.
CKOC	340.7	Hamilton, Ont.	Wentworth Radio Supply Co., Ltd.
CKY	384.4	Winnipeg, Man.	Manitoba Telephone System.
CNRA	312.3	Moncton, N. B.	Canadian National Railways.
CNRC	434.5	Calgary, Alta.	Canadian National Railways.
CNRE	516.9	Edmonton, Alta.	Canadian National Railways.
CNRM	410.7	Montreal, P. Q.	Canadian National Railways.
CNRO	434.5	Ottawa, Ont.	Canadian National Railways.
CNRR	475.9	Regina, Sask.	Canadian National Railways.
CNRS	329.5	Saskatoon, Sask.	Canadian National Railways.
CNRT	356.9	Toronto, Ont.	Canadian National Railways.
CNRY	291.1	Vancouver, B. C.	Canadian National Railways.
CNRW	484.4	Winnipeg, Man.	Canadian National Railways.

PRINCIPAL FOREIGN STATIONS

Call Letters—Meters Wave Length—Location—Owner

Australia		
2FC	100	Sydney. Farmers & Co.
3AR	480	Melbourne. Associated Radio Co. of Australia.
3LO	1720	Melbourne. Broadcasting Co. of Australia.
3MA	480	Adelaide. Millswood Auto & Radio Co.
6AR	360	Perth. Associated Radio Co.
6WF	1250	Perth. Westralian Farms, Ltd.

British Isles, England

2BD	495	Aberdeen. Aberdeen Steam Laundry.
6BM	385	Bournemouth. British Broadcasting Co.
5IT	475	Birmingham. British Broadcasting Co.
2LO	395	London. British Broadcasting Co.
5NO	400	Newcastle. British Broadcasting Co.
5WA	351	Cardiff. British Broadcasting Co.
2ZY	375	Manchester. British Broadcasting Co.
2LS	346	Leeds. British Broadcasting Co.
2LS	310	Bradford. British Broadcasting Co.
6LV	315	Liverpool. British Broadcasting Co.
6FL	301	Sheffield. British Broadcasting Co.
5PY	335	Plymouth. British Broadcasting Co.

Ireland

2BE	435	Belfast. Belfast University.
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Scotland

5SC	420	Glasgow. British Broadcasting Co.
2EH	328	Edinburgh. British Broadcasting Co.

CONTINENTAL EUROPE

Austria

OHW	600	Vienna. Radio-Hekaphon.
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Belgium

SRB	410	Brussels. Radio Belgique.
	265	Brussels. Radio Electrique.

France

YN	480	Lyons. French Government.
	470	Lyons. Societe Lyonnaise de Rad.
	460	Nice. Government.
	340	Paris. La Petit Parisienne.
	450	Paris. Superior School.

Germany

	290	Berlin. Telefunken.
	415	Berlin. Vox Haus.
	460	Frankfort. S. W. Deutsche Rundfunk.
	392	Hamburg. Nordischer Rundfunk A.G.
	460	Konigsburg. Ostmarken Rundfunk.
	436	Lelpsig. Mitteldeutsche Rundfunk.
	470	Munster.
	437	Stuttgart. Sudddeutsche Rundfunk.

Italy

HYN	450	Rome. Ing. Ranier.
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Spain

PTT	400	Madrid. 392 Madrid. Radio Iberica.
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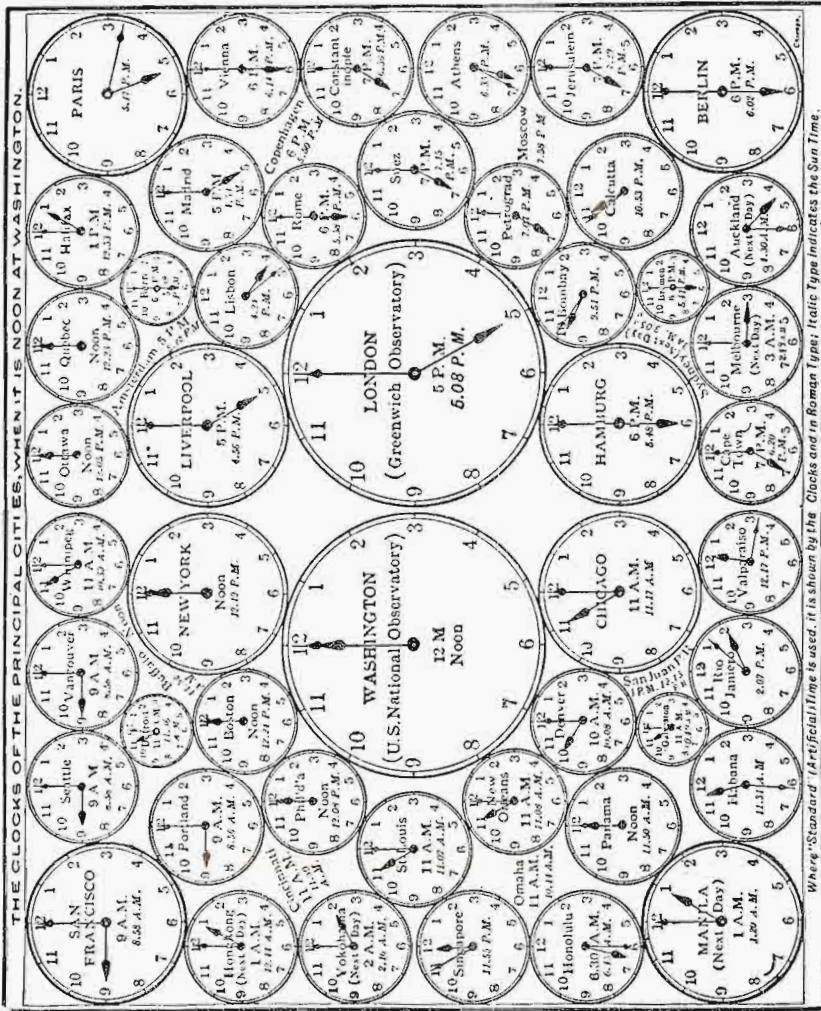
Sweden

	700	Gothenburg. Nya Varvet.
	440	Stockholm. Royal Tele Radio Off.
	470	Stockholm. Svenska Radioactiebolaget.

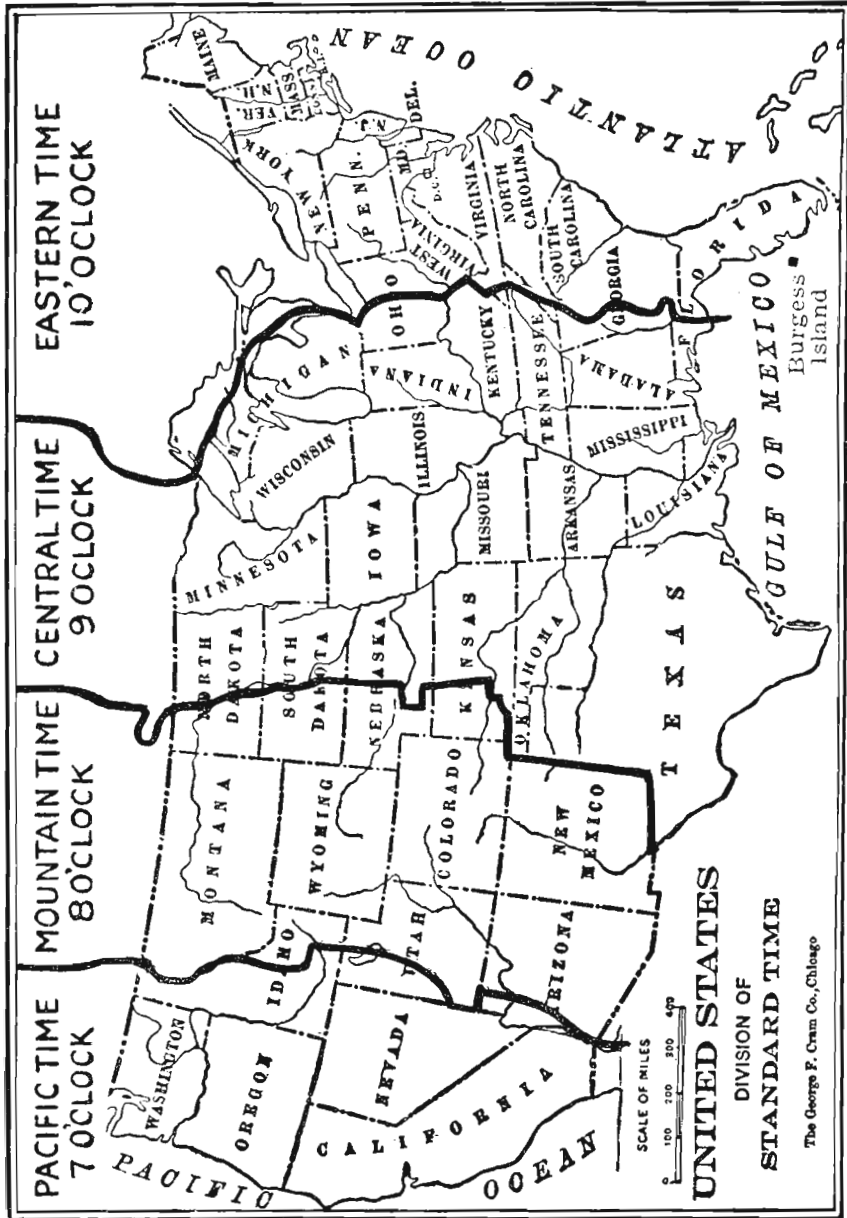
SOUTH AMERICA

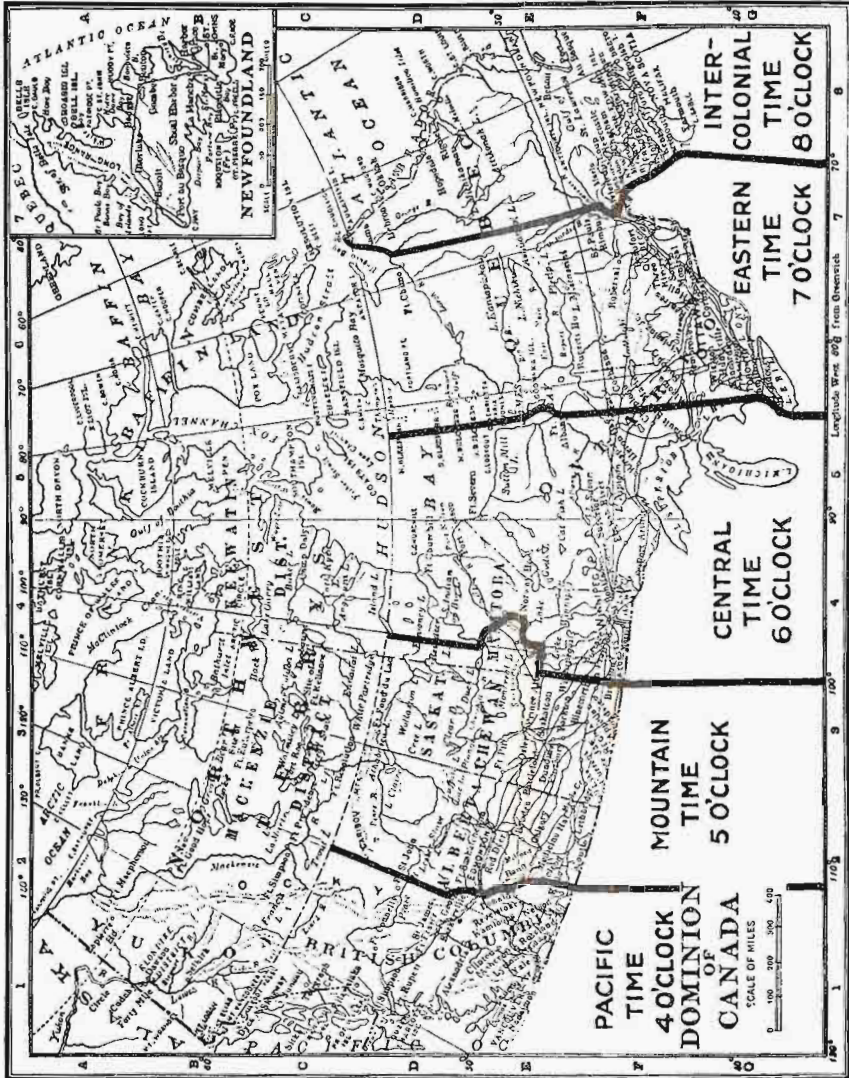
Argentina

LOR	400	Buenos Aires. Radio Argentina.
LOW	325	Buenos Aires. Grand Splendid.
LOV	350	Buenos Aires. F. Brusa.
LOX	375	Buenos Aires. Radio Cultura.
LOY	325	Buenos Aires. Radio Nacional.



Where "Standard" (Artificial) Time is used, it is shown by the Clocks and in Roman Type; Italic Type indicates the Sun Time.





DRY CELL BATTERIES IN RADIO

Dry cell batteries are an important part of long distance radio receiving equipment because they are a convenient, economical, and safe source of electrical energy and Burgess Dry Cell Batteries are pre-eminently satisfactory for these purposes.

As is well known, a broadcasting station sends out enormous electrical energy which travels away from the sending antenna at a speed great enough to encircle the earth over seven times in one second. This energy gradually spreads out over an ever increasing circle around the antenna and its strength diminishes rapidly as the distance from the station increases.

With a suitable receiving antenna, either an indoor loop or outside aerial, some of the energy from the sending station can be collected. At distances from the sending station the collected energy is such an infinitesimal quantity that it cannot operate any of the electrical apparatus, such as telephones through which the signals should be heard. If the receiving set can add energy to that obtained from the antenna, it will be possible to operate not only telephones but loud speakers and other devices. Dry cell batteries provide this extra energy, and it is regulated through the receiving set by the sending station energy collected from the antenna.

The throttling or transformation of the battery energy into sound in the headsets, for example, is done by the vacuum tubes in a very involved manner. The "A" or filament battery donates its energy to the set by lighting the filament of the tube and providing a path for the energy from the "B" or plate battery to flow through the tube and to the phones or loud speaker.

For good results through the receiving set, the dry cell batteries must have certain characteristics, for example, a large energy capacity so that they can be used intensively or produce a loud sound, availability to hold their energy and not allow it to leak out even when they are in use, a constancy of delivery of energy so it can be easily and smoothly controlled by the receiving set, a smoothness of discharge into the set to prevent interference with the control.

The energy of a battery is proportional to its voltage and its current. The "A" battery energy is generally provided at a low voltage and a high current. The "B" battery energy, on the other hand, is supplied at a higher voltage and low current; both, however, are necessary in a receiving set. Increasing the "A" battery energy will put more into the set but it will not and cannot replace the "B" battery energy which must also be there in suitable quantity.

Some sets contain several tubes as detectors and amplifiers, but the general conditions above stated always hold true. The several tubes may make it possible to detect smaller antenna energy or obtain a better selection of incoming signals, but to obtain more sound, more energy will always be required, and this means either more batteries or more energy drawn from the batteries.

Dry cell batteries have certain characteristics which should be here mentioned. A dry cell consists of a zinc container filled with active chemicals, in the center of which is a brass-capped carbon rod. The zinc can is the negative (—) pole or electrode and the center carbon is the positive (+) pole or electrode. The voltage of a dry cell is about 1.5 volts when it is not in circuit (open circuit voltage) and it is lower when it is in circuit (closed circuit voltage), depending on the cell resistance and the resistance of the circuit to which it is connected.

"A" BATTERIES

The first vacuum tubes required storage batteries on the "A" or filament circuit because of the large amount of energy required by these tubes. Many tubes are now on the market which operate the entire set on dry cell batteries. The voltage and current requirements of these tubes varies with their type, and information concerning them is furnished with the tube by the manufacturers.

Originally, the ordinary six-inch Ignition Dry Cell was used as an "A" battery with these tubes and with fair success. The Burgess Battery Company, however, as soon as the dry cell vacuum tubes began to appear, saw the need of an improved dry "A" battery. This problem was solved and the Burgess No. 6 Radio "A" Battery is the result.

This battery is especially designed for the "A" circuit of dry cell vacuum tubes and tests have shown that for this purpose it will furnish approximately double the hours of service that will be furnished by an ordinary No. 6 Ignition Cell. Furthermore, after the voltage of this battery has dropped below the tube voltage rating, the battery can be used for ordinary dry cell work.

The unique characteristics of this battery are secured by a special mixture of chemicals, a low resistance lining between the chemicals and the zinc. This battery maintains a high average discharge voltage and currents as high as 0.25 ampere while in service and has but small depreciation or loss of energy when not in use.

"B" BATTERIES

Burgess "B" Batteries are an assembly of small specially designed dry cells soldered together in series to produce the high voltage necessary for the vacuum tube. These batteries have been "the standard of quality in the radio field" since 1917, and the accompanying illustration shows some of the unique construction of these batteries.



"A" is the Burgess one-piece seamless zinc can which requires heavier, more pure and more uniform metal than a soldered can, all of which add to the life of the cell. Also, it prevents any leakage through a weak joint and eliminates voltage differences on the inside of the can, a condition which might cause stray currents and potential differences and results in noisy voltage fluctuations and short-lived battery.

"B" is the moisture-proof wrapper around each cell, one of the ways in which individual insulation is secured.

"C" is a sealing material between cells to provide additional insulation and prevent movement between cells.

"D" is the waterproof partition between cells, another feature in the individual cell insulation and a means of confining internal moisture due to cell discharge within the compartment.

"E" is the heavy waterproof non-metallic insulating material, the first line of defense against moisture getting into the battery. As it is non-conducting, it will not collect stray currents and produce capacity effects between adjacent batteries.

"F" is the heavy triple seal over the top, another factor of safety which adds to the strength of the battery and increases the moisture-proof qualities.

"G" is the webbing between seals, adding to the strength of the top.

The features which cannot be shown in the picture are as good as those enumerated above. They include a special mix or combination of chemicals, the results of much research work, a critical selection of raw materials, the best of manufacturing methods and a most rigid technical control.

All Burgess "B" Batteries embody the same features of construction. There is no difference in the quality of the energy furnished. The largest sizes of batteries give the greatest energy or hours of service. The higher voltage batteries are simply the equivalent of what a radio listener would get by connecting a number of "B" batteries in series. We advise in all cases that single units of 22.5 volts be used in place of the higher voltage units, as this permits a shifting of the various batteries as they become unequally discharged.

"C" BATTERIES

Another type of battery which is coming into more general use is the "C" battery required on some vacuum tubes operating either as detectors or amplifiers. A "C" battery is a low voltage battery connected between the filament and the grid to give the grid a different potential or "bias." The requirements of a "C" circuit call for a steady voltage, a low resistance and a long-lived battery, which requirements are amply met in the Burgess "C" Batteries. These batteries are built with the same construction as the Burgess "B" Batteries and have been worked satisfactorily for all "C" use.

RADIO DRY CELL BATTERIES FOR VACUUM TUBES

The tables in the following pages contain data on tubes and batteries obtained from various sources, including test data of the Burgess Battery Company.

For convenience, "B" batteries are classified into three groups according to their weight of 22.5 volt units. Reference in Table IV is to the following:

- 1 lb. class No. 4156 "B" battery.
- 2 lb. class No. 5156, 5158, 5308 "B" battery.
- 5 lb. class No. 2156, 2158, 2306, 2308 "B" battery.
- 7 lb. class No. 10308 "B" battery.

TABLE I
Dry Cell "A" Batteries for Various Vacuum Tubes

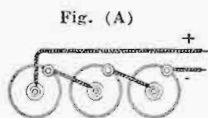
VACUUM TUBE CHARACTERISTICS.	CLASSIFICATION OF TUBES WITH RESPECT TO NECESSARY BATTERIES AND TUBE FILAMENT CURRENT				DRY CELL BATTERY TUBES			Storage Battery Tubes
	Vacuum Tube Style Number	UV-199 C-299 DV-3	High Current		UV-201A C-301A DV-2	UV-200 C-300		
			Low Current	WD 11			WD 12	
Filament Working Volts	3 0 0.06	1.1	5.0	5.0				
Filament Amperes	(DV-3 0.07)	0.25	0.25	1.0				
Rheostat Ohms	(DV-3A 0.7) 30	6	15 to 30	6				
"A" Battery Volts (Filament Battery)	4.5	1.5	6.0	6.0				
NUMBER OF BURGESS "A" BATTERIES REQUIRED	Number of Series No. 6 "A" Batteries to provide proper voltage	3	1	4				
	Number of Parallel No. 6 "A" Batteries to provide proper current capacity	1 for every 4 tubes	1 for every 1 tube	1 for every 1 tube				
	Smallest possible number of No. 6 "A" Batteries	for 1 tube	3 Fig. (A)	1 Fig. (C)	4 Fig. (B)	Not A Dry Cell Battery Tube.		
		for 2 tubes	3 Fig. (A)	2 Fig. (D)	8 Fig. (J)			
		for 3 tubes	3 Fig. (A)	3 Fig. (E)	12 Fig. (K)			
for 4 tubes		3 Fig. (A)	4 Fig. (F)	16 Fig. (L)				
Smallest possible number of No. 232 or No. 2370 Batteries in parallel.	for 5 tubes	6 Fig. (I)	5 Fig. (G)	20 Fig. (M)				
	for 6 tubes	6 Fig. (I)	6 Fig. (H)	24 Fig. (N)				
	for 1 tube	1 Fig. (C)	Not used with these Batteries.					
for 2 tubes	2 Fig. (D)							
for 3 tubes	3 Fig. (E)							
for 4 tubes	4 Fig. (F)							
for 5 tubes	5 Fig. (G)							
for 6 tubes	6 Fig. (H)							

TABLE II
Approximate Hours of Service of "A" Batteries
 Number of batteries and connections as shown in Table I

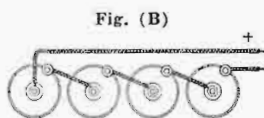
BURGESS BATTERIES	VACUUM TUBE STYLE NUMBER	UV-199 C-299 DV-3 DV-3A		WD-11 WD-12		UV-201 A C-301 A DV-2		UV-200 C-300
		Tube Amps.	Hrs.	Tube Amps.	Hrs.	Tube Amps.	Hrs.	
No. 6 "A"	for							Not a Dry Battery Tube.
	1 tube	0.06	700	0.25	110	0.25	110	
	2 tubes	0.12	300	0.50	110	0.50	110	
	3 tubes	0.18	180	0.75	110	0.75	110	
	4 tubes	0.24	150	1.00	110	1.00	110	
	5 tubes	0.30	240	1.25	110	1.25	110	
No. 232 No. 2370	1 tube	0.06	95	Not used with these Batteries				
	2 tubes	0.12	95					
	3 tubes	0.18	95					
	4 tubes	0.24	95					
	5 tubes	0.30	95					
	6 tubes	0.36	95					

SERIES CONNECTIONS

By connecting the (+) of one cell to the (-) of the next adds the voltages but does not affect the current which can be withdrawn.

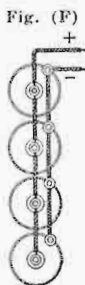
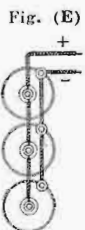
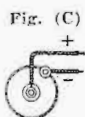


4.5 Volts

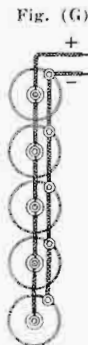


6.0 Volts

PARALLEL CONNECTIONS



All 1.5 Volt.



By connecting the (+) of one cell to the (+) of the next and the (-) to the (-) has no effect on the voltages but increases the current which can be withdrawn.

PARALLEL-SERIES CONNECTIONS

Fig. (I)



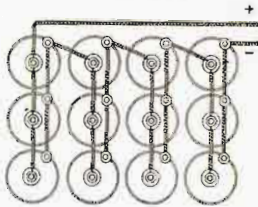
4.5 Volts

Fig. (J)



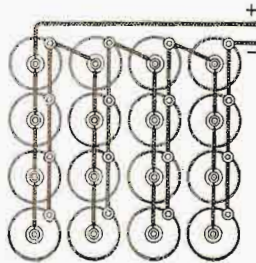
6.0 Volts

Fig. (K)



6.0 Volts

Fig. (L)



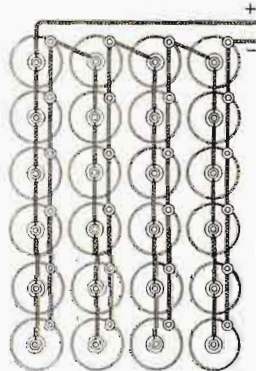
6.0 Volts

Fig. (M)



6.0 Volts

Fig. (N)



6.0 Volts

Parallel-series connections are combinations of parallel and series as indicated above. Table I shows how these connections are used on various tubes.

TABLE III
Plate Current Drains of Various Tubes

Vacuum Tube Style Number	UV-199 C-299 DV-3 DV-3A		WD-11 WD-12		UV-201A C-301A DV-2		UV-200 C-300	
	Tube as Detector	40 to 45 DV-3 { 22.5 to DV-3A } 45	40 to 45	45 to 90	40 to 45 DV-2 { 22.5 to 45	45 to 112.5 DV-2 { 45 to 120	Variable 15 to 24	Not an Amplifier
"B" Battery Volts (Plate)	Tube as Amplifier	45 to 90	Gridbias Volts 0.0 3.0 4.5	Gridbias Volts 0.0 3.0 4.5	Gridbias Volts 0.0 3.0 4.5	Gridbias Volts 0.0	Gridbias Volts 0.0	
"B" Battery Average Currents Milliamperes With Various Numbers of 22.5 Volt "B" Batteries	No. of Batteries	Average Volts	0.0 3.0 4.5	0.0 3.0 4.5	0.0 3.0 4.5	0.0 3.0 4.5	0.0 3.0 4.5	
	1	19.5	0.2 0.05 0.0 DV-3 { 0.4 DV-3A }	0.2 0.05 0.0	0.3 0.0 0.0	0.25 to 1.0		
	2	39.0	1.05 0.4 0.2 DV-3 { 1.3	1.05 0.4 0.2	DV-2 { 0.7 1.0 0.2 0.0			
	3	58.5	2.25 1.2 0.8 DV-3 { 2.3	2.25 1.2 0.8	DV-2 { 2.3 2.0 0.85 0.65			
	4	78.0	3.6 2.35 1.7	3.6 2.35 1.7	DV-2 { 4.3 3.75 2.15 1.6		Not Used With Higher Voltages	
5	97.5	5.15 3.5 2.7	5.15 3.5 2.7	DV-2 { 6.6 6.65 4.5 3.1				

TABLE IV
Approximate Hours of Service of "B" Batteries

Average Service Hours at Various Current Drains	Current Milliamperes	Class of "B" Battery			
		7 Pound	5 Pound	2 Pound	1 Pound
2		3600 Hrs.	1800 Hrs.	900 Hrs.	350 Hrs.
5		2000 Hrs.	1000 Hrs.	300 Hrs.	100 Hrs.
8		1250 Hrs.	500 Hrs.	140 Hrs.	
10		1000 Hrs.	400 Hrs.	110 Hrs.	
15		600 Hrs.	230 Hrs.		
20		400 Hrs.	150 Hrs.		
30		215 Hrs.	75 Hrs.		

TESTING RADIO BATTERIES

"A" Batteries

"A" batteries should be tested with a voltmeter. It is true that dry cells are usually "flashed" to show the short circuit amperage but this is no indication of their capacity—in fact, some of the highest capacity dry cells have only a nominal flash of 25 to 30 amperes. When the closed circuit of the "A" battery is below the "end point" voltage of the tube it is no longer useful. The battery voltage will probably have dropped to 1.25 open circuit volts, but it can still be used for ignition and bell service.

A low voltage "A" battery usually results in weak signals. It is also indicated by the filament control which must be kept near the "on" position to obtain desired volume.

"B" Batteries

The correct test of a "B" battery is the voltage test. While battery users and dealers are in the habit of testing dry batteries with an ammeter, this test is worthless on a "B" battery. The amperage indicates, to a certain extent, the internal resistance of a battery, but since the resistance of a 22.5-volt battery is about 5 ohms, and the resistance of a vacuum tube is from 10,000 to 30,000 ohms, it is apparent that an increase of, say five ohms, in the battery resistance will have no appreciable effect on the combined "B" battery and tube circuit. In other words, a drop in the amperage of a "B" battery, so long as the voltage is still satisfactory, means little regarding the usefulness of the battery.

The important thing to know is the voltage which the battery will deliver to the plate, and the voltage test is of real value only when made with a high grade, high resistance and accurate voltmeter. It is certain that when a "B" battery indicates a given voltage on a voltmeter of the latter type, it will deliver at least as much voltage to the tube.

While the nominal voltage rating of a fifteen-cell "B" battery is given as 22.5 volts, the actual voltage of a satisfactory "B" cell is slightly under 1.5 volts. Consequently the complete battery, when tested on a voltmeter, will not test quite 22.5 volts, but it should not be considered defective for this reason.

The minimum working voltage of a detector tube is about 17 volts. Therefore, a "B" battery should give results until its voltage drops to this figure. Even then it need not be discarded. It can be connected in series with other batteries and used on the amplifier tube. Here it should be serviceable until its voltage has dropped to about 10 volts. In this connection, however, one thing should be watched. Some "B" batteries become noisy when their voltage drops, and if this is the case, the battery should not be used. This is especially true of "B" batteries of ordinary construction, where no special moisture-proofing or insulation are provided to eliminate noisy voltage fluctuations.

A low voltage "B" battery usually produces weak or wavering signals.

"C" Batteries

These batteries, like "B" batteries, should be tested by a high grade voltmeter and when their voltage has dropped to about 1.0 volt per cell they should be replaced.

A low voltage "C" battery usually produces distorted signals.

"B" BATTERIES

No. 4156—22.5 VOLTS

Size—Length, $3\frac{3}{8}$ " ; width, 2" ; height, $2\frac{1}{2}$ ". 15 cells.
Weight, 1 pound.

Brass post and contacts.

Small, light weight battery of moderate current capacity and a shelf life of over six months. Signal Corps type BA-2. Excellent shelf life and light weight make it adaptable for aeroplane, portable and small cabinet sets.



No. 5156—22.5 VOLTS

Size—Length, $4\frac{1}{8}$ " ; width, $2\frac{3}{16}$ " ; height, $2\frac{3}{4}$ ".
15 cells. Weight, 1 pound, 9 ounces.

Flexible lead with flat connector on positive terminal, binding post and brass nut on negative terminal.

Small, moderate weight battery of medium current capacity and a shelf life of over eight months. Is for use in numerous standard console receiving sets.



No. 5158—22.5 VOLTS

VERTICAL TYPE

Size—Length, $2\frac{1}{2}$ " ; width, $2\frac{1}{2}$ " ; height, 6". 15 cells.
Weight, 2 pounds.

Brass post and contact with insulated nut terminals.

This battery is designed especially for use in sets employing No. 6 dry cells for filament current. Its dimensions and weight are those of the ordinary No. 6 "A" battery, and this feature of similarity in size makes it possible to place both the "A" and the "B" batteries in the same cabinet without waste of space; to interchange the positions of these batteries in self-contained sets; and to set up a compact unit containing both the "A" and the "B" batteries.

Same electrical characteristics as battery No. 5156.



No. 2156—22.5 VOLTS

Size—Length, $6\frac{5}{8}$ " ; width, 4" ; height, 3". 15 cells. Weight, 5 pounds.

Brass posts, contacts and nuts at taps to give 16.5, 18, 19.5 and 22.5 volts from the negative.

Large block type battery usually referred to as "Navy Type." Especially suited for stationary sets and building up high voltages. Shelf life over one year.



"B" BATTERIES



No. 5308—45 VOLTS

VERTICAL TYPE

Size—Depth, $2\frac{1}{2}$ " ; width, $4\frac{1}{4}$ " ; height, $5\frac{7}{8}$ ". 30 cells.
Weight, $3\frac{1}{4}$ pounds.

Brass posts and contact with insulated nut terminals to give 22.5 and 45 volts from the negative.

A smaller 45-volt battery of light weight for portable sets and convenient dimensions to combine with the No. 6 "A" battery. Shelf life over eight months.

No. 2158—22.5 VOLTS

Size—Length, $4\frac{1}{8}$ " ; width, $3\frac{1}{8}$ " ; height, 7". 15 cells.
Weight, 5 pounds.

Brass post and contact with insulated nut terminals.

Large battery of great current capacity and a shelf life of over one year. For multi-tube sets and regular heavy duty radio use.

The advantage of this battery is that it occupies minimum table space, will fit inside most receiving cabinets, and can be used in any position. Convenient in form for use with dry cell "A" batteries.

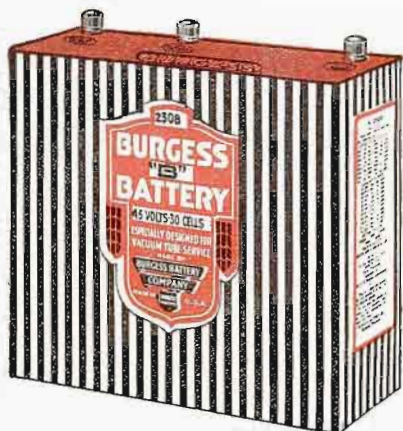


No. 2306—45 VOLTS

Size—Length, $7\frac{7}{8}$ " ; width, $6\frac{5}{8}$ " ; height, 3". 30 cells.
Weight, 9 lbs., 10 oz.

Brass posts, contacts and nuts at taps to give 16.5, 18, 19.5, 21, 22.5 and 45 volts from the negative. Double voltage battery equivalent to two No. 2156 wired in series. Shelf life over one year.

"B" BATTERIES



No. 2308—45 VOLTS

VERTICAL TYPE

Size—Depth, $3\frac{1}{8}$ " ; width, $8\frac{1}{8}$ " ; height, 7". 30 cells. Weight $9\frac{1}{2}$ lbs.

Brass posts and contact with insulated nut terminals to give 22.5 and 45 volts from the negative.

For multi-tube sets and heavy radio duty. Great current capacity. Occupies minimum table space and fits in most receiving sets. Shelf life over one year.

No. 10308—45 VOLTS

Size—Depth, $4\frac{1}{4}$ " ; width, 8" ; height, 7". 30 cells. Weight, 14 lbs.

Brass posts and contact with insulated nut terminals to give 22.5 and 45 volts from the negative.

An "OVERSIZED" "B" battery for sets drawing over 20 milliamperes, and where space is not of importance, gives the longest service in use of any type of "B" battery made. Shelf life over one year.



"A" BATTERIES

No. 6 "A"—1.5 VOLTS

Size— $2\frac{1}{2}$ " diameter; 6" high. 1 cell. Weight, 2 pounds.

Brass binding posts and nuts.

Designed especially for service on the "A" or filament circuit of dry cell vacuum tubes. Will give much more service than an ordinary No. 6 Ignition battery at approximately the same cost and has a rapid recovery to high voltage after short periods of rest with practically no voltage loss when not in use.

This battery is also usable for general purpose service after its voltage has dropped below the operating vacuum tube requirement.



"C" BATTERIES

No. 5360—4.5 VOLTS

Size—Length, $2\frac{1}{8}$ "; width, $\frac{1}{8}$ "; height, $2\frac{5}{8}$ ". 3 cells.

Weight, 4 ounces.

Flexible wire terminals, which, with small size, make convenient connections possible in the usual set not already provided with a "C" battery. Cells individually insulated, casing waterproofed, shelf life over eight months.



No. 2370—4.5 VOLTS

Size—Length, 4"; width, $1\frac{3}{8}$ "; height, 3". 3 cells.

Weight, 1 pound.

Brass posts, contacts and nuts, to give 1.5, 3.0 and 4.5 volts. Largest sized cells. A popular battery because of its size and taps. Shelf life over one year. Can also be used as an "A" battery on some tubes.



No. 5540—7½ VOLTS

Size—Length, 4"; width, $\frac{7}{8}$ "; height, $2\frac{7}{8}$ ". 5 cells.

Weight, 9 ounces.

Brass posts, contacts and nuts and one flexible wire terminal to give 1.5, 3.0, 4.5, 6.0 and 7.5 volts. For use in special cases where high "C" voltage is necessary. Shelf life over eight months.





ASK ANY RADIO ENGINEER

