

DEPARTMENT OF COMMERCE

RADIO SERVICE BULLETIN

ISSUED MONTHLY BY RADIO DIVISION

Washington, August 31, 1927—No. 125

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ABBREVIATIONS

The necessary corrections to the List of Radio Stations of the United States and to the International List of Radiotelegraph Stations, appearing in this bulletin under the heading "Alterations and corrections," are published after the stations affected in the following order:

| | |
|--------------|--|
| Name | = Name of station. |
| Loc. | = Geographical location. O = west longitude. N = north latitude, S = south latitude. |
| Call | = Call letters assigned. |
| System | = Radio system used and sparks per second. |
| Range | = Normal range in nautical miles. |
| W. l. | = Wave lengths assigned; Normal wave lengths in italics. |
| Service | = Nature of service maintained: |
| | FX = Point-to-point (fixed service). |
| | PG = General public. |
| | PR = Limited public. |
| | RC = Radio compass. |
| | AB = Aviation beacon. |
| | B = Beacon. |
| | P = Private. |
| | O = Government business exclusively. |
| Hours | = Hours of operation: |
| | N = Continuous service. |
| | X = No regular hours. |
| F. T. Co. | = Federal Telegraph Co. |
| I. R. T. Co. | = Intercity Radio Telegraph Co. |
| I. W. T. Co. | = Independent Wireless Telegraph Co. |
| K. & C. | = Kilbourne & Clark Manufacturing Co. |
| R. C. A. | = Radio Corporation of America. |
| T. R. T. Co. | = Tropical Radio Telegraph Co. |
| U. R. Corp. | = Universal Radio Corp. |
| W. S. A. Co. | = Wireless Specialty Apparatus Co. |
| C. w. | = Continuous wave. |
| I. c. w. | = Interrupted continuous wave. |
| Kc. | = Kilocycles. |
| Fy. | = Frequency. |
| A. c. | = Alternating current. |
| V. t. | = Vacuum tube. |
| | = Station only in the List of Commercial and Government Radio |

RADIO SERVICE BULLETIN

NEW STATIONS

Commercial land stations, alphabetically, by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Berne bureau]

| Station | Call signal | Wave lengths | Service | Hours | Station controlled by— |
|---------------------------------------|-------------|-----------------|---------|-------|-----------------------------------|
| Bakersfield ¹ | KWV | 66.45..... | FX | N | Pacific Air Transport. |
| Bolinas, Calif. ² | KUN- KWE | 14.1, 29.65.... | FX | N | R. C. A. |
| Loring, Alaska ³ | KRI | 600, 700..... | P | X | Alaska Packers Association. |
| Miami, Fla. ⁴ | WSV | 124.0..... | P | X | Electrical Equipment Co. |
| Rocky Point, N. Y. ⁵ | WAI | 22.24..... | FX | N | R. C. A. |
| Seattle, Wash. ⁶ | KYF | 137.5..... | P | N | City of Seattle, fire department. |

- ¹ System, composite v. t. telegraph.
- ² Range, 3,000; system, R. C. A. v. t. telegraph.
- ³ Range, 150; system, Marconi, 1,000.
- ⁴ System, composite v. t. telephons.
- ⁵ Range, 4,000; system, Marconi beam, c. w.
- ⁶ Loc. (approximately) 122° 20' 00" W., 47° 34' 00" N.; system, composite v. t. telephons and telegraph.

Commercial ship stations, alphabetically, by names of vessels

[Additions to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Berne bureau]

| Name of vessel | Call signal | Rates | Service | Hours | Owner of vessel | Station controlled by— |
|-------------------------------|-------------|-------|---------|-------|----------------------------|------------------------------|
| Antel J. Hyles..... | WPBJ | 8 | PG | X | Tidewater Oil Co..... | Owner of vessel. R. C. A. |
| Barney, Jr..... | WOBY | | | | Bellingham Tug & Barge Co. | |
| Cruzo (RC) ¹ | WORA | | PG | X | Huron Transportation Co. | Owner of vessel. R. C. A. |
| Crest..... | WPRK | 8 | PG | X | Bay State Fishing Co..... | |
| Inlanthe ² | KGGL | | P | X | John S. Phipps..... | Owner of vessel. |
| Larry Doherty (RC)..... | WORB | 8 | PG | X | Petroleum Securities Corp. | |
| N. & K. No. 2..... | WOBX | | | | Van Camp Sea Food Co..... | Owner of vessel. |
| Nippekontu ³ | WOBV | | P | X | Robert D. Russell..... | |
| Surf..... | WPBL | 8 | PG | X | Bay State Fishing Co..... | |
| Swoll..... | WPBM | 8 | PG | X | do..... | |

- ¹ Rates, Great Lakes service, 4 cents per word.
- ² Range, 100; system, composite v. t. telegraph; w. l., 129.8, 600.
- ³ System, composite v. t. telegraph; w. l., 35.2, 72.4, 600.

Commercial land and ship stations, alphabetically, by call signals

(b, ship station; c, land station)

| Call signal | Name of station | Call signal | Name of station |
|-------------|--------------------------|-------------|----------------------|
| KGGL | Inlanthe.....b | WOBV | Nippekontu.....b |
| KRI | Loring, Alaska.....c | WOBX | N. & K. No. 2.....b |
| KUN | Bolinas, Calif.....c | WOBY | Barney, Jr.....b |
| KWE | do.....c | WPBJ | Antel J. Hyles.....b |
| KWV | Bakersfield, Calif.....c | WPRK | Crest.....b |
| KYF | Seattle, Wash.....c | WPBL | Surf.....b |
| WAI | Rocky Point, N. Y.....c | WPBM | Swoll.....b |
| WORA | Cruzo.....b | WSV | Miami, Fla.....c |
| WORB | Larry Doherty.....b | | |

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Broadcasting stations, alphabetically, by names of States and cities

[Additions to the List of Radio Stations of the United States, edition of June 30, 1927]

| State and city | Call signal | Wave length | Frequency (kilocycles) | Power (watts) |
|---------------------------------------|-------------|-------------|------------------------|---------------|
| Arkansas: Blytheville..... | KLCN | 283.5 | 1,060 | 50 |
| Georgia: | | | | |
| Atlanta..... | WTHS | 270.1 | 1,110 | 200 |
| Toccoa..... | WKBJ | 280.0 | 1,071 | 250 |
| Indiana: Gary..... | WJKS | 232.4 | 1,290 | 500 |
| Louisiana: Cedar Grove..... | KGGH | 235.4 | 1,400 | 50 |
| Ohio: Shelby..... | WOBR | 204.0 | 1,470 | 10 |
| Oklahoma: Picher..... | KQGF | 206.8 | 1,450 | 100 |
| South Dakota: Pierre..... | KGFN | 251.1 | 1,180 | 200 |
| Tennessee: Union City..... | WOBT | 205.4 | 1,460 | 15 |
| Texas: Breckenridge..... | KFYO | 211.1 | 1,420 | 15 |
| Washington: Seattle..... | KXRO | 227.1 | 1,320 | 50 |
| West Virginia: Charleston..... | WOBU | 267.7 | 1,120 | 10 |
| California: Inglewood (portable)..... | KGGM | 204.0 | 1,470 | 100 |

Broadcasting stations, alphabetically, by call signals

| Call signal | Location of station (address) | Owner of station | Power (watts) | Wave length | Frequency (kilocycles) |
|-------------|---|-------------------------------------|---------------|-------------|------------------------|
| KFYO | Breckenridge, Tex..... | Kirkey Bros. Battery & Electric Co. | 15 | 211.1 | 1,420 |
| KGFN | Pierre, S. Dak., 310 Summit Avenue. | Dana McNeil..... | 200 | 251.1 | 1,180 |
| KQGF | Picher, Okla..... | Dr. D. L. Council..... | 100 | 206.8 | 1,450 |
| KGGH | Cedar Grove, La..... | Bates Radio & Electric Co..... | 50 | 235.4 | 1,400 |
| KGGM | Inglewood, Calif. (portable)..... | Jay Peters..... | 100 | 204.0 | 1,470 |
| KLCN | Blytheville, Ark..... | Daily Courier News..... | 50 | 283.5 | 1,060 |
| KXRO | Seattle, Wash., Finch Building, Heron and South II Streets. | KXRO (Inc.)..... | 50 | 227.1 | 1,320 |
| WJKS | Gary, Ind., 540 Lake Street..... | Johnson Kennedy Radio Corporation. | 500 | 232.4 | 1,290 |
| WKBJ | Toccoa, Ga..... | Toccoa Falls Institute..... | 250 | 280.0 | 1,071 |
| WOBR | Shelby, Ohio..... | Rarl Smith..... | 10 | 204.0 | 1,470 |
| WOBT | Union City, Tenn., 114 South First Street. | Tittsworth's Radio and Music Shop. | 15 | 205.4 | 1,460 |
| WOBU | Charleston, W. Va., 1023 Quarrier Street. | Charleston Radio Broadcasting Co. | 50 | 267.7 | 1,120 |
| WTHS | Atlanta, Ga..... | Atlanta Technical High School. | 200 | 270.1 | 1,110 |

Commercial airplane stations, alphabetically, by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Home Bureau]

| Station | Call signal | Wave length | Service | Hours | Station controlled by— |
|-----------------------------------|-------------|-------------|---------|-------|------------------------|
| Ville de Paris ¹ | WOBW | 600 | P | K | Lieut. L. W. Curtin. |

¹ System, U. S. Navy v. t. telegraph; power, 100 watts. This plane to be used in a transoceanic flight.*Commercial airplane stations, alphabetically, by call signals*

| Call signal | Name of station |
|-------------|-----------------|
| | |

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Government land stations, alphabetically, by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Bureau]

| Station | Call signal | Wave length | Service | Hours | Station controlled by— |
|---------------------------------------|-------------|-------------|---------|-------|------------------------|
| Cape St. Elias Light Station, Alaska. | WWEQ | | 0 | X | Bureau of Lighthouses. |
| Managua, Nicaragua..... | NAZ | | 0 | | U. S. Navy. |
| Newport, R. I. (torpedo station). | NIFT | | 0 | X | Do. |
| Do..... | NIFV | | 0 | X | Do. |

Government land and ship stations, alphabetically, by call signals

[b, ship station; c, land station]

| Call signal | Name of station | Call signal | Name of station |
|-------------|--|-------------|---|
| NAZ | Managua, Nicaragua.....c | NIFV | Newport, R. I. (torpedo station).....c |
| NIFT | Newport, R. I. (torpedo station).....c | WWEQ | Cape St. Elias Light Station, Alaska....c |

Special land stations, alphabetically, by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1927]

| Station | Call signal | Wave length | Frequency (kilocycles) | Power (watts) | Station controlled by— |
|--|-------------|-------------------------|------------------------|---------------|---|
| Bellmore, N. Y. ¹ | 2XZ | 491.5..... | 610 | 50,000 | National Broadcasting Co. |
| Council Bluffs, Iowa ¹ | 9XU | 61.0 ¹ | 4,910 | 500 | Morm Motor Oil Co. |
| Dearborn, Mich..... | 8XL | 560.4-552.2..... | 535-515 | 1,000 | Ford Motor Co. |
| Los Angeles, Calif. ¹ | 6XAN | 103.9..... | 2,830 | 250 | Freeman Lang, 1258 North Harry Avenue. |
| New York, N. Y. (portable). ¹ | 2XAA | 5-200..... | 59,954-1,499 | 1,000 | Bell Telephone Laboratories, 463 West Street. |
| Spokane, Wash. (portable). ¹ | 7XAB | 165.9..... | 2,830 | 50 | Symons Investment Co. |
| Tilton, N. H. ¹ | 1XY | 105,109..... | 2,855, 2,751 | 50-250 | Booth Radio Laboratories. |

¹ Relay broadcast station.*Special land stations, grouped by districts*

| Call signal | District and station | Call signal | District and station |
|-------------|--|-------------|--|
| 1XY | First district: Tilton, N. H. | 7XAB | Seventh district: Spokane, Wash. (portable). |
| 2XAA | Second district: New York, N. Y. (portable). | 8XL | Eighth district: Dearborn, Mich. |
| 2XZ | Bellmore, N. Y. | 9XU | Ninth district: Council Bluffs, Iowa. |
| 6XAN | Sixth district: Los Angeles, Calif. | | |

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ALTERATIONS AND CORRECTIONS

COMMERCIAL LAND STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

CHICAGO, ILL. (WCFL).—W. 1., 37.24, 715, 875, 1,950; service, PG; hours, 9 a. m.—5 p. m.

COMMERCIAL SHIP STATIONS, ALPHABETICALLY, BY NAMES OF VESSELS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

ALOHA.—Station controlled by R. C. A.
 AMERICAN BANKER.—Station controlled by R. C. A. (U. S. L.).
 CHILCOP.—Station controlled by R. C. A.
 CITY OF DALHART.—Station controlled by R. C. A.
 EASTERN VICTOR.—Station controlled by R. C. A. (U. S. L.).
 FRANK D. STOUT.—Owner of vessel, Andrew F. Mahony Co.
 HELEN OLMSTED.—Owner of vessel, California Petroleum S. S. Corporation.
 H. M. FLAGLER.—Station controlled by R. C. A.
 JADEN.—Station controlled by R. C. A. (U. S. L.).
 JEANETTE SKINNER.—Station controlled by R. C. A. (U. S. L.).
 JOHN C. KIRKPATRICK.—Station controlled by owner of vessel.
 L. J. DRAKE.—Station controlled by R. C. A.
 MOODY.—Station controlled by owner of vessel.
 PRESIDENT GRANT.—Station controlled by owner of vessel.
 PRESIDENT JACKSON.—Station controlled by owner of vessel.
 PRESIDENT JEFFERSON.—Station controlled by owner of vessel.
 PRESIDENT MADISON.—Station controlled by owner of vessel.
 PRESIDENT MCKINLEY.—Station controlled by owner of vessel.
 SACCARAPPA.—Station controlled by I. W. T. Co.
 TILLAMOOK.—Owner of vessel, Hammond Lumber Co.
 VITTORIO EMMANUELE III.—Station controlled by R. C. A. (U. S. L.).
 WASHTENAW.—Owner of vessel, California Petroleum S. S. Corporation.
 WEST CAMPGAW.—Station controlled by R. C. A. (U. S. L.).
 WILLA CROSBY.—Owner of vessel, Crosby Marine Corporation.
 Strike out all particulars of the following-named vessels: *Blossom*, *City of Nome*, *Craster Hall*, *Henry W. Breyer*, *Jacob Luckenbach*, *Muncastern*.

COMMERCIAL LAND AND SHIP STATIONS, ALPHABETICALLY, BY CALL SIGNALS

Strike out all particulars following the call signals, KDXE, KLK, KFLG, KFYT, KKO, WMBZ.

COMMERCIAL AIRPLANE STATIONS, ALPHABETICALLY, BY NAMES OF VESSELS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

OLD GLORY.—System, composite v. t. telegraph; w. l., 600, 800 (power, 100 watts).

BROADCASTING STATIONS, BY CALL SIGNALS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1927]

KFBC (SAN DIEGO, CALIF.).—Owner of station, Dr. Arthur W. Yale.
 KFJB (MARSHALLTOWN, IOWA).—Power, 100.
 KFJY (FORT DODGE, IOWA).—W. 1., 440.9; fy. kc., 680.
 KELU (SAN BENITO, TEX.).—Call signal changed to KHMC; owner of station, Harlingen Music Co.
 KFOR (LINCOLN, NEBR.).—Owner of station, Howard A. Shuman.
 KFRC (SAN FRANCISCO, CALIF.).—Power, 1,000 (day and night).
 KFWO (AVALON, CALIF.).—W. 1., 299.8; fy. kc., 1,000.
 KFXD (JEROME, UTAH).—Should read Jerome, Idaho.

- KGBY (SHELBY, NEBR.).—Changed to Columbus, Nebr.
 KGDA (DELL RAPIDS, S. DAK.).—W. l., 254.1; fy. ke., 1,180.
 KLDS (INDEPENDENCE, MO.).—W. l., 270.1; fy. ke., 1,110.
 KMA (SHENANDOAH, IOWA).—Power, 1,000; w. l., 394.5; fy. ke., 760.
 WASH (GRAND RAPIDS, MICH.).—Owner of station, Baxter Laundries (Inc.).
 WBAL (GLEN MORRIS, MD.—BALTIMORE).—Power, 5,000.
 WBET (BOSTON, MASS.).—W. l., 288.3; fy. ke., 1,040.
 WBT (CHARLOTTE, N. C.).—Owner of station, C. C. Coddington.
 WCAC (MANSFIELD, CONN.).—W. l., 535.4; fy. ke., 560.
 WCAU (PHILADELPHIA, PA.).—W. l., 336.9; fy. ke., 890.
 WCBE (NEW ORLEANS, LA.).—Address, Hotel De Soto.
 WCGU (CONY ISLAND, N. Y.—BROOKLYN).—W. l., 218.8; fy. ke., 1,370.
 WCLS (JOLIET, ILL.).—Owner of station, M. A. Felman Co.
 WCOC (COLUMBUS, MISS.).—Power, 250.
 WCRW (CHICAGO, ILL.).—Address, 2756 Pine Grove Ave.
 WDAD (NASHVILLE, TENN.).—Power, 1,000 (day and night).
 WDGY (MINNEAPOLIS, MINN.).—W. l., 263; fy. ke., 1,140; address, Superior
 Boulevard and Falvey Cross Road.
 WDRC (NEW HAVEN, CONN.).—Address, 5 Beacon Ave.; power, 500; w. l.,
 282.8; fy. ke., 1,060.
 WEAJ (NEW YORK, N. Y.).—Changed to Bellmore, N. Y.; power, 50,000.
 WENR (CHICAGO, ILL.).—Owner of station, Great Lakes Radio Broadcasting
 Co., 310 South Michigan Ave.
 WFBH (BALTIMORE, MD.).—Owner of station, Baltimore Radio Shop (Inc.),
 Philadelphia Road and Seventeenth St.; power, 250 night, 500 day; w. l.,
 253.8; fy. ke., 1,230.
 WFCI (PAWTUCKET, R. I.).—W. l., 241.8; fy. ke., 1,240.
 WFHH (CLEARWATER, FLA.).—Call signal changed to WFLA.
 WFKD (PHILADELPHIA, PA.).—Power, 50; w. l., 247.8; fy. ke., 1,210.
 WHAD (MILWAUKEE, WIS.).—Owner of station, Marquette University.
 WHAM (ROCHESTER, N. Y.).—Changed to Victor Township, N. Y.; power,
 5,000.
 WHBN (ST. PETERSBURG, FLA.).—Changed to Gainesville, Fla.; owner of station
 University of Florida.
 WHBW (PHILADELPHIA, PA.).—Power, 100.
 WHEC (ROCHESTER, N. Y.).—Additional call signal, WABO assigned; w. l.,
 254.1; fy. ke., 1,180; this station combined with WABO, Lake Avenue Baptist
 Church.
 WHFC (CHICAGO, ILL.).—Owner of station, Goodson and Wilson (Inc.).
 WIAD (PHILADELPHIA, PA.).—W. l., 288.3; fy. ke., 1,040.
 WJBB (ST. PETERSBURG, FLA.).—Changed to Tampa, Fla., 302 Memorial High-
 way (Amore College).
 WJBI (RED BANK, N. J.).—Power, 150; w. l., 263; fy. ke., 1,140.
 WLAC (NASHVILLE, TENN.).—Power, 1,000.
 WLTH (BROOKLYN, N. Y.).—Owner of station, Voice of Brooklyn (Inc.); w. l.,
 256.3; fy. ke., 1,170.
 WMBB (CHICAGO, ILL.).—Power, 5,000.
 WMBG (RICHMOND, VA.).—W. l., 220.4; fy. ke., 1,360.
 WNBO (WASHINGTON, PA.).—Address, South Main St.
 WNYC (NEW YORK, N. Y.).—W. l., 526; fy. ke., 570.
 WRAX (PHILADELPHIA, PA.).—W. l., 212.6; fy. ke., 1,410.
 WRCC (RALEIGH, N. C.).—Call signal changed to WPTF; owner of station,
 Durham Life Insurance Co.; power, 500; w. l., 410.4; fy. ke., 720.
 WRHF (WASHINGTON, D. C.).—Power, 150; w. l., 322.4; fy. ke., 930 (day only.)
 WSEA (VIRGINIA BEACH, VA.).—W. l., 263; fy. ke., 1,140.
 WSOM (WOODHAVEN, N. Y.).—Call signal changed to WEVD; owner of station,
 Debs Memorial Radio Fund.
 WSSH (BOSTON, MASS.).—W. l., 288.3; fy. ke., 1,040.
 WTAD (QUINCY, ILL.).—Power, 500 (day).
 WTAR (NORFOLK, VA.).—W. l., 263; fy. ke., 1,140.
 WTIC (HARTFORD, CONN.).—W. l., 535.4; fy. ke., 560.
 WTMJ (MILWAUKEE, WIS.).—Changed to Brookfield, Wis., Blue Mound Road.
 WWAE (CHICAGO, ILL.).—Owner of station, Dr. George F. Courier; w. l., 227.1;
 fy. ke., 1,320.
 Strike out all particulars of the following-named stations: KFBS (Trinidad,
 Colo.); KFYF (Oxnard, Calif.); KGCG (Newark, Ark.); KGDP (Pueblo,
 Colo.); WABO (Rochester, N. Y.); WFLA (Boca Raton, Fla.).

RADIO SERVICE BULLETIN

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GOVERNMENT LAND STATIONS, ALPHABETICALLY, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations, published by the Berns Bureau]

KEY WEST, FLA. (NAR).—W. I., strike out 5,766, effective October 1, 1927.
SAN JUAN, P. R.—W. I., strike out 5,949, add 0,246.

SPECIAL LAND STATIONS, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1927]

Strike out all particulars of the following-named stations: Medford Hillside, Mass. (1XE); Nashville, Tenn. (4XC).

MISCELLANEOUS

Vessels equipped with a radio compass

| Name | Call signal ¹ | Owner |
|---------------------------|--------------------------|--|
| A. F. Harvey..... | | Pittsburgh S. S. Co. |
| A. H. Feibert..... | | Do. |
| Alva C. Dinkey..... | | Do. |
| Arnold A. Thompson..... | | Producers S. S. Co. |
| Charles R. Harwood..... | WID | Pan-American Petroleum & Transport Co. |
| China Arrow..... | KDGW | Standard Transportation Co. |
| Clemens A. Reiss..... | WNIL | Reiss S. S. Co. |
| C. Russell Hubbard..... | | Columbia S. S. Co. |
| David Z. Norton..... | | Do. |
| D. M. Clemson..... | | Pittsburgh S. S. Co. |
| Douglas Houghton..... | | Do. |
| Edward A. Uhrig..... | | Calumet Transportation Co. |
| Elbert H. Gary..... | | Pittsburgh S. S. Co. |
| Eugene W. Pargny..... | | Do. |
| George F. Baker..... | | Do. |
| George M. Humphrey..... | | Kinsman Transit Co. |
| George W. Perkins..... | | Pittsburgh S. S. Co. |
| Harry Coulby..... | WPBF | Interlake S. S. Co. |
| Harvard..... | | Pittsburgh S. S. Co. |
| Henry C. Frick..... | | Do. |
| Henry H. Rogers..... | | Do. |
| Hervey S. Wilkinson..... | | Great Lakes S. S. Co. |
| Isaac L. Elwood..... | | Pittsburgh S. S. Co. |
| James J. Hill..... | | Do. |
| James Watt..... | | Do. |
| Java Arrow..... | KDHQ | Standard Transportation Co. |
| John P. Reiss..... | KUJM | Reiss S. S. Co. |
| John W. Gates..... | | Pittsburgh S. S. Co. |
| Juniata..... | WCB | Great Lakes Transit Co. |
| La Belle..... | | La Belle S. S. Co. |
| Larry Dobany..... | WOBE | Petroleum Securities Corporation. |
| Mancopa..... | | Pittsburgh S. S. Co. |
| Matanfa..... | | Do. |
| Mutualco..... | | Do. |
| Peter A. H. Wildener..... | | Do. |
| Rehseiner..... | | Do. |
| Richard J. Reiss..... | WNK | Reiss S. S. Co. |
| R. B. Richardson..... | | Pittsburgh S. S. Co. |
| Simon J. Murphy..... | | Do. |
| Sir Henry Bessemer..... | | Do. |
| Thomas P. Cole..... | | Do. |
| Utowana..... | KPSH | Allison V. Armour. |
| Worrell Clarkson..... | | Kinsman Transit Co. |
| Yankee Arrow..... | KDTG | Standard Transportation Co. |

¹ Vessels which do not have call signals are not equipped with apparatus for communication.

CHANGES IN RADIOBEACON STATIONS

Ludington North Breakwater Light Station, Mich.—New beacon established. Will transmit every 180 seconds, groups of 1 dash and 3 dots for 60 seconds, silent 120 seconds, thus:

— . . . — . . . etc. — Silent
60 seconds 120 seconds

Operates during thick weather and daily in clear weather from 3 to 3.30 and 9 to 9.30 a. m. and p. m., central standard time. Radio-communication service is not maintained.

Grand Haven Pierhead Range Front Light Station, Mich.—New beacon established. Will transmit every 180 seconds, groups of 1 dot and 3 dashes for 60 seconds, silent 120 seconds, thus:

| | |
|------------------------------|-----------------------|
| etc. 60 seconds | Silent 120 seconds |
|------------------------------|-----------------------|

Operates during thick weather and daily in clear weather from 5 to 5.30 and 11 to 11.30 a. m. and p. m., central standard time. Radio-communication service is not maintained.

Calumet Harbor Light Station, Ill.—New beacon established. Will transmit every 180 seconds, groups of 1 dash and 1 dot for 60 seconds, silent 120 seconds, thus:

| | |
|--------------------------------|-----------------------|
| — . — . — . etc. 60 seconds | Silent 120 seconds |
|--------------------------------|-----------------------|

Operates during thick weather and daily in clear weather from 1 to 1.30 and 7 to 7.30 a. m. and p. m., central standard time. Radio-communication service is not maintained.

Manitowoc Breakwater Light Station, Wis.—New beacon established. Will transmit every 180 seconds, groups of 3 dashes for 60 seconds, silent 120 seconds, thus:

| | |
|------------------------------|-----------------------|
| — — — — — etc. 60 seconds | Silent 120 seconds |
|------------------------------|-----------------------|

Operates during thick weather and daily during clear weather from 2 to 2.30 and 8 to 8.30 a. m. and p. m., central standard time. Location: 44° 05' 34" N., 87° 38' 29" W. Radio-communication service is not maintained.

Duluth Range Front Light Station, Minn.—New beacon established. Will transmit every 180 seconds, groups of 1 dash for 60 seconds, silent 120 seconds, thus:

| | |
|------------------------------|-----------------------|
| — — — — — etc. 60 seconds | Silent 120 seconds |
|------------------------------|-----------------------|

Operates during thick weather and daily during clear weather from 12.30 to 1 and 6.30 to 7 a. m. and p. m., ninetieth meridian time. Location: 46° 46' 49" N., 92° 05' 16" W. Radio-communication service will not be maintained.

All beacons operate on 1,000 meters.

Vessel masters have reported as an irregularity the continuous sounding of a radiobeacon station without the silent interval in the published characteristic. Attention is invited to the fact that these stations have been authorized to sound their signals in this manner when sounding for calibration purposes at times of clear weather and not within their published daily periods of sounding for general navigation purposes. This continuous sounding without the silent interval therefore is to facilitate the work of calibration, decreasing the delay to vessels, and should not be reported as an irregularity. It can only occur through intentional manipulation by the keeper and is for a specific purpose as indicated.

**AN ACT TO REQUIRE APPARATUS AND OPERATORS FOR RADIO COMMUNICATION
ON CERTAIN OCEAN STEAMERS, APPROVED JUNE 21, 1910, AS AMENDED JULY 22,
1912¹**

As it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. That from and after October first, nineteen hundred and twelve, it shall be unlawful for any steamer of the United States or of any foreign country navigating the ocean or the Great Lakes and licensed to carry, or carrying, fifty or more persons, including passengers or crew or both, to leave or attempt to leave any port of the United States unless such steamer shall be equipped with an efficient apparatus for radio communication, in good working order, capable of transmitting and receiving messages over a distance of at least one hundred miles, day or night. An auxiliary power supply, independent of the ves-

¹ The amended act applies to vessels licensed to carry as well as those actually carrying 50 or more

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sel's main electric power plant, must be provided which will enable the sending set for at least four hours to send messages over a distance of at least one hundred miles, day or night, and efficient communication between the operator in the radio room and the bridge shall be maintained at all times.

The radio equipment must be in charge of two or more persons skilled in the use of such apparatus, one or the other of whom shall be on duty at all times while the vessel is being navigated. Such equipment, operators, the regulation of their watches, and the transmission and receipt of messages, except as may be regulated by law or international agreement, shall be under the control of the master, in the case of a vessel of the United States; and every willful failure on the part of the master to enforce at sea the provisions of this paragraph as to equipment, operators, and watches shall subject him to a penalty of one hundred dollars.

That the provisions of this section shall not apply to steamers plying between ports, or places, less than two hundred miles apart.

Sec. 2. That this Act, so far as it relates to the Great Lakes, shall take effect on and after April first, nineteen hundred and thirteen, and so far as it relates to ocean cargo steamers shall take effect on and after July first, nineteen hundred and thirteen: *Provided*, That on cargo steamers, in lieu of the second operator provided for in this Act, there may be substituted a member of the crew or other person who shall be duly certified and entered in the ship's log as competent to receive and understand distress calls or other usual calls indicating danger, and to aid in maintaining a constant wireless watch so far as required for the safety of life.

The remaining sections of the act of June 24, 1910, which are unchanged, read as follows:

Sec. 2. That for the purpose of this Act apparatus for radio communication shall not be deemed to be efficient unless the company installing it shall contract in writing to exchange, and shall, in fact, exchange, as far as may be physically practicable, to be determined by the master of the vessel, messages with shore or ship stations using other systems of radio communication.

Sec. 3. That the master or other person being in charge of any such vessel which leaves or attempts to leave any port of the United States in violation of any of the provisions of this Act shall, upon conviction, be fined in a sum not more than five thousand dollars, and any such fine shall be a lien upon such vessel, and such vessel may be libeled therefor in any district court of the United States within the jurisdiction of which such vessel shall arrive or depart, and the leaving or attempting to leave each and every port of the United States shall constitute a separate offense.

Sec. 4. That the Secretary of Commerce shall make such regulations as may be necessary to secure the proper execution of this Act by collectors of customs and other officers of the Government.

REGULATION GOVERNING THE BROADCASTING OF MECHANICAL REPRODUCTIONS

The Federal Radio Commission finds that while the broadcasting of music performed through the agency of mechanical reproductions, such as records or perforated rolls, is not in itself objectionable, the failure clearly to announce the nature of such broadcasting is in some instances working what is in effect a fraud upon the listening public. The commission therefore hereby orders that, effective August 21, 1927, all broadcasts of music performed through the agency of mechanical reproductions shall be clearly announced as such with the announcement of each and every number thus broadcast, and that proved failure to make such announcement shall be deemed by the commission cause for action under section 32 of the radio act of 1927.—*General Order No. 10, August 9, 1927.*

NEW INTERNATIONAL LIST OF RADIOTELEGRAPH STATIONS BY CALL SIGNALS NOW AVAILABLE FOR DISTRIBUTION TO THE GENERAL PUBLIC

The International List of Radiotelegraph Stations, alphabetically by call signals, tenth edition, type A, is sold to private individuals through the International Bureau of the Telegraphic Union, Berne, Switzerland, at 5 francs, 50 centimes, per copy. The price includes all supplements which are issued to the end of the year 1928. All orders should be forwarded direct to the Berne bureau, accompanied by the above-named amount in gold (Swiss).

The prices mentioned in RADIO SERVICE BULLETIN No. 123 for June are those made to the governments of countries and to companies operating commercial stations and does not include the cost of the supplements.

TIME SIGNALS TRANSMITTED BY ARLINGTON NAVAL STATION ON SHORT WAVE LENGTHS

This station now transmits time signals on 24.9, 37.4, and 74.7 meters at 0300 and 1700, G. C. T., daily, in addition to the signals on 2,677 meters.

CHANGE IN STATIONS IN CHINA

The compass station at Cape d'Aguiar (VPS) has been closed.

The time signals heretofore transmitted from Stonecutters Island station (BXY) have been discontinued.

RADIOBEACON ESTABLISHED ON BAR LIGHT VESSEL, MERSEY RIVER ENTRANCE,
ENGLAND

A radiobeacon, call signal GGM, wave length 1,000 meters (L. C. W.), range about 50 miles, will be established on the light vessel.

During thick weather the following signal will be transmitted and repeated continuously.

The call signal GGM repeated at the rate of 15 words per minute for 50 seconds, followed by a long dash of about 10 seconds, followed by the call signal GGM, made once. Silent 3 minutes, total period 4 minutes.

During clear weather the call signal GGM will be transmitted for 1 minute at 0, 4, 8, 28, 32, and 36 minutes past each hour.

Although this signal is to be made permanent, it may be found necessary to make some adjustments and the beacon should be considered as experimental for 3 months during which time the signals may be subject to temporary interruptions.

Approximate position: 53° 32' N., 3° 18' W.

(Notice to Mariners, Mersey Docks and Harbor Board, Liverpool, July 7, 1927.)

COLLECTION AND DISSEMINATION OF HYDROGRAPHIC INFORMATION BY NAVAL
AND OTHER RADIO STATIONS

The Hydrographic Office and the Naval Communication Service are prepared to collect and disseminate hydrographic information by naval radio. The cooperation of owners, operators, radio companies controlling installations on board vessels, and masters is necessary to make this undertaking a success. In return, greater protection will be afforded mariners than heretofore.

In addition to disseminating hydrographic information by radio the Hydrographic Office will continue to publish, as at present, in the Daily Memorandum, Hydrographic Bulletin, or Notice to Mariners, confirmation of hydrographic information disseminated by radio.

Expense.—The naval radio stations will make no charge for reception of messages containing hydrographic information, provided such messages are checked "Govt. Hydro.," and will arrange to furnish this information to the nearest branch hydrographic office free.

The ship-sending charge, if any, will have to be borne by the sending vessel.

Any other expenses in connection with the receipt and dissemination of this information will be borne by the Hydrographic Office.

Procedure.—The procedure, as far as masters of vessels are concerned, may be divided in two parts: (a) Sending hydrographic information to naval radio station; (b) receiving information twice daily when in radio range of the distributing station of its zone.

Sending information

Vessels cooperating in this service should transmit messages in plain English direct to United States naval radio stations, as follows:

Atlantic Ocean.—North of latitude 42° 00' N. to Boston Naval Radio Station (NAD).

Between latitude 39° 30' N. and 42° 00' N. to New York Naval Radio Station (NAH).

Between latitude 38° 30' N. and 39° 30' N. to Philadelphia Naval Radio Station (NAE).

Between latitude 33° 00' N. and 38° 30' N. (including entrance to Chesapeake Bay) to Norfolk Naval Radio Station (NAM).

South of latitude 33° 00' N. and northeast of line joining Cape Sable, Fla., and Cay Piedras, Cuba, to Charleston Naval Radio Station (NAO).

Gulf of Mexico.—In the southeastern part of the Gulf of Mexico, the Florida Straits, Old Bahama Channel, Yucatan Channel, and the northern part of the Caribbean Sea to Key West Naval Radio Station (NAR).

Between the line joining Cape Sable, Fla., and Cay Piedras, Cuba, and the line joining Ship Shoal Light, La., and Cape Catoche, Yucatan (including Yucatan Channel), to New Orleans Naval Radio Station (NAT).

In the Gulf of Mexico west of the line joining Ship Shoal Light, La., and

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which will transmit this information to Key West: St. Thomas, Virgin Islands (NBB); San Juan, Porto Rico (NAU); Guantanamo, Cuba (NAW); Navassa Island (WWEA).

Caribbean Sea.—In the Caribbean Sea south of latitude 15° 00' N. to naval radio station, Colon (NAX).

Pacific Ocean.—Between the Equator and latitude 20° 00' N. to Colon Naval Radio Station (NAX), Balboa (Daricn) Naval Radio Station (NBA).

Between latitude 30° 00' N. and 42° 00' N. to San Francisco Naval Radio Station (NPG), Eureka Naval Radio Station (NPW).

Between latitude 42° 00' N. and 46° 00' N. to Astoria Naval Radio Station (NPE).

North of latitude 46° 00' N. (including Puget, Vancouver, and Queen Charlotte Sounds, and Alaskan waters) to Seattle Naval Radio Station (NPC).

Great Lakes.—Radiograms addressed "Govt. Hydro." will be accepted free of charge by the following stations:

AT ANY TIME

| Call | Owner and location of radio station |
|------|---|
| NAJ | U. S. Navy, Great Lakes, Et. |
| WAM | Intercity Radio Telegraph Co., Buffalo. |
| VHI | Marconi Station, Saint Ste. Marie, Ont. |
| WGO | Radio Corporation of America, Chicago. |
| WTK | Intercity Radio Telegraph Co., Cleveland. |
| WDI | Intercity Radio Telegraph Co., Detroit. |
| WCY | Radio Corporation of America, Cleveland. |

FROM 7 A. M. TO 7 P. M. (SEVENTY-FIFTH MERIDIAN TIME)

| | |
|-----|--|
| WME | Intercity Radio Telegraph Co., Duluth. |
|-----|--|

DURING THE FIRST 10 MINUTES OF EVERY HOUR (BUT NOT TO INTERFERE WITH FURNISHING RADIO-COMPASS BEARINGS TO VESSELS)

| | |
|-----|--|
| NZT | U. S. Navy radio-compass station, Whitefish Point, Mich. |
| NZU | U. S. Navy radio-compass station, Detour Point, Mich. |

The naval radio stations stand continuous watch and are prepared to receive hydrographic messages at any time. Vessels should transmit information as soon as they are in normal radio range of the station.

Vessels are requested to inform the Hydrographic Office if they have any trouble in "raising" a station or transmitting the hydrographic message.

Preparation of message.—In preparing information for transmission it is desired that messages be concise as consistent with exactness and clearness. The order of the message will be in the order of the importance of the items. To promote uniformity, the following order of subjects is recommended: (1) Aids to navigation off station misplaced or not functioning; (2) derelicts, submerged obstructions, wreckage, and rafts; (3) mines; (4) ice; (5) other items considered sufficiently important to broadcast.

NOTE.—It is not intended to forward information by radio unless danger to a vessel is involved, either from collision or a resulting inadequacy of aids to navigation.

Confirmation.—Vessels are requested to forward by first mail to the branch hydrographic office concerned a confirmation copy of all radio messages sent.

Receiving information

The latest available hydrographic information of each zone will be distributed from its assigned radio station as given below; all times are seventy-fifth meridian.

Atlantic Ocean.—Information of all Atlantic zones and trans-Atlantic steamer tracks will be broadcast from Arlington Naval Radio Station. Schedule 10.30 a. m., 10 p. m. Frequency 112 kc./s. (2,677 m.) A. C. W.

Information of the zone south of the forty-fifth parallel and northeast of a line joining Point Judith and Nantucket Sheal Light Vessel and north of the

Boston Naval Radio Station. Schedule 11 a. m., 5 p. m. Frequency 102 kc./s. (2,939 m.) C. W.

Information of the zone included between the parallels 42° 00' N. and 39° 30' N. will be broadcast from the New York Naval Radio Station. It is to be noted that this zone intentionally overlaps the Boston zone. Schedule 10.30 a. m., 5 p. m. Frequency 108 kc./s. (2,776 m.) C. W.

Information of the zone included between lat. 39° 30' N. and lat. 38° 30' N., including the Delaware River and Bay, will be broadcast from the Philadelphia Naval Radio Station. Schedule 10.45 a. m., 5 p. m. Frequency 106 kc./s. (2,828 m.) A. C. W.

Information of the zone included between 38° 30' N. and 33° 00' N., the entrance to Chesapeake Bay, Hampton Roads, Newport News, and Norfolk, will be broadcast from the Norfolk Naval Radio Station. Schedule 10.45 a. m., 4 p. m. Frequency 104 kc./s. (2,883 m.) I. C. W.

Information of the zone south of 33° 00' N. and northeast of a line joining Cape Sable, Fla., and Cay Piedras, Cuba, will be broadcast from the Charleston Naval Radio Station. Schedule 10.30 a. m., 6 p. m. Frequency 108 kc./s. (2,776 m.) A. C. W.

Gulf of Mexico.—Information of the southeastern part of the Gulf of Mexico, the Florida Straits, Old Bahama Channel, Yucatan Channel, and northern part of the Caribbean Sea will be broadcast from the Key West Naval Radio Station immediately after the weather bulletins. Schedule 12 a. m., frequency 102 kc./s. (2,939 m.) C. W.; 10 p. m., frequency 52 kc./s. (5,766 m.) C. W.; 102 kc./s. (2,939 m.) C. W.

Information of the Gulf of Mexico between the line Cape Sable, Fla., and Cay Piedras, Cuba, and the line Ship Shoal Light, La., and Cape Catoche, Yucatan, including the Yucatan Channel, will be broadcast from the New Orleans Naval Radio Station. Schedule 11 a. m., 5 p. m. Frequency 106 kc./s. (2,828 m.) C. W.

Information of the Gulf of Mexico west of the line joining Ship Shoal Light, La., and Cape Catoche, Yucatan, will be broadcast from the Brownsville Naval Radio Station immediately after the weather bulletins. Schedule 12 noon, 7 and 12 p. m. Frequency 70 kc./s. (4,283 m.) C. W. and 132 kc./s. (2,271 m.) spark.

Caribbean Sea.—Information of the Caribbean Sea will be broadcast from the Colon Naval Radio Station. Schedule 5 a. m., 1 p. m. Frequency 132 kc./s. (2,271 m.) C. W.

Pacific Ocean.—Information of the zone between the Equator and lat. 20° 00' N. will be broadcast from the Colon Naval Radio Station. Schedule 5 a. m., 1 p. m. Frequency 132 kc./s. (2,271 m.) C. W.

Hydrographic information broadcast from Balboa (Darien) Naval Radio Station. Schedule 5 a. m., 1 p. m. Frequency 46 kc./s. (6,518 m.) C. W.

Information of the zone included between lat. 33° 00' N. and lat. 42° 00' N. will be broadcast from the San Francisco Naval Radio Station. Schedule 1 a. m., frequency 108 kc./s. (2,776 m.) A. C. W.; 12 noon, frequency 42.8 kc./s. (7,005 m.) C. W.; 10.30 p. m., frequency 108 kc./s. (2,776 m.) A. C. W. and 42.8 kc./s. (7,005 m.) C. W.

Hydrographic information broadcast from Eureka Naval Radio Station. Schedule 12 noon, 5 and 8.30 p. m. Frequency 104 kc./s. (2,883 m.) A. C. W.

Information of the zone included between 42° 00' N. and 46° 00' N. will be broadcast from the Astoria Naval Radio Station. Schedule 4.30 and 11.30 p. m. Frequency 112 kc./s. (2,677 m.) A. C. W.

Information of the zone north of 46° 00' N., including Vancouver and Queen Charlotte Sounds and Alaskan waters, will be broadcast from the Seattle Naval Radio Station. Schedule 12 noon, 4 and 10 p. m. Frequency 118 kc./s. (2,541 m.) C. W.

Information on Lake Superior and St. Marys River to Sault Ste. Marie from Branch Hydrographic Office, Duluth, will be broadcast from the Duluth Intercity Radio Telegraph Co. Station (WME). Schedule 11 a. m., 5 p. m.; not transmitted on Sunday. Frequency 419.3 kc./s. (715 m.) spark.

Information will be broadcast from the Duluth Head of Lakes Radio Station (WEBC). Schedule 2.15 and 8 p. m.; not transmitted on Sundays and holidays. Frequency 1,240 kc./s. (241.8 m.) R. T.

Information from branch hydrographic office, Sault Ste. Marie, will be broadcast from the Whitefish Point Naval Radio-compass Station during the first 10 minutes of each hour. Frequency 375 kc./s. (800 m.) spark.

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Information from branch hydrographic office, Sault Ste. Marie, will be broadcast from the Detour Point Naval Radio-compass Station during the first 10 minutes of each hour. This station relays all broadcasts from Great Lakes Naval Radio Station (NAJ). Frequency 375 kc./s. (800 m.) spark.

Information on the Great Lakes from branch hydrographic office, Chicago, will be broadcast from the Great Lakes Naval Radio Station (NAJ). Schedule 10.45 a. m., 5 and 11 p. m. Frequency 132 kc./s. (2,271 m.) C. W.

Information will be broadcast from Chicago, Radio Corporation of America station (WGO). Schedule 12 noon, 5 and 10 p. m. Frequency 337 kc./s. (890 m.) C. W.

Information will be broadcast from Chicago, Zenith Radio Corporation station (WJAZ). Schedule 9.55 p. m. (except Mondays). Frequency 1,140 kc./s. (263 m.) R. T.

Information will be broadcast from the Detroit Free Press radio station (WCX). Schedule 4 p. m.; not transmitted on Sundays and holidays. Frequency 680 kc./s. (440.9 m.) R. T.

Information will be broadcast from the Detroit Radio Station (WGHP). Schedule 6.45 p. m.; not transmitted on Sundays and holidays. Frequency 940 kc./s. (319 m.) R. T.

Information will be broadcast from the Detroit Jewett Radio Co. station (WJR). Schedule 6.45 p. m.; not transmitted on Sundays and holidays. Frequency 680 kc./s. (440.9 m.) R. T.

Information will be broadcast from the Detroit News radio station (WWJ). Schedule 10.25 and 11.55 a. m. and 3.50 p. m.; not transmitted on Sundays or holidays. Frequency 800 kc./s. (374.8 m.) R. T.

Information on Lake Erie, Detroit River; Lake St. Clair, St. Clair River, Lake Huron, Georgian Bay, and Lake Michigan will be broadcast from Cleveland, Intercity Radio Telegraph Co. station (WTK). Schedule 11.05 a. m., 4 and 10.10 p. m. Frequency 419 kc./s. (715 m.) I. C. W.

Information will be broadcast from Cleveland, Radio Corporation of America station (WCY). Schedule 4.05 and 10.05 p. m. Frequency 190 kc./s. (1,578 m.) C. W.; 342.7 kc. (875 m.) I. C. W.

Information will be broadcast from Cleveland, Willard Storage Battery Co. radio station (WTAM). Schedule 12 noon, 4 p. m.; not transmitted on Sundays and holidays. Frequency 750 kc./s. (399.8 m.) R. T.

Information on Lake Ontario, Lake Erie, and Detroit River will be broadcast from Buffalo, Intercity Radio Telegraph Co. station (WAM). Schedule 11 a. m., 4, 9, and 10 p. m. Frequency 419 kc./s. (715 m.) spark or I. C. W.

Information will be broadcast from Buffalo, Federal Telegraph Co. station (WGR). Schedule 12 noon (except Sundays), 11 p. m. (except Saturdays). Frequency 990 kc./s. (302.8 m.) R. T.

Information will be broadcast from the Norton Laboratories station (WMAK). Schedule 7.15 p. m.; not transmitted on Sundays or holidays. Frequency 550 kc./s. (545.1 m.) R. T.

NOTE.—The above stations on the Great Lakes are subject to changes; such changes are published in memorandums issued by the branch hydrographic offices on the Great Lakes.

The arrangements for collecting, digesting, and disseminating hydrographic information are complete; it remains for masters of vessels to make this undertaking a success, for information must be received before it can be distributed.

COMPASS SERVICE ESTABLISHED BY WICK, SCOTLAND, STATION

This station, located in lat. 58° 26' N., long. 3° 06' W. (approx.), call signal GKR, wave length 600 meters, range 100 miles, is now available for compass bearings.

The regulations governing this service are as follows:

The charge for each bearing will be five shillings.

The reliable range of the compass station is 100 miles; up to this range, and within the sector 030°-210° (measured clockwise), an accuracy within 0.2° may be expected.

The accuracy with which the bearings can be taken depends on the conditions outlined below; but although all necessary precautions are taken in order that the bearings may be determined as accurately as possible, the British administration can not accept any responsibility for the consequences of a bearing being inaccurate.

The conditions which should be fulfilled for obtaining a good bearing are to transmit consistently clear, steady signals on a sharply tuned wave.

Bearings inside the sector 26°-33° will be given, but will be definitely stated as "unreliable," because variable errors are experienced inside that sector. The station has not been calibrated for the sector 19°-29°.

Bearings at night (more particularly within an hour before or after sunrise and sunset) are subject to variation, and should be accepted with caution.

If a bearing is not of the highest order, it will be specified as "approximate."

If a satisfactory bearing can not be obtained, the station will not transmit and, but will inform the ship that conditions are unfavorable and that another call should be made later.

CONSTANT FREQUENCY STATIONS

The list of "Constant frequency stations" given below supplements the list of "Standard frequency stations." The transmitted waves from the stations in either list should be of value to the public as frequency standards because of their constancy and close adherence to the licensed values. The Bureau of Standards makes regular measurements of the transmitted frequencies of the standard frequency stations but not of the constant frequency stations. Each station included in the following list employs a special device for controlling or checking the frequency, the calibration of the device being in agreement with the bureau's frequency standards. The special device may be automatic piezo control, a piezo oscillator, piezo resonator, or frequency indicator. Stations not included in this list nor in the list of standard frequency stations, which use one or more of the special devices for frequency regulation, are invited to communicate with the Bureau of Standards requesting a copy of Letter Circular 214, Requirements of constant frequency stations.

| Station | Owner | Location | Pre- | Wave | Apparatus for frequency regulation |
|---------|--|----------------------------------|---------------|---------------|--|
| | | | quency | length | |
| | | | <i>Kilo-</i> | <i>Meters</i> | |
| | | | <i>cycles</i> | | |
| WMAQ | Chicago Daily News..... | Chicago, Ill..... | 670 | 447.5 | Frequency indicator, type B, and piezo oscillator. |
| WJAD | Frank P. Jackson..... | Waco, Tex..... | 670 | 447.6 | Frequency indicator, type B. |
| WCCO | Washburn-Crosby Co..... | St. Paul-Minnneapolis, Minn..... | 740 | 405.2 | Piezo oscillator. |
| WHDM | Atlas Investment Co..... | Chicago, Ill..... | 770 | 389.4 | Do. |
| KGO | General Electric Co..... | Oakland, Calif..... | 780 | 384.4 | Do. |
| WCAD | St. Lawrence University.. | Canton, N. Y..... | 820 | 365.6 | Frequency indicator, type B. |
| WJJD | Loyal Order of Moose..... | Mountbarn, Ill..... | 820 | 365.6 | Piezo oscillator. |
| WLS | Sears, Roebuck & Co..... | Crete, Ill..... | 870 | 344.6 | Do. |
| WSM | National Life & Accident Insurance Co. | Nashville, Tenn..... | 880 | 340.7 | Do. |
| EOA | General Electric Co..... | Denver, Colo..... | 920 | 325.9 | Do. |
| KFAB | Nebraska Buick Auto Co. | Lincoln, Nebr..... | 970 | 309.1 | Do. |
| WBAA | Purdue University..... | West Lafayette, Ind. | 1,100 | 272.0 | Do. |
| WMBI | Mosby Bible Institute of Chicago. | Chicago, Ill..... | 1,140 | 263.0 | Do. |
| WABQ | Keystone Broadcasting Co | Philadelphia, Pa..... | 1,150 | 260.7 | Do. |
| WEBJ | Third Avenue Railway Co | New York City..... | 1,170 | 256.3 | Do. |
| KFVS | Birch Battery & Radio Co. | Cape Girardeau, Mo. | 1,340 | 221.7 | Frequency indicator, type B. |

STANDARD FREQUENCY STATIONS

As a result of measurements by the Bureau of Standards upon the transmitted waves of a limited number of radio transmitting stations, data are given in each month's RADIO SERVICE BULLETIN on such of these stations as have been found to maintain a sufficiently constant frequency to be useful as standards.

As shown by the list of "Constant frequency stations," there may be many other stations not measured in the bureau's laboratory which maintain their frequencies just as constant as the stations listed below. There is, of course, no actual guaranty that these stations will maintain the constancy shown, but the data indicate the high degree of confidence that can be placed in them. The transmitted frequencies from the standard frequency stations can be utilized for calibrating frequency meters and other apparatus by the procedure given in Bureau of Standards Letter Circular No. 171, which may be obtained by a person having actual use for it upon application to the Bureau of Standards, Department

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| Station | Owner | Location | Assigned frequency | Period covered by measurements | Number of times measured | Deviations from assigned frequencies noted in measurements | |
|------------------|--|------------------------------|--------------------|--------------------------------|--------------------------|--|------------------------------|
| | | | | | | Average | Greatest since June 23, 1927 |
| | | | Kilo-cycles | Months | | Per cent | Per cent |
| NBS | United States Navy | Annapolis, Md. | 17.60 | 15 | 69 | 0.1 | 0.1 |
| WCI | Radio Corporation of America | Tuckerton, N. J. | 17.95 | 29 | 120 | .1 | .3 |
| WSS | do. | Rocky Point, N. Y. | 18.60 | 31 | 41 | .1 | .2 |
| WH | do. | New Brunswick, N. J. | 21.80 | 28 | 140 | .1 | .3 |
| WVA ¹ | United States Army | Annapolis, Md. | 190.00 | 28 | 204 | | |
| NAA | United States Navy | Arlington, Va. | 112.00 | 22 | 107 | .2 | 0 |
| WEAF | National Broadcasting Co. | New York, N. Y. | 610.00 | 32 | 177 | 0 | 0 |
| WIC | Radio Corporation of America | Washington, D. C. | 640.00 | 44 | 230 | .1 | .1 |
| WJZ | do. | Round Brook, N. J. | 580.00 | 15 | 60 | .2 | .3 |
| WGY | General Electric Co. | Schenectady, N. Y. | 760.00 | 59 | 223 | .1 | .1 |
| WBZ | Westinghouse Electric & Manufacturing Co. | Springfield, Mass. | 900.00 | 38 | 100 | .1 | .1 |
| KDKA | do. | East Pittsburgh, Pa. | 950.00 | 15 | 61 | .1 | .1 |
| WBAL | Consolidated Gas, Electric Light & Power Co. | Glen Morris (Baltimore), Md. | 1,050.00 | 5 | 5 | 0 | 0 |

¹ Not measured since July 25.

REFERENCES TO CURRENT RADIO LITERATURE

This is a monthly list of references prepared by the radio laboratory of the Bureau of Standards and is intended to cover the more important papers of interest to professional radio engineers which have recently appeared in periodicals, books, etc. The number at the left of each reference classifies the reference by subject, in accordance with the scheme presented in A Decimal Classification of Radio Subjects—An Extension of the Dewey System, Bureau of Standards Circular No. 138, a copy of which may be obtained for 10 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C. The various articles listed below are not obtainable from the Bureau of Standards. The various periodicals can be consulted at large public libraries.

R100.—Radio principles

- R113 Parkinson, T. Apparatus for recording radio phenomena. Bulletin of the National Research Council, No. 61, pp. 183-191, July, 1927.
- R113 De La Forge, L. Le chemin du Rayon électromagnétique. QST Français et Radioélectricité Réunis, 8, pp. 5-11, August, 1927.
- R113 Hulbert, E. O. Preliminary note on conclusions regarding the constitution of the upper atmosphere indicated by radio data. Bulletin of the National Research Council, No. 61, pp. 122-126, July, 1927.
- R113.1 Breit, G. A suggestion of a connection between radio fading and small fluctuations in the earth's magnetic field. Bulletin of the National Research Council, No. 61, pp. 150-158, July, 1927.
- R113.5 Dellinger, J. H. Summary of symposium on correlations of various radio phenomena with solar and terrestrial magnetic and electrical activities. Bulletin of the National Research Council, No. 61, pp. 182-197, July, 1927.
- R113.5 Pickard, G. W. The correlation of radio reception with solar activity and terrestrial magnetism. Bulletin of the National Research Council, No. 61, pp. 133-143, July, 1927.
- R113.5 Heck, N. H. Symposium on correlations of various radio phenomena with solar and terrestrial magnetic and electric activities. Bulletin of the National Research Council, No. 61, pp. 127-128, July, 1927.
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