

ANNUAL REPORT

OF THE

LIGHT-HOUSE BOARD

TO THE

MEDICAL DEPARTMENT

GEORGETOWN UNIVERSITY.

Ms 41

SECRETARY OF THE TREASURY

FOR THE

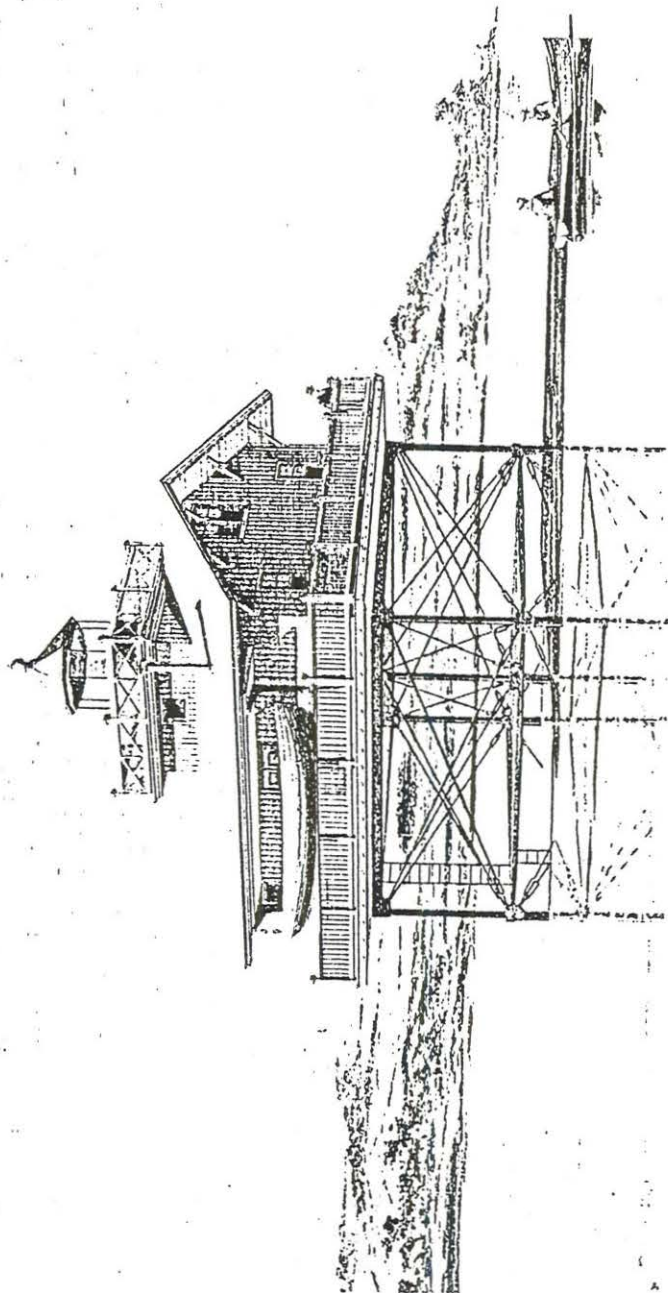
FISCAL YEAR ENDING JUNE 30, 1876.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1877.

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U. S. LIGHT-HOUSE ESTABLISHMENT, 1876.



SCREW-PILE RIVER AND HARBOR LIGHT-HOUSE.

LIBRARY
CABRILLO NATIONAL MONUMENT
National Park Service
Department of Interior OF THE

LIGHT-HOUSE BOARD

TO THE

MEDICAL DEPARTMENT
GEORGETOWN UNIVERSITY.

W. H. C.

SECRETARY OF THE TREASURY

FOR THE

FISCAL YEAR ENDING JUNE 30, 1876.

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LIGHT-HOUSE BOARD OF THE UNITED STATES.

(Organized in conformity to the act of Congress approved August 31, 1852.)

LIST OF MEMBERS.

Hon. LOT M. MORRILL, Secretary of the Treasury, *ex-officio* President.
Prof. JOSEPH HENRY, LL. D., Secretary Smithsonian Institution.
Commodore GEORGE B. BALCH, United States Navy.
Col. J. G. BARNARD, Corps of Engineers, brevet major-general United States Army.
CARLISLE P. PATTERSON, Esq., Superintendent of the Coast Survey.
Capt. JOHN LEE DAVIS, United States Navy.
Maj. ORLANDO M. POE, Corps of Engineers, (colonel and aid-de-camp,) brevet brigadier-general United States Army.
Commander JOHN G. WALKER, United States Navy.
Maj. PETER C. HAINS, Corps of Engineers, brevet lieutenant-colonel United States Army.

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Prof. JOSEPH HENRY, Secretary Smithsonian Institution, Chairman.
Commander JOHN G. WALKER, United States Navy, Naval Secretary.
Maj. PETER C. HAINS, Corps of Engineers, Engineer Secretary.

CLERKS.

Arnold B. Johnson, Chief Clerk.
Frank Baker. Zach. B. Brooke.
E. P. Rankin. Edmund L. Beach.
Bruce Small. Charles S. Clarke.
Mrs. E. J. Beare.
Paul J. Pelz, Chief Draughtsman.

LIST OF OFFICERS IN CHARGE OF LIGHT-HOUSE DISTRICTS.

FIRST DISTRICT.—Commander H. F. Picking, United States Navy, inspector, Portland, Me.; Lieut. Col. J. C. Duane, Corps of Engineers, brevet brigadier-general United States Army, engineer, Portland, Me.

SECOND DISTRICT.—Commander George Dewey, United States Navy, inspector, Boston, Mass.; Lieut. Col. J. C. Duane, Corps of Engineers, brevet brigadier-general United States Army, engineer, Portland, Me.

THIRD DISTRICT.—Capt. Alexander C. Rhind, United States Navy, inspector, Tompkinsville, Staten Island, New York; Col. I. C. Woodruff, Corps of Engineers, brevet brigadier-general United States Army, engineer, Tompkinsville, Staten Island, New York.

FOURTH DISTRICT.—Commander G. B. White, United States Navy, inspector, Philadelphia, Pa.; Lieut. Col. William F. Reynolds, Corps of Engineers, brevet brigadier-general United States Army, engineer, Philadelphia, Pa.

FIFTH DISTRICT.—Commander Francis H. Baker, United States Navy, inspector, Norfolk, Va.; Maj. Franklin Harwood, Corps of Engineers, brevet lieutenant-colonel United States Army, engineer, Baltimore, Md.

SIXTH DISTRICT.—Capt. A. E. K. Benham, United States Navy, inspector, Charleston, S. C.; Capt. W. A. Jones, Corps of Engineers, United States Army, engineer, Charleston, S. C.

SEVENTH DISTRICT.—Commander H. B. Seely, United States Navy, inspector, Key West, Fla.; Maj. Jared A. Smith, Corps of Engineers, United States Army, engineer, Key West, Fla.

EIGHTH DISTRICT.—Commander C. M. Schoonmaker, United States Navy, inspector

New Orleans, La.; Capt. A. N. Damrell, Corps of Engineers, brevet major United States Army, engineer, Mobile, Ala.

TENTH DISTRICT.—Commander Edward E. Potter, United States Navy, inspector, Buffalo, N. Y.; Lieut. Col. C. E. Blunt, Corps of Engineers, brevet Colonel United States Army, engineer, Buffalo, N. Y.

ELEVENTH DISTRICT.—Commander W. P. McCann, United States Navy, inspector, Detroit, Mich.; Maj. Godfrey Weitzel, Corps of Engineers, brevet major-general United States Army, engineer, Detroit, Mich.

TWELFTH DISTRICT.—Commander A. T. Snell, United States Navy, inspector, San Francisco, Cal.; Lieut. Col. R. S. Williamson, Corps of Engineers, United States Army, engineer, San Francisco, Cal.

THIRTEENTH DISTRICT.—Lieut. Commander Louis Kempff, United States Navy, inspector, Astoria, Oreg.; Maj. John M. Wilson, Corps of Engineers, brevet colonel United States Army, engineer, Portland, Oregon.

FOURTEENTH DISTRICT.—Commander Albert Kautz, United States Navy, inspector, Cincinnati, Ohio; Maj. W. E. Merrill, Corps of Engineers, brevet colonel United States Army, engineer, Cincinnati, Ohio.

FIFTEENTH DISTRICT.—Commander R. R. Wallace, United States Navy, inspector, Saint Louis, Mo.; Maj. Charles R. Suter, Corps of Engineers, United States Army, engineer, Saint Louis, Mo.

REPORT OF THE UNITED STATES LIGHT-HOUSE BOARD.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
Washington, September 1, 1876.

Hon. L. M. MORRILL,
Secretary of the Treasury:

SIR: We have the honor respectfully to submit for your information, and for that of Congress, the following report of the operations of the Light-House Establishment during the past fiscal year.

A detailed statement of the operations in each of the fourteen geographical districts into which the Light-House Establishment is divided is given under the appropriate heads. From this it will be seen that the board has efficiently maintained the aids to navigation already completed; that it has established new aids of a permanent character, pursuant to appropriations made for that purpose; that it has established others of a temporary character, as the opening of new channels, or the closing of old ones, has made it necessary, and that it has done all in its power to meet the necessities of our increasing commerce.

Since the formation of the two river districts which embrace the waters of the Mississippi, Missouri, and Ohio Rivers, the labors of the board have been considerably increased. The navigation of these rivers is of so intricate a character that steamboats were often detained for hours waiting for daylight to enable them to pass obstructions. The establishment of these lights has practically obviated this difficulty, and now boats pursue their course by night as well as by day in safety. The shifting nature of the channels rendering the establishment of permanent lights impracticable, lens-lanterns which can be readily moved from time to time, as found necessary, have been adopted. None were found in market which would show a steady light during severe storms, but after a series of experiments modifications were made, and the board now has a lantern, at very moderate cost, sufficiently powerful for river purposes and admirably adapted to the wants of the service.

During the past year the board has collected fifty small libraries, containing about forty volumes each, for use at the more isolated light-stations. It is intended that each library shall remain about six months at a place, when it will be exchanged for another. By this means the keepers will be constantly supplied with fresh and interesting reading-matter and be made more contented with the lonely life and routine duties of these distant and often inaccessible stations. The books constituting these libraries were in part contributed by private individuals, and were in part purchased from the appropriation made therefor. It is proposed to add to the number of these libraries until there shall be in circulation a reasonable supply for the establishment.

The board is displaying at the Centennial Exposition at Philadelphia specimens of the illuminating apparatus now employed, and models and drawings of light-houses of peculiar or difficult construction. Specimens of the various kinds of floating aids in actual use, including buoys of the various kinds and sizes, with their moorings, and models of light-ships lately built, are also shown. The superstructure of the light-house intended for erection at Ship John Shoal, Delaware Bay, is set up in the grounds. Fog-signals now in use, viz, the sirens, operated by steam and by hot air, and the bell, struck by machinery, are exhibited, and frequently put in operation. A detailed account of the exhibit of the board will be found in the appendix, together with a report upon the exhibits made by other nations of matters relating to their several light-house establishments.

The board had made its preparations to use mineral oil in its lights of the lower orders, and was perfecting its arrangements to introduce it into the larger lights, when it was estopped by a claim that in using the burner made in its own shops it was infringing upon a patent held by private parties. The facts, and the laws bearing upon them, are now being considered by the law-officers of the Government, and when a conclusion is reached, the board will be prepared to act vigorously in carrying out its plans.

During the past year a buoy invented by J. M. Courtenay, esq., has been brought to the notice of the board. It is of iron, and sounds a whistle by means of air compressed in the buoy by the motion of the sea. One of these buoys has been placed at the entrance to Gedney's Channel, New York Harbor, one off Fire Island, one near the Duck Rocks, coast of Maine, and one off Cape Elizabeth, coast of Maine, for trial. The reports of pilots and masters of vessels, are in their favor.

The light-ship (No. 41) for which appropriation was made by Congress is nearly completed. She has been planned and built with great care, and is fitted with every appliance to make her safe and efficient. She is to have as a fog-signal, a siren operated by an improved caloric engine, from which the best results are expected. The builder of this apparatus is so confident of its entire success that he puts it into the vessel with the understanding that, if it does not give satisfaction to the board, it will be removed free of all expense to the light-house service.

The estimated amounts that will be required for the general service of the Light-House Establishment during the coming fiscal year are as follows:

For salaries of keepers of light-houses, \$594,600, being the average allowance authorized by law of \$600 each for 991 light-keepers.

For expenses of light-ships, \$250,000, being the amount required for maintenance and repairs of the 29 light-ships now in the service.

For expenses of buoyage, \$350,000; being the amount required to keep in place and in proper order the large number of buoys now under the charge of the board, and to replace those lost and worn out during the year.

For expenses of fog-signals, \$50,000. This amount is to be used for renewing, refitting, and improving fog-signals. It is the sum usually appropriated, but it may be remarked that the number and consequent expense of these aids to navigation is constantly increasing.

For inspecting lights, \$5,000; required to pay expenses of inspection, and including rewards paid for information as to collisions.

For supplies of light-houses, \$400,000; to purchase oil, wicks, chimneys, cleaning materials, and other annual supplies, and to meet other expenses of an incidental nature.

For repairs of light-houses, \$300,000. This amount is somewhat less than the usual estimate, and is necessary to enable the board to properly conduct this part of the service.

For lighting and buoyage of the Mississippi, Missouri, and Ohio Rivers, \$150,000; the same amount appropriated for the present fiscal year.

The appropriations required for special works are comprised in the following list. These estimates are based upon the wants of the country as made known by petition and letters forwarded directly to the board, or through its local officers with their favorable recommendation, and none have been submitted which are not deemed necessary to the preservation of life and property. A number of the works formerly recommended, still considered necessary, and which will doubtless be eventually established for the safety of navigation, have not been included in this list, owing to the strong desire to reduce the amount of the estimate submitted.

	Amount.
Cape Elizabeth light-station, Maine	\$5,000 00
Isles of Shoals, New Hampshire	6,000 00
Day-beacons, Maine, New Hampshire, and Massachusetts	10,000 00
The Whale day-beacon, Rhode Island	10,000 00
Muscle-bed Shoals light-station, Rhode Island	6,000 00
Conimicut light-station, Rhode Island	30,000 00
Reimbursement of H. W. Arnold	319 00
Watch Hill light-station, Rhode Island	3,500 00
Rondout Pier light-station, New York	3,200 00
Rose Island beacon, Rhode Island	4,000 00
Stratford beacon, Connecticut	1,500 00
Staten Island depot, New York	10,000 00
New London depot, Connecticut	3,000 00
Tucker's Beach light-station, New Jersey	8,000 00
Absecon light-station, New Jersey	10,000 00
Cape Henlopen light-station, Delaware	8,000 00
Egg Island light-station, New Jersey	5,000 00
Cherry Island Flats light-station, Delaware River	50,000 00
Depot for fourth district	1,000 00
Sandy Point Shoal light-station, Maryland	25,000 00
Brant Island Shoal light-station, North Carolina	10,000 00
Lazaretto depot, Maryland	1,000 00
Tybee light-station, Georgia	50,000 00
Tybee beacon-light, Georgia	4,000 00
Cockspur Island light-station, Georgia	7,000 00
Cape Canaveral light-station, Florida	12,000 00
American Shoal light-station, Florida	75,000 00
Re-imbursement of keepers of Dog Island and Saint Mark's light-stations, Florida	970 65
Cape San Blas light-station, Florida	5,000 00
Trinity Shoal light-station, Louisiana	50,000 00
Reimbursement of Francis Hamilton	207 00
Reimbursement of employes at Trinity Shoal, Louisiana	2,000 00
Dunkirk light-station, New York	5,000 00
Belle Isle light-station, Michigan	10,000 00
Port Salinac light-station, Michigan	40,000 00
Port Austin light-station, Michigan	75,000 00
Pere Marquette light-station, Michigan	5,000 00
Grosse Pointe light-station, Illinois	5,000 00
Racine Point light-station, Wisconsin	40,000 00
Milwaukee Pier light-station, Wisconsin	5,000 00
Green Island light-station, Wisconsin	200 00
Stannard's Rock light-station, Michigan	100,000 00
Pier-head lights on the lakes	25,000 00
Point Conception light-station, California	12,000 00
Farallones light-station, California	12,000 00
Point Saint George light-station, California	50,000 00
Anita Rock beacon, California	2,300 00
Steam-tender for Pacific coast	100,000 00
Building for Light-House Board	100,000 00
Total amount	

An estimate is submitted for building a light-house at, or in the vicinity of, American Shoal, Florida Reefs, to light the dark space between Sombrero Key and Sand Key lights. The strong and variable currents along the Florida Reef renders navigation so difficult and dangerous, that many wrecks, causing heavy losses, occur each year. The proposed light on American Shoal is one of the system adopted for the permanent and efficient lighting of this dangerous reef, and it should be erected without unnecessary delay; labor and material being unusually low, the present is a very favorable opportunity for its construction.

The need of proper accommodations in this city for the transaction of the business and the deposit of the archives of the Light-House Board has long been felt. Its offices have several times been moved from building to building, and are now so inconveniently placed in rented upper rooms, that its records are to a certain extent inaccessible, a portion being in boxes at the Treasury Department. Its laboratory is at Staten Island, N. Y., and its models, now at Philadelphia will have to be remanded to the various districts from which they were gathered. Last year it was proposed to insert in the estimates an item for the construction of such a building as would meet its wants; but, owing to the necessity of economizing in expenditures, it was omitted. The board is now of the opinion that an appropriation for this purpose should be made without unnecessary delay. Its business has vastly increased in the last twenty years; records of great value are constantly accumulating, and can be properly preserved only in a fire-proof building. It is necessary to make frequent experiments with light-house illuminants and apparatus. Such experiments, particularly those relating to illuminating materials, require a building especially adapted to the purpose. The only one now used is at Staten Island, N. Y., so far distant that the members of the board cannot give such subjects the careful study and attention which they demand. A building such as that proposed, while serving the purposes mentioned above, is also needed to accommodate the officers, employés, and records of the board, and to furnish space for storing its models, specimens of the various materials used in the service, and samples of its lamps and lenses.

During the last fiscal year but one change has been made in the membership of the Light-House Board: Rear Admiral Alexander Murray, U. S. N., has been succeeded by Commodore Geo. B. Balch, U. S. N. The other members, viz, Professor Henry, General Barnard, Colonel Poe, Captain Davis, Mr. Patterson, Commander Walker, and Major Hains, remain as at the date of the last annual report.

Aids to navigation belonging to the United States Light-House Establishment on the 1st day of July, 1876.

	Atlantic and Gulf coasts.	Pacific coast.	Lake coasts.	Western rivers.	Totals for entire coast.
First-order lights	34	11	0	.....	45
Second-order lights	25	1	2	.....	28
Third-order lights	32	4	20	.....	56
Three-and-one-half order lights	3	0	8	.....	11
Fourth-order lights	114	13	64	.....	191
Fifth-order lights	28	4	32	.....	124
Sixth-order lights	89	0	74	.....	163
Lens-lanterns	0	0	6	.....	6
State-lights	9	0	15	286	310
Reflector or light-ships lights	40	0	0	.....	40
Total lights	434	33	221	286	974
Steam or hot-air fog-signals	27	13	13	.....	53
Day-buoys	372	39	2	.....	413
Buoys	2,616	90	245	15	2,966
Total aids	3,449	175	481	301	4,406

List of light-houses finished and lighted between July 1, 1875, and June 30, 1876.

Name of station.	Locality.	When lighted.
Avery's Rock	On southern end of Avery's Rock, Machias Bay, Maine.	October 15, 1875.
Egg Rock	On Egg Rock, Frenchman's Bay, Maine	November 1, 1875.
Schuylkill range, beacon (front.)	On League Island, mouth of Schuylkill River, Pennsylvania.	December 15, 1875.
Schuylkill range, beacon (rear.)		
Cross-Ledge	On lower end of Cross-Ledge Shoal, Delaware Bay, east side of channel.	December 8, 1875.
Too's Marshes	On shoal off Too's Marshes, to mark entrance to York River, Virginia.	August 15, 1875.
Solomon's Lump	In Kedge's Strait, east side of Chesapeake Bay, Maryland.	September 10, 1875.
Thomas's Point Shoal	On shoal making out from Thomas's Point, west side of Chesapeake Bay, Maryland.	November 20, 1875.
Currituck Beach	On the coast of North Carolina, about midway between Cape Henry and Bodys Island light-houses.	December 1, 1875.
Hunting Island	On the north end of Hunting Island, south side of entrance to Saint Helena Sound, South Carolina.	July 1, 1875.
Point aux Herbes	Lake Pontchartrain, Louisiana	August 1, 1875.
Thirty-Mile Point	On the bluff called Thirty-Mile Point, Lake Ontario, about 30 miles east of the mouth of Niagara River, State of New York.	Opening of navigation, 1876.
Cleveland Beacon No. 2	On eastern pier-head, entrance to Cleveland harbor, Ohio.	September 1, 1875.
Harbor of Refuge, (Sand Beach.)	On angle of breakwater at Sand Beach, Lake Huron, Michigan.	October 25, 1875.
Thunder Bay River	Four hundred feet from north side of entrance to Thunder Bay River, Lake Huron, Michigan.	September 20, 1875.
White River	At the mouth of White River, east shore of Lake Michigan, 12 miles north of Muskegon light.	Opening of navigation, 1876.
Marquette Breakwater	Eighty-four feet from outer end of breakwater at Marquette, Lake Superior, Michigan.	September 1, 1875.
Ontonagon, west pier light	On west pier, about 200 feet from the outer end, at Ontonagon, Lake Superior, Michigan.	September 20, 1875.
Isle Royale, (Menagerie Island.)	On Isle Royale, (Menagerie Island,) entrance to Siskiwit Bay, Lake Superior, Michigan.	September 20, 1875.
Yerba Buena	On southeastern extremity of Yerba Buena Island, San Francisco Bay, California.	October 1, 1875.

List of alterations in existing lights made from July 1, 1875, to June 30, 1876.

Station.	Changes made.	Date of alteration.
Shovel Shoals light-ship, off Chatham, Mass.	Light changed from white to red	February 1, 1876.
Delaware Breakwater, entrance to Delaware Bay.	Interval of flashes increased to one minute....	May 1, 1876.
Mahon's River, Delaware Bay.	Light shifted to new structure 1,980 feet from old one.	October 20, 1875.
Jordan's Point, James River, Virginia.	Light placed on new structure a short distance from old one.	August 23, 1875.
York Spit, entrance to York River, Virginia.	Light raised from fifth to fourth order, with double-wick burner.	August 6, 1875.
Love Point, near Kent Island, Chesapeake Bay.	Light reduced from three-and-a-half to fifth order.	November 15, 1875.
Dry Tortugas Harbor, Florida Keys.	Light removed to an adjacent bastion of Fort Jefferson.	April 5, 1876.
Barrataria Bay, Louisiana.	Arc of visibility increased so that the light can be seen around the entire horizon.	July 31, 1875.
Ashtabula, mouth of Ashtabula River, Ohio.	Light shifted from the east pier to the outer end of west pier.	Opening of navigation, 1876.
Black River, Lake Erie, Ohio.	Light shifted to the outer end of west pier	October 1, 1875.
Manumee Inner Range, Toledo, Ohio.	Lights changed from white to red	Opening of navigation, 1876.
Manistee, Michigan.	Light shifted to outer end of south pier and changed to fixed red.	October 15, 1875.
Kalamazoo, Michigan.	do	Opening of navigation, 1876.
Milwaukee pier, Wisconsin.	Light raised from sixth to fourth order	March, 1876.
Poverty Island, Lake Michigan, Wisconsin.	Light shifted to permanent structure	August 10, 1875.

List of lights discontinued between July 1, 1875, and June 30, 1876.

Name of station.	Locality.	When discontinued.
Fog Point	On Fog Point, east side of Chesapeake Bay, Maryland.	September 10, 1875. (Superseded by Solomon's Lump light.)
Thomas's Point	On Thomas's Point, west side of Chesapeake Bay, Maryland.	November 20, 1875. (Superseded by Thomas's Point Shoal light.)
Brant Island Shoal	On southern part of Pamlico Sound, North Carolina.	May 24, 1876. (Destroyed by fire.)
Combahee Bank	On Combahee Shoal, Saint Helena Sound, South Carolina.	June 30, 1876.
West Shoal	Entrance to Matagorda Bay, Texas	September 17, 1875. (Destroyed by a hurricane.)
East Shoal		

OPERATIONS AND CONDITION OF THE LIGHT-HOUSE ESTABLISHMENT DURING THE YEAR.

FIRST DISTRICT.

The first district extends from the northeastern boundary of the United States (Maine) to and including Hampton Harbor, New Hampshire, and includes all aids to navigation on the coasts of Maine and New Hampshire.

Inspector.—Commander Henry F. Pickens, United States Navy.

Engineer.—Lieut. Col. James O. Duane, Corps of Engineers, Brevet Brigadier-General United States Army.

In this district there are:

Light-houses	55
Light-ships	0
Fog-signals operated by steam or hot-air engines	8
Day or unlighted beacons	71
Buoys actually in position	387
Spare buoys, for relief and supply losses	166
Tender (steamer) Myrtle, for construction and repairs, also used in second district, and tender Iris, (inspector's tender)	2
Tender, (sail), schooner Wave, for repairs, also used in second district	1

The following numbers which precede the names of stations correspond to those of the "Light-house List of the Atlantic, Gulf, and Pacific Coasts of the United States," issued January 1, 1876.

LIGHT-HOUSES.

3. *Little River, west side of entrance to Little River harbor, Maine.*—The foundation for a new iron tower has been completed and the erection of a tower commenced.

4. *Avery's Rock, head of Machias Bay, Maine.*—The buildings at this station were completed and the light first exhibited October 15, 1875.

5. *Libby Island, entrance to Machias Bay, Maine.*—A new lantern and deck have been made, and are ready to send to the station.

8. *Narraguagus, west of entrance to Narraguagus Bay, Maine.*—A one-and-a-half-story frame building has been erected during the past season for the better accommodation of keepers, the old dwelling being uninhabitable from age and decay. The cost of the work was defrayed from the appropriation for "repairs and incidental expenses of light-houses." A new lantern and deck were placed on the tower and a new fog-bell established.

9. *Petit Menan, on south end of Petit Menan Island, Maine.*—An appropriation of \$5,000 was made by act approved March 3, 1875, for repairs and additions to the tower and keeper's dwelling. This work, which at date of last report was commenced, has been completed. The fog-signal at this station was supplied with water from a well excavated in the rock, and as the greater part of the water in the well came from an adjacent swamp, it was impregnated with decomposed vegetable matter, and proved very injurious to the boiler. In order to procure a supply of pure water, an old stone building, 34 by 20 feet, and an addition 16 by 14 feet, formerly used as a keeper's dwelling, were roofed over and fitted with gutters and water-conductors, and two wooden tanks, each 12 feet in diameter, were placed in the cellar. The two water-sheds, 50 by 30 feet each, erected last season, are located one at each end of this building, and are fitted with water conductors and gutters leading to the cisterns in the cellar of the old house. A one-story brick engine-house,

71°

70°

69°

68°

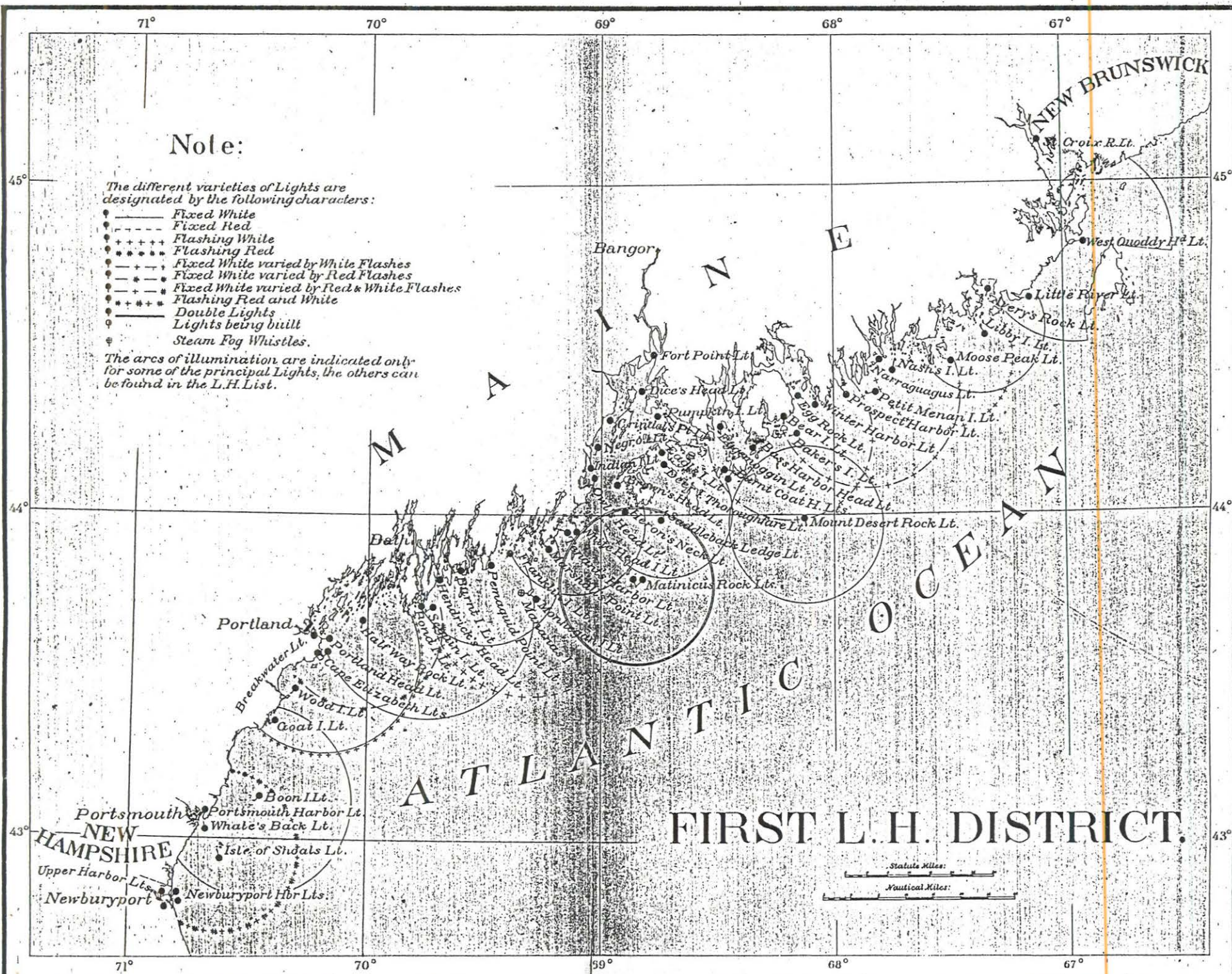
67°

Note:

The different varieties of Lights are designated by the following characters:

- Fixed White
- Fixed Red
- + + + + + Flashing White
- - - - - - Flashing Red
- - + - + - Fixed White varied by White Flashes
- - * - * - Fixed White varied by Red Flashes
- - + * - + Fixed White varied by Red & White Flashes
- + * + * + Flashing Red and White
- Double Lights
- Lights being built
- ⊕ Steam Fog Whistles.

The arcs of illumination are indicated only for some of the principal Lights, the others can be found in the L.H. List.



FIRST L.H. DISTRICT.

Statute Miles:

Nautical Miles:

First District.

32 by 14 feet, has been erected; it contains the duplicate fog-signal and a large wooden tank which will hold four days' supply of water. The water-sheds are 150 feet distant and the water is conveyed through pipes.

11. *Winter Harbor, west side of entrance to Winter Harbor, Maine.*—The old one-and-a-half-story frame dwelling having become decayed past repair, a new one was erected just north of the old site; it is a one-and-a-half-story frame building. The station is now in good condition.

12. *Mount Desert Rock, on Mount Desert Rock, Maine.*—The old one-and-a-half-story stone house being much out of repair, and additional accommodations necessary, a one-and-a-half-story frame dwelling has been erected south of, and near the old house. This station is now in good condition.

13. *Egg Rock, Frenchman's Bay, Maine.*—The buildings at this station which at date of last annual report were in process of construction, under the appropriation made by act approved June 23, 1874, were completed and the light exhibited for the first time on the night of the 1st of November, 1875. During a gale on the 21st of March, 1876, the sea washed over the rock, carrying away the fuel-shed and moving the bell-tower some 30 feet. The windows of the dwelling were broken in on the sea-side, and the dwelling flooded to such an extent that the oil-butts were moved from their benches.

16. *Bass Harbor Head, east side of entrance to Bass Harbor, Maine.*—A fog-bell has been established at this station during the past season, and repairs of a general nature made, placing the station in good order.

25, 26. *Matinicus Rock, off southern entrance to Penobscot Bay, Maine.*—A brick engine-house has been erected about 50 feet southwest of the southern light-tower at this station, and a duplicate fog-signal placed in it.

31. *Negro Island, entrance to Camden Harbor, Maine.*—A covered way, 50 feet long and 5½ feet wide, of wood, connecting the tower with the dwelling, has been erected, and general repairs made.

38. *Mananas, on Mananas Island, Maine; fog-signal station.*—The keeper's dwelling has been raised 18 inches, new sills and under-floors put in, and the exterior walls clapboarded and painted. A frame engine-house, 18½ by 25 feet, for a duplicate fog-signal, and a boat-slip, 50 feet in length, have been constructed. The fog-signal is an 8-inch steam-whistle. The site is too low and the sound is masked in some directions by neighboring hills. A better site cannot be had, on account of the difficulty of obtaining title. It is, therefore, proposed to replace the whistle with a hot-air trumpet, raising the mouth high enough to overcome the difficulty.

42. *Hendrick's Head, east side of the entrance to Sheepscot River, Maine.*—As the old dwelling, with a wooden light-tower on the roof, was found to be past repair, a one-and-a-half-story frame dwelling, 22 by 31 feet, and a brick light-tower, have been erected, the expense being paid from the general appropriation applicable.

44. *Seguin, off mouth of Kennebec River, Maine.*—A one-and-a-half-story frame building, 31 by 32 feet, for a keeper's residence and fog-signal house, has been erected, and a duplicate fog-signal placed in it. This work was authorized by act approved March 3, 1875, appropriating \$4,000 for the purpose.

46, 47. *Cape Elizabeth, southwest side of entrance to Casco Bay, Maine.*—Three new windows have been furnished for the east dwelling, a violent hail-storm having entirely demolished the glass and sash-bars of all the

First District.

windows on the north side of the house. At the fog-signal station a water-tank building of brick, 12 by 12 feet, has been erected. A duplicate siren should be established at this important station, and an appropriation of \$5,000 is submitted for the purpose.

Cape Neddick, (York Nubble,) near York Harbor, Maine.—An appropriation of \$15,000 having been made, the work will be taken in hand as soon as a proper site can be purchased and cession of jurisdiction obtained. Plans are now being prepared.

55. *Isles of Shoals, off Portsmouth, New Hampshire.*—The old dwelling at this station is so much decayed that it is scarcely habitable. An appropriation of \$6,000 is respectfully submitted to build a new dwelling for the keeper and his assistant.

REPAIRS.

At each of the following named stations repairs and renovations more or less extensive, have been made during the year.

1. *Saint Croix*, on Dohet's Island, Saint Croix River, Maine.
2. *West Quoddy Head*, western entrance to Passamaquoddy Bay, Maine.
6. *Moose Peak*, on Moose Peak Head, Maine.
10. *Prospect Harbor*, on Prospect Harbor Point, Glasborough, Maine.
15. *Bear Island*, entrance to Southwest Harbor, Mount Desert, Maine.
19. *Blue Hill Bay*, (formerly Eggemoggin,) east entrance to Eggemoggin Reach, Maine.
20. *Saddle-back Ledge*, Isle au Haute, Maine.
21. *Heron's Neck*, entrance to Carver's Harbor, Maine.
22. *Deer Island Thoroughfare*, west entrance to Deer Island Thoroughfare, Maine.
23. *Eagle Island*, east Penobscot Bay, Maine.
27. *Whitehead*, west side of entrance to Penobscot Bay, Maine.
28. *Owl's Head*, entrance to Rockland Harbor, Maine.
29. *Brown's Head*, west entrance to Fox Island Thoroughfare, Maine.
30. *Indian Island*, east side entrance to Rockport Harbor, Maine.
39. *Franklin Island*, entrance to George's River, Maine.
41. *Burnt Island*, entrance to Townsend's Harbor, Maine.
43. *Pond Island*, entrance to Kennebec River, Maine.
45. *Half-way Rock*, in Casco Bay, Maine.
49. *Portland Breakwater*, Portland Harbor, Maine.
50. *Wood Island*, entrance to Saco River, Maine.
51. *Goat Island*, entrance to Cape Porpoise Harbor, Maine.
52. *Boone Island*, off York Harbor, Maine.
53. *Whale's Back*, entrance to Portsmouth Harbor, New Hampshire.
54. *Portsmouth Harbor*, entrance to Portsmouth Harbor, New Hampshire.
55. *Isles of Shoals*, on White Island, off Portsmouth, New Hampshire.

LIGHT-SHIPS.

There are no light-ships in the first district.

FOG-SIGNALS OPERATED BY STEAM OR HOT-AIR ENGINES.

West Quoddy Head.—Ten-inch steam-whistle.
Petit Menan.—Ten-inch steam-whistle.

First District.

Matinicus Rock.—Twelve-inch steam-whistle.
Whitehead.—Ten-inch steam-whistle.
Mananas Island.—Eight-inch steam-whistle.
Sequin.—Ten-inch steam-whistle.
Cape Elizabeth.—Second-class steam-siren.
Portland Head.—Second-class Daboll trumpet.
 All in good condition.

DAY OR UNLIGHTED BEACONS.

Snow's Rock, Moose Peak Reach, Maine.—The broken spindle has been replaced by a wrought-iron shaft 35 feet high surmounted by a spherical iron cage 4 feet in diameter. The cage and shaft are painted black.

Ship and barges, Blue Hill Bay, Maine.—The broken spindle has been replaced with a wrought-iron shaft 12 inches diameter at the base, 4 inches at the top and 30 feet high. Color, red.

Drunken's Ledge, Penobscot Bay, Maine.—A wrought-iron shaft 8 inches diameter at the base, 4 inches at the top and 35 feet high, surmounted by a spherical cage of iron 4 feet in diameter, has been erected at this place. Color, black.

Dodge's Point, Penobscot Bay, Maine.—The stump of the old spindle has been removed and new wrought-iron shaft 30 feet in length, 6 inches diameter at the base and 4 inches at the top, set in its place and surmounted by a cylindrical cage of iron. Color, black.

Black Jack, Kennebec River, Maine.—A spruce stick, 12 inches diameter at the base, 6½ inches at the top, and 20 feet in height, with a cask at the top, has been erected at this place; color, black.

Stone's Rock, off York Harbor, Maine.—A wrought-iron shaft 8 inches diameter at the base, 4 inches at the top, and 35 feet high, surmounted by a spherical cage of iron, 4 feet in diameter, has been erected at this place; color, black.

BUOYAGE.

New spar-buoys have been placed to mark Cow Island Ledge and Metinic Ledge, Penobscot Bay, Maine; at Ram Island Point to mark Pott's Ohannel, Harpswell, Maine; Isles of Shoals, near Isles of Shoals light-house; Powder Horn Ledge, and Four Foot Rock, to mark Sheepscot River, Maine.

The heavy gales of March last did great damage to the buoyage of this district, displacing many of the buoys at different points. These were all replaced as soon as possible, and no casualty resulted from their absence.

TENDERS.

The steam-tenders Myrtle and Iris are in good condition. It is found impossible with the Iris, which alone is used for purposes of supply and inspection and for the buoyage of the district, to keep the great number of buoys on the exposed coast of Maine in as good order as is desirable, but every effort is made, and no assistance will be asked this year.

The schooner Wave is old and in poor condition, but as she is only used for carrying material for construction, and can wait for proper weather, she is still useful.

DEPOTS.

The buoy depot at Little Hog Island is completed, and is of very great advantage to the service of the district.

SECOND DISTRICT.

The second light-house district extends from Hampton Harbor, New Hampshire, to include Gooseberry Point, entrance to Buzzard's Bay, and embraces all the aids to navigation on the coast of Massachusetts.

Inspector.—Commander George H. Perkins, United States Navy, until October 1, 1875; Commander George Dewey, present inspector.

Engineer.—Lieut. Col. James C. Duane, Corps of Engineers, brevet brigadier-general, United States Army.

In this district there are—

Light-houses.....	62
Light-ships.....	10
Fog-signals operated by steam or hot-air engines.....	6
Day or unlighted beacons.....	51
Buoys actually in position.....	511
Spare buoys for relief and to repair losses.....	499
Tenders, (steam) Verbena and Daisy, inspector's tenders.....	2

The following numbers, which precede the names of stations, correspond with those of the "Light-house List of the Atlantic, Gulf, and Pacific coasts of the United States," issued January 1, 1876.

LIGHT-HOUSES.

56, 57. *Newburyport Harbor, entrance to Merrimac River, Massachusetts*.—An embankment of sand and thatch has been made to protect the foundation of the light-house. Other repairs of a general nature have been made and the station is in good order.

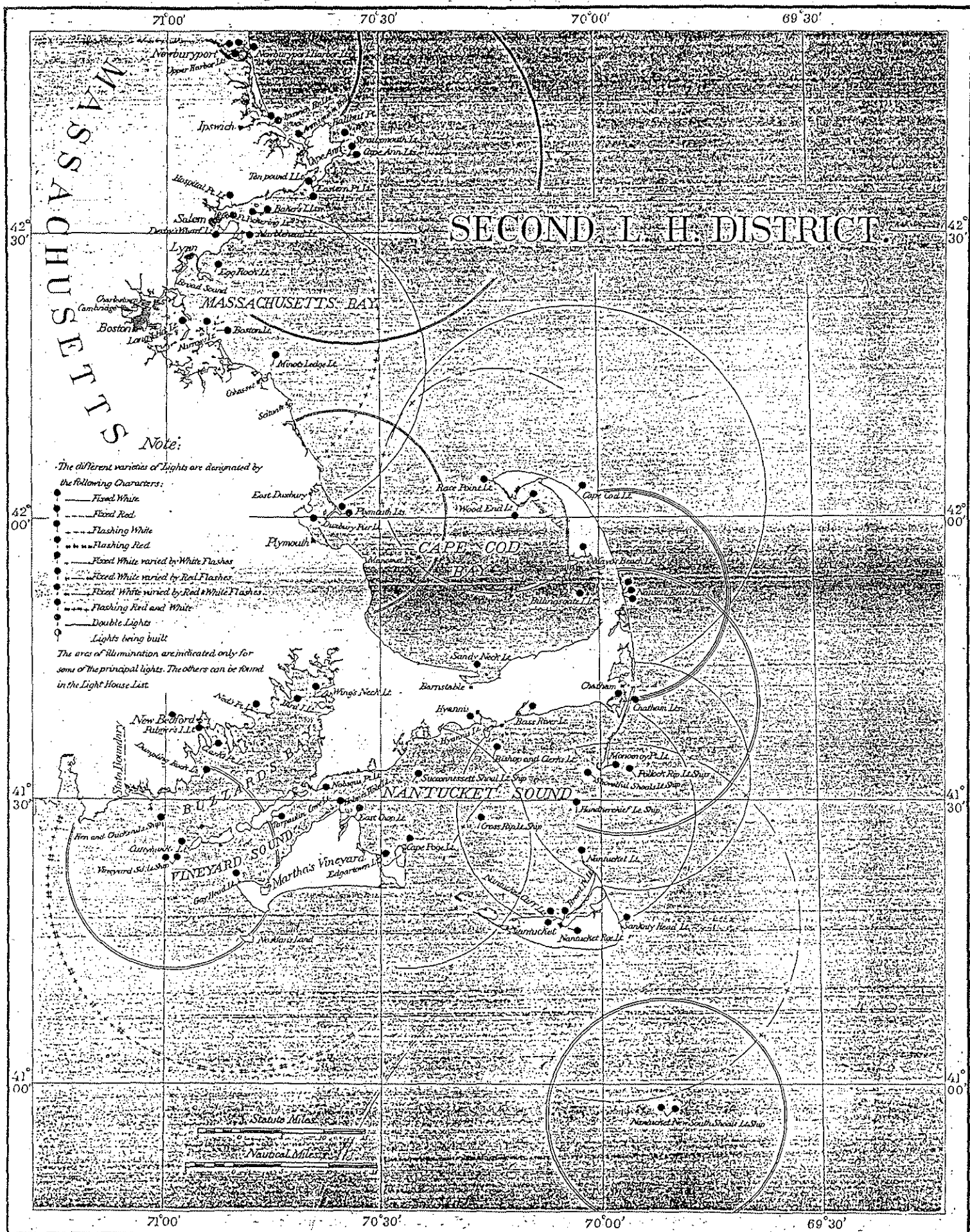
64, 65. *Cape Ann, (Thatcher's Island,) off Cape Ann, Massachusetts*.—The boat-house has been reshingled, the boat-slip repaired, and a portion of it rebuilt. The accommodations for the keepers being inadequate, a one-and-a-half-story frame dwelling has been erected near the south tower. The fog-signal machinery, water-pipes, and tanks were at the same time repaired.

75. *Minot's Ledge*.—Nothing of note has occurred within the year, with the exception of the detaching and carrying away by the sea, during one of the severe gales of last spring, of a section of the ledge itself, weighing probably about 500 pounds. The station at present is in good condition, and well cared for.

76. *Boston, north side of main entrance to Boston Harbor, Massachusetts*.—The dwelling and planking of the wharf have been repaired. A brick building 22 feet square, to contain a fog-signal machine, has been erected just east of the light-tower. The fog-signal machinery has been put in complete repair.

82. *Race Point, on the northwesterly point of Cape Cod, Massachusetts*.—The tower at this station was originally built of rubble-stone, laid in common lime mortar. The lime disappeared, and the tower leaked, so that it was necessary to cover it with shingles. The shingles as well as the wooden stairs inside rotted, and the tower became so dilapidated that it was necessary to rebuild it. During the past year it has been replaced by a new one, built of cast iron, with a lining of brick. The dwelling was also decayed and afforded insufficient accommodations for the keepers. It has been repaired and a new one-and-a-half story frame structure built. The cost of these improvements was defrayed from the general appropriation for repairs, &c., of light-houses.

89, 90, 91. *Nausett Beach, Eastham, Massachusetts*.—This station has



Second District.

three lights, and additional accommodations for the keepers were necessary. An appropriation of \$5,000 was made by act approved March 3, 1875, for repairs and additions to towers and keepers' dwelling. At the date of last annual report, plans had been prepared for a new dwelling, which has since been completed. All necessary repairs were made and the station put in good order.

103. *Nantucket Range Beacon, Nantucket Harbor, Massachusetts.*—The old clapboards on the exterior walls of the dwelling have been replaced with shingles, the house has been painted, and other repairs made.

113. *East Chop, east side of entrance to Holmes' Hole Harbor, Massachusetts.*—The light-house recently purchased at this place, is a small wooden tower attached to the keeper's dwelling. The illuminating apparatus consists of three reflectors, with kerosene lamps.

115. *Nobsque Point, southeast side of entrance to Wood's Hole, Massachusetts.*—A new cast-iron tower and a one-and-a-half story frame dwelling has been erected at this station, the old tower and dwelling having become utterly useless. The expense of the work was defrayed from the general appropriation for the repairs and improvement of light-houses.

REPAIRS.

At each of the following named light-stations repairs and renovations, more or less extensive, have been made during the year:

- 58, 59. *Upper Harbor Beacons, Newburyport Harbor, Massachusetts.*
- 60, 61. *Ipswich, entrance to Ipswich Harbor, Massachusetts.*
66. *Eastern Point, entrance to Gloucester Harbor, Massachusetts.*
- 68, 69. *Baker's Island, entrance to Salem Harbor, Massachusetts.*
70. *Hospital Point, Beverly Harbor, Massachusetts.*
71. *Fort Pickering, Salem Harbor, Massachusetts.*
72. *Derby's Wharf, Salem Harbor, Massachusetts.*
73. *Marblehead, entrance to Marblehead Harbor, Massachusetts.*
74. *Egg Rock, off Nahant, Massachusetts.*
75. *Minot's Ledge, off Cohasset, Massachusetts.*
78. *Long Island Head, Boston Harbor, Massachusetts.*
- 79, 80. *Plymouth, entrance to Plymouth Harbor, Massachusetts.*
83. *Wood End, on Cape Cod, Massachusetts.*
84. *Long Point, Provincetown Harbor, Massachusetts.*
86. *Billingsgate Island, entrance to Wellfleet Bay, Massachusetts.*
- 92, 93. *Chatham, on Cape Cod, Massachusetts.*
98. *Nantucket, Great Point, on the northeast point of Nantucket Island, Massachusetts.*
101. *Gay Head, west entrance to Vineyard Sound, Massachusetts.*
102. *Brant Point, entrance to Nantucket Harbor, Massachusetts.*
106. *Bass River, entrance to Bass River, Massachusetts.*
107. *Bishop and Clerks, in Vineyard Sound, Massachusetts.*
108. *Hyannis, Hyannis Harbor, Massachusetts.*
110. *Cape Poge, on the northeast point of Martha's Vineyard, Massachusetts.*
112. *Edgartown, entrance to Edgartown Harbor, Massachusetts.*
114. *Holmes's Hole, (west chop,) entrance to Holmes's Hole Harbor, Massachusetts.*
116. *Tarpaulin Cove, entrance to Tarpaulin Cove, Massachusetts.*
118. *Cuttyhunk, entrance to Buzzard's Bay, Massachusetts.*
119. *Dumpling Rock, in Buzzard's Bay, Massachusetts.*

Second District.

121. *Clark's Point, entrance to New Bedford Harbor, Massachusetts.*
123. *Ned's Point, entrance to Mattapoisett Harbor, Massachusetts.*
124. *Bird Island, entrance to Sippican Harbor, Massachusetts.*
125. *Wing's Neck, entrance to Sandwich Harbor, Massachusetts.*

LIGHT-SHIPS.

94. *Pollock Rip light ship, No. 10.*—The old Pollock Rip light-ship No. 2, was taken from the station in September last, and transferred to the fourth district, and light-ship No. 10 was placed on the station. The latter is a new and very fine vessel, provided with a steam fog-whistle. This fog-signal, though so recently put in operation, is already looked upon as an almost invaluable aid to mariners making the eastern entrance to the Sound in thick weather.

96. *Shovelful light-ship No. 3.*—This vessel was newly coppered and otherwise repaired last fall. She is at present in good condition. The color of the light shown has been changed from white to red.

97. *Handkerchief light-ship, No. 4.*—On the night of the 20th of November last, this light-ship was run into and damaged by the schooner *Eleanora Van Dusen*; the vessel was at once taken into New Bedford and thoroughly repaired at an expense of about \$1,000, of which amount \$774.53 was paid by the owners of the colliding schooner. She is now in good condition.

100. *Nantucket, South Shoals light-ship No. 1.*—This vessel was thoroughly repaired in New Bedford, at a cost of about \$4,000, and replaced on her station August 14, 1875. On the 6th of January, 1876, she parted her cable during a gale; sail was made upon her, and she arrived at Tarpaulin Cove on the 9th, following. She lost an anchor and 65 fathoms chain, but having sustained no further damage, was at once returned to her station. When last inspected, she was in excellent condition.

109. *Cross Rip light-ship No. 5.*—This vessel was taken into Hyannis in October last, and some necessary repairs were made. She is now in good order.

111. *Succomessett light ship No. 6.*—This vessel has remained on her station through the year; has met with no disaster, and, though very old, is still serviceable.

117. *Vineyard Sound light-ship.*—Light-ship No. 7 was stationed on the Sow and Pig's Reef, until the night of the 30th of October, 1875, when she parted her moorings during a gale, losing a mushroom anchor and 60 fathoms chain, and arriving in New Bedford on the following day. The vessel was then put in thorough repair, and has since been used as a relief. Light-ship No. 39 assigned to and placed on this station November 16, 1875, is a new vessel. She is provided with a steam fog-whistle, which renders like assistance in thick weather to mariners entering the Sound from the westward that her sister ship on the Pollock Rip Shoal affords at the eastern entrance.

118. *Hen and Chickens light-ship No. 8.*—This vessel was taken into New Bedford in October last, and repaired at a cost of about \$900, the *Relief No. 9* occupying the station. She was replaced on the 31st of the same month. The vessel parted her moorings on the 5th of April during a heavy gale, lost a mushroom anchor and 60 fathoms chain; but succeeded in holding on with a spare anchor, about a mile from the station, until the 7th. As she had sustained some damage to her windlass, she was taken into New Bedford, and repaired at an expense of

Second District.

about \$300, Relief No. 9 being placed on the station. This vessel is old and worn out, probably not worth the expense of repairs necessary to make her a sea-worthy vessel.

FOG-SIGNALS OPERATED BY STEAM OR HOT-AIR ENGINES.

Cape Ann.—Twelve-inch whistle.

Boston.—First-class Dabol trumpet.

Race Point.—Twelve-inch steam-whistle.

Cape Cod.—First-class Dabol trumpet.

The usual repairs required have been made at the above-named stations, and the machinery kept in good order.

Pollock Rip and Vineyard Sound.—The fog-signals established on light-ships at these points have proved perfectly satisfactory.

DAY-BEACONS.

Abbott's Monument, entrance to Salem Harbor, Massachusetts.—A new staff and cage furnished.

Bowditch Ledge, Salem Harbor, Massachusetts.—Rebuilding.

Point Alderton, entrance Boston Harbor, Massachusetts.—The beacon at this place has been rebuilt from the third course above the flagging and fastened with iron dogs and bolts. The stones were relaid in cement-mortar and the interior of the structure made solid. Stones were placed around the flagging at the base. The beacon is 20 feet square at the base, 8 feet square at the top, and 40 feet in height. An iron spindle, 6 feet 4 inches high and 6 inches in diameter, stands on the top, and is surmounted by a wooden frustum of a cone 6 feet in diameter at base, 2 feet in diameter at top, and 10 feet high, covered with tin and painted black.

North Beacon, Scituate Harbor, Massachusetts.—A spar with two rounds has been erected and painted red.

Duxbury Pier, Plymouth Harbor, Massachusetts.—The granite beacon at this place, which was pushed over by the ice, has been rebuilt; it is 13 feet square at the base, 11 feet square at top, and 19 feet 10 inches high. The loose stone in the vicinity were piled around the beacon nearly to high-water mark.

Lone Rock, Wood's Hole, Massachusetts.—The spindle on this rock has been replaced; it is an iron shaft 7 feet long by 4 inches diameter, with an octagonal pyramidal cage on the top, base up. The cage is 2 feet 6 inches high and 1 foot 7 inches diameter at the large end.

There are forty-four other day-beacons of masonry, masonry and iron, or iron alone, in this district, which require more or less attention every year, and many are carried away annually by the ice. It is suggested that an appropriation of \$10,000 be made to establish and replace day-beacons on the coasts of Maine, New Hampshire, and Massachusetts.

BUOYAGE.

The buoyage of this district is in its usual good condition.

TENDERS.

Verbena.—This steamer has been in constant service during the year with the exception of some two weeks, during which time she was under-

Second District.

going somewhat extensive repairs in New York, her place being supplied meanwhile by the Myrtle.

Daisy.—The work required of this steamer among the various aids to navigation in the northern part of the district has been well done, although the Daisy labors under many disadvantages on account of her small size, which makes it difficult for her to handle the large nun and can buoys, and her small carrying capacity, necessitating a large number of trips in distributing fuel, material, &c., to the stations. Her boiler is worn out, and a new one will be supplied at an early date.

DEPOTS.

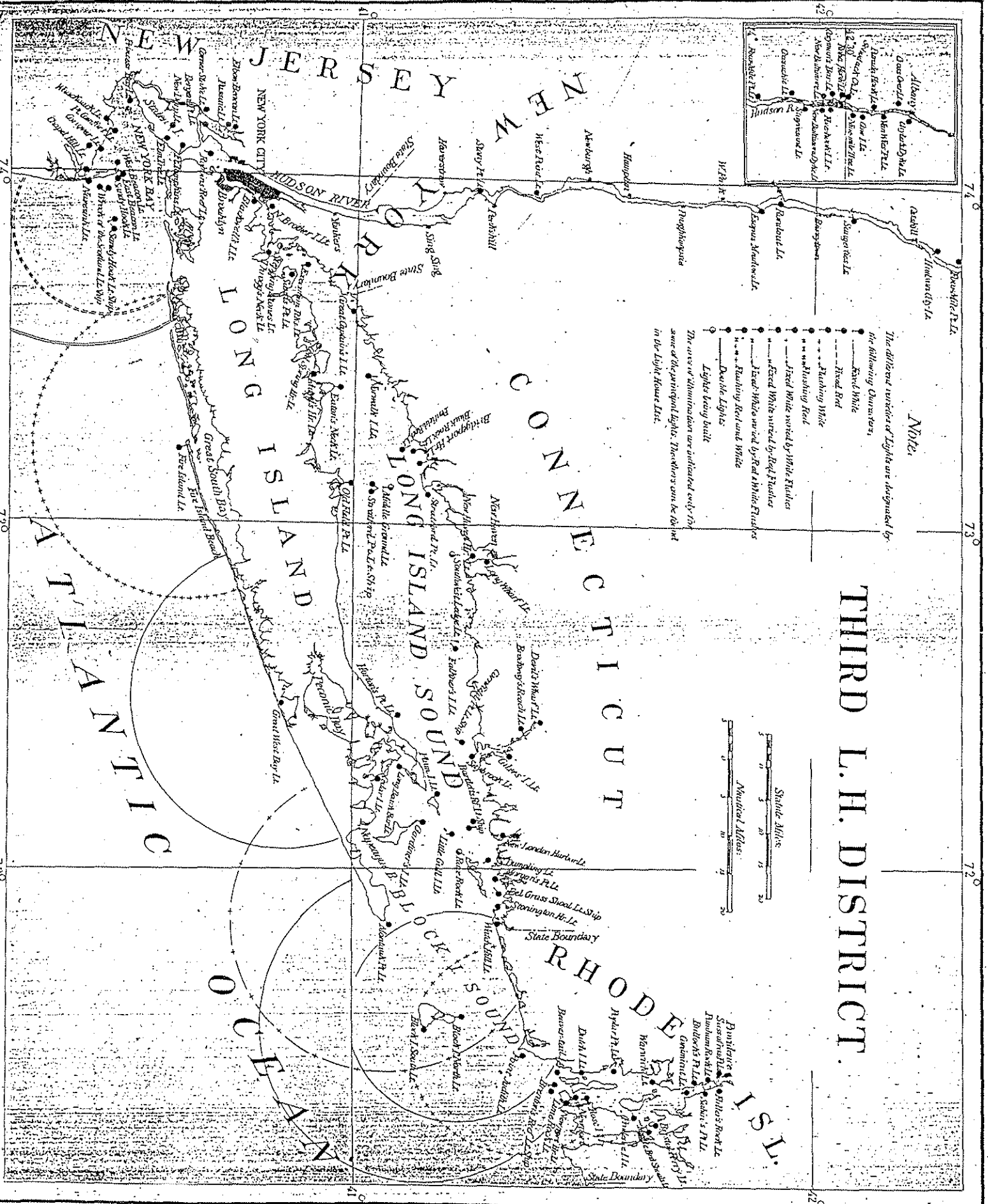
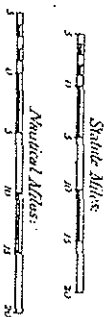
Lovell's Island, Boston Harbor, Massachusetts.—A one-story frame building, for the protection and storage of buoys, has been built, the wharf repaired, and the bank-retaining wall rebuilt.

Wood's Hole buoy-depot.—The wharf at this depot was repaired in September last by having the stone foundations partly relaid, piles righted up, &c., while at the same time the pier itself was extended, providing much better facilities for storage, discharging of material, &c. The foundations of the sea-wall have also been strengthened and partly relaid.

THIRD L. H. DISTRICT.

NOTE.

The different varieties of Lights are designated by the following Characters:
 Fixed White
 Fixed Red
 Flashing White
 Fixed White varied by Red Flashes
 Flashed White varied by Red & White Flashes
 Flashed Red and White
 Double Lights
 Lights being built
 The uses of illuminations are indicated only for some of the principal lights. The others can be found in the Light House List.



THIRD DISTRICT.

The third district extends from Gooseberry Point, Massachusetts, to include Squam Inlet, New Jersey, and embraces all the aids to navigation on the sea and sound coasts of Rhode Island, Connecticut, and New York; Narragansett and New York Bays, Providence and Hudson Rivers, Whitehall Narrows, and Lake Champlain.

Inspector.—Commodore Stephen D. Trenchard, United States Navy, until September 30, 1875; Captain A. C. Rhind, United States Navy, present inspector.

Engineer.—Col. I. C. Woodruff, Corps of Engineers, brevet brigadier-general, United States Army.

In this district there are—

Light-houses.....	121
Light-ships.....	9
Fog-signals operated by steam or hot-air engines.....	9
Day or unlighted beacons.....	39
Buoys actually in position.....	415
Buoys for relief and to supply losses.....	601
Steam-tenders for supply and for inspection, Putnam and Cactus.....	2
Steam-tender for engineer construction and repair, Mistletoe.....	1
Supply-steamer for supplying the light-houses of the Atlantic and Gulf coasts, Fern.....	1
Schooner Pharos, for construction and repair.....	1

The numbers preceding the names of stations correspond with the "Light-house Lists of the Atlantic, Gulf, and Pacific Coasts," and the "Northern and Northwestern Lakes of the United States," issued January 1, 1876.

LIGHT-HOUSES.

127. *Castle Hill fog-signal, entrance to Newport Harbor, Rhode Island.*—No progress has yet been made in securing a site for this important aid to navigation, as no satisfactory agreement can be made with the owners of land in the vicinity.

131. *Rose Island, Narragansett Bay, Rhode Island.*—This station was considerably damaged by the spring gales, necessitating very general repairs of the dwelling and tower, which have been made.

134. *Muscle bed Shoals, Narragansett Bay, Rhode Island.*—The following remarks taken from the last annual report are repeated, viz:

This station was seriously damaged by the ice during the past winter, and the rebuilding of the beacon becomes a necessity. The stone pier was moved some four feet by the force of the ice. The light and fog-signal have been continued since the damage, but require frequent adjustment to keep the apparatus in running order. The cost of rebuilding the beacon and protecting its base with riprap is \$6,000, for which an appropriation is recommended.

138. *Conimicut, entrance to Providence River, Rhode Island.*—About 500 tons of riprap-stone have been placed around the base of the light-house tower as a protection against moving ice-fields. Slight repairs have also been made to the tower. The suggestion of last year that \$30,000 be appropriated for rebuilding the pier and dwelling at this station is renewed.

139. *Bullock's Point, Providence River, Rhode Island.*—The work of enlarging the pier and erecting a dwelling and tower at this station, under the act of Congress appropriating funds therefor, was commenced in August last, when the first riprap-stone was delivered. The laying of the cut-stone work and backing of the pier was begun this spring, and has advanced to within one course of completion. The framing of the

Third District.

dwelling-house and tower was done by day's labor at the depot during the winter and spring, and is now ready to send to the station for erection. It is believed that the dwelling may be ready for occupation before the beginning of winter.

141. *Fuller's Rock; 142. Sassafras Point, Providence River, Rhode Island.*—Nothing has been done at these stations toward erecting a dwelling-house for the use of the keeper, as it has been impracticable to effect the purchase of a site.

— *Block Island breakwater, Rhode Island.*—An appropriation of \$900 having been made by act approved July 31, 1876, for range-lights at Block Island breakwater, the work will be undertaken as soon as a title to site can be had.

147. *Watch Hill, Rhode Island, near Stonington, Connecticut.*—During the year the iron battens of the lantern have been taken out and replaced by improved brass battens, and the lantern-glass renewed. The bank or sea-wall on the east side of the station is exposed to the force of the sea and shows signs of giving way. It is recommended that it be protected by riprap at its base and for some distance out, which would break the shock of the waves. The cost of such protection would not exceed \$3,500, and an estimate therefor is respectfully submitted.

155. *Race Rock, Long Island Sound, New York.*—At the close of the working season of 1875, the end of November, the work at this station had advanced to the completion of the second course of the pier and landing-wharf, which was the amount of work limited by the contract of February 17, 1872. Operations were resumed in the latter part of May of the present year, and, at the close of the month of June, the stones of the third course of the pier and landing-wharf were laid and partly grouted, but not doweled. Two-thirds of the concrete backing of this course was also laid.

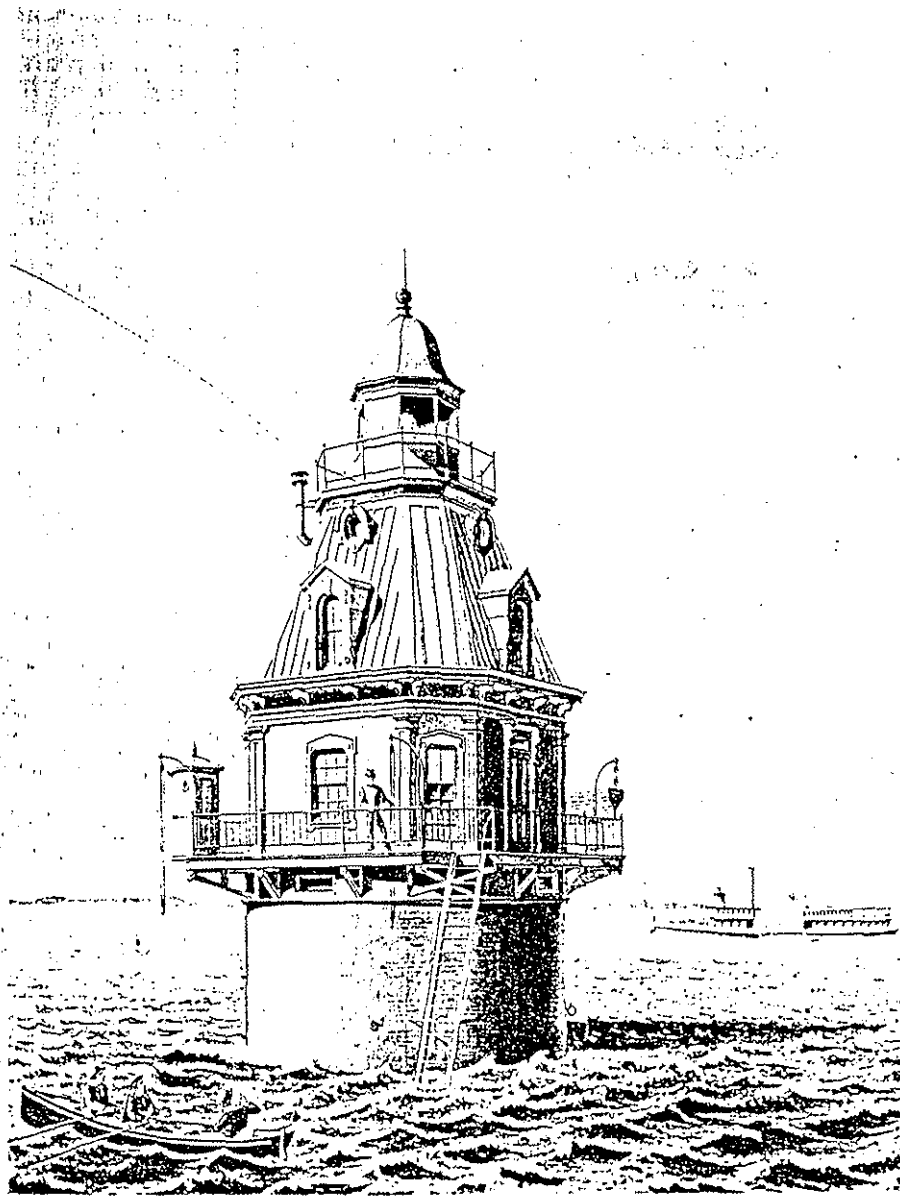
167. *Falkner's Island, Long Island Sound, Connecticut.*—Lamps for burning mineral-oil have been placed at this station during the year. General painting and some needed repairs have been made.

170. *Southwest Ledge, entrance to New Haven Harbor, Connecticut.*—The operations at this station were not resumed until the beginning of the working season of 1876, during which, an additional section has been added to the iron tube to increase its height and place the superstructure, which will soon be ready for erection, beyond the risk of danger from the sea, ice-fields, &c. The tube has been filled with concrete and the cistern-walls commenced. It is hoped that the structure may be completed and lighted by the beginning of winter.

173. *Middle Ground; Stratford Shoals, Long Island Sound, New York.*—The operations at this station were pushed forward during the last season until the month of December, when the first course of the cut-stone pier and the concrete backing were completed, and several cargoes of riprap-stone delivered at the work in places where the former riprap had settled in consequence of the scouring out of the gravel-bed. This scour occurs at the stage of low water and during the prevalence of gales. The third course of the pier and thirty-four stones of the fourth course have been completed and put in place during this season. The dwelling and tower cannot be erected until next March, as it will be too late the present season to work to proper advantage.

175. *Bridgeport Harbor, Connecticut.*—During the severe storms of the winter and early spring, many of the large coping-stones surmounting the breakwater which surrounds this station were carried away. These have recently been recovered and secured upon the breakwater, and as

U. S. LIGHT-HOUSE ESTABLISHMENT, 1876.



FOURTH ORDER LIGHT-HOUSE ON SOUTH WEST LEDGE, LONG ISLAND SOUND.
See page 21.

Third District.

an additional protection against their being again removed a considerable quantity of riprap-stone has been delivered at the deepest places along the base of the breakwater, where it serves to break the force of the waves.

181. *Cold Spring Harbor, north shore of Long Island, New York.*—Nothing has yet been accomplished in securing sites for range-lights, which the board decided to establish with the appropriation now available. The owners of the lands where the lights would be located are opposed to its occupation for the purpose indicated, believing that it must result to their injury. The appropriation is not sufficient to erect a structure on the shoal called the Middle Ground.

185. *Stepping-Stones, Long Island Sound, New York.*—The operations at this station were continued during the last working season until the latter part of December; work was stopped for the winter in December, 1875, and resumed during the month of May of the present year. The pier-work is completed with the exception of the backing of concrete and the flagging for top of pier. It is expected that the station will be completed by the beginning of winter.

186. *Throgg's Neck, New York.*—Extensive repairs begun in the last fiscal year have been completed, and the station is now in excellent condition. The lens has been fitted with lamps for burning mineral-oil.

190. *Fire Island, south side of Long Island, New York.*—Repairs have been made to the illuminating apparatus at this station. The lantern has been sheathed anew and the tower cement-washed and recolored.

196. *East Beacon, Sandy Hook, New Jersey.*—The work upon the jetties for protecting the beach against the abrasion of the sea was continued through the month of October, 1875, at which time they were left in excellent condition. The expectations as to their utility have been fully realized. Some repairs required during the present season will be defrayed from existing appropriations.

197. *West Beacon, Sandy Hook, New Jersey.*—Under appropriation of March 30, 1875, a new jetty of oak logs has been built, filled with brush and stone, and extended both to the northward and to the southward. The old jetty has been repaired and strengthened and platform newly planked. A plank-walk from the west beacon to the main light has also been laid.

201. *Waackaack, Gedney's Channel range, Raritan Bay, New Jersey.*—On inspection this beacon was found to be very unsafe. The heavy sill-timber and most of the joist of the lower section were badly decayed, and repairs were therefore immediately necessary. They were commenced at once, and completed during the early part of June. The tower has been thoroughly braced by wooden truss-braces, and new sills and joist put in.

207. *Robbins' Reef, New York Harbor, New York.*—General repairs have been made at this station during the year, and a shed built for storage of oil and supplies. The lamps have been changed for burning mineral-oils.

213. *Stony Point, New York.*—The fog-bell frame or tower being much decayed has been abandoned, and the fog-bell suspended from a bracket attached to the stone tower. An improved fog-bell machine has also been placed at this station.

216. *Rondout, Hudson River, New York.*—The following remarks and recommendations contained in the last annual report are repeated, viz:

The dike on the north side of the entrance to Rondout Creek needs a light to prevent collision of passing vessels. During the construction of the dike it was lighted by the Engineer Department of the Army. Its maintenance should now devolve upon

Third District.

the Light-House Establishment. If the dike itself is substantial enough for the base of a frame support, it will cost but a small amount, estimated at \$1,600. If the light be built on a separate foundation of piles, behind the dike, which is preferable on account of security from passing vessels, the cost will not be less than \$3,200. An appropriation of the latter amount is asked to establish this light.

220. *Coxsackie, Hudson River, New York.*—The foundation of this light-house has been protected by several hundred tons of stone.

497. *Split Rock, Lake Champlain, New York.*—The dwelling-house at this station should be rebuilt.

499, 500. *Burlington Beacons, Vermont.*—During one of the violent gales of the spring, the south end of the breakwater was displaced for some distance and partially overturned, causing considerable injury to the beacon on that end of the structure, and endangering its safety. Workmen were at once sent to the place, and after much difficulty, caused by the fields of ice, they succeeded in recovering the beacon and securing it on the uninjured portion of the breakwater.

REPAIRS.

At each of the following stations in the third light-house district, repairs more or less extensive have been made during the year.

128. *Beaver Tail, Rhode Island.*
129. *Time Rock, Rhode Island.*
130. *Newport Harbor, Rhode Island.*
131. *Rose Island, Rhode Island.*
132. *Dutch Island, Rhode Island.*
133. *Poplar Point, Rhode Island.*
134. *Muscle-Beck Shoals, Rhode Island.*
135. *Prudence Island, Rhode Island.*
136. *Bristol Ferry, Rhode Island.*
137. *Warwick, Rhode Island.*
138. *Conimicut, Rhode Island.*
140. *Sabin's Point, Rhode Island.*
141. *Punham Rock, Rhode Island.*
144. *Point Judith, Rhode Island.*
145. *Block Island, Rhode Island.*
147. *Watch Hill, Rhode Island.*
148. *Montauk Point, New York.*
149. *Stonington, Connecticut.*
151. *Morgan's Point, Connecticut.*
152. *North Dumpling, Connecticut.*
153. *New London, Connecticut.*
156. *Little Gull Island, New York.*
157. *Gardiner's Island, New York.*
158. *Plum Island, New York.*
159. *Long Beach Bar, New York.*
160. *Cedar Island, New York.*
161. *Saybrook, Connecticut.*
166. *Horton's Point, New York.*
167. *Falkner's Island, Connecticut.*
168. *New Haven Harbor, Connecticut.*
171. *Stratford Point, Connecticut.*
174. *Old Field Point, New York.*
175. *Bridgeport Harbor, Connecticut.*
176. *Black Rock, Connecticut.*

Third District.

177. *Penfield Reef*, Connecticut.
178. *Norwalk Island*, Connecticut.
179. *Eaton's Neck*, New York.
180. *Lloyd's Harbor*, New York.
183. *Execution Rocks*, New York.
184. *Sand's Point*, New York.
186. *Throgg's Neck*, New York.
187. *North Brother Island*, New York.
189. *Great West Bay*, New York.
190. *Fire Island*, New York.
- 193, 194. *Highlands of Navesink*, New Jersey.
195. *Sandy Hook*, (main light,) New Jersey.
196. *East Beacon*, *Sandy Hook*, New Jersey.
197. *West Beacon*, *Sandy Hook*, New Jersey.
198. *Conover*, New Jersey.
199. *Chapel Hill*, New Jersey.
200. *Point Comfort*, New Jersey.
201. *Waackaack*, New Jersey.
202. *Elm Tree*, New York.
203. *New Dorp*, New York.
204. *Princess Bay*, New York.
206. *Fort Tompkins*, New York.
207. *Robbins' Reef*, New York.
208. *Fort Columbus*, New York.
209. *Bergen Point*, New Jersey.
211. *Passaic Light*, New Jersey.
212. *Elbow Beacon*, New Jersey.
213. *Stony Point*, New York.
214. *West Point*, New York.
216. *Rondout Point*, New York.
218. *Hudson City*, New York.
220. *Coxsackie*, New York.
221. *Stuyvesant*, New York.
- 222, 223. *Hudson River Beacons*, New York.
495. *Crown Point*, Lake Champlain.
496. *Barber's Point*, Lake Champlain.
498. *Juniper Island*, Lake Champlain.
- 499, 500. *Burlington Beacons*, Lake Champlain.
501. *Colchester Reef*, Lake Champlain.
- 503, 504. *Plattsburg Beacons*, Lake Champlain.
505. *Cumberland Head*, Lake Champlain.
506. *Point au Roche*, Lake Champlain.
508. *Windmill Point*, Lake Champlain.
- *Light-House Depot*, Staten Island, New York.
- *New London Buoy-Wharf and Coal Depot*.

LIGHT-SHIPS.

126. *Brenton's Reef light-ship No. 11, off Brenton's Reef, entrance to Newport Harbor, Rhode Island*.—Since the date of last report, this vessel has received extensive repairs, including new frame-timbers, rails, planking, sheathing, hawse-pipes, and new rigging where required, at a cost of \$21,620.76. She has received all necessary supplies, and is now in good condition.
150. *Eel Grass Shoal light-ship No. 25, off Mystic, in Fisher's Island*

Third District.

Sound, Connecticut.—This vessel has had no repairs during the year; she is unsound, and too small for the service. If she is to be retained for any considerable time, she will need repairs estimated at \$6,000.

154. *Bartlett's Reef light-ship No. 13, off New London, Connecticut*.—This vessel has had her decks caulked, and some slight repairs. She is much decayed, and if kept in service will soon need extensive repairs.

165. *Cornfield Point light-ship No. 12, Long Island Sound, off the mouth of the Connecticut River*.—This vessel is in good condition, having been thoroughly repaired last year.

172. *Stratford Shoal light-ship No. 15, on Middle Ground, off Stratford Point, Long Island Sound*.—Since the date of last report, no repairs of moment have been made upon this vessel. She is in poor condition, much decayed, and if continued in service will soon require to be practically rebuilt.

191. *Sandy Hook light-ship No. 16, off entrance to New York Bay*.—This vessel is in good condition.

Light-ship No. 17.—This vessel is now at the light-house depot, New London, in good condition, and ready for service.

192. *Wreck of the Scotland light-ship No. 20, off Sandy Hook*.—This vessel is in good serviceable condition.

Light-ship No. 23.—This vessel is now at the light-house depot, Staten Island; is in fair condition, and is used for a relief-ship.

FOG-SIGNALS OPERATED BY STEAM OR HOT-AIR ENGINES.

128. *Beaver Tail, Rhode Island*.—A first-class Daboll trumpet, operated by a 24-inch Bricsson hot-air engine, in duplicate.

144. *Point Judith, Rhode Island*.—First-class steam-siren, in duplicate. The old boiler at this station has been patched and retubed during the year, and the engine-house has also undergone repairs.

146. *Block Island, Rhode Island*.—First-class steam-siren, in duplicate. During the year the work upon the reservoir for the collecting of water for fog-signal purposes has been completed. An upright boiler, of similar construction to the one at Point Judith, has been placed at this station, and the locomotive-boiler repaired and patched. Thus the fog-signal facilities are duplicated in every part. Feed-water heaters for economizing fuel and carrying the water to the boilers in a heated state have also been put up. This station is now in excellent condition.

148. *Montauk Point, New York*.—First-class Daboll trumpet, operated by 24-inch hot-air engines, in duplicate.

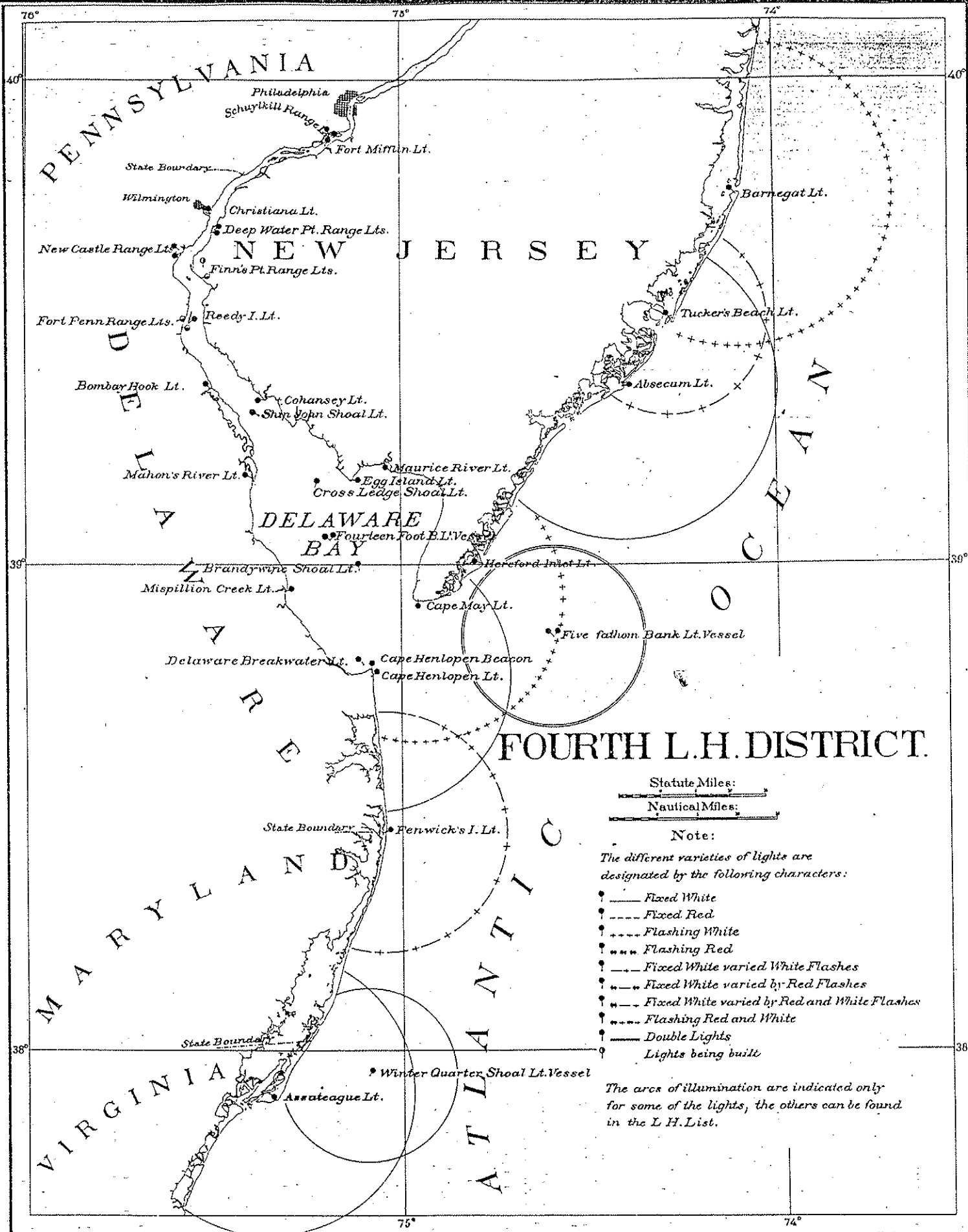
153. *New London, Connecticut*.—Second-class Daboll trumpet, operated by 18-inch caloric engines, in duplicate.

156. *Little Gull Island, New York*.—Second-class steam-siren, in duplicate.

179. *Eaton's Neck, New York*.—Second-class steam-siren, in duplicate.

183. *Execution Rocks, New York*.—Third-class Daboll trumpet, operated by an 18-inch hot-air engine, in duplicate.

196. *Sandy Hook, east beacon, entrance to New York Bay, New Jersey*.—First-class steam-siren, in duplicate, and in separate houses. On the 15th of June, the northernmost of the engine-houses was entirely destroyed by fire, the siren and the iron fittings being badly damaged; materials were sent to the station and a new building, of brick, commenced. The damaged machinery was taken to the depot at Staten Island, and is being repaired and put in readiness for re-erection as soon as the new building is completed, which will be at the earliest practicable moment.



Third District.

DAY OR UNLIGHTED BEACONS.

2. *South Point, Rose Island, Narragansett Bay, Rhode Island.*—Temporarily marked by an iron spindle and cage. The suggestion that an appropriation of \$4,000 be made for rebuilding the granite structure, submitted in the last annual report, is renewed.

29. *Stratford, entrance to Housatonic River, Connecticut.*—A granite structure with shaft and ball. This shaft was broken and displaced; the large coping-stone in which it was driven was also wrenched out of its place and injured. To repair the beacon a new coping-block and an iron spindle and cage will be required, which, with the necessary labor, will cost about \$1,500, for which an estimate is submitted.

37. *Success Rock, near Sand's Point, Long Island, New York.*—This spindle, destroyed during the spring of 1875, has been replaced during the year after much difficulty in drilling the hole for the reception of the iron shaft in the submerged rock.

BUOYAGE.

The buoyage of this district is in good condition, the losses of buoys and appendages being much below the average of past years. The total expense for buoy-service in the district has been \$67,755.09.

TENDERS.

The tenders in this district will need repairs during the coming year, which will be paid for from the general appropriations for the support of the Light-House Establishment.

DEPOTS.

Light-House Depot, Staten Island, New York.—The general work of the depot has been carried on as usual, and has been no less important than in former years. The force has been mostly employed in the manufacture of lamps, burners, and other fittings for illuminating-apparatus, tests of oil and burners, the packing, repairing, &c., of lenses, for storage or for shipment to different districts of the United States, and the reception and shipment of oil and supplies of all kinds. In the annual report of last year recommendation and estimates were made for regrading the grounds, renovating the wharves, enlarging the basin and the oil-shed; those recommendations are renewed.

New London Depot, New London, Connecticut.—The old wharf at this place is in a dilapidated condition for a distance of about 150 feet, and it is evident that extensive repairs will have to be made during the coming year. The suggestion contained in the last annual report for walling the passage-way from Bank street to the water, is renewed.

FOURTH DISTRICT.

The fourth light-house district extends from Squam Inlet, New Jersey, to and including Metomkin Inlet, Virginia. It includes the sea-coast of New Jersey below the Highlands of Navesink, the bay-coasts of New Jersey and Delaware, the sea-coasts of Delaware and Maryland, and part of the sea-coast of Virginia.

Inspector.—Commander George B. White, United States Navy.

Engineer.—Lieut. Col. W. F. Reynolds, Corps of Engineers, brevet brigadier-general, United States Army.

In this district there are—

Light-houses.....	32
Light-ships.....	4
Fog-signals operated by steam or hot-air engines.....	1
Day or unlighted beacons.....	0
Buoys actually in position.....	130
Spare buoys for relief and to supply losses.....	142
Tender (steam) for inspection, Violet.....	1
Tender (steam) for construction and repairs, Rose.....	1

The numbers preceding the names of stations correspond with those of the "Light-house List of the Atlantic, Gulf, and Pacific Coasts of the United States," issued January 1, 1876.

LIGHT-HOUSES.

234. *Barnegat, sea-coast of New Jersey.*—The monthly measurements along the beach have been continued throughout the year. No changes of importance have occurred. The sand-hill to the northward still moves towards the buildings.

235. *Tucker's Beach, entrance to Little Egg Harbor, New Jersey.*—A boat and buoy house, founded on iron piles, and affording ample protection for the boat and all the buoys in store, has been built at this station. A good roadway has been built between the keeper's dwelling and the boat-house. The keeper's dwelling at this station is very old and dilapidated, containing only two rooms, with attic. As two keepers are required, the accommodations are inadequate. The suggestion contained in last annual report, for an appropriation of \$3,000 for building a new dwelling and repairing the station, is renewed.

236. *Absecum, sea-coast of New Jersey.*—This structure when built was some 1,300 feet from the water. The abrasion of the beach, which has been going on almost ever since, and which has been watched carefully for a number of years, assumed during the past winter and spring a very threatening aspect. The ordinary high tides reached the lot and destroyed a portion of the fence, while an occasional tide covers a large portion of the site. After an examination by the committee on engineering of the board, it was determined to try the effect of short jetties, extending only from high to low water. Seven jetties in the immediate vicinity of the light-house, and about 150 feet apart, have been built. The effect has been an accumulation of sand between them in places to the depth of fully 2 feet. As was anticipated, the end jetties have been found much the most difficult to maintain, and they will require constant watching. The experiment so far has produced the effect contemplated, and justifies the conclusion that if carried far enough the abrasion will be retarded if not entirely prevented. The construction of a long jetty, extending to deep water, will involve an expense greater than would be

Fourth District.

required to rebuild the structure in a new locality. It is proposed to continue the experiment of using short jetties, in the hope that the present action of the water will ultimately cease. An estimate of \$10,000 has been submitted for this purpose.

239. *Cape May, sea-coast of New Jersey.*—The tower and oil-rooms have been cement-washed on the inside; the iron stairway, and lantern, and and the two dwellings have been painted.

240. *Cape Henlopen, sea-coast of Delaware.*—The lantern at this station is of the old diagonal pattern. To render the light as effectual as other lights of its class, a new and improved lantern should be provided, as recommended last year, which will require an appropriation of \$8,000.

241. *Cape Henlopen beacon, sea-coast of Delaware.*—Under a special appropriation for that purpose, a new brick structure has been erected near this station, and supplied with duplicate steam-siren fog-signals, affording an important additional aid to vessels entering Delaware Bay in foggy weather. A plank walk has been built from the light-house to the fog-signal house, and electric bells provided for calling assistance in case of need.

242. *Delaware breakwater, Delaware Bay.*—A new fourth-order illuminating apparatus was sent to this station in May. The increased brilliancy of the light is of great benefit to commerce.

246. *Egg Island, Delaware Bay, New Jersey.*—Four hundred and fifty perches of banking-stone have been deposited along the edge of the marsh in front of the light-house, to protect the site from the wash of the sea. This has checked, though it has not stopped, the abrasion. Additional ground adjoining the site should be purchased, and the structure moved to it. For this purpose an appropriation of \$5,000 is recommended.

247. *Cross Ledge Shoal, Delaware Bay, New Jersey.*—The erection of the pier of foundation was completed on the 23d of November last. A temporary wooden superstructure was at once placed upon it, and a light exhibited therefrom, for the first time, on the night of December 8, at which time the light-ship was removed. The light is of the fourth order, fixed, varied by flashes; the focal plane is as high as will be required for the permanent structure. The original estimate for this structure was \$125,000, of which amount \$100,000 has been appropriated; the last appropriation being \$25,000, made by act approved July 31, 1876. This sum, it is believed, will be sufficient to complete the permanent superstructure. On examining this work in the spring, it was found that the currents had washed away a large portion of the shoal on which it rests, making the riprap foundation fall away, and producing a large crack in the wall of the pier itself. The only remedy was to prevent further action of the kind, by additional riprap. About 2,000 perches have been thrown in around the structure, and no further settling of the pier is apparent. During the present season, measures will be taken to secure more firmly the small stone, under the pier, exposed by the falling away of the riprap around it.

248. *Mahon's River, Delaware Bay, Delaware.*—The new structure at this station was completed, and the light changed from the old to the new building, on the 20th of October last. The old structure has been sold at public auction, and the proceeds turned into the Treasury. The grounds around the dwelling have been graded and raised, adding greatly to the comfort of the keeper.

249. *Ship John Shoal, Delaware Bay, New Jersey.*—Toward the close of last season a contract was made for placing additional riprap around

Fourth District.

this structure and covering it with coping. The riprap was delivered as required, but the coping was not placed according to contract, rendering it of no more value as a protection against ice than the riprap. On examining in the spring it was found that the currents produced by placing the structure had caused changes in the shoal deepening the water, especially on the west side. More riprap has been added, but, until this action ceases, additional quantities may be required from time to time. On the 5th of January last bids were opened for the metal-work of the superstructure to replace the temporary frame structure now in use, and contract made with lowest bidder; the work has been completed as agreed upon. The additional appropriation, made by act approved July 31, 1876, will, it is thought, be sufficient to erect the superstructure on its proper site and further secure the foundation.

250. *Cohansey, Delaware Bay, New Jersey.*—The earth bank inclosing the buildings has been raised one foot all around, the sluice put in good order, the platform on the front of the dwelling renewed, and other repairs made, placing the station in good condition.

252, 253, 254, and 255. *Liston's Tree Ranges, Delaware.*—At the date of last report the survey necessary to locate these ranges had not been made. It was, however, completed last season, and the points indicated for two sets of ranges. One, which marked the channel in the reach from Ship John Shoal to near Reedy Island, was located about 1½ miles below Port Penn. The other set, marking the reach passing Baker Shoal and Reedy Island, was located on the Delaware side above Liston's Point. The purchase of a site for the front light of this last range (which is on unreclaimed swamp, of little or no value) could not be effected, as the owner of the land demanded a price that the board considered exorbitant. It was found on further examination that this range could be placed on Finn's Point, on the New Jersey side. All the title-papers have been prepared and the titles approved by the Attorney-General. The designs for the four structures have been approved, and they are now under construction. The rear lights are to be iron structures 100 and 120 feet high, with keepers' dwellings attached. It is expected that both ranges can be lighted before winter.

256. *Reedy Island, Delaware Bay, Delaware.*—Under the law providing for the erection of Liston's Tree Range light, this light is to be discontinued when Liston's Tree Range lights are exhibited.

257, 258, 259, and 260. *Bulkhead Ranges, Deep-Water Point, New Jersey, and New Castle, Delaware.*—Owing to the difficulty of obtaining sites for these ranges, and the exorbitant value placed upon the land required, the construction has been greatly delayed. The sites have now been purchased, the titles approved by the Attorney-General, and all the structures are in progress. It is hoped they will be completed before the close of the season.

262. *Fort Mifflin, Delaware River, Pennsylvania.*—Three hundred tons of riprap stone have been deposited around the pier, upon which the building is founded, to give protection against running ice. The fence around the pier has been repaired, and the entire structure painted inside and outside.

263 and 264. *Schuylkill River Ranges, Pennsylvania.*—Two piers have been erected on League Island Flats, near the mouth of the Schuylkill, and beacons supplied with sixth-order illuminating apparatus placed upon them to serve as range-lights for entering the mouth of the river. The piers are connected with the river-bank by plank walks. A keeper's dwelling has been erected adjacent to the two piers, according to

Fourth District

plans approved by the board. The lights were exhibited, for the first time, December 15, 1875.

Cherry Island Flats, Delaware River.—There is a bad shoal at this point, with a narrow channel on either side. It should be marked by a light or lights, the exact positions of which can only be determined by a survey. By act approved July 31, 1876, the Light-House Board is authorized to make a survey for the purpose of determining this question; but no money was appropriated for this purpose. A proper survey will cost \$3,000. It is recommended that an appropriation of \$50,000 be made for a light or lights to guide past this shoal.

REPAIRS.

At each of the following-named light-stations repairs and renovations, more or less extensive, have been made since the last annual report:

- 234. *Barnegat*, Barnegat Inlet, New Jersey.
- 235. *Tucker's Beach*, Little Egg Harbor Inlet, New Jersey.
- 236. *Absecum*, Absecum Inlet, New Jersey.
- 239. *Cape May*, entrance to Delaware Bay, New Jersey.
- 240. *Cape Henlopen*, entrance to Delaware Bay, Delaware.
- 241. *Cape Henlopen beacon*, entrance to Delaware Bay, Delaware.
- 242. *Delaware Breakwater*, entrance to Delaware Bay, Delaware.
- 244. *Brandywine Shoal*, Delaware Bay, Delaware.
- 246. *Egg Island*, Delaware Bay, New Jersey.
- 250. *Cohansey*, entrance to Cohansey Creek, New Jersey.
- 251. *Bombay Hook*, Delaware Bay, Delaware.
- 256. *Reedy Island*, Delaware Bay, Delaware.
- 261. *Christiana*, entrance to Christiana River, Delaware.
- 262. *Port Mifflin*, Delaware River, Pennsylvania.
- 265. *Fenwick's Island*, coast of Delaware, Delaware.
- 267. *Assateague*, coast of Virginia, Virginia.

LIGHT-SHIPS.

238. *Five-Fathom Bank, No. 37, on Five-Fathom Bank, off the capes of the Delaware.*—This vessel parted her moorings on the 14th of December last, during a severe northwest gale, losing a heavy mushroom anchor and 75 fathoms of cable. She was brought up with her spare anchor about one mile to seaward of her station, where she remained until replaced in proper position, December 20. Being to seaward of all dangers her lights were exhibited as usual during this time. She is in need of repairs, which will be made during the season.

Cross Ledge light-ship No. 19, Delaware Bay.—On December 8, 1875, the light-house on Cross Ledge Shoal was completed, and the light exhibited for the first time. By the terms of the law establishing this station, the light-ship station was discontinued, and on the 9th the light-ship was withdrawn. This vessel has been carefully surveyed, and is now undergoing repairs to fit her for service where needed. The repairs will make her one of the best ships of her class in the service, and will cost about \$11,000.

266. *Winter-Quarter Shoal light-ship No. 2.*—Light-ship No. 24 upon this station was replaced by light-ship No. 2 in November, 1875. Neither of these vessels is sufficiently large and sea-worthy for so exposed a station, and the board contemplates sending a better vessel to this point before the close of the pleasant season.

Fourth District.

Light-ship No. 18.—This vessel, being much decayed, was surveyed and pronounced unworthy of repairs. After due public advertisement, she was sold to the highest bidder, and the net proceeds, amounting to \$985.46, were turned into the Treasury.

Light-ship No. 24.—This vessel was withdrawn from Winter-Quarter Shoal station in November last, her place being supplied by No. 2. A new lantern has been placed upon her foremast, and she is now used as the relief-ship for the district.

FOG-SIGNALS.

Cape Henlopen, Delaware.—First-class steam siren in duplicate; completed and first put in operation December 29, 1875; in good order and efficient in every respect.

BUOYAGE.

The buoyage of this district is in good condition.

The following additional buoys have been added to the list during the year:

One first-class spar to mark lump off Delaware breakwater. Three spars to mark Schooner Ledge in the Delaware, near Chester, Pa. Five spars to mark channel of the Schuylkill River. Three spars to mark rocks near Torresdale, Delaware River; and three spars to mark the channel across Chincoteague Bay.

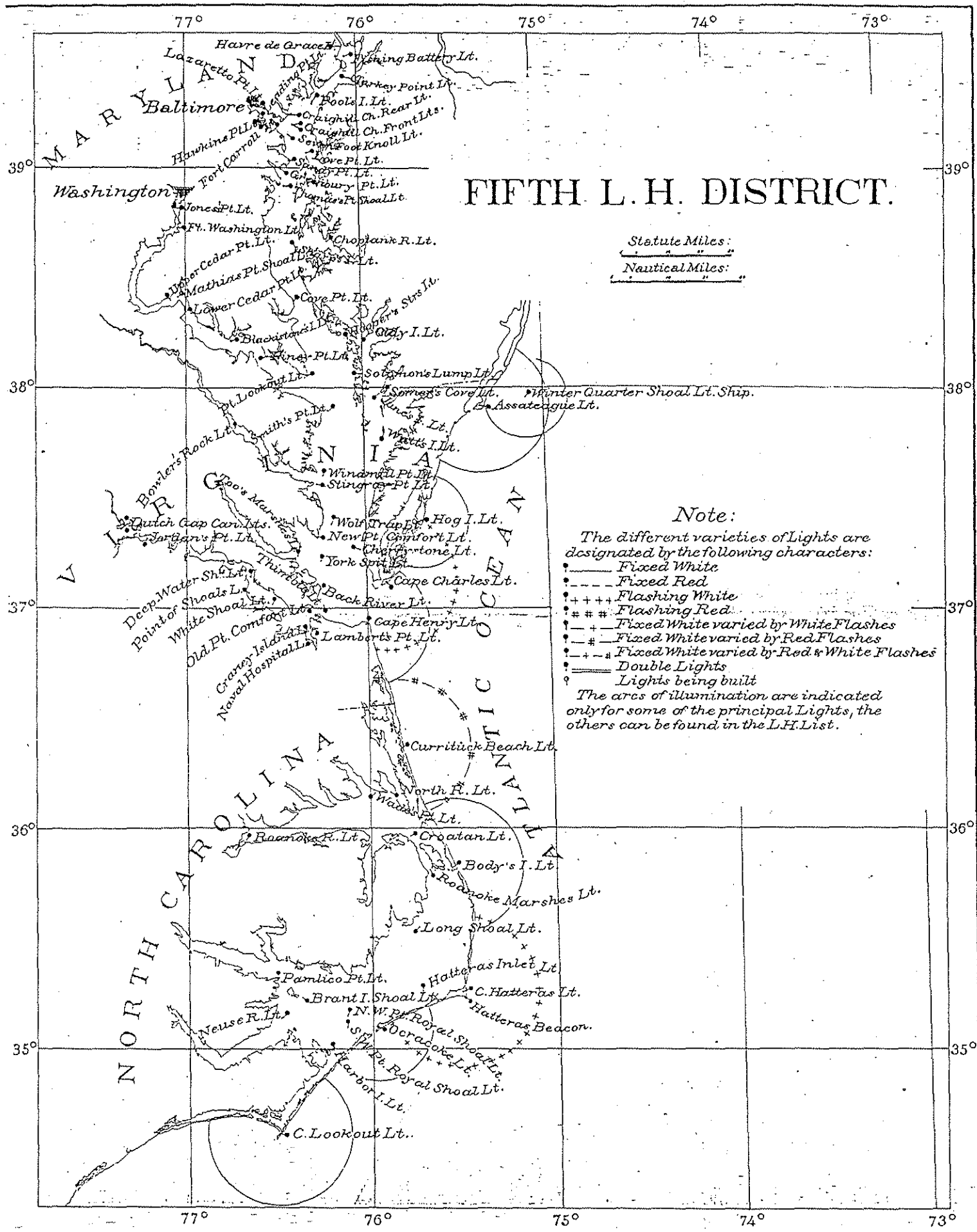
TENDERS.

The *Violet*, used for purposes of inspection, supply, and buoyage, is entirely too small for the important work required of her, and her place should be supplied by a larger, more powerful, and more sea-worthy vessel.

The *Rose*, used by the engineer for purposes of construction and repair, is small and of little consequence. As soon as her place can be supplied by a better vessel she should be sold.

DEPOTS.

The depots for buoys and supplies in this district are in fair condition. A place at which buoys can be cleaned, repaired, and painted is required at a point near Cohansey light-station. A suitable piece of land can be purchased near the light-house for a small sum, and it is recommended that an appropriation of \$1,000 be made for this purpose.



FIFTH DISTRICT.

The fifth light-house district extends from Metomkin Inlet, Virginia, to include New River Inlet, North Carolina, and embraces part of the sea-coast of Virginia and North Carolina, Chesapeake Bay; sounds of North Carolina, and the James and Potomac Rivers.

Inspector.—Commander B. C. Merriman, United States Navy, until October 1, 1875; Commander F. H. Baker, United States Navy, present inspector.

Engineer.—Major Franklin Harwood, Corps of Engineers, brevet lieutenant-colonel United States Army.

In this district there are—

Light-houses	73
Light-ships	0
Fog-signals operated by steam or hot-air engines	0
Day or unlighted beacons	69
Buoys actually in position	689
Spare buoys for relief and supply losses	935
Tenders (steam) Heliotrope (buoy-tender) and Tulip, (for construction and repairs)	2
Tender (sail) Maggie, (buoy-tender)	1

The numbers preceding the names of the stations correspond with the "Light-house List of the Atlantic, Gulf, and Pacific Coasts of the United States," issued January 1, 1876.

LIGHT-HOUSES.

270. *Cape Henry, on the south side of the main entrance to Chesapeake Bay, Virginia.*—As stated in the last annual report, the tower at this station is one of the oldest on the coast of the United States, and a new one should be built at the earliest day practicable.

284. *York Spit, entrance to York River, Virginia.*—On the 6th of August, 1875, the illuminating apparatus at this station was changed from a fifth to a fourth order, with double-wick lamp-burner. The change has been highly appreciated by mariners.

285. *Too's Marshes, south side of entrance to York River, Virginia.*—This station was completed and the light exhibited for the first time on the 15th of August, 1875.

294. *Solomon's Lump, in Kedges Strait, Virginia.*—This light-house was completed and the light exhibited for the first time on the 10th of September, 1875. At the same time the light at Fog Point was discontinued.

301. *Thomas's Point Shoal, north side of mouth of South River, Maryland.*—This light-house was completed and the light exhibited on the 20th of November, 1875. The old light on the shore was then discontinued. The new structure rests on 10-inch wrought-iron piles. It is situated on a shoal about a mile from Thomas's Point. The light is of the 3½ order, showing a red flash every 20 seconds.

303. *Sandy Point, west side of Chesapeake Bay, Maryland.*—The light at this station, situated on the main-land, is too far from the channel to be efficient. The shoals make out from the point a distance of about one mile, and vessels drawing more than ten feet of water cannot approach within that distance of the light-house. The fog-bell at this station can seldom be heard on account of its distance from the channel. This light-house marks a turning-point. A change in the location to the outer edge of the shoal and the establishment of an efficient fog-signal

Fifth District.

is recommended, and an estimate of \$25,000 is submitted for that purpose. A structure somewhat similar to that at Thomas's Point Shoal it is believed will answer the purpose.

304. *Love Point, on the shoal making out from the upper end of Kent Island, Maryland.*—Serves as a guide into Chester River. The lens at this station was, on the 15th of November last, changed from a 3½ order, flashing red, to a 5th order, fixed white.

320. *Mathias Point Shoal, Potomac River, Virginia.*—The iron-work for the foundation was finished a short time ago and is now stored at the Lazaretto Depot, Baltimore, Md. The erection of the structure is postponed until the fall, owing to more pressing and important work required at other points in the district. The framing of the superstructure is at present in course of preparation, and it is expected that operations will soon begin at the site. It is believed that the light can be exhibited during the coming season.

325. *Currituck Beach, coast of North Carolina.*—The tower at this station was completed and the light exhibited December 1, 1875. It is of the first order, fixed white, varied at intervals of 1½ minutes by red flashes. The tower is built of brick. Work on the keeper's dwelling was commenced in November, 1875. At the close of the fiscal year the station was entirely complete.

327. *Cape Hatteras, coast of North Carolina.*—In March and April, 1876, extensive repairs were made at this station, placing the keeper's dwellings in thorough repair, and making various improvements on the premises. The tower was also thoroughly repainted and the exterior marking renewed. The station is now in good order.

332. *Northwest Point Royal Shoal, on northwest point of Royal Shoal, North Carolina.*—In April, 1876, the dwelling was re-roofed, and the station put in thorough repair.

334. *Brant Island Shoal, southern part of Pamlico Sound, North Carolina.*—This station was destroyed by fire, May 24, 1876, but the iron-work remaining intact, with a few minor exceptions, the station can be restored at an expense not to exceed \$10,000, for which an appropriation is needed.

338. *Roanoke Marshes, in channel connecting Pamlico and Croatan Sounds, North Carolina.*—The iron material for rebuilding this station is stowed at the Lazaretto Depot, Baltimore, Md., but, an additional appropriation having been made, it is proposed to build the new house during the winter of 1876-77. A site has been selected one hundred yards south-southeast of the present old structure.

REPAIRS.

At each of the following-named stations there have been repairs and renovations, more or less extensive, during the year:

- 268. *Hog Island, sea-coast of Virginia.*
- 273. *Craney Island, near the mouth of Elizabeth River, Virginia.*
- 274. *Lambert's Point, Elizabeth River, Virginia.*
- 276. *White Shoal, James River, Virginia.*
- 277. *Point of Shoals, James River, Virginia.*
- 278. *Deep Water Shoals, James River, Virginia.*
- 280. *Dutch Gap Canal, James River, Virginia.*
- 282. *Cherrystone, entrance to Cherrystone Inlet, Virginia.*
- 284. *York Spit, entrance to York River, Virginia.*

Fifth District.

287. *Wolf-Trap*, east end of Wolf-Trap Shoal, Chesapeake Bay, Virginia.
288. *Stingray Point*, mouth of Rappahannock River, Virginia.
289. *Windmill Point*, mouth of Rappahannock River, Virginia.
291. *Jane's Island*, entrance to Little Annamessux River, Maryland.
292. *Somer's Cove*, north side of Little Annamessux River, Maryland.
297. *Hooper's Straits*, abreast of entrance to Honga River, Maryland.
298. *Cove Point*, north entrance to Patuxent River, Maryland.
299. *Sharp's Island*, off north end of Sharp's Island, Maryland.
300. *Choptank River*, opposite entrance to Choptank and Treadhaven Rivers, Maryland.
- 305-306. *Craighill Channel Range-lights*, Chesapeake Bay, Maryland.
307. *Seven-foot Knoll*, mouth of Patapsco River, Maryland.
- 309-310. *Hawkins's Point*, upper and lower lights, south side of Patapsco River, Maryland.
313. *Pool's Island*, off mouth of Gunpowder River, Maryland.
316. *Ocracoke*, entrance to Ocracoke Inlet, North Carolina.
319. *Lower Cedar Point*, west side of Potomac River, Virginia.
324. *Bowler's Rock*, Rappahannock River, Virginia.
326. *Body's Island*, coast of North Carolina.
327. *Cape Hatteras*, coast of North Carolina.
329. *Hatteras Inlet*, Pamlico Sound, North Carolina.
331. *Southwest Point Royal Shoal*, Pamlico Sound, North Carolina.
332. *Northwest Point Royal Shoal*, Pamlico Sound, North Carolina.
333. *Harbor Island*, between Pamlico and Core Sounds, North Carolina.
335. *Neuse River*, entrance to Neuse River, North Carolina.
337. *Long Shoal*, Pamlico Sound, North Carolina.
339. *Croatan*, between Croatan and Albemarle Sounds, North Carolina.
340. *North River*, entrance to North River, North Carolina.
341. *Wade's Point*, west side of Pasquotank River, North Carolina.
342. *Roanoke River*, near the mouth Roanoke River, North Carolina.

LIGHT-SHIPS.

There are no light-ships in this district.

FOG-SIGNALS OPERATED BY STEAM OR HOT AIR.

There are no fog-signals operated by steam or hot-air engines in this district.

DAY OR UNLIGHTED BEACONS.

From the changing of the Core Sound Channel, and after a thorough examination, it was found advisable to discontinue a number of the stake-beacons. Five stake-beacons have been placed in the Nansemond River, Virginia, to guide vessels over the bar at the mouth of Suffolk Creek. Material for four day-beacons, to be built in the Potomac River, has been prepared and is now stored at the depot at the Lazaretto. The work of placing them will be commenced at once. These beacons are to be built of iron, three of them with screw-pile foundations and one of cast iron, filled with concrete. They will be placed on the following shoals, viz: Metomkin Point Shoal, Lower Cedar Point Shoal, Port Tobacco Flats, and Persimmon Point Shoal.

BUOYS.

New buoys have been placed during the year as follows: A third-class can-buoy has been placed at the entrance to Cherrystone Inlet

Fifth District.

Virginia, to mark a shoal. A third-class nun-buoy and fourteen spar-buoys have been placed in the Nansemond River, Virginia, a large number of citizens of Suffolk and vicinity having applied to have that river buoyed. A small spar-buoy has been placed off Washington, D. C., near the arsenal-grounds, to mark a number of sunken piles, dangerous to navigation. The upper rock near the Georgetown, D. C., aqueduct having been removed, the buoy which marked it has also been removed.

The wreck-buoy which was placed to mark a sunken canal-boat near Turkey Point, Chesapeake Bay, Maryland, has been removed, as the wreck has disappeared. Two third-class iron nuns and ten spar-buoys were carried away by ice, the sea, run down by vessels, and worn out during the year, of which one third-class iron nun was recovered. All the buoys of the district have been examined or exchanged, and are in their proper positions. A great number of them require exchanging, which will be done as fast as possible by the one slow steamer and sailing-tender at command.

TENDERS.

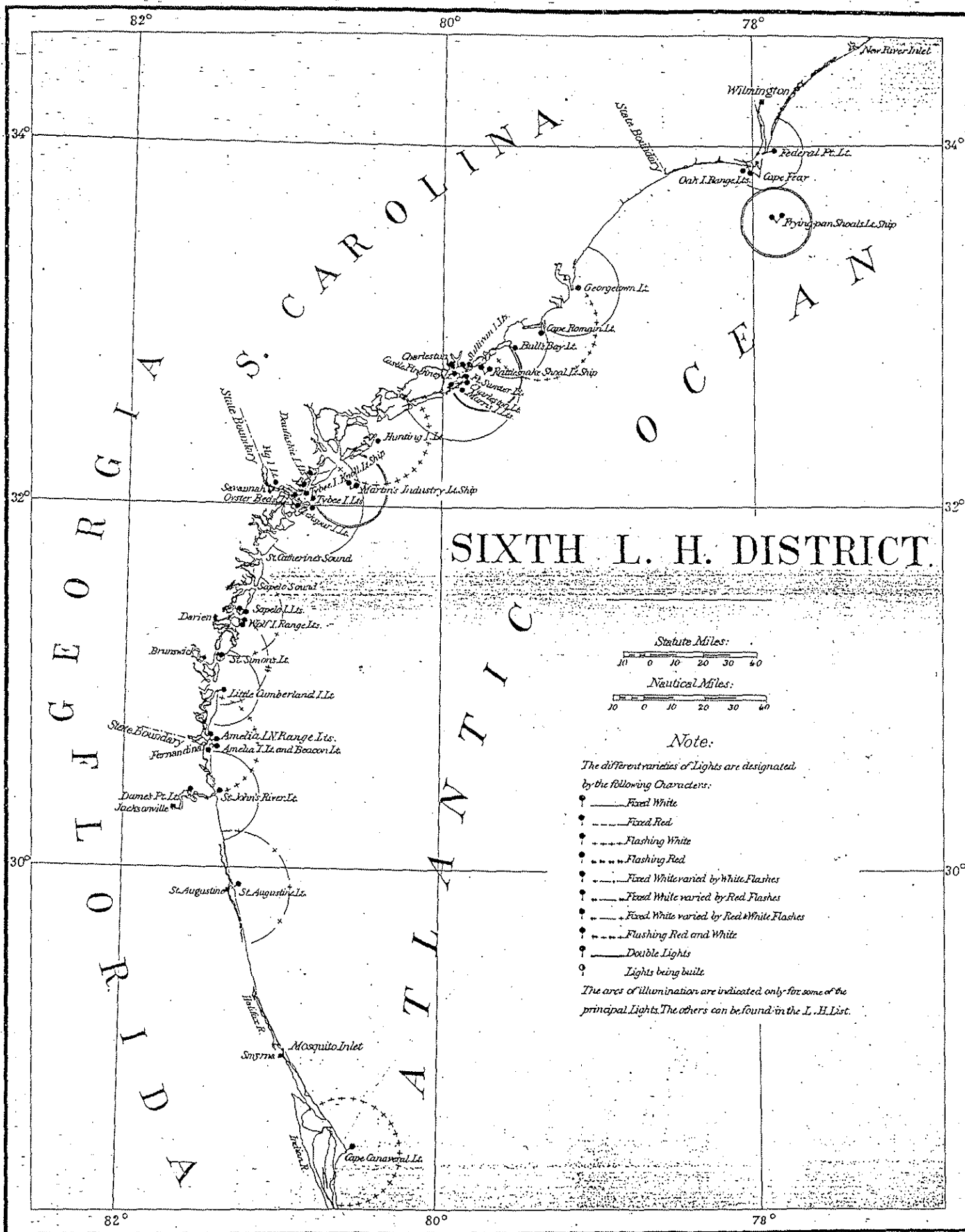
The steam-tender *Heliotrope* and sailing-tender *Maggie* have been constantly employed examining and exchanging buoys, supplying light-houses with fuel and other articles, and carrying the inspector about the district on his tours of inspection. The steamer *Heliotrope* is in fair working-order. The schooner *Maggie* is in good condition, and is well suited for work in the sounds of North Carolina, where she is mostly employed. The steam-tender *Tulip* has been engaged during the year, carrying material and workmen to stations undergoing repairs in process of construction. The schooner *Spray* was employed during a portion of the year in carrying material to works in process of construction. There being no further need of her services in the fifth district, she was in April, 1876, transferred to the seventh district.

DEPOTS.

Lazaretto Point, near Baltimore, Maryland.—At this depot a number of buoys and their appurtenances are kept for use as reliefs, and to supply losses in the channels leading to Baltimore and the upper part of the Chesapeake Bay and tributaries. The depot is in need of repair, and the recommendation of last year for an appropriation of \$4,000 for this purpose is renewed.

Portsmouth, Virginia.—This is the main depot of the district, and contains the principal supply of spare buoys and their appurtenances, coal for the use of the steam-tenders, and coal and wood for the light-houses; also supplies to meet cases of emergency. Most of the spar-buoys used in the district are made at this depot.

Washington, Pamlico River, North Carolina.—The buoys and appurtenances for the sounds of North Carolina and their tributaries are kept at this depot, which is in good condition.



SIXTH DISTRICT.

The sixth district extends from New River Inlet, North Carolina, to and including Cape Canaveral light-house, Florida, and embraces part of the coast of North Carolina, the coasts of South Carolina and Georgia, and part of the coast of Florida.

Inspector.—Captain A. E. K. Benham, United States Navy.

Engineer.—Captain W. A. Jones, Corps of Engineers, United States Army.

In this district there are—

Light-houses	3
Light-ships	7
Fog-signals operated by steam or hot-air engines	24
Day or unlighted beacons	4
Buoys actually in position	1
Spare buoys for relief and to supply losses	1
Tender (steam) Alanthus, buoy-tender	
Tender (sail) Mignonette, used for constructions and repairs	
Steam-launch Crocus	

The numbers preceding the names of the stations correspond with those given in the "List of Light-houses, Lighted Beacons, and Floating Lights of the Atlantic, Gulf, and Pacific coasts of the United States," published January 1, 1876.

LIGHT-HOUSES.

344. *Federal Point, entrance to the New Inlet, North Carolina.*—This is a two-story frame house on nine iron piles, lantern on top. The house is in need of considerable repairs, which will be made at an early day.

346-347. *Oak Island Range Beacons, entrance to Cape Fear River, North Carolina.*—At the date of the last report the work of building two new frame beacons to take the place of the present ones, and to secure a better range through the western or Oak Island Channel, for which an appropriation of \$4,000 had been made by Congress, was suspended by order of the board until it could be determined whether the changes in the channels then taking place were of a permanent character. The Bald Head channel has improved in depth, and is now generally used by vessels. Owing, however, to the frequent changes in this channel, any project for lighting it would be premature. The Oak Island beacons must therefore be retained as a guide for vessels at night, and in view of the indefinite period that may elapse before any other channel could be lighted, and as the present beacons require extensive repairs which have already been postponed until they have become a matter of necessity, it is proposed to build the beacons provided for. It is believed they may be so constructed of iron that they can be readily removed to another site should a change become necessary. The appropriation of \$4,000 is still available and it is believed will be sufficient to complete the work.

348. *Georgetown, South Carolina.*—The upper part of the tower has been coated with cement-mortar to stop the leaks through the defective joints of the brick-work. The other portions of the tower have been painted and whitewashed. The premises have been inclosed by a wooden fence, and the station left in complete order.

349. *Cape Romain, South Carolina.*—Measurements made during the

Sixth District.

year show no further settlement of this tower, the total deflection remaining as before reported, 27½ inches.

352. *Morris Island main light, on the south end of Morris Island, entrance to Charleston Harbor, South Carolina.*—At the date of the last report the foundations of the tower had been completed and the work suspended during the unhealthy season. Operations were resumed in October, 1875, when the work on the superstructure was commenced and has since been steadily continued to completion. The illuminating apparatus, a first-order lens, fixed white, with an arc of 270°, and a catadioptric reflector of 90°, has been set up. The oil and work rooms have been built, and the tower is ready for lighting. The keeper's dwelling has been commenced and is nearly completed. Cisterns of an aggregate capacity of 7,000 gallons have been built. The ground in the vicinity of the tower, originally nearly on a level with the adjoining marsh-land, and subject to overflow at spring-tide, has been raised to an average height of 3 feet over an area of 300 by 200 feet, with sand hauled from the site of the old tower (the nearest available point) and covered with the soil excavated from the foundation. The easterly side bounded by the marsh has been protected from the tides by a timber and plank scarp faced with the debris of the old tower. Examinations and soundings of the southeast and Pumpkin Hill channels, with a view of determining whether it is necessary to retain the present range-beacons, have been made.

Fort Ripley, Charleston Harbor, South Carolina.—An appropriation having been made for building a light-house on Fort Ripley Shoal, to take the place of Castle Pinckney light, the work will be taken in hand at an early day.

358. *Castle Pinckney, Charleston Harbor, South Carolina.*—The work of rebuilding this beacon, for which an appropriation of \$2,000 was made by Congress, will not be commenced, as the light will be discontinued when the one on Fort Ripley Shoal is built.

359. *Combahee Bank, Saint Helena Sound, South Carolina.*—The shoal on which this light-house was built has been washed away to such an extent as to endanger the safety of the structure and render it useless to navigation. The board, therefore, ordered the discontinuance of the light and the removal of the lens and lantern. The order was carried into effect June 30, 1876, the building remaining as a day-mark.

360. *Hunting Island, South Carolina.*—Under the appropriation made by act approved March 3, 1875, for keeper's dwelling, a frame building of two stories and attic has been built on a brick foundation, with brick cisterns of an aggregate capacity of 7,000 gallons, the whole inclosed by a picket fence. The dwelling was completed, ready for occupation, May 1, 1876. At the date of the last report the fresh-water ponds in the vicinity of the site had been drained, the ditches discharging on the beach through a flood-gate, built into a timber-crib filled with stone, intended to form the nucleus of a breakwater to be built to protect the site. The building of the keeper's dwelling exhausted the appropriation, leaving no funds to be applied to the proposed breakwater; and the encroachment of the sea during the past year has been so great as to wash away the land to a line considerably in rear of the crib and flood-gate, rendering the latter useless, and entirely stopping the drainage of the ponds, upon which the health of the station mainly depends. Some other arrangement will have to be made for draining the ponds.

364. *Tybee main light, on Tybee Island, entrance to Savannah River,*

Sixth District.

Georgia.—The following remarks, taken from the last annual report, are repeated, viz:

This tower, the dangerous condition of which has been described in a former report, has recently exhibited further signs of instability. The tower has lately been carefully examined, and the measurements taken show that no departure from verticality has taken place. The cracks, however, have increased in number and extent, one of them being open $\frac{1}{4}$ inch on the inside, and several others from $\frac{3}{8}$ to $\frac{1}{2}$ inch, while on the outside the jambs and arches of all the windows are cracked, that of the third landing being $\frac{3}{8}$ inch, and the others being from $\frac{1}{4}$ to $\frac{3}{8}$ inch opened. The cracks have been calked in places to show any further movement. This tower, which is one of the oldest on the coast of the United States, having been built in 1793, should be rebuilt, with the least practicable delay, and an appropriation of \$50,000 is asked to commence the work.

365. *Tybee Beacon, Georgia.*—This is a skeleton-frame, wooden structure, has been built nearly ten years, and twice moved back on account of the encroachments of the sea. These removals have, by opening the joints of the framing and admitting water, caused the wood to rot. It would be better policy to rebuild the beacon than to further repair it, and an appropriation of \$4,000 is recommended therefor.

Tybee Knoll Shoal, entrance to Savannah River, Georgia.—The appropriation for a light-house on Tybee Knoll having been made available for the establishment of range-lights to guide through the dredged channel of Tybee Knoll, the work will be commenced at as early a day as practicable.

367. *Cockspur Island Beacon, Georgia.*—The tower has been fitted with storm-doors for the lantern, and the stairs and landing repaired. The keeper's dwelling, a small one-story frame building, built on a wooden foundation, is more than twenty years old, and so decayed that further repairs are unadvisable. It is also so near the ground that during severe gales the water rises above the floor. This dwelling accommodates the keepers of both the Oyster Beds and Cockspur beacons. An appropriation of \$7,000 is recommended to build a suitable dwelling.

371. *Sapelo Beacon, entrance to Doboy Sound, Georgia.*—The old wooden beacon is rotten and in danger of falling. Plans and specifications for a new iron beacon to take its place have been made, and a beacon is being built.

374. *Saint Simons, Georgia.*—This station has received extensive repairs and improvements. The iron windows of the tower have been refitted, closets and fittings for storm-panes of lantern-glass and keeper's implements have been constructed in the watch and oil rooms. A speaking-tube to connect the watch-room and dwelling for calling the relief-keeper has been fitted. The tower has been painted outside and inside. The walls of the keeper's dwelling have been furred and plastered to prevent dampness. The roof has been repaired, made watertight, and the dwelling painted and whitewashed. The machinery of the lens has received a thorough overhauling.

375. *Little Cumberland Island, Georgia.*—The foundation, which was being undermined by the drifting away of the sandy soil, has been protected by a brick wall built around the tower at a distance of 6 feet from the base and extending down 2 feet below the tower foundation, the intervening space being covered with concrete and paved with brick. The tower doors and windows have been refitted and repaired, and the tower painted and whitewashed. The foundation of the dwelling has been protected from drift by a heavy covering of oyster-shells.

379. *Amelia Island, (front beacon,) Florida.*—A new iron beacon has

Sixth District.

been erected to take the place of the old wooden one. The cost was defrayed from the appropriation for repairs of light-houses, 1876.

382. *Saint Augustine, Florida.*—At the date of the last annual report, the brick walls of the keeper's dwelling had been raised and the building roofed in. The dwelling has since been completed and the premises inclosed with a brick wall. A wire rope with attachments to take the place of the iron weight-rods has been sent to the station. Through the carelessness of a keeper, the lamp-weight was permitted to fall through the machinery case, damaging some parts of the machinery. The damaged portions were repaired by the district lampist, and the machinery put in good order.

383. *Cape Canaveral, on the northeast pitch of Cape Canaveral, Florida.*—The keeper's dwelling at this station is an old frame structure, fitted up for the use of the principal keeper. When the tower was first built, it was supposed that the rooms in the tower could be used by the assistants. This has been found impracticable, owing to the excessive heat of the climate, the tower being a cast-iron shell, lined with brick. The assistants have, therefore, been living in sheds fitted up by themselves. It is recommended that a permanent dwelling for three keepers be built at this station, and an appropriation of \$12,000 is recommended. It may be added that the great cost of building a keeper's dwelling at this station is owing to its inaccessibility.

REPAIRS.

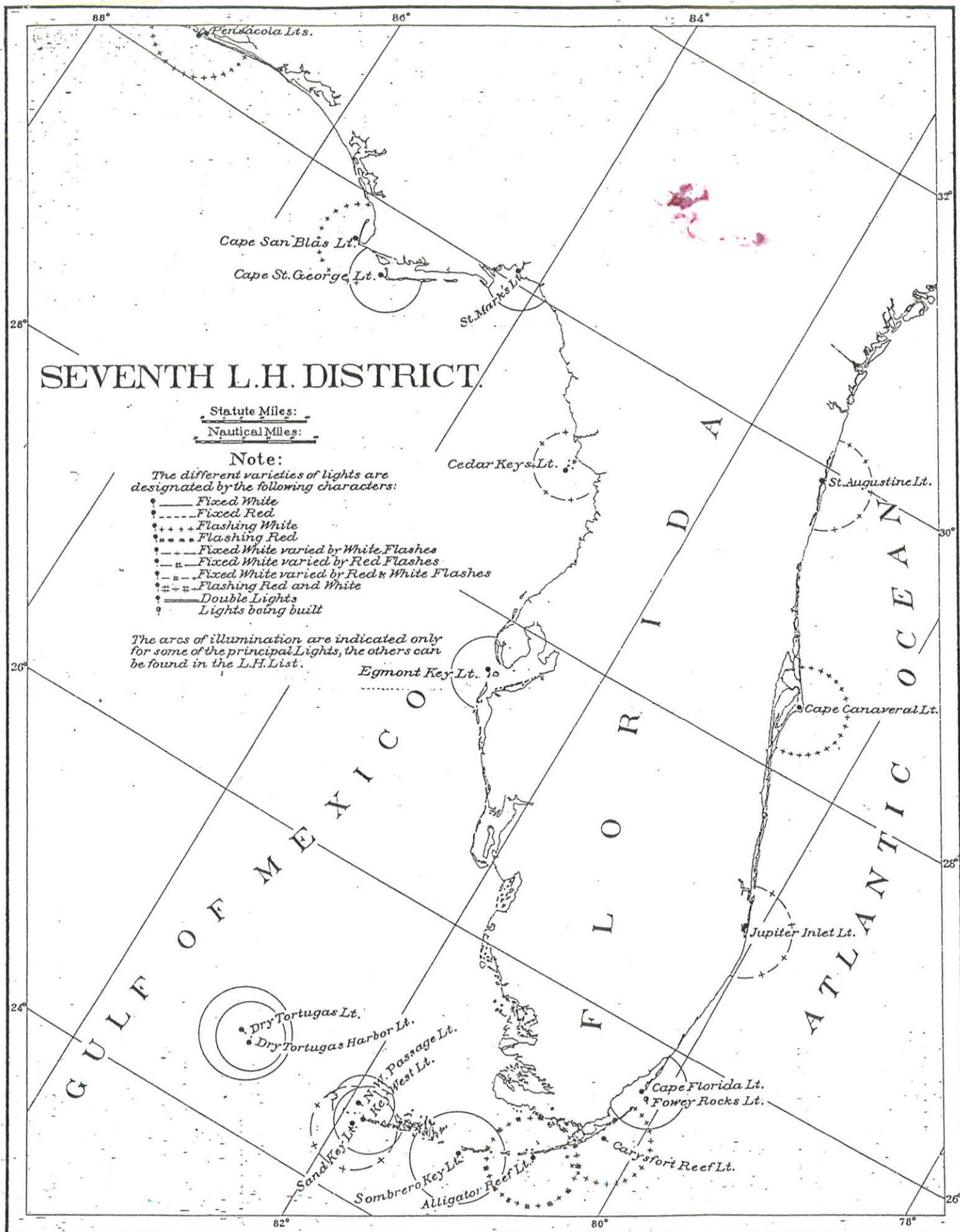
At each of the following light-stations, repairs more or less extensive have been made during the year, viz:

- 348. *Georgetown, entrance to Pedee River, South Carolina.*
- 349. *Cape Romain, on Raccoon Key, sea-coast of South Carolina.*
- 350. *Bull's Bay, on Bull's Island, South Carolina.*
- 353 and 354. *Morris Island, range-lights on Morris Island, South Carolina.*
- 357. *Fort Sumter, Charleston Harbor, South Carolina.*
- 358. *Castle Pinckney, Charleston Harbor, South Carolina.*
- 362 and 363. *Daufuskie beacons, on Daufuskie Island, South Carolina.*
- 364. *Tybee Main light, mouth of Savannah River, Georgia.*
- 365. *Tybee beacon, mouth of Savannah River, Georgia.*
- 367. *Cockspur beacon, Savannah River, Georgia.*
- 369. *Fig Island, Savannah River, Georgia.*
- 374. *Saint Simon's, entrance to Saint Simon's Sound, Georgia.*
- 375. *Little Cumberland Island, entrance to Saint Andrew's Sound, Georgia.*
- 376, 377. *Amelia Island, north range, on Amelia Island, Florida.*
- 378, 379. *Amelia Island, main light and beacon, on Amelia Island, Florida.*
- 380. *Saint John's, mouth of Saint John's River, Florida.*
- 381. *Dames Point, Saint John's River, Florida.*

LIGHT-SHIPS.

345. *Frying Pan Shoals light-ship No. 29.*—This vessel is in good condition, requiring no repairs.

351. *Rattlesnake Shoal light-ship No. 38.*—At the date of the last annual report this vessel was undergoing repairs at Charleston, South



Sixth District.

Carolina. The repairs were completed and she was returned to her station September 4, 1875, and is now in good condition.

361. *Martin's Industry light-ship No. 32.*—This vessel is considerably decayed, and will probably require somewhat extensive repairs during the coming year.

366. *Tybee Knoll light-ship No. 21.*—The hull of this vessel is unsound, but as the station is sheltered by the neighboring shoals, it is hoped that she will be able to remain until the establishment of range-lights renders her presence no longer necessary.

— *Relief light-ship No. 34.*—This vessel has been thoroughly repaired and refitted during the past year, and is now in good serviceable condition.

FOG-SIGNALS OPERATED BY STEAM OR HOT-AIR ENGINES.

There are none in this district.

DAY-BEACONS.

Savannah River day-marks.—Two wooden beacons on Long Island, two on Jones's Island, two on Elba Island, and one on the main-land, opposite Elba Island; total, 7. A balance of \$325.61 remains from the appropriation of \$2,500, approved by Congress March 3, 1873, for "day-beacons in Savannah River, Georgia," and is retained for the purpose of erecting day-beacons for a channel now being dredged above the obstructions.

Saint John's River, Florida.—The old tower at the south entrance to Saint John's River. Fifty-four wooden piles and groups of piles, driven along the Saint John's River between its mouth, and Pilatka, Florida. Other day-beacons remain essentially as at the date of last annual report.

BUOYS.

The buoyage of the district is in good condition.

TENDERS.

The steam-tender *Alanthus*, used for purposes of inspection, supply, and buoyage, is in good condition and efficient for the services required.

The schooner *Mignonette*, used for engineering purposes, is nearly worn out and so far decayed as to render her repair inexpedient. She will be sold and the proceeds turned into the Treasury.

DEPOTS.

The following remarks taken from the last annual report are repeated:

The buoys and supplies are now stored at Fort Johnson, Charleston Harbor, belonging to the War Department, but the wharf is in such a dilapidated condition that it is comparatively useless, and is a dangerous place for the tenders to lie. The wharf will have to be entirely rebuilt, and as its location is not a desirable one for a depot, it is recommended that a site be procured in the city of Charleston, and the depot established there.

SEVENTH DISTRICT.

The seventh light-house district extends from Cape Canaveral, on the eastern coast of Florida, to the Perdido River, on the Gulf coast, and embraces all the aids to navigation within those limits.

Inspector.—Commander H. B. Seely, United States Navy.

Engineer.—Maj. Jared A. Smith, Corps of Engineers, United States Army.

In this district there are—

Light-houses.....	17
Light-ships.....	0
Fog-signals operated by steam or hot-air engines.....	0
Day or unlighted beacons.....	60
Buoys actually in position.....	143
Spare buoys for relief and to supply losses.....	88
Tender (steam) <i>Geranium</i> , used by inspector.....	1
Tender, (sail,) <i>Spray</i> , used in construction and repairs.....	1

The numbers preceding the names of the stations correspond with those of the "List of Light-houses and Floating Lights of the Atlantic, Gulf, and Pacific Coasts of the United States," issued January 1, 1876.

LIGHT-HOUSES.

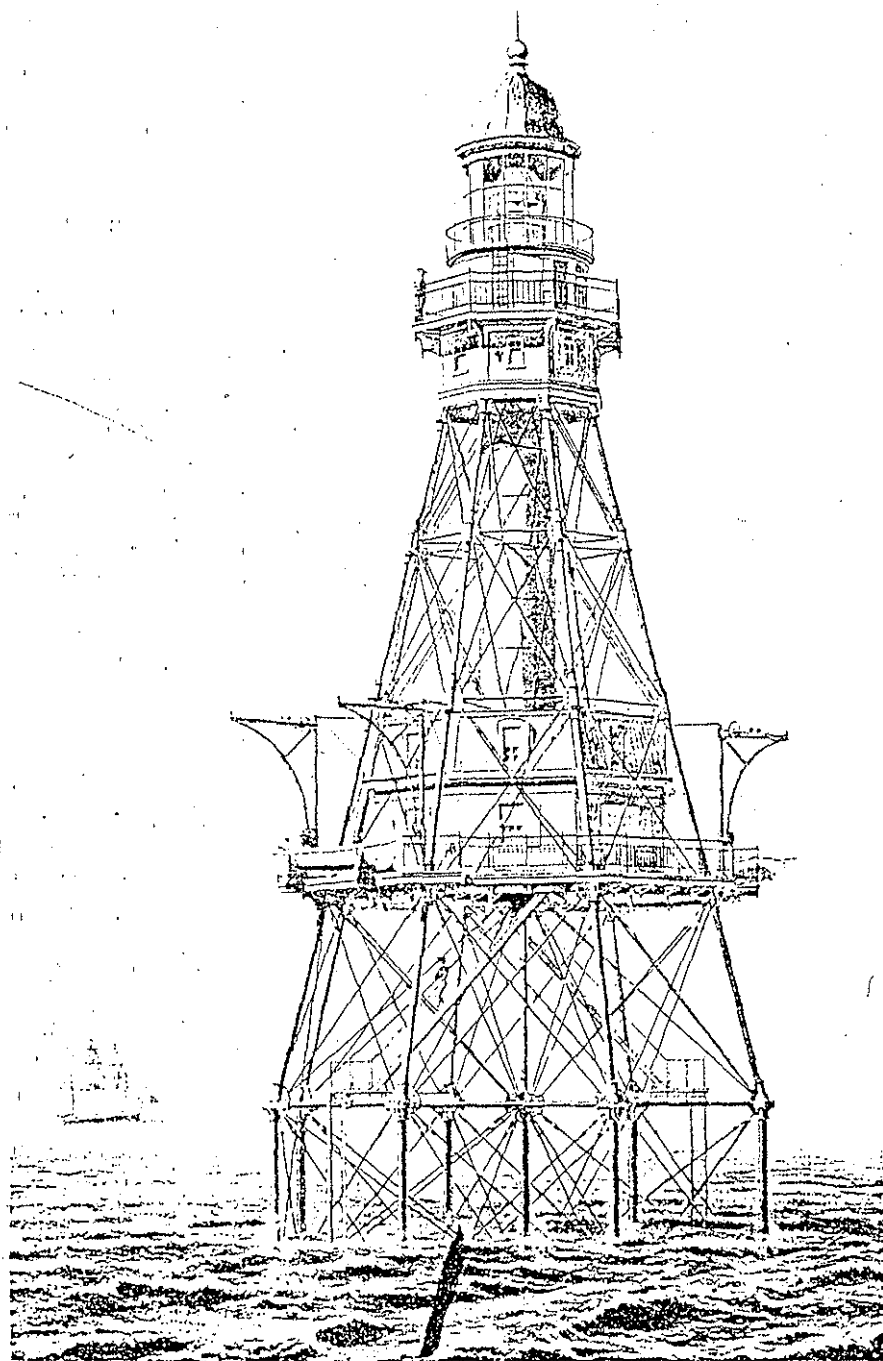
385. *Cape Florida, Florida.*—Only indispensable repairs have been made at this station, as it is proposed to abandon it on the completion of the new light-house on Povey Rocks.

386. *Povey Rocks, Florida Reef, east coast of Florida.*—During the summer and early autumn months of 1875, a party was employed at Soldier Key, $4\frac{1}{2}$ miles distant from the reef, constructing preliminary works connected with the erection of this light-house.

A substantial wharf, 390 feet long, on mangrove piles, has been completed, to a depth of 7 feet at low water. On this wharf an iron track has been laid to a store-house. As the sea sweeps entirely over the key in hurricanes, all buildings are raised 6 feet above the surface, and strongly secured. The working platform on the reef is now nearly completed. It will be 80 feet square, supported on 81 iron-shod mangrove piles driven into the hard coral rock. The platform is about 12 feet above the water, and a wharf, on piles, about 75 feet long, will extend to sufficiently deep water. To hasten the construction of the work, in October, 1875, a contract was made for the material for the foundation and first series of the light-house; this work was completed, and arrived at Key West the latter part of May. It was transported to Soldier Key, and the foundation-piles are now being driven, and it is expected to have the entire foundation in place during the present season. A contract has been made for the entire superstructure, and it is now in course of construction.

387. *Carysfort Reef, sea-coast of Florida.*—This iron structure has been thoroughly cleaned, and the portions which had been rusted, painted with red lead while the surface was bright. All the iron-work above low water has been twice painted. The lantern, the wood-work of dwelling, stair-mantel, and watch-room have been painted. A new floor has been laid upon the balcony around dwelling. A new tension brace of the foundation series has been made to replace one to be removed for examination. The exchange of a new brace for an old one is difficult, as both rust and coral have formed in the deep water about the founda-

U. S. LIGHT-HOUSE ESTABLISHMENT, 1876.



FIRST ORDER LIGHT-HOUSE FOR FOWEY ROCKS, FLORIDA.—See page 41.

Seventh District.

tion; and it is hoped that the entire removal of these braces may not be found necessary.

388. *Alligator Reef, sea-coast of Florida.*—The entire structure has been scaled, scraped, and painted in the same manner as at Carysfort Reef. A new iron crane has been constructed for use in raising supplies, and will be erected the first opportunity. Some small repairs are required, which will soon be completed.

389. *Sombrero Key, near Coffin's Patches, Florida Reef.*—This iron-work has been scaled, scraped, and painted. As at Carysfort Reef, a new iron brace has been made to replace one of the foundation series to be removed for examination.

390. *Sand Key, Florida.*—The old dwelling, somewhat damaged by a hurricane in September, 1875, had become so much rusted and decayed as to render the station scarcely habitable. An appropriation being available, designs were completed, and the work of repair was begun November 13, 1875. Temporary dwellings were constructed for keepers, workmen, and for shops. The removal of the old iron dwelling and tower consumed considerable time, as parts were so thoroughly rusted as to require much cutting of the iron, as well as all the bolts and rivets. Many of the floor-plates, girders, and other parts were broken, and had to be replaced with new. All the girders, plates, &c., were so rusted as to greatly impair their strength, and as the weight of the new work greatly exceeded the old, to make the structure secure, a system of iron beams supported by brackets was fitted to the columns beneath the floor of the dwelling. Other devices were required for sustaining the weight of the tower. The work was arranged so as not to interfere with the regular exhibition of the light. The new dwelling has the same dimensions as the old one, viz, 38 feet square, but is better arranged for the convenience of the keepers. The water-tanks are of boiler-plate, four in number, and have an aggregate capacity of 5,000 gallons. They are placed underneath the central part of the dwelling, on heavy iron beams fitted to sockets bolted to the columns. The outer walls and roof of the dwelling are of cast-iron plates bolted together. The roof-plates rest on a system of iron girders, supported on the walls and columns. The tower or stair-mantel, is of boiler-plate, well fastened with covering strips without and T-pieces within. No iron doors, windows, or shutters have been used, as previous experience in this climate shows that they rust so that they are not easily moved. An iron railing has been furnished for the balcony around dwelling. The entire structure has been carefully cleaned from rust, and twice painted. Excepting the lantern, the structure is now one of the best arranged in the district. Some of the lower braces may require renewing soon, as the hooks at the lower ends have been considerably weakened by rust, which has in many instances eaten away more than one-third of the section.

American Shoal, Florida Keys, Florida.—The remarks made in the annual reports for 1874 and 1875 are respectfully repeated:

The navigation of this portion of the Gulf is always dangerous, particularly to vessels bound to the southward and westward, because of the strong and variable currents near the reef, causing many wreck, and much loss of property. A light on or in the vicinity of American Shoal, illuminating the now unlighted space between Sombrero and Sandy Key lights, would be most useful to mariners, and is strongly recommended.

An appropriation of \$75,000 is asked for commencing this work.

At *Rebecca Shoal, Florida.* A new cistern about 6 by 12 feet, and 8

Seventh District.

feet deep, has been constructed by cutting out the coral rock and building inside. Two feet only of the cistern is above the surface. The water-supply, heretofore inadequate, will now be sufficient for all the requirements of the station.

392. *Northwest Passage, Florida.*—All the iron-work has been cleaned, as at the other stations, and twice painted.

393. *Dry Tortugas, Loggerhead Key, Florida.*—The hurricane of September, 1875, damaged this station somewhat, though not seriously. The water-gutters were broken from the dwelling, the lightning-conductor from the tower, the doors and windows much injured. The entire station has been put in good order. An appropriation of \$75,000 was made March 3, 1875, for building a new tower here. The work has, however, been deferred in the hope that it might not be found necessary. Owing to the isolated location, the engineer has had no opportunity of observing the present tower in high winds. Reports from keepers, however, show that the vibrations are very great and injure the masonry. Plans for a new structure are being prepared.

394. *Dry Tortugas Harbor, Garden Key, Florida.*—An appropriation of \$5,000 was made March 3, 1875, for constructing a new tower on an adjacent bastion of Fort Jefferson. In September, 1875, a hurricane rendered the old tower and lantern almost useless, and every effort was made to replace it with the new one as early as possible. Designs were completed for a hexagonal tower of boiler-plate iron, having a balcony and cylindrical parapet, and the iron was ordered November 26, 1875. This was finished and the erection begun in February. The interior of the structure is finished with wood. The lens was removed to the new tower, and the light exhibited for the first time April 5, 1876. The location is 93 feet east, 21° 30' south, from its former position.

395. *Egmont, entrance to Tampa Bay, Florida.*—The pile-wharf at this station has been entirely rebuilt, the trestle-wharf connecting it with the buoy-depot repaired, the railroad-track relaid, and other repairs of a general nature made. The water-supply being insufficient, a new cistern, 6 by 12 feet inside and 6 feet 6 inches deep, has been built of concrete. The old cistern has been repaired and strengthened, and the whole well covered with a substantial decking of plank.

400. *Cape San Blas.*—The necessity for protecting the tower against encroachments of the sea was referred to in the last annual report. The recommendation that an appropriation of \$5,000 be made for this purpose is renewed.

401. *Pensacola, entrance to Pensacola Bay, Florida.*—The roof of piazza has been newly shingled, and the slating of dwelling and oil-house thoroughly repaired. Other repairs of a general nature have been made, and the station put in good order.

LIGHT-SHIPS.

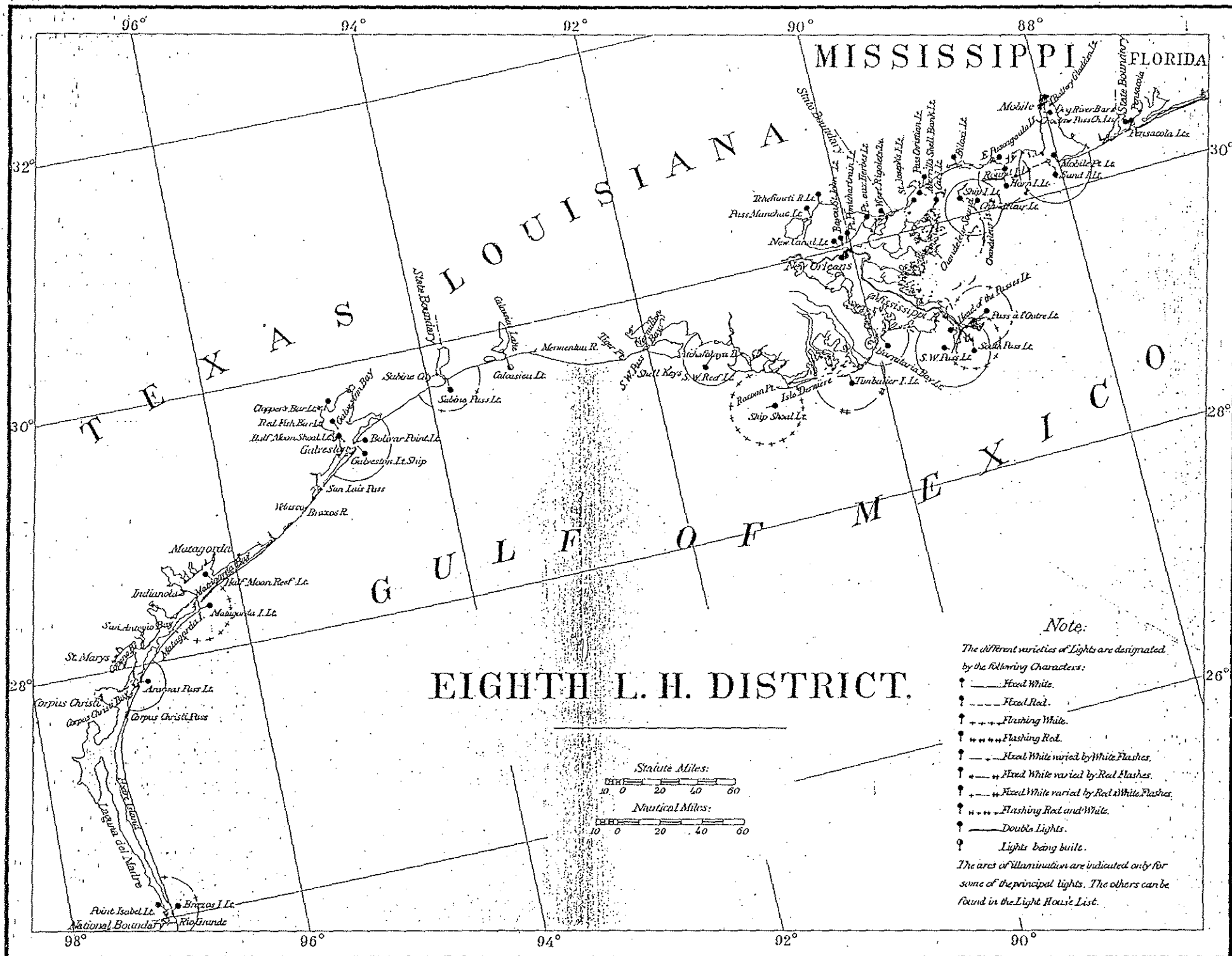
There are no light-ships in this district.

FOG-SIGNALS OPERATED BY STEAM OR HOT-AIR ENGINES.

There are no fog-signals operated by steam or hot-air engines in this district.

BEACONS.

Rebecca Shoal.—Designs have been completed for a new iron pile-beacon 75 feet high. It has not been possible to complete the work, but it



Seventh District.

Sea-Horse Key beacon.—Owing to the limited facilities for work, it has not been possible to complete the repairs contemplated for this beacon. They will receive attention at the earliest opportunity. The other iron beacons in the district have not required repairs during the year, and are in good condition.

BUOYAGE.

The buoyage of this district is in good condition.

TENDERS.

The need of a steamer for engineering purposes has been greatly felt, that for which an appropriation was made March 3, 1875, not having been completed, the *Geranium* has been transferred to the engineer for use at Fowey Rocks, and the schooner *Spray* has been transferred from the fifth district, arriving at Key West on the 11th of June.

DEPOTS.

There are now four depots in the district. A small coal and buoy depot at Fort Pickens, on grounds of the War Department, a small buoy-depot at Egmont Key, and buoy-depot at Key West, consisting of a small lot and building, on grounds belonging to the custom-house, with a wharf belonging to the Navy Department. They are all small, of little consequence, and none of them afford any facilities for storage of engineers' implements or materials. The temporary depot established for use in the construction of the light-house at Fowey Rocks, will serve in future as an auxiliary depot for buoys.

EIGHTH DISTRICT.

The eighth light-house district extends from the Perdido River, Florida, to the Rio Grande, Texas, and embraces the coasts of Alabama, Mississippi, Louisiana, and Texas.

Inspector.—Commander C. M. Schoonmaker, United States Navy.

Engineer.—Captain A. N. Danrell, Corps of Engineers, brevet major United States Army.

In this district there are—

Light-houses	44
Light-ships	1
Fog-signals operated by steam or hot-air engines	3
Day or unlighted beacons	8
Buoys actually in position	98
Spare buoys for relief and to supply losses	79
Tender, (steam,) <i>Dandelion</i> , buoy-tender	1
Tender, (sail,) <i>Magnolia</i> , used in construction and repairs	1

The numbers preceding the names of stations correspond with those of the "List of Light-houses and Floating Lights on the Atlantic, Gulf, and Pacific Coasts of the United States," issued January 1, 1876.

LIGHT-HOUSES.

404. *Mobile Point, Mobile Bay, Alabama.*—The keeper's dwelling at this station is now so close to the water, owing to the encroachments of the sea, that the foundation-piers are liable to be undermined and the building destroyed during heavy northers in winter. The building is in good order, and well located with reference to the light-house. A breakwater of heavy sheet-piling will be built to protect it, the expense to be defrayed from the general appropriation for repairs.

411. *Biloxi, Mississippi Sound, Mississippi.*—During the month of March last the old brick sea-wall was badly damaged by the sea, a considerable portion being completely destroyed. This left the tower, which is of cast iron on a brick foundation, in a very exposed and dangerous position. The old brick wall was therefore abandoned and a breakwater of heavy timber constructed. This was completed during the month of June, and the sand and earth washed from around the tower and in the rear of the wall replaced. The dwelling at this station is old, and should soon be replaced by a more substantial one.

417. *Point Aux Herbes, Lake Pontchartrain, Louisiana.*—This structure was completed during the month of July, and the light exhibited for the first time August 1, 1875.

419. *Bayou Saint John, Lake Pontchartrain, Louisiana.*—The keeper's dwelling at this station was badly damaged during a gale in the month of March, 1876. As the building was old, the violence of the gale rendered it utterly uninhabitable, and a small wooden building has been erected for the temporary accommodation of the keeper. On the 4th of May the platform and small store-room at the base of the shaft, which supports the lantern of this light, was completely destroyed by fire. A new platform and store-room have been constructed to replace those burned.

421. *Tchefuncte River, Lake Pontchartrain, Louisiana.*—A substantial breakwater, for the protection of the tower and keeper's dwelling, has been built during the year, the work being authorized by act of March 3, 1875.

Eighth District.

426. *Head of the Passes, Mississippi River, Louisiana.*—Under an appropriation of \$3,500 a breakwater for the protection of this station has been built and the station put in good order.

430. *Ship Shoal, Gulf of Mexico, off coast of Louisiana.*—No change has been noted in the inclination of this tower. Steps will be taken at an early date to place a quantity of granite, now stored at Fort Pickens, around the foundation, and put the station in good condition.

432. *Trinity Shoal, Gulf of Mexico, off coast of Louisiana.*—Nothing has been done toward the establishment of a light at this point. Indeed, the board is by no means satisfied that a permanent structure can be established at any reasonable cost. It is therefore recommended that an appropriation of \$50,000 be made to place a light-ship on this station.

433. *Calcasieu, entrance to river and lake Calcasieu, Louisiana.*—Considerable delay has been caused by the fact that the land selected for the site could not be purchased at reasonable cost. It was found, however, upon a careful examination of the locality, that the channel had so changed its direction that a good site could be had on the west side, upon land owned by the United States. The proper steps were immediately taken to have the land reserved for light-house purposes. A survey was made of the locality and the boundaries of the reservation marked. The structure is now in process of erection.

— *East and West Shoals, Matagorda Bay, Texas.*—On the 17th of September, 1875, the two screw-pile light-houses which marked the channel between these shoals were completely destroyed by a hurricane, and four keepers drowned. It is not proposed to re-establish the lights in the same positions, as two small range-lights, placed on Decros Point, will effectually meet all the requirements of navigation.

443. *Brazos Island beacon, entrance to Brazos de Santiago, Texas.*—The board is awaiting the action of the authorities of the State of Texas relative to title and cession of jurisdiction to site. No work, therefore, has been undertaken toward the establishment of this new light, for which an appropriation of \$25,000 is now available.

REPAIRS.

At each of the following named stations in the eighth district repairs more or less extensive have been made during the past year:

408. *Round Island, Mississippi Sound, Mississippi.*

411. *Biloxi, Mississippi Sound, Mississippi.*

420. *New Canal, Lake Pontchartrain, Louisiana.*

421. *Tchefuncte River, Lake Pontchartrain, Louisiana.*

431. *Southwest Reef, entrance to Atchafalaya Bay, Louisiana.*

434. *Sabine Pass, entrance to Sabine River, Louisiana.*

436. *Bolivar Point, entrance to Galveston Bay, Texas.*

437. *Half Moon Shoal, Galveston Bay, Texas.*

438. *Red Fish Bar, Galveston Bay, Texas.*

440. *Matagorda, entrance to Matagorda Bay, Texas.*

441. *Half Moon Reef, Matagorda Bay, Texas.*

442. *Aransas Pass, Texas.*

LIGHT-SHIPS.

435. *Galveston light-ship No. 28.* Moored inside of Galveston Bar. This vessel is in good condition, but very old. In August last new main-

Eighth District.

rigging was fitted, and deck and upper works calked. During the cyclone of September, 1875, she parted her moorings, and went ashore on Pelican Spit, receiving considerable damage. She was hauled off, with some difficulty, by the tender Dandelion, and taken to New Orleans, where she was docked and repaired throughout. She was replaced November 7, having been off her station since September 16.

FOG-SIGNALS OPERATED BY STEAM OR HOT-AIR ENGINES.

Pass à l'Ostre, mouth of Mississippi River, Louisiana.—A 12-inch steam-whistle in good condition.

Southwest Pass, mouth of Mississippi River, Louisiana.—A 12-inch steam-whistle, in good condition.

Atchafalaya, entrance to Atchafalaya Bay, Louisiana.—A 12-inch steam-whistle, in good condition.

DAY, OR UNLIGHTED BEACONS.

Stake Island, Southwest Pass, Mississippi River.—Iron-pile beacon. Owing to the steady washing away of Stake Island, this beacon will have to be removed. Nothing can be done until the water in the river recedes, when it will be taken down and placed in a more secure position.

BUOYS.

The buoyage of this district is in good condition, and agrees with the printed buoy-list distributed to mariners.

TENDERS.

The Ivy, used by the engineer of the district for construction and repairs, being small, worn-out, and unfitted for the service, was sold at auction, and the proceeds covered into the Treasury. The tender Dandelion used for inspection, buoyage, and supply, is in poor condition, and unsuited to the needs of the district. She is a small paddle-wheel vessel, low in the water, with wide guards, and dangerous, if caught at sea in the heavy gales common to this coast at certain seasons. As the harbors are few and difficult to enter during gales, a good sea-going steamer, capable of keeping the sea in any weather, should be furnished for the district.

DEPOTS.

Coal-depot, Mobile Point, entrance to Mobile Bay.—The coal-platform at this place is in fair condition.

Southwest Pass, Louisiana.—An appropriation of \$15,000 is now available for building a light-house and buoy-depot at Southwest Pass, Louisiana. Owing to the shoaling of the bar at the entrance of the bayou in which the depot was proposed to be located, work was suspended until a more suitable location could be selected. It is therefore suggested that the appropriation made by act of June 23, 1874, be amended to read that the money shall be available to establish a depot at such place as the Light-House Board may select.

TENTH DISTRICT.

The tenth district extends from the mouth of Saint Regis River, New York, to include Grassy Island light-house, Detroit River, Michigan, and embraces all the aids to navigation on the American shores of Lakes Erie and Ontario, and Saint Lawrence River.

Inspector.—Commander Edward E. Potter, United States Navy.

Engineer.—Lieut. Col. C. E. Blunt, Corps of Engineers, brevet colonel United States Army.

In this district there are—

Light-houses	60
Light-ships	0
Fog-signals operated by steam or hot-air engine	0
Day, or unlighted beacons	1
Buoys actually in position	100
Spare buoys for relief to supply losses	39
Tender, Haze, buoy tender and supply vessel	

The numbers preceding the names of stations correspond with the "Light-house List of the Northern and Northwestern Lakes," issued January 1, 1876.

527. *Thirty-mile Point, Lake Ontario, New York.*—The tower and dwelling at this station were completed in the early part of January, and a flashing white light of the 3d order has been shown since April 27, 1876. Improvements to the roads and a cobble-stone walk down the slope, are in progress.

534. *Dunkirk, Lake Erie, New York.*—The work of construction at this station was essentially completed June 30, 1876, and the light, third order, fixed white varied by white flashes, was shown for the first time from the new tower on the 1st of July, the light on the temporary wooden beacon being discontinued.

535. *Dunkirk beacon, Lake Erie, New York.*—This beacon is old, and the wood-work much decayed; an appropriation of \$5,000 is asked for rebuilding it.

544. *Ashtabula, Lake Erie, Ohio.*—The new beacon, for which an appropriation was made March 3, 1873, has been erected near the terminus of the present extension of the west pier, at the mouth of Ashtabula River. The light was exhibited upon the opening of navigation, (April 8, 1876.) When the extension of the west pier is completed, this beacon will be moved to the head of the pier. The old beacon on crib behind the east pier has been removed.

549. *Cleveland beacon No. 2, Lake Erie, Ohio.*—This beacon was completed on September 1, 1875, and two fixed lights of the sixth order exhibited one above the other; the upper one white, the lower red. The mast-head lights heretofore used were removed. An elevated walk connects the beacon with the life-chain of east pier, Cleveland Harbor.

550. *Black River, Lake Erie, Ohio.*—The beacon at the head of the extension of the west pier, mouth of Black River, Ohio, was completed and the light exhibited September 18, 1875. The old and damaged brick tower on the shore was removed, and the site connected with the new beacon by an elevated walk.

— *Sandusky Bay beacons, Ohio.*—The original appropriation for day beacons in this harbor having been made available for lighted beacons, with an additional appropriation of \$8,000, the necessary title to site and cession of jurisdiction were obtained from the State of Ohio, and the construction of the three cribs upon which the range-lights are to be

Tenth District.

placed has been commenced. It is hoped that these cribs can be placed in position during July.

553. *Cedar Point, Lake Erie, Ohio.*—The site of the buoy-shed at this station has been protected from the action of the lake by a solid crib-work, with a wing projection to the eastward, all thoroughly tied together, and well riprapped. A good landing-pier for the buoys, 166 feet long, has been carried out into the lake.

558. *Turtle Island, Lake Erie, Ohio.*—The piling and shore protection of part of this island were severely damaged by the great gale of May 15, 1876. Another such storm might seriously endanger the light. New piles and riprap will be put down without delay.

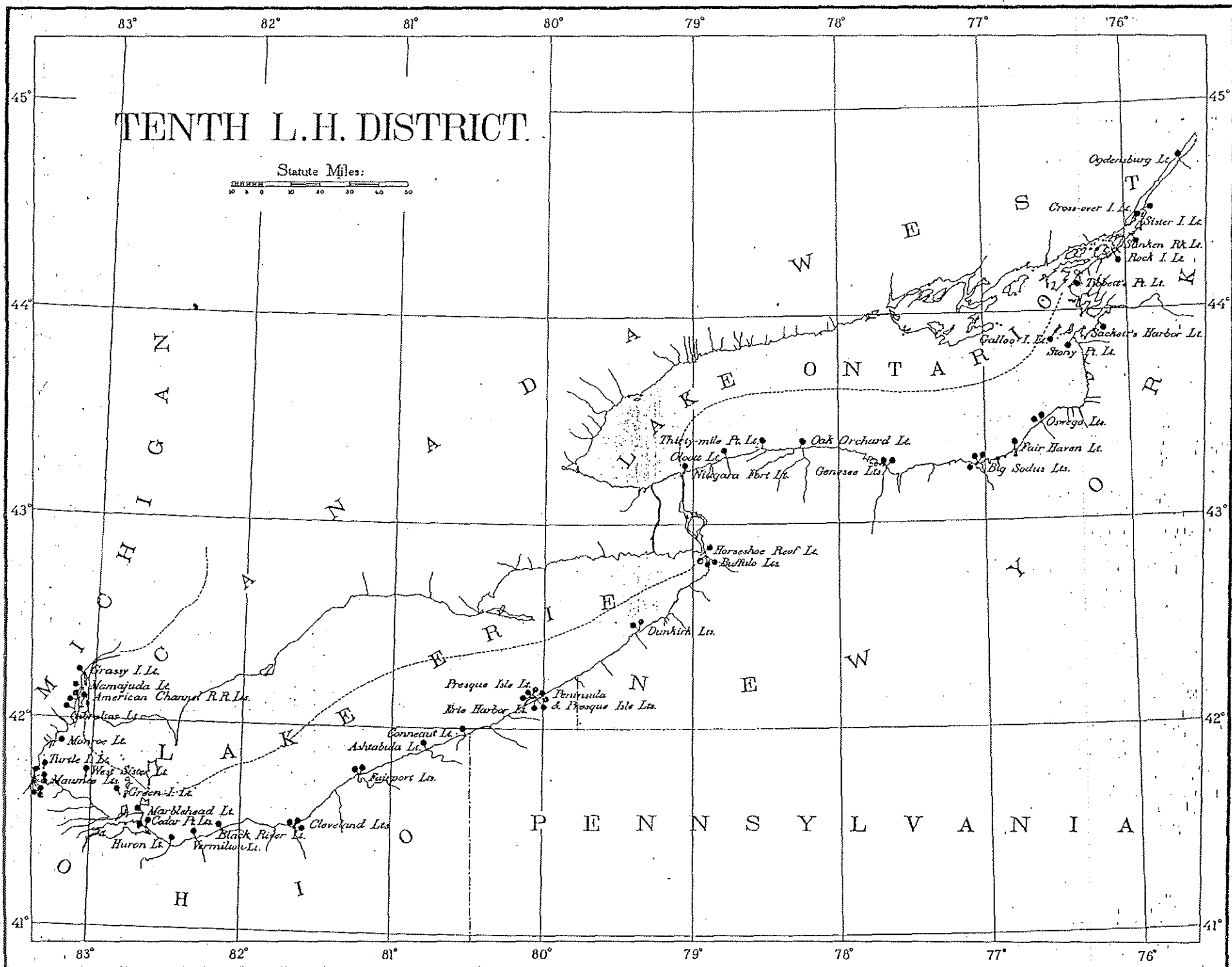
— *Maumee day beacons, Maumee Bay, Ohio.*—The board has asked that a portion of the appropriation of \$14,000 for day beacons in Maumee Bay may be made available for continuing the temporary lights along the lines of the dredged channel. The temporary lights on piles, by which the channel was marked last season, were very useful, and they should continue to be used until a more permanent arrangement for marking the channel is completed.

559-560. *Maumee outer range, Lake Erie, Ohio.*—The lake front at these ranges is subject to the destructive action of the lake during gales, and was protected in 1875 by a substantial construction of crib-work and riprap, which has been very efficient. It is to be regretted that the adjoining private property on each side is not similarly protected. The severe gale of May 15, 1876, washed these unprotected shores so much that some additional riprap was required in front of the light-house site.

REPAIRS.

Repairs and improvements, more or less extensive, have been made at each of the following-named stations in the tenth district during the year:

509. *Ogdensburg, Saint Lawrence River, New York.*
510. *Cross-over Island, Saint Lawrence River, New York.*
511. *Sister Islands, Saint Lawrence River, New York.*
513. *Rock Island, Saint Lawrence River, New York.*
514. *Tibbett's Point, entrance to Saint Lawrence River, New York.*
516. *Sacketts Harbor, Lake Ontario, New York.*
517. *Stony Point, Lake Ontario, New York.*
518. *Oswego, Lake Ontario, New York.*
519. *Oswego Pier-head, Lake Ontario, New York.*
520. *Pair Haven, Lake Ontario, New York.*
523. *Bigodus, Lake Ontario, New York.*
524. *Genesee, Lake Ontario, New York.*
526. *Oak Orchard, Lake Ontario, New York.*
527. *Thirty-mile Point, Lake Ontario, New York.*
530. *Horseshoe Reef, Buffalo, New York.*
531. *Buffalo Breakwater, Lake Erie, New York.*
533. *Buffalo, Lake Erie, New York.*
534. *Dunkirk, Lake Erie, New York.*
535. *Dunkirk Beacon, Lake Erie, New York.*
536. *Erie Harbor, Lake Erie, Pennsylvania.*
- 537, 538. *Presque Isle beacon-ranges, Lake Erie, Pennsylvania.*
542. *Presque Isle, Lake Erie, Pennsylvania.*
544. *Ashtabula, Lake Erie, Ohio.*
545. *Grand River, Lake Erie, Ohio.*



Tenth District.

546. *Grand River beacon*, Lake Erie, Ohio.
 547. *Cleveland*, Lake Erie, Ohio.
 548, 549. *Cleveland beacons*, Lake Erie, Ohio.
 550. *Black River*, Lake Erie, Ohio.
 553. *Cedar Point*, Lake Erie, Ohio.
 554. *Cedar Point beacon*, Lake Erie, Ohio.
 —. *Sandusky Bay beacons*, Lake Erie, Ohio.
 555. *Marblehead*, Lake Erie, Ohio.
 557. *West Sister*, Lake Erie, Ohio.
 558. *Turtle Island*, Lake Erie, Ohio.
 —. *Maumee Bay stake-lights*, Lake Erie, Ohio.
 559. *Maumee outer range*, Lake Erie, Ohio.
 561. *Maumee middle range*, Lake Erie, Ohio.
 563. *Maumee inner range*, Lake Erie, Ohio.
 565. *Monroe*, Lake Erie, Michigan.

LIGHT-SHIPS.

There are no light-ships in this district.

FOG-SIGNALS OPERATED BY STEAM OR HOT-AIR ENGINES.

There are no fog-signals operated by steam or hot-air engines in this district.

DAY OR UNLIGHTED BEACONS.

Dunkirk Harbor, New York, in good condition.

BUOYAGE.

The buoyage of this district is in satisfactory condition, and remains substantially as at the date of the last report.

TENDER.

The steam-tender *Haze* was employed in supply and inspection duty and in the performance of buoy-service until the close of navigation last season. Soon after that time work was commenced upon the repairs of the vessel under the appropriation of March 3, 1875. The repairs are now nearly completed.

DEPOT.

The district depot is in good repair and meets all present requirements.

ELEVENTH DISTRICT.

The eleventh district embraces all aids to navigation on the northern and northwestern lakes above Grassy Island light-station, Detroit River, and includes lakes Saint Clair, Huron, Michigan, and Superior, and the straits connecting them.

Inspector.—Commander William P. McCann, United States Navy.

Engineer.—Maj. Godfrey Weitzel, Corps of Engineers, brevet major-general, United States Army.

There are in this district—

Light-houses	116
Light-ships	0
Fog-signals operated by steam or hot-air engines	13
Day, or unlighted beacons	1
Buoys actually in position	145
Spare buoys for relief and to supply losses	60
Tender, steamer <i>Dahlia</i> , buoy-tender and supply-vessel	1
Tender, steamer <i>Warrington</i> , used in construction and repairs	1

The numbers preceding the names of stations correspond with the "Light-house List of the Northern and Northwestern Lakes," issued January 1, 1876.

LIGHT-HOUSES.

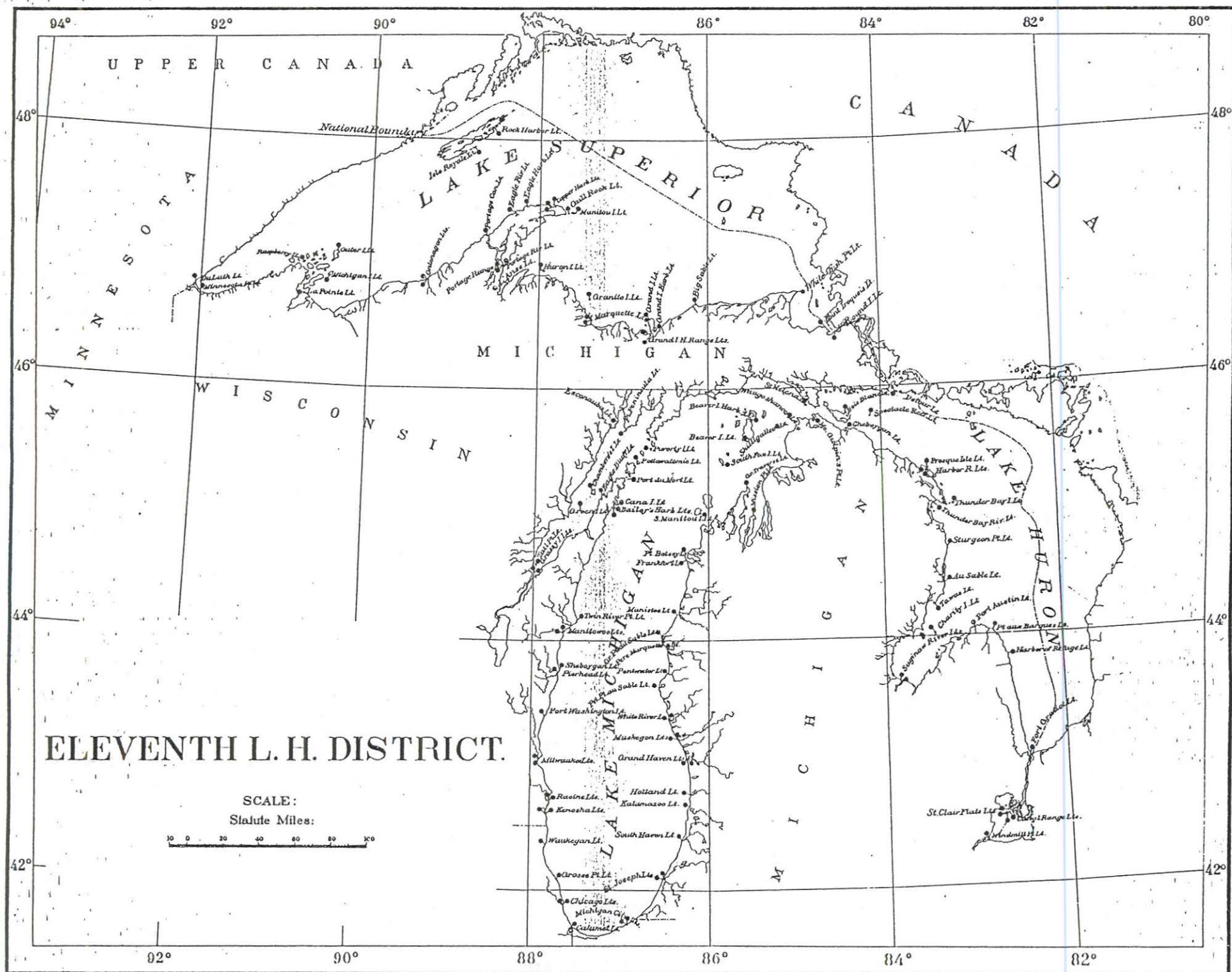
560. *Windmill Point, entrance to Lake Saint Clair, Michigan*.—This station, rebuilt during the year, was completed in the month of October, 1875. In this connection it is proper to remark that a light should be established at the northern point of Belle Isle to guide vessels into the south channel, which is almost exclusively used. On account of the bad reefs which extend out from Isle aux Pêches and Belle Isle, it is extremely difficult to strike this channel in dark nights, and a very large number of vessels annually ground on one or the other of these reefs, and are thus subjected to serious loss of money and time. An appropriation of \$10,000 is recommended for a light at this point.

— *Light-house between Fort Gratiot and Point aux Barques, Lake Huron, Michigan*.—The recommendation, made in several previous reports, to build a coast-light to divide the long distance of 75 miles between Point aux Barques and Fort Gratiot is renewed. This light-house would be one of the coast-lights of the general system, and is not intended to serve any local interest; as nearly all of the commerce of the lakes passes along this coast, the necessity for it will be evident. An appropriation of \$40,000 to build it is submitted.

576. *Harbor of Refuge, (Sand Beach,) Lake Huron, Michigan*.—The pier-head light at the angle of the breakwater was completed during the year, and the light first exhibited October 25, 1875.

578. *Port Austin, Saginaw Bay, Michigan*.—During the year the site for this station was purchased and the plans for the structure were approved. Work was about to be commenced when, owing to the action of Congress in providing for the construction of the light-house on the reef, it was suspended. An appropriation of \$75,000 will be required in addition to that made by act approved March 3, 1873, to place it on the reef.

579. *Saginaw Bay, at the head of Saginaw Bay and mouth of the Saginaw River, Michigan*.—The construction of the range-lights at the mouth of this river was begun in May, 1876, and will be completed during Sep-



Eleventh District.

tember. The rear light will then serve as a coast-light, and the old one will be discontinued.

581. *Tawas, (Ottawa,) Lake Huron, Michigan.*—The title to the site for the new station having been perfected, the site purchased, and the plans approved, work on it will be begun immediately and it will probably be completed during the present season.

584. *Thunder Bay River, Lake Huron, Michigan.*—A temporary light has been exhibited here since September, 1875. The greater part of the appropriation of \$20,000, made by the act approved June 23, 1874, is still available, but it is not proposed to use it at present.

596. *Skulligallee, (Isle aux Galets,) Lake Michigan, Michigan.*—The sum of \$5,000 appropriated by the act of Congress approved March 3, 1875, has been expended in building a substantial protection around the whole island. A first-class steam-siren has also been placed at this station.

605. *Manistee, Lake Michigan, Michigan.*—The pier-head light near the end of the south pier at the entrance to Manistee River was completed and lighted October 15, 1875. The main light was discontinued on the same day.

607. *Père Marquette, Lake Michigan, Michigan.*—The following remarks contained in the last annual report are repeated, viz: "The last four annual reports have urged an appropriation of \$5,000 for a keeper's dwelling at this point. It is much needed, and the recommendation is renewed. The dredging of the channel to a width of 200 feet will take the old house the keeper has been living in, which is not worth moving. No residence can be had within a half-mile, and that on the opposite side of the river from the light."

610. *White River, Lake Michigan, Michigan.*—The new station was completed last season, and lighted on the opening of navigation 1876. It is a brick dwelling with a square tower rising from the northwest corner.

614. *Grand Haven pier-light, Lake Michigan, Michigan.*—A first-class steam-siren has been placed directly under the beacon at the end of the south pier. It went into operation December 1, 1875.

617. *Kalamazoo pier-light, Lake Michigan, Michigan.*—A pier-head light has been erected near the end of the south pier, and the apparatus transferred to it from the main light. The latter was then discontinued.

623. *Calumet, Lake Michigan, Michigan.*—The beacon near the end of the north pier at the mouth of Calumet River will be finished during the month of August and the apparatus transferred to it from the main light, when the latter will be discontinued.

624. *Chicago, Lake Michigan, Illinois.*—An appropriation of \$1,200 was made by Congress at its last session for furnishing a water-supply to the station from the city water-works. This has been done and the station has now an abundant supply of good water.

625. *Chicago pier-light, Lake Michigan, Illinois.*—This light will be moved out to the end of the north pier during the present season.

626. *Grosse Pointe, Lake Michigan, Illinois.*—The shore in front of this light is rapidly washing away and should be protected. An appropriation of \$5,000 is needed for this purpose.

— *Racine Point, Lake Michigan, Wisconsin.*—The recommendation contained in the last six annual reports to erect a lake coast-light at this point is renewed, and an appropriation of \$40,000 is again recommended. The importance of this light has been often urged. The present light at Racine, which does not answer the purpose of a lake-coast light, will then be discontinued.

Eleventh District.

632. *Milwaukee Pier, Lake Michigan, Wisconsin.*—A lens and lamps of the fourth order have been substituted for the sixth-order apparatus heretofore used. The change was made last March. A steam fog-signal is needed at this station, and an appropriation of \$5,000 is recommended.

643. *Port du Mort, Lake Michigan, Wisconsin.*—A first-class steam-siren was placed at this station during the last season.

645. *Poverty Island, Lake Michigan, Wisconsin.*—The tower and dwelling-house at this station have been entirely completed and the light was exhibited from the completed tower for the first time on the night of August 10, 1875.

650. *Green Island, off Menomonee River, Wisconsin.*—It is quite difficult to reach this station, and it is suggested that an appropriation of \$200 be made for the purchase of additional land adjacent to the present site to be used as a landing.

— *Stannard's Rock, Lake Superior, Michigan.*—The following remarks contained in the last annual report are repeated:

A survey of this dangerous shoal was made under the appropriation made by act of March 3, 1873. The result of the survey proved that it is entirely practicable to build a light-house on it, the water varying from 10 to 12 feet in depth on the approaches from three sides. A light-house should be built, and a fog-signal established. The rock lies in the track of all vessels running to the north side of the western portion of Lake Superior, and is an object of great concern, especially on dark nights and during the almost interminable fogs which prevail in this vicinity during the greater part of the season of navigation. The construction of this station will greatly benefit the large, growing, and valuable commerce of the Lake Superior region. This is the proper time to begin it, as it can be built now cheaper than at any future time, as the costly apparatus and machinery used in building the light-house at Spectacle Reef is now available, and is especially adapted to works of this nature. The rock is nearly 20 miles distant from the nearest land, and 40 miles from a suitable harbor; and as it will have to be placed in from 10 to 12 feet of water, it will require a structure of the most costly and substantial character. It is estimated that the cost will not be less than \$300,000, but no accurate estimate can be given in advance on account of the liability to accidents and delay while the work is in progress. Large as this sum is its outlay is fully warranted by the necessities of the navigation of the lakes.

It is recommended that an appropriation of \$100,000 be made, to begin the work.

— *L'Anse, Lake Superior, Michigan.*—A site for this station on the opposite side of the bay from the village of L'Anse has been selected. Plans for the structure have been approved. A deed of the land has been made to the United States, and it and other papers relating to the title are now in the hands of the United States district attorney for examination.

675. *Eagle Harbor, Lake Superior, Michigan.*—An appropriation of \$8,000 was made by act approved March 3d, 1875, for re-establishing range lights to guide into this harbor. The site has been selected, but there has been the usual delay in procuring title. The papers are, however, now in the hands of the United States district attorney for examination.

686. *Isle Royale, (Menagerie Island,) Lake Superior, Michigan.*—This station was completed during the past season, and was lighted for the first time on the night of September 20, 1875.

— *Passage Island, Lake Superior, Michigan.*—A conditional appropriation was made by act of Congress approved March 3, 1875, for a light-station at this place. No steps have yet been taken toward its establishment.

REPAIRS.

Repairs, of greater or less extent, have been made or are in process of execution at the following stations:

571. *Saint Clair Flats, Michigan.*

Eleventh District.

- 573, 574. *Saint Clair Flats Canal*, Michigan.
 575. *Fort Gratiot*, Lake Huron, Michigan.
 577. *Point aux Barques*, Lake Huron, Michigan.
 583. *Sturgeon Point*, Lake Huron, Michigan.
 585. *Thunder Bay Island*, Lake Huron, Michigan.
 589. *Spectacle Reef*, entrance to the Straits of Mackinac, Lake Huron, Michigan.
 590. *Detour*, river Sault Ste. Marie, Lake Huron, Michigan.
 592. *Cheboygan*, near eastern entrance to the Straits of Mackinac, Michigan.
 595. *Waugoshance*, Straits of Mackinac, entrance to Lake Michigan, Michigan.
 598. *Beaver Island*, Lake Michigan, Michigan.
 599. *South Fox Island*, Lake Michigan, Michigan.
 600. *Grand Traverse*, Grand Traverse Bay, Lake Michigan, Michigan.
 602. *South Manitou*, Lake Michigan, Michigan.
 603. *Point Betsey*, (Point aux Bees Scies,) east side of Lake Michigan, Michigan.
 604. *Frankfort pier-head*, Lake Michigan, Michigan.
 605. *Manistee*, Lake Michigan, Michigan.
 606. *Grande Pointe au Sable*, Lake Michigan, Michigan.
 607. *Père Marquette*, Lake Michigan, Michigan.
 608. *Penticater*, Lake Michigan, Michigan.
 609. *Petite Pointe au Sable*, Lake Michigan, Michigan.
 611. *White River pier-head*, Lake Michigan, Michigan.
 613. *Muskegon*, Lake Michigan, Michigan.
 614. *Grand Haven*, Lake Michigan, Michigan.
 616. *Holland*, (Black Lake,) Lake Michigan, Michigan.
 618. *South Haven*, Lake Michigan, Michigan.
 619, 620. *Saint Joseph*, Lake Michigan, Michigan.
 621. *Michigan City*, Lake Michigan, Indiana.
 623. *Calumet*, Lake Michigan, Illinois.
 625. *Chicago pier-head*, Lake Michigan, Illinois.
 626. *Grosse Point*, Lake Michigan, Illinois.
 627. *Waukegan*, Little Fort River, Illinois.
 628. *Kenosha*, on Warrenton Island, Lake Michigan, Wisconsin.
 630. *Racine*, Lake Michigan, Wisconsin.
 631. *Racine pier-head*, Lake Michigan, Wisconsin.
 632. *Milwaukee pier-head*, Lake Michigan, Wisconsin.
 633. *Milwaukee* (north point,) Lake Michigan, Wisconsin.
 634. *Port Washington*, Lake Michigan, Wisconsin.
 635. *Sheboygan pier-head*, Lake Michigan, Wisconsin.
 636. *Sheboygan*, Lake Michigan, Wisconsin.
 637, 638. *Manitowoc*, Manitowoc River, Lake Michigan, Wisconsin.
 639. *Twin River Point*, Lake Michigan, Wisconsin.
 640, 641. *Bailey's Harbor ranges*, Lake Michigan, Wisconsin.
 642. *Oana Island*, Green Bay, Wisconsin.
 643. *Port du Mort*, Pilot Island, Green Bay, Michigan.
 644. *Pottawatowic*, Rock Island, Green Bay, Michigan.
 648. *Eagle Bluff*, Green Bay, Wisconsin.
 649. *Chambers's Island*, Green Bay, Wisconsin.
 650. *Green Island*, Green Bay, Wisconsin.
 651. *Tail Point*, mouth of Fox River, Wisconsin.
 652, 653. *Grassy Island ranges*, Green Bay, Lake Michigan, Wisconsin.

Eleventh District.

655. *Point Iroquois*, White Fish Bay, Lake Superior, Michigan.
 656. *White Fish Point*, Lake Superior, Michigan.
 657. *Big Sable*, Lake Superior, Michigan.
 658. *Grand Island*, Lake Superior, Michigan.
 659. *Grand Island Harbor*, Lake Superior, Michigan.
 660, 661. *Grand Island Harbor ranges*, Lake Superior, Michigan.
 662. *Marquette*, Lake Superior, Michigan.
 664. *Granite Island*, Lake Superior, Michigan.
 665. *Huron Island*, Lake Superior, Michigan.
 668, 669. *Portage River ranges*, Keweenaw Bay, Lake Superior, Michigan.
 670. *Manitou Island*, Lake Superior, Michigan.
 671. *Gull Rock*, Lake Superior, Michigan.
 675. *Eagle Harbor*, Lake Superior, Michigan.
 678. *Ontonagon*, Lake Superior, Michigan.
 680. *Outer Island*, (Apostle group,) Lake Superior, Wisconsin.
 682. *La Pointe*, Lake Superior, Wisconsin.
 684. *Minnesota Point*, mouth of Saint Louis River, Lake Superior, Minnesota.
 685. *Duluth*, Lake Superior, Minnesota.
 687. *Rock Harbor*, Lake Superior, Michigan.

LIGHT-SHIPS.

There are none in this district.

FOG-SIGNALS.

Since the last annual report, first-class steam-sirens have been erected at Skilligallee, Grand Haven, and Port du Mort light-stations, Lake Michigan, and a steam-whistle at the north end of West Huron Island, Lake Superior. The signal at Outer Island has been moved to a more secure position.

BUOYS.

The buoyage of the district has been carefully attended to during the year, new buoys have been placed as needed, and those swept from position promptly replaced. It is generally in good order and agrees with the printed buoy-list.

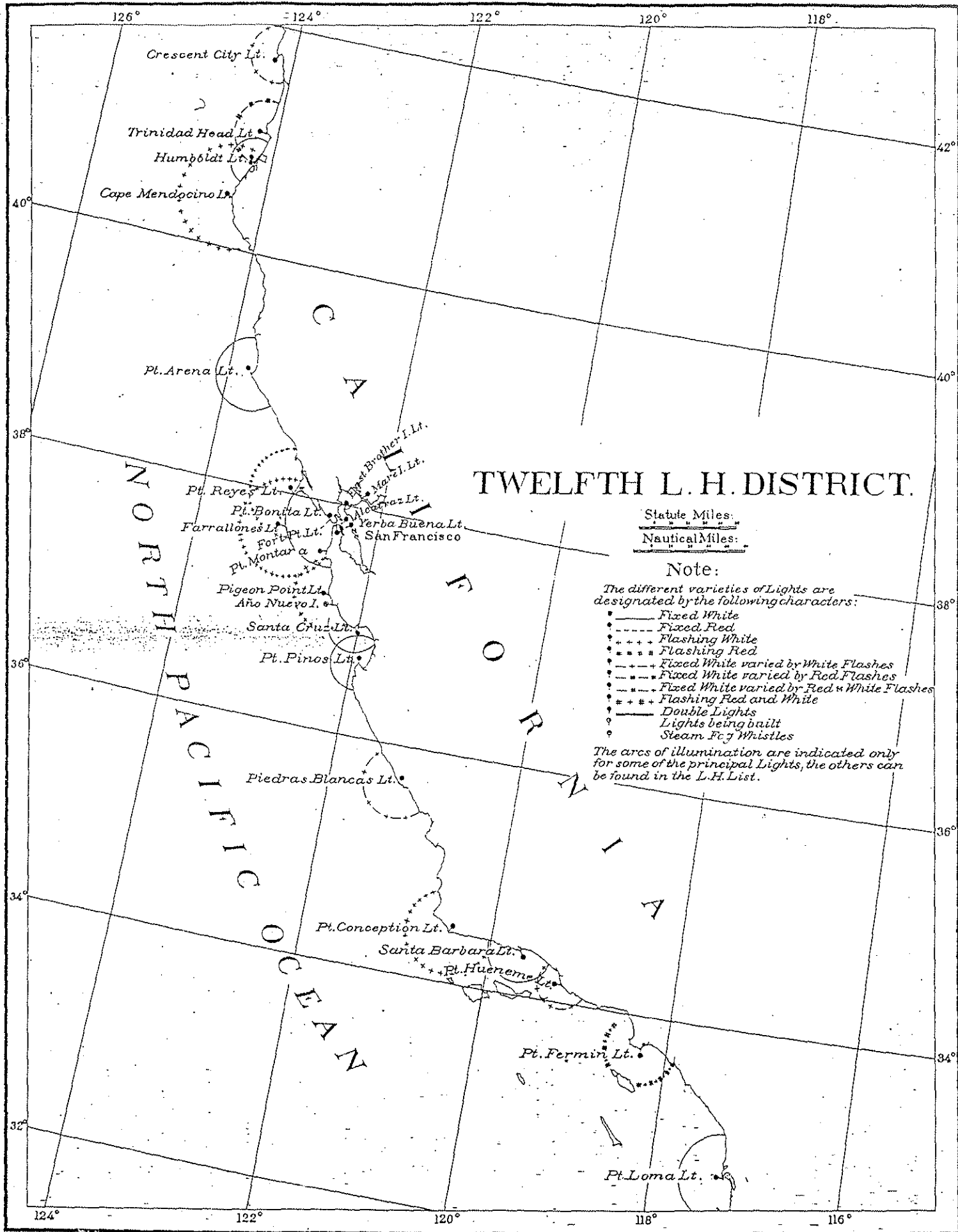
TENDERS.

The steam-barge Warrington has been constantly in service during the season of operations in carrying materials for the construction of new stations, the repair of others, and in conveying working-parties. During the winter she was overhauled and necessary repairs made.

The steam-tender *Dahlia*, used for inspection, supply, and buoyage, has been constantly employed during the season of navigation, is in an efficient condition, and meets the wants of the district.

DEPOT.

Detroit, Michigan.—The appropriation of \$10,000 made by Congress at its last session was expended in removing the old dock and building a new one, dredging out the slips on either side of the new dock, and providing iron doors and shutters for the store-house. Some old buildings have been torn down and the grounds graded, the premises inclosed with an iron fence, an iron buoy and boat shed built, a car-track laid from the store-house and buoy and boat shed to the end of the dock, slopes sodded, &c. It is intended to complete the depot this season.



TWELFTH DISTRICT.

CALIFORNIA.

This district embraces all aids to navigation on the Pacific coast of the United States between the Mexican frontier and the southern boundary of Oregon, and includes the coast of California.

Inspector.—Commander A. T. Snell, United States Navy.

Engineer.—Lieut. Col. R. S. Williamson, Corps of Engineers, United States Army.

In this district there are—

Light-houses and lighted beacons	22
Light-ship	0
Fog-signals operated by steam or hot-air engines	10
Day or unlighted beacons	27
Buoys actually in position	29
Spare buoys for relief and to supply losses	29
Tender Shubrick, common to twelfth and thirteenth districts, used for inspector's and engineer's purposes	1

The numbers preceding the names of stations correspond with those of the "Light-house List of the Atlantic, Gulf, and Pacific Coasts of the United States," issued January 1, 1876.

LIGHT-HOUSES.

433. *Point Loma, entrance to San Diego Bay, sea-coast of California.*—The dwelling has been repaired, a portion of the wood-shed converted into a dwelling for the assistant keeper, and a barn built. The station is now in good condition.

447. *Point Huene, sea-coast of California.*—A close board fence, 10 feet high, has been erected to protect dwelling and out-houses from drifting sands. Portions of the reservation have been planted in grasses and shrubs, which by frequent irrigation have been made to grow.

448. *Santa Barbara, sea-coast of California.*—The structures at this station have been thoroughly renovated and repaired.

449. *Point Conception, sea-coast of California.*—The recommendation contained in the last annual report for an appropriation of \$12,000 for repairing this station and building a keeper's dwelling to take the place of the present structure, which is in a very bad condition, is renewed.

450. *Piedras Blancas, sea-coast of California.*—A keeper's dwelling in progress at the date of last annual report has been completed.

451. *Point Pinos, sea-coast of California.*—The tower, parapet, and dwelling have been thoroughly repaired and renovated.

456. *Farallones, off San Francisco, California.*—The recommendations contained in the two last annual reports are repeated.

The dwelling at this station is very much out of repair, and much too small for the wants of a first-order station. It was built in 1855 out of rock quarried on the island, and is very damp. A substantial wooden structure is needed.

An appropriation of \$12,000 for repairs and for building a new keeper's dwelling is asked.

457. *Point Bonita, sea-coast of California.*—Considerable work has been done in removing the rock-obstructions in front of the fog-signal. A survey has been made to determine the best method of improving and protecting that portion of the roadway, about midway between the tower and the fog-signal, where slides have occurred. The plan determined upon is to make a tunnel through the rock, to avoid the most dangerous part of the present roadway, and to cut away and properly slope the

Twelfth District.

dangerous part of the crest, without which another slide would almost certainly occur when the rainy season sets in. An appropriation of \$25,000 having been made, the light and tower will be moved to a lower point, the present location being so high that the light is sometimes obscured by fog, when it might be seen from a less elevated position.

458. *Fort Point, entrance to San Francisco Harbor, California.*—A bridge has been built from the bluff near the keeper's dwelling to the fort on which the light and fog-bell are placed. Formerly the keepers were compelled to go from the dwelling down steep stairs and up through the fort in order to get to the tower or fog-signal, a very dangerous task during dark and stormy nights.

460. *Yerba Buena Island, San Francisco Bay, California.*—The steam fog-signal mentioned in the last annual report as being nearly completed was put in operation October 1, 1875.

461. *East Brother Island, in straits connecting San Francisco and San Pablo Bays, California.*—Considerable repairs and renovations have been made to the light-house and fog-signal structures and machinery during the past year. The wharf has been strengthened by driving six piles; and thoroughly binding them together with 12-inch by 12-inch timbers, and iron straps and bolts. A truss bridge from the wharf to the bluff of the island, and a new boat-house, have also been built. The wharf is now 3 feet higher, and is so strengthened as to withstand any ordinary storm.

465. *Cape Mendocino, sea-coast of California.*—Quite extensive repairs have been made at this station during the past year. The dwelling, which is exposed to the heavy winds frequent at this point, had become quite shaken, the chimneys were blown off, and windows stove in. The structure was thoroughly braced from the outside by 12-inch by 12-inch timbers extending from masonry abutment on the ground to the timbers of the second story of the structure. Substantial shutters were also made for the windows, and the chimneys repaired. As large droves of cattle roam over the cape, a fence to inclose a sufficient portion of the reservation for the keepers is required and will be built.

— *Point Saint George, or vicinity, near Crescent City, sea-coast of California.*—The recommendations in the two last annual reports are repeated:

This is one of the most important points for a sea-coast light on the coast of California. The bluff point is about one hundred and thirty feet high, with level land for some distance back of it. Off the point, extending some six or seven miles, is a very dangerous reef of rocks, quite a number of which show above water, and many are awash at low tide; others have from three to four fathoms of water on them. The passage between the outlying rocks of this reef and Point Saint George is quite wide, and is used by the coasting-steamers and sailing-vessels. The steamer Brother Jonathan was wrecked on this reef some years ago during a fog, and many lives were lost, among them General Wright and staff, with the families of himself and several of his staff. A light-house and fog-signal should be erected here. An appropriation of \$50,000 is asked to commence the work.

LIGHT-SHIPS.

There are no light-ships in this district.

FOG-SIGNALS OPERATED BY STEAM OR HOT-AIR ENGINES.

Point Conception.—A 12-inch steam-whistle.

Año Nuevo Island.—A 12-inch steam-whistle.

Pigeon Point.—A 12-inch steam-whistle.

Point Montara.—A 12-inch steam-whistle.

Point Bonita.—A first-order steam-siren.

East Brother Island.—A 12-inch steam-whistle.

Yerba Buena Island.—A 10-inch steam-whistle.

Twelfth District.

Point Reyes.—A 12-inch steam-whistle.

Point Arena.—A 12-inch steam-whistle.

Humboldt.—A 12-inch steam-whistle.

DAY OR UNLIGHTED BEACONS.

San Diego Bay, California.—In October last, the third-class buoys, which had marked the channel from Ballast Point to New San Diego, were removed and eight pile-beacons constructed. These beacons consist of four piles driven to give an 8-foot face perpendicular to channel, by a 6-foot face parallel to it. The piles were driven 10 feet into the hard sand, and were sheathed, where exposed to the water, with yellow metal. The beacons were constructed in about 10 feet low water, and the tops of piles were about 10 feet above high-water mark. The box, 5 feet deep, of 2-inch plank, was well spiked to the piles. These beacons have required no repairs, and have given great satisfaction to navigators entering the bay.

The pile-beacons in San Francisco Bay and branches are as follows:

To mark entrance to Redwood Creek, 4.

To mark end of shoal north of Yerba Buena Island, 1.

To mark Berkley Rock, 1.

To mark Southampton Shoal, 2.

To mark end of shoal between Karquines Straits and Napa Creek, 1.

To define channel through San Pablo Bay to Petaluma Creek, 4.

To define channel through Suisun Bay, 3.

To mark end of mud-flat between Montezuma and Suisun Creeks, Suisun Bay, 1.

A concrete beacon has been erected on Commission Rock, Mare Island Straits.

— *Anita Rock, harbor of San Francisco, California*.—The remarks made in last year's report are repeated:

This rock is a serious obstruction to navigation and should be marked by spindle. An appropriation of \$2,300 is asked for this purpose.

The iron spindle, crowned by cage, was replaced on Fauntleroy Rock, Crescent City, last fall.

BUOYS.

On January 29th, an iron nun sea-buoy, built for the purpose, was placed near Noon-day Rock. The buoy is 16 feet long and 9 feet great est diameter. A second-class buoy was placed in the edge of breakers at entrance to channel to Humboldt Bay; it has proved of material aid to steamers running there. During the year two first-class buoys, two second-class buoys, and one third-class buoy have been lost.

TENDER AND SUPPLY VESSEL.

The Shubrick is the only light-house vessel on the Pacific Coast. The coast-line is nearly 1,500 miles in extent, and it is impossible for the Shubrick to do all the work required in both twelfth and thirteenth districts. There should be a tender for each district to keep the buoyage in good condition, and to properly perform the work of the inspectors and engineers. An appropriation of \$100,000 for a steam-tender is asked.

DEPOTS.

There are two depots in this district. That at Yerba Buena is used as a buoy-depot and for general supplies of light-houses. That at Port Point contains engineer's stores and lampists' tools.

THIRTEENTH DISTRICT.

This district embraces all aids to navigation on the Pacific coast of the United States north of the southern boundary of Oregon. It extends from the forty-first parallel of latitude to British Columbia, and includes the coasts of Oregon and of Washington Territory.

Inspector.—Lieutenant-Commander Louis Kempff, United States Navy.

Engineer.—Major Nathaniel Michler, Corps of Engineers, brevet brigadier-general United States Army, until December 28, 1875. Major John M. Wilson, Corps of Engineers, brevet colonel United States Army, present engineer.

There are in this district—

Light-houses	11
Light-ships	0
Fog-signals operated by steam or hot-air engines	3
Day or unlighted beacons	12
Buoys actually in position	61
Spare buoys for relief and to supply losses	74

There is, properly speaking, no tender in this district. The Shubrick, used in the twelfth district, does occasional duty for inspection, supply, and engineer purposes.

The numbers preceding the names of stations correspond with the "Light-house List of the Atlantic, Gulf, and Pacific Coasts of the United States," issued January 1, 1876.

LIGHT-HOUSES.

470. *Cape Arago, (Gregory,) sea-coast of Oregon*.—A bridge connecting the island on which the light is situated with the main-land has been built, the keeper's dwelling repainted and reshingled, a concrete floor laid in the cellar, kitchen floor renewed, a new plank walk laid from the keeper's dwelling to the tower, and a new cistern built. In June a double-wick Funck lamp was put up in place of the Franklin lamp formerly used. Everything connected with this station is now in good order.

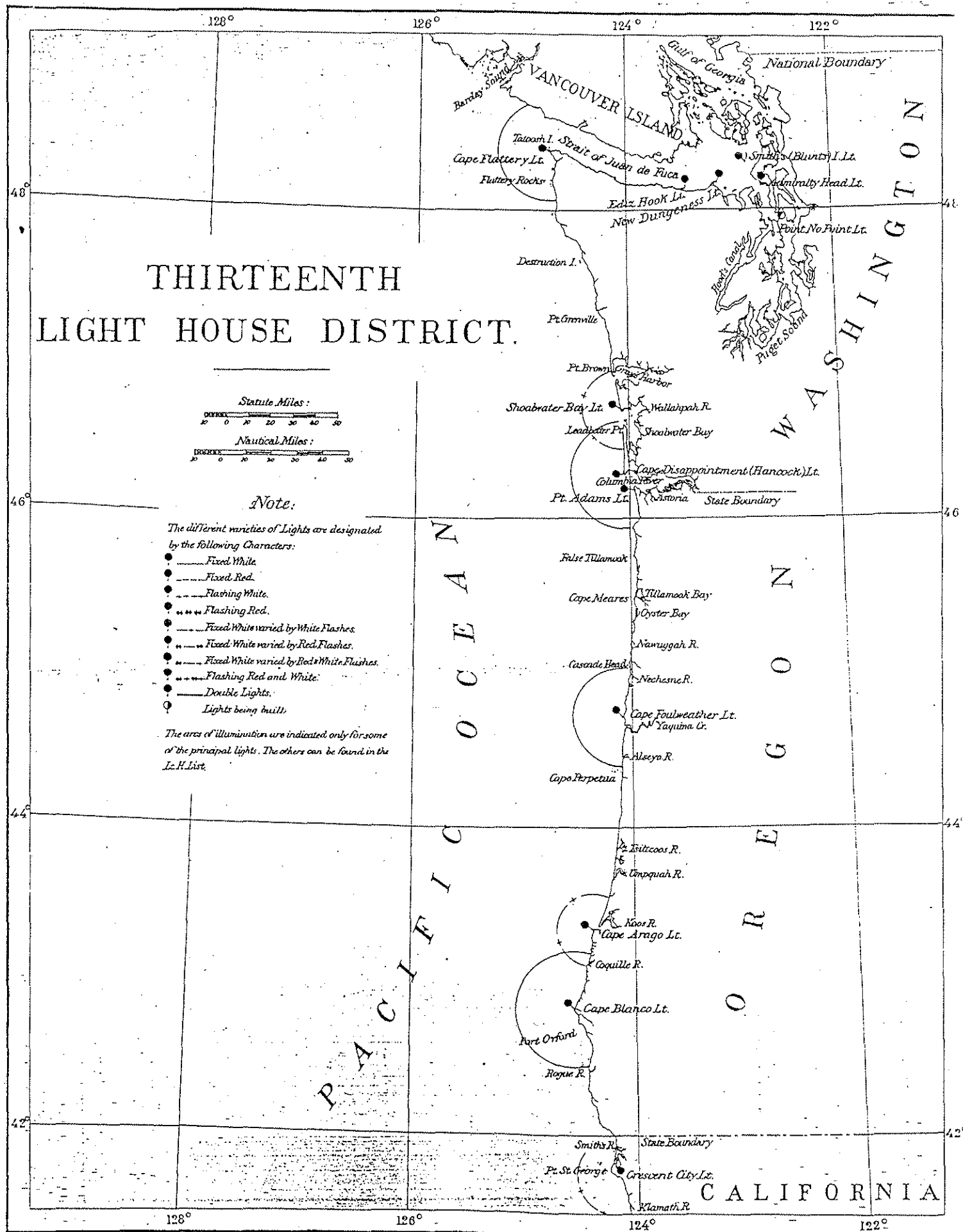
472. *Point Adams, south side of entrance to the Columbia River, Oregon*.—The light-house and dwelling have been repainted, and other minor repairs made.

473. *Cape Disappointment, (Hancock,) north side of entrance to Columbia River, Oregon*.—A new cistern for keeper's dwelling has been constructed, and about twenty acres of land for pasture have been inclosed by a substantial fence.

— *Range-lights at Saint Helen's Bar, Columbia River, Oregon*.—Congress having appropriated \$1,000 for range-lights, the work will be commenced as soon as the proper location can be decided upon. The engineer in charge of the improvement of the river is endeavoring to open a new channel through the bar on the Oregon side, where there will be no danger from rocks.

474. *Shoalwater Bay, on Toke Point, entrance to Shoalwater Bay, Washington Territory*.—About 25 acres of land for pasture have been surrounded with a substantial board fence, the roof of the dwelling-house has been reshingled, and other repairs made, placing the station in good condition.

477. *New Dungeness, Strait of Juan de Fuca, Washington Territory*.—



Thirteenth District.

The water-shed for supplying the cisterns used for the fog-signal has been enlarged 2,400 square feet. Extra storm and lantern panes were furnished in June, 1876.

479. *Admiralty Head on Red Bluff, Whidby's Island, entrance to Puget Sound, Washington Territory.*—A new road has been constructed from the boat-landing to the tower, and some repairs have been made.

480. *Point no Point, Puget Sound, Washington Territory.*—The extreme point of Point no Point has been selected for this light, the focal plane to be not more than 35 feet above low water. Negotiations have been in progress for the land, but the exorbitant price asked for it has prevented its purchase. No work has been done other than to prepare plans and specifications.

LIGHT-SHIPS.

There are no light-ships in this district.

FOG-SIGNALS OPERATED BY STEAM OR HOT-AIR ENGINES.

Cape Flattery—a 12-inch whistle.

New Dungeness—a 12-inch whistle.

Point Adams—a 12-inch whistle.

DAY OR UNLIGHTED BEACONS.

There are twelve beacons in this district, two on Sand Island (range-beacons) for entering and leaving the Columbia River, nine driven to mark the channel of the Columbia River between Tongue Point and Woody Island, and one on Minor Island in the Straits of Fuca; of the beacons, the two on Sand Island are built of logs bolted together in the shape of a frustum of a pyramid; the other ten are single piles, with cross-boards at the top.

BUOYAGE.

The buoyage of this district is in as good order as possible with the limited means at the disposal of the inspector.

TENDERS.

There is no tender for this district, the steamer Shubrick, belonging to the twelfth district, being occasionally sent when such service is indispensable.

The want of another steamer for light-house purposes on the Pacific Coast is a serious inconvenience to the establishment. An appropriation for a new vessel would relieve the board from embarrassment.

DEPOT.

A site for the depot for the thirteenth district has been selected by the Light-House Board on Tongue Point, Columbia River; a survey has been made of the locality and of the Columbia River immediately in front, and negotiations are in progress for the purchase of five acres of land.

FOURTEENTH DISTRICT.

The fourteenth light-house district extends from Pittsburgh, Pa., to Cairo, Ill., and embraces all the aids to navigation on the Ohio River.

Inspector.—Lieut. Charles H. Rockwell, United States Navy, until February 19, 1876. Commander Albert Kautz, United States Navy, present inspector.

Engineer.—Maj. W. E. Merrill, Corps of Engineers, United States Army.

In this district there are—

Lights	133
Buoys actually in position	10
Tender (steam) Lily	1

On the 1st of April, 1876, that part of the Mississippi River between Cairo, Ill., and New Orleans, was transferred to the fifteenth district, as it was found that more economical service could be rendered by making this district include the Ohio River alone, leaving the entire Mississippi River to the fifteenth district. The stake-lights heretofore established have been found efficient and valuable aids to navigation. Owing to the limited appropriation, but two new lights have been established during the year.

The steam-tender Lily, used for inspection and supply, is found to be economical and efficient.

Fourteenth District.

List of lights established in the fourteenth light-house district from date of organization, and in operation at the close of the year ending July 15, 1876.

Name of light.	Date established.	Character.	Distances from Pittsburgh.
			Miles.
Brano Island	May 19, 1875	Fixed stake-light.	2
Horse Tail Ripple	do.	do.	6
Duff's Bar	do.	do.	8
Merriman's Bar	do.	do.	9
Merriman's Bar	do.	do.	10
White's Ripple	May 18, 1875	do.	11
Deadman's Island	do.	do.	15
Logstown Bar	do.	do.	18
Baden Bar	Oct. 27, 1875	do.	20
Wallory Bar	May 18, 1875	do.	21
Laycock's Bar	do.	do.	25
Beaver Shoals	May 19, 1875	do.	26
Beaver Shoals	do.	do.	26
Raccoon Bar	May 18, 1875	do.	29
Phillist Island	May 20, 1875	do.	35
Georgetown Island	May 17, 1875	do.	37
Lane Island	do.	do.	40
Baker's Island	do.	do.	49
Black's Island	do.	do.	53
Brown's Island	do.	do.	69
Brown's Island	do.	do.	62
Captina Island	May 15, 1875	do.	106
Captina Island	May 20, 1875	do.	107
Fish Creek	May 21, 1875	do.	109
Opposum Creek	May 15, 1875	do.	113
Petticout Bar	do.	do.	146
But and Grape Islands	May 14, 1875	do.	150
Carpenter's Bar	do.	do.	166
Carpenter's Bar	do.	do.	167

Fourteenth District.

List of lights established in the fourteenth light-house district, &c.—Continued.

Name of light.	Date established.	Character.	Distances from Pittsburgh.
			<i>Miles.</i>
Mustapha Island.	May 14, 1875	Fixed stake-light.	194½
Mustapha Island.	do.	do.	196
Belleville Island.	do.	do.	193
Buffington Island.	May 13, 1875	do.	212
Buffington Island.	do.	do.	213
Sand Creek.	do.	do.	213
Old Town Island.	do.	do.	224
Goose Island.	May 22, 1875	do.	226
Letart Falls.	May 13, 1875	do.	229
Letart Falls.	do.	do.	230
Eight-mile Island.	May 22, 1875	do.	258
Gallipolis Island.	do.	do.	268
Gallipolis Island.	do.	do.	266½
Raccoon Island.	Jan. 6, 1875	do.	273
Raccoon Island.	do.	do.	273½
Straight Ripple.	do.	do.	282
Straight Ripple.	do.	do.	283
Green Bottom.	May 12, 1875	do.	290
Guyandotte.	Jan. 6, 1875	do.	302
Twelve Pole.	Jan. 7, 1875	do.	311
Twelve Pole.	do.	do.	311½
Greensop Bar.	Jan. 5, 1875	do.	331
Sciota Bar.	Jan. 8, 1875	do.	355
Conocoqueque Bar.	May 24, 1875	do.	364
Conocoqueque Bar.	Jan. 5, 1875	do.	365
Fairview.	Apr. 21, 1876	do.	377
Quick's Run.	Jan. 4, 1875	do.	379
Brush Creek Island.	May 24, 1875	do.	384
Manchester Island.	Jan. 4, 1875	do.	391
Manchester Island.	Jan. 4, 1875	do.	392
Charleston Bar.	Jan. 8, 1875	do.	412
Augusta Bar.	May 25, 1875	do.	423
Locust Bar.	do.	do.	429
Locust Bar.	do.	do.	430
Swag Bar.	do.	do.	431
Richmond Bar.	Dec. 12, 1874	do.	446
Nine Mile Bar.	May 25, 1875	do.	453
Four Mile Bar.	Dec. 12, 1874	do.	456
Four Mile Bar.	do.	do.	456
Four Mile Bar.	do.	do.	457
Cullum's Ripple.	Jan. 31, 1875	Fixed stake-light.	471
Cullum's Ripple.	Jan. 1, 1875	do.	471
Medoc Bar.	do.	do.	480½
Loughery Island.	Aug. 24, 1875	do.	497
Rising Sun Bar.	Dec. 31, 1874	do.	501
Rising Sun Bar.	do.	do.	502½
Ranty Bar.	Aug. 24, 1875	do.	503
Gunpowder.	do.	do.	509½
Gunpowder.	do.	do.	510
Big Bone.	Dec. 31, 1874	do.	512
Sugar Creek.	do.	do.	518½
Warsaw Bar.	do.	do.	524
Vevay Bar.	July 6, 1876	do.	533
Craig's Bar.	Dec. 31, 1874	do.	537
Locust Bar.	Aug. 24, 1875	do.	541
Hoagland Bar.	Dec. 31, 1874	do.	550½
Cooper's Bar.	Aug. 23, 1875	do.	553
Grassy Flats.	Jan. 31, 1875	do.	581
Louisville.	Apr. 1, 1875	do.	593
Falling Run.	Dec. 30, 1874	do.	602
Salt River.	Dec. 29, 1874	do.	624
Mosquito Creek.	Aug. 21, 1875	do.	626
Blue River.	Aug. 20, 1875	do.	654
Peckinpaugh Bar.	Dec. 28, 1874	do.	669½
Flint Island.	do.	do.	683
Flint Island.	do.	do.	683
Oil Creek.	Aug. 20, 1875	do.	685
Chenault's Reach.	Dec. 28, 1874	do.	690
Holts Bar.	Aug. 20, 1875	do.	698
Hog's Point.	do.	do.	710½
Troy Reach.	Aug. 19, 1875	do.	716
Anderson Bar.	do.	do.	728

Fourteenth District.

List of lights established in the fourteenth light-house district—Continued.

Name of light.	Date established.	Character.	Distance from Pittsburgh.
			<i>Miles.</i>
Anderson Bar.	Aug. 19, 1875	Fixed stake-light.	731
French Island.	Dec. 26, 1875	do.	756
French Island.	Dec. 26, 1874	do.	758
French Island.	do.	do.	759
Scallietown Bar.	do.	do.	764
Scallietown Bar.	do.	do.	765
Three Mile Island.	do.	do.	771
Evansville Bar.	do.	do.	782
Evansville Bar.	do.	do.	783
Henderson Island.	Dec. 25, 1874	do.	796
Henderson Island.	do.	do.	797
Henderson Island.	Dec. 24, 1874	do.	833
Highland Rocks.	do.	do.	834
Highland Rocks.	do.	do.	848
Shawneetown Bar.	do.	do.	855
Saline Bar.	Feb. 23, 1875	do.	962
Treadwater Island.	Dec. 24, 1874	do.	963
Treadwater Island.	do.	do.	964
Flinn's Bar.	do.	do.	870
Walker's Bar.	do.	do.	907
Cumberland Bar.	Dec. 23, 1874	do.	912
Cottonwood Bar.	do.	do.	913
Cottonwood Bar.	do.	do.	914
Cottonwood Bar.	Dec. 23, 1874	do.	931
Little Chain.	do.	do.	932
Little Chain.	do.	do.	933
Little Chain.	do.	do.	943
Grand Chain.	do.	Floating light.	944
Grand Chain.	do.	do.	945
Grand Chain.	do.	do.	946
Grand Chain.	do.	do.	947
Grand Chain.	Dec. 21, 1874	Fixed stake-light.	948

FIFTEENTH DISTRICT.

The fifteenth light-house district extends on the Mississippi from the head of navigation to New Orleans, and on the Missouri from the head of navigation to its mouth, and embraces all the aids to navigation within these limits.

Inspector.—Commander R. R. Wallace, United States Navy.

Engineer.—Maj. Charles R. Suter, Corps of Engineers, United States Army.

In this district there are—

Lights	153
Buoys actually in position	5
Tender (steam) Alice	1

The annual rise of the Missouri and Mississippi usually occurs in June. The force of the water then levels off the sand-bars and obliterated the channel. During the months of July and August the river recedes to its low-water stage, cutting out a new channel each year, differing in many respects from that of the year before. A change in the location of many of the lights is therefore required, and the whole system is re-arranged annually. The changes in the river have been greater than usual during the past year, and the labors of the officers in charge have been correspondingly arduous. A few lights have been established on the Missouri River. It is intended during the coming season to place from 14 to 18 more.

The last winter was unusually mild, and navigation was closed but a short time between Keokuk, Iowa, and Saint Louis. The Lower Mississippi was open all winter, and the lights were exhibited the entire season. Experiments are being made to further perfect the form of lantern used.

List of lights established in the fifteenth light-house district from date of organization, and in operation at the close of the year ending June 30, 1876.

MISSISSIPPI RIVER, SAINT PAUL, MINNESOTA, TO NEW ORLEANS, LOUISIANA.

Name of light.	Date established.	Character.	Distances from Saint Paul.
			Miles.
Newport	Aug. 21, 1875	Fixed stake-light.	.8
Pine Bend	May 11, 1875	do.	7.15
Gray Cloud	May 11, 1875	do.	4.19
Hastings	Aug. 26, 1875	do.	10.29
Head Lake Pepin, 1	May 11, 1875	do.	30.59
Head Lake Pepin, 2	Sept. 1, 1875	do.	1.60
Maiden Rock	May 11, 1875	do.	12.72
Lake City	May 11, 1875	do.	6.78
Foot Lake Pepin	May 13, 1875	do.	10.88
Wabasha, West	Aug. 23, 1875	do.	4.92
Wabasha, East	Aug. 23, 1875	do.	1.93
Beef Slough, Upper	Aug. 26, 1875	do.	4.97
Beef Slough, Middle	Aug. 26, 1875	do.	1.98
Beef Slough, Lower	Aug. 26, 1875	do.	1.99
Bett's Chute	Aug. 23, 1875	do.	30.129
Eastmore	Aug. 26, 1875	do.	12.142
Black River	May 13, 1875	do.	25.166
Warner's Landing	May 13, 1875	do.	39.205
Coon Slough	May 14, 1875	do.	4.209
Crooked Slough	May 14, 1875	do.	32.241
North McGregor	June 17, 1876	do.	17.258
Clayton, First	Aug. 21, 1875	do.	16.274
Clayton, Second	Aug. 21, 1875	do.	1.275

Fifteenth District.

List of lights established in the fifteenth light-house district, &c.—Continued.

MISSISSIPPI RIVER, SAINT PAUL, MINNESOTA, &c.—Continued.

Name of light.	Date established.	Character.	Distances from Saint Paul.
			Miles.
Clayton, Third	Aug. 21, 1875	Fixed stake-light.	1.276
Clayton, Fourth	Aug. 21, 1875	do.	12.278
Glenhaven	Aug. 21, 1875	do.	6.224
Cassville, Upper	Aug. 21, 1875	do.	12.296
Cassville, Lower	June 17, 1876	do.	2.298
Fairport	Aug. 19, 1875	do.	152.450
Muscatine Prairie	Aug. 29, 1875	do.	20.470
Burness City Light	June 19, 1876	do.	38.508
Kentuck Crossing	Aug. 19, 1875	do.	4.512
Burlington Bar, 1	Aug. 26, 1875	do.	12.524
Burlington Bar, 2	Aug. 26, 1875	do.	12.524
Pontoose	Aug. 18, 1875	do.	25.549
Gregory's Crossing, 1	May 17, 1875	do.	42.591
Gregory's Crossing, 2	Sept. 4, 1875	Floating light.	1.592
Gregory's Crossing, 3	Sept. 4, 1875	do.	1.592
Gregory's Crossing, 4	May 17, 1875	Fixed stake-light.	1.593
Dodd's Point	Sept. 6, 1875	do.	4.597
Tully Island	May 7, 1875	do.	4.601
Canton, East	Sept. 6, 1875	do.	3.604
Canton, West	Sept. 6, 1875	do.	1.605
Lone Tree	May 17, 1875	do.	15.620
Quincy	Sept. 6, 1875	do.	10.630
South River	Sept. 6, 1875	do.	6.636
Whitney's	Sept. 6, 1875	do.	5.641
Gilbert's	Sept. 7, 1875	do.	22.663
Munday's	May 17, 1875	do.	5.668
Hickory Island	Sept. 7, 1875	do.	4.672
Scott's Landing	Sept. 7, 1875	do.	3.675
Stag Island, 1	Sept. 7, 1875	do.	40.715
Stag Island, 2	Sept. 7, 1875	do.	1.716
Gilead's	April 9, 1875	do.	2.718
Carroll's	May 18, 1875	do.	2.720
Wilson's Landing	April 9, 1875	do.	2.722
Couvre River	Sept. 10, 1875	do.	10.732
Fruitland	Sept. 7, 1875	do.	2.744
Iowa Island	Sept. 8, 1875	do.	3.747
Squaw Island	Sept. 8, 1875	do.	2.749
Grafton, Upper	Sept. 8, 1875	do.	2.751
Grafton, Lower	May 21, 1875	do.	2.753
Franklin	Sept. 8, 1875	do.	6.759
King's Crossing	Nov. 11, 1875	do.	1.760
Eagle Island	May 6, 1875	do.	2.762
Piasa	April 7, 1875	do.	1.763
Broom Corn	Sept. 8, 1875	do.	25.788
Chain Dyke	Sept. 24, 1875	do.	1.789
Twin Hollows	Oct. 19, 1875	do.	10.799
Horsetail	Sept. 9, 1875	do.	5.804
Jefferson Barracks, Lower	Dec. 4, 1874	do.	1.805
Widow Beard's	June 26, 1875	do.	8.813
Forrest Home	Dec. 10, 1874	do.	14.827
Fish Landing	Dec. 10, 1874	do.	6.833
John Brickley's	Dec. 15, 1874	do.	7.840
Fort Chartres	Dec. 10, 1874	do.	2.842
Frank Brickley's	Dec. 10, 1874	do.	2.844
White Sand	Dec. 10, 1874	do.	3.847
Sainte Genevieve Island	April 17, 1875	do.	6.853
Sainte Genevieve Bend	June 25, 1875	do.	4.857
Kaskaskia	Dec. 15, 1874	do.	4.861
Fairy Island	Dec. 15, 1874	do.	3.864
Saint Mary's Crossing	Sept. 10, 1875	do.	4.868
Liberty Island	Nov. 5, 1875	do.	16.884
Hat Island	Nov. 5, 1875	do.	15.899
Devil's Island	Nov. 7, 1875	do.	30.929
Grand Chain, Upper	Dec. 11, 1874	do.	20.949
Thebes, Upper	Dec. 11, 1874	do.	3.953
Thebes, Lower	Dec. 12, 1874	do.	1.953
Uncle Joe's Hill	Mar. 12, 1875	do.	2.955
Uncle Joe's Bank	Dec. 12, 1874	do.	2.955
Burnham Island	Mar. 12, 1875	do.	3.958
Goose Island	Nov. 5, 1875	do.	6.961
Sliding Island	Nov. 5, 1875	do.	10.974
Orion Field	Nov. 5, 1875	do.	4.978

Fifteenth District.

List of lights established in the fifteenth light-house district, &c.—Continued.

MISSISSIPPI RIVER, SAINT PAUL, MINNESOTA, &c.—Continued.

Name of light.	Date established.	Character.	Distances from Saint Paul.
Foot Missouri Sister.....	Nov. 6, 1875	Fixed stake-light	Miles.
Foot Able's Tow-Head.....	Nov. 8, 1875	do	8.986
James' Bayou.....	Sept. 4, 1875	do	4.999
Island No. 10.....	Sept. 14, 1875	do	50.1040
New Madrid Bend.....	Sept. 14, 1875	do	41.1091
Tennessee State Line.....	Sept. 14, 1875	do	12.1103
Point Pleasant, Mo.....	Apr. 19, 1876	do	7.1110
Tiptonville.....	Sept. 14, 1875	do	5.1115
Stewart's Landing.....	Sept. 14, 1875	do	8.1123
Bass Field.....	Sept. 14, 1875	do	6.1129
Linwood Field.....	Sept. 14, 1875	do	6.1135
Hickman's Landing.....	Sept. 15, 1875	do	24.1159
Backner's Landing.....	Sept. 15, 1875	do	20.1179
O'Donnell's Landing.....	Sept. 29, 1875	do	10.1129
Johnson's Landing.....	Sept. 15, 1875	do	12.1201
Fletcher's Landing.....	Sept. 15, 1875	do	10.1211
Plumb Point.....	Sept. 15, 1875	do	3.1214
Bullerton Tow-Head.....	Sept. 15, 1875	do	10.1224
Fort Pillow.....	Sept. 29, 1875	do	2.1226
Dean's Island Bend.....	Apr. 18, 1876	do	8.1234
Brandywine Tow-Head.....	June 1, 1876	do	33.1267
Kateman's Field.....	June 1, 1876	do	4.1271
W. R. Arthur's Wreck.....	Sept. 16, 1875	do	2.1273
Busley's Field.....	Sept. 17, 1875	do	15.1288
Reeves's Bar.....	Sept. 17, 1875	do	13.1306
Cow Island.....	Sept. 17, 1875	do	2.1303
Harkierode's Crossing.....	Sept. 23, 1875	do	2.1310
De Mumbrey's.....	Sept. 17, 1875	do	14.1334
Moon's Two Head.....	Sept. 17, 1875	do	18.1342
Fox Island.....	Sept. 17, 1875	do	2.1344
"O. K." Landing.....	Sept. 17, 1875	do	8.1352
Shoo Fly Crossing.....	Sept. 18, 1875	do	3.1355
Island No. 60.....	Sept. 18, 1875	do	5.1360
Grant's Pass.....	Sept. 18, 1875	do	10.1370
Victoria Landing.....	Sept. 19, 1875	do	10.1380
Nebbett's Landing.....	Sept. 19, 1875	do	110.1490
Island No. 76.....	Apr. 18, 1876	do	30.1520
Eutaw Landing.....	Sept. 20, 1875	do	30.1550
Glencoe.....	Sept. 20, 1875	do	15.1565
Fanny Bullitt's Tow-Head.....	Sept. 20, 1875	do	4.1569
Ashton's Bar.....	Jan. 20, 1876	do	34.1603
Bale Shed.....	Sept. 20, 1875	do	20.1623
McMillen's.....	Apr. 15, 1876	do	16.1639
Bavarian Crossing.....	Sept. 21, 1875	do	3.1642
Island No. 98.....	Sept. 21, 1875	do	4.1646
Burleigh's Landing.....	Sept. 21, 1875	do	12.1658
Omega.....	Sept. 21, 1875	do	12.1670
Briccount's.....	Sept. 21, 1875	do	8.1678
Point Pleasant, La.....	Sept. 22, 1875	do	22.1700
Buck Ridge.....	Apr. 15, 1876	do	55.1755
Benjamin's Landing.....	Sept. 22, 1875	do	10.1765
Brunsbuigh Landing.....	Sept. 23, 1875	do	20.1785
General Taylor's.....	Sept. 23, 1875	do	2.1787
Natchez Island.....	Sept. 23, 1875	do	15.1802
Ashley Avenue.....	Sept. 23, 1875	do	45.1817
Avalanche Landing.....	Sept. 23, 1875	do	5.1852
Green's Landing.....	Sept. 23, 1875	do	8.1860
Morgan's Bend.....	Apr. 15, 1876	do	4.1864
			70.1934.

Fifteenth District.

MISSOURI RIVER.—KANSAS CITY TO MOUTH OF RIVER.

Name of light.	Date established.	Character.	Distances from Saint Paul.
Sibley Chain, 1.....	Sept. 20, 1875	Fixed stake light	Miles.
Sibley Chain, 2.....	Sept. 20, 1875	do	40
Deering's.....	Sept. 16, 1875	do	3.43
Dodd's Island.....	July 30, 1875	do	230.273
Howard's Bend.....	July 29, 1875	do	2.275
			63.338

List of lights established in the 15th light-house district and discontinued from date of organization to the close of the year ending June 30, 1876.

Name of light.	Date established.	Date discontinued.	Remarks.
Strong's.....	Sept. 6, 1875	Mar. 10, 1876	Channel not yet defined.
Thomas Chute.....	Aug. 16, 1875	Mar. 15, 1876	Change of channel.
Beck's Landing.....	Sept. 7, 1875	June 30, 1876	Channel not yet defined.
Rhode's Point.....	Mar. 18, 1875	Aug. 31, 1875	Do.
Jefferson Barracks Dike.....	Dec. 4, 1874	Nov. 1, 1875	On wreck, not required in high water.
Glendale.....	Dec. 10, 1874	June 7, 1876	Do.
Olive Branch.....	Sept. 10, 1875	Nov. 1, 1875	Not required in high water.
Ryan's Landing.....	Sept. 10, 1875	Nov. 1, 1875	Channel changed for the present.
Paul Jones.....	Dec. 12, 1874	Dec. 31, 1875	Of use, but not absolutely required.
Rock Pile.....	Nov. 1, 1875	Mar. 1, 1876	Channel increased in width, not required.
Bird's Tow-Head.....	Dec. 12, 1874	May 15, 1876	Channel not yet defined.
Greenfield.....	Dec. 12, 1874	May 15, 1876	Do.
Bates's Island.....	July 29, 1875	Nov. 30, 1875	Do.

RECAPITULATION.

Total number of lights on the Mississippi River in operation June 30, 1876.....	148
Total number of lights on the Missouri River in operation June 30, 1876.....	5
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CONCLUSION.

In conclusion, the board begs leave to say that it will be seen by this report that no efforts have been spared by its members or its officers to keep the establishment up to the high standard of past years, and that its efforts to accomplish this result have been attended with a large measure of success.

All of which is respectfully submitted.

JOSEPH HENRY,
Chairman.

J. G. WALKER,
Commander, U. S. N., Naval Secretary.
PETER C. HAINS,
Major of Engineers, U. S. A., Engineer Secretary.

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