

Coastal Survey Appendices written by or relating to Henry Mitchell and Henry Whiting

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SAMUEL A. GILBERT

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HENRY MITCHELL

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Appendix No. 1857 - 35. Pp. 350-354. Tides and currents in the Nantucket and Vineyard Sounds and in the East River. Hell Gate and vicinity, tides and currents; Hudson River levelings; Nantucket and Marthas Vineyard sounds, tides and currents. [Oceanography; Tides; Currents.]

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Appendix No. 1866 - 5. Pp. 35-44. Florida Straits. Report on soundings; northern approach; southern approach; difficulties in the way of laying a telegraph cable; remarks upon lines and leads; table of soundings across the Straits of Florida from Sand Key to El Moro, 1866. [Oceanography; Deep Sea Soundings; Instrumentation.]

Appendix No. 1866 - 6. Pp. 44-46. Hell Gate tides (East River, New York.) Preliminary report on the interference tides of Hell Gate, with directions for reducing the soundings. Table of relative elevations of tidal planes from observations; tides and currents of Hell Gate, from observations of 1857. [Oceanography; Tides; Currents; Hydrography.]

Appendix No. 1867 - 13. Pp. 158-169. Tides and currents of Hell Gate, N.Y. [Oceanography; Tides; Currents.]

Appendix No. 1867 - 14. Pp. 170-175. Merrimack River, Massachusetts. Surveys respecting its navigation, with tables. [Hydrography.]

Appendix No. 1867 - 15. Pp. 176-179. Soundings in the Gulf Stream between Key West, Florida, and Havana. Table I, soundings in the Gulf Stream near the coast of Cuba, 1867; II, current observations. [Oceanography; Gulf Stream;]

Appendix No. 1868 - 11. Pp. 166-167. Note on Gulf Stream observations. Decrease of bottom temperature in still-water channels. [Oceanography; Gulf Stream; Currents.]

Appendix No. 1869 - 5. Pp. 75-104. Reclamation of tide lands, and its relation to navigation. (1) General discussion; scour of tidal and river currents; general rule of bar scouring; parallel works; traverse works; physical history of salt marshes; shingle levees; other natural levees; Peirce's criterion; (2) field work; Green Harbor River; North River; tabular sections of shingle levees; sand beach; section of slueway formed by Minot's gale; general rise; local changes of heights of tide - tables; effect of a dam; general conclusions relative to the projects of reclamation; shore of Nahant; tabular sections; maps and diagrams. [Oceanography; Shoreline Changes.]

Appendix No. 1869 - 15. Pp. 236-259. Reports concerning Marthas Vineyard and Nantucket. -- H. L. Whiting and H. Mitchell. Edgartown Harbor, changes; Vineyard Haven its character as a port of refuge and present condition; Tables of exposures of anchorages in: Provincetown Harbor; Vineyard Haven; Great Woods Hole; Tarpaulin Cove; Old Stage Harbor; New Bedford Harbor and Quicks Hole; Plymouth Harbor; Boston Harbor and Hull Bay, President Roads, Georges Roads; Marblehead Harbor; Salem Harbor; Gloucester Harbor; Upper and Lower Bay, New York Harbor; anchorage room and average exposure in respective harbors. Surveys; physical aspects and peculiarities; Edgartown tides; Nantucket tide tables; elements of the field work. [Topography; Hydrography; Coast Pilot; Oceanography; Tides; Currents.]

Appendix No. 1870 - 11. Pp. 98-99. Extract from a report relative to a method of determining differences of elevation along the course of a tidal river, without the aid of a leveling instrument by setting up graduated staves at such distances apart that the slacks of the tidal currents extend from one to another. -- Rule: The difference in the elevations of the zeros of the tide gauges is equal to one-half the sum of the differences of their readings at the two slack waters. [Oceanography; Tides; Currents; Geodesy; Leveling.]

Appendix No. 1870 - 18. Pp. 180-181. On the probable effect of extended piers in modifying the channel facilities of San Francisco near Yerba Buena Island. [[Hydrography](#); [Topography](#); [Shoreline Changes](#).]

Appendix No. 1871 - 8. Pp. 110-133. Harbor of New York, 1873. Increase of Jersey Flats; changes in Buttermilk Channel; changes in the vicinity of Middle Ground Shoal and Gowanus Bay; changes at and near the Sandy Hook Entrance; tides and currents; phenomena in the pathway of the Hudson; movement through East River; East River and Hudson tidal current compared; relations of East River movements to those over the bar. Explanatory letter of Benjamin Peirce, Superintendent of the Coast Survey. [[Hydrography](#); [Oceanography](#); [Tides](#); [Currents](#); [Shoreline Changes](#).]

Appendix No. 1871 - 9. Pp. 134-143. Nausett Beach and Monomoy Peninsula. Physical history of the Monomoy area; recent movement of Chatham Beach. [[Topography](#); [Shoreline Changes](#).]

Appendix No. 1871 - 10. Pp. 144- 153. Hints and suggestions upon the location of harbor lines. Value of tidal volume; encroachment on the channels; isodynamic lines; anchorage and winding room; requisite depths of frontage; length of slips; riparian rights; laws establishing harbor lines. [[Hydrography](#); [Oceanography](#); [Tides](#); [Currents](#); [Shoreline Changes](#); [Laws](#).]

Appendix No. 1872 - 16. Pp. 257-261. Middle-ground shoal, New York Harbor. Tables of current observations. [[Oceanography](#); [Currents](#).]

Appendix No. 1873 - 8. Pp. 94-102. Physical survey of Portland Harbor. Correspondence; velocities of tidal currents; diagrams. [[Oceanography](#); [Tides](#); [Currents](#).]

Appendix No. 1873 - 9. Pp. 103-107. Additional report concerning the changes in the neighborhood of Chatham and Monomoy. The real point of interest; corrections to previous paper; results of the last survey. [[Topography](#); [Shoreline Changes](#).]

Appendix No. 1873 - 10. Pp. 108-109. Changes in the submerged contours of Sandy Hook. [[Hydrography](#).]

Appendix No. 1874 - 12. Pp. 135-147. Terminal points of the proposed canals through Nicaragua and the Isthmus of Darien. Greytown; history of the harbor; causes of its decline and final destruction; the work of restoration; obstructions of the lower San Juan; Uraba mouth of the Atrato and conclusions relative to improvement of the Uraba; Brito; conclusions; Limon and Chiri Chiri Bays; general exposure. [[History](#); [Oceanography](#); [Tides](#); [Currents](#); [Shoreline Changes](#).]

Appendix No. 1875 - 11. Pp. 189-193. Recent observations at South Pass Bar, Mississippi River. [[Hydrography](#).]

Appendix No. 1876 - 9. Pp. 143-146. Changes in the harbor of Plymouth, Mass. Comparisons to Champlain, 1605, and Blaskowitz, 1774. General conclusions and remarks. [[Cartography](#); [Hydrography](#); [Shoreline Changes](#).]

Appendix No. 1876 - 10. Pp. 147-185. Physical survey of New York Harbor. [[Oceanography](#); [Tides](#); [Currents](#); [Hydrography](#).]

Appendix No. 1876 - 11. Pp. 186-189. Report concerning the location of a quay or pier line in the vicinity of the United States Navy Yard at New York. [[Shoreline Changes](#); [Oceanography](#); [Tides](#); [Currents](#).]

Appendix No. 1876 - 12. Pp. 190-191. Review of the characteristics of South Pass, Mississippi. [Hydrography; Oceanography; Tides; Currents.]

Appendix No. 1877 - 8. Pp. 98-103. Alleged changes in the relative elevations of land and sea. Salt marshes; rocks; Perce Rock, Isle Perce; Green Ledge; Mary Ann Rocks; Bulwark Shoal; Drunken Ledge; Brazil Rock; Jig Rock; Trinity Ledge; Harding's Ledge; Great Ledge. [Geology; Oceanography; Hydrography; Topography; Shoreline Changes.]

Appendix No. 1878 - 9. Pp. 121-175. Physical survey of the Delaware River at Philadelphia. The channel; form of cross-section; tables of transverse curves of velocity. [Hydrography; Oceanography; Tides; Currents.]

Appendix No. 1879 - 10. Pp. 175-190. Physical hydrography of the Gulf of Maine. General description; tides and currents; George's Bank. [Hydrography; Oceanography; Tides; Currents.]

Appendix No. 1879 - 13. P. 199-200. Addendum to a report on a physical survey of the Delaware River. [Hydrography; Oceanography; Tides; Currents.]

Appendix No. 1881 - 18. Pp. 464-469. Report on a new rule for tides in Delaware Bay and River. Proposed new rule for the currents of Delaware River; currents of Delaware Bay; "Station No. 4," outside of Cape Henlopen - lighthouse bearing nearly west by compass; diagram showing manner of computing middle line; rule; table of currents of Delaware Bay; table of currents of Delaware River; note relative to the lines of high and low water in Delaware Bay and River; progress of tide in Delaware Bay and River. [Oceanography; Currents; Tides.]

Appendix No. 1882 - 16. Pp. 433-436. Study of the effect of river bends in the Lower Mississippi. Introductory remarks; inductions; a comparison of air-line and river distances with mean depths, mean widths, and mean areas in the Mississippi River; bend effects in the Mississippi River from 4.5 miles below Fort Saint Philip to near Point Houmas, 150. 8 miles; inferences; authority for data. [Hydrography; Topography; Shoreline Changes.]

Appendix No. 1883 - 8. Pp. 239-245. The estuary of the Delaware. Introductory remarks; term estuary defined; table of half-tide dimensions of the estuary of the Delaware; diagram representing mean depths, widths, and sectional areas for each nautical mile; table giving progress of the tide in Delaware Bay and River; discussion concerning tide; resume of data used; estuary of the Delaware; table of widths, areas, and depths. [Oceanography; Tides; Currents.]

Appendix No. 1885 - 11. Pp. 483-485. A plea for a light on St. Georges Bank. Exact position unknown in early times; position now accurately known but unmarked; its position with reference to important surrounding points; benefit to be derived by European commerce and that of New York, New England, and New Brunswick from light-house; size of the fishing fleet on and crossing the bank; importance of light and horn as a guide to this fleet; great loss of life and vessels under present conditions; shoal directly on shortest route from New York to British Channel, and near routes of ocean commerce of Massachusetts Bay and Bay of Fundy; fishing fleet delayed for want of signal; loss of largest privateer of 1812 (the DART) on St. Georges Bank; suggestion that memorial be erected in form of lighthouse. [Miscellaneous; History.]

Appendix No. 1886 - 8. Pp. 255 - 261. A report on Monomoy and its shoals. Tonnage of the vessels navigating these water; dangers to navigation; comparison of Capt. Paul Pinkham's survey of 1784 and the U.S. Coast and Geodetic Survey chart of 1885, with a sketch of the two surveys. Also a report by Assistant Charles O. Boutelle concerning the earliest

topographical survey of Monomoy, with sketch. [[Hydrography](#); [Topography](#); Shoreline Changes.]

[Appendix No. 1886](#) - 10. Pp. 267-279. A report on the Delta of the Delaware. Joe Flogger Shoal; method of comparing old and new surveys; diagram showing cross-section of Joe Flogger Shoal; results of comparisons; table of comparative dimensions of Joe Flogger Shoal; tables for main channel and Blake's Channel near Joe Flogger Shoal. [[Hydrography](#).]

[Appendix No. 1886](#) - 13. Pp. 409-433. On the circulation of the sea through New York Harbor. Types of tidal profiles; field work of 1886; recapitulation; current observations taken by the Naval parties, October, 1886; East River tides and tidal currents; table giving lunar intervals of upper and lower restorations of level between Governor's Island and Willet's Point, with synchronous heights at other stations, for eight tides between October 4 to 6, 1886; maximum and minimum slopes; table giving a comparison of restorations of level ; maximum slope (by reaches) of the East River, October 4 to 6, 1886; comparison of slopes Governor's Island to Willet's Point; intervals and heights of restoration of level between New York Harbor (Governor's Island) and Long Island Sound (Willet's Point), from observations of October, 1886; currents; tables of slope and velocity in East River; tables showing decomposition of tides; graphic decomposition of tides; comparison of mean levels at Governor's Island and Willet's Point; concluding remarks. [[Oceanography](#); [Tides](#); Currents.]

[Appendix No. 1887](#) - 6. Pp. 159-163. On the movements of the sands at the eastern entrance of Vineyard Sound. A continuation of the discussion of the changes among the Monomoy Shoals; table of tides and currents at the entrance of Vineyard Sound; composition of tidal forces; tides at entrance of Vineyard Sound graphically represented. [[Oceanography](#); [Tides](#); Currents; [Hydrography](#).]

[Appendix No. 1887](#) - 13. Pp. 269-273. Addendum to Appendix No. 8, report of 1883, on the estuary of the Delaware; table giving physical elements of the estuary of the Delaware, with introductory letter. [[Oceanography](#); [Tides](#); Currents.]

[Appendix No. 1887](#) - 15. Pp. 301-311. Report on the results of the physical surveys of New York Harbor. Part I. The underrun of the Hudson River; its relation to New York bar; underrun in the Hudson during the dry season; tables giving the densities at different depths, from observations taken in the summer of 1885; currents at different depths at various localities; depth of neutral plane below surface; limit of the tide, as affecting the scour of the channels in New York Harbor. Part II. Courses of the Hudson tides through New York Harbor; slopes of the Hudson and East Rivers; synchronous tides in the tract of the Hudson. [[Oceanography](#); [Tides](#); Currents.]

HENRY LAURENS WHITING

Appendix No. 1850 - 9. Pp. 81-82. Progress of Sandy Hook 1848-1850. [[Topography](#); Shoreline Changes.]

Appendix No. 1851 - 28. Pp. 482-484. Beaufort Harbor, North Carolina. Operative causes of its physical permanency. [[Oceanography](#); Currents; [Topography](#); Shoreline Changes.]

[Appendix No. 1860](#) - 20. Pp. 216-229. Topographical and hydrographical delineations. On the contouring and reduction of maps; on the scale of shades; and on the application of photography in preparing details for the engraver; (1) generalization of contour and other natural features for reduction to 1:80,000 contour; salt marsh; sand beaches and sand hills; woods; fresh marsh; shore line; low water; (2) hydrographic reductions; (3) reductions by photography; (4) scale of shades; including report by Edward Hergesheimer. (This paper

reflects the work of George Mathiot in pioneering the use of photography for cartographic purposes. Mathiot was the first to develop techniques for successfully reducing map scales from hand drawn sheets and was almost single-handedly responsible for instituting a revolution in cartographic procedures.) [[Topography](#); [Hydrography](#); [Cartography](#); [Printing](#).]

[Appendix No. 1867](#) - 12. Pp. 149-157. Provincetown, Harbor, Massachusetts. Special survey. [[Topography](#); [Shoreline Changes](#).]

[Appendix No. 1869](#) - 15. Pp. 236-259. Reports concerning Marthas Vineyard and Nantucket. -- H. L. Whiting and H. Mitchell. Edgartown Harbor, changes; Vineyard Haven its character as a port of refuge and present condition; Tables of exposures of anchorages in: Provincetown Harbor; Vineyard Haven; Great Woods Hole; Tarpaulin Cove; Old Stage Harbor; New Bedford Harbor and Quicks Hole; Plymouth Harbor; Boston Harbor and Hull Bay, President Roads, Georges Roads; Marblehead Harbor; Salem Harbor; Gloucester Harbor; Upper and Lower Bay, New York Harbor; anchorage room and average exposure in respective harbors. Surveys; physical aspects and peculiarities; Edgartown tides; Nantucket tide tables; elements of the field work. [[Topography](#); [Hydrography](#); [Coast Pilot](#); [Oceanography](#); [Tides](#); [Currents](#).]

[Appendix No. 1872](#) - 17. Pp. 262-265. Shore-line changes at Edgartown Harbor, Mass. [[Topography](#); [Shoreline Changes](#).]

[Appendix No. 1886](#) - 9. Pp. 263-266. Report of changes in the shore line and beaches of Martha's Vineyard, as derived from comparisons of recent with former surveys. [[Topography](#); [Shoreline Changes](#).]

[Appendix No. 1889](#) - 14. Pp. 459-460. Recent changes in the south inlet into Edgartown Harbor, Martha's Vineyard. [[Hydrography](#); [Topography](#); [Shoreline Changes](#).]

[Appendix No. 1890](#) - 11. Pp. 620-623. Report in relation to a portion of the boundary line in dispute between the States of Maryland and Virginia. (The portion of the boundary line to be examined and located was near Hog Island, in the lower Potomac, and its course depended upon the method adopted of measuring the low-water line of the river.) [[Topography](#); [Oceanography](#); [Tides](#).]