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P 258

The following named officers were attached to the party during the season ending in November, 1881: Lieutenant H. T. Monahan, U. S. N., Master W. H. Nostrand, U. S. N., and Ensign O. G. Dodge, U. S. N.; and during the season beginning in May, 1882, Ensigns David Daniels, U. S. N., H. T. Mayo, U. S. N., and O. G. Dodge, U. S. N. The statistics here given are for the work of the season beginning May 4 and ending November 1, 1881:

Miles run in sounding .....	630
Angles measured.....	4,178
Number of soundings .....	45,562

*Tidal observations.*—The self-registering tide-gauge at the station in Pulpit Cove on North Haven Island, Penobscot Bay, Me., has maintained a continuous record during the year by the care of Mr. J. G. Spaulding, the observer who has had charge of it since its establishment in January, 1870.

The series of records has been almost perfect thus far, very few interruptions having occurred from ice, even in the coldest winters, owing to the effectiveness of the heating apparatus. When a short stoppage for repairs becomes necessary, hourly readings are taken upon a staff gauge. The location of this tide station, lying within twenty-five miles of deep water, and sheltered from the immediate effect of severe storms, fulfills the conditions most favorable for showing the characteristics of the tides of the Gulf of Maine. A full series of meteorological observations has been kept up since the beginning of the tidal record.

*Examination for the Coast Pilot of changes in sailing lines, and of reported shoal at the eastern entrance of Nantucket Sound.*—Near the close of the fiscal year, 1881-'82, it was decided by the Light-House Board to change the position of the light-vessel off Pollock Rip, on account of changes in the shoals in Monomoy Passage, and as this would involve alterations of considerable magnitude in the sailing-lines as laid down on the charts and in the Atlantic Coast Pilot, Assistant J. S. Bradford was instructed to make such hydrographic examinations of the proposed sailing-lines in the vicinity as were needful, and also to verify the reported formation of an eighteen-foot shoal close to the position of the light vessel as then existing before removal. Assistant Bradford, having performed this duty, returned to the office, and resumed his work upon the Coast Pilot. Earlier in the year he had made examinations of channels in New York entrance, and in Delaware and Chesapeake Bays; these are referred to under the heads of Sections II and III.

*Measurement of the force of gravity.*—Absolute determinations of gravity were made during the year by Assistant Charles S. Peirce at Cambridge, Mass., at Baltimore, Md., and at Washington, D. C. An additional statement in regard to these determinations will be found under the head of Section III. In Appendix No. 23 Assistant Peirce presents in a concise form results obtained by him for force of gravity.

*Geodetic operations in New Hampshire.*—In continuation of the triangulation of the State of New Hampshire, Prof. E. T. Quimby, Acting Assistant, took the field at the beginning of the fiscal year, establishing his party upon Mount Washington. At this station measurements of horizontal and vertical angles were made until the close of September. The season at this station was remarkable for an almost uninterrupted continuance of rain and fog, with severe thunder storms, during one of which the vertical circle, which was protected by a thin rubber covering, was struck by lightning. It was not seriously damaged, however, the most marked effect of the electricity being to cover the instrument with melted rubber, completely blackening it.

Trask Hill, in Wolfeborough, Carroll County, was next occupied, observations being begun October 12. At this station the weather was quite favorable, and early in November, the observations having been completed, field-work was closed for the season. Professor Quimby reports the following statistics:

Vertical angles, whole number measured .....	27
Horizontal angles, whole number measured .....	43
Vertical circle, whole number of pointings .....	376
Horizontal circle, whole number of pointings .....	2070

*Geodetic operations in Vermont.*—For the continuation of the triangulation of the State of Vermont, Prof. V. G. Barbour, Acting Assistant, took the field at the beginning of the fiscal

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