had developed the existence of several dangerous shoals between Shoreham light- vessel and Pollock Bank light-vessel, in Mosey Bay.

No. 46 (May 27, 1884) contained notes on dangers in Nave and Peril Straits, and on anchorages in Fish Bay, Southeastern Alaska.

No. 47 (May 28, 1884) gave notice of dangerous ledges in Fisherman's Island Sound.

No. 48 (May 31, 1884) warned navigators of a dangerous pinnacle rock in East River, N.Y., on the prolongation of Twentieth Street.

A danger has since been placed on this rock.

No. 49 (June 1, 1884) reported the existence of a dangerous ledge in Englishman's Bay, near the eastern entrance of Mosquito Reach, coast of Maine.

No. 50 (June 10, 1884) described the location of ledge off Misool's Ledge light-house, Massachusetts Bay.

No. 51 (June 30, 1884) gave notice of important changes, produced by the storms of the sea, at and near Cape Henlopen, and of changes proposed by works of improvement in that vicinity.

The hydrographic examinations and surveys which developed the dangers and obstructions to navigation above enumerated were made by officers of the Navy on Coast Survey service, and are referred to again in Part II of this report in the detailed notices of work in their several localities.

IV—SPECIAL SCIENTIFIC WORK.

INTERNATIONAL GEODASIC ASSOCIATION.

The importance of the questions to be discussed at the seventh annual conference of the International Geodasic Association, held at Rome in October, 1883, and the desirability of continuing the intimate relations heretofore existing between the Coast and Geodetic Surveys and similar organizations in Europe, led to the detail of an officer of the Survey, under authority from the Secretary of the Treasury, as a Delegate to that Conference.

The letter of convocation of the Conference having indicated as one of its leading objects the consideration of the question of the unification of longitude by the adoption of a universal prime meridian, and of the unification of time by the adoption of a universal time, the delegate on the part of the Survey was instructed to express the opinions entertained by scientific and practical men in the United States in relation to the same. He was instructed also to take occasion to urge upon the Conference the desirability of expressing an opinion in favor of the several Governments participating in a Diplomatic Conference at Washington, as proposed by this Government, for arriving at a settlement of the questions mentioned.

After due deliberation, the conclusions of the conference, representing fifteen separate nationalities, were formulated in a series of resolutions, to be brought to the knowledge of the several Governments, and recommended to their favorable consideration. This action, led to the meeting of the Diplomatic Conference held at Washington in October, 1884.

Special report has been made by the delegate of the Coast and Geodetic Survey in regard to the part taken by him in the discussions.

DETERMINATIONS OF GRAVITY AND COMPARISONS OF STANDARDS.

Reference was made in my last annual report to the detail of an Assistant in the Survey for the purpose of obtaining in Europe certain observations necessary to complete the connection of the American and European initial gravity stations. This duty involved the measurement of the figure of the Repsold pendulums at the observatories at Kew, England, and Geneva, Switzerland; the charge of the construction of new pendulums and of apparatus for gravity investigations, and special inquiries respecting matters discussed at the Gravity Conference. Papers relating to the method adopted for the measurement of figure, and to the effect of figure of a pendulum upon its time of oscillation appear as Appendices 15 and 16 to this report.

Advantage was also taken of this detail to have made comparisons of the iron yard No. 37, belonging to the United States Bureau of Weights and Measures, with its mate, No. 38, deposited in the ordnance office at Southampton, and with the bronze yard No. 6, known as the "generator," and kept at the British Standards Office.

The Arago platinum kilogram of the United States