

ated by means of a constant difference from Pictou, which was the average difference in the time of high water, as found from four months' simultaneous observations from the self-registering gauges of 1896.

In the St. Lawrence River, above Quebec, tide tables were computed for Ste. Croix bar, which is at present the shallowest point in the ship channel, until the dredging operations now in progress are completed. These tables are derived from the tide tables for Quebec, by means of a series of differences in the time of high water and low water, in which allowance is made for the change of level of the water in the St. Lawrence with the progress of the season. Tide tables were also prepared for Father Point, the St. Lawrence pilot station, by means of a constant difference in the time of the tide from Quebec, derived from the simultaneous records of the tide gauges during the two complete years, 1895 and 1896.

The reduction of the observations of the previous season, and the preparation of the above tide tables for the present season of navigation, was completed before the services of my two assistants were dispensed with in March last. This is the first time that reasonably reliable tide tables have been available for any ports within the Gulf of St. Lawrence, with the exception of Quebec itself; and these tables also enable masters of vessels and pilots to infer with some certainty the direction of the tidal currents which they may expect to meet with, when they know the relation of the current to the tide in Northumberland Strait and in the Lower St. Lawrence. As Pictou has proved to be the best port of reference for Northumberland Strait, the tidal observations have been continued there this season; as this could be done at little more than a nominal expense, as the appliances required were all on hand from the previous season.

The tide tables issued for 1897, and the records on which they are based are as follows:—

Halifax.—The further tidal record found to exist for the years 1851 and 1852, was incorporated with the record of 1860 and 1861 previously analyzed, and the tables for 1897 were calculated from the revised tidal constants derived from the four years' observations.

Quebec.—The tide tables up to this year, are still based upon the record of one full year; namely November, 1893, to January, 1895.

The tide tables for Halifax and Quebec, accompanied with tidal differences for other places, were furnished to the leading British and Canadian almanacs for publication. These tables for a month at a time, have also appeared daily in the *Quebec Chronicle*, with due acknowledgment to this department. The earlier tidal constants for Halifax have also been communicated to the United States Coast and Geodetic Survey, as the basis of calculation for their tide tables for Halifax. Tide tables for Quebec have not yet been published in the United States tables; but the tides of the St. Lawrence are there referred to other ports of reference, some of which are far distant.

Ste. Croix Bar.—These have been issued in company with the tide tables for Quebec, by the Montreal Harbour Commissioners, in their publication entitled "Tide Tables and other information connected with the Ship Channel between Montreal and Quebec;" prepared for the use of the St. Lawrence pilots.

Father Point, the Pilot Station.—Tide tables were prepared in manuscript, and posted at the lighthouse at Father Point, where they are accessible to all the pilots. The secretary of the Pilots' association of Quebec was notified of this; and the tables themselves have been much appreciated by the pilots.

Charlottetown.—Prepared as above described. To save expense of printing, the tables were type-written only; and copies posted at the agency of the department, and the custom house. Supplied also for publication to the following papers:—*The Patriot, The Guardian, The Examiner, The Herald.*

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