

## SURVEY OF TIDES AND CURRENTS IN CANADIAN WATERS.

OTTAWA, December 20, 1900.

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Sir,—I have the honour to submit the following Report on the progress of this Survey. The principal tidal stations have been maintained in continuous operation throughout the year, and progress has been made in the reduction of the results, and in the use made of them to improve the tide tables, now regularly issued. During the summer season, a series of tidal stations was established throughout the Lower St. Lawrence, from Quebec to Cape Chatte. For these stations, points were selected which would secure the greatest amount of information regarding the relation between the tidal currents on the St. Lawrence, and the tides themselves. Some direct observations of the currents were also made in the Traverse. Another important step, is the calculation and publication of tide tables for British Columbia.

Progress in these directions has been made possible by the increased amount of the appropriation for this Survey. As soon as the increase was decided upon, the tidal records from British Columbia, which had been reduced to figures in tabular form and had been lying in readiness for some time back, were at once sent forward to London, where the analysis of the record is made. Through this promptitude, it was possible to secure tide tables for 1901 in time for publication before the close of the present year. These will be of much service to navigation on our west coast.

In the last report on this Survey, full comparative statements were given, to show the improvement in the accuracy of tide tables which had already been secured by the investigations made. Comparative tables were also given to show the difference still outstanding between the improved tide tables now issued by this Survey, and the tides themselves as observed. From these comparisons, it appeared that the greatest difference between the two, or the greatest outstanding error, occurred at Quebec. It was therefore deemed to be of the most service, to reduce two additional years of the tidal record from that harbour, in order to extend the basis from which the Quebec tide tables are calculated, from two years of observation to four years. This will be of permanent benefit to these tide tables in all future years. The expenditure required for this, amounts to \$450 which the Survey could not afford until now. This again illustrates the way in which any increase in the appropriation for this Survey can at once be applied to practical advantage.

This is as much as could be done in one year in this direction; but for other harbours in their turn, a similar improvement will be secured as means are available. In the office work of this Survey, and in the erection of the summer tidal stations, I have had the assistance of Mr. R. Angus and Mr. S. C. Hayden.

The total expenditure on this Survey during the fiscal year from June 30, 1899, to June 30, 1900, was \$4,343.10. This includes an amount of \$378.08 properly chargeable to the tidal observations on the Lower St. Lawrence during this season.

*Applications for Information.*—As the Survey becomes more widely known, the requests for information and the correspondence resulting, continue to increase. Without attempting to enumerate all the requests for copies of reports and tide tables, the following applications for information may deserve mention:—

The Superintendent of the United States Coast Survey in acknowledging the report of progress containing tidal constants for three of our harbours, for which request had been made, writes as follows:—“Your valuable report was received too late to