involved; it was, however, fully alive to the importance of the matter, and hoped in the near future to be able to carry out a work so necessary and useful to the commercial interests of the country.

On the return of the Hudson's Bay expedition, a new source of expenditure arose; as the Government undertook to pay half the cost of a re-survey, by the British Admiralty, of part of the Lower St. Lawrence. In the summer of 1887, however, Lieut. Gordon, R.N., who had been in command of the expedition to Hudson's Bay, was authorized to make some test observations at a few points by means of the tide-staff with a view to ascertaining how far the accepted tidal estabments were to be relied upon. These observations were taken at Georgetown, P.E.I., at Louisburg, C.B., at Pictou, N.S., and at Port Hawkesbury in the Strait of Canso. In his report on this work, Lieut. Gordon explains that the object of these observations was to show to what extent the means now in the hands of navigators for the prediction of the tides on the coasts of Canada were in error; and he finds the results to show, as far as they go, that the means of prediction are very imperfect, and in some cases (such as the Strait of Canso) actually misleading. While admitting that these observations were too few in number and too rough in their nature to found any conclusions on, Lieut. Gordon considers that the results certainly strengthen the opinion that the whole question of the determination of tidal constants should be taken up in Canada, and a number of stations established for taking tidal observations; as these would be of the greatest practical value to seamen. He further points out the special value which this work will have when completed, as it will enable an intelligent ship master not only to see at what time the tide will be high or low, but also to see at once how the tidal current is setting his ship, when once the currents are charted for the waters of the Gulf.

As Staff Commander Maxwell, R.N., was at that time carrying on the re-survey in the Lower St. Lawrence, his attention was called to the memorial of the committee of the British Association, and he was asked by the department to state the nature and extent of such tidal observations as he was making. His reply is to the effect that he was doing what he could to observe the tides and currents with the means at his disposal; but that they were confessedly imperfect, and were confined to a limited area, and did not necessarily establish any comparison with any other portion of the river. To do this work in a comprehensive way, he considers the most trustworthy method to be the establishment of self-registering tide gauges at various points in the River and Gulf of St. Lawrence; with one or more vessels from which to observe day by day the condition of the tidal streams under varying states of wind and weather.

Up to the time of the accession to office of Sir C. Hibbert Tupper, K.C.M.G., as Minister of Marine in the autumn of 1888, no steps had been taken to carry out the work in accordance with the representations made. As Lieut. Gordon had spent the summer of 1888 in navigating the waters of the Gulf of St. Lawrence, he addressed a report to the Minister based upon the further information he there gained, after carefully watching the effects of currents on his ship's course. In this report he expresses the conviction that until we have an exhaustive examination of the whole system of tidal movements, carried out on similar plans to those which have been made on the United States' coasts, and on the coasts of Great Britain, we shall always be subject to an annual amount of maritime loss due to the lack of information in regard to tidal currents. He also points out that in the 18 years from 1870 to 1887, the aggregate loss was a little over 50 million dollars, or an average of $2,782,000 per annum; and in the same period the loss of life has been 4,308 lives. A certain proportion of this loss of life and property is certainly due to imperfect knowledge of the currents; and if the number of narrow escapes of vessels from disaster or wreck were known, it would add a powerful argument in favour of proceeding with the work forthwith. He also adds that if we could only get a record of the narrow escapes, the delays, and the errors of position discovered when a fog clears away, no further argument would be required; but captains of vessels as a rule dislike to admit that they have been out of position; and dangers escaped are only remembered in a practical sense by giving the ship a little more offing the