

TIDES.

Wherever science and maritime commerce have extended their bounds, this subject has invariably engaged attention. Investigations have been instituted, and maps constructed, exhibiting, in panorama, the tidal phenomena.

Few countries on the face of the globe present a more opposing tidal range than this and the adjacent Province of Nova Scotia. On the St Lawrence side of both Provinces the tides enter, and recede from, the harbours, when not impelled by violent winds, in a comparatively imperceptible manner; rising, in some parts of the Gulf, not more than four feet on an average, while in others the ordinary flow is about six feet.

Captain Bayfield, R. N., states the tides in this Gulf to be as follows:— In Restigouche harbour, in the Bay Chaleur, "the tide flows here on fall and change until three o'clock, and its vertical rise is six and an half or seven feet;" and at Nipisiguit "the water rises on the inner bar eight feet, on the outer bar five feet, and in harbour eight feet, with regular springs; but it is much influenced by the winds which prevail in the Gulf of St. Lawrence." At Miramichi, "spring tides rise five and six feet;" at Tatamagouche, (Nova Scotia,) five feet; and in the harbour of Merigomish, about seven miles E. S. E. of Pictou, the rise is about eight feet. The tide runs through the Gut of Canso at from four to five miles an hour. At all these and other places in the Gulf, the winds exercise great influence over the tides. In direct contrast both with the moderate elevation and rapidity of these tides will be found those of the Bay of Fundy, although the two are separated by a narrow neck of land not more than fifteen miles in extent, between Bay Verte and the head of the former Bay. Indeed, if the Aboideaux built across the streams at the head of these bays were removed, their tidal waters would be separated by an undulating ridge not more than three miles and a half in breadth. Captain Crawley, C. E., after examining the isthmus with a view to the formation of a canal, recommended the digging a ditch, by which the two bays might exchange waters, which would, in his opinion, wear sufficiently deep to admit the passage of small vessels. This suggestion receives confirmation from the flatness of the intermediate distance, and the difference of two hours existing between the respective times of high water in these bays, the action of whose tides are so extremely opposite.

The general character of the tides of this Bay is thus emphatically described in the Report of J. D. Andrew's, Esq., (page 539):—"The tides of the Bay of Fundy have always attracted much attention, on account of the great ebb and flow, and the manner in which the tide enters the narrow bays and runs up the rivers, both in New Brunswick and Nova Scotia. It is obvious to the hydrographer, that the great tidal wave enters the Bay of Fundy at its wide tunnel like mouth, and is kept from spreading by its rocky walls, and is forced into a narrow compass as in a tunnel's neck. Here the impetuous waters, compressed into a narrow space, rise with fearful rapidity, rushing up in what is called *a bore*, sometimes four or six feet in height at the heads of bays, and up the river channels. On the Petitcodiac, at the bend of the river, this bore is seen to the greatest advantage. The tides, rise at the highest to about sixty feet at the head of the bay, while the rise is not more than thirty feet at the mouth of the bay."

The tide in this Bay, also, varies much from the effects of winds and storms;