

References are made to the tidal wave of November, 1759, in various public documents of the period, but the most precise notice is quoted in Bearnish Murdoch's History of Nova Scotia, from the *Gentleman's Magazine*, 1760, page 45.

"The storm brake down the dykes on the Bay of Fundy everywhere, and the marsh lands now deserted, were overflowed and deteriorated. At Fort Frederick, on St. John River, a considerable part of the Fort was washed away, and at Fort Cumberland, 700 cords of firewood was swept off by the tide in a body from the woodyard, although situated at least ten feet higher than the tops of the dykes."*

For the sake of brevity I shall quote the conclusions of reliable authorities on certain points, leaving to the reader, if he is so disposed, the study of the arguments advanced by the author to whom reference is made.

3. SOME OF THE PHYSICAL FEATURES OF THE ISTHMUS.

In an elaborate report "On the Reclamation of Tide-lands, and its Relation to Navigation," by Henry Mitchell, Chief in Physical Hydrography, United States Coast Survey (1869), the following proposition is established. "The nearly horizontal surfaces of the marshes are at the *plane of mean high water!* Mr. Baillairgé states, in his report on the Baie Verte Canal, that the surface of the marshes and bogs on the isthmus for more than seven miles inland is from one to three feet *lower* than the average range of mean spring tides; and it appears from the tables showing the range of the tides, that the surfaces of the marshes and bogs around Cumberland Basin are:

- From one to three feet below the plane of average high water;
- " five to seven feet below the maximum range of high water;
- " six to nine feet below the highest water observed during the survey;
- " ten to thirteen feet below the Sax by tidal wave.

Mr. Mitchell adopted as his plane of mean high water the mean of highest springs and the lowest neaps. Taking the same

standard from Mr. Baillairgé's observations, we have—

Average maximum springs.....	44.08.
Average minimum neaps.....	35.71.
Mean.....	39.89.
Average mean range of high water, by daily observation.....	39.77.
Difference.....	00.12.

The difference being only twelve hundredths of a foot, the two means may be considered identical.

It has been observed by Dr. Dawson* that the inner or low marshes, especially those near the upland and consequently most remote from the sea-board, are lower than those which form as it were the beach; and this is borne out by the observations of Mr. Baillairgé. But there is a point of interest in the altitude of the surface and bottom of the lakes at the head of the tidal rivers in the isthmus, such as the Missaquash and the La Planche, which deserves attention.

At the head of the La Planche the surface of Round Lake, in July, was found to be 94.06, or 44.06 feet above ordinary low water spring-tide, or at the same elevation as the average maximum range of high water, being 4.31 feet above the theoretical plane of the marshes. Long Lake was found, at the same date, to be 2.39 above the same plane. The average bottom of this lake is 1.77 feet below the plane of the marshes. The level of the lakes at the head of the Missaquash River is about 1½ feet above Round Lake. All of these lakes lie near the centre or middle of the isthmus.

Mr. Stark, who was instructed by Mr. Keefer to conduct a survey for the Canal, states generally that "from the summit towards the Bay of Fundy, and at the head of the Amherst Marshes, the country is inundated and dotted in all directions with small lakes, the water in which stands at a nearly uniform elevation of 92.00 above the datum line" (42 above low water spring-tides, or 2.23 feet above average mean range of high water), "or 22 feet above the Canal bottom and even with the surface of the marshes. In the great storm known as the Saxby tide, the water of the Bay of Fundy rose to an elevation of 100.00 feet above datum, and consequently flooded both these lakes and

* Murdoch's History of Nova Scotia, Vol. II., p. 376.

* Acadian Geology.