

be made with the well-determined city levels of Moncton, and the tidal observations at the head of the Petitecodiac; and the levels around the head of the Bay of Fundy, from Moncton to Amherst would also enable bench marks to be established with reference to tide levels, for use in the better protection of the extensive dyked marshes from flooding at extreme tides.

If levels were run from the bench mark now established at Digby to the Admiralty bench mark at Halifax, a direct connection could be obtained between the tide levels in the Bay of Fundy and in the Atlantic. These levels could also be made to afford the same service as above, to the dyked marshes on Minas Basin. A further check on the relative levels could be obtained from the simultaneous observations of this season at Digby and St. John, by assuming that mean sea level has the same absolute elevation at these two places, as they are directly opposite each other on the two sides of the Bay of Fundy. With this connection, a comparison of the tide levels at St. John could be made both with the Gulf of St. Lawrence and the Atlantic at Halifax. The same advantage could be obtained, but with more trouble, by continuing the instrumental levels from Amherst to Halifax, a distance of 138 miles.

The connection of the bench mark at Yarmouth with Digby, 75 miles, would also be valuable; as mean sea level at Yarmouth must be closely the same as in the open Atlantic. Whether this is accurately correct, would also be ascertained by means of the comparison with Halifax.

When a connected series of elevations for mean sea level were determined at Yarmouth, Digby, St. John, and Cumberland Basin, they would also afford a basis from which to obtain the actual elevations of high water and low water at successive points in the bay, and thus to trace the progress of the tide as regards change in level, throughout the Bay of Fundy.

To carry out such a system of levelling can hardly be considered as within the province of the Tidal Survey; but it may be well to point out the way in which this could best be accomplished, to take advantage of work already done, and observations already obtained.

I have, sir, the honour to remain,
Your obedient servant,

W. BELL DAWSON,
In charge of Tidal Survey.