navigable; this is not the case when the water is up, or during the early part of the summer. Mr. Mills, in his report, suggests the removal of the obstructions on the flats by dredging; and estimates that the same would cost \$17,187. I at first supposed that by the erection of a low dam below the bridge at St. Johns, the necessity of dredging would be done away with; but the damage which would ensue to the surrounding country, during the high water of the spring, renders a dam unadvisable. I, however, see no reason why iron standards of a suitable pattern, and about 3 feet in height, might not be bolted, about 15 feet apart, to the rocks which form the bed of the river, and flash boards used to keep the water at such a level as may be deemed advisable. These flash boards, at the close of navigation, could readily be removed; and no obstruction be offered to the passage of the water in times of freshet. Another advantage to be obtained from this arrangement is the raising of the level of the first reach in the canal, and consequent reduction in the expense of excavation.

The Chambly canal, as I before stated, is common to both routes; and will require enlarging to nearly double its present capacity, unless it should appear, after careful examination, that the line can be more advantageously located west of St. Johns; following Wood's creek as far as advisable, thence passing up the St. Luc's creek and north of the church, and intersecting with the line as run by Mr. Mills near Kennedy's This line is some  $4_{100}^{87}$  miles shorter than the one by Hatt's mills, inn. and the land damage, consequent on the enlargement of the Chambly canal, would go far towards equalizing the cost of the two, even should it appear that cutting through the ridge at St. Luc was more expensive than the work via the mills; my opinion is that the shorter line will be found the more economical. Basing my estimate upon the data furnished me, I make the whole cost of the work on the line above described from St. Johns to a point near the little river of Montreal \$523,620, whilst Mr. Mills makes it, as per his survey, \$664,044; showing a saving in the cost of construction of \$140,424, and in distance of  $4\frac{87}{100}$  miles less. I am unable to speak as positively on this point as I would wish, but judging from the character of the country, and after carefully comparing the results of various surveys. I hazard the opinion that the relative cost of the two lines will not vary materially from the above. For your information and guidance I shall submit the estimated cost of the route to Longueil, of that to Caughnawaga as surveyed by Mr. Mills, and also of the last as revised.

Beginning with that to Longueil, we have  $24\frac{37}{100}$  miles of canal with a fall of 74 feet, requiring nine locks, including the guard lock at St. Johns; and there will also be required one aqueduct crossing the Montreal river, and a breakwater at the outlet on the St. Lawrence. This last work becomes necessary in consequence of the rapid current of the river; which, according to the charts of Capt. Bayfield, runs at an average velocity of  $3\frac{1}{2}$  miles per hour, from the lower extremity of St. Helen's Island to the point selected.

The outlay for this work will be

For cast iron standards and flash hoards at St. Johns	\$2.560	00
Enlargement of Chambly canal.	244.350	00
Earth excavation.	368,310	00
Rock excavation, part in river and outlet	60,000	00
Masonry, locks.	725,220	00
Do aqueduct.	62,000	00
Picr.	28,000	00
Carried forward	.499.470	00

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