

passing vessels, as the want of water. Were this portion of the canal enlarged, the supply of water equal to the present scale of navigation would be maintained without the dam, and the cost of the latter, and land damages, would do much towards enlarging the narrow portion of the canal, which is much required, and under any circumstances must be done to meet the wants of the trade.

The construction of a dam that would raise the water three feet in this portion of the river in the dry season, would have but little effect during the spring freshets, or extreme high water; but its effects would be felt from medium to low water mark, when the water would remain much longer on the ground in consequence of the draft being checked by permanently raising the water in the bed of the river and tributaries, besides drowning out a certain portion of ground that is now more or less productive.

I am, Sir,
Your obedient servant,
(Signed,) JOHN G. SIPPPELL,
Res. Engineer.

Report on same subject by H. Merrill, Superintendent, Ottawa River Works.

(No. 6,455.)

OTTAWA RIVER WORKS, SUPERINTENDENT'S OFFICE,
Ottawa, 23rd April, 1869.

F. BRAUN, Esquire,
Secretary, Department of Public Works, Ottawa.

SIR,—I have the honor to acknowledge the receipt of your communication, No. 3,454, dated 19th October last, referring, for the joint report of Mr. J. G. Sippell and myself, the petition of J. M. Currier, Esq., M. P., and other lumber merchants and forwarders, praying for the construction of a dam at the head of the Long Sault Rapids, with the view of improving the navigation of the Ottawa river, between this city and Grenville, and of furnishing additional facilities for passing river craft through the Grenville canal at the season of low water.

We proceeded to the site of the proposed dam, and made a thorough examination of the bed of the river on the line of cross section, at distances of 10 feet apart; and having disagreed on some points as to the effect of damming the river, it was deemed advisable that we should report separately; the following on my part, is therefore respectfully submitted.

The greatest depth of water was found to be 19 feet, with a strong current in the main channel. It would be practicable however, to build a dam at this place that would raise the water three feet above the level we found at the guard-lock of the canal, and the most feasible means of providing for the escape of the surplus water when the river is at flood height, would be by excavating for a certain distance from the shore, the north bank of the river, and a portion of the island lying on the southerly side of the head of Long Sault Rapids. This dam, I think, should be constructed by throwing out from either shore a wing, composed principally of boulders, leaving the deep channel unobstructed. Three feet added to the depth of the water in the reach of the river between Ottawa and Grenville, during the months of July, August, September and October, for navigation purposes, would be of immense benefit to all interested in the lumbering and forwarding trade of the Ottawa; and would in a great measure render unnecessary the large expenditure recommended by Mr. Clarke, C. E., for increasing the depth of water at Green Shoal, as part of the Ottawa Ship Canal scheme. Such an improvement would probably cost not less than \$125,000; as from a rough approximate estimate it appears that upwards of 100,000 cubic yards of earth, coarse gravel and boulders, would have to be removed to provide for a high water outlet.

It may also be as well to mention, in this connection, that, before full cargoes of through freight, that had been taken down the improved reach of the river, could pass through the lower canals, certain works would have to be undertaken to afford an additional supply of water to them.