

treil, and partly on the borders of Vermont, United States, about forty miles from Montreal. The piers, close to the abutments, will each contain about 6,000 tons of masonry. Those to support the centre tube will contain about 8,000 tons each.

The total amount of masonry in the bridge will be about 3,000,000 cubic feet, which, at thirteen and a half feet to the ton, gives a total weight of 222,000 tons.

Scarcely a block of stone used in the piers is less than seven tons weight; and many of those exposed to the force of the breaking-ice weigh fully ten tons. The blocks are bound together, not only by the use of the best water cement, but each stone is clamped to its neighbours, in several places, by massive iron rivets, bored several inches into each block, and the interstices between the rivet and the block are made one solid mass by means of molten lead.

At the present time, fourteen of the piers are completed; eight—including the two centre ones—will be finished this year, leaving only two to erect in 1859.

The piers hitherto constructed have stood as "firm as a rock." Had it been otherwise, and that the mighty St. Lawrence had conquered the combined appliances above stated, there would then, indeed, have been an end to all mechanical resistances.

Each of the abutments is 242 feet long and ninety feet wide. The north shore of the St. Lawrence is connected with the northern abutment by an embanked causeway, faced with solid masonry towards the current, 1,400 feet in length. The causeway, from the south bank of the river to the southern abutment, will be 700 feet long. The distance between this outer or river end of one abutment to the outer end of the other, is 8,000 feet.

The clear height of the ordinary summer level of the St. Lawrence above the under surface of the centre tube, will be sixty feet; and the height will diminish towards either side with a gradient at the rate of one in 130, or forty feet in the mile, so that at the outer or river edge of each abutment the height will be only thirty-six feet above the summer level.

The navigation of the river through the Lachine Rapids is limited to steam-vessels only, and they will pass exclusively between the two centre piers, as the river is unsuited for navigation at the site of the bridge, except between those two points.

The tubes will be nineteen feet high at each end, whence they will gradually increase to twenty-two feet six inches in the centre. The width of each tube is to be sixteen feet, or nine feet six inches wider than the rail track, which is five feet six inches—the national railway gauge of Canada.

The total weight of iron in the tubes will be 10,400 tons. They will be bound and rivetted together precisely in the same manner and with the same machinery as at the Britannia Bridge. The tube connecting the northern abutment with pier No. 1 is now completed. The material for the second tube has reached Canada; and preparations are in progress for the despatch, from England, of eight more tubes early this year, so as to insure their erection during the summer.

Mr. Robert Stephenson and Mr. A. M. Ross are the engineers of this great work. The latter gentleman, having completed his duty as Engineer-in-Chief of the Grand Trunk Railway, now directs his skill and attention exclusively to this structure. The contractors are Messrs. Peto, Brassey, and Betts. The bridge will cost about £1,250,000.

As regards the commercial importance of the Victoria Bridge, Mr. Robert Stephenson, in a report addressed to the directors in May, 1854, says:—

"The great object, however, of the Canadian system of railways is not to compete with the river St. Lawrence, which will continue to accommodate a certain portion of the traffic of the country, but to bring those rich provinces into direct and easy connection with all the ports on the east coast of the Atlantic, from Halifax to Boston, and even New York, and consequently, through these ports, nearer to Europe.

"If the line of railway communication be permitted to remain severed by the St. Lawrence, it is obvious that the benefits which the system is calculated to confer upon Canada must remain, in a great extent, nugatory and of a local character.

"The Province will be comparatively insulated and cut off from that coast to which her commerce naturally tends; the traffic from the West must either continue to adopt the water communication, or, what is more probable—nay, I should say certain—it would cross into the United States by those lines nearly completed to Buffalo, crossing the river near Niagara."

There can be no doubt that, without the Victoria Bridge, the large and comprehensive traffic system involved in the construction of the Grand Trunk Railway, could only be partially and, by comparison, ineffectually carried out at a very great cost. Montreal is the terminal point of the ocean navigation, and is connected with the Lower

St. Lawrence and the ocean on one side, and with the great Canadian and American lakes—extending 2,000 miles into the heart of the continent—on the other. It is also the centre from which lines of railway now radiate to Portland, Boston, and New York, and to which lines will converge from the Ottawa and the other rich, though as yet only partially developed, districts of Canada. It is, therefore, the conviction of those persons most capable of forming a sound judgment on the question, that, great as is the cost of the bridge, by means of it a better, more rapid, and cheaper communication will be afforded for the produce of the magnificent districts of Western Canada and of the North-Western States of America, including Michigan, Illinois, Wisconsin, Iowa, &c., to the Atlantic seaboard, and for the supply of these districts with imported goods, than by any other route on the American continent.—*From the Canadian News.*

[The illustration of the bridge is taken from the *Geography and History of British America*, by J. George Hodgins, page 36.

## II. THE NAVIGATION OF THE LOWER ST. LAWRENCE.

It is gratifying to find by the following letter and its enclosure that the Imperial authorities are co-operating with the Province to facilitate the navigation of our noble river below Quebec. Mr. Pennefather's letter is really a most welcome and auspicious New Year's gift to our merchants and shipowners. If these matters be properly and efficiently attended to, the St. Lawrence route will be found not only the shortest, but the safest crossing between the old and new worlds. The following is Mr. Pennefather's letter to the Secretary of the Board of Trade, Montreal.—"I am directed by His Excellency the Governor General to forward, for the information of the Montreal Board of Trade, the following extract from a letter just received by him from Commander John Orlebar, dated Prince Edward Island, December 14, 1857.—His Excellency has no doubt that the Board of Trade of Montreal will learn with much satisfaction the steps taken by Her Majesty's Government to facilitate the navigation of the St. Lawrence and the Straits of Belleisle, and will do all in their power to assist in promoting an object of such importance to Canada."

Extract of letter from Captain Orlebar to His Excellency the Governor General, dated Prince Edward Island, December 14, 1857:—"I have the honor to acquaint your Excellency that I have this day addressed a letter to be laid before your Excellency in Council on the subject of sounding the Strait of Belleisle, &c., so as to improve the facilities of that route for Canadian Mail Steamers. Having recently returned from England, and having received instructions from the Hydrographer in accordance with your suggestions, about remedying the defects of the present Admiralty Charts and Plans of the Gulf and River St. Lawrence, I beg to say that I am prepared to enter upon the work of sounding the Strait about the 1st of July next; and later in the season I shall hope to visit Quebec and commence the work of remodelling the River Plans from Montreal to the Gulf, inserting the soundings in feet, inserting all the improvements in Buildings, Piers, Wharves, Roads, and Bridges, enlarging the scale of the Plans, and making the whole suite of Plans in accuracy and clearness of outline, worthy of the first river in the world, and of the energetic commercial people now availing themselves of its unrivalled facilities for the world's traffic. As the work I am entrusted with is so entirely Canadian in its interests and advantages, I trust I may reckon upon the assistance of the public bodies to whom is committed the conservancy and improvement of the navigation of the St. Lawrence both above and below Quebec."—*Montreal Herald.*

## III. MIRACLES OF EVERY-DAY LIFE—EVIDENCES OF THE TRUTH OF REVEALED RELIGION.

The following extract from the Hon. Edward Everett's speech, at the Buffalo Exhibition, is so exquisite in its way, and so characteristic of that really great orator and eminent Christian statesman, that we cannot deny ourselves the pleasure of giving it a place in our columns:—

"The culture of the soil has, in all ages, been regarded as an appropriate and congenial occupation for declining life. Cicero, in his admirable treatise on *Old Age*, speaking in the person of Cato the Elder, to whom I have already referred, when he comes to consider the pleasures within the reach of the aged, gives the most prominent place to those which may be enjoyed in agricultural pursuits. These, he adds, are not impaired by the advance of years, and approach as near as possible to the ideal 'Life of the Wise Man.' Guided by the light of Nature, he contemplated with admiration that 'power,' as he calls it, of the earth, by which it is enabled to return to the husbandman, with usury, what he has committed to its trust. It belongs to us, favoured with a knowledge of the spiritual relations of the universe not vouchsafed to the heathen world, to look upon agriculture in higher aspects, especially in the advance of life; and as we