

"I find, from various sources, that considerable pains have been taken to produce an impression in England, in favour of a Suspension Bridge in place of that we are engaged in constructing across the St. Lawrence at this place. This idea, no doubt, has arisen from the success of the Niagara Suspension Bridge, lately finished by Mr. Roebling, and now in use by the Great Western Railway Company, as the connecting links between their lines on each side the St. Lawrence, about two miles below the Great "Falls," of the situation and particulars of which you will no doubt have some recollection. I visited the spot lately, and found Mr. Roebling there, who gave me every facility I could desire for my objects. Of his last Report on the completion of the work, he also gave me a copy which you will receive with this. I have marked the points which contain the substance of his statement. I also enclose an engraved sketch of the structure. Mr. Roebling has succeeded in accomplishing all he had undertaken, viz., safety to pass over railway trains at a speed not exceeding five miles an hour,—this speed, however, is not practised; the time occupied in passing over 500 feet is three minutes, which is equal to three miles an hour. The deflection is found to vary from 5 to 9 inches, depending on the extent of load; and the largest load yet passed over is 326 tons of 2000 lbs. each, which caused a depression of 10 inches. A precaution has been taken to diminish the span from 800 to 700 feet by building up, underneath the platform at each end, about 40 feet in length, intervening between the towers and the face of the precipice upon which they stand, and struts have also been added extending 10 feet further. The points involved in the consideration of this subject are, first, *safety*, and second, *cost*. These are in this particular case soon disposed of. First, we have a structure which we dare not use at a higher speed than three miles an hour. In crossing the St. Lawrence at Montreal, we should thus occupy three-quarters of an hour, and allowing reasonable time for trains clearing and getting well out of each other's way, I consider that twenty trains in the twenty-hours is the utmost we could accomplish. When our communication is completed across the St. Lawrence, there will be lines (now existing, having their termini on the south shore) which, with our own line, will require four or five times this accommodation. This is no exaggeration. Over the bridge in question, although opened only a few weeks, and the roads yet incomplete on either side, there are between thirty and forty trains pass daily. The mixed application of timber and iron in connection with wire, renders it impossible to put up so large a work, to answer the purposes required at Montreal. We must therefore construct it entirely of iron, omitting all perishable materials, and we are thus brought to consider the question of cost; in doing which, as regards the Victoria Bridge, I find that, dividing it under three heads, it stands as follows:—

"First.—The approaches and abutments, which together extend to 3000 feet in length,	
amount in the estimate to	£200,000
"Second.—The masonry forming the piers, which occupy the intervening space of 7000 feet between the abutments, including all dams and appliances for their erection	
	800,000
"Third.—The wrought iron tubular superstructure, 7000 feet in length, which amounts to	
(about £57 per lineal foot)	400,000
Making a total of	
	£1,400,000

"By substituting a suspension bridge, the case would stand thus: the approaches and abutments