

It follows, therefore, that in the opinion of the St. Lawrence Bridge Company the risks of erection have been practically eliminated and that the design of the board is all that can be desired.

(m) On May 2, 1910, the following resolution was adopted at a meeting of the board held in Montreal:—

'It is resolved that the plans and specifications for a cantilever design now completed be approved and submitted to the minister for tenders, and that in the event of a better plan being submitted by any of the bidders same shall be adopted.'

I will remark first that this resolution allowed other plans to be submitted, but not other specifications.

When tenders were asked on the board's design, that design had no defects, as far as the knowledge of the members of the board went, because if any member had known of any defect it was his duty to have it corrected before advising the minister to ask for tenders on such plans, as in the event of no other plan being submitted, the contract would have been given on the board's design.

The choice, however, remains between a plan that has no defects and is all that can be desired and the designs of the St. Lawrence Bridge Company.

The only real argument brought in favour of the latter is that

'it offers features which simplify the erection and minimize the risks to both life and property.'

This has been answered, pages 8, 9 and 10 of my letter of December 10, 1910.

If this is true it should have resulted in a lower cost of the bridge.

What are the facts?

The weight of both designs is practically the same. The materials used in the St. Lawrence Bridge Company's design cost over one million dollars less than the materials used in the board's design. If the erection is simplified and the risks minimized the cost should be still less. Why, therefore, is the cost of the St. Lawrence Bridge Company's design \$932,000 more than the lowest tender and \$270,000 more than the next lowest tender on the board's design?

The difference between the tenders of the St. Lawrence Bridge Company on plan V of the board and on their plan 'B' is 19 per cent.

On the same basis it is, therefore, to be inferred that, had the other bridge companies been allowed to alter the specifications to the same extent as was done by the St. Lawrence Bridge Company their bids on the bridge would have been lessened in the same proportion, i.e., to \$9,000,000 or to \$9,500,000, instead of \$12,000,000.

(n) The board's design has been completely worked out and the compression members tested with highly satisfactory results, whereas the sketches submitted by the St. Lawrence Bridge Company are only in the initial stage. Their compression members have not been tested; tests will be required to ascertain their value, and repeated changes in designs and new tests may be required before as good members as the board's may be obtained. (See letter number one of the St. Lawrence

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Bridge Company, quoted page 14 and 15 of my letter of December 10.)

It will, therefore, take a much longer time to make the shop drawings for the design of the St. Lawrence Bridge Company than for the board's design.

On December 13, 1910, I received a letter from the St. Lawrence Bridge Company inclosing copy of letter addressed to you dated November 28, 1910, in which they agree to make their plans, details and materials conform with the specifications of the board. They do not state, however, what the cost will be. It is, however, another proof that the plans submitted with their tenders were not made according to the requirements of the board and of the department (see 'e,' page 16 of my letter of December 10, 1910). I would add that if the specifications are to be followed, the use of a through traveller will bring in the erection serious difficulties that presented themselves in all plans and which were avoided by the use of a top traveller.

In any case I feel very much gratified that as a consequence of our discussions the St. Lawrence Bridge Company has accepted the specifications of the board and that as a result a much stronger bridge has been secured for the country than the one which was originally proposed in their tenders.

Respectfully submitted,

(Sgd.) H. E. VAUTELET.

Chairman and Chief Engineer.

Hon. Geo. P. Graham,
Minister of Railways and Canals,
Ottawa, Ont.

These reports were in my hands, and the Chairman taking such a decided view one way and the majority of the members of the board having such decided opinions on the other, I believed it was a case in which action should be taken under the clause of the order in council appointing the board which said that where any disagreement arose, not more than two experts should be called in to decide the point in dispute. M. J. Butler, the former deputy-minister of the department, who was thoroughly conversant with the entire transaction from the beginning (and I may say Mr. Vautelet, as Chairman of the board, acquiesced in his appointment), and Mr. H. W. Hodge, an eminent engineer of New York, were named. These gentlemen met in Montreal. There were present Messrs. Modjeski, Macdonald, Butler and Hodge. Mr. Vautelet was ill at the time but the action that was taken can probably best be stated by reading the report of this enlarged board, which is as follows:

Montreal, February 8, 1911.

Sir,—In accordance with your letter of January 20, appointing Messrs. M. J. Butler and Henry W. Hodge to advise with the Board of Engineers, Quebec bridge, on the points of difference that have arisen in that board, we have the honour to report as follows:—

The board, with the exception of Mr. Vautelet, who is detained in his home by illness, met with the advisory engineers on February