

6, and have been in session for the past three days, Mr. Macdonald acting as temporary Chairman.

We have examined the various tenders and general designs and the advisory engineers have read the written opinions of the members of the board, and in addition thereto, the opinion of Mr. Vautelet, as expressed in his letter to them dated February 2. They have also considered the verbal arguments of each member of the board, adjourning to Mr. Vautelet's residence for the purpose of conferring with him.

The only point of difference in the board is as to which specific design and tender should be recommended for acceptance; the board being divided between the official design and the design of the St. Lawrence Bridge Company.

None of the tenders on either of these two designs were made requiring modifications of the specifications, so that such alterations must be considered if either of these tenders are to be accepted.

The advisory engineers have not considered it within the province of their appointment to examine closely into the details of the two above mentioned designs, and all of us are of the opinion that consideration of details is a matter that must be carefully studied and worked out in the light of further tests yet to be made by the Board of Engineers.

From our examination of the two above mentioned general designs, we, the undersigned, agree that the design of the St. Lawrence Bridge Company is preferable for the following reasons:—

(a) The type of design offers greater safety to life and property during erection, as well as economy and rapidity in construction.

(b) The design contains the minimum number of secondary members and requires few, if any, temporary members during erection.

(c) The system of triangulation by dividing the web stresses reduces the members to more practical sections and simplifies the details of connections.

(d) The design economizes material, as shown by the calculated weights of the two designs.

(e) The general appearance of the structure is, in our opinion, improved.

We feel that in a work of such magnitude the question of design is of the first importance, and for the reasons given above we recommend the acceptance of design 'B' of the St. Lawrence Bridge Company, subject to certain modifications in general outline and detail, which we deem advisable and which will result in economy, and further improvement in appearance. The modifications of their design we have in mind will reduce the cost of the work by, at least, four dollars per ton and we recommend the acceptance of the tender of the St. Lawrence Bridge Company on their design 'B' at a price not exceeding 8.45 cents per pound (amounting in the calculated weight to \$11,246,100) and at a corresponding reduction on their other pound price, if the board should decide to accept any features of their alternate tenders.

The lowest tender of the British Empire Bridge Company, when the additional price they give for complying with the splices re-

quired by the official design is added, amounts to \$11,320,720.

While not called for by the advertisement, the St. Lawrence Bridge Company submitted among their tenders, one omitting the roadways, which at the reduction in their pound price above recommended, shows a cost of \$8,650,000 on the figured weight, and we think this should be called to your attention, as the highways can now be omitted without changing our above recommendations or delaying the progress of this work.

We have the honour to be, sir,

Your obedient servants,

(Sgd.) M. J. BUTLER,
HENRY W. HODGE,
RALPH MODJESKI,
CHARLES MACDONALD,

Chairman pro tem.

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

Mr. Butler only acted in settling the difference that arose between the regular members of the board as between these two designs.

Mr. FOSTER (North Toronto). I would like to ask my hon. friend two questions there. The British Empire company's tender was for a bridge with roadways?

Mr. GRAHAM. Yes.

Mr. FOSTER (North Toronto). And the tender on design B of the St. Lawrence company was for a bridge with roadways?

Mr. GRAHAM. Yes.

Mr. FOSTER (North Toronto). Were there separate tenders from these companies for the bridge without the roadway and for the bridge with the roadway, or was just one sum stated for the bridge, the design of which included roadways?

Mr. GRAHAM. The British Empire company tendered on the design with the roadway, and it was the only company that did not put in at least one alternative design. Among the alternative plans submitted by the St. Lawrence Bridge company, was one without the roadway. That was plan X. It was the only company that put in a tender showing that the bridge could be built without the roadways at that saving. Now, this board of engineers unanimously recommended the adoption of this design of the St. Lawrence Bridge company. Following that, I wrote letters to the St. Lawrence company asking them certain things, if they were ready to undertake the contract, and if their parent company would become parties to the contract, as we wanted all the capital that was behind any of the stockholders to be at our disposal, in case the bridge was not a success. In addition to that, I think we asked as a deposit, in the first place, \$500,000, and afterwards a further sum, making in all, if I remember the