## ENGINEERS CONDEMN MONTREAL AQUEDUCT SCHEME

REPORT BY SPECIAL COMMITTEE OF MONTREAL CONSULTING ENGINEERS FULLY CONFIRMS INVESTIGATION PREVIOUSLY MADE BY THE CANADIAN ENGINEER AND ADVISES CITY TO ABANDON PRESENT PROJECT.

THE MONTREAL AQUEDUCT will cost at least \$10,600,000, without allowing for steam auxiliary plant, parking, contingencies (estimated at \$620,-000), or the Cook claim of \$900,000 damages. The total annual saving to the city by immediately abandoning the present project and purchasing 7,000 h.p. would be at least \$262,000.

These are the salient features of a thorough report made by seven of Montreal's leading engineers, all estimates being based upon official figures supplied to them by the civic authorities. The report fully substantiates the article printed in *The Canadian Engineer* in the November 11th, 1915, issue, which was written after proper investigation by this journal, and which was read to the Montreal waterworks superintendent before publication, and concurred in by him so far as the figures and estimates contained therein were concerned.

Following is the letter of transmittal which accompanied the engineers' report:---

"Montreal, November 20th, 1916. To His Worship the Mayor and the Members of the Board of Commissioners of the City of Montreal, L. N. Senecal, Esq., Secretary; and to His Worship the Mayor and the Members of the City Council of the City of Montreal, the Honorable L. O. David, City Clerk.

"Gentlemen,—The Ratepaying Engineers of the City of Montreal who submitted a memorandum to the Board of Commissioners and City Council on April 20th, 1916, appointed a Committee to study and draft a report on the works now under construction and contemplated for enlarging the water supply aqueduct and developing hydroelectric power for the use of the municipality. The report of the Committee was submitted at a special meeting, duly called for the purpose of receiving and considering it, of which meeting Mr. Phelps Johnson was elected Chairman and Mr. H. M. MacKay, Secretary. "The report was fully discussed at this meeting,

"The report was fully discussed at this meeting, unanimously approved by the said Ratepaying Engineers, and the Committee was instructed to have it forwarded to the Board of Commissioners and to the City Council. I am directed to say that the discussion of the report showed that the Committee had reached their conclusions only after long study and careful calculations, verified from all available data, and that the signatories of the original memorandum concurred in the conclusions of the Committee.

"I am also directed to advise you that the Committee consisted of Mr. W. F. Tye, Chairman; Sir John Kennedy; Mr. Ernest Marceau; Mr. R. A. Ross; Mr. J. A. Jamieson; Mr. Arthur Surveyer; and Mr. Walter J. Francis, Secretary. These gentlemen, independent consulting engineers, were requested to undertake the work as being specially qualified by reason of their ability, experience and high professional standing, to deal authoritatively with the matter.

"The Ratepaying Engineers feel that they cannot too strongly express their appreciation of the disinterested zeal for the best interests of the City, which influenced the members of the Committee to undertake the very large amount of work required by the analysis of the data presented to and collected by them and the preparation of the accompanying report. They cannot too strongly urge upon the City the absolute necessity of giving immediate consideration to and of acting upon the conclusions embodied in the report,

"Respectfully submitted. H. M. MacKAY, Secretary of the Meeting."

The report of the Committee is appended to the above letter. Following is the text, in full, of this report:—

"Montreal, November 13th, 1916. To His Worship the Mayor and the Members of the Board of Commissioners of the City of Montreal, L. N. Senecal, Esq., Secretary; and to His Worship the Mayor and the Members of the City Council of the City of Montreal, the Honorable L. O. David, City Clerk.

"Gentlemen,—In accordance with the arrangements made on June 22nd, 1916, when a delegation of the ratepaying engineers appeared by invitation before the Aldermen, and in response to the requests contained in two official letters dated October 16th, 1916, from Mr. Commissioner Ross asking that further studies be undertaken and report made thereon, we have prepared our report, free of cost to the City, in connection with various aspects of the enlargement of the aqueduct.

"We now have the honor to submit herewith the conclusions reached after having studied the project, gone over the works in progress and reviewed all the documents and data placed at our disposal.

## HISTORICAL.

"Since the middle of the nineteenth century Montreal has been supplied with water from an open aqueduct five miles in length, which brought water from the Lachine Rapids to a pumping station where water wheels pumped the water to the City. Ice troubles in winter caused such serious power shortages that steam power was gradually substituted for hydraulic power for pumping. The City's requirements for power kept on increasing, and in 1905, Mr. Georges Janin, then Superintendent of the Waterworks, proposed that the aqueduct be enlarged to produce 5,000 horse-power in summer and 2,000 horsepower in winter, so that the steam pumping plant might be done away with and the pumping done by hydraulic power. Great economy was claimed for the project, since known as 'Enlargement No. 1'. To provide water for the City while the hydraulic power plant was being built, a closed reinforced concrete conduit was constructed alongside the aqueduct. This was completed in 1909, and the work on Enlargement No. 1 was thereupon com-While this was being carried out Mr. Janin menced. proposed that Enlargement No. 1 be further increased to provide 10,000 horse-power. His proposal was accepted and part of the work was put under contract in July, 1913. This is known as 'Enlargement No. 2' and is now under construction. The claims made for the economy of the first enlargement were more strongly repeated for the second.

"In connection with Enlargement No. 2, on September 1st, 1916, the City Engineer reported that 58% of the excavation and 20% of the retaining walls had been completed by the contractors. The only work performed, so far, has been in the headrace. The tailrace, which also