

statement in the Montreal press. But in recognition of the interest of the Council of the Canadian Society of Civil Engineers, in the whole project, the board of commissioners of the city extended themselves to the limit outlined above, *viz.*, a copy of the letter to Mr. Jamieson.

Following is the second letter, dated October 7th, transmitted to the mayor and members of the board of commissioners and to the members of the city council of Montreal by the Council of the Society:—

Gentlemen,—On July 29th the Council of the Canadian Society of Civil Engineers addressed to your Board a letter suggesting that you stay the expenditure of public money on the waterworks enlargement until the whole project has been examined and approved by a board of independent engineers. The communication from this Society was read at a meeting of your Board held on August 3rd, 1915, and it was proposed by Commissioner Cote, seconded by Commissioner Hebert, to officially transmit to the Canadian Society of Civil Engineers a copy of a letter written on the same subject by Commissioner Cote and addressed to Mr. J. A. Jamieson.

While the Council of this Society cannot undertake to discuss the technical points raised in Commissioner Cote's letter, it takes exception to the following paragraph contained in the communication to Mr. Jamieson: "Notwithstanding the many favorable reports prepared by the engineers during the past quarter of a century and the more recent decisions arrived at since the beginning of the scheme of enlargement in 1907, all favorable to the carrying out of the works, you persist in coming forward to plead against the whole scheme as not being to the commercial advantage of the city." This Council's exception to the foregoing quotation is that the work therein referred to is essentially different from the project now begun. The project contemplated in 1907 was for a minimum development of 2,000 h.p. at low water with mid-winter ice conditions, and it was not until November, 1910, that Mr. Janin\* submitted to the Board of Commissioners the project which is now partly under way. This project includes the construction of large filtration works, the construction of a hydro-electric plant of 10,000 h.p. capacity, and the widening and deepening of the aqueduct. The enlarged aqueduct is to carry the water necessary for the domestic supply of the city in addition to that required to operate the water-wheels of a 10,000-h.p. development.

From Commissioner Cote's letter to Mr. Jamieson, the Council understands that your Board is under the impression that the complete project has been approved by the engineers named in the letter above referred to, and that such approval as has been given is sufficient to warrant the city in incurring the expense of the construction of the proposed works. Of the gentlemen mentioned, Messrs. M. J. Butler, George W. Fuller, G. R. Heckle, Rudolph Hering, J. A. Jamieson, John Kennedy, R. S. Lea, Ernest Marceau and J. E. Vanier are not on the staff of the city, but as they are members of the Canadian Society of Civil Engineers this Council deemed it proper to ask each of them to define the scope of his investigation and to communicate his findings with regard thereto. These inquiries have been duly answered. The Council learns from the statements thus obtained that no one of the engineers referred to has taken up the subject as a whole or studied it in any way which would enable him to judge of the merits of the complete undertaking. Further, the replies show that the professional work done and opinions given was in connection with isolated parts

of the present project, or in connection with proposals essentially different from the project now begun.

In the light of this information the Council of the Canadian Society of Civil Engineers again respectfully urges that its suggestion be carried out without delay, namely, that the whole project be reported upon by a board of independent engineers before further expenditure is incurred. In laying this matter before your honorable body for the second time, this Council would urge the necessity for such a report in the interest of every engineer who has been connected with the project, the good name of the engineering profession, and in the interest of every ratepayer of the city of Montreal.

I have the honor to be,

Yours very truly,

(Signed) C. H. McLEOD,  
Secretary.

## LETTER TO THE EDITOR.

### Street Cleaning By Dry Method.

Sir,—I was interested in reading your short article on street cleaning by dry method in your issue of September, 23.

The dry method has been adopted in this city for the past two years and we have found it very satisfactory. I am quite satisfied that it will result in increasing the life of the pavement. We use nothing but the patrol system with hand brooms and pick-up cans. The cost last year was 16½ cents per thousand square yards.

I feel satisfied this system will be more generally introduced when engineers find the resultant benefit.

Yours truly,

C. H. RUST,  
City Engineer.

Victoria, B.C., October 9th, 1915.

## THE THERMO-ELECTRIC PROPERTIES OF CARBON.

The Journal of the American Chemical Society publishes a paper by W. C. Moore, dealing with the thermo-electric properties of carbon and offering evidence from a new viewpoint that amorphous carbon is not a single definite substance. The thermo-electric properties of this material are reproducible for any one carbon, but they may vary with the temperature and are determined by the kind of raw material used and the manufacturing history of the carbon. The fact that with some varieties of arc carbons a considerable temperature range of constant electromotive force was found indicates the possibility of a transition interval for these carbons.

Train mileage on British railways was nearly 5½ million miles less in 1914 than in 1913. Goods mileage fell from 161,684,000 to 156,007,000, and mixed mileage from 672,000 to 666,000. Passenger mileage, which, of course, includes troop trains, increased from 173,495,000 to 273,659,000. Coaching shunting miles increased from 18,665,000 to 18,910,000, goods shunting miles fell from 119,142,000 to 116,110,000, while mixed shunting miles increased from 58,000 to 59,000. Other mileage—assisting, light running, etc.—also increased from 54,608,000 to 55,828,000, but the total engine mileage had a decrease of seven million miles—621,230,000, as against 628,324,000 in 1913. The total receipts in 1913 were £139,451,000 and the expenditure £87,320,000. In 1914 the receipts—including the estimated amount receivable from the Government—were £139,098,000 and the expenditure £88,173,000.

\*At that time City Engineer of Montreal.