MONTREAL WATERWORKS SITUATION

AN OUTLINE OF THE ENTIRE SCHEME AS ORIGINALLY CONSTRUCTED AND OF THE WATERWORKS EXTENSIONS AND POWER DEVELOPMENT NOW UNDER DISCUSSION.

A^N interview accorded to *The Canadian Engineer* last week by T. W. Lesage, engineer-superintendent of Montreal waterworks, reveals the fact that the city engineering department feels certain that its plans

for the aqueduct enlargement will bear the light of any investigation, but that it deeply resents the engineering criticisms that have been levelled at the scheme, and opposes the investigation which has been requested by the Council of the Canadian Society of Civil Engineers and by the Montreal Board of Trade.

On the other hand, interviews given by many prominent hydraulic and electrical engineers, resident in and near Montreal, show that there are doubts regarding the advisability of going ahead with the aqueduct enlargeformed the head-race, is over five miles in length. Its position is shown in Fig. 1. In 1903, when the city was pumping nearly 25 million gallons daily (about 10 million gallons by water-wheels and about 15 millions by steam power), agitation was begun for the increase of the supply.

In 1905, City Engineer George Janin laid before the water committee of the Montreal City Council, a scheme to widen the aqueduct and to develop from two to five thousand horse-power, sufficient to pump 50 million gallons a day, the estimated cost of development being \$2,132,000. About \$1,460,000 was expended on this scheme, an \$800,000 contract being awarded to Quinlan & Robertson for excavation work in enlarging the aqueduct, and \$660,000 being spent on the construction of a



Fig. 1.—Part of Montreal Island, Showing the Waterworks Aqueduct and the Present Intake 1,200 ft. from Shore.

ment, and that investigation by independent engineers should be made. It is doubted whether the work can be completed within the cost named by the city engineering department; whether 10,000 h.p. will be obtained under the present plans; whether frazil may not cause a complete shut-down of the plant during the winter; and whether the whole scheme is not too costly even if it be finished within the amount estimated, and even if 10,000 h.p. be developed without frazil troubles.

The Aqueduct Scheme.—The city of Montreal formerly obtained its water supply from an aqueduct, or open canal, built about 1854 to supply and pump five million gallons daily. The aqueduct intake was located above the Lachine Rapids, because it was thought that purer water could be obtained there than from any other source, and on account of the possibility of making use of the difference in head for pumping purposes. The aqueduct, which 9-ft. reinforced concrete conduit, paralleling the aqueduct. This conduit, a section of which is shown in Fig. 2, was to supply the pumps during enlargement of the aqueduct, which, it was intended, should remain empty for three years, during construction work. The conduit was built in 1907-1909, and it was planned to have the enlargement completed by the end of 1912. While the City Council was making an inspection trip over the work, Mr. Janin remarked:

"It would, perhaps, be more economical to not only enlarge the aqueduct in the proportions stated in the contract now being carried out, but to make it large enough to obtain power for double the amount of pumping provided for, as well as sufficient power for other municipal requirements."

In November, 1910, Mr. Janin presented a report to the water committee recommending the further enlarge-