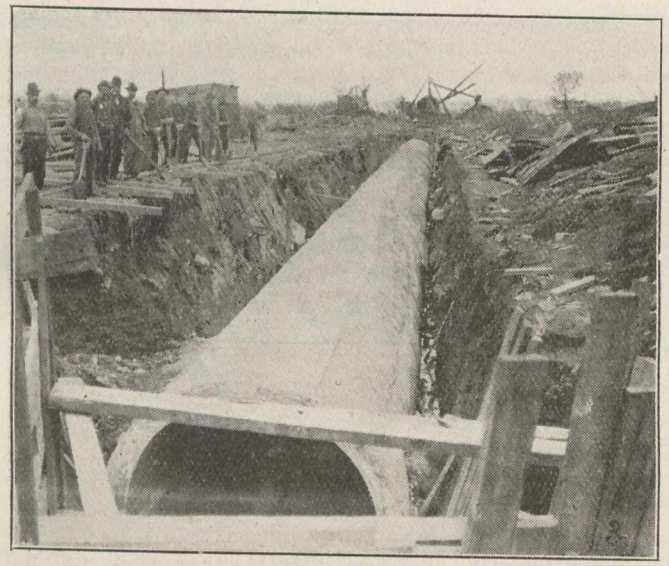
steam pump of 2,500,000 gallons' capacity had to be provided for this district. The increase in the population was still going on, and the necessity of ensuring its supply against any uncertainty led me to have the city council provide for the installation of a pump operated by electric power, which pump, of a capacity of 5,000,000 gallons, is at present in use. The old steam plant being kept as a duplicate in case of emergency.

The successive changes which I have attempted to explain to my best ability have placed the Montreal Water Works in a position to provide a daily average water supply of about 45,000,000 Imperial gallons, which is sufficient for the present population.

Thus since 10 years, that is, from about the time of my arrival at the head of the department, the needs of the water supply have increased so rapidly that we have hardly had time to keep up with it by the successive additions of pumps and boilers, thus increasing the expensive steam plant without however losing sight of the scheme of utilizing the water power and thus diminish the cost of pumping. This scheme though abandoned for 23 years, I considered it a



Conduit on May 24th, 1908.

favorable opportunity to bring it to light again with improvements.

In fact, two things had struck me, on my taking the management of the department; first, the anomaly of spending coal for the pumping instead of utilizing the important water power which could be developed by the difference in the level of the river at the entrance of the aqueduct above the rapids and below the foot of the rapids at the tail race.

20. The inconvenience from a hygienic point of view of drawing water for domestic needs from the shore of the river where it is exposed to pollution in so many ways; and the other inconvenience which consisted in conducting this doubtful water in the pumps, by an open canal 27,000 feet long, crossed by many bridges where farm animals, etc., pass.

These considerations brought me back naturally to the scheme of the enlargement of the aqueduct.

The first scheme planned about 30 years ago did not really consist in an enlargement of the aqueduct but in the building of a new one alongside of the present one.

This disposition calling for the buying of a large tract of land next to the aqueduct offered but little inconvenience at the time it was being proposed, but nowadays it would be ruinous.

That is why, together with my devoted and capable assistant, Mr. T. W. Lesage, I have studied the means of enlarging the aqueduct on our own ground. Such a disposition involves the necessity of providing for the supply of the pumps, at least for a time, by another canal than by the aqueduct itself. From this there was only one step to decide upon the building not of a temporary supplying canal, but of a permanent covered conduit prolonged to the middle of the river, where it would draw and conduct to the pumps very different water from that which has entered so far in the open canal. Owing to the construction of this conduit the actual canal is to be widened and deepened so as to produce a sufficient water power to pump all the water necessary to the needs of the city for one generation at least, thus economizing each year thousands of dollars for the purchase of coal. Thus $90,000.00 were spent for coal last year.

The only expense of this scheme which can be charged to the improvement of the quality of the water, will be the cost of the extension of the conduit to the middle of the river which would hardly exceed $100,000 dollars.

Thus, next year, when this extension to mid-stream will have been made, if it were established by official and unquestionable declarations that the water thus drawn and conducted was not of good quality, it would be time to take the means of installing a filter plant, and even in that case, the expense of $100,000 which I mentioned above, would not have been wasted, for the water from the middle of the river would be unquestionably filtered more easily than that which comes in the open canal at present which is strongly colored and muddy and would necessitate a larger filtration area and be consequently more expensive to build and maintain.

But until further studies have proved the contrary, I remain convinced that for some years to come there will be no necessity for filtration after the completion of my scheme.

There has been much discussion lately about the comparative value of the waters of the St. Lawrence and the Ottawa, and public opinion has been left under the impression that the water furnished to the city through the aqueduct, presumably from Ottawa River sources, was so much contaminated that it offered a public danger and that the improvements which are actually being executed would bring no remedy to the state of affairs. All these exaggerations are due to the fact of being based on a false assumption. In order that you may easily follow the explanations I shall give you on this subject, I have had placed before you a map of the Island of Montreal on which the courses of the St. Lawrence and the Ottawa Rivers are clearly visible and also a sketch showing the aqueduct as primitively constructed, also the lateral conduit as recently finished and its extension to the middle of the river as it will be when completed next year. You can see on that map how the waters of the two rivers cross Lake St. Louis and descend to the Lachine Rapids with fluctuations in flow according to the seasons, but never mix together. You may remark also that the north bank of Lake St. Louis which is the most generally washed by the waters of the Ottawa, is also the most thickly inhabited, and therefore offers the most pollution so that from a hasty and superficial observation, one might think that the waters so polluted are inevitably those which supply the actual entrance of the Montreal aqueduct. But a more attentive inspection, like the one I beg of you to make with me, will show you at the foot of Lake St. Louis on that same north bank, a large funnel over 1,500 feet wide formed by the entrance of the Lachine Canal into which rush the greater part, if not the