in our climate always means water too swift to become self-freezing; and it will not leave this until enticed from the old paths by stronger currents. It is therefore only a question of cost to form a mill pond which it will not invade. Where this is limited, the boom which separates the river from the basin (forming a bordage to the ice cover of the latter) should be made deep enough to prevent the ice which is passing and crowding outside from being forced under it.

An enlargement of the aqueduct was undertaken twenty-five years ago, but it was not carried farther than seven-eighths of a mile from the entrance. It has prevented the incoming of anchor ice and enabled the aqueduct in high water winters to pump its full summer average. But as the strength of a chain is that of its weakest link, so, for this purpose, the minimum power must be equal to the maximum wants, and auxiliary power will be required until the completion of the enlargement. Enlargement is not likely to be completed until the consumption is so increased that it will become cheaper to pump the whole by water power.

In high water mild winters when there is the minimum of ice obstruction, and an increased depth at its widest section, the aqueduct pumps its full summer average. Thus in March, 1890, it pumped 350 million gallons, while in March, 1893, it only pumped 46 millions, because when the river falls to a certain level all wheels are stopped to prevent further lowering of the ice in the aqueduct. This result would go to prove that, to meet our winter conditions in some situations, an increase of at least fifty per cent. on the necessary summer dimensions would be needed.

THE OTTAWA WATER POWER.

Until water power was required for pumping the city water supply in 1874, there had been no important winter use of the power of the Chaudiere Falls. The large saw mills did not work after November. The few establishments on either side of the river where winter water power was used had no effect on the ice question, nor did the larger demands for the city pumping change the conditions in this respect. The advent of electricity, however, in which three large users of power engaged, revealed the fact that winter difficulties existed where they had not been anticipated. Fortunately, they have not yet seriously affected the city aqueduct, where, in the absence of auxiliary power or reservoir, they might produce a calamity.

The conditions at Ottawa differ from those at Montreal in as much