

as the aqueduct is fed from Nepean Bay, which is ice covered in winter, and all the other mill-races upon the Ontario side draw under similar conditions. About a mile above these the foot of the Little Chaudiere Rapids is reached, and this is united with another rapid higher up, so that there is over a mile of open river in which anchor ice is manufactured and sent below in successive and frequent crops in severe winters. On the north, or Quebec side of the river runs the only deep channel between the Little and Great Chaudiere. This is generally open water throughout the winter, and in it much of the anchor ice is carried into "the Kettle" and away from the mill ponds on either side. From this a subsidiary channel of considerably less depth crosses diagonally to Nepean Bay, discharging into a depression in which there is a depth much greater than that of the channels leading into and out of it, and therefore a slower current. This is the point from which the supply to the city aqueduct is taken, and, in leaving it, the aqueduct begins between piers sixty feet apart placed in twenty feet of water, whereas the section through the rock after it leaves the river bank is only twenty feet wide with about thirteen feet depth of water. The excavation being entirely in rock, this aqueduct has the great advantage, for winter work, of having as great a width at the bottom as at the surface.

It was not known that any frasil passed through this bay under its ice covering, but it was believed that if and when it did, the slower current into the aqueduct would not attract it, and that it would pass outside in the main channel leading to the mills below. This has proved to be the case in the twenty-three years of the aqueduct's history, although there has been some frasil in the later years, causing a stoppage of the wheels on one occasion for a few hours, by which stoppage its presence was first made known.

Unless anchor ice is expected and watched for, the first indication of its presence may be a sudden collapse of the water power. When the Montreal aqueduct was first corked up at its mouth by anchor ice, the wheels ran on until the five miles of canal was emptied, and the ice tumbled in, ruining it, as an aqueduct, for the time being. The same experience overtook the electric power at Ottawa, and from the same causes, but under different conditions, emphasizing the necessity of local knowledge of bed as well as of the surface of the channels near and above the site of the power.

The whole Ontario side of the river bed is a submerged rocky plateau ten to thirty feet or more above the bottom of the north channel, so