

## CHAPTER III.

## THE ICE.

UNDOUBTEDLY, the most serious difficulty to be guarded against, both in the design and in the execution of the Victoria Bridge, was that operation of nature which occurs twice in the year, and which is known in North America as the "Shoving" of the Ice.

Ice begins to form in the St. Lawrence about the beginning of December. Then, along the shores and in the shallow, quiet places, where the current is least strong, a thin ice begins to make its appearance, gradually showing signs of increasing strength and thickness. Soon after, pieces of ice begin to come down from the lakes above; and then, as winter advances, anchor, or ground ice, comes down in vast quantities, thickening the otherwise comparatively clear water of the river.

A word as to the "Anchor Ice." It appears to grow in rapid currents, and attaches itself to the rocks forming the bed of the river, in the shape of a spongy substance, not unlike the spawn of frogs. Immense quantities form in an inconceivably short space of time, accumulating until the mass is several feet in depth. A very slight thaw, even that produced by a bright sunshine at noon, disengages it, when, rising to the surface, it passes down the river with the current.

This description of ice appears to grow only in the vicinity of rapids, or where the water has become aerated by the rapidity of the current. It may be that the particles or globules of cold air are whirled by the eddies till they come in contact with the rocky bed of the river, to which they attach themselves, and being of a temperature sufficient to produce ice, become surrounded with the semi-fluid substance of which anchor ice is formed. "Anchor Ice" sometimes accumulates at the foot of rapids in such quantities as to form a bar across the lake (similar to bars of sand at mouths of rivers) of some miles in extent, lifting the water in its locality several feet above its ordinary level. This frequently happens at the foot of the Cedar Rapids at the head of Lake St. Louis, where a branch of the Ottawa empties itself into the St. Lawrence.