

being frozen over just above Lachine, and the narrow bordages, in the intervening distance of about four miles to the rapids, remaining *in situ*. What then caused this mysterious and alarming elevation of the river in the dead of winter when there had been no rain or thaw, and while all its tributaries were sealed by intense frost?

The St. Lawrence was undoubtedly raised in its bed by the deposition of "anchor" or "ground" ice upon its rocky and stony bottom.

While the weather continues cold, no matter how intense that cold may be, nothing but a surface of clear water is visible in that stretch of rapid river between the Lachine Rapids and Lake St. Louis; but upon the first mild day after very cold weather, the whole surface of this open water is covered with white-capped cakes and floes of "sludge" or "brash" ice, which continue to descend for a day or two, when all is clear again. By watching the river closely, changes will be observed in the number and form of the ice-cakes in any given area: this is caused by new accessions which rise above the surface with a slight spring, a dark-coloured mass like snow saturated with water, but which rolling round and settling back speedily assume a snow-white cap—by the drainage of those parts above the water level.

This spongy ice which has thus left its anchorage is carried down the river and stowed away under the field ice,—upon the shoals and in every nook and crevice where the current is weak,—and is also tucked by the eddies under the bordages until it rests upon the bottom.

Anchor ice is formed only in open-running water. It never forms where the surface is covered with stationary ice, although it is often found in banks under the solid ice below rapids or currents of open water. In consequence of the difficulty and danger of sounding in such situations, and in such severe weather, the limit to the depth of water under which it will form is not easily ascertained: but there is no reason to doubt that it forms upon the whole bed of the St. Lawrence, wherever there is open water.

It does not appear that great or continued cold is necessary to its formation in all situations, as it has been found in brooks immediately after the first frost and before lake ice has become safe for travel: it is also one of the earliest formations upon those portions of shoals and rapids barely covered with water. But in the deeper water above the head of rapids its abundant formation (as indicated