

In the formation of icebergs such as I have to describe, a rocky or precipitous coast, with deep water close to the shore are requisite, and the precipices should run in a direction at right angles, or nearly so, to the prevailing winds, the face of the rocks being turned away from the direction of the wind.

During winter, in the Arctic regions, nearly all the gales of wind are from N. and N.W. These gales are very frequent, and either accompany or immediately follow every fall of snow, so that where there are precipices having a southern or eastern aspect, large drifts of snow are formed under their lee. If the water is deep, as it generally is, at the foot of these cliffs, the weight of snow forces the ice on which it rests down into the water, submerging with it the superincumbent snow, and all this submerged snow becomes frozen into a solid mass of ice. Every gale adds a fresh stratum of snow, so that in spring there may be a snow-drift more than one hundred feet in depth;* which, under such circumstances as I have described above, is from the same process of submergence and solidification. The process of submergence, however, has its limits, and above this the snow-drift goes on accumulating, in like manner with every succeeding gale. When the summer comes, the surface of these drift-banks is thawed, and the water filters through the snow underneath, which, being of a much lower temperature than 32° , causes the whole to freeze, in like manner, into a solid mass of ice.

A large portion of this ice, which once was snow, if the summer has not been a peculiarly mild one, remains until the following winter, when a fresh deposit takes place, and thus from year to year one accumulation succeeds another until the whole height from the base to the top of the cliff is filled up. This extends in a sloping direction (getting gradually thinner,) out to the sea, reaching to a greater or less distance according to the height of the cliff and other favouring circumstances. From time to time pieces break off from this accumulated mass of solid ice, and when the water is deep enough they are floated away in the form of icebergs. Frequently the ice separates from the cliff itself, and occasionally tears away large pieces of the rock along with it. Of this fact I saw some striking examples, whilst sailing in a ship through Hudson's Straits, on my way to England, in the autumn of 1854. We were close to the north coast of the Strait, which is very precipitous, and I could distinctly see large icebergs aground near

* I have seen a snow-drift of more than twenty feet deep formed in one night.