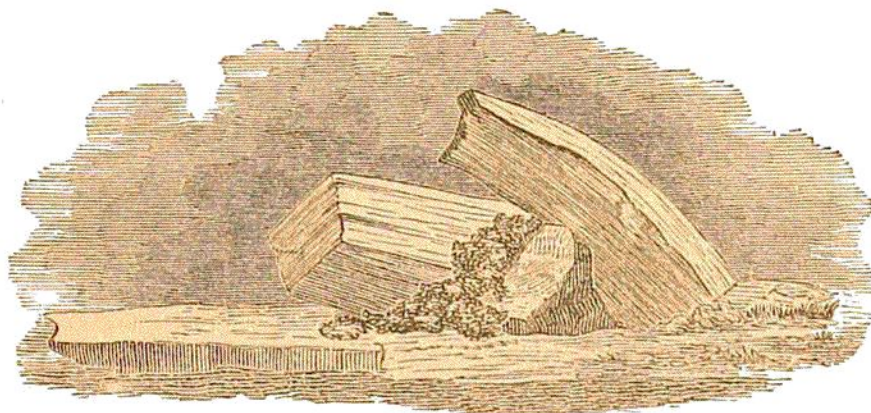


floating may miles out to sea—long symmetrical tables, 200 feet long, by 80 broad, covered with large angular blocks and boulders, and seemingly impregnated throughout with detrited matter. These rafts in Marshall Bay were so numerous, that, could they have melted as I saw them, the bottom of the sea would have presented a more curious study for the geologist than the boulder-covered lines of our middle latitudes." He speaks of an ice-belt (which in summer is detached and floats off,) as "covered with its millions of tons of rubbish, greenstones, limestones, chlorite slates, rounded and angular, massive, and ground to powder."

Fig. 82.



Icebergs are often stranded, even in deep water. They collect upon the loose materials at the bottom, and even on the projecting rocks of such a mass, with stones frozen into its bottom, and moving at the rate of several miles an hour, when it strikes the surface, must be very great, and such as we shall find has been the result of some agency in high latitudes when we come to describe the phenomena of drift.

Ice islands sometimes get stranded upon the top of some rock that rises in the ocean, and then frozen to it, so that when by winds and waves the icy cap is loosened, it tears off more or less of the rock beneath, and bearing it away in the direction of the current, drops the attached fragments upon the bottom.

If this operation be often repeated, it might produce a train of boulders on the bottom of the sea.

When the sea is rough, an iceberg may be lifted up by the waves, and as they retire be allowed to fall; so that, if the water be shallow, it will come down like a mighty maul, and with a force which even solid rock could scarcely resist.

#### RIVERS.

Rivers produce geological changes in four modes: 1. By excavating some parts of their beds. 2. By filling up other parts. 3. By forming deposits along their banks. 4. By forming deposits, called *deltas*, at their mouths.

Most of the larger rivers, especially where they flow through a level country, are filling up their channels; but where smaller streams pass through a mountainous region, the process of excavation is still going on; and it is accomplished in a good measure by means of *ice freshets*.

*Valleys of Denudation.*—In many instances it can be shown that the present beds of rivers were only in a small part produced