

of Labrador lie on the same parallel of latitude, yet differ as much as 18° in their mean annual temperature, that of Dublin being 50° , and that of Labrador 32° Fahr. Dr. Croll has calculated that the Gulf Stream conveys nearly half as much heat from the tropics as is received from the sun by the entire Arctic Regions.²⁶⁵

(2) Erosion. A. *Chemical*.—The chemical action of the sea upon the rocks of its bed and shores has not yet been properly studied.²⁶⁶ It is evident, however, that changes analogous to those effected by fresh water on the land must be in progress. Oxidation solution, and the

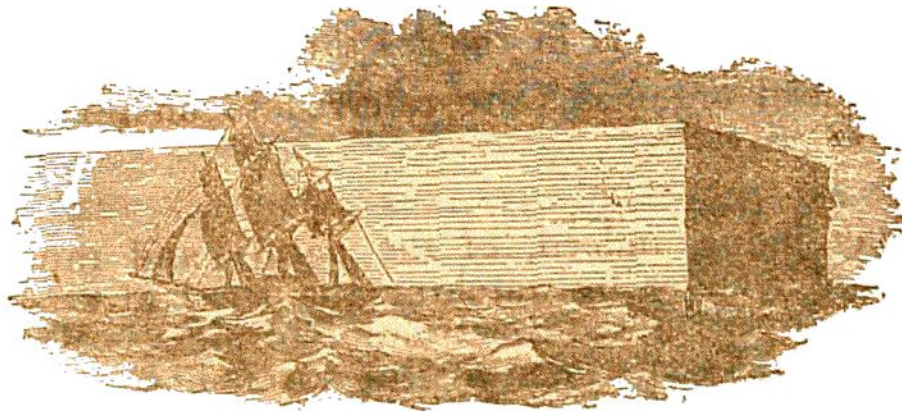


Fig. 166.—Tabular Iceberg detached from the great Antarctic Ice-barrier. (Wilkes.)

formation of carbonates, no doubt continually take place. The solvent action of sea-water on calcareous organisms, already referred to (p. 73), has in recent years been made the subject of discussion and experiment. Dr. Murray, in calling attention to the gradual disappearance of such organisms, as the deposits of the sea-bottom are traced down into the abysses, explained it by the solvent influence of the

²⁶⁵ See a series of papers by him on the "Gulf Stream and Ocean Currents," in *Geol. Mag.* and *Phil. Mag.* for 1869, 1870-74, and his work "Climate and Time"; likewise a series of controversial papers on this subject by him and Prof. Newcombe, *Phil. Mag.* 1883-84. Prof. Haughton has offered some calculations of the actual amount of influence exercised by ocean-currents upon climate, and of the effect of a current between the Indian and Arctic Oceans across Mesopotamia and the Aralo-Caspian depression. *Brit. Assoc.* 1881, Reports, pp. 451-463.

²⁶⁶ See Bischof's "Chemical Geology," vol. i. chap. vii.