

from farther north. One or other supposition is required to account for the appearances, which may be explained on either view. The European hills may have been higher and colder, and changes of level elsewhere may have combined with this to give a cold climate with moisture; or a great submergence may have left the hills as islands, and may have so reduced the temperature by the influx of arctic currents and ice, as to enable the Alpine glaciers to descend to the level of the sea. Now, we have evidence of such submergence in the beds of sea-shells and travelled boulders scattered over Europe, while we also have evidence of contemporaneous glaciers, in their traces on the hills of Wales and Scotland and elsewhere, where they do not now occur.

I have long maintained that in America all the observed facts imply a climate no colder than that which would have resulted from the subsidence which we know to have occurred in the temperate latitudes in the Pleistocene period, and though I would not desire to speak so positively about Europe, I confess to a strong impression that the same is the case there, and that the casing of glacier ice imagined by many geologists, as well as the various hypotheses which have been devised to account for it, and to avoid the mechanical, meteorological, and astronomical difficulties attending it, are alike gratuitous and chimerical, as not being at all required to account for observed facts, and being contradictory, when carefully considered, to known physical laws as well as geological phenomena.¹

Carrying with me a knowledge of the phenomena of the glacial drift as they exist in North America, and of the modern ice drift on its shores, I was continually asking myself the question—To what extent do the phenomena of glacier drift and erosion resemble these? and standing on the moraine of the Bosson glacier, which struck me as more like boulder clay

¹ *Canadian Naturalist*, vols. viii. and ix. *Geological Magazine*, December, 1865.