

are thrown by the sea across the mouths of bays and coves, and may mark the continuance of the sea-level unchanged for some time in the progress of elevation. Others may have been pressed up by the edges of sheets of ice, in the manner of the ridges along the borders of our present lakes. That the action of ice in some form had not ceased, we have evidence in the large boulders sometimes found on the summits of the gravel ridges.

"In the island of Cape Breton the bones of a large elephantine quadruped, evidently a species of *Mastodon*, have been found in connexion with the superficial gravel. This gigantic creature probably inhabited our country at the close of the Glacial or Drift period, and may have been contemporary with some of the present animals, though probably extinct before the introduction of the human race. The existence of this huge quadruped does not imply a tropical or even very warm climate, since in a skeleton found in Warren county, New Jersey, fragments of twigs, lying in such a position as to show that they had formed a part of the food of the creature, were found by microscopic examination to have belonged to a species of cypress, probably the common white cedar of America; so that the animal probably browsed as the moose does at present, and could live in any wooded region.* One specimen found in the state of New York measured twenty-five feet in length and twelve feet in height. In Nova Scotia the animal must have attained to similar dimensions, for a thigh-bone, now in the museum of the Mechanics' Institute in Halifax, though apparently somewhat worn, measures three feet eleven inches in length. This huge bone and some fragments of a tusk were the only remains of this animal I had seen before the publication of the first edition of this work. A molar tooth has since been found in Cape Breton by Dr. Honeyman. The species appears to be the *Mastodon giganteus*."

"DESCRIPTION OF CAPE BLOMIDON.

"The crystalline trap at the summit of Cape Blomidon, which rises abruptly in huge irregular columns, is an ancient current of molten rock or lava, which has flowed over and cooled upon the surface on which it now rests. It slopes gently toward the north-west, as if it had flowed in the direction of the bay, but there is no volcanic dike or other evidence of the ejection of lava from beneath on that side, and it is more than likely that the orifice from which

it was poured was to the westward along the range of which Blomidon is the eastern extremity, or northward toward Cape Split. From the appearance of the mountain-top that rises above the vertical cliff, there may have been more than one overflow of the volcanic matter. Before this great bed of basaltic trap flowed forth, the surface on which it rests had been thickly covered with volcanic ashes and scoriæ, which, consolidated by pressure and by infiltration of mineral matters, now form the thick bed of amygdaloid and tufa intervening between the columnar trap and the red sandstone. This is precisely what we find to be the case in modern volcanic eruptions. The first violent explosions in such cases usually eject immense quantities of dust and fragments of old lavas, which are blown or ejected to great distances, or if they fall into the sea, as was most probably the case at Blomidon, are scattered in layers over its bottom. Over these ejected scoriæ and ashes the lava currents which issue are subsequently poured. We need not be surprised that we do not now perceive any regular volcanic mountain or vent at Blomidon, for, independently of the action the waters may have exerted on it when being formed, we know that great denudation has taken place in the Drift period, and under the wasting action of the present frosts and tides. The minerals mentioned as occurring in the traps are all either silica or silicates,—that is, compounds of silica with the alkalies potash and soda,—or the earths, as alumina, lime, etc. They are produced by the solvent action of water, which, percolating through the trap, dissolves these materials, and redeposits them in fissures and cavities. Below the amygdaloid we have a thick series of beds of sandstone—mechanical detritus deposited by water, and probably in great part derived from the waste of the sandstones of the Carboniferous system. The gypsum veins which traverse it were probably deposited by waters which had dissolved that mineral in passing through the great gypsum-beds which occur in the older system last mentioned.

"The history of this fine precipice is then shortly as follows:—In the Triassic era, thick beds of sandstone were deposited off the coasts of Horton, just as the red mud and sand of the flats are now deposited. Volcanic phenomena on a great scale, however, broke forth from beneath the waters, scoriæ and dust were thrown out and spread around in thick beds, and currents of lava were poured forth. Subsequently the whole mass was elevated, to be again submerged

* Lyell, "Manual of Geology."