

stood, to the opposite coast of Parrsborough, and that the ice-blocks, heaped on each other and frozen together, or packed at the foot of Cape Blomidon, were often fifteen feet thick, and were pushed along, when the tide rose, over the sandstone ledges. He also stated that fragments of the black stone which fell from the summit of the cliff,—a pile of which lay at its base,—were often frozen into the ice, and moved along with it. And I have no doubt that the hardness of these gravers, firmly fixed in masses of ice, which, though only fifteen feet thick, are often of considerable horizontal extent, has furnished sufficient pressure and mechanical power to groove the ledges of soft sandstone.'

Thus far Sir Charles. The boulder-clay is found in Scotland from deep beneath the sea level, where it forms the anchoring ground of some of our finest harbours, to the height of from six to nine hundred feet along our hill-sides. The travelled boulders to which it owes its name have been found as high as fourteen hundred feet. Up to the highest of these heights icebergs at one time operated upon our Scottish rocks. Scotland, therefore, must in that icy age have been submerged to the highest of these heights. It must have existed as three groups of islands,—the Cheviot, or southern group; the Grampian, or middle group; and the Ben Wyvis, or northern group.

Let me next advert to a peculiarity in the direction of the icebergs which went careering at this period over the submerged land. As shown by the lines and furrows which they have graven upon the rocks, their general course, with a few occasional divergences,—effects, apparently, of the line of the greater valleys,—was from west to east. It is further a fact, exactly correspondent in the evidence which it bears, that the trap eminences of the country,—eminences of hard rock rising amid districts of soft sandstone, or still softer shale,—have generally attached to their eastern sides sloping *tali* of the yielding strata out of which they rise, and