

are not so distinctly marked. When the first edition of this work was published, viz. early in 1813, the name of freshwater formations was scarcely known in England, but the author ventured to offer an explanation of their formation, from what is now taking place in extensive lakes: a similar explanation has since been generally adopted. "The lakes of North America, are seas of fresh water, more than 1500 miles in circuit; they are placed at a considerable elevation above the Atlantic, and at different levels. They unite by small straits or rivers, which have a rapid descent. On some of the rivers are prodigious waterfalls, which are continually enlarging and deepening the passage from one to the other; and will ultimately effect the drainage of the upper lakes. The falls of Niagara, are well known; the water is divided by a small island, which separates the river into two cataracts, one of which is 600 yards, and the other 350 yards wide: the height of the fall is from 140 to 160 feet. It is estimated that 670,000 tons of water are dashed every minute with inconceivable force, against the bottom, and are thus wearing down the adjacent rocks. Since the banks of the cataract were inhabited by Europeans, they have observed that it is progressively shortening the distance of the falls from Lake Erie. When it has worn down the intervening calcareous rocks, the upper lake will become dry land, and form an extensive plain or valley, surrounded by rising ground, and watered by a river or smaller lake, which will occupy the lowest part. *In this plain future geologists may trace successive strata of fresh water formation, covering the subjacent ancient limestone. The gradual deposition of minute earthy particles, or the more rapid subsidence of mud from sudden inundations, will form distinct beds, in which will be found the remains of freshwater fish, vegetables and quadrupeds.*"—1st edition, 1813, pp. 182, 183.

In the frontispiece to the present volume will be seen a bird's-eye view, or map of the country round Niagara, drawn by my eldest son, who passed several days at the falls of Niagara in 1830. In this drawing the accurate proportion of distance is disregarded, in order to bring the several objects into one point of view. The deep chasm formed by the cataract is seen in front, from which the water is issuing into a lower country at Lewiston, nearly on a level with Lake Ontario, into which the river flows. Mr. Joseph Henry, in a topographical sketch of the state of New York, says, "The descent of the country from Lake Erie to Ontario is principally by a step, not at the falls, but at Lewiston, several miles below:" this is the position from which the drawing in the frontispiece was taken. Mr. H. adds, "In viewing the position of the falls, and the features of the country round, it is impossible not to be impressed with the idea, that this great natural race-way has been formed by the continued action of the irresistible current of the Niagara, and that the falls, beginning at Lewiston, have, in the course of ages, worn back the rocky strata to their present site. The deep chasm through