

sun, which lately lighted up the verdant plains, as it dawned upon these frozen steppes, was only saluted by the whistling of the north winds, and the horrible rending of the crevasses, which opened up on all sides under the heat of its rays, acting upon the immense glacier which formed the sepulchre of many animated beings.

How can we accept the idea that the plains, but yesterday smiling and fertile, were formerly covered, and that for a very long period, with an immense sheet of ice and snow? To satisfy the reader that the proof of this can be established on sufficient evidence, it is necessary to direct his attention to certain parts of Europe. It is essential to visit, at least in idea, a country where *glacial phenomena* still exist, and to prove that the phenomena, now confined to those countries, were spread, during geological times, over spaces infinitely vaster. We shall choose for our illustration, and as an example, the glaciers of the Alps. We shall show that the glaciers of Switzerland and Savoy have not always been restricted to their present limits; that they are, so to speak, only miniature resemblances of the gigantic glaciers of times past; and that they formerly extended over all the great plains which extend from the foot of the chain of the Alps.

To establish these proofs we must enter upon some consideration of existing glaciers, upon their mode of formation, and their peculiar phenomena.

The snow which, during the whole year, falls upon the mountains, does not melt, but maintains its solid state, when the elevation exceeds the height of 9,000 feet or thereabouts. Where the snow accumulates to a great thickness, in the valleys, or in the deep fissures in the ground, it hardens under the influence of the pressure resulting from the incumbent weight. But it always happens that a certain quantity of water, resulting from the momentary thawing of the superficial portions, traverses its substance, and this forms a crystalline mass of ice, with a granular structure, which the Swiss naturalists designate *névé*. From the successive melting and freezing caused by the heat by day and the cold by night, and the infiltration of air and water into its interstices, the *névé* is slowly transformed into a homogeneous azure mass of ice, full of an infinite number of little air-bubbles—this was what was formerly called *glace bulleuse* (bubble-ice). Finally, these masses, becoming completely frozen, water replaces the bubbles of air. Then the transformation is complete; the ice is homogeneous, and presents those beautiful azure tints so much admired by the tourist who traverses the magnificent glaciers of Switzerland and Savoy.

Such is the origin of, and such is the mode in which the glaciers