

CHAPTER XXII.

ON THE ELEVATION OF MOUNTAINS AND CONTINENTS.

The Elevation of the Beds of Granite and Slate in England proved by the Author, in 1823, to have taken place at a much earlier Epoch, than the Elevation of the Granite of Mont Blanc.—The Facts on which this conclusion was founded described and explained.—Application of similar Conclusions to the other Mountain Ranges by M. Elie de Beaumont.—The Elevation of Rocks of Granite and Slate, proved to have taken place by a distinct Operation from that which upheaved Continents from the Ocean, and at a different Epoch.—Elevation of the Mountains and Table Land in Central Asia.—Depression of the Surface round the Caspian Sea.—Instances of the Elevation and Submergence of the Earth's Surface in various Parts of the Globe.

THAT granite, or some modification of granite, forms the foundation rock of the present continents, is admitted by geologists. It is also ascertained, that specimens of granite, gneiss, and mica-slate, from the most distant parts of the globe, appear to be identical. It is, therefore, probable that the crust of granite which environs the globe, was all formed or consolidated at the same epoch, though local protrusions of granite have taken place at much later epochs.

If granite be the lowest and most extensive formation of known rocks, yet, in many countries, it is raised in immense ridges, forming the basis of mountain ranges: sometimes the beds of granite are nearly vertical, and constitute the summit as well as the central base of mountains. An enquiry suggests itself; was the elevation of these mountain ranges cotemporaneous in different countries? The followers of Werner maintained, that granite mountains were crystalline masses, precipitated in a universal ocean impregnated with mineral matter; and that their elevation was coëval with their origin. In the year 1819, M. Daubuisson, who was regarded by the French as an oracle in Géognosie, published his *Traité de Géognosie*, in which, following the steps of Werner on most points, he asserted, that the granite of the Alps attained its present elevation soon after the epoch of its formation. In the years 1820, 1821, and 1822, I had frequent opportunities of ascertaining the error of this opinion; and that the beds of granite were not elevated, till after the deposition of the calcareous beds that rest upon them. I farther ascertained, that many of these calcareous beds were identical with the upper secondary strata in England; hence it followed, that the granite beds in the Alps were not elevated till a late geological epoch, after the deposition of the oolites and chalk. This discovery I published in 1823, in my *Travels in the Tarentaise*, vol. ii. pp. 17, 18; and I there distinctly stated, *that the elevation of the granite of the Alps, was more recent, than the elevation of the beds of granite and slate in England.* Neither the importance of the discovery, nor its now