

uniformity which exercises so impoverishing an influence on the physical and intellectual powers of mankind.

According to the grand views of Elie de Beaumont, we must ascribe a relative age to each system of mountain chains\* on the supposition that their elevation must necessarily have occurred between the period of the deposition of the vertically elevated strata and that of the horizontally inclined strata running at the base of the mountains. The ridges of the Earth's crust—elevations of strata which are of the same geognostic age—appear, moreover, to follow one common direction. The line of strike of the horizontal strata is not always parallel with the axis of the chain, but intersects it, so that, according to my views,† the phenomenon of elevation of the strata, which is even found to be repeated in the neighboring plains, must be more ancient than the elevation of the chain. The main direction of the whole continent of Europe (from southwest to northeast) is opposite to that of the great fissures which pass from northwest to southeast, from the mouths of the Rhine and Elbe, through the Adriatic and Red Seas, and through the mountain system of Putsch-Koh in Luristan, toward the Persian Gulf and the Indian Ocean. This almost rectangular intersection of geodesic lines exercises an important influence on the commercial relations of Europe, Asia, and the northwest of Africa, and on the progress of civilization on the formerly more flourishing shores of the Mediterranean.‡

Since grand and lofty mountain chains so strongly excite our imagination by the evidence they afford of great terrestrial revolutions, and when considered as the boundaries of climates, as lines of separation for waters, or as the site of a different form of vegetation, it is the more necessary to demonstrate, by a correct numerical estimation of their volume, how small is the quantity of their elevated mass when compared with the area of the adjacent continents. The mass of the Pyrenees, for instance, the mean elevation of whose summits, and the areal quantity of whose base have been ascertained by accurate measurements, would, if scattered over

\* Leop. von Buch, *Ueber die Geognostischen Systeme von Deutschland*, in his *Geogn. Briefen an Alexander von Humboldt*, 1824, s. 265-271; Elie de Beaumont, *Recherches sur les Révolutions de la Surface du Globe*, 1829, p. 297-307.

† Humboldt, *Asie Centrale*, t. i., p. 277-283. See, also, my *Essai sur le Gisement des Roches*, 1822, p. 57, and *Relat. Hist.*, t. iii., p. 244-250.

‡ *Asie Centrale*, t. i., p. 284, 286. The Adriatic Sea likewise follows a direction from S.E. to N.W.