

instead of sudden and abrupt. Thus the coal measures in the south of England are above the mountain limestone; and the distinction of the formations is of the most marked kind. But as we advance northward into the coal-field of Yorkshire and Durham, the subjacent limestone begins to be subdivided by thick masses of sandstone and carbonaceous strata, and passes into a complex deposit, not distinguishable from the overlying coal measures; and in this manner the transition from the limestone to the coal is made by alternation. Thus, to use another expression of M. de Humboldt's in ascending from the limestone, the coal, before we quit the subjacent stratum, *preludes* to its fuller exhibition in the superior beds.

Again, as to another point: geologists have gone on up to the present time endeavoring to discover general laws and facts, with regard to the position of mountain and mineral masses upon the surface of the earth. Thus M. Von Buch, in his physical description of the Canaries, has given a masterly description of the lines of volcanic action and volcanic products, all over the globe. And, more recently, M. Elie de Beaumont has offered some generalizations of a still wider kind. In this new doctrine, those mountain ranges, even in distant parts of the world, which are of the same age, according to the classifications already spoken of, are asserted to be parallel⁴ to each other, while those ranges which are of different ages lie in different directions. This very wide and striking proposition may be considered as being at present upon its trial among the geologists of Europe.⁵

Among the organic phenomena, also, which have been the subject of geological study, general laws of a very wide and comprehensive kind have been suggested, and in a greater or less degree confirmed by adequate assemblages of facts. Thus M. Adolphe Brongniart has not only, in his *Fossil Flora*, represented and skilfully restored a vast number of the plants of the ancient world; but he has also, in the *Prodromus* of the work, presented various important and striking views of the general character of the vegetation of former periods, as

⁴ We may observe that the notion of parallelism, when applied to lines drawn on *remote* portions of a globular surface, requires to be interpreted in so arbitrary a manner, that we can hardly imagine it to express a physical law.

⁵ Mr. Lyell, in the sixth edition of his *Principles*, B. i. c. xii., has combated the hypothesis of M. Elie de Beaumont, stated in the text. He has argued both against the catastrophic character of the elevation of mountain chains, and the parallelism of the contemporaneous ridges. It is evident that the former doctrine may be true, though the latter be shown to be false.