ing of the older ridges, and to have been produced at a later period. Hence it follows, that the action of elevation was violent and of short continuance, for the inclined strata are shattered and contorted, and between them and the horizontal strata there is no intermediate gradation of deposits: it farther proves, that the period of elevation was followed by an immediate change in many of the forms of organic life.

"The next great system includes the whole chain of the Pyrenees, —the northern Apennines,—the calcareous chains to the north-east of the Adriatic,—nearly the whole of the Carpathian chain, and it extends thence through the Hartz mountains, to the plains of northern Germany. Through the whole of these vast regions, the main bearings of the beds range about west-north-west and east-south-east. This system was elevated at a later period than the former, and not till the chalk and green sand had been deposited, for the strata of these formations are every where ruptured and contorted, and often lifted up to the very pinnacles of the mountains: whereas, when any of the tertiary strata approach these ranges, they are stated to be in a position nearly horizontal as the surface of the waters in which they were deposited, unless disturbed by local causes. Hence, it is inferred, that the great parallel ridges and chains of this second system were suddenly and violently elevated, at a period between the deposition of the chalk, and the commencement of the tertiary groups. The corresponding change in organic remains, is still more striking than in the former system.

"The third system embraces a great number of parallel ranges, bearing about north-north-east, and west-south-west; it includes the whole western Alps, from the neighbourhood of Marseilles, to the volcanic ridges near the lake of Constance. It is attempted to be proved, that all these parallel ranges in the western Alps, had their origin after the tertiary molasse, a deposit partaking of all the elevations and contortions of the older strata; that the elevatory movements were sudden and violent, and commenced at a time when tribes of mammalia flourished in many parts of Europe; and that these movements were immediately succeeded by great horizontal deposits of old diluvial gravel at the base of the western Alps, and probably, also, by that vast offshot of Scandinavian rocks, which lie scattered over the plains of Germany.

"The fourth system embraces several considerable chains in Provence, and nearly the whole chain of the eastern Alps, from the great flexure, in the region of Mont Blanc, to the Alps of the states of Austria. The range extends E.N.E. and W.S.W. M. Elie de Beaumont appears to have proved, that there are two distinct deposits of diluvial gravel, near a portion of the western Alps: that the colossal mass of Mont Blanc, and at least a considerable portion of the eastern Alps, were elevated after the deposit of the older diluvium; and that all the newer diluvium, including the granite blocks