

mountain ranges, the mineral characters of the upper secondary limestones also frequently undergo a considerable change, and become indurated and crystalline, like transition limestones.

It has been stated in the preceding chapters, that the coal strata, which are interposed between the transition rocks and the secondary strata, contain, almost exclusively, the organic remains of terrestrial and lacustrine or marsh plants, while the fossils in the lower or transition class, belong, almost exclusively, to marine animals. Another great change appears to have taken place in the condition of our planet, after the deposition of the coal strata, for the upper secondary strata contain, principally, the remains of marine animals. It is in the strata belonging to this class, that the bones and entire skeletons of enormous reptiles are first discovered. It is, however, truly remarkable, that throughout the whole series of the upper secondary strata, no bones of mammiferous land quadrupeds have yet been found; the strata at Stonesfield alone present a solitary exception.

In England, the order of succession of the upper secondary rocks may be more distinctly ascertained, than in any other country that has yet been examined. I shall therefore describe them as they occur in our own country, with references to foreign localities, where the same beds or formations are well identified with the English strata. Geologists on the Continent, and particularly in France, had, till very recently, no accurate knowledge respecting several of these formations; and their classifications of them were vague and contradictory. More attention, however, has, very lately, been directed to this part of the geology of France; and the clear accounts which have been published, by M. Elie de Beaumont in particular, of some of these formations, remove much of the obscurity which prevailed respecting them, and prove, in a satisfactory manner, the great similarity which may be observed, in the secondary formations of England and France.

In the following tabular arrangement of the secondary formations, above the transition and coal formations, I have not thought it expedient to introduce all the minor subordinate beds in each formation: those which possess any geological importance will be subsequently noticed. It may be frequently observed, that particular beds which occur in one part of a formation, and are considerably developed, cannot be traced even into an adjacent district, or they vary so much in thickness and mineral characters, as scarcely to be recognized. If we take an extensive formation, like the oolites, as an example, it is not possible to assign any one part of the range, as affording a correct type of all the series in distant or even in neighboring parts of the range, though we may trace a general resemblance in all the principal beds; and this I hold to be amply sufficient for every valuable purpose in geology.\*

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\* Those who know into how many mistakes even eminent geologists have fallen, respecting the formations in their own immediate vicinity, by attempting to