

for although in England and other low countries these formations are usually found with an horizontal stratification, yet in the borders of the Alps, in the Java chain, and generally in the vicinity of all very lofty mountain tracts, they are as usually found in elevated and contorted strata,—an important fact, which, as we shall hereafter have occasion to see, throws great light on the questions which have been agitated concerning the causes of such phœnomena and the elevation of mountain chains.

The general class thus formed, admits of four principal divisions ; and all of these, excepting the first, may be further subdivided into smaller aggregates of similar strata, each of which aggregates has usually been considered as entitled to the rank of a distinct formation. The following list gives a general view of these four divisions and their subdivisions, beginning with the highest, and will sufficiently explain these remarks.

A. The Chalk formation. This requires no observation.

B. The series of ferruginous sands ; the upper containing interspersed green particles, the lower of a rusty brown colour, divided by an intermediate bed of clay.

C. The series of oolites, consisting of three aggregates of coarse shelly limestones, often oolitic in their texture, alternating with argillaceous deposits often containing beds of argillaceous limestone ; the lias clay and lias, on which the whole of this reposes, may be considered as one of these deposits.

Before proceeding to the fourth division, we would pause to introduce a few remarks illustrative of the connexion and general relations of the three preceding.

They all contain marine organic remains, which have a general similarity of character, and are in the same state : they are not simply preserved, as were those in the superior formations, but, strictly speaking, lapidified ; being always (unless where the shell has perished and left a cast only,) penetrated with the stony matter of their envelope ; often, however, in a finer form, so as to admit a crystalline arrangement of its particles. In these beds, not only the great majority of species are different from those now known to exist, but a very large proportion of the genera are in the same predicament. Although each of these series, and indeed almost every member of each series, contains many species of organic remains peculiar to itself, which constantly accompany its course throughout this island at least, and form (to use the lowest term) a good *empirical* character by which it may be distinguished ; yet several of the species, and a majority of the genera, are common