

## CHAPTER XII.

## ON THE LIAS AND OOLITIC SERIES.

Geological Position of Lias Clay and Limestone.—Their mineral Characters.—Alum-Slate in Lias.—Remarkable Organic Remains and Characteristic Fossils.—Extent of the Lias Formation in England.—Interesting Junctions of Lias and Red Marl.—Lias of France and the Alps.—Oolite or Roestone, the Jura Limestone of Foreign Geologists.—Mineral Characters, and remarkable Organic Remains.—Lower Oolite.—Oxford or Clunch Clay.—Middle Oolites.—Kimmeridge Clay.—Upper or Portland Oolites.—Stonesfield Slate with Organic Remains of Insects, Birds, Flying Reptiles, and small Land Quadrupeds.—Extent of the Oolite Formation in England, and its abrupt Termination.—Sections of the Oolitic Series of Beds in Yorkshire and the West of England, compared with a Section of the Secondary Strata in Germany.

THE great bed of dark grey argillaceous limestone, divided into thin strata (and associated with beds of clay) called Lias, is the best characterized of all the secondary strata (except chalk), both by its mineral characters and the fossil remains imbedded in it; and it presents the same characters through a considerable part of France and Germany.

The geologist who has taken a comprehensive view of different rock formations, and has compared the resemblance as well as the diversity they present, must frequently have observed a tendency in nature to reproduce similar strata in distant parts of a series of strata, and even in different formations. In the chapter on the Coal Measures, I have given examples of the repeated recurrence of similar strata at different depths, implying a recurrence of the same conditions under which each had been formed.

In the lowest part of the magnesian limestone in the northern counties, there are thin strata of marly limestone, called by Professor Sedgwick Marl-slate, which may be regarded as the first approach to a formation, resembling lias in many of its characters. Again, over the middle beds of the sandstone there occurs a considerable thickness of strata, in many respects resembling lias, called the *Muschelkalk*; it may, perhaps, when viewed on a large scale, be considered as a lower formation of lias, separated from it by the variegated marls of the upper red sandstone. This bed, as before stated, has not been discovered in England. The lias, therefore, cannot be mistaken for any of the lower strata; it serves as a key to the geology of the secondary formations in England; and the first enquiry which the student should make, when he is in doubt respecting the position of any of the secondary beds, should be, *Does it occur above or below the lias?*

The name *Lias* was probably given to this formation by the provincial pronunciation of the word *layers*, as the strata of lias limestone