

CHAPTER XX.

JURASSIC GROUP.—PURBECK BEDS AND OOLITE.

The Purbeck beds a member of the Jurassic group—Subdivisions of that group—Physical geography of the Oolite in England and France—Upper Oolite—Purbeck beds—New fossil Mammifer found at Swanage—Dirt-bed or ancient soil—Fossils of the Purbeck beds—Portland stone and fossils—Lithographic stone of Solenhofen—Middle Oolite—Coral rag—Zoophytes—Nerinean limestone—Dicerias limestone—Oxford clay, Ammonites and Belemnites—Lower Oolite, Crinoideans—Great Oolite and Bradford clay—Stonesfield slate—Fossil mammalia, placental and marsupial—Resemblance to an Australian fauna—Northamptonshire slates—Yorkshire Oolitic coal-field—Brora coal—Fuller's earth—Inferior Oolite and fossils.

IMMEDIATELY below the Hastings Sands (the inferior member of the Wealden, as defined in the 18th chapter), we find in Dorsetshire another remarkable freshwater formation, called *the Purbeck*, because it was first studied in the sea-cliffs of the peninsula of Purbeck in Dorsetshire. These beds were formerly grouped with the Wealden, but some organic remains recently discovered in certain intercalated marine beds show that the Purbeck series has a close affinity to the Oolitic group, of which it may be considered as the newest or uppermost member.

In England generally, and in the greater part of Europe, both the Wealden and Purbeck beds are wanting, and the marine cretaceous group is followed immediately, in the descending order, by another series called the Jurassic. In this term, the formations commonly designated as "the Oolite and Lias" are included, both being found in the Jura Mountains. The Oolite was so named because in the countries where it was first examined, the limestones belonging to it had an oolitic structure (see p. 12). These rocks occupy in England a zone which is nearly 30 miles in average breadth, and extends across the island, from Yorkshire in the north-east, to Dorsetshire in the southwest. Their mineral characters are not uniform throughout this region; but the following are the names of the principal subdivisions observed in the central and southeastern parts of England:

OOLITE.

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| Upper  | { | <ul style="list-style-type: none"> <li>a. Purbeck beds.</li> <li>b. Portland stone and sand.</li> <li>c. Kimmeridge clay.</li> </ul>   |
| Middle | { | <ul style="list-style-type: none"> <li>d. Coral rag.</li> <li>e. Oxford clay.</li> </ul>   |
| Lower  | { | <ul style="list-style-type: none"> <li>f. Cornbrash and Forest marblo.</li> <li>g. Great Oolite and Stonesfield slato.</li> <li>h. Fuller's earth.</li> <li>i. Inferior Oolite.</li> </ul> |

The Lias then succeeds to the Inferior Oolite.