

life at this period, exerted their full intensity through the Indian, European, and American seas.* Here, as in North and South America, the cretaceous character can be recognized even where there is no specific identity in the fossils; and the same may be said of the organic type of those rocks in Europe and India which occur next to the chalk in the ascending and descending order, namely, the Eocene and the Oolitic.

CHAPTER XVIII.

LOWER CRETACEOUS AND WEALDEN FORMATIONS.

Lower Greensand—Term “Neocomian”—Atherfield section, Isle of Wight—Fossils of Lower Greensand—Wealden Formation—Freshwater strata intercalated between two marine groups—Weald Clay and Hastings Sand—Fossil shells, fish, and plants of Wealden—Their relation to the Cretaceous type—Geographical extent of Wealden—Movements in the earth’s crust to which the Wealden owed its origin and submergence—Flora of the Lower Cretaceous and Wealden Periods.

THE term “Lower Greensand” has hitherto been most commonly applied to such portions of the Cretaceous series as are older than the Gault. But the name has often been complained of as inconvenient, and not without reason, since green particles are wanting in a large part of the strata so designated, even in England, and wholly so in some European countries. Moreover, a subdivision of the Upper Cretaceous group has likewise been called Greensand, and to prevent confusion the terms Upper and Lower Greensand were introduced. Such a nomenclature naturally leads the uninitiated to suppose that the two formations so named are of somewhat co-ordinate value, which is so far from being true, that the Lower Greensand, in its widest acceptance, embraces a series nearly as important as the whole Upper Cretaceous group, from the Gault to the Maestricht beds inclusive; while the Upper Greensand is but one subordinate member of this same group. Many eminent geologists have, therefore, proposed the term “Neocomian” as a substitute for Lower Greensand; because, near Neufchatel (Neocomum), in Switzerland, these Lower Greensand strata are well developed, entering largely into the structure of the Jura mountains. By the same geologists the Wealden beds are usually classed as “Lower Neocomian,” a classification which will not appear inappropriate when we have explained, in the sequel, the intimate relation of the Lower Greensand and Wealden fossils.

Dr. Fitton, to whom we are indebted for an excellent monograph on the Lower Cretaceous (or Greensand) formation as developed in England, gives the following as the succession of rocks seen in parts of Kent.

* See Forbes, *Quart. Geol. Journ.* vol. i. p. 79.