

scarce; they include *Inoceramus labiatus* (which begins here), *Rhynchonella Cuvieri*, *Echinoconus subrotundus*, *Cardiaster pygmæus*. Above this basement bed lies the massive Chalk without flints, full of fragments of *Inoceramus labiatus*, with *I. Cuvieri*, *Terebratula semiglobosa*, *Terebratulina gracilis*, *Echinoconus subrotundus*, etc. The lower 70 feet or so include the zone of *Inoceramus labiatus*, the next 90 or 100 feet that of *Terebratulina gracilis*, and the upper 50 or 60 feet, containing layers of black flints, that of *Holaster planus*. At the top comes the remarkably constant band of hard cream-colored limestone known as the "Chalk Rock," varying from a few inches to 10 feet in thickness. Its upper surface is generally well defined, sometimes even suggestive of having been eroded, but it shades down into the Lower Chalk.¹⁴⁸

Upper Chalk, Senonian¹⁴⁹ (*Upper Chalk with flints*).—This massive formation is composed of white, pulverulent, and usually tolerably pure chalk, with scattered flints, which, being arranged in the lines of deposit, serve to indicate the otherwise indistinct stratification of the mass. It has been generally regarded by English geologists as a single formation, with great uniformity of lithological characters and fossil contents. Mr. Whitaker, however, showed that distinct lithological platforms occur in it, and later researches, especially by MM. Hébert and Barrois, brought to light in it the same zones that occur in the Paris basin. Of these the lowest, or that of the *Micrasters* (Broadstairs and St. Margaret's Chalk), is most widely spread, the others having suffered most from denudation. It is well exposed along the cliffs of Kent at Dover, and also in the Isle of Thanet. At Margate its thickness has been ascertained by boring to be 265 feet. It contains two zones, in the lower of which the characteristic urchin is *Micraster cor-tudinarium*, while in the upper it is *M. cor-anguinum*. Near the top of the *Micraster* group of beds in the Isle of Thanet¹⁵⁰ lies a remarkable seam of flint about three or four inches thick, forming a nearly continuous floor, which has been traced southward at the top of the cliffs between Deal and Dover. Again, on the coast of Sussex, what may be nearly the same horizon in the Chalk is defined by a corresponding

¹⁴⁸ Whitaker, Mem. Geol. Surv. iv. p. 46; Jukes-Browne, Geol. Mag. 1880, p. 254. A similar band occurs in Normandy.

¹⁴⁹ From Sens in the department of Yonne.

¹⁵⁰ F. A. Bedwell, Geol. Mag. 1874, p. 16.