

graduating into the beds of green sand. Sometimes these modifications occur in distinct beds with well defined lines of separation, but more usually blended together, and passing into one another. The more argillaceous form which occurs at Folkstone was found by Mr. R. Phillips to lose 13 parts out of 100, on being submitted to the action of an acid, indicating the presence of nearly $\frac{1}{3}$ 30 per cent. of carbonate of lime: the more cretaceous forms, 82 per cent. carbonate of lime, 18 silex and alumine, chiefly the former, and a trace of oxide of iron.

The marly varieties occasionally contain concretionary masses of the more cretaceous and siliceous forms; beds of chert also occasionally occur in these strata, as at Reigate, and flinty nodules in some parts of Cambridgeshire. Besides the above varieties, a singular appearance is assumed by the lower chalk beds in many parts of Yorkshire and Lincolnshire; which, as has been mentioned in the previous chapter, have often a dark red colour, (see particularly the note on Hanstanton cliff, page 78); these beds probably belong to this part of the series, and derive their colour from the mixture of oxide of iron.

(b) *Mineral contents.* Irregular nodules and radiated masses of iron pyrites are common both in the cretaceous and argillaceous varieties; in the latter, geodes and septaria, with calcareous spar and selenite, and occasionally sulphate of lime, also occur, in the marly beds, which will hereafter be mentioned as occurring in Yorkshire and Cambridgeshire beneath the chalk, really belong to this formation.

(c) *Organic remains.* The upper cretaceous beds, near the junction with the chalk, contain organic remains of a nearly similar character with those of the lower chalk; viz. *nautilus*, *inoceramus*, *echini*, *alcyonia* and *sponges*, but the lower and more argillaceous strata are distinguished by a rich variety of singular and peculiar fossils, especially in the order of multilocular shells. In the following list references to the figures in Sowerby's Mineral Conchology are given. *Ammonites*. *A. Mantelli*, plate 55. *A. minutus*, 53. fig. 3. *A. planicosta*, 73. *A. rostratus*, 173? *A. splendens*, 103. fig. 1. 2. *A. varians*, 176. *Nautilus*. *N. inæqualis*, 40. fig. 10. *N. elegans*, 116. *N. Comptoni*, 121. *Hamites*; the species of this singular genus are numerous and very abundant at Folkestone; many figures of these are given in plates 61 & 62. Plate 168 exhibits a remarkable variety armed with spines from beds probably of this formation at Roak, in Oxfordshire. Plate 215 shews the same from the Isle of Wight, and some other species. These fossils may be considered as peculiar to, and highly characteristic of, this formation.