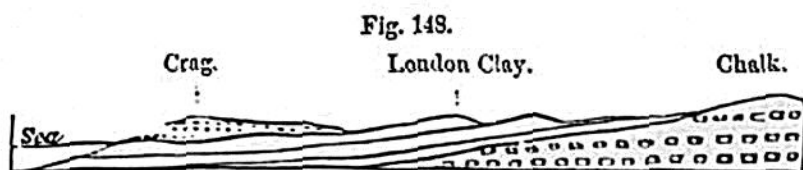


where, like the Norwich beds already described, they are called "Crag," a provincial name given particularly to those masses of shelly sand which have been used from very ancient times in agriculture, to fertilize soils deficient in calcareous matter. The relative position of the "Red Crag" in Essex to the London clay, may be understood by reference to the accompanying diagram (fig. 148).



These deposits, according to Professor E. Forbes, appear by their imbedded shells to have been formed in a sea of moderate depth, usually from 15 to 25 fathoms, but in some few spots perhaps deeper. Yet they cannot be called littoral, because the fauna is such as may have extended 40 or 50 miles from land.

The Suffolk Crag is divisible into two masses, the upper of which has been termed the Red, and the lower the Coralline Crag.* The upper deposit consists chiefly of quartzose sand, with an occasional intermixture of shells, for the most part rolled, and sometimes comminuted. In many places fossils washed out of older tertiary strata, especially the London Clay, are met with. The lower or coralline Crag is of very limited extent, ranging over an area about 20 miles in length, and 3 or 4 in breadth, between the rivers Alde and Stour. It is generally calcareous and marly—a mass of shells, bryozoa,† and small corals, passing occasionally into a soft building-stone. At Sudbourn, near Oxford, where it assumes this character, are large quarries, in which the bottom of it has not been reached at the depth of 50 feet. At some places in the neighborhood, the softer mass is divided by thin flags of hard limestone, and corals placed in the upright position in which they grew.

The Red Crag is distinguished by the deep ferruginous or ochreous color of its sands and fossils, the Coralline by its white color. Both formations are of moderate thickness; the Red Crag rarely exceeding 40, and the Coralline seldom amounting to 20 feet. But their importance is not to be estimated by the density of the mass of strata or its geographical extent, but by the extraordinary richness of its organic remains, belonging

* See paper by E. Charlesworth, Esq.; London and Ed. Phil. Mag. No. xxxviii. p. 81, Aug. 1835.

† Ehrenberg proposed in 1831 the term *Bryozoum*, or "Moss-animal," for the molluscous or ascidian form of polyp, characterized by having two openings to the digestive sack, as in *Eschara*, *Flustra*, *Retepora*, and other zoophytes popularly included in the corals, but now classed by naturalists as mollusca. The term *Polyzoum*, synonymous with *Bryozoum*, was, it seems, proposed in 1830, or the year before, by Mr. J. V. Thompson, but is less generally adopted. The animals of the *Zoantharia* of Milne Edwards and Haime, or the true corals, have only one opening to the stomach.