

Pecten (Fig. 178), Fusus, Murex, Cypræa, Voluta, Chenopus, Buccinum, Nassa, and many others.

The *Pliocene* series prevails over Norfolk, Suffolk, and Essex, where it is popularly known as the Crag. In Essex it rests directly on the London Clay. Near Norwich it rests on the Chalk.

The *Pliocene rocks* are divided into lower and upper. The *Older Pliocene* comprises the White or Coralline Crag, including the Red Crag of Suffolk, containing marine shells, of which sixty per cent. are of extinct species. The *Newer Pliocene* is represented by the Fluvio-marine or Norwich Crag, which last, according to the Rev. Osmond Fisher, is overlaid by Chillesford clay, a very variable and more arctic deposit, often passing suddenly into sands without a trace of clay.

The Norfolk Forest Bed rests upon the Chillesford clay, when that is not denuded.

A ferruginous bed, rich in mammalian remains, and known as the Elephant bed, overlies the Forest Bed, of which it is considered by the Rev. John Gunn to be an upper division.

The Crag, divided into three portions, is a local deposit of limited extent. It consists of variable beds of sand, gravel, and marl; sometimes it is a shelly ferruginous grit, as the Red Crag; at others a soft calcareous rock made up of shells and bryozoa, as the Coralline Crag.

The *Coralline Crag*, of very limited extent in this country, ranges over about twenty miles between the rivers Stour and Alde, with a breadth of three or four. It consists of two divisions—an upper one, formed chiefly of the remains of Bryozoa, and a lower one of light-coloured sands, with a profusion of shells. The upper division is about thirty-six feet thick at Sudbourne in Suffolk, where it consists of a series of beds almost entirely composed of comminuted shells and remains of Bryozoa, forming a soft building-stone. The lower division is about forty-seven feet thick at Sutton; making the total thickness of the Coralline Crag about eighty-three feet.

Many of the Coralline Crag Mollusca belong to living species; they are supposed to indicate an equable climate free from intense cold—an inference rendered more probable by the prevalence of northern forms of shells, such as *Glycimeris*, *Cyprina*, and *Astarte*. The late Professor Edward Forbes, to whom science is indebted for so many philosophical deductions, points out some remarkable inferences drawn from the fauna of the Pliocene seas.* It appears that in the

* Edward Forbes in "Memoirs of the Geological Survey of Great Britain," vol. i., p. 336.