

whales, have recently been found at Felixstow, in what is called "the detrital bed," so rich in phosphate of lime used in agriculture. That accumulation of drifted materials lies at the base of the Red Crag, and it has been supposed that the imbedded mammalian fossils were derived from the destruction of an older set of strata. But in regard to the Mastodon above mentioned, Dr. Falconer, who has devoted fifteen years to the study of the fossil and recent Proboscideans, assures me that the fossil is a well-known Pliocene animal, first observed in Auvergne by MM. Croizet and Jobert, and called by them *Mastodon arvernensis*. Cuvier did not adopt this name, for he had seen but a few specimens from Auvergne, and he confounded it with *M. angustidens*. The entire skeleton of both these Mastodons having now been obtained, they are found to be referable to two distinct sub-genera. The Crag fossil belongs to the *Tetralophodon* of Falconer, a sub-genus of which five species are known, so called because there are four ridges in the penultimate true molar as well as in the two teeth which are placed immediately before it in both jaws. The *Mastodon angustidens*, on the other hand, belongs, with six other species, to the section called *Trilophodon*, in which the corresponding teeth have each three ridges. This Mastodon, according to MM. Lartet and Falconer, is characteristic of the Faluns and of the Molasse at Sansan at the foot of the Pyrenees, and of several other Miocene localities.*

The *Mastodon arvernensis* is, according to Dr. Falconer, the only one yet found in England. It abounds with the *Hippopotamus major* in the Pliocene strata of the Val d'Arno, as well as in strata of the same age in Piedmont and at Montpellier. It may be considered, therefore, as a characteristic Pliocene species; and this view is in accordance with the fact that its remains are best preserved in freshwater strata, associated and coeval with the Norwich Crag. But we have no evidence of its surviving in England till the still more modern epoch of those fluviatile deposits in the valley of the Thames in which the *Hippopotamus major* and a species of monkey, *Macacus pliocenus*, have been detected. These freshwater strata are alluded to in the text (p. 153), as occurring at Grays in Essex, 21 miles below London, and at Ilford, Erith, and other places bordering the Thames. They consist of sand, gravel, and loam, from 60 to 100 feet thick, and often form a terrace on each side of the valley, rising to a much higher level than a vast bed of more modern gravel, to which allusion will presently be made. At Grays, the *Cyrena consobrina* of the Nile already mentioned, a shell common to the Norwich Crag, together with several other shells no longer inhabitants of Great Britain, and some of them unknown as living in any part of the globe, occur, mingled with a vast majority of English species of land and freshwater mollusca. The *Cyrena*, which I supposed till lately to

* Professor Owen has given (Quart. Geol. Jour., Feb. 1856, p. 223), as a synonym of the Crag Mastodon, the name of *M. longirostris*, Kaup, a fossil of the Miocene sands of Eppelsheim, referred by Falconer to the sub-genus *Tetralophodon*.