

the former beds of streams.* In the geognostic character of the soil of Tuscany, Steno recognized convulsions which must, in his opinion, be ascribed to six great natural epochs (*Sex sunt distinctæ Etruriæ facies ex præsentî facie Etruriæ collectæ*). The sea had broken in at six successive periods, and, after continuing to cover the interior of the land for a long time, had retired within its ancient limits. All petrifications were not, however, according to his opinion, referable to the sea; and he distinguished between pelagic and fresh-water formations. Scilla, in 1670, gave drawings of the petrifications of Calabria and Malta; and among the latter, our great anatomist and zoologist, Johannes Müller, has recognized the oldest drawing of the teeth of the gigantic *Hydrarchus* of Alabama (the *Zeuglodon cetoides* of Owen), a mammal of the great order of the Cetacea.† The crown of these teeth is formed similarly to those of seals.

Lister, as early as 1678, made the important assertion that each kind of rock is characterized by its own fossils, and that "the species of *Murex*, *Tellina*, and *Trochus*, which occur in the stone quarries of Northamptonshire, are indeed similar to those existing in the present seas, but yet, when more closely examined, they are found to differ from them." They are, he says, specifically different.‡ Strictly conclusive proofs of the truth of these grand conjectures could not, however, be advanced in the then imperfect condition of descriptive morphology. We here indicate the early dawn and speedy extinction of light prior to the noble palæontological researches of Cuvier and Alexander Brongniart, which have given a new form to the geognosy of sedimentary formations.§ Lister, whose at-

* Venturi, *Essai sur les Ouvrages Physico-mathématiques de Leonard de Vinci*, 1797, § 5, No. 124.

† Agostino Scilla, *La vana Speculazione disingannata dal Senso*, Nap., 1670, tab. xii., fig. 1. Compare Joh. Müller, *Bericht über die von Herrn Koch, in Alabama Gesammelten Fossilen Knochenreste seines Hydrachus* (the *Basilosaurus* of Harlan, 1835; the *Zeuglodon* of Owen, 1839; the *Squalodon* of Grateloup, 1840; the *Dorudon* of Gibbes, 1845), read in the Royal Academy of Sciences at Berlin, April—June, 1847. These valuable fossil remains of an ancient world, which were collected in the State of Alabama (in Washington county, near Clarksville), have become, by the munificence of our king, the property of the Zoological Museum at Berlin since 1847. Besides the remains found in Alabama and South Carolina, parts of the *Hydrarchus* have been found in Europe, at Leognan near Bordeaux, near Linz on the Danube, and, in 1670, in Malta.

‡ Martin Lister, in the *Philosophical Transactions*, vol. vi., 1671, No. lxxvi., p. 2283.

§ See a luminous exposition of the earlier progress of palæontological