

Two years afterwards, Imperati advocated the animal origin of fossilized shells, yet admitted that stones could vegetate by force of "an internal principle;" and, as evidence of this, he referred to the teeth of fish and spines of echini found petrified.\*

*Palissy*, 1580.—Palissy, a French writer on "The Origin of Springs from Rain-water," and of other scientific works, undertook, in 1580, to combat the notions of many of his contemporaries in Italy, that petrified shells had all been deposited by the universal deluge. "He was the first," said Fontenelle, when, in the French Academy, he pronounced his eulogy, nearly a century and a half later, "who dared assert," in Paris, that fossil remains of testacea and fish had once belonged to marine animals.

*Fabio Colonna*.—To enumerate the multitude of Italian writers, who advanced various hypotheses, all equally fantastical, in the early part of the seventeenth century, would be unprofitably tedious; but Fabio Colonna deserves to be distinguished; for, although he gave way to the dogma, that all fossil remains were to be referred to the deluge of Noah, he resisted the absurd theory of Stelluti, who taught that fossil wood and ammonites were mere clay, altered into such forms by sulphureous waters and subterranean heat; and he pointed out the different states of shells buried in the strata, distinguishing between, first, the mere mould or impression; secondly, the cast or nucleus; and, thirdly, the remains of the shell itself. He had also the merit of being the first to point out, that some of the fossils had belonged to marine and some to terrestrial testacea.†

*Steno*, 1669.—But the most remarkable work of that period was published by Steno, a Dane, once professor of anatomy at Padua, and who afterwards resided many years at the court of the Grand Duke of Tuscany. His treatise bears the quaint title of "De Solido intra Solidum naturaliter contento (1669)," by which the author intended to express, "On Gems, Crystals, and organic Petrifications inclosed within solid Rocks." This work attests the priority of the Italian school in geological research; exemplifying at the same time the powerful obstacles opposed, in that age, to the general reception of enlarged views in the science. It was still a favourite dogma, that the fossil remains of shells and marine creatures were not of animal origin; an opinion adhered to by many from their extreme reluctance to believe, that the earth could have been inhabited by living beings before a great part of the existing mountains were formed. In reference to this controversy, Steno had dissected a shark recently taken from the Mediterranean, and had demonstrated that its teeth and bones were identical with many fossils found in Tuscany. He had also compared the shells discovered in the Italian strata with living species, pointed out their resemblance, and traced the various gradations from shells merely calcined, or which had only lost their animal gluten, to those petrifications in which there was a perfect substitution of stony matter. In his division of mineral masses, he

\* *Storia Naturale*.

† *Osserv. sugli Animali aquat. e terrest.* 1626.