

the seventeenth century. Steno begins his work on the earth's crust by comparing fossil teeth found in the deposits of Tuscany with the teeth of living sharks. He then investigates the origin of fossiliferous deposits and compares them with unfossiliferous rocks. The latter, he says, were formed before life existed on the earth, at a time when the earth was enveloped in a universal ocean. Homogeneous and fine-grained rocks represent, according to Steno, the primitive earth-deposits which segregated universally from the undivided ocean. If, on the other hand, a rock-stratum be composed of particles varying in character and size, or if it comprise large fragments derived from other rocks or fossil remains, such a layer represents a partial deposit of later origin.

Steno argued from the traces of salt and the presence of marine animals, and even ship flotsam in certain deposits, that these had been formed on the sea-floor, whereas the presence of a terrestrial fauna and of rushes, grasses, and the stems of trees in other deposits, indicate that those had accumulated in fresh-water basins. Steno was the first to enunciate definite natural laws governing the formation of a stratigraphical succession in the earth's crust; these may be condensed as follows:—(1) a definite layer of deposit can only form upon a solid basis; (2) the lower stratum must therefore have consolidated before a fresh deposit is precipitated upon it; (3) any one stratum must either cover the whole earth, or be limited laterally by other solid deposits; (4) during the period of accumulation of a deposit there is above it only the water from which it is precipitated, therefore the lower layers in a series of strata must be older than the upper.

But Steno also realised that a series of strata originally horizontal might become relatively displaced by subsequent earth-movements. He cited examples of *local crust-inthrow*,

Steno had become a Roman Catholic, and his stay in his native city was embittered by the enmity caused on account of his religion. He returned to Florence, and was made Apostolic Vicar of Lower Saxony, dying in Schwerin on the 25th November 1687. By command of the Grand Duke Cosmo III. his body was brought to Florence and buried in the Cathedral of St. Lorenzo.

Steno's work, *De solido intra solidum naturaliter contento*, was first published in Florence (1669), and was intended merely as the prodrome of a larger work, but no later work appeared. A second edition was printed at Leyden in 1679, but the original text of Steno's little work is now a bibliographical rarity; its contents are known chiefly through the medium of Elie de Beaumont's French translation published in 1832.