

A brief survey of the progress of inquiry in Italy will supply the best illustration of the slow advance which was made in the demolition of long established prejudice, and in paving the way for the ultimate establishment of a philosophical conception of the past history of the earth. One of the earliest observers whose opinions have been recorded was the illustrious painter, architect, sculptor, and engineer Leonardo da Vinci (1452-1519). His attention having been aroused by the abundantly fossiliferous nature of some of the rocks in northern Italy, in which canals were cut, he concluded that the shells contained in these rocks had once been living on the sea-floor, and had been buried in the silt washed off the neighbouring land. He ridiculed the notion that they could have been produced by the influence of the stars, and he asked where such an influence could be shown to be at work now. But he pointed out that besides the shells, there were at various heights, terraces of gravel composed of materials that

world we inhabit, an adequate natural history of the earth could hardly be prepared until "after some ages past in making collections of materials for so great a building, and the employing a vast number of hands in making this preparation." He instanced the various kinds of observers required and the methods and instruments to be employed by them, "as by fire, by frost, by menstruums, by mixtures, by digestions, putrefactions, fermentations, and petrifications, by grindings, brusings, weighings and measuring, pressing and condensing, dilating and expanding, dissecting, separating and dividing, sifting and streining; by viewing with glasses and microscopes, smelling, tasting, feeling, and various other ways of torturing and wracking of natural bodies, to find out the truth or the real effect, as it is in its constitution and state of being." "Discourse of Earthquakes," *Posthumous Works*, p. 279.