opment of our experimental sciences. The history of the contemplation of the universe, as I interpret its limits, designates not so much the frequently-recurring oscillations between truth and error, as the principal epochs of the gradual approximation to more accurate views regarding terrestrial forces and the planetary system. It shows us that the Pythagoreans, according to the report of Philolaüs of Croton, taught the progressive movement of the non-rotating Earth, its revolution round the focus of the world (the central fire, *hestia*), while Plato and Aristotle imagined that the Earth neither rotated nor advanced in space, but that, fixed to one central point, it merely oscillated from side to side. Hicetas of Syracuse, who must, at least, have preceded Theophrastus, Heraclides Ponticus, and Ecphantus, all appear to have had a knowledge of the rotation of the Earth on its axis; but Aristarchus of Samos, and more particularly Seleucus of Babylon, who lived one hundred and fifty years after Alexander, first arrived at the knowledge that the Earth not only rotated on its own axis, but also moved round the Sun as the center of the whole planetary system. And if, in the dark period of the Middle Ages, Christian fanaticism, and the lingering influence of the Ptolemaic school, revived a belief in the immobility of the Earth, and if, in the hypothesis of the Alexandrian, Cosmas Indicopleustes, the globe again assumed the form of the disk of Thales, it must not be forgotten that a German cardinal, Nicholas de Cuss, was the first who had the courage and the independence of mind again to ascribe to our planet, almost a hundred years before Copernicus, both rotation on its axis and translation in space. After Copernicus, the doctrines of Tycho Brahe gave a retrograde movement to science, although this was only of short duration; and when once a large mass of accurate observations had been collected, to which Tycho Brahe himself contributed largely, a correct view of the structure of the universe could not fail to be speedily established. We have already shown how a period of fluctuations between truth and error is especially one of presentiments and fanciful hypotheses regarding natural philosophy.

After treating of the extended knowledge of nature as a simultaneous consequence of direct observations and ideal combinations, we have proceeded to the consideration of those historical events which have materially extended the horizon of the physical contemplation of the universe. To these belong migrations of races, voyages of discovery, and military expeditions. Events of this nature have been the means of ac-