

*Ibn al-Haytham (c. 965–c.*

*1040), Book of Optics Book*

*I, [6.85], [6.86]. Book II,*

*[3.80] describes his camera*

*obscura experiments.[18]Natural philosophy has its origins in Greece during the Archaic period (650 BCE – 480*

*Socratic philosophers like Thales rejected non-naturalistic explanations for natural phenomena and*

*proclaimed that every event had a natural cause.[14] They proposed ideas verified by reason and*

*observation, and many of their hypotheses proved successful in experiment;[15] for example, atomism was*

*found to be correct approximately 2000 years after it was proposed by Leucippus and his pupil*

*Democritus.[16]*

*The Western Roman Empire fell in the fifth century, and this resulted in a decline in intellectual pursuits in*

*the western part of Europe. By contrast, the Eastern Roman Empire (also known as the Byzantine Empire)*

*resisted the attacks from the barbarians, and continued to advance various fields of learning, including*

*physics.[17]*

*In the sixth century, Isidore of Miletus created an important compilation of Archimedes' works that are*

*copied in the Archimedes Palimpsest.*

*In sixth-century Europe John Philoponus, a Byzantine scholar, questioned*

*Aristotle's teaching of physics and noted its flaws. He introduced the*

*theory of impetus. Aristotle's physics was not scrutinized until Philoponus*

*appeared; unlike Aristotle, who based his physics on verbal argument,*

*Philoponus relied on observation. On Aristotle's physics Philoponus wrote:*

*But this is completely erroneous, and our view may be*

*corroborated by actual observation more effectively than by*

*any sort of verbal argument. For if you let fall from the same*

*height two weights of which one is many times as heavy as*

*the other, you will see that the ratio of the times required for*

*the motion does not depend on the ratio of the weights, but that the difference in time is a very small one. And so, if the difference in the weights is not considerable, that is, of one is, let us say, double the other, there will be no difference, or else an imperceptible difference, in time, though the difference in weight is by no means negligible, with one body weighing twice as much as the other*[19]

*Philoponus' criticism of Aristotelian principles of physics served as an inspiration for Galileo Galilei ten centuries later,[20] during the Scientific Revolution. Galileo cited Philoponus substantially in his works when arguing that Aristotelian physics was flawed.[21][22] In the 1300s Jean Buridan, a teacher in the faculty of arts at the University of Paris, developed the concept of impetus. It was a step toward the modern ideas of inertia and momentum.[23]*

*Islamic scholarship inherited Aristotelian physics from the Greeks and during the Islamic Golden Age developed it further, especially placing emphasis on observation and a priori reasoning, developing early forms of the scientific method.*

*The most notable innovations were in the field of optics and vision, which came from the works of many scientists like Ibn Sahl, Al-Kindi, Ibn al-Haytham, Al-Farisi and Avicenna. The most notable work was The Book of Optics (also known as Kitāb al-Manāẓir), written by Ibn al-Haytham, in which he conclusively disproved the ancient Greek idea about vision, but also came up with a new theory. In the Medieval Euro*