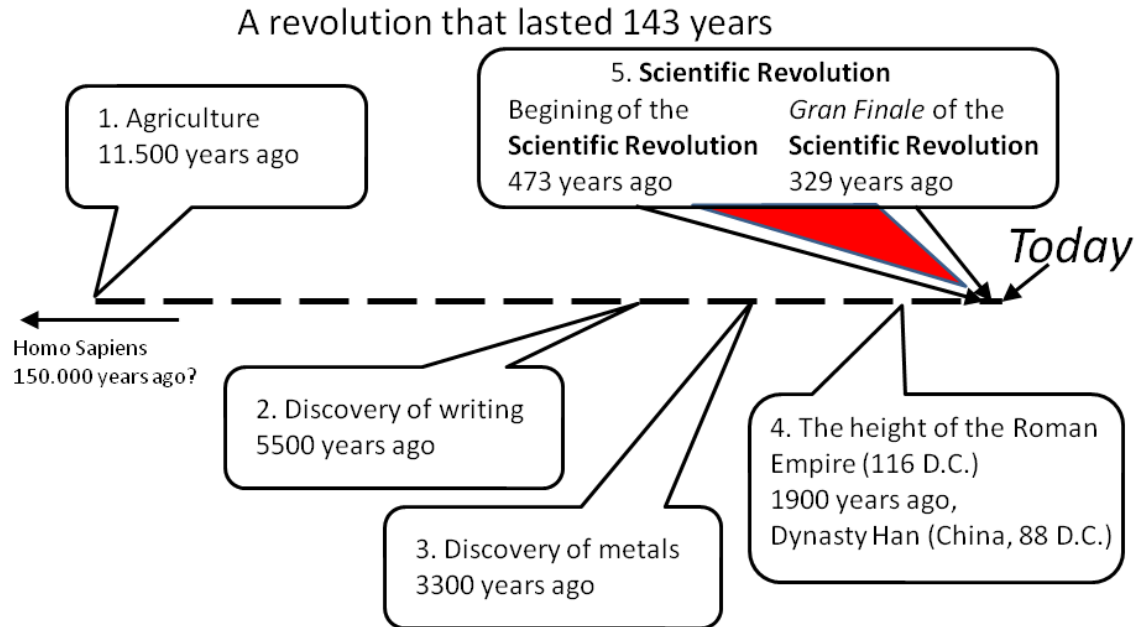


The scientific revolution (modern science): One of the five most important events in the construction of civilization.

Jorge L.S. Leão, 2016.

A period from Copernicus (1543) to Isaac Newton (1687), which began the construction of modern world (not ignoring all the foundations built since the discovery of agriculture about 11,000 years ago).



Prelude:

Ibn al-Haytham (Alhazen) (965–1039), Iraq. A polymath, considered by some to be the father of modern scientific methodology, due to his emphasis on experimental data and reproducibility of its results (600 years ahead of his time).

Roger Bacon (1214 – 1292), an English thinker and experimenter, is recognized by many to be the father of modern scientific method. His view that mathematics was essential to a correct understanding of natural philosophy was considered to be 400 years ahead of its time.

The scientific revolution: from 1543 to 1687 (lasted 143 years, ended 428 years ago!):

Nicolaus Copernicus (1473 – 1543), Polish (Mikołaj Kopernik) was a Renaissance mathematician and astronomer who formulated a model of the universe that placed the Sun rather than the Earth at the center of the universe. *De revolutionibus orbium coelestium* (On the Revolutions of the Celestial Spheres) just before his death in **1543**.

Giordano Bruno (1548 – 1600), was an Italian Dominican friar, philosopher, mathematician, poet, and astrologer. He is celebrated for his cosmological theories, which went even further than the then novel Copernican model. He proposed that the stars were just distant suns surrounded by their own exoplanets and raised the possibility that these

planets could even foster life of their own (a philosophical position known as cosmic pluralism). He also insisted that the universe is in fact infinite and could have no celestial body at its "center". Beginning in 1593, Bruno was tried for heresy by the Roman Inquisition on charges including denial of several core Catholic doctrines (including the Trinity, the divinity of Christ, the virginity of Mary, and Transubstantiation). Bruno's pantheism was also a matter of grave concern. The Inquisition found him guilty, and in 1600 he was burned at the stake in Rome's Campo de' Fiori.

Galileo Galilei (1564 – 1642). According to Morris Kline, "Modern science owes its present flourishing state to a new scientific method which was fashioned almost entirely by Galileo Galilei". He was tried by the Inquisition, found "vehemently suspect of heresy", forced to recant, and spent the rest of his life under house arrest.

Francis Bacon (1561 – 1626), English philosopher, statesman, scientist, jurist, orator, and author. He served both as Attorney General and Lord Chancellor of England. After his death, he remained extremely influential through his works, especially as philosophical advocate and practitioner of the scientific method during the scientific revolution.

René Descartes (1596 – 1650), a French philosopher, mathematician, and scientist. Dubbed the father of modern western philosophy, much of subsequent Western philosophy is a response to his writings.

Isaac Newton (1642 – 1726/27) was an English physicist and mathematician (described in his own day as a "natural philosopher") who is widely recognized as one of the most influential scientists of all time and as a key figure in the scientific revolution. *Philosophiæ Naturalis Principia Mathematica* ("Mathematical Principles of Natural Philosophy"), first published in **1687**.

Philosophy:

David Hume (7 May 1711 NS (26 April 1711 OS) – 25 August 1776) or David Home (birth name) was a Scottish philosopher, historian, economist, and essayist. A Treatise of Human Nature (1739).

Immanuel Kant (22 April 1724 – 12 February 1804), major work, the Critique of Pure Reason (Kritik der reinen Vernunft, 1781)

The next 320 years... an exponential advance of science and technology... and a popping of PSEUDOSCIENCE.