

HISTORY OF BIOLOGY TOPICS

revised 2016

Formerly, I created a web page with links to images of these scientists and some of their experiments, but because the College has withdrawn their support, is no longer available. I HOPE I will be able to restore this page in the near future...

GREEKS	Radical Greeks embraced the concept of rational explanations of what they observed and experienced rather than crediting all experiences to the Gods. But still embraced the Geocentric model of universe)
Socrates (~469-399BC)	Use the power of logic, promoted rational explanation of universe. Eschewed use of supernatural explanations. Accused of “corrupting the youth,” his reward from society was Poison Hemlock...
Plato: (427-347 BC)	Believed in “ the perfect form ”. Wrote dialogs describing Socrates’ teaching. <i>NB: Republic, Timaeus.</i>
Aristotle , (384-322 BC)	“Father of Biology,” promoted system of qualities yielding 4 elements, and the Geocentric model of the universe. Alexander the Great was his pupil. (See below for <i>Scala Naturae</i> system of taxonomy.)
Galen , (130-200 AD)	Greek slave-physician to the Romans, founder of experimental physiology , dissected apes himself (not by slave-servants as was the custom). Noted heart anatomy, hand function, no air in veins. "God makes naught in vain": Purpose could be deduced from structure. Defined humors : bodily fluids, assigned personalities to each, adjust elements to cure sickness.
Role of Catholic Church during the dark ages.	The Church’s evolving dogma embraced Aristotelian view of universe, protected it from challenge. Dogma : The <i>Aristotelean Corpus</i> [“body” of teaching] is absolute truth second only to the Bible.
ASTRONOMY	SCIENTIFIC REVOLUTION (Geocentric gives way to Heliocentric model)
Nicholas Copernicus (died 1543)	His <i>De Revolutionibus</i> proposed the heliocentric model: the sun is the center of the solar system, the earth rotates on its axis, orbits around sun as other planets , explained retrograde motion of planets.
Johannes Kepler (1571-1630)	Developed laws of planetary motion. Orbits are elliptical. Mostly theoretical, therefore not challenged.
Galileo Galilei (1564-1642)	First to turn telescope to skies. Saw mountains on moon, moons of Jupiter moving around. (Video) Under church’s threat of death, he retracted to save his life, placed under house arrest for rest of life.
TAXONOMY	“Rules for arranging” System for classification living organisms.
Aristotle , (384-322 BC)	<i>Scala Naturae</i> , placed man at top of ladder, primitive at bottom. Species permanent, fixed, unchanging
Carolus Linnaeus (1707-1778)	Swedish botanist wrote <i>Systema Naturae</i> and <i>Genera Plantarum</i> . Developed system of taxonomy systematizing plants according to flower structure, believed species fixed, assigned binomial scientific names: <i>Genera species</i> as in <i>Homo sapiens</i> . (LEARN FORMAT).
GEOLOGY	Studies of the age of earth, processes, extinct animals. (Bible implies a 6000 year-old earth.)
Georges-Louis Leclerc de Buffon (1707-1788)	French aristocrat (wealthy at 25 yrs), popularized Natural History. He was the first to suggest that changes DO occur: over time through degeneration
James Hutton (1726-1797)	Geologist suggested in 1795 that the geological processes which shaped the earth are same today as in ancient times. They are very slow to act (gradualism).
William 'Strata' Smith (1769-1839)	English surveyor, father of engineering geology. While surveying for canal, noted strata above coal was tilted (support Hutton), but the strata were regular. Could identify given stratum by diagnostic fossils (1816): principle of index fossils . (It was clear that upper strata were formed layer by layer over a long period of time on top of older strata. [Show local Clermont fossils, Ordovician Period]
George Cuvier (1769-1832)	French anatomist, founder of paleontology [paleo- old, ancient, onto-: existing things], studied fossil remains, noted the deeper fossils were more dissimilar to present ones. First to put together mastodon (Mammoths have single set of tusks, mastodons have second set of tusks in lower jaw). Suggested change in species was one of elimination: catastrophism . Now: believe 99% species extinct.
Charles Lyell (1797-1875)	<i>Principles of Geology</i> : uniformitarianism : as Hutton: geological processes are <i>same today</i> as in the past, at the same slow rate. Lyell’s work, taken along with Hutton’s (above) concluded that it took longer than the 6,000 yrs as chronicled in the Bible, and that change is the normal course of events.