

## Predecessors to Darwin's *Origin of Species*

1. Great Chain of Being (Classical and Medieval)—Establishes a belief in an orderly, organized creation that is hierarchical and graduated in design
2. Progress (Enlightenment)—Holds to a gradually improving state for humanity. History has a direction and a measure of development change.
3. Leibniz, Herder (18<sup>th</sup> century)—Spiritual developmentalism
4. Diderot, d'Holbach, Buffon (18<sup>th</sup> century)— ideal of spontaneous generation of new species

### Early 19<sup>th</sup> Century

1. James Hutton (1795)—Steady-state Vulcanism; older age for Earth
2. Erasmus Darwin, *Zoonomia* (1796); *Temple of Nature* (1802)—proto-evolutionary ideas of common animal ancestry
3. Thomas Malthus, *Essay on Population* (1798)—“The power of population is indefinitely greater than the power in the earth to produce subsistence for man. Population, when unchecked, increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio.”
4. William Smith (ca. 1800)—Analysis of geological strata
5. William Paley, *Natural Theology* (1802)—Classic design arguments—the watchmaker thesis; the young Darwin will read with interest, only to later reject.
6. Jean-Baptiste Lamarck, *Zoological Philosophy* (1809)—the transmutation of species through acquired characteristics.
7. Georges Cuvier, *The Animal Kingdom* (1817)—Animal classification; extinction; geological catastrophism
8. Étienne Geoffroy Saint-Hilaire, *Anatomical Philosophy* (1818, 1822)—Lamarckian transmutation; “the unity of composition.” Comparative anatomy.

### Mid 19<sup>th</sup> Century

1. William Buckland and Richard Owen (1820s and 30s)—Descriptions of dinosaurs and dinosaur fossils.
2. Charles Lyell, *Principles of Geology* (1830-1833)—Principle of uniformitarianism; strong stress on *verae causae* (“real cause”) evidentialism.
3. Darwin on the *Beagle* (1831-1836); 1842—first draft of his theory
4. Robert Chambers, *Vestiges of the Natural History of Creation* (1844)—Anonymous popular work on evolutionary origins of solar system, animal species. Chambers posited a linear evolution.
5. Darwin, *Big Species Book* (1854-1858)—compiling unpublished research notes
6. Alfred Wallace (Feb 1858)—comes forth with his essay proposing nearly the same as Darwin.

### Evolutionary Theory Timeline

<b>Time Period</b>	<b>Name</b>	<b>Theory</b>
1600s	Archbishop James Ussher of Armagh	<ul style="list-style-type: none"> <li>• World was created by God on Sunday October 23, 4004 B.C.</li> <li>• One big creation event.</li> <li>• Environment and organisms were <b>immutable</b> and did not change.</li> </ul>
1700s	Baron Georges Cuvier	<ul style="list-style-type: none"> <li>• Extensively investigated fossils.</li> <li>• Found deeper fossils did not match those close to surface.</li> <li>• Not one single creation event.</li> <li>• Idea of <b>catastrophism</b>, claimed that global catastrophes like caused extinctions, and new organisms replaced them.</li> </ul>
Late 1700s	Georges Buffon	<ul style="list-style-type: none"> <li>• Species could change over time create new organisms.</li> </ul>
Late 1700s	Carl Linnaeus	<ul style="list-style-type: none"> <li>• Few species formed many new species.</li> <li>• Possible through hybrids of interbreeding between species.</li> </ul>
Late 1700s	Erasmus Darwin (Grandfather of Charles Darwin)	<ul style="list-style-type: none"> <li>• Wrote first major paper discussing idea of “evolution”.</li> <li>• Saw strong evidence for idea that life developed from a single source</li> </ul>
1830s	Sir Charles Lyell	<ul style="list-style-type: none"> <li>• Developed the idea of <b>uniformitarianism</b>:               <ol style="list-style-type: none"> <li>1. Earth is being affected by same processes from start.</li> <li>2. Geological change is slow and gradual, not sudden and catastrophic.</li> <li>3. Natural laws and processes are constant and eternal.</li> </ol> </li> </ul>
1800s	Jean Baptiste Pierre Antoine de Monet, Chevalier de Lamarck (aka Lamarck)	<ul style="list-style-type: none"> <li>• Idea of adaptation for survival.</li> <li>• Not that species could give rise to other species, but that simple species became complex and improved, evolutionary change.</li> <li>• <b>Spontaneous generation</b>, living organisms arising from non-living matter, create new species.</li> <li>• Idea of acquired traits, adaptations due to environment that could be passed on to the next generation</li> </ul>
1859	Charles Darwin	<ul style="list-style-type: none"> <li>• Published On the Origin of Species, contained theories of natural selection</li> </ul>
1972	Niles Eldridge and Stephen Jay Gould	<ul style="list-style-type: none"> <li>• Idea of <b>punctuated equilibrium</b>, evolution happens at points, followed by periods of stasis</li> <li>• Goes against idea of <b>gradualism</b></li> </ul>

Select a period of time for a detailed breakdown of what happened then...

...or jump straight to a major concept in one of these four disciplines:

