

Aim: What is the mechanism for speciation on Earth?

DN: Leading EC questions from AMNH trip as promised. Biodiversity lab completes tomorrow—don't forget your character matrices and answer packets. HW 19 due today. And finally, Phoenix probe just landed on Mars. What are they looking for and why?

✓ GEOLOGIC TIMELINE FOR LIFE ✓

Notes on origin of early life, Miller/Urey, stromatolites...add as you go, people.

2.5bya=2500mya: Precambrian

Atmospheric oxygen accumulates from photosynthetic cyanobacteria

1.8bya=eukaryotic origins

1.7bya=eukaryotic fossils seen

1bya=multicellular organisms

650mya=oldest animal fossils

500mya=plants and symbiotic fungi colonize land: Paleozoic

250 mya=dinos present: Mesozoic: Triassic/Jurassic/Cretaceous

200mya=mammals emerge

65mya=dinos extinct (Cretaceous): Mesozoic

100000ya=Homo sapiens emerges

Go here for clarification: <http://www.ecotao.com/holism/bp.htm>

Early theories

Hutton and Lyell

Lamarck (1801)

DeVries (1901)

Weismann (1800's)

<sup>(1850)</sup>  
Darwin: adaptation and selection are mechanisms for speciation

Darwin and Wallace: (1850's)

Descent with modification

Natural selection

Origin of species published 1859

Evolution is a function of natural selection. resulting from expressed genes interacting with environment.

ELDRIDGE + GOULD (1975)

Evidence

Homology

Vestiges

Embryonic development

Macromolecules

Fossil record