

Honor 2103  
Darwin Lecture 1

**Before Darwin**

*The Origin of Species* (1859) marks a revolution in scientific (and popular) thinking about the nature and mechanisms of evolution, species, and life in general. But to understand how revolutionary Darwin's ideas of natural selection and common descent were, we need to appreciate the scientific and intellectual climate prior to its publication.

**Developments**

- Newtonian Science and Technology
  - Observations, hypothesis (generalization), test
- Geology: catastrophism
  - (and emerging uniformitarianism with Lyell; deep time and processes)
- Immutability/mutability of species
  - Special creation for each species
  - Change over time?
- Adaptation and Natural Theology
  - Organisms appear to be well fitted to their environment (adapted); why? How?

**Paley's Watch**

- Design argument: finding a watch on the heath.... Analogy with organisms/species...
- Design implies designer; adaptation accounted for by divine design
- Teleology and supernatural explanation: for deity's purposes

**Lamarck's Acquired Traits**

- Traits acquired by an individual in their lifetime could be passed on to next generation, accounting for adaptation.
- Process: Environmental change → change in needs of organism → change in activities/habits → inherited trait (?)
- *Scalae naturae*: graduated scale of nature, tends toward improvement/progress.
- Teleological and natural explanation: species adapt to environment

**3 Chief Problems**

- Adaptation
- Mutability of species
- Natural vs. Supernatural explanations