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Lecture Date: Thursday, January 24, 2008

Announcements:

- Track 2 applications are due tomorrow.
- There are no notes for Tuesday, January 22, 2008.

## HISTORY OF EVOLUTIONARY THINKING

### I. Introduction

- A. In 1858, Darwin and Wallace co-published a theory on evolution by natural selection. In doing so, they set the foundation of evolutionary biology.
- B. Both Darwin's and Wallace's ideas were inspired by interests in scientific collecting and extensive travel. In particular, Darwin was an avid beetle collector, and his voyage on the HMS Beagle was pivotal to forming his ideas regarding evolution.
- C. In 1859, Darwin followed this by publishing *The Origin of Species by Means of Natural Selection or The Preservation of Favoured Races in the Struggle for Life*.
- D. In this publication, he proposed two theories:
  1. The Theory of Evolution
  2. The Mechanism of Natural Selection

### II. The Context for *The Origin of Species*

- A. Darwin and Wallace weren't the first people to talk about evolution, although they were special because they *synthesized* the patterns and processes of evolutionary change.
- B. In 1859, the socio-political environment was a critical factor in Darwin's thinking at the time. In particular, it was a period of potential social unrest, highlighted by increasing technological change, industrialization, and urbanization. This environment discouraged any questioning of authority, especially the religious institution of the church.
- C. There were two existing theories that were influential at the time:
  1. Jean Baptiste de Lamarck (1744-1829) is credited with the first theory of evolution (*please refer to slide for a visual description of this theory*).
    - a) This theory proposed that changes in the organic and inorganic world are due to changes in the natural law, not miraculous intervention.
    - b) Organisms change progressively. That is, the change is always linear from simpler to greater complexity.
    - c) New simple organisms can be created by spontaneous generation.
    - d) Lamarck's proposed mechanism maintained that organisms change via the inheritance of acquired characteristics, which are passed from generation to generation (ex. neck length in giraffes).
  2. Theory of Special Creation (Judeo-Christian, mid-1800s)
    - a) This theory maintained that all species were created virtually at the same time.