

- **I. Charles Darwin**

- **A. Formal education a series of humiliating disaster**

- 1. Dropped out of medicine because he couldn't stand the sight of blood
- 2. Pursued clergyman training, but was an...

- **B. Playboy student**

- 1. Hunt game and collected beetles

- **C. Sailed on a voyage (of the Beagle) with British Admiralty**

- 1. Turning point and crucial in formulating theory of evolution

- **D. Acute observer of plant and animal life**

- 1. Gathering a significant set of valuable species on his voyage

- **E. Inherited wealth enabled him to devote himself full-time to scholarly activity**

- **F. Daily correspondence with scientific committee during his voyage**

- 1. Increase his otherwise low confidence, which was argued to be the more important than his findings

- **II. Influences**

- **A. Ancestry**

- 1. Erasmus Darwin: Famous English evolutionist and naturalist

- **B. Rising public interest in evolution**

- 1. Number of known plants and animals were doubling every generation
- 2. Existence began to challenge existing beliefs
- 3. Evolutionary thinking an idea developed before Darwin's theory was available
 - a) But no one, but Darwin, recognised the theoretical significance

- **C. John Henslow**

- 1. Professor at Cambridge, transformed him from playboy student into serious naturalist
- 2. Acted as scientific agent for Darwin during his Beagle voyage

- **D. Charles Lyell's *Principles of Geology***

- 1. Lyell argued that earth has undergone geological change; Darwin argued that biological changes have also occurred
- 2. Passed to him through Henslow before voyage
- 3. Darwin's initial fame was in geology through his work on coral reefs

- **E. Adam Smith's *laissez-faire* economics (economist)**

- 1. Paralleled economic competition to the struggle for food and territory
- 2. Most severe amongst individuals of same species

- **F. Adolphe Quetelet's *Frequency Curves* (statistician)**

- 1. *Frequency curve* for the distribution of a characteristic due to *random variation*

- 2. Darwin: In any given population, some individual units possess more of a certain characteristic, thus adapting better to environment
- **G. Thomas Malthus's *Essays on the Principle of Population* (social scientist)**
 - 1. Key to Darwin's evolutionary theory
 - 2. Food increases arithmetically; population geometrically; leading to checks on population growth such as war, famine and natural disasters
 - 3. Darwin:
 - a) Population pressure creates struggle for existence as they compete for available food
 - b) Nature as a selective force, weeding out the weak and allowing development of those which adapted
- **H. Sir Herbert Spencer's "survival of the fittest"**
 - 1. Living things that are best able to utilise the resources in environment will produce greatest number of offsprings per period of time
 - a) Overproduction allows survival; under results in extinction* (difference with Lamarck)
 - 2. Spencer later applied evolutionary theory to social life as social Darwinism
 - 3. But Darwin denied that his theory was influenced by Spencer
- **I. Lamarck's Evolutionary theory**
 - 1. Darwin reacted against Lamarck's theory
 - a) http://evolution.berkeley.edu/evolibrary/article/_o/history_09
 - b) Use and disuse vs Variation
 - (1) Natural (and accidental) variation exists regardless of needs vs Changes with use
 - c) Transmission of acquired characteristics vs Inheritance
 - d) Increasing complexity vs Differential survival
 - (1) Not driven by nature, but by competition for survival
 - e) No extinction vs Extinction
- **J. Alfred Russel Wallace**
 - 1. Naturalist who independently formulated his theory of natural selection and sent to Darwin for informal evaluation
 - 2. Forced Darwin to hasten the publication of his own work which he feared
- **K. Thomas Huxley**
 - 1. Darwin's 'bulldog'
 - 2. Helped Darwin, who was in poor health, to defend his evolutionary theory
- **III. Found**
 - **A. Rhea: New species of South American ostrich (later renamed rhea darwini)**
 - 1. Existence of two species led him to ponder if one evolved from another
 - 2. Question conventional wisdom that each species fit its home environment perfectly

- **B. Galapagos Islands Finches and Giant turtles**

- 1. Beak adapted to ecological niche
- 2. Governor told Darwin he could differentiate which island the turtle came from by its characteristics

- **IV. Developed**

- **A. Natural selection and Evolutionary theory**

- 1. Precipitated by work of a social scientist, an economist and statistician
- 2. New species originate not by divine creation
 - a) Against people's belief that number of species fixed and unchanging (from Noah's ark)
- 3. But by a process where new species arise while others become extinct through **differential survival**
 - a) Individuals whose variations are best suited to environment will have greatest probability of reproducing their own kind

- **V. Impact**

- **A. Herbert Spencer's social darwinism gave rise to sociology**

- 1. Spencer gain support of capitalists; laissez-faire capitalism as the key to societal progress
- 2. Theory attracted criticisms from Cooley and Park, but drawn them to sociology
- 3. Gave life to the name and idea of sociology (Cooley)
- 4. Park became known as first theorist of mass communication

- **B. Park's work on urban ecology directly influenced by Darwinian evolutionary theory**

- **C. Launched the study of nonverbal communication**

- 1. Darwin's *The Expression of the Emotions in Men and Animals*
- 2. Established field of nonverbal communication
- 3. Facial expressions inherited genetically than learned

- **D. Key concepts borrowed by population ecology scholars**

- 1. Although developers of the theory Hannan and Freeman denied
- 2. Uses evolutionary concepts (e.g. environment, competition for scarce resource, survival) to predict life and death of organisations over time
- 3. To understand survivability of species of organisations
 - a) e.g. radio broadcasting being partially displaced by television industry
- 4. Purpose to explain reasons for survival or extinction of units in a system

- **E. Directly influenced Karl Marx in formulating dialectical materialism**

- **F. But Darwin's theory not actively advanced/recognised by communication scholars today**