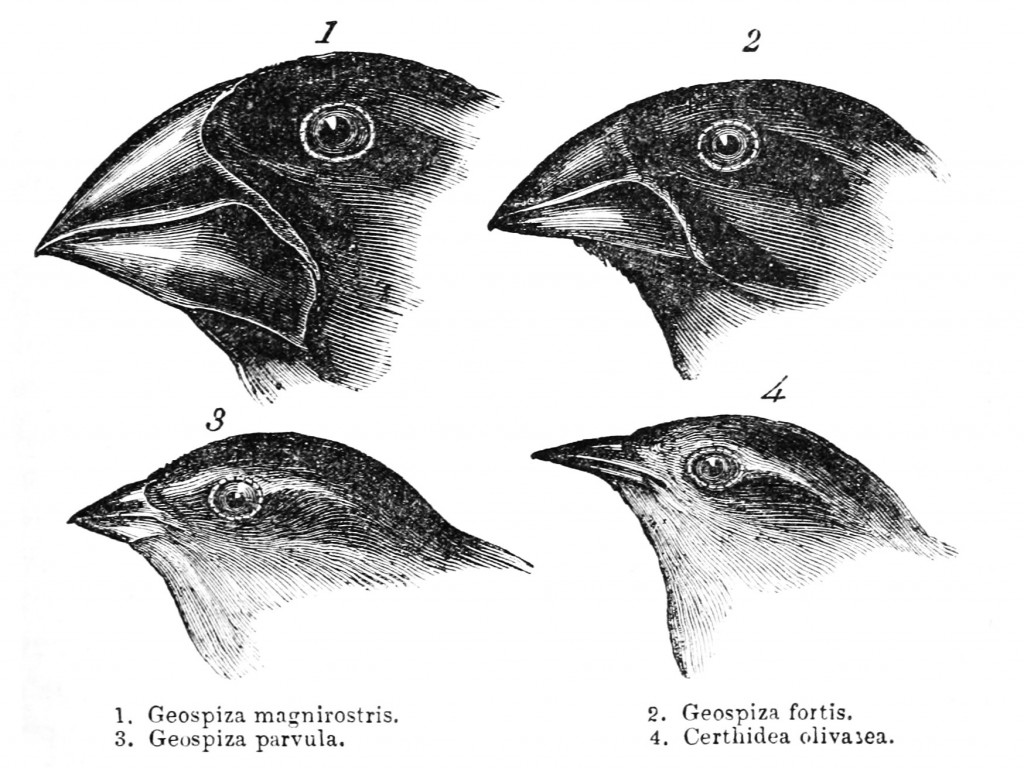
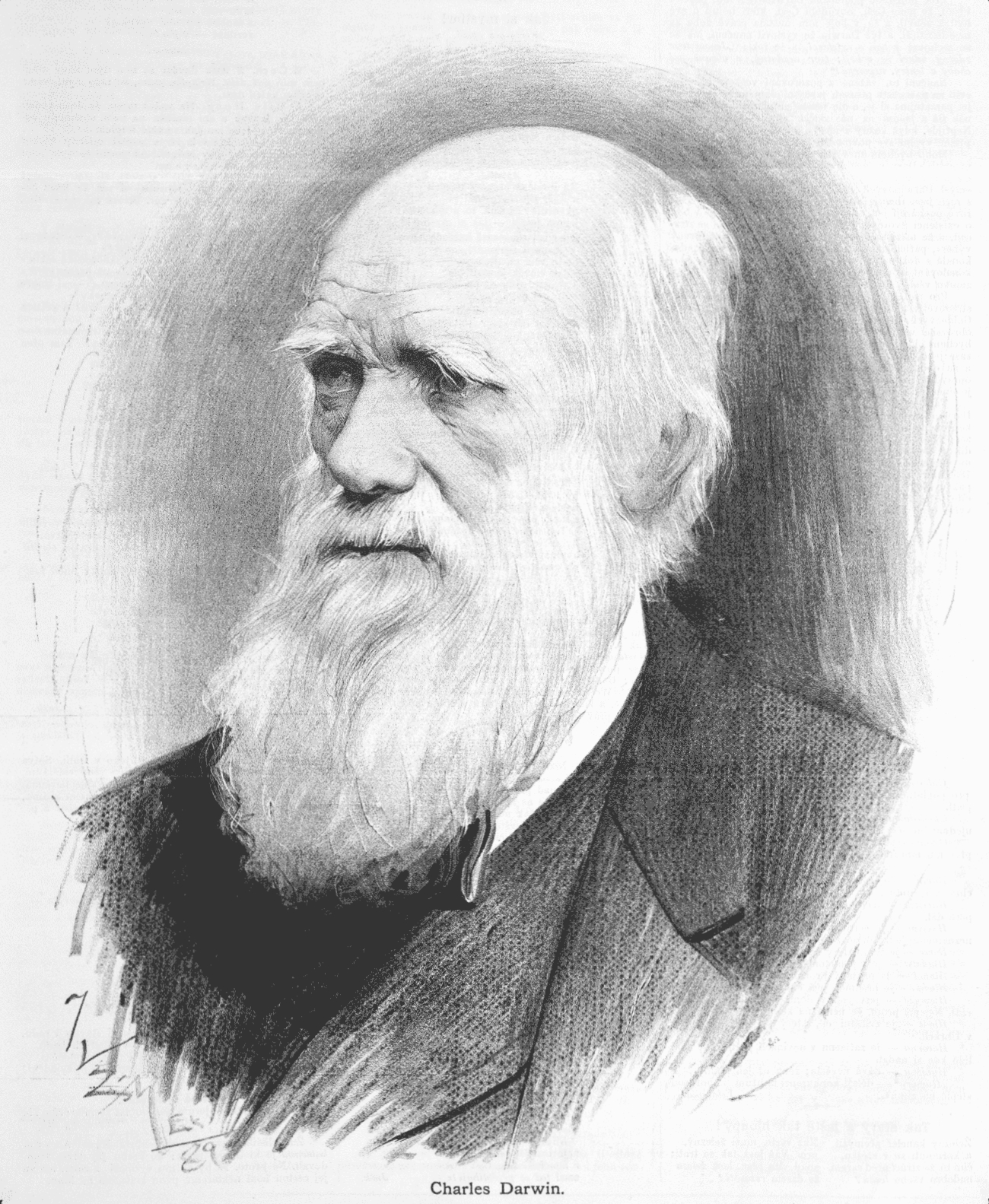
Smigala15



**Bio 21: Ch. 15-16.1: Evolution**



How has life on Earth changed over time?

**Vocabulary:**

Evolution 15.1

Acquired characteristics/trait

Origin of Species

Descent with modification

Natural selection

Overproduction

Genetic variation

Struggle to survive

Adaptation

Differential reproduction

Fitness

Biogeography15.2 Homologous structures

Analogous structures

Vestigial structures

Embryology

Convergent 15.3 evolution

Divergent evolution

Artificial selection Coevolution

Population genetics16.1

Variation

Gene pool

Allele frequency

Hardy-Weinberg genetic equilibrium

Genetic drift16.2

Stabilizing selection

Disruptive selection

Directional selection

Speciation16.3 Geographic isolation

Gradualism

Punctuated equilibrium

**Scientists:** J.B. Lamarck C. Darwin E. Darwin C. Lyell T. Malthus

**Ch. 15.1 p. 296-301**

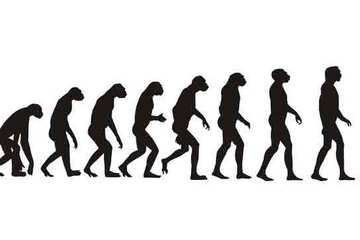
1. What is J.B. Lamark’s theory of evolution? Why do we still cite it today?
2. Who is Charles Darwin? What observations and information prompted him to develop his theories about evolution?
3. What is natural selection? What are the 4 overriding factors involved in this process?
4. Can an individual evolve according to Darwin’s theories? What is fitness?
5. What kinds of organisms have an adaptive advantage?

**Ch. 15.2 p. 302-307**

1. What evidence do scientists cite in support of evolution? Give a description of each. (You should have at least 7 examples.)

**Ch. 15.3 p. 308-310**

1. Distinguish between convergent and divergent evolution.
2. Distinguish between artificial and natural selection.
3. What are 3 examples of coevolution?



**Ch. 16.1 p. 316-320**

1. What is population genetics? Why is the study of this form of genetics important to the study of evolution?
2. What causes variation within a population?
3. What is the gene pool? Compare a “deep” gene pool with a “shallow” gene pool.
4. a. What is the Hardy-Weinberg equation used to calculate?

b. Why is it useful?

c. What are the assumptions that must be made when using this calculation?

**Ch. 16.2 Skim p. 321-325**

1. Explain and give an example of genetic drift.
2. Contrast by explanation the 3 forms of natural selection and use a graph for each: 1. Stabilizing selection 2. Disruptive selection 3. Directional selection

## Ch. 16.3 Skim p. 326-329 Read p. 330

1. Explain what speciation is.
2. How is a species defined?
3. Explain how geographic isolation can lead to speciation. Give an example.
4. Distinguish between the 2 models of speciation: gradualism and punctuated equilibrium.

