

Chapter 2. Charles Darwin and Evolutionary Theory

Learning Objectives

- To understand the life and times of Charles Darwin.
- To become familiar with the men and women who influenced Darwin before and after the Voyage of the Beagle.
- To recognize the importance of the Voyage of the Beagle.
- To understand the Creationism, Intelligent Design, evolution arguments.
- To recognize the element of evolution of natural selection.

Topics for Discussion/Possible Essay Questions

- Why did Dobzhansky (1973) say, and most biologists and anthropologist agree, that “Nothing in Biology makes sense except in the light of evolution.”
- Why is Charles Darwin considered to be on a par with Newton, Freud, and Einstein?
- What is the relationship between natural history and science?
- Why did Darwin become an abolitionist?
- Why are some Americans opposed to the notion of evolution?
- Discuss the Kitzmiller V Dover Area School District decision and the First Amendment of the U.S. Constitution.
- What role did the Finches of the Galapagos play in the development of the idea of evolution by natural selection?

Terms and Places Students Should Know

Edinburgh University in Scotland

Christ's College at Cambridge University

HMS Beagle

Galapagos Islands

Abolitionists

Genesis

4004 BCE 8 PM October 22

Omnipotence

Natural Theology

Intelligent Design

Kitzmiller v. Dover Area School District

First Amendment, US Constitution

Creationism

Ecological Niches

Evolution by Natural Selection

Darwin's Finches

Down House

Zoonomia

Inheritance of Acquired Characteristics

Principles of Geology

Uniformitarian Geology

Struggle for Existence

Natural Selection

Blending Inheritance

BCE/CE

People Students Should Know

Charles Darwin

Adam Sedgwick

John Henslow

Robert Fitzroy

Josiah Wedgwood

Archbishop Usher

William Paley

Michael Behe

Kenneth R Miller

Peter Grant

Rosemary Grant

Thomas H. Huxley

Charles Lyell

Erasmus Darwin

Jean-Baptiste de

Lamarck

Thomas Malthus

Alfred R. Wallace

Multiple Choice

1. Charles Darwin

- A. was an excellent student of Greek and Latin Classics.
- B. enjoyed medical school.
- C. was recommended to be the naturalist on the HMS Beagle.
- D. did not finish his education as a minister.

Answer: C

Page Reference: 11

2. While at Cambridge, Darwin

- A. found that he enjoyed natural history.
- B. never liked collecting beetles or long walks in the countryside.
- C. discovered that his father would not give his blessing for his job as naturalist on the HMS Beagle.
- D. was not exposed to science.

Answer: A

Page Reference: 11

3. Charles Darwin

- A. was not concerned with slavery.
- B. was a life-long abolitionist.
- C. was indifferent to the suffering of slaves.
- D. saw no contradiction between beating slaves and praying in Church.

Answer: B

Page Reference: 13

4. The Voyage of the Beagle was to

- A. collect slaves for England.
- B. map the coast of South America.
- C. buy tobacco.
- D. look for vacation sites.

Answer: B

Page Reference: 12

5. Darwin's position on the Beagle
- A. was that of naturalist.
 - B. as a research scientist of mountains.
 - C. to help steer the ship.
 - D. was to disprove "special creation."

Answer: A

Page Reference: 12

6. 4004 BCE
- A. is written in Genesis as the time God created the universe.
 - B. has been scientifically proven to the beginning of the earth.
 - C. was calculated to be the date of creation by William Paley in his book "Natural Theology."
 - D. was derived as the date of creation by Archbishop Usher by counting the generation in Genesis.

Answer: D

Page Reference: 15

7. The problem with the Intelligent Design notion of irreducible complexity is that
- A. there is no biological complexity to explain.
 - B. many complex biological structures had different functions in ancestral forms.
 - C. science cannot explain how the eye evolved.
 - D. scientists cannot explain biological complexity.

Answer: B

Page Reference: 15

8. There were versions of the evolution of species before Darwin, including
- A. Charles Lyell, who wrote on the inheritance of acquired traits.
 - B. no ideas regarding evolution preceded Darwin.
 - C. Erasmus Darwin's poem Zoonomia.
 - D. Lamarck, who cut off the tails of mice.

Answer: C

Page Reference: 20

9. A problem for Darwin was
- A. his disagreement with Alfred Russell Wallace.
 - B. a lack of understanding of the nature of biological variation.
 - C. no evidence that population growth outstrips resource availability.
 - D. lack of travel outside of England.

Answer: B

Page Reference: 28

10. Uniformitarian geology was
- A. not an influence on Charles Darwin's ideas of natural selection.
 - B. the idea that the earth's geology was set at the time creation.
 - C. the idea that the earth's geology changed slowly over long periods of time.
 - D. an idea linked to Noah's flood.

Answer: C

Page Reference: 28

True or False

1. No modern study has confirmed that beak size in Darwin's finches came about by natural selection.

Answer: F

Page Reference: 18

2. Creationism and Intelligent Design trace their ancestry to the writings of William Paley the beginning of the 1800s.

Answer: T

Page Reference: 15

3. Thomas Malthus argued that population growth if left unchecked would outstrip food supplies.

Answer: T

Page Reference: 23

4. Alfred Russell Wallace was not given credit by Charles Darwin as a co-discoverer of evolution by natural selection.

Answer: F

Page Reference: 25

5. The writings of Thomas Malthus influence both Charles Darwin and Alfred Russell Wallace.

Answer: T

Page Reference: 25

Fill in the Blank

1. _____ calculated the year of creation by counting the generations between Adam and Abraham.

Answer: Archbishop Usher

Page Reference: 15

2. In 1803, _____ wrote Natural Theology, in which he argued that, just as a watch requires a watchmaker, nature requires a creator.

Answer: William Paley

Page Reference: 15

3. _____ is the idea that all plants and animals were designed by God for the place in nature they currently occupy

Answer: Special Creation

Page Reference: 15

4. _____ is associated with an early idea on evolution with his idea of the inheritance of acquired characteristics.

Answer: Jean-Baptiste de Lamarck

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5. _____ is/was known as Darwin's Bulldog.

Answer: Thomas Henry Huxley

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