

Lecture #19 Thursday April 10 2008: Teaching the Controversy over Evolution

Like the Big Bang, evolution and natural selection are controversial in the public realm, *not* among scientists.

Often cast as an issue of “science versus religion.” Not true.

Important: must distinguish between *origin of life on Earth* (still poorly understood, many “just-a-theories”) and *evolution of life* (strong evidence)

Wide variety of anti-evolution attitudes:

- (Geocentric cosmos)
- Young-Earth creationists
- Old-Earth creationists
- Intelligent design

None present scientific, falsifiable frameworks (i.e., wide-ranging explanations of known facts + coherent, testable, predictions). Instead a collection of criticisms of evolution.

Attacks on evolution:

1. *Gaps in fossil record.* (Being filled in all the time. Impossible to satisfy.)
2. *“Irreducible complexity:”* “I can’t figure out how this would evolve, so clearly it’s impossible.” Michael Behe, Lehigh Univ. (Again, solutions found all the time.)

Example: “Eyes are too complex to evolve gradually”

see <http://www.abarnett.demon.co.uk/atheism/evolution.html#EYES>

3. *Appeals to entropy and statistics.* (Misunderstanding of the basic concepts.)

Second law of thermodynamics: Entropy always increases *for a closed system*

Entropy is the measure of order or disorder of a system.

A hot gas, with molecules moving randomly, has high entropy. (Very disordered)

A crystal (such as ice crystals) have very low entropy.

Because humans are more complex (not = lower entropy) than algae, how could the entropy decrease to evolve complex life?

This is a false argument. Entropy *can* and *does* decrease locally.

4. *Appeal to morals.*

Quote from “young Earth creationist” website: <http://drdino.com/articles.php?spec=76>

“Do people accept evolution because of the following factors?”

- * It is all they have been taught.
- * They like the freedom from God (no moral absolutes, etc.).
- * They are bound to support the theory for fear of losing their job or status or grade point average.
- * They are too proud to admit they are wrong.
- * Evolution is the only philosophy that can be used to justify their political agenda.”

Evolution → atheism → no morality

From The Guardian (April 12, 2006)

David Rosevear, of the Portsmouth-based Creation Science Movement, said yesterday that he was not surprised at the Royal Society's move [to stand against teaching of intelligent design in schools]. "It is an atheistic faith position," he said. "Atheism is as much a religion as the Church of England and they pursue it with real vigour ... Not all scientists are evolutionists but they have to go along with it."

Natural selection makes the following predictions:

- We will continue to find more transitional fossils
- Dating of fossils will become even more consistent
- We will find even stronger correlations between the fossil record, anatomical parahomology, and molecular parahomology
- We will observe more new species arise

Creationism / Intelligent design predicts:

- Okay, so far you've found transitional fossils, but not any more
- Eventually inconsistencies in dating fossils will be found
- Eventually inconsistencies in correlations between the fossil record, anatomical parahomology, and molecular paramology will be found
- We won't see *any more* new species arise. Eventually.

Website resources:

Pro-evolution:

<http://newton.nap.edu/html/creationism/index.html>

<http://www.gate.net/~rwms/EvoEvidence.html>

<http://www.txtwriter.com/backgrounders/Evolution/EVcontents.html>

<http://www.darwin.ws/contradictions/>

Intelligent design/ old-earth Creationism:

<http://www.godandscience.org/evolution/intelligentdesign.html>

(this is the most thoughtful of the ID/creationist websites)

Young-earth Creationism:

<http://www.creationscience.com/>

<http://www.cabazondinosaurs.com/main.htm>

<http://drdino.com/index.php>

Islamic: pro Big-Bang, anti-evolution

http://www.creationofuniverse.com/html/bigbang_04.html

Also: <http://www.geocentricity.com/>