

A Brief Introduction to Intelligent Design Creationism

Supplementary Material for CFB3333/PHY3333
Professors John Cotton and Stephen Sekula
April 11, 2012

Preparation

- This lecture is a brief, brief, brief preparation for:
 - “Intelligent Design is not Science”, a guest lecture by Professor John Wise of the SMU Department of Biology
 - A discussion of this lecture on Monday, April 16, led by Professor Randy Scalise (SMU Physics), with additional information and details
 - A guest lecture by Professor Ron Wetherington (SMU Department of Anthropology) focusing on the issues related to science education

Natural Selection: A Scientific Theory to Explain Evolution

- That species change over time was not new information – but what was the mechanism by which this occurred?
- The Theory of Natural Selection: first codified by Charles Darwin, geologist and biologist, in 1858 in his publication “On the Origin of Species”
 - Speciation occurs when a population of biological organisms becomes separated in the environment and, due to pressures from the environment and the organisms’ own innate random expression of properties during reproduction, develop characteristics distinct from the original population. (“Descent with modification”)
 - Species either adapt to their environment when they express traits favorable to survival in that environment (“adaptation”), or they perish (“extinction”)



Why is Natural Selection a Scientific Theory of Evolution?

- It makes testable predictions. Here are a few old ones:
 - The Earth must be quite a lot older than 6000 years, or species would not have had time to develop
 - given the diversity of life on Earth and the time needed to exert evolutionary pressure on a species, the age was estimated at millions of years or older.
 - **CONFIRMED: radiological dating of rocks on Earth and the moon place the age of the Earth at (4.54 +/- 0.05) billion years.**
 - There must be a biological mechanism for passing along traits – even dormant ones not expressed in parents or predecessors – but it was unknown at the time Darwin published
 - **CONFIRMED: Mendel and genetics, and the eventual discovery of DNA**
 - Mass extinctions may be possible when a species, or whole classes of species, cannot adapt or do not have time to adapt.
 - **CONFIRMED: many examples, including the dinosaurs**
 - Very different species may have simply branched long ago in the environment, but should share common inheritance information (e.g. genes)
 - **CONFIRMED: Humans and chimpanzees have 99% of their genes in common and shared a common ancestor 5 million years ago; Whales and hippopotamuses shared a common ancestor at least 50 million years ago.**

What is “Creationism?”

- Mostly derived from the Abrahamic religions (Christianity, Islam, Judaism)
- There are different kinds: Young Earth Creationism, Old Earth Creationism, Gap Creationism, Intelligent Design Creationism, ...
- Some basic tenets:
 - all species were created all at once by God; their diversity was the choice of God.
 - the Earth is only about 6000 years old, as determined by adding up the ages of people relative to dates in the Old Testament and New Testament (this is a special branch of creationism called “Young Earth Creationism”)
 - humans were “specially created” by God and are not related to other species; or, they may be related to other species but are unique in that they have a “soul” and are created in the image of God.

The (Abridged) U.S. Legal History of Creationism in Schools

- 1925: The State of Tennessee v. John Thomas Scopes
 - first legal test of teaching evolution in U.S. public schools
 - Scopes found guilty of violating The Butler Act of Tennessee, which made the teaching of Evolution illegal in state-funded schools.
- 1968: Epperson v. Arkansas
 - U.S. Supreme Court decision overturns Arkansas law that prohibited the teaching of Evolution in state-funded schools
 - _ court rules that the First Amendment of the U.S. Constitution prohibits a state from tailoring education to suit the desires of a specific religious sect or dogma
- 1987: Edwards v. Aguillard
 - U.S. Supreme Court finds that a Louisiana law requiring that “creation science” be taught alongside Evolution violates the separation clause of the First Amendment of the U.S. Constitution, since the LA law advances a specific religious viewpoint.

Intelligent Design Creationism

- Tries to hide the word “God”
- Some basic tenets:
 - some or all species were “designed” by an intelligent designer
 - evidence of this design is detectable by the principle of “irreducible complexity” - a biological structure so complex that it could not have happened by selection pressure on a biological organism (popular examples: the eye, the bacterium flagellum, the immune system, . . .). This complexity allegedly can be mathematically defined and experimentally measured.
 - principle originally expressed by William Paley, a philosopher (lates 1700s), in the form of “the watchmaker” argument
 - recently renamed by Michael Behe (Professor of Biochemistry at Lehigh University and Fellow at the Discovery Institute)

The Origins of Intelligent Design Creationism

- The movement has as its foundations a paper known as “The Wedge Document,” which originated from The Discovery Institute (a Seattle-based think tank), aka “The Center for the Renewal of Science and Culture,” and states:

“The proposition that human beings are created in the image of God is one of the bedrock principles on which Western civilization was built . . . The cultural consequences of the rise of [the] triumph of materialism were devastating. Materialists denied the existence of objective moral standards . . . The Discovery Institute's Center for the Renewal of Science and Culture seeks nothing less than the overthrow of materialism and its cultural legacies.” – “The Wedge,” The Discovery Institute, 1999

How Will They Achieve This?

- By driving a wedge between science and society
 - Phase 1: conduct efforts at scientific discourse and publication to get their ideas into the science literature
 - this has largely failed, and you'll see why in John Wise's lecture on Friday
 - Phase 2: Publicity and Opinion-making
 - ongoing phase. Get laws changed in your favor, sway public opinion against science, etc.
 - Phase 3: Cultural Renewal and Confrontation
 - completely change the culture through their efforts
 - change science, change teaching, and then go after the social sciences and humanities

Faces of the ID/Creationism Movement



Michael Behe, Professor of Biochemistry at Lehigh University and Fellow at The Discovery Institute



Stephen C. Meyer, Ph.D. in philosophy, Director of the Discovery Institute's Center for the Renewal of Science and Culture and Senior Fellow at the Discovery Institute.



Philip Johnson, retired Berkley Law Professor, "Father of Intelligent Design Movement," co-founder of the Discovery Institute, credited as a founder of the Wedge Strategy.

First Legal Test of ID/C

- 2005: Kitzmiller v. Dover Area School District
 - 11 parents sued the Dover, Pennsylvania school district for requiring ID/C be taught along side Evolution
 - Pennsylvania Supreme Court found that:
 - ID is a form a creationism (which is why it's labeled ID/C these days) and thus is in violation of previous U.S. Supreme Court rulings. The teaching of ID in a state-funded school is thus a violation of the First Amendment of the U.S. Constitution.
 - Note: Judge John E. Jones III, who oversaw the trial, was appointed in 2002 by President George W. Bush and was a conservative.

Notes

- Think:
 - think about the arguments of ID/Creationism as you listen to the next few lectures – why might ID/C be or not be a science? Keep the principles of the scientific method in mind:
 - a useful hypothesis explains things that an established one cannot, and makes predictions that differentiate it from the existing theory.
 - what are the predictions, and are they testable?
 - what are the tests? Are they feasible and repeatable by independent experimentalists?
 - Ask questions:
 - take advantage of the opportunity to ask questions you might have about what you have heard or what is discussed in lecture.

Upcoming Lectures

- “Intelligent Design is not Science”, a guest lecture by Professor John Wise of the SMU Department of Biology
- A discussion of this lecture on Monday, April 16, led by Professor Randy Scalise (SMU Physics), with additional information and details
- A guest lecture by Professor Ron Wetherington (SMU Department of Anthropology) focusing on the issues related to science education
- “The Earth is Flat,” a guest lecture by Professor Fred Olness (SMU Department of Physics)
 - Fred Olness is the Chair of the Department of Physics at SMU, a Fellow of the American Physical Society, a co-spokesperson for the CTEQ Collaboration, and has formerly served as President of the SMU Faculty Senate. He is also a citizen of Earth.