

Intelligent Design

evolution: science and believe

Lorenz G. Lechner

Regensburger Nachtgespräche

20 December 2005

Outline

- 1 Motivation
- 2 The Different Positions
- 3 ID vs. Evolution
- 4 Resume

Trigger

of networks at institutes across the continent, but no central agency collects and analyzes

Rotterdam, the Netherlands. But ECDC will have to avoid duplicating structures

EVOLUTION POLITICS

Is Holland Becoming the Kansas of Europe?

AMSTERDAM—Well, not quite Kansas—after all, this is the country that legalized euthanasia and invented gay marriage. But when sci-

what she called a “fascinating conversation” with Cees Dekker, a renowned nanophysicist at Delft University of Technology who

Figure: Science 3 June 2005

What has happened?

- Hoeven announced plan to stimulate and academic debate about "intelligent design"
- Reason: a "fascinating conversation" with Cees Dekker
- biologists denounced her for blurring line between church and state
- *NRC Handelsblad*: "Does she want to go back to the Dark Ages?"
- Cees Dekker: just a "Pavlov reaction" to ID



Figure: Dutch science minister Van der Hoeven

Why Kansas?

In August 1999 the Kansas Board of Education decided to delete references to evolution from Kansas science standards. This decision was heavily influenced by advocates of intelligent-design theory.

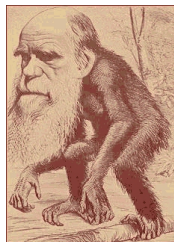


Figure: Cartoon of Charles Darwin

Overview

The Different Positions

Overview

Anti-Evolutionists

- Flat Earthers
- Geocentrists
- Young Earth Creationists
 - Omphalos
- Old Earth Creationists
 - Gap Creationism
 - Day-Age Creationism
 - Progressive Creationism
 - Intelligent Design Creationism

Evolutionists

- Evolutionary Creationists
- Theistic Evolutionists
- Materialistic Evolutionists

Non-Christian Creationism

Islamic, Vedic, American Indian, ...

Young Earth Creationists

Young Earth Creationists

-
- A black and white illustration of Noah's Ark, a large wooden vessel with a ramp, surrounded by animals and people, set against a dramatic, cloudy sky. The ark is depicted as a multi-story building with a prominent ramp leading to an open doorway. Numerous animals, including elephants and lions, are shown walking up the ramp and entering the ark. People are also visible on the deck and around the entrance. The ark is situated on a rocky, uneven terrain. In the foreground, there are large, dark, craggy rocks. The sky is filled with dramatic, swirling clouds, and a bright light source, possibly the sun or moon, is visible in the upper left corner, casting a glow over the scene.

Old Earth Creationists

Old Earth Creationists

Old Earth Creationists

Progressive Creationism is the most common OEC view today.

- Accept the evidence for an ancient earth
- Accepts most of modern physics, including Big Bang, but refuses modern biology

instead

- God created "kinds" of organisms sequentially, in the order seen in the fossil record
- Newer kinds are specially created, not genetically related to older ones

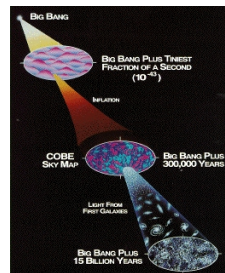


Figure: Schematic of background radiation in Big Bang theory

Intelligent Design

Intelligent Design

Intelligent Design

In large part, ID Creationism is used today as an umbrella anti-evolution position under which creationists of all flavors may unite in an attack on scientific methodology in general.

- Design must have had a designer
- Descended from Paley's argument that God's design could be seen in life
- Still makes appeals to the complexity of life, **but** the arguments have become far more technical, delving into microbiology and mathematical logic



Figure: William Paley
(1743-1805)

Theistic Evolution

Theistic Evolution

Theistic Evolution

This position is promoted by the Pope and taught at mainline Protestant seminaries.

- God creates through evolution
- Beliefs about how much God intervenes in the process vary
- Accepts most or all of modern science

and

- Invokes God for some things outside the realm of science, such as the creation of the human soul

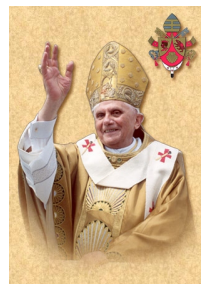


Figure: Benedict XVI

Materialistic Evolution

Materialistic Evolution

Materialistic Evolution

Materialistic evolution may be divided into methodological and philosophical materialism.

Methodological

- limits itself to describing the natural world with natural causes
- says nothing at all about the supernatural

Philosophical

- the supernatural does not exist
- not only is evolution a natural process, but so is everything else



Figure: Richard Dawkins, The Selfish Gene

The Fight



ID vs. Evolution

Contestants

Round 1

Contestants

Intelligent Design



Michael J. Behe, PhD
Professor of Biochemistry
Lehigh University, Bethlehem (PA)

Evolutionists



Kenneth R. Miller, PhD
Professor of Biology
Brown University, Providence (RI)

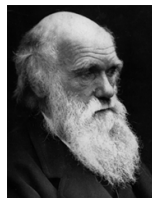
The Challenge of Irreducible Complexity

Every living cell contains many ultrasophisticated molecular machines.

By Michael J. Behe

The Challenge of Irreducible Complexity

"If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down."



Charles Darwin

The Challenge of Irreducible Complexity

- To Charles Darwin and his contemporaries, the living cell was a black box because its fundamental mechanisms were completely obscure

The Challenge of Irreducible Complexity

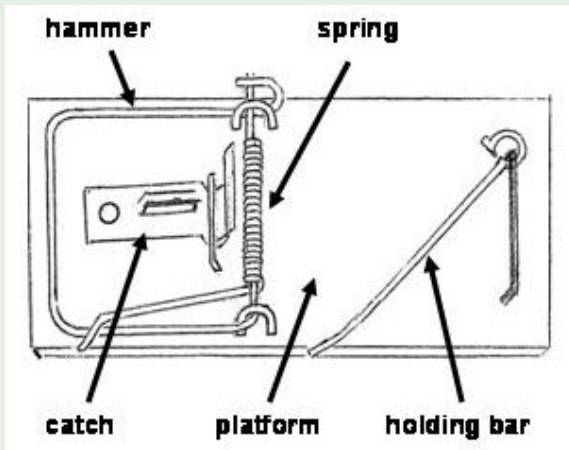
- To Charles Darwin and his contemporaries, the living cell was a black box because its fundamental mechanisms were completely obscure
- But every living cell contains many ultrasophisticated molecular machines

The Challenge of Irreducible Complexity

- To Charles Darwin and his contemporaries, the living cell was a black box because its fundamental mechanisms were completely obscure
- But every living cell contains many ultrasophisticated molecular machines
- These machines are irreducibly complex systems

The Challenge of Irreducible Complexity

Example



The Challenge of Irreducible Complexity

- To Charles Darwin and his contemporaries, the living cell was a black box because its fundamental mechanisms were completely obscure
- Every living cell contains many ultrasophisticated molecular machines
- These machines are irreducibly complex systems
- These systems are very unlikely to be produced by numerous, successive, slight modifications of prior systems

The Challenge of Irreducible Complexity

- To Charles Darwin and his contemporaries, the living cell was a black box because its fundamental mechanisms were completely obscure
- Every living cell contains many ultrasophisticated molecular machines
- These machines are irreducibly complex systems
- These systems are very unlikely to be produced by numerous, successive, slight modifications of prior systems
- Natural selection can only choose among working systems

The Challenge of Irreducible Complexity

Obvious hypothesis:

"...molecular machines appear to look designed because they really are designed."

The Flaw in the Mousetrap

Intelligent design fails the biochemistry test.

By Kenneth R. Miller

The Flaw in the Mousetrap

- Parts of a supposedly irreducibly complex machine may have different – but still useful – functions

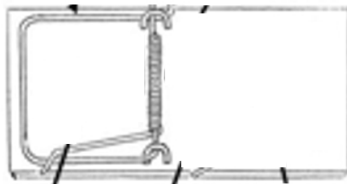
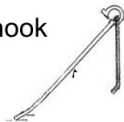
The Flaw in the Mousetrap

Example



paperweight

pin/fishhook



clipboard

The Flaw in the Mousetrap

- Parts of a supposedly irreducibly complex machine may have different – but still useful – functions
- Natural selection favors an organism's parts for different functions

The Flaw in the Mousetrap

- Parts of a supposedly irreducibly complex machine may have different – but still useful – functions
- Natural selection favors an organism's parts for different functions
- Evolution produces complex biochemical machines.

The Flaw in the Mousetrap

- Parts of a supposedly irreducibly complex machine may have different – but still useful – functions
- Natural selection favors an organism's parts for different functions
- Evolution produces complex biochemical machines.
- Working researchers see evolution in subcellular systems

The Flaw in the Mousetrap

Behe's points are philosophical, not scientific:

"...the biochemical hypothesis of intelligent design fails not because the scientific community is closed to it but rather for the most basic of reasons – because it is overwhelmingly contradicted by the scientific evidence."

Contestants

Round 2

Contestants

Intelligent Design



William A. Dembski, PhD

Associated Research Professor on
Conceptual Foundations of Science
Baylor University, Waco (TX)

Evolutionists



Robert T. Pennock, PhD

Associate Professor
Philosophy and History of Science
Michigan State University, East
Lansing (MI)

Detecting Design in the Natural Sciences

Intelligence leaves behind a characteristic signature.

By William A. Dembski

Detecting Design in the Natural Sciences

- Chance, necessity, or design covers every eventuality in ordinary life

Detecting Design in the Natural Sciences

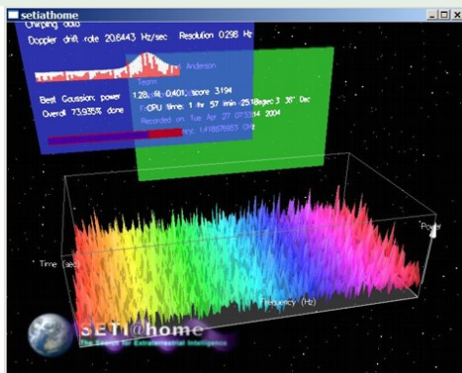
- Chance, necessity, or design covers every eventuality in ordinary life
- In special sciences ranging from forensics to archaeology to SETI the appeal to a designing intelligence is indispensable

Detecting Design in the Natural Sciences

- Chance, necessity, or design covers every eventuality in ordinary life
- In special sciences ranging from forensics to archaeology to SETI the appeal to a designing intelligence is indispensable
- Within these sciences there are well-developed techniques for identifying intelligence

Detecting Design in the Natural Sciences

Example



Detecting Design in the Natural Sciences

- Chance, necessity, or design covers every eventuality in ordinary life
- In special sciences ranging from forensics to archaeology to SETI the appeal to a designing intelligence is indispensable
- Within these sciences there are well-developed techniques for identifying intelligence
- Complex, sequenced patterns exhibit intelligence in their design

Detecting Design in the Natural Sciences

- Chance, necessity, or design covers every eventuality in ordinary life
- In special sciences ranging from forensics to archaeology to SETI the appeal to a designing intelligence is indispensable
- Within these sciences there are well-developed techniques for identifying intelligence
- Complex, sequenced patterns exhibit intelligence in their design
- Only if a sequence lacks complexity, it could happen easily by chance

Detecting Design in the Natural Sciences

"Undirected natural processes are incapable of generating the specified complexity in organisms."

Mystery Science Theater

The case of the secret agent.

By Robert T. Pennock

Mystery Science Theater

- Science requires positive evidence that biological complexity is intentionally designed

Mystery Science Theater

- Science requires positive evidence that biological complexity is intentionally designed
- Dembski has no way to show that genetic patterns are set up in advance

Mystery Science Theater

- Science requires positive evidence that biological complexity is intentionally designed
- Dembski has no way to show that genetic patterns are set up in advance
- Antievolutionists claim that evolution violates the second law of thermodynamics, but this misunderstands how the law applies to biological systems

Mystery Science Theater

- Science requires positive evidence that biological complexity is intentionally designed
- Dembski has no way to show that genetic patterns are set up in advance
- Antievolutionists claim that evolution violates the second law of thermodynamics, but this misunderstands how the law applies to biological systems
- Random genetic variation is subjected to natural selection by the environment

Mystery Science Theater

- Science requires positive evidence that biological complexity is intentionally designed
- Dembski has no way to show that genetic patterns are set up in advance
- Antievolutionists claim that evolution violates the second law of thermodynamics, but this misunderstands how the law applies to biological systems
- Random genetic variation is subjected to natural selection by the environment
- Dembski's hypothesis of design provides precious little that is testable

Mystery Science Theater

- Science requires positive evidence that biological complexity is intentionally designed
- Dembski has no way to show that genetic patterns are set up in advance
- Antievolutionists claim that evolution violates the second law of thermodynamics, but this misunderstands how the law applies to biological systems
- Random genetic variation is subjected to natural selection by the environment
- Dembski's hypothesis of design provides precious little that is testable
- Darwin followed the clues given in nature to solve the mystery of origins

Mystery Science Theater

"One may retain religious faith in a designer who transcends natural processes, but there is no way to dust for his fingerprints."

Contestants

Round 3

Contestants

Intelligent Design



Jonathan Wells, PhD

in theology and biology

Author (e.g. Icons of Evolution)

Evolutionists



Eugenie C. Scott, PhD

in anthropology

Executive Director of the National
Center for Science Education,
Oakland (CA)

Elusive Icons of Evolution

What do Darwin's finches and the four-winged fruit fly really tell us?

By Jonathan Wells

Elusive Icons of Evolution

- Many features of living things appear to be designed

Elusive Icons of Evolution

- Many features of living things appear to be designed
- Darwin's finches are one of the "icons of evolution"

Elusive Icons of Evolution

- Many features of living things appear to be designed
- Darwin's finches are one of the "icons of evolution"
- Finch beaks appear to be adapted to different foods through natural selection

Elusive Icons of Evolution

Darwin's Finches



Elusive Icons of Evolution

- Many features of living things appear to be designed
- Darwin's finches are one of the "icons of evolution"
- Finch beaks appear to be adapted to different foods through natural selection
- 1977 a severe drought wiped out 85 percent of a particular species on one island.

Elusive Icons of Evolution

- Many features of living things appear to be designed
- Darwin's finches are one of the "icons of evolution"
- Finch beaks appear to be adapted to different foods through natural selection
- 1977 a severe drought wiped out 85 percent of a particular species on one island.
- Although the survivors had, on average, slightly larger beaks, no new species emerged

Elusive Icons of Evolution

- Many features of living things appear to be designed
- Darwin's finches are one of the "icons of evolution"
- Finch beaks appear to be adapted to different foods through natural selection
- 1977 a severe drought wiped out 85 percent of a particular species on one island.
- Although the survivors had, on average, slightly larger beaks, no new species emerged
- Natural selection works only within established species

Elusive Icons of Evolution

- Many features of living things appear to be designed
- Darwin's finches are one of the "icons of evolution"
- Finch beaks appear to be adapted to different foods through natural selection
- 1977 a severe drought wiped out 85 percent of a particular species on one island.
- Although the survivors had, on average, slightly larger beaks, no new species emerged
- Natural selection works only within established species
- Major evolutionary changes require anatomical as well as biochemical changes

Elusive Icons of Evolution

"Alongside Darwin's argument against design, students should also be taught that design remains a possibility."

The Nature of Change

Evolutionary mechanisms give rise to basic structural differences.

By Eugenie C. Scott

The Nature of Change

- Darwin proposed a scientific rather than a religious explanation of nature

The Nature of Change

- Darwin proposed a scientific rather than a religious explanation of nature
- Modern science can now draw on evidence from biological processes

The Nature of Change

- Darwin proposed a scientific rather than a religious explanation of nature
- Modern science can now draw on evidence from biological processes
- Darwin's conclusion that Galapaágos finches had a common ancestor is confirmed by modern genetic analysis

The Nature of Change

- Darwin proposed a scientific rather than a religious explanation of nature
- Modern science can now draw on evidence from biological processes
- Darwin's conclusion that Galapaágos finches had a common ancestor is confirmed by modern genetic analysis
- Today scientists include additional biological processes that Darwin didn't know about (eg. gene transfer, symbiosis, chromosomal rearrangement, ...)

The Nature of Change

- Darwin proposed a scientific rather than a religious explanation of nature
- Modern science can now draw on evidence from biological processes
- Darwin's conclusion that Galapaágos finches had a common ancestor is confirmed by modern genetic analysis
- Today scientists include additional biological processes that Darwin didn't know about (eg. gene transfer, symbiosis, chromosomal rearrangement, ...)
- Evolutionary theory is not inadequate because it fits the evidence just fine.

The Nature of Change

"We actually do have solid natural explanations to work with, but even if we didn't, science only has tools for explaining things in terms of natural causation."

Resume

The infamous August 1999 decision by the Kansas Board of Education to delete references to evolution from Kansas science standards was heavily influenced by advocates of intelligent-design theory.

- ID proponents put most of their effort in swaying politicians and the public
- Leading ID organization is the Center for the Renewal of Science and Culture (CRSC)
- CRSC calls its strategy the "Wedge", because it wants to liberate science from "atheistic naturalism"

"This isn't really, and never has been, a debate about science. It's about religion and philosophy."

Philip E. Johnson
Law Professor
Anti-evolutionist

Thank You for Your Attention



"good fight, good night"

Resources

- <http://www.sciencemag.org>
- <http://www.actionbioscience.org/evolution/nhmag.html>
- <http://www.talkorigins.org/faqs/wic.html>
- ...