

Religion meets Science: the Intelligent
Person's Guide to the "Intelligent Design"
debate

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The intelligent person's guide

- Structure:
- Analysis of the evidential credentials of Darwinian theory compared to (a) 'young earth' creationism and (b) the theory of Intelligent design
- Intermingled with the history of legal attempts in the US to get 'equal time' for (a) and then (b)

Opposition to Darwin

- In particular two trials:
- 1. *McLean vs Arkansas Board of Education* (1981/2)
- 2. *Kitzmiller vs Dover Area School District* (2005)
- [This will also allow me to name and shame the worst “philosopher” of science in the UK]

The Arkansas trial

- An Arkansas state law (#590), passed in 1981, mandated the teaching of Creation Science in schools.
- Challenged by NCLU
- US context: role of the First Amendment

The Arkansas trial

- Judge William Overton – influenced in part by philosopher of science Michael Ruse



The Arkansas trial

- Judge William Overton – influenced in part by philosopher of science Michael Ruse – ruled that creationism is *not* science
- Hence it has no right to ‘balanced treatment’ within the science class.

The Arkansas trial

- “[T]he essential characteristics of science are:
 - (1) It is guided by natural law;
 - (2) It has to be explanatory by reference to nature law;
 - (3) It is testable against the empirical world;
 - (4) Its conclusions are tentative, i.e. are not necessarily the final word; and
 - (5) It is falsifiable. (Ruse and other science witnesses).Creation science ... fails to meet these essential characteristics.”

The Arkansas trial

- Was Overton overimpressed by testability?
- In fact it is more about testability than Overton explicitly realised.
- E.g. an assertion about “a sudden creation ‘from nothing’ ... is not science because it depends upon a supernatural intervention which is not guided by natural law. It is not explanatory by reference to natural law, is not testable and is not falsifiable.”
- (Though falsifiability has to be understood in a sophisticated sense)

The Dover trial

- Dover School Board taken over by religious fundamentalists
- By now Creationism had transformed itself – at any rate officially – into “the” theory of ‘Intelligent Design’ (ID)
- Dover School Board insisted that students be taught biology via an ID textbook
- This was legally challenged by some parents
- Led to *Kitzmiller vs Dover Area School District* (2005)

The Dover Trial

Intelligent Design Trial

A debate has arisen over a Pennsylvania school board's decision to teach both intelligent design and evolution in the classroom. Here are some highlights from the trial:

▶ Defense asks that scientific facts be stricken from record

▶ Beautiful painting of God creating universe with anvil and hammer admitted as evidence

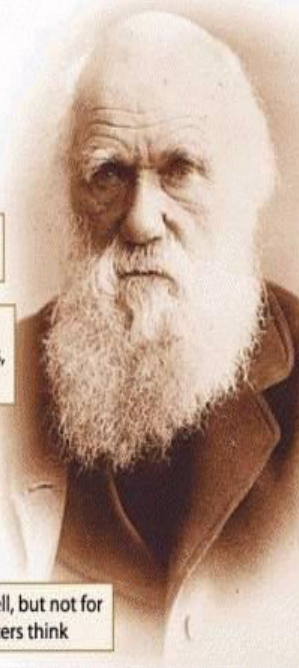
▶ Defense appeals to jury's reason, fairness, and fear of eternal damnation

▶ Final deliberations interrupted twice by mailmen, first bearing kids' letters to Jesus, then bearing kids' letters to Darwin

▶ Monkey called as witness fails to identify anyone in courtroom as his descendant

▶ Darwin found guilty on all charges

▶ It is proven that this country is going to hell, but not for the reasons the intelligent-design supporters think



J'accuse!



Wanted for crimes against truth and rationality!

This man is dangerous, if sighted do NOT
approach!

Certainly do not take seriously any word he says

Steve Fuller being heckled by 'Skeptics in the Pub'



The Dover trial

- Despite Steve Fuller's efforts, Judge John E Jones III nonetheless found squarely for the plaintiffs:
- “To be sure, Darwin's theory of evolution is imperfect. However, the fact that a scientific theory cannot yet render an explanation on every point should not be used as a pretext to thrust an untestable alternative hypothesis, grounded in religion, into the science classroom or to misrepresent well-established scientific propositions. The citizens of the Dover area were poorly served by the members of the Board who voted for the intelligent design policy.”

The Dover trial

- “In an era where we're trying to cure cancer, where we're trying to prevent pandemics, where we're trying to keep science and math education on the cutting edge in the United States, to introduce and teach bad science to ninth-grade students makes very little sense to me. You know, garbage in garbage out. And it doesn't benefit any of us who benefit daily from scientific discoveries.”

Science and non-science

- So, the main finding against creationism/ID was that it is unscientific or pseudoscientific (or bad science) because *untestable*
- Of course not all science involves testing
- Examples: parameter evaluation, deduction from the phenomena, application
- But to be reasonable must ultimately rely on theories that are *testable*

Science and non-science

- Testability as a hallmark of scientific theories is, of course, very much associated with Karl Popper's philosophy.
- Testability *is* the key to the ID debate, but needs to be treated in a rather more sophisticated way than in Popper, as we have seen throughout this course.



Science and non-science

- Indeed Popper's views have played very much a mixed role in the debate
- In fact Creationists/ID-ers often cite Popper and attempt to argue that Darwinian theory is irrefutable on Popperian terms
- On the other hand, the Darwinians charge that it is *Creationism* and its ID offspring that are *either* outright untestable *or* can evade any attempted refutation.
- Looks like a stand-off - but this is because we have not analysed the situation accurately

Science and non-science

- As we saw, no 'single' theory (or component of a theory) is testable in isolation (Duhem/Lakatos)
- So this in itself is no criticism of either Darwin or Creationism/ID
- Newton case
- The question we should ask is : is Darwinian theory combinable with independently plausible assumptions such that the whole set of assumptions is independently testable and independently confirmed?
- And then ask the same question of creationism/ID

Science and non-science

- In the case of Darwin, the answer is very definitely positive – Kettlewell but loads of other examples
- What's the answer in the case of Creationism/ID?
- What is it?
- Genesis ('Young Universe') Creationism fairly straightforward
- Core claim: God created the Universe around 4004BC with essentially the same flora and fauna as it has now

Science and non-science

- Core is not testable – but same was true of Darwinian theory
- How about when we add auxiliary assumptions to it?
- E.g. to account for the “fossil” record?
- The ‘Gosse dodge’



MPHALOS

An Attempt to Unite the Geological Knot

Two years before the appearance of *The Origin of Species*, Philip H. Gosse, zoologist and lay preacher of the Plymouth Brethren, wrote a fundamentalist refutation.



Science and non-science

- Degenerating research programme
- *And essentially so*
- No way to make claims about the whim of a Creator have independently testable consequences

Science and non-science

- Leading creationist Duane T Gish during the *Arkansas Trial* obligingly explicitly endorsed this:
- “We do not know how the Creator created, what processes He used, *for He used processes which are not now operating anywhere in the natural universe*. This is why we refer to creation as Special Creation. We cannot discover by scientific investigation anything about the creative processes used by the Creator.”

Science and non-science

- But it's no longer genesis creationism, it's "Intelligent Design"
- Though the same thing certainly threatens to apply:
- Dembski ' .. Intelligences are free. In the act of creation they violate expectations. They create as they choose to create. There's nothing that required Mozart to compose his Jupiter Symphony or Bell to invent the telephone or Shakespeare to write *King Lear*.'

Intelligent Design?

- What is IDT??
- No explicit mention of God
- No commitment to fairly recent creation
- 1. (negative thesis) There are some aspects of life and its history that *cannot* be understood in terms of natural selection.
- 2 (positive thesis) These aspects of life must be understood as the interventions of ‘intelligence’.
- Different versions differentiated by how much they are willing to allow is explained by natural selection before intelligent intervention is required.

Intelligent Design?

- Negative thesis:
- No scientific theory is based on a negative
- *Cannot* be explained? What never?
- Cp account of how adaptations could be inherited and hence preserved (Mendel)
- No one denies that there are gaps in our Darwinian understanding
- But there have been major successes that involved filling earlier gaps

Intelligent Design?

- In so far as it is not a simple invalid inference from *has not* been explained to *cannot* be explained
- The negative thesis is based on factual errors and shoddy probabilistic reasoning
- One major example

Intelligent Design?

- *The* leading ID-er (and star witness for the defence in *Kitzmiller*) is Michael Behe.



Fuller's Folly: the Behe "Argument"

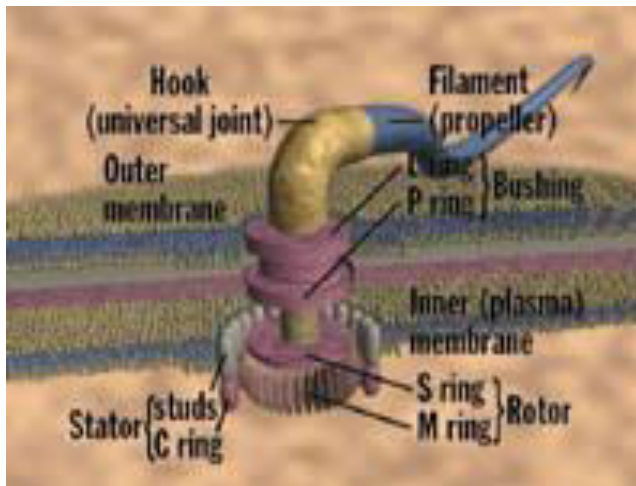
- Mentioned Steve Fuller earlier
- Perhaps his greatest intellectual crime was to continue to endorse a famous argument that Behe introduced and reproduced in the trial (See the Nova documentary – Moodle)
- And Fuller continues to endorse in various books

Fuller's Folly: the Behe "Argument"

- **STEVE FULLER:** The idea is that there are certain aspects of life, perhaps organisms or organs or even cells that, in a sense, could only have come about as a whole. In other words, it was very unlikely they could have come about through just a kind of contingent combination of parts over even millions or billions of years, but, rather, in a sense, has to be created whole cloth, all together, at once, because everything fits together so well that to remove one part, the thing wouldn't function.

Fuller's Folly: the Behe "Argument"

- Followed by a reconstruction of Behe's evidence
- Concerns the flagellum used by certain bacteria as a rotary motor.
- This has all the appearances of a finely-engineered structure with parts that would – apparently – be useless in isolation but only function when they are all there together.



Fuller's Folly: the Behe "Argument"

- How then could each individual sub-structure have arisen by Natural Selection?
- Probability that you would get *independent* mutations that had no function of their own but which combined together in this very useful way seems miniscule.
- (Remember: if two events E_1 and E_2 are independent then $P(E_1 \text{ \& } E_2) = P(E_1) \times P(E_2)$ and both probabilities will generally be <1)

Fuller's Folly: the Behe "Argument"

- Typical of a whole range of (im)probability arguments
- They are all bogus
- Cp Kitcher *Living with Darwin*, chapter 4 for details
- But main flaws are easily seen – who says these features evolved independently?
- *And* who says that the individual features have no function except in combination with all the others?

Fuller's Folly: the Behe "Argument"

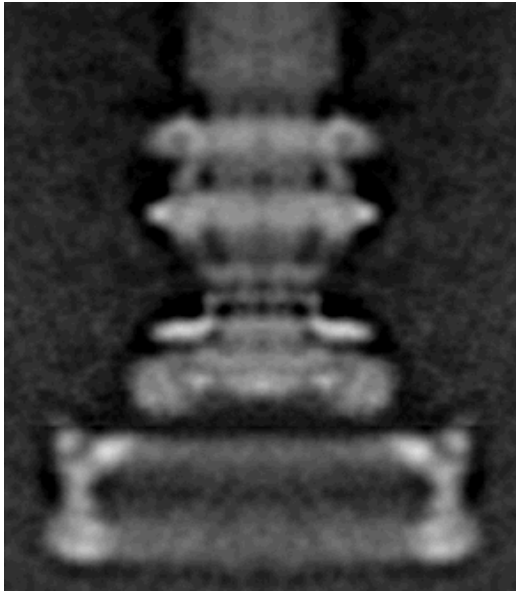
- Behe quotes as part of his testimony another expert on the bacterial flagellum, David DeRosier as saying:
- "More so than other motors, the flagellum resembles a machine designed by a human."
- Sadly for Behe, DeRosier went on to point out:

Fuller's Folly: the Behe "Argument"

- **DAVID DEROSIER** (Brandeis University): What I wrote was, "This is a machine that looks like it was designed by a human." But that doesn't mean that it was designed, that is the product of intelligent design. Indeed, this has all the earmarks of something that arose by evolution.

Fuller's Folly: the Behe "Argument"

- In fact De Rosier's work shows that a similar (though not of course identical) structure works in other bacteria as a syringe for injecting poison:



Fuller's Folly: the Behe "Argument"

- In fact this precisely reruns a demonstration of the predictive power of Darwinism produced by Darwin himself around 1860!
- Darwin had discovered that there are lots of species of electric fish from non-closely related lineages.
- This looks like a miracle
- Darwin predicted that for each species there will a closely related non-electric species that has an homologous organ used for some other purpose
- This was confirmed by 'McDonnell of Dublin – a first rate man!'

Fuller's Folly: the Behe "Argument"

- Scandalous Behe produced this "argument" in the Kitzmiller trial
- And scandalous that Fuller continues to advertise Behe's argument as a convincing one for IDT having at least some merit

Summary

- ID is full of shoddy reasoning and is *essentially* untestable
- It is not science in any justifiable normative sense
- No objection to teaching ID as an example of how *not to do* science alongside Darwinism as an example of how to do it
- But to teach them alongside one another as if they were on a par
- Would be an intellectual crime against those children

- PBS documentary -

<http://www.pbs.org/wgbh/nova/id/>