

# Darwin & Design

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- Assume ‘argument from design’ is
- Either chance or design
- Not [or extremely probably not] chance
- So, definitely [or extremely probably] design
  
- Then Darwin definitely refutes it by showing that its first premise is mistaken

# Darwin & Design

- How about ‘Intelligent Design’ as a new rival?
- Is it really new?
- 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 – speciation and even bigger changes like from fishes to amphibians.
- 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

# 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.

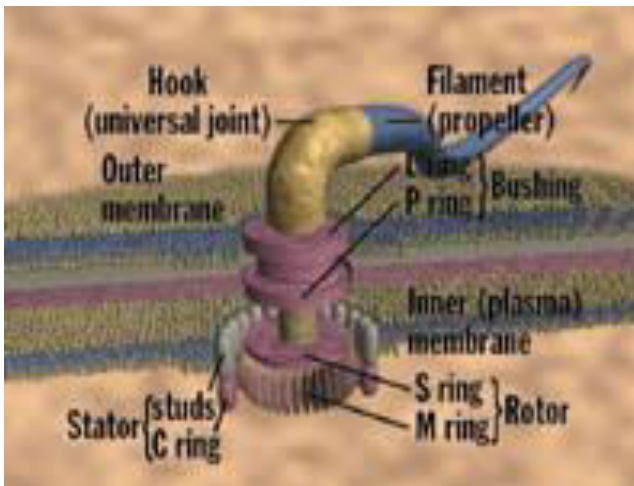


# Fuller's Folly: the Behe "Argument"

- **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"

- Behe's argument
- 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.
- Behe, e.g., works out that the probability of a particular blood clotting mechanism evolving via natural selection is  $10^{-18}$
- If a lottery had that chance of being won then 'if a million people played the lottery each year, it would take about a thousand billion years before anyone (not just a particular person) won the lottery ...' (Behe)

# 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?
- (and therefore would have to 'just happen' to spring up altogether)

# Fuller's Folly: the Behe "Argument"

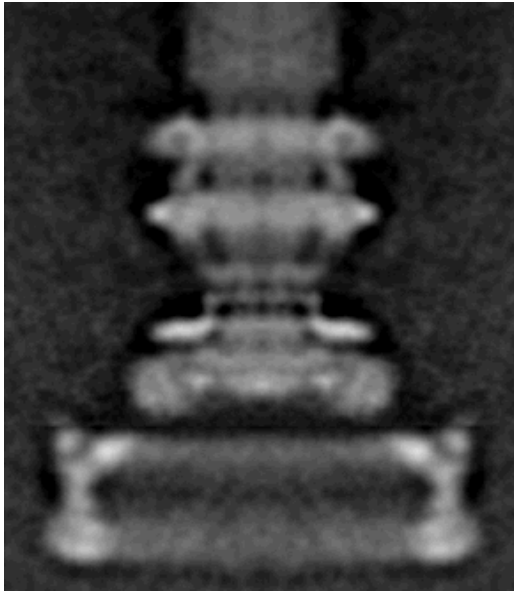
- Behe quotes as part of his testimony another expert on the bacterial flagellum, David DeRosier as saying:
- "More so than other motors, the flagellum resembles a machine designed by a human."
- Sadly for Behe, DeRosier went on to point out:

# 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"

- 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 ID

# Untestability of ID

- But in any event the negative part of ID is entirely irrelevant to its scientific status.
- As for the positive thesis it is just a reexpression of the negative one!
- Let's agree that there is no full, testable Darwinian explanation of how the bacterium got its flagellum
- 'Tell me, Professor Behe, how did the bacterium get its flagellum'
- 'Well it got it through the intervention of Intelligence.'
- 'Hate to be a pain, but it would be nice to know *how*'
- The rest is silence...



# Untestability of ID

- Maybe silence is better than the alternatives (Behe believes in descent with modification)
- (a) Intelligence shielded the precursor organisms from the rigours of natural selection
- (b) Intelligence made all the necessary (low probability) mutations happen at once
- But this is threatening to make the Gosse dodge look good!
- Invoking ‘Intelligence’ is not only unscientific in itself it would, if accepted, bar the progress of science by making people satisfied with an empty “explanation” (that could never be further explained scientifically)

# Darwin & Design Revisited

- 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*.’

# Darwin & Design Revisited

- Although generally credited with destroying the argument from Design, Darwin, ironically, is often now regarded as having given legitimacy to
- Teleological explanation
- Function
- Design
- (Even to the idea of natural science explaining “normative facts”)
- ??

# Darwin & Design Revisited

- What's a “teleological explanation”?
- Basically any explanation that seems as if it is explaining causes in terms of effects (past in terms of the future; goals instead of causes)
- So if I say ‘we have a heart in order to pump blood round the body’
- Or ‘the plant moves its leaves so as to maximise the amount of sunlight falling on them’
- That's explaining the presence of some feature in terms of the effects that it achieves
- (*Some* of the effects.)

# Darwin & Design Revisited

- Seems weird – especially if explaining the past (or present) in terms of the future is involved
- Of course all used to explanations of our own behaviour which might seem to have this property
- But there the right analysis is obvious
- But needs an agent → another version of the design argument
- Again everyone accepts that Darwin defeated the design argument
- Yet talk in biology is replete with apparently teleological talk (about ‘function’, what a trait is *for*, design)

# Darwin & Design Revisited

- But seems like the Darwinian can easily explain such talk:
- The function of  $x$  is  $y$ : within a certain species  $S$ ,  $x$  performs  $y$  and the fact that  $S$  is capable of  $y$  is a part of its evolutionary history – i.e.  $y$  is an adaptation
- The function of the wing shape of the eagle is to allow it to soar = the wing shape is a cause of its being able to soar and the fact that the eagle can soar is adaptive – that is the ability was selected for.

# Darwin & Design Revisited

- ‘The wing of the eagle is designed for soaring’??
- Some would just take this to mean the same as the functional claim
- And in general that ‘function = design’
- Allen argues that this would be a funny way of talking if the ‘design’ were very ‘clunky’
- So wants to add..
- But seem to be arguing about words here
- Does the fact that we can define function/design/teleology in Darwinian terms mean that we *eliminate* them or *underwrite their scientific credentials*?

# Darwin & Design Revisited

- Lennox (reading) argues that Darwin himself felt that his theory was teleological (involving ‘final causes’)
- Is this more than a semantic issue?
- Main feature, however expressed, is that the unfalsifiable stuff associated with unscientific teleology/design (vitalism, backward causation) definitely goes.