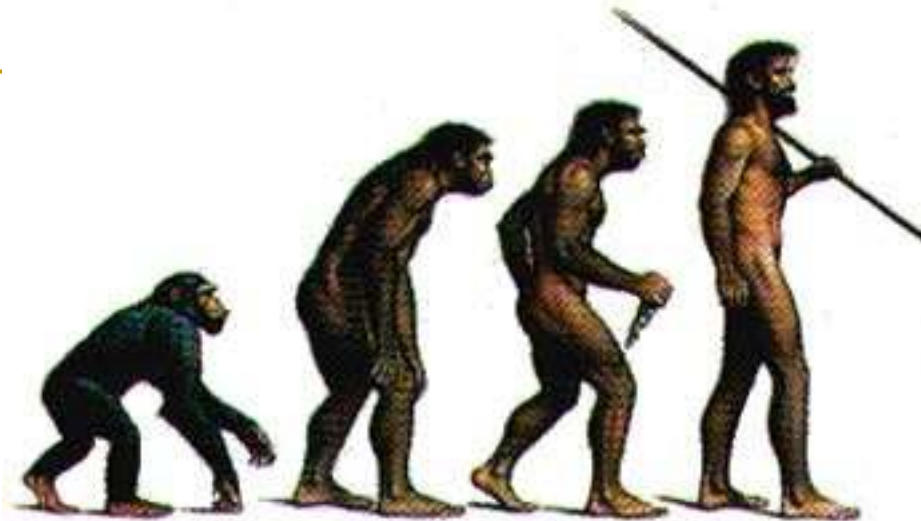


Unfolding Evolution

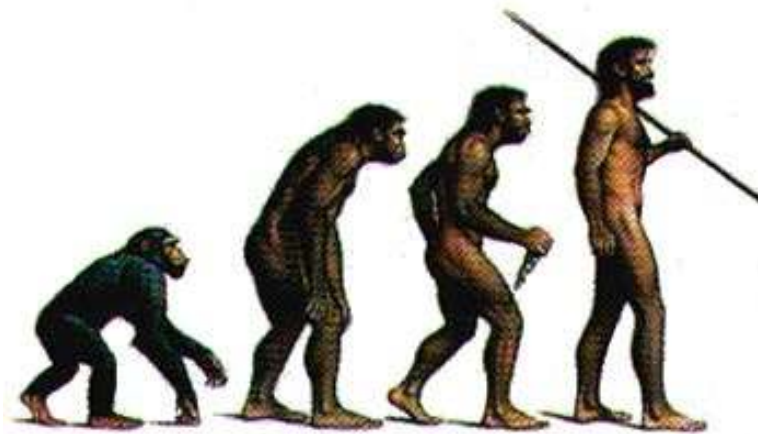


Evolution: Controversy

- Great controversy throughout history
 - Pre-Darwinian
 - Darwin
 - Early 20th century
 - Neo-Darwinism
 - Now!
-

Source of controversy

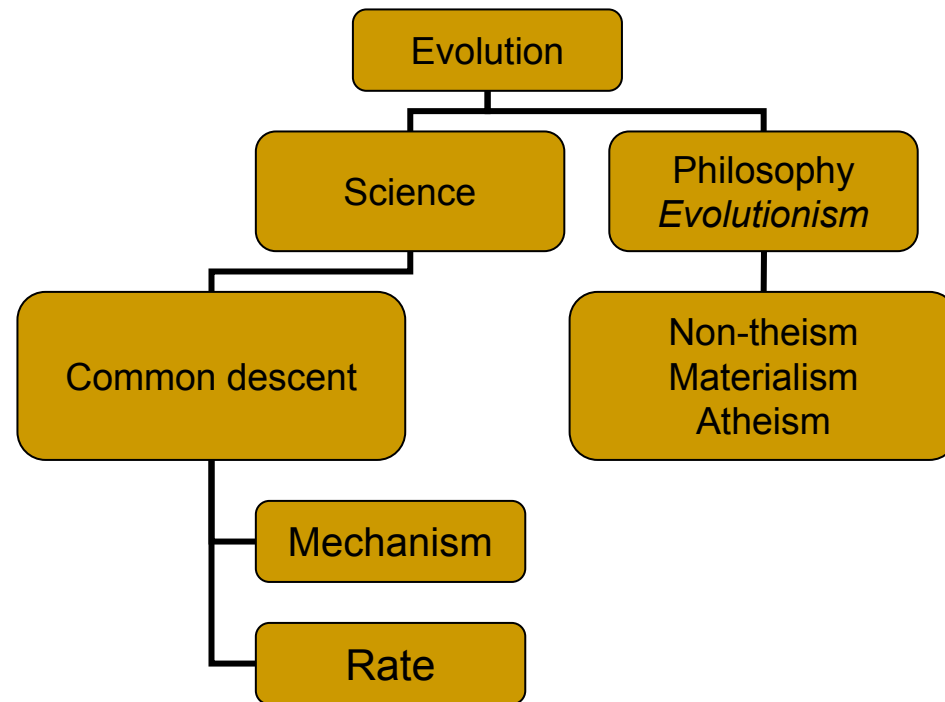
- More than a scientific theory
- Speaks about
 - human origins, human nature
 - origin of life
 - Creation
 - even about God



Understanding the controversy

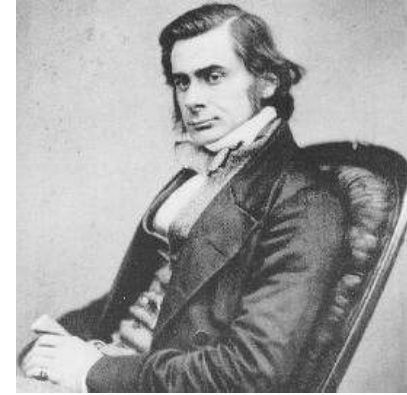
- Controversy is multi-faceted
 - Sociological: who?
 - How the debate takes place
 - Who is making what claims
 - Logical: what?
 - What the theories claim
 - Are they scientific, philosophical or theological
-

The Layers in Evolution



Sociology of Evolution

- The debates are not only about science
 - Confusion among the layers of evolution
- Scientific naturalism
 - Scientists making philosophical claims in general discourse and even scientific writing
 - Materialism, atheism



Reaction to Evolutionism

- Engenders reaction among religious people
 - Materialistic claims antagonize believers
 - Many react against science, not evolutionism
 - Creationism one form of reaction
 - Fighting against well-established science
 - Better to recognize the layers of evolution
-

Reconciling Evolution and Theism

- Evolution can be reconciled with theism
 - Even in the varied forms it takes today
 - Many people with religious convictions remain sceptical
 - Some ideas need to be clarified to make sense of evolution
 - Evolution makes sense philosophically
-

Key ideas for evolution

1. Primary and secondary causality
 2. Providence
 3. Final causality
 4. Order
 5. Contingency
-

1. Secondary Causality

- God can (and does) function through secondary causes
 - Primary vs. secondary causality
 - Even when dealing with humans
 - Miracles are rare
 - Material causes are sufficient to explain material effects
 - Creation of human soul always requires direct act of God
-

2. Divine Providence

- Extraordinary v. ordinary
 - Extraordinary bypasses the laws of nature
 - Ordinary providence works through natural process
 - Constantly
 - God is manifest directly through his extraordinary providence
 - God is hidden in his ordinary providence



Ordinary Providence

- Ordinary providence is wonderful
 - Exclusively secondary causality
 - As wonderful (if not more so) than periodic interventions
 - As many believers say about their own lives
 - We can see beauty and power of God here
 - Evolution can proceed through ordinary providence and secondary causes
-

3. Final Causes

- Appeal to final causes powerful
 - William Paley and the watchmaker God
 - Not original
 - Clear purpose in biological systems
 - Continues to have influence



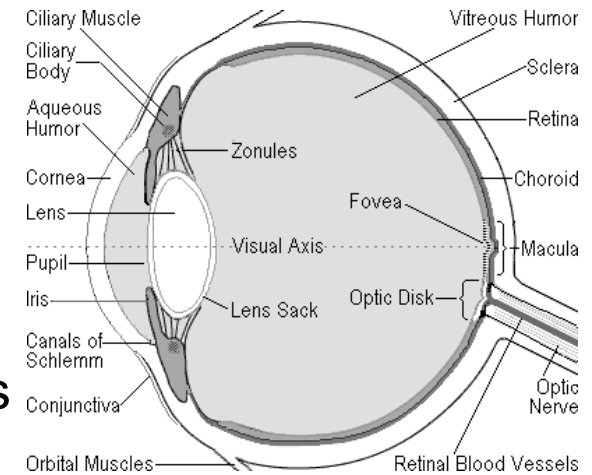
Paley: Mechanism and Deism

- Paley and the natural theology tradition was mechanistic and deistic
 - Biological systems are machines
 - Divine intervention occurs when biological beings are created, and then nothing else required
 - ‘In the works of nature we trace mechanism; and this alone proves contrivance....’

William Paley *Natural Theology*

Types of Final causality

- Final causality
 - Cause: that which makes a thing be what it is
 - Final cause: purpose of a system
 - Chair made for sitting
 - Eye made for seeing
- Different types
 - Chair: purpose given externally
 - Eye: internal to the being
- Internal vs. external final causality
 - E.g. Horse not made for riding, but they can be ridden



Final Causality of Biological Systems

- Always internal
 - Only exist for the good of the living being or the species, not for something eternal to itself
 - Paley and others do not distinguish
 - Imperfections in biological systems: ‘messy’
 - Not with the directness that chair or other artefacts display
-

4. Order

- The Cosmological Argument
 - Aquinas' 5th proof for the existence of God
 - Often cited in the context of debate about evolution
 - Cosmos: order
 - Different interpretations of this proof
 - Order of biological systems (Teleological argument)
 - Order in the laws of the universe
-

Order in the universe

- Metaphysically impossible for order to emerge out of chaos
- The laws of the universe are ordered and constant
 - [W]hat concrete fact or phenomenon exactly repeats itself?
... [T]he unfailing uniformity of nature is the very point which has to be proved... It seems safer then to hold that the order of nature is not necessary, but general in its manifestations. ... It is *primâ facie* unaccountable that an accident should happen twice, not to speak of its happening always...A law is not a cause, but a fact.

J. H. Newman *Grammar of Assent*

Proof for the existence of God

- Only Newman's interpretation proves God
- The designer interpretations does not prove the existence of God, but of a designer, which could be anything



5. Contingency

- Does evolution show that all living beings are contingent?
 - It is possible that they not be
 - Randomness, no pre-programmed path
 - No problem for theism
 - Philosophically, we are contingent, not necessary (we could not exist)
 - Evolution can be interpreted as proving this
-

The End

