2018 Los Alamos Faith and Science Forum Summer Series:

Purposeful Evolution

Lecture I:
Introduction: Why Study Evolution?

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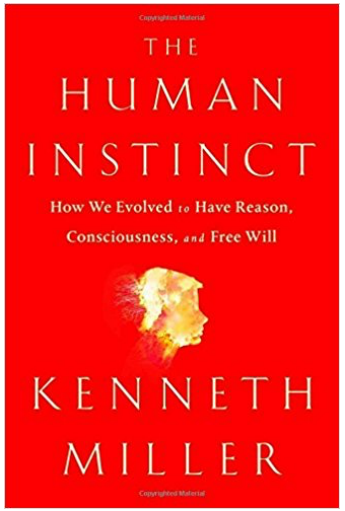
Los Alamos Faith and Science Forum

June 6, 2018

Why Study Evolution*?

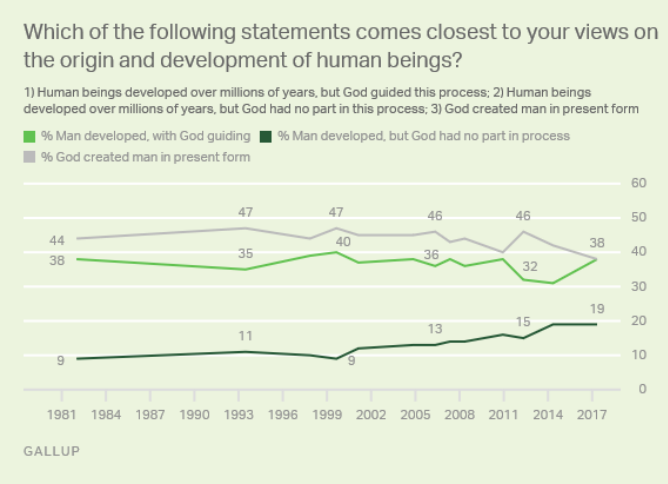
"I emphatically believe that there is something special about *Homo sapiens*, something that truly sets us apart. … What we really need is to understand and appreciate the beauty and subtlety of evolution in greater depth than ever. We are living creatures, to be sure, one species among countless millions that have come and gone in our planet's lifetime. But we are also uniquely the creatures of music and art, of poetry and laughter, of science, reason and mathematics. We are the children of evolution in every sense, but we are children of the universe as well, and from that realization comes a new and exhilarating way to see our place among other living things and our home among the stars."

*Kenneth R. Miller "The Human Instinct—How We Evolved to Have Reason, Consciousness and Free Will " (2018, p. 4)

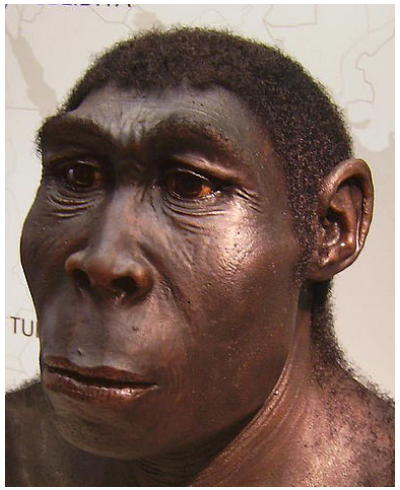


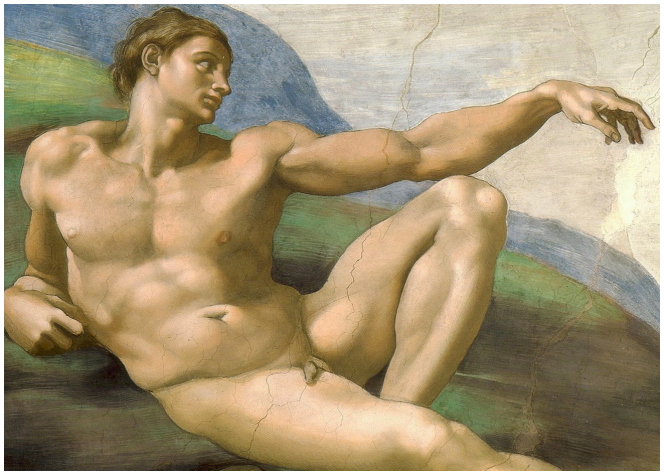
Why Does Evolution Remain the Flashpoint Issue in the Religion/Science Dialogue?

- Recent Gallup Survey (5/17):
  - 40% believe God created man in present form,
  - 40% believe man evolved with God's guidance,
  - 20% believe man evolved without God.



- "Is man an ape or an angel?" Benjamin Disraeli (1864):





Outline

I. Introduction (what, why and who of evolution)

II. Are science (e.g., evolution) and religion really in conflict?

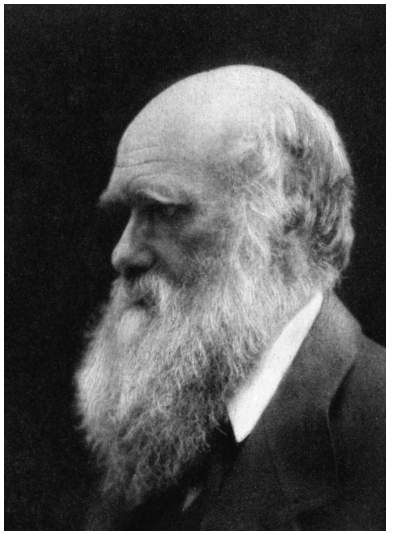
III. Complete summer schedule

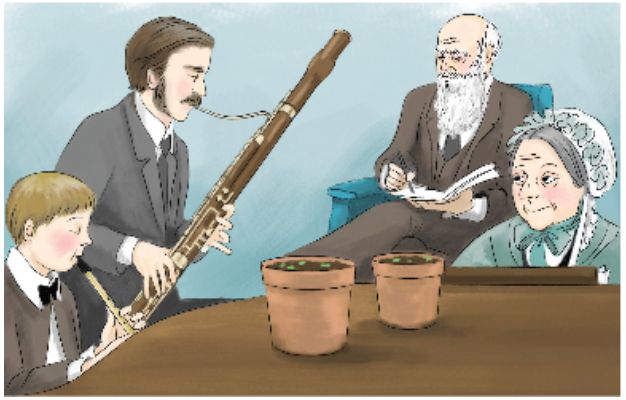
I. Introduction

- What is evolution?
  - Darwinism, Neo-Darwinism, ethical issues
- Why focus on evolution now?
  - Science and religion issues
- Why us (and why you)?

What is Evolution?

- Evolution is the change in inherited characteristics of biological properties of organisms over successive generations.
- Darwin's theory (1859): all species of organisms arise and develop through the natural selection of small, inherited random variations that increase the individual's ability to compete, survive, and reproduce.
- Neo-Darwinism (1942) extends this to include Mendelian inheritance, genetics, molecular and cellular biophysics, paleontology – but inheritance of genes remains the central assumption.
- Examples of evolution and basics of the theory: Chick Keller's talk on June 20.
- But first: we'll start with "life": Nels Hoffman's talk next week.





Ethical Overtones of Darwinism

- Charles Darwin himself had unwavering belief that all of humanity descended from a common source.
- Darwin's grandfather, Josiah Wedgwood, was an ardent abolitionist and designed the official seal of the movement to abolish slavery in Britain and U.S.
- While Darwin's theory lead to significant advances in understanding the modifications of existing species and the rise of new species, its extensions beyond basic biological science have sometimes gone horribly wrong: e.g., racism, eugenics, social Darwinism → Nazism.

Why Study Evolution Now?

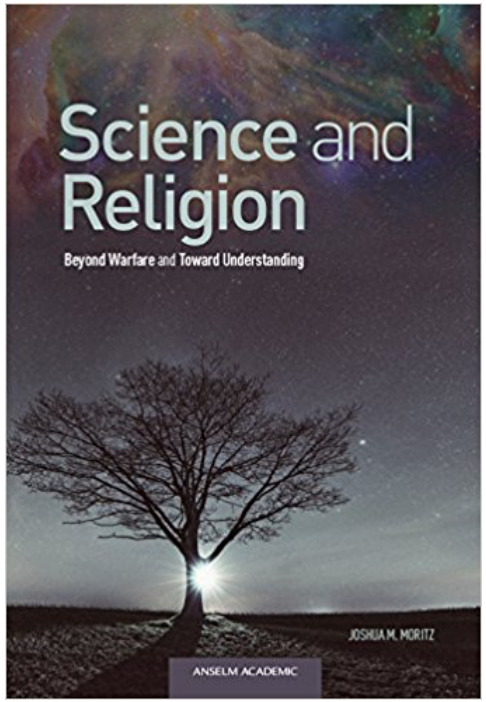
- What is the compelling science reason to study this now?
  - Recent research in evolutionary biology increasingly allows for the possibility that evolution is not always so random as portrayed in Neo-Darwinism.
  - Rather, it may respond to constraints (e.g., environment, stress, social interactions) that seem to direct it in purposeful directions.
  - These characteristics can also be inherited through other cellular material than just DNA.
  - Thus there may be a need for an "Extended Evolutionary Synthesis" → "Purposeful Evolution" [talks by Glenn Magelssen (6/27), Nels Hoffman (7/18)].
- Even if the science is compelling, are there also important religious issues?
  - Increased religion/science tensions, even as re-examination of history suggests former conflicts were exaggerated;
  - Effect of evolution on possible futures for humans. [Bob Reinovsky's talk on July 25].
- And Morrie Pongratz will lead a summary discussion on Aug. 1!

Who Are We and What Are We Trying To Do?

- Los Alamos Faith and Science Forum – 5th summer!
- Our mission: We meet in an communal environment to address topical issues related to the intersection of religious faith and discoveries of modern science.
- Rules of engagement:
  - No religious bias: all welcome,
  - Open, sharing, tolerant, courteous,
  - Not subject matter experts – we welcome questions and comments.
- Complete summer schedule later in this talk.

II. Are Science and Religion Really in Conflict?

- Stories about conflicts [Moritz, Ch. 1],
- Why science needs faith [Ch. 2,3],
- Why religious faith needs science [Ch. 3],
- Paradigm shifts [Ch. 3],
- Where does the real conflict lie? [Ch. 4].



- Examples of "Fake News"
  - Scopes ("monkey") trial (1925).
- Horrible, but true stories
  - New Mexico Public Education Department's proposed new STEM-ready science standards (2017).

Why Science Needs Faith

- Laws of nature
  - Came from early Jewish beliefs in unity of creation, all of creation operates under the same principles (laws);
  - Seen in the regular courses of the sun, moon, seasons, tides, etc.;
  - Ideas extended to Middle Ages, where they continued to be studied, developed (e.g., concept of conservation of momentum);
  - Bacon (1620): development of scientific method;
- Aesthetics
  - Ockham's Razor – simplest explanation is most likely best [very important tool for use against anti-evolution arguments];
  - Mathematical symmetry and beauty.
- Metaphysics
  - Belief that world is orderly and rational;
  - Belief that order of world can be understood by the human mind;
  - Belief in unity and uniformity of physical universe.

Why Religious Faith Needs Science

- Unity of truth – all truth is God's truth, wherever it is discovered (e.g., Egypt, Judea, Greece, etc.).
- God's two books:
  - Scripture and nature -- complementary ways God reveals Himself → point to one truth;
  - Augustine: knowledge of natural world reveals character of God and is necessary for determining correct interpretation of Scripture.
- With modern ideas of time and space (i.e., relativity), issues of God as "eternal" or "omni-present" need more thought.
- Miracles: violation of laws of nature or quantum mechanical effect?

Paradigm Shifts

- Thomas Kuhn (1970): Paradigm shifts occur infrequently in science (and religion) causing large shift in direction of thinking.
- Paradigm shifts in science:
  - Earth-centric → sun-centric model of solar system,
  - Classical → quantum mechanics,
  - Neo-Darwinism → Extended Evolutionary Synthesis (?).
- Paradigm shifts in religion:
  - Christianity,
  - Islam,
  - Reformation.

Where Does the Real Conflict Lie?

Scientism

Only truth to be believed comes from scientific investigation. Science can't prove there is NO God, but eventually science (e.g., evolution) will show that there is no need for God and life is meaningless.
Humans are directly related to animals

Fidelism

Only truth to be believed is God's revelation through Scripture. Moreover, the texts as written are absolutely true. But they do not discuss how nature works. Scripture is God's word and gives meaning and direction to one's life. Human are different from animals; they are created in the image and likeness of God.

Need both "books" and significant amount of analysis and interpretation of each to uncover God's message and purpose/meaning to life.
Whatever the origin, human dignity is very important.

III. Upcoming Events

- Next week
- Summer schedule
- Invited speaker

Next week!

Nels Hoffman:

"II: Life and Evolution: How Life Works"

(short abstract)

June 13, 6:00 pm dinner; 6:30 pm talk

Here in the Unitarian Church

Summer Schedule: Mostly here in Unitarian Church-- 6:00 pm Dinner, Talk, Discussion

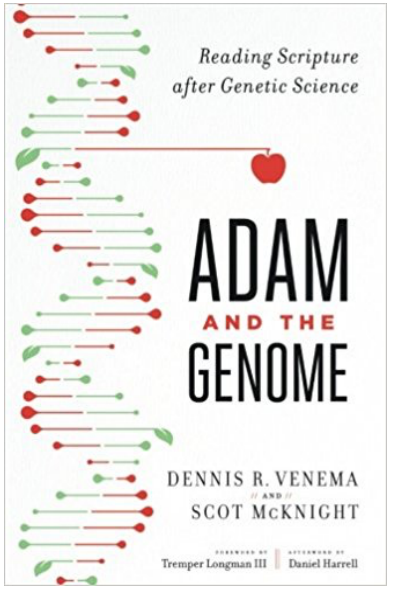
- June 6 Dan Winske
  - Introduction: Why study evolution?
- June 13 Nels Hoffman
  - Life and Evolution: How Life Works
- June 20 Chick Keller
  - Observations and Early Theories of Evolution
- June 27 Glenn Magelssen
  - What's Missing in Neo-Darwinian Evolution
- July 4 Holiday

Summer Schedule cont'd: Mostly here in Unitarian Church, 6:00 pm

- July 10-11 Dennis Venema – Fuller Lodge 7:00 pm
  - Adam, the Genome and Evangelicals
  - Evolution, Intelligent Design and the Extended Evolutionary Synthesis
- July 18 Nels Hoffman
  - Do Organisms Cause Their Own Evolution?
- July 25 Bob Reinovsky
  - Future Directions for Humanity
- August 1 Morrie Pongratz
  - Wrap-up Session: Summary, Questions, Discussion

Invited Speaker: Dennis Venema

Dennis Venema is professor of biology at Trinity Western University in Langley, British Columbia. He holds a B.Sc. (with Honors) from the University of British Columbia (1996), and received his Ph.D. from the University of British Columbia in 2003. His research is focused on the genetics of pattern formation and signaling using the common fruit fly *Drosophila melanogaster* as a model organism. Dennis is a gifted thinker and writer on matters of science and faith, but also an award-winning biology teacher—he won the 2008 College Biology Teaching Award from the National Association of Biology Teachers. He is also a Blog Author and Visiting Speaker for Biologos.



Message From the Faith & Science Forum:

One of the main stumbling blocks about evolution, for people of faith, is that it is portrayed as totally random and without direction. It seems meaningless. How, we ask, can it be part of the Creator's purpose? Well, we want to describe to you this summer how recent research increasingly allows for the possibility that evolution is not always so random. We'll need to bring you up to date on some of the history of evolutionary thinking, and some of the details of how living organisms work, so you can really grasp the significance of this new, compelling viewpoint. We think you'll see that there is increasing room for believing that evolution is going somewhere, and is carrying out the Creator's purpose. We hope you'll be back next week to join us on the continuation of this fascinating journey.

Discussion Questions

- Do you believe that there is a serious conflict between science and faith? Why?
- Is the conflict largest in issues related to evolution, or to some other area(s)?
- Are you personally conflicted by evolution?
- What aspect of evolution (scientific, religious, aesthetic) interests you the most?