

“Why the idea of God is not superseded by modern science”?

by

Associate Professor Frank Stootman, PhD,

This was an ISCAST (www.ISCAST.org) lecture given on Tuesday 22nd October at 7.30 pm 2013 in the School of Physics Library at the University of New South Wales, with these resource material downloadable from the ISCAST website.

The pdf slides that follow are from the Powerpoint file, kindly provided by Prof. Stootman (as was his lecture abstract), and are intended to be used in conjunction with the mp3 audio recording of his lecture.

Lecture abstract:

Modern science is being used by the new Atheism to challenge traditional metaphysical explanations for the following:

1. Something from Nothing
2. Life from non-Life
3. Morality from non-Morality

The necessity and sufficiency of naturalism to explain the above is their central thesis.

This talk will examine whether such confidence is warranted and whether those who subscribe to the existence of God hold to a passé worldview.

Biosketch:

Frank Stootman is an astrophysicist, who is currently an Adjunct Associate Professor in the School of Computing, Engineering and Mathematics at the University of Western Sydney, doing Computational Astrophysics, Imaging & Simulation (www.uws.edu.au/scem/sch_of_computing_engineering_&_mathematics/research/compais)

In addition, Frank and his wife, Heather, are directors of an Australian branch in Elderslie Sydney (www.labri.org/australia/), of a group known as the L'Abri Fellowship that was originally founded in 1955 in Switzerland by a Dr Francis Schaeffer and his wife, Edith. The fellowship was set up to provide a ‘shelter’ from the pressures of a relentlessly secular 20th century, a place where people could investigate the Christian worldview and its relevance to their lives.



Why the Idea of God has not been Superseded by Modern Science



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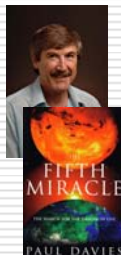
Naturalism



- **Naturalism**= The overriding conviction that nature can be explained fully without recourse

- To metaphysics (=beyond physics)
- To the supernatural (=above/outside of nature)

- **Paul Davies, "The Fifth Miracle", p6**



- "In the coming chapters I shall argue that it is not enough to know how life's immense structural complexity arose; we must also account for the origin of biological information. As we shall see, scientists are still very far from solving this fundamental conceptual puzzle. Some people rejoice in this ignorance, imagining that it leaves room for a miraculous creation. However, it is the job of science to solve mysteries without recourse to divine intervention. just because scientists are still uncertain of how life began does not mean life cannot have had a natural origin."

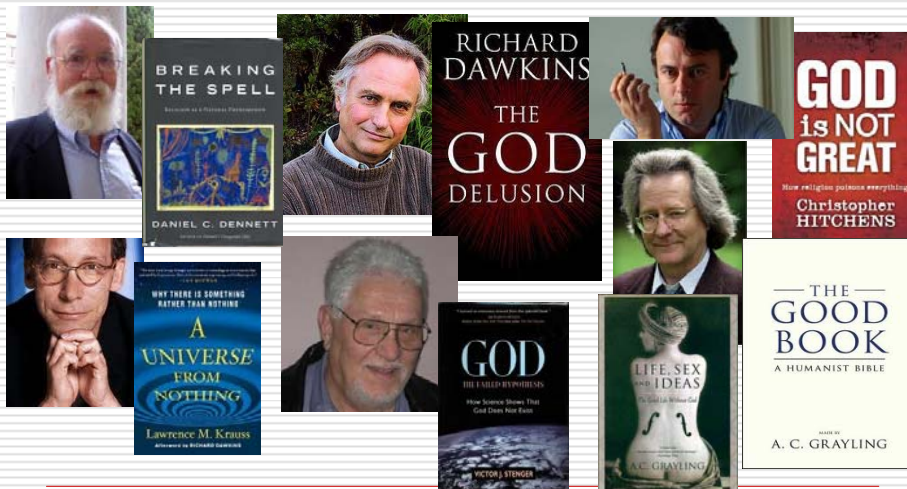
Naturalism



- Is the prevailing paradigm of modern science
 - Leads to the notion that natural science is self sufficient (=complete) to explain the universe
 - In theoretical physics this leads to the quest for a 'Grand Unified Theory', 'Theory of Everything'
 - Leads to claims, by some, that the traditional societal notion of God has been superseded or is passé
 - Action of God or 'gods' are now unnecessary narratives superseded by modern science
 - Part of our past security in our social evolution
 - An intellectual mood to remove God from rational discussion
 - A new moral crusade to dispel religion as propaganda and ignorance from society

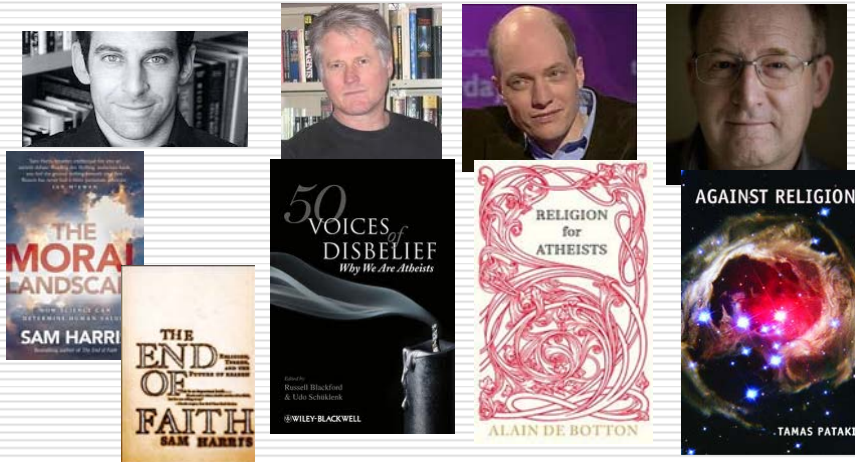
The Proponents

- Atheism increasing intellectual influence ...

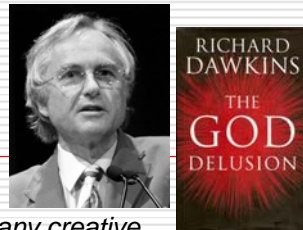


The Proponents

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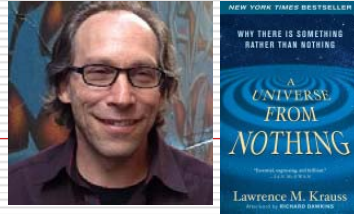


Richard Dawkins



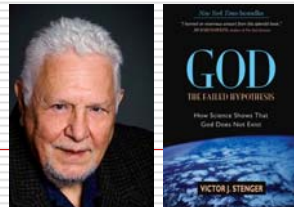
- ❑ This book will advocate an alternative view: *any creative intelligence, of sufficient complexity to design anything, comes into existence as the end product of an extended process of gradual evolution*... God [a superhuman, supernatural intelligence who deliberately designed and created a universe including us] must necessarily have arrived late on the universe and could not have created it. ('The God Delusion', Richard Dawkins, p31, italics in book)
- ❑ "I [having attended a Cambridge conference debating the existence of God] left .. stimulated and invigorated, and reinforced that the argument from improbability ... is a very serious argument against the existence of God... Daniel Dennett rightly describes it as 'an irrefutable refutation'...(ibid p157)

Lawrence Krauss



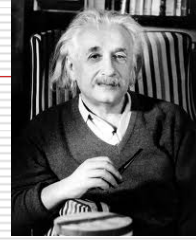
- “Nothing”, they [the philosophers and theologians] insist is not anything I discuss. Nothing is “non-being”, in some vague ill-defined sense... but therein lies, in my opinion, the intellectual bankruptcy of much modern theology and some modern philosophy. For surely “nothing” is every bit as physical as “something”, especially if it is defined as the “absence of something”... And we’re told that the escape from “real” nothing requires divinity, with “nothing” thus defined by fiat to be “that from which only God can create something”... My real purpose here is to demonstrate that in fact science *has* changed the playing field, so that these abstract and useless debates about the nature of nothingness have been replaced by useful, operational efforts to describe how the universe might actually have originated. (“A Universe from Nothing”, Lawrence Krauss, p.xiv, italic in book)

Victor Stenger



- “... some theologians and theistic scientists are now claiming they have uncovered gaps in scientific theories that can only be filled by a supreme being operating outside the natural realm. They boldly assert that science cannot account for certain phenomena and, furthermore, never will. The new “proofs” are based on claims that the complexity of life cannot be reduced ... also ... that the constants of and laws of physics are so fine tuned that they cannot have come about naturally, and that the origin of the physical universe and laws it obeys cannot have “come from nothing” without supernatural intervention... [the burden of proof] rest on the shoulders of those who assert that science will never be able to account naturally for some phenomenon” (“God the Failed Hypothesis”, Victor Stenger, p 16/17)

A Precaution from a Great Physicist - Albert Einstein



- “For the scientific method can teach us nothing else beyond how the facts are related to, and conditioned by, each other. The aspiration toward such objective knowledge belongs to the highest of which man is capable ... Yet it is equally clear that the knowledge of what *is* does not open the door directly to what *should be*. ... For science can only ascertain what *is*, but not what *should be* ...” (“Science and Religion”, Albert Einstein, “Out of my later years” p21-25 - *emphasis in original*)
- “But science can only be created by those who are thoroughly imbued with the aspiration towards truth and understanding. This source of feeling, however, springs from the sphere of religion... I cannot conceive of a genuine scientist without that profound faith. The situation may be expressed by an image: Science without religion is lame, religion without science is blind” (ibid., p26)

‘Is’ & ‘Should be’

- The universe has a prior ontological form which allows us to do science
 - Reproducible phenomena - spatial & temporal
 - Mathematical logic - algebraic operations $*, /, +, -$
 - Principles - Conservation of Energy
 - Laws - Universal gravitation
 - Symmetries - Periodic table, Standard Particle model
- Science very successfully discovers and describes this form
 - Such an enterprise is **not** without metaphysical convictions however - these are beyond science
 - The conviction that there is ontological truth to be had - the universe is outside of humankind but comprehensible
 - The conviction that our descriptions have a one-one correspondence with the ultimate form of the universe and that they are truth

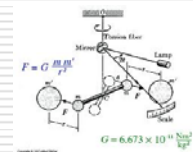
'Is' & 'Should be'

- The obvious question to ask, following Einstein - why 'should' the universe be this way - with this particular measurable form?
- 'Should' lies in the area of metaphysics and thus lies outside of science
 - Yet ironically ... many argue **from science** against metaphysics (M) being a legitimate category
 - There is nothing else in the universe but material & its properties
 - M is simply an apparent emergent property of fundamental material & its properties
 - M is a human illusion - an evolutionary by-product
 - Many M perceptions are now able to be addressed by science
 - Conclusion: supernatural 'God' or 'gods' are unnecessary inventions

Rethinking the 'obvious'

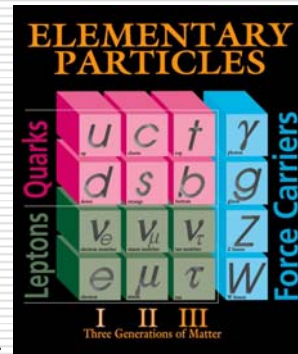
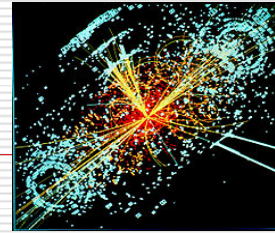
-The Material and non-Material...

- The universe we live in requires an explanation for:
 - The **material** form: laws, principles, mathematical logic ...
 - **AND**
 - Its **non-material** form: the 'why' (=form), the information (=coded DNA), the built in 'mystery' (=Quantum Causality), the meaning, the purpose, the function,
- Thesis: both are data to be explained
 - Naturalism & metaphysics are needed
 - In modern science, metaphysics is often reduced to essentially time + chance processes



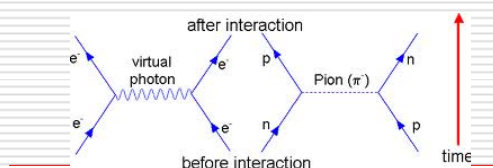
Something from Nothing

- It is claimed by some, that physics can creatively make representational physical theories all the way back to 'nothing'
 - Sometimes called a Grand Unified Theory (GUT)
 - Deep metaphysical assumptions about symmetry in nature - with some previous justification
 - Periodic table, standard model of particle physics, super symmetry theory, string theory, Einstein's relativity
 - A grand synthesis of particles and forces into the Higgs scalar field (Higgs boson)
 - Extremely mathematical and immensely creative and imaginative
 - It works ! But many aspects remain open to test and are not beyond reasonable doubt e.g. the standard model after the Higgs boson



Nothing is Something!

- 'Nothing', in physics, has ontological properties
 - 'virtual' ephemeral particles are used to explain action-at-a-distance -> fields -> virtual particle exchange
 - Works extremely well and has great explanation power
 - Virtual particles exist because they 'cheat' conservation of energy momentarily by Heisenberg's Uncertainty Principle
 - Has great explanation power in QED but leads to nasty infinities explained away by gauge transformations
- **Fundamentally however it still speaks of a pre-existent ontological form for vacuum**
 - Hence something is not nothing!!

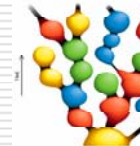


$$\Delta p \Delta x \geq \frac{1}{2} \hbar$$

$$\Delta E \Delta t \geq \frac{1}{2} \hbar$$

'Unnatural' physics

- Physics has moved to 'unnatural' explanations
 - The possibility of that the metaphysics of unification is not the total answer .e.g the Higgs boson & Cosmological constant
 - Postulation of a multiverse in order to explain the apparent fine tuning of the universe with its particular constants
 - Eternal inflation
 - Theorist Andrei Linde in 1982/86 - random universes produced by quantum fluctuations in the fundamental fabric of reality
 - But even this appears not to be able to be extrapolated to an eternal past!

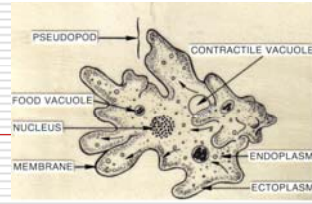


'Unnatural' physics

- The fundamental problem
 - No experimental evidence
 - But, it solves a number of philosophical problems
 - Why this particular universe with our constants
 - Why our universe is not unique - Copernican principle still rules
 - Increasingly accepted by cosmologists and popularised by Lawrence Krauss and Brian Greene as imaginative 'fact'
 - that we came from nothing
 - That there are parallel universe
 - Imaginative but?



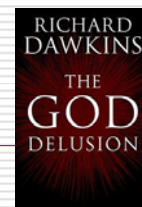
Life from non-Life



- At its most basic life involves
 - Cell walls to differentiate itself from a chemical environment
 - Genetic material as a 'blueprint' for making new copies of itself
 - Machines to make and fold proteins
 - Machines to extract energy to directed purposes in the cell
 - Ability to reproduce itself

 - Even the most basic cell has enormous complexity
 - How did it come about?
 - Darwin's warm little pond seems too unsophisticated
 - How did the genetic code with information arise with gradualism?
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Life from non-Life



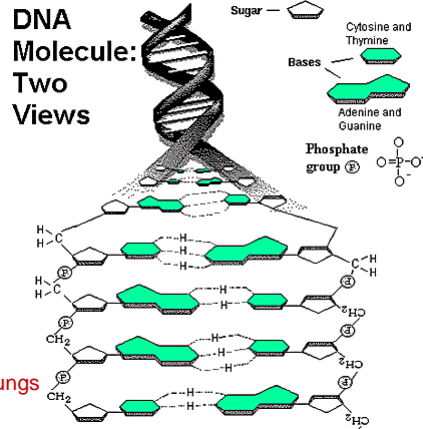
- Richard Dawkins acknowledges the difficulty of starting the process of evolution ...
 - "Once the vital ingredient - some kind of genetic molecule - is in place, true Darwinian natural selection can follow, and complex life emerges as the eventual consequence. But the spontaneous arising by chance if the first hereditary molecule strikes many as improbable. Maybe it is - very very improbable ..." (Dawkins, 'The God Delusion', p137, Bantam)
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The crucial ingredient

- The crucial ingredient is that there is a code embedded in the DNA
 - Code => information
 - Information is a non-material property just like thought is to the brain
 - DNA is a triplet code
 - DNA has start, stop codons and built in redundancy

DNA is made up of base pairs forming rungs (Adenine, Thymine, Cytosine, Guanine)

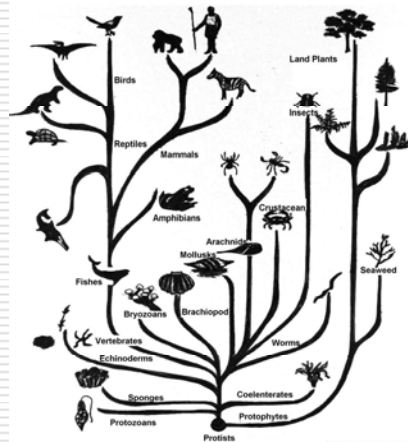
- Possible rungs A-T, T-A, C-G, G-C



Evolution

- The relationships

- Evolution needs to be separated into **fact** and **mechanism** leading to those facts
- Facts
 - Progression of life appears over time
 - Fossil record
 - Taxonomy indicates connections in the morphology of animals
 - Life also appears related from genetic studies
 - Similarity of genes
 - Gene sequences are similar and in order. 'Junk' DNA shows greater variability but order is there
 - Species seem best explained by modified ancestry over time



Evolution

- The mechanism

- The standard model is gradualism driven by time + chance + natural selection
 - But gradualism as a chance process is too **unsophisticated** to provide anything more than variation
 - Cannot account for teleology to conscious life - natural selection itself is also a slowly varying **random** process if it depends on **natural external factors only**
 - Geology, climate, oxygen, prey-predator relationships
 - Dawkins in the 'Blind Watchmaker' unwittingly demonstrates the problem



A Call for a Better Paradigm

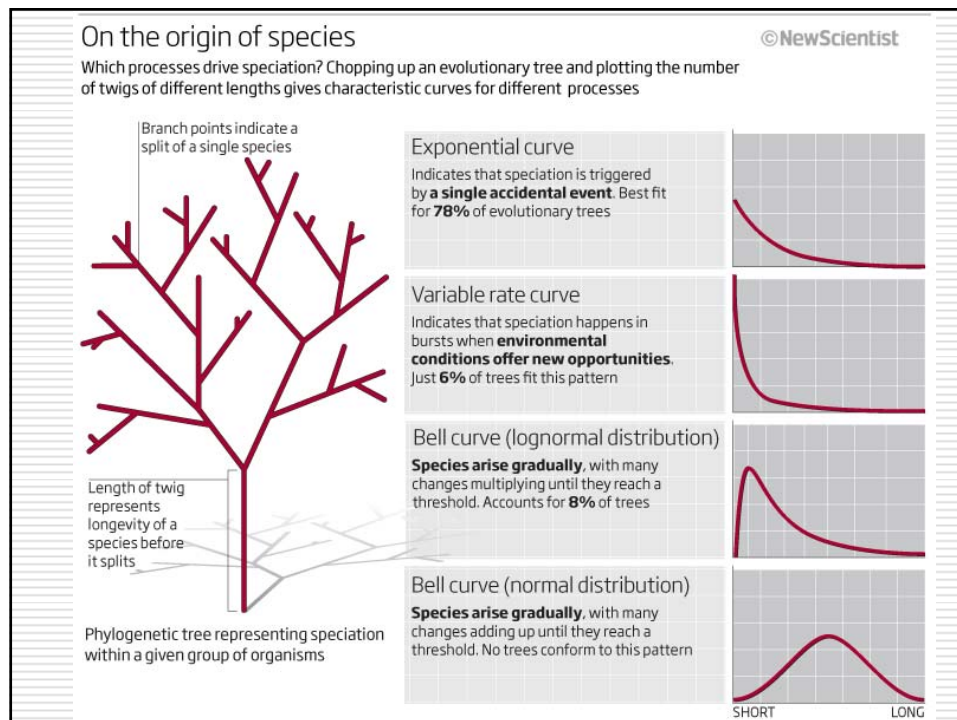
- Greater Sophistication

- "The great drawback of Darwin's simple all encompassing evolutionary theory has always been that it robs the living world of its unknowable profundity ... the phenomena of life are reduced to mere banalities ... Strip away the comfort of Darwin's Reason for Everything and the 'facts' remain the same, but now appear fresh-minted in glorious Technicolor as astounding and amazing, magical and mysterious: the automated factory of the cell, the Artic tern's twenty-five thousand mile migration, the geometrical design of a bat's face... every detail of the billion fold complexities of living organisms. [We] know virtually nothing about how they came to be: the first single celled organisms; the genetic code; the photosynthesis; the first multi-cellular life forms; the mechanism of transitions from fish to reptile, to mammals, to birds, each stage initiating a further 'explosion' of millions of new and unique species ..." ('Why Us', James Le Fanu, Pantheon, 2009, p254,)



Natural Selection Revisited

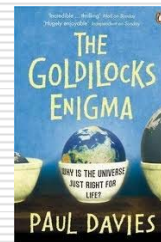
- ❑ Scientific Paper by Chris Venditti, Andrew Meade & Mark Pagel in January, Nature 2010 - Report in 'New Scientist' 10th March 2010
 - ❑ "... there is an irony in Darwin's choice of title: his book did not explore what actually triggers the formation of a new species. ... Speciation still remains one of the biggest mysteries in evolutionary biology."
 - ❑ "[the authors] came up with an idea of how to solve this problem. If new species are the sum of a large number of small changes, he reasoned, then this should leave a telltale statistical footprint in their evolutionary lineage."
 - ❑ "To Pagel, the implications [of the statistical work] for speciation are clear: "It isn't the accumulation of events that causes a speciation, it's single, rare events falling out of the sky, so to speak. Speciation becomes an arbitrary, happy accident when one of these events happens to you."
- ❑ Rare single events falling from the sky is exactly a statement that there is a far greater complexity involved in the mechanism of macro evolution than gradualism
 - ❑ God is not out of the picture



Conclusion

- The Goldilocks Enigma

- "On the face of it, the universe does look like it is has been designed by an intelligent creator expressly for the purpose of spawning intelligent beings. Like the porridge in the tale of Goldilocks and the three bears, the universe seems to be 'just right' for life, in many intriguing ways. No scientific explanation for the universe can be deemed complete unless it accounts for this appearance of judicious design" ('The Goldilocks Enigma', Paul Davies, p3)
- **The answer is simply that the universe and its complexity, awe and wonder points to an imaginative and reasonable God**
- **The existence of God continues to provide a credible answer to what is seen irrespective of the interpretation of modern science in the direction of atheism**



Afterword

- "Now we see how the astronomical evidence supports the biblical view of the origin of the world. The details differ, but the essential elements in the astronomical and biblical accounts of Genesis are the same: the chain of events leading to man commenced suddenly and sharply at a definite moment in time, in a flash of light and energy... For the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountain of ignorance; he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries."
 - Robert Jastrow, The Enchanted Loom: Mind in the Universe, (1981), p. 19.
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