



Astronomy, ethics, and creationism

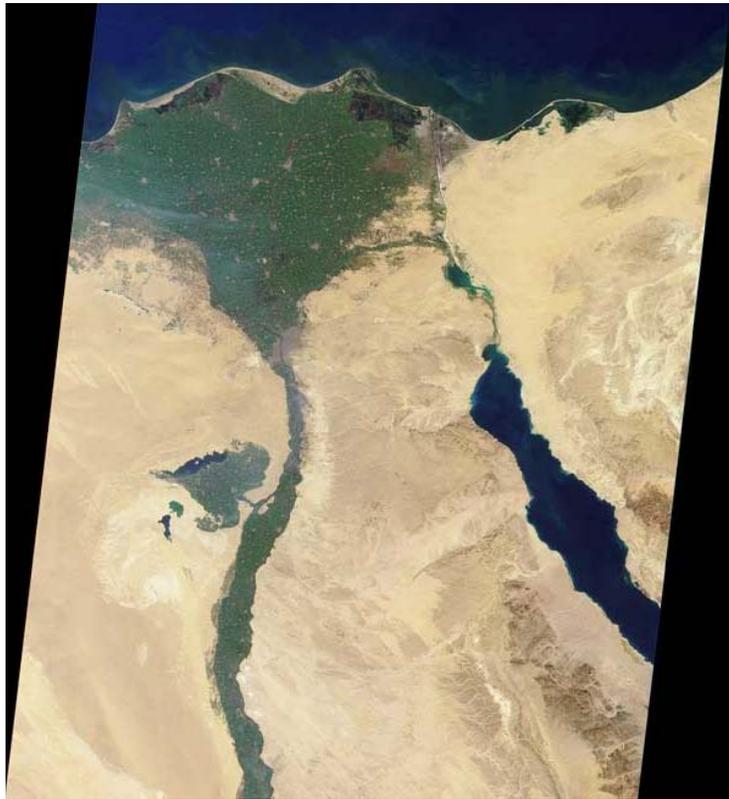
Glenn Branch

National Center for Science Education

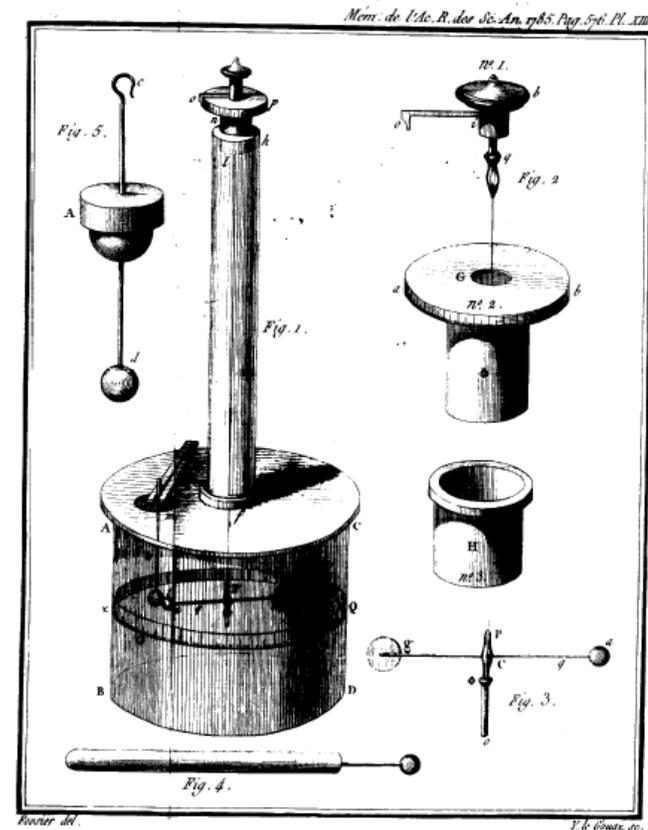
November 12, 2008

Two forms of knowledge abuse

- Denial



- Distortion



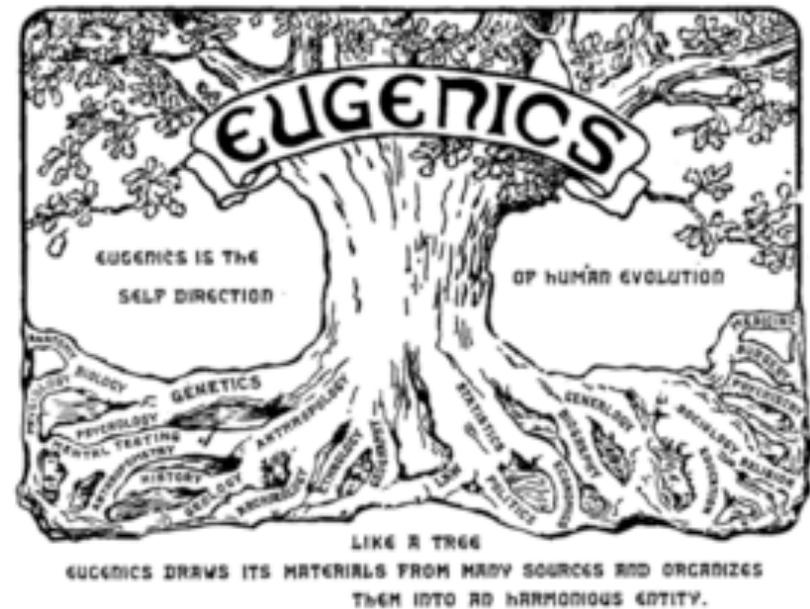
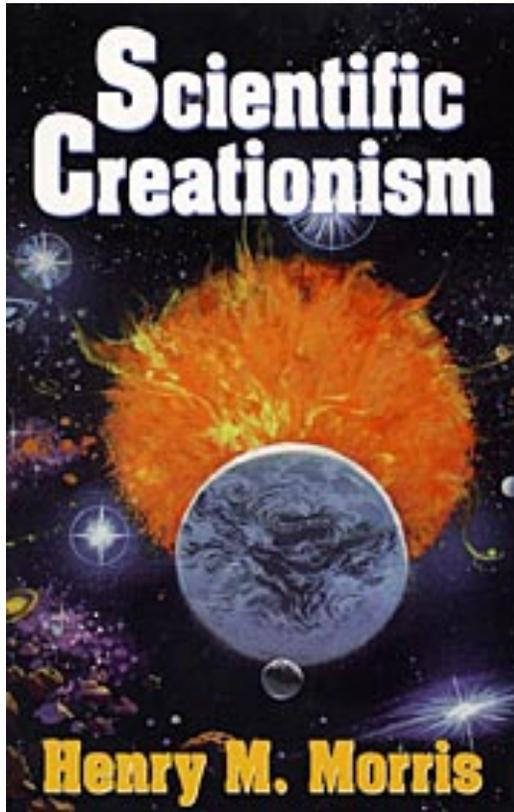
Shakespeare

- Denial: Baconianism etc.
- Distortion: Shakespeare in Nazi Germany



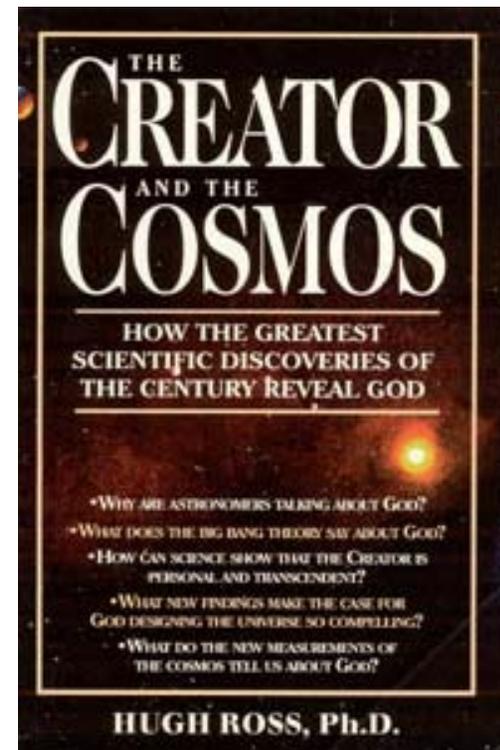
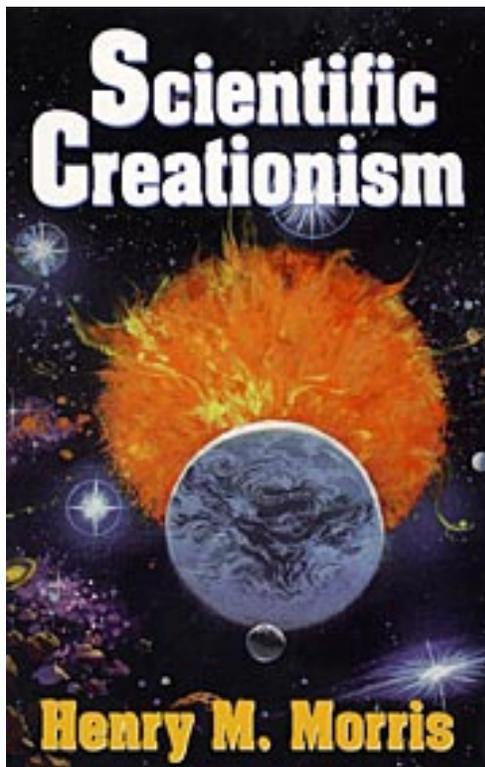
Evolution

- Denial: creationism
- Distortion: eugenics



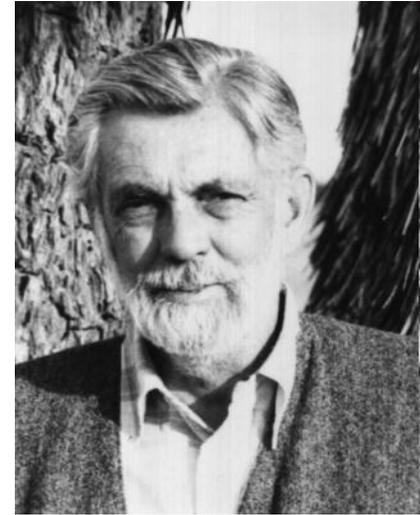
Astronomy

- Denial: young-earth creationism
- Distortion: old-earth creationism



The creation/evolution continuum

- **Flat-earthism**

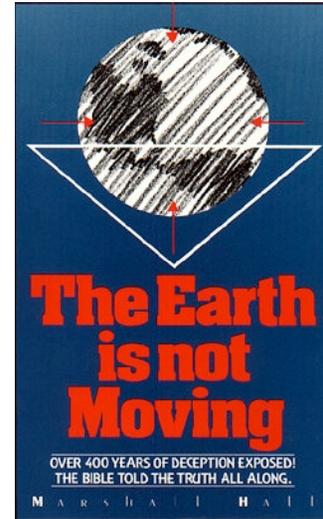


“The Fact the Earth is Flat is not my opinion, it is a Proved Fact. Also demonstrated Sun and Moon are about 3,000 miles away are both 32 miles across.”

– Charles K. Johnson

The creation/evolution continuum

- Flat-earthism
- **Geocentrism**

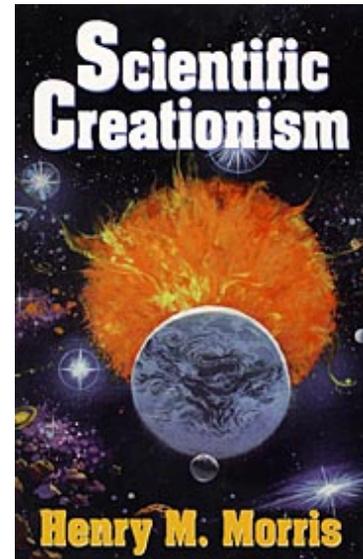


“The Earth is not rotating ... nor is it going around the sun. ... The whole scheme from Copernicanism to Big Bangism is a factless lie.”

– Marshall Hall

The creation/evolution continuum

- Flat-earthism
- Geocentrism
- **Young-earth creationism**

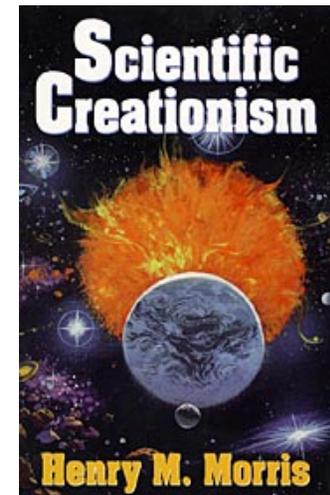


“The only Bible-honoring conclusion is, of course, that Genesis 1-11 is actual historical truth, regardless of any scientific or chronologic problems thereby entailed.”

– Henry M. Morris

Young-earth creationism

- **Biology:** denies evolution (common ancestry)
- **Geology:** accepts flood geology (Noah's flood)
- **Astronomy:** insists on a young earth and a young universe – on the order of 10,000 years – and thus rejects:
 - Radioisotope dating
 - The Big Bang
 - A lot else



Two vanishing YEC arguments

- Joshua's missing day
- Dust on the moon



Starlight and time

- If the universe is on the order of 10,000 years old, how is it that we can see celestial objects that are more than 10,000 light years away?



*NGC 3603,
about 20,000 light years away –
visible in 10,000 years?*

Starlight and time

- **The Omphalos solution**

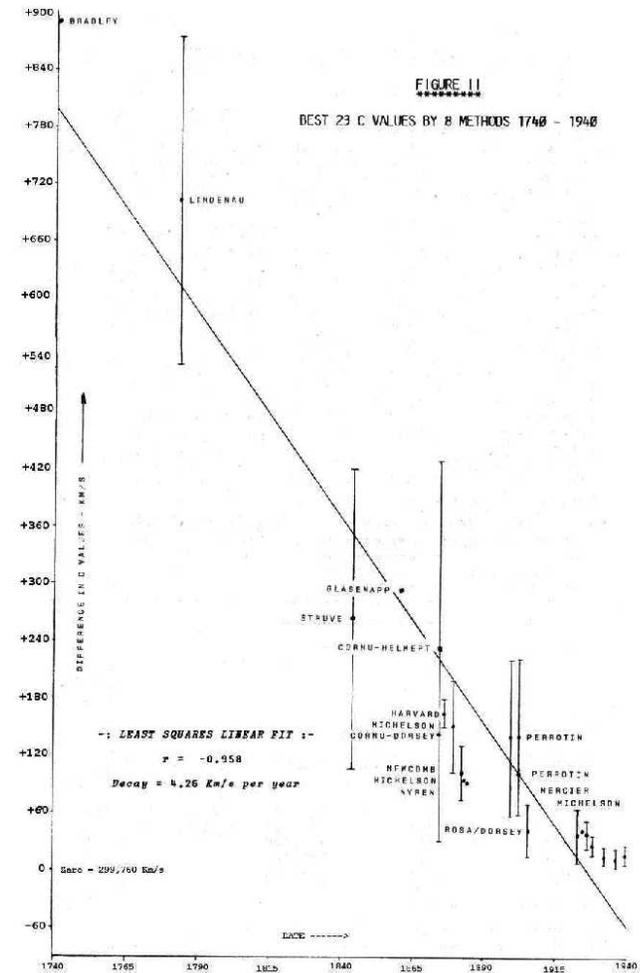


“Is it not possible ... that ... the natural course of the world was projected in his idea as a perfect whole, and that He determined to create it at some point of that course, which act, however, should involve previous stages, though only ideal or prochronic?”

– Philip Gosse

Starlight and time

- The Omphalos solution
- **c-decay**



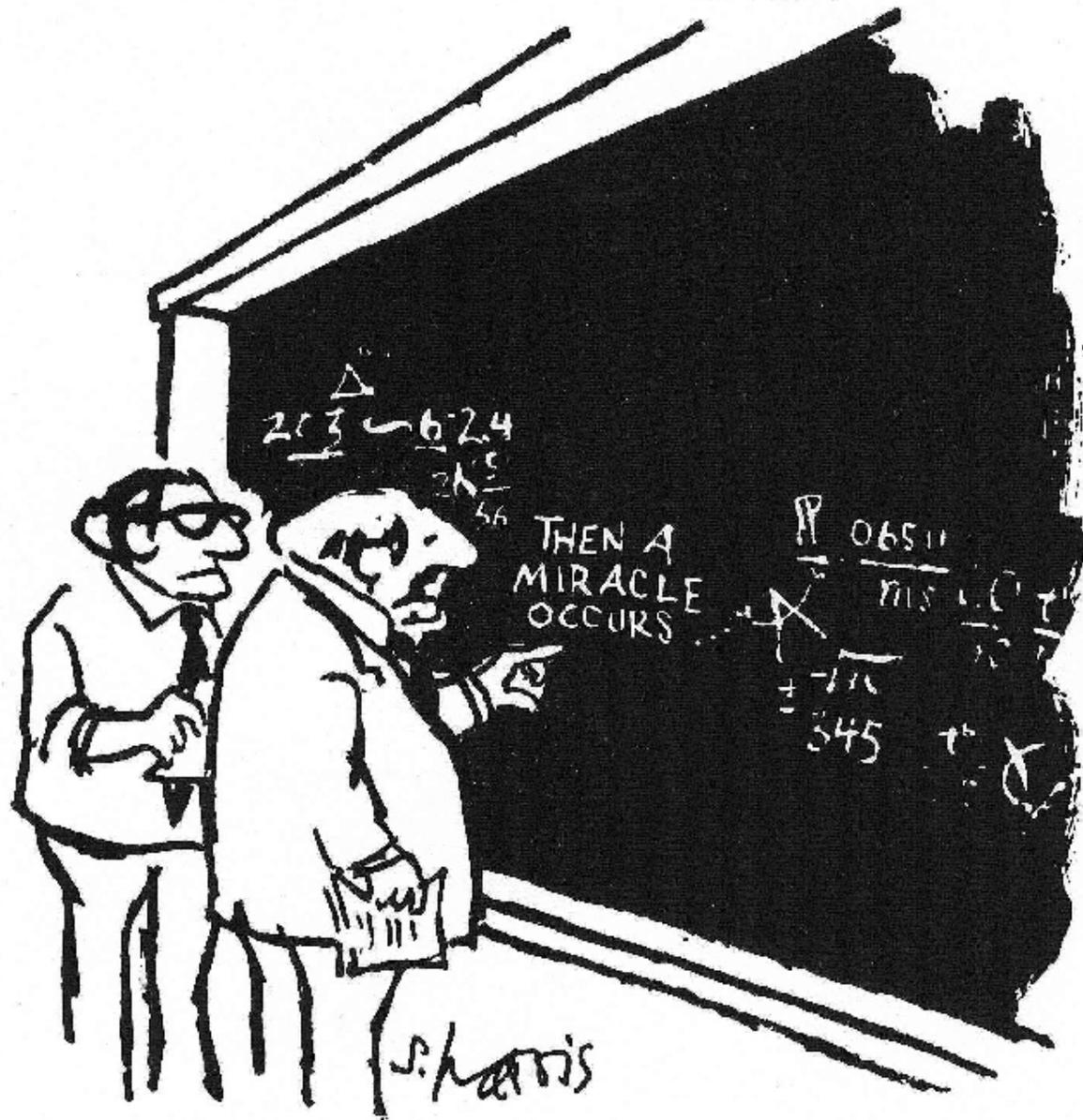
Starlight and time

- The Omphalos solution
- c -decay
- **Humphrey's solution**



“When the ‘deep’ was created, it was a black hole. ... then, in a creative act of God, the black hole was converted into a white hole. The result was a rapid, inflationary expansion of space. This is when the waters above the expanse, the expanse and the waters below the expanse were differentiated. At the end of expansion, the temperature reached 2.76 kelvin ... At some time during the expansion, the shrinking event horizon would approach the centre of the white hole—the Earth. Whilst this is suggested to have occurred on the morning of the 4th Day (Earth time), the time dilation effects of relativity theory permit ‘billions of years worth of physical processes [to take] place in the distant cosmos’. Stars and galaxies formed, and time elapsed so that light was able to travel to every corner of the universe. Hence, Adam and Eve, on the 6th Day (Earth time) were able to look into the expanse and see the splendour of the heavens.”

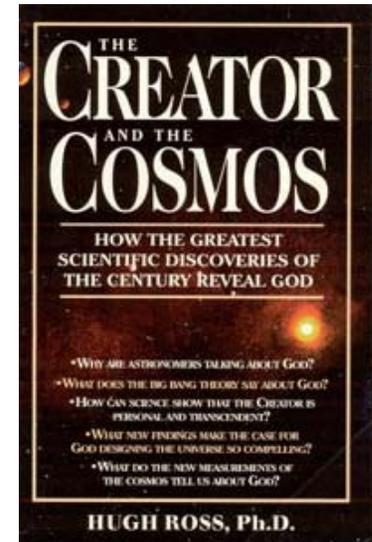
– David J. Tyler, in a review of Humphrey's *A Young-Earth Relativistic Cosmology*



"I think you should be more explicit here in step two."

The creation/evolution continuum

- Flat-earthism
- Geocentrism
- Young-earth creationism
- **Old-earth creationism**

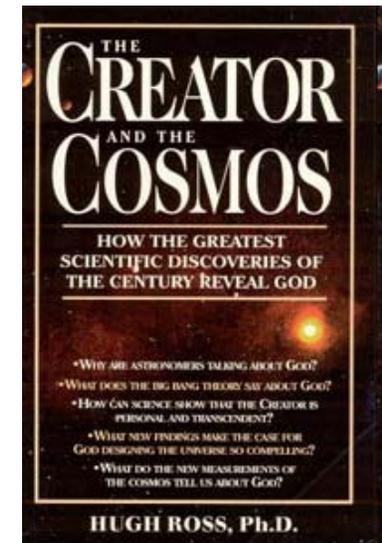
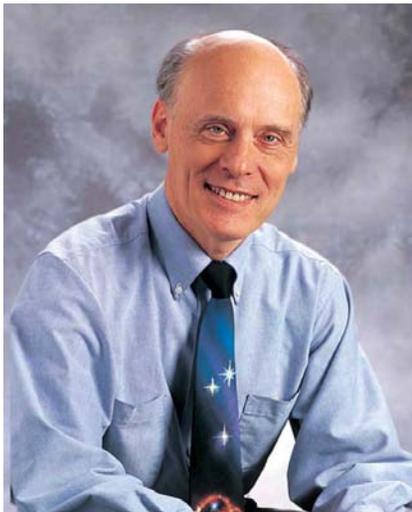


“... since the same God who ‘authored’ the universe also inspired the writings of the Bible, ... the facts of nature will never contradict the words of the Bible when both are properly interpreted.”

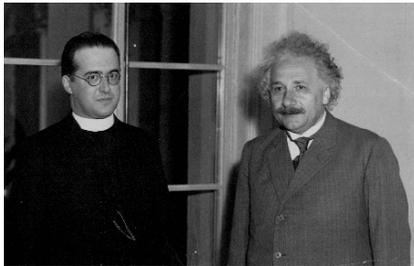
– Hugh Ross

Old-earth creationism

- **Biology:** denies evolution (common ancestry)
- **Geology:** mostly accepts scientific accounts
- **Astronomy:** mostly accepts scientific accounts



OEC and the Big Bang



“All these scientists, however, were upstaged by 2500 years and more by Job, Moses, David, Isaiah, Jeremiah, and other Bible authors. The Bible’s prophets and apostles stated explicitly and repeatedly the two most fundamental properties of the big bang, a transcendent cosmic beginning a finite time period ago and a universe undergoing a general, continual expansion. In Isaiah 42:5 both properties were declared, ‘This is what the Lord says—He who created the heavens and stretched them out.’”

– Hugh Ross

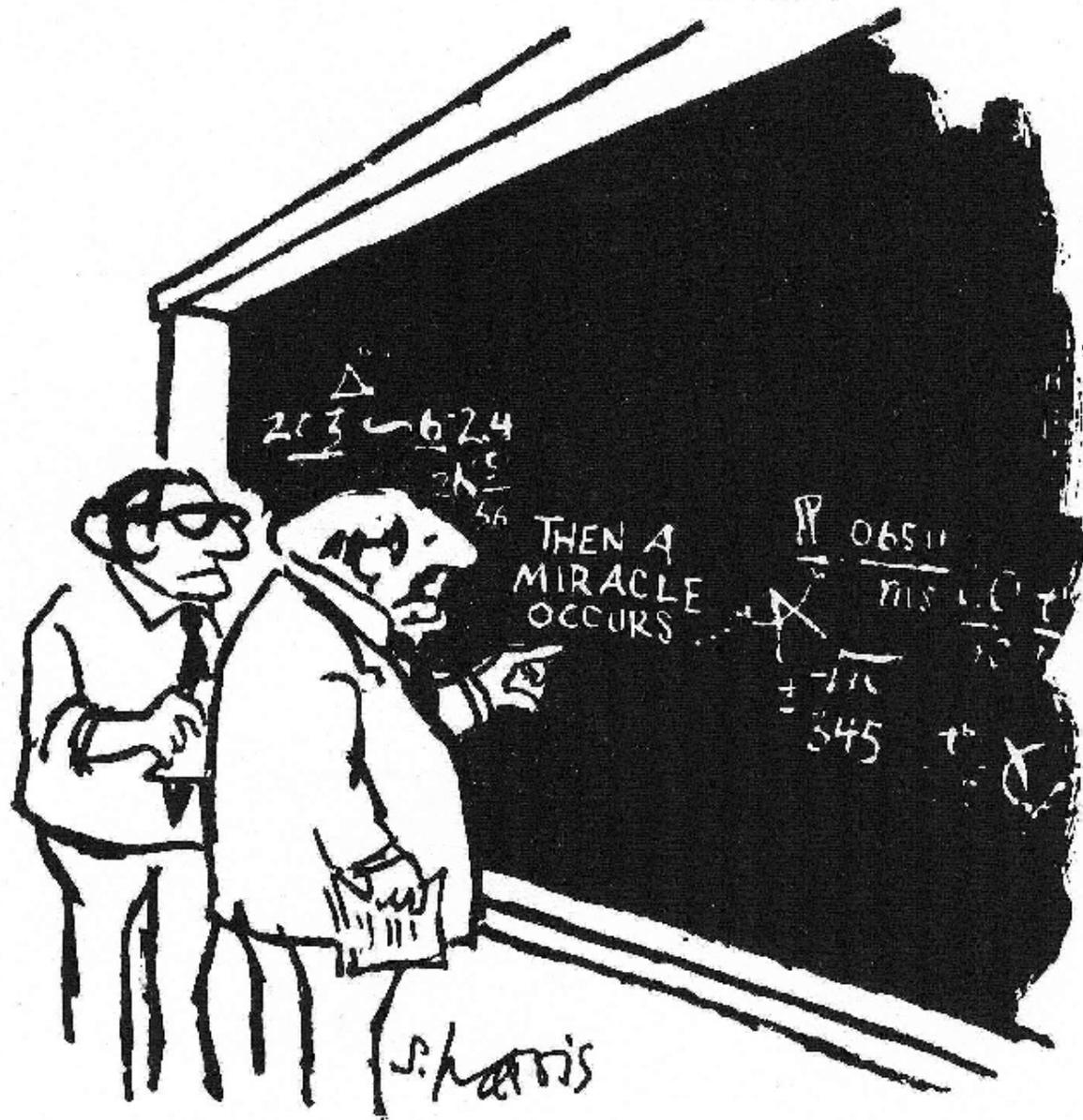


OEC and fine-tuning

“More than two dozen parameters for the universe must have values falling within narrowly defined ranges for life of any kind to exist. ... The discovery of this degree of design in the universe is having a profound theological impact on astronomers. ... Does the fine-tuning imply purposeful design? So many parameters must be fine tuned and the degree of fine tuning is so high, no other conclusion seems possible. ... Beyond just establishing that the Creator is a Person, the findings about design provide some evidence of what that Person is like.”

– Hugh Ross





"I think you should be more explicit here in step two."

Fine-tuning (take I)

- Suppose that $\Pr(\text{fine-tuning} \mid \text{nature})$ is tiny. Can we apply the Law of Improbability – which allows us to infer $\sim H$, given that O and that $\Pr(O \mid H)$ is tiny – to infer that $\sim \text{nature}$?

- Answer: No, because there is no such law. Consider a lottery, for example.



Fine-tuning (take 2)

- Suppose that $\Pr(\text{fine-tuning} \mid \text{God}) \gg \Pr(\text{fine-tuning} \mid \text{nature})$. Can we infer that $\Pr(\text{God} \mid \text{fine-tuning}) \gg \Pr(\text{nature} \mid \text{fine-tuning})$?

- Answer: knowing probabilities! Not the $\Pr(\text{God})$ and without prior



Fine-tuning (take 3)

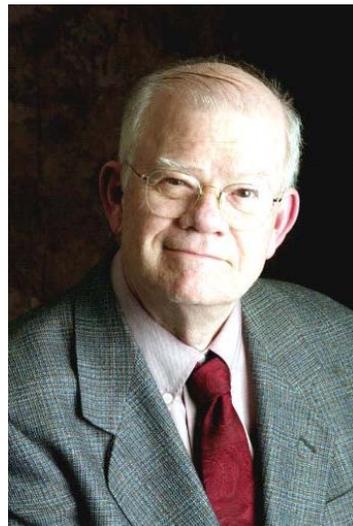
- Can we even scientifically establish that $\Pr(\text{fine-tuning} \mid \text{God}) \gg \Pr(\text{fine-tuning} \mid \text{nature})$?

- Answer: Only if we have independent scientific knowledge about God's abilities and desires.



The creation/evolution continuum

- Flat-earthism
 - Geocentrism
 - Young-earth creationism
 - Old-earth creationism
- } **Intelligent design**



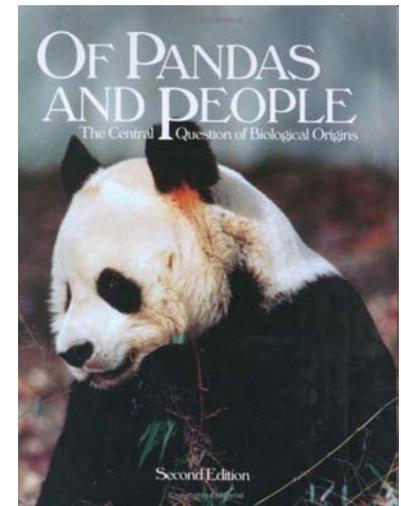
“People of differing theological views should learn who’s close to them, form alliances and put aside divisive issues ‘til later. ... I say after we’ve settled the issue of a Creator, we’ll have a wonderful time arguing about the age of the Earth.”

– Phillip Johnson

Intelligent design creationism

- **Biology:** officially agnostic about, but usually denying, evolution (common ancestry)
- **Geology:** agnostic about the age of the earth
- **Astronomy:** agnostic about the age of the universe, but often uses Big Bang and fine-tuning apologetics

Yet it has a textbook!

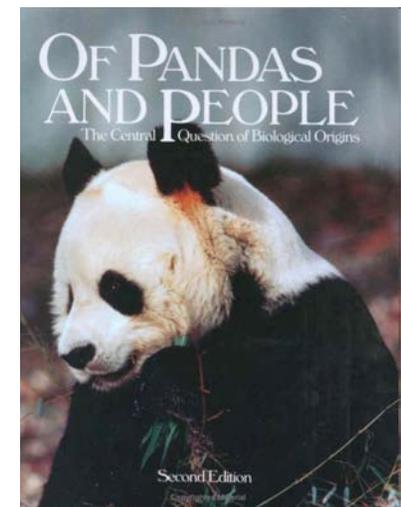


Intelligent design creationism

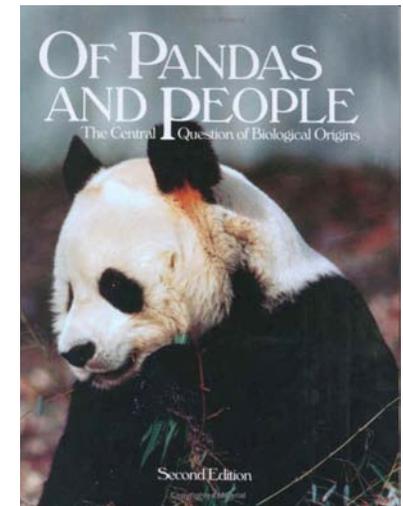
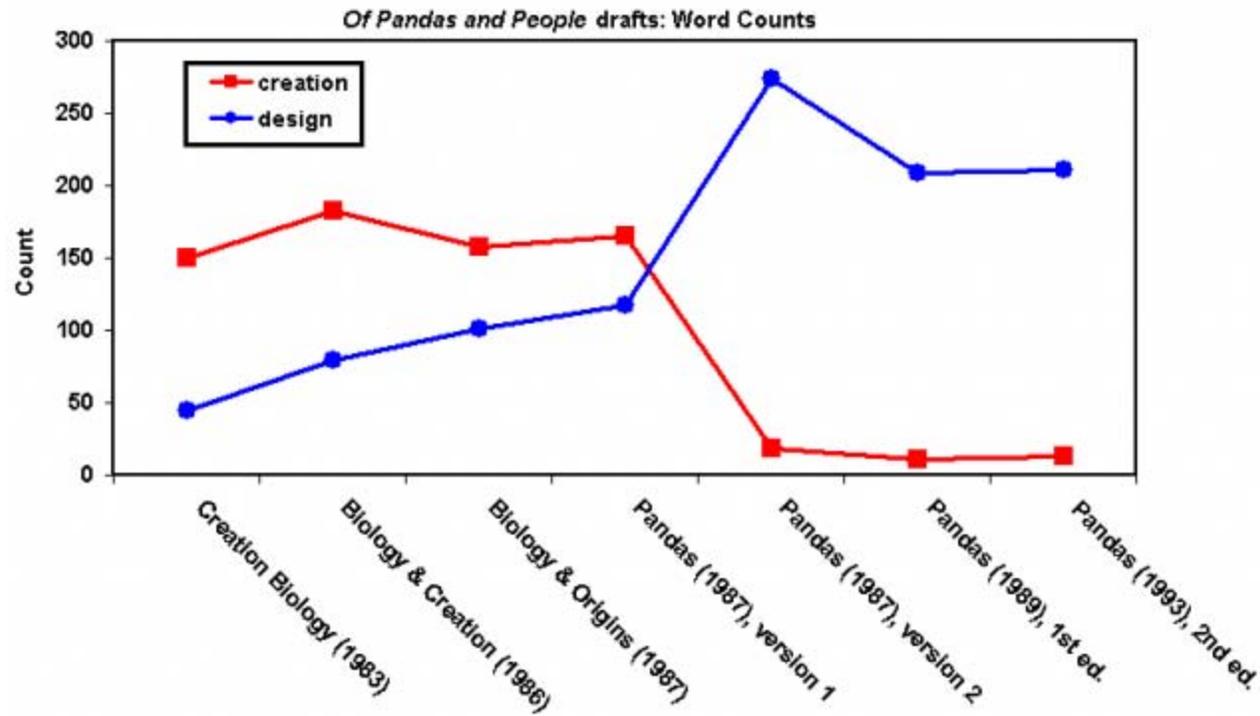


“In making this determination, we have addressed the seminal question of whether [intelligent design] is science. We have concluded that it is not, and moreover that ID cannot uncouple itself from its creationist, and thus religious, antecedents.”

– *Kitzmiller v. Dover*



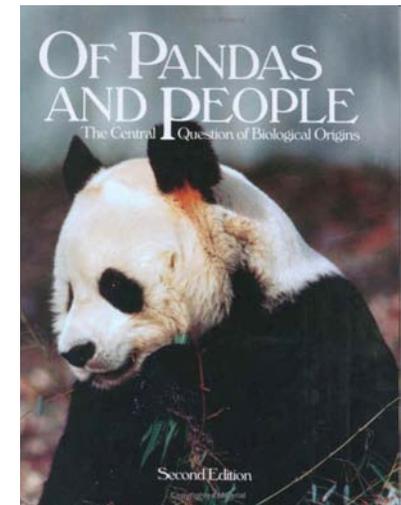
Intelligent design creationism



Intelligent design creationism

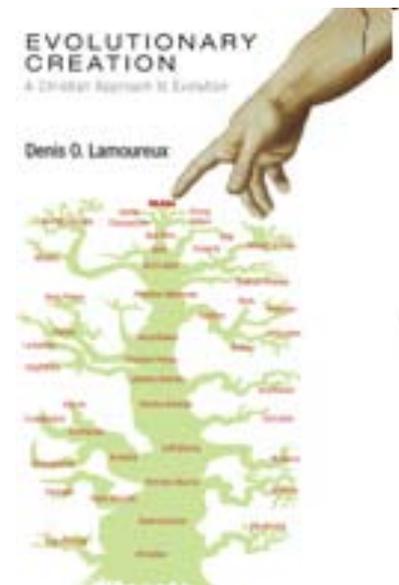
The basic metabolic pathways (reaction chains) of nearly all organisms are the same. Is this because of descent from a common ancestor, or because only these pathways (and their variations) can sustain life? Evolutionists think the former is correct, creationists accept the latter view. Creationists reason as

The basic metabolic pathways (reaction chains) of nearly all organisms are the same. Is this because of descent from a common ancestor, or because only these pathways (and their variations) can sustain life? Evolutionists think the former is correct, **design proponents** accept the latter view. Design proponents



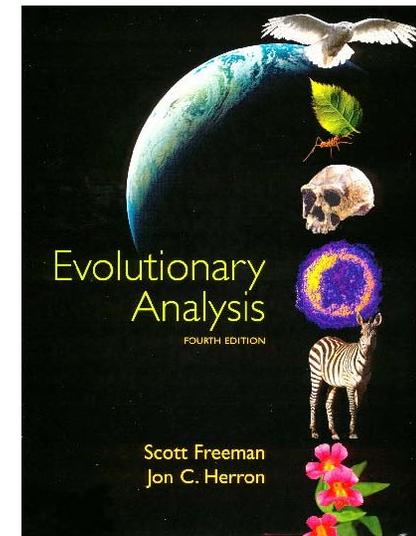
The creation/evolution continuum

- Flat-earthism
 - Geocentrism
 - Young-earth creationism
 - Old-earth creationism
 - **Theistic evolution**
- } Intelligent design



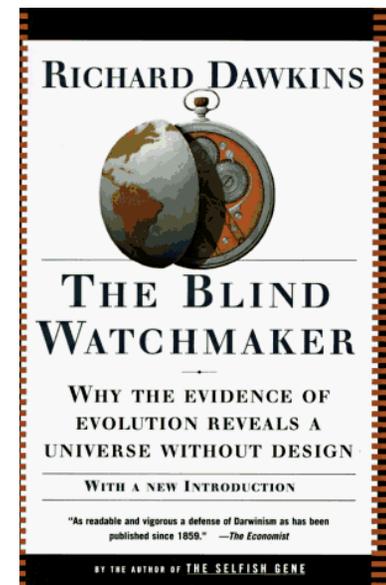
The creation/evolution continuum

- Flat-earthism
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 - Old-earth creationism
 - Theistic evolution
 - **Agnosticism/neutralism**
- } Intelligent design



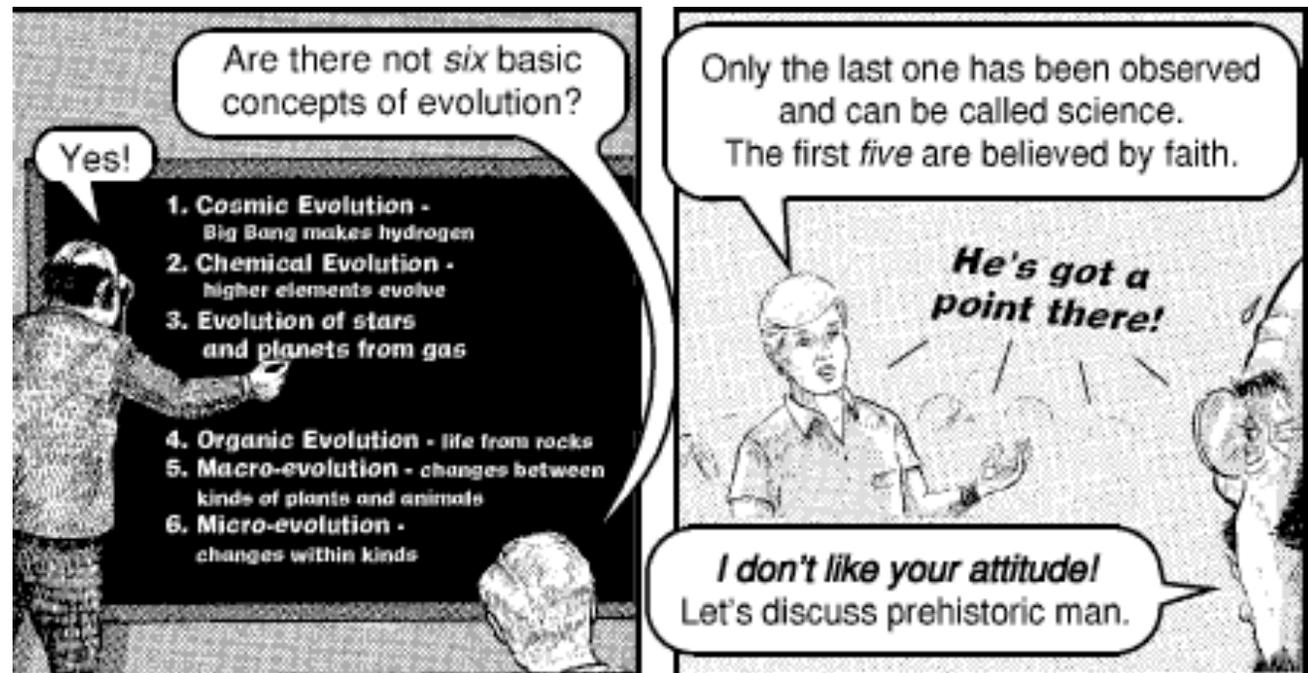
The creation/evolution continuum

- Flat-earthism
 - Geocentrism
 - Young-earth creationism
 - Old-earth creationism
 - Theistic evolution
 - Agnosticism/neutralism
 - **Materialist evolution**
- } Intelligent design



Predicaments

- **With students**
 - **In the classroom**



Predicaments

- **With students**
 - In the classroom
 - **Mentoring**



Predicaments

- With students
 - In the classroom
 - Mentoring
- **With colleagues**
 - **Hiring/tenure/promotion**



Predicaments

- With students
 - In the classroom
 - Mentoring
- With colleagues
 - Hiring/tenure/promotion
 - Publication

GOVERNMENT AND SOCIETY

Creationism creeps in

A review entitled “Mitochondria, the missing link between body and soul: Proteomic prospective evidence” raised more than a few eyebrows when it appeared online in *Proteomics* on January 23. Jin Han from Inje University (South Korea) and Mohamad Warda from Cairo Univer-

The science a barrage of the University drew attention to the blog, *Pharyngula*



THE CHRONICLE OF HIGHER EDUCATION

Today's News

Friday, September 10, 2004

Biology Journal Says It Mistakenly Published Paper That Attacks Darwinian Evolution

By RICHARD MONASTERSKY

A small scientific society has publicly distanced itself from a paper, published last month by its journal, that challenges Darwinian evolution. The Biological Society of Washington issued a statement on Wednesday saying that the paper, which supports so-called intelligent-design theory, should not have appeared in the journal.



HEADLINES

[U.S. House](#) votes to close student loan loophole and in

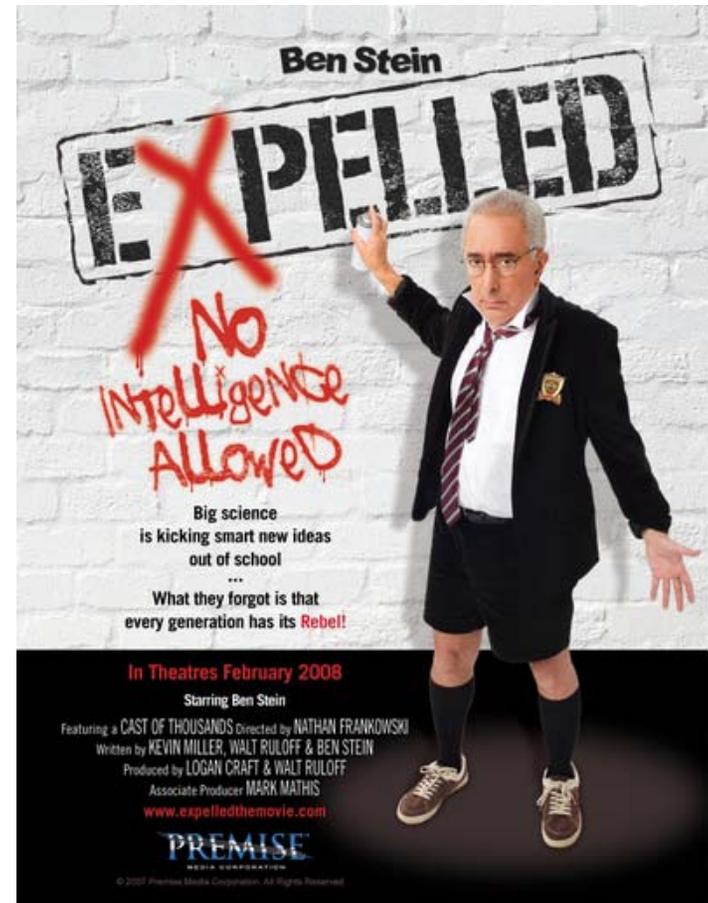
Predicaments

- With students
 - In the classroom
 - Mentoring
- With colleagues
 - Hiring/tenure/promotion
 - Publication
- **With the public**
 - **Debates**



Predicaments

- With students
 - In the classroom
 - Mentoring
- With colleagues
 - Hiring/tenure/promotion
 - Publication
- **With the public**
 - Debates
 - **Media**



Supporting science education

- Prepare for controversy
- Donate materials
- Offer to speak
- Encourage educators and policymakers
- Encourage informal science education
- Engage scientific societies
 - Position statements
 - Publications
 - Teacher workshops and materials



12-23-07



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