Why did science arise in the Christian world?

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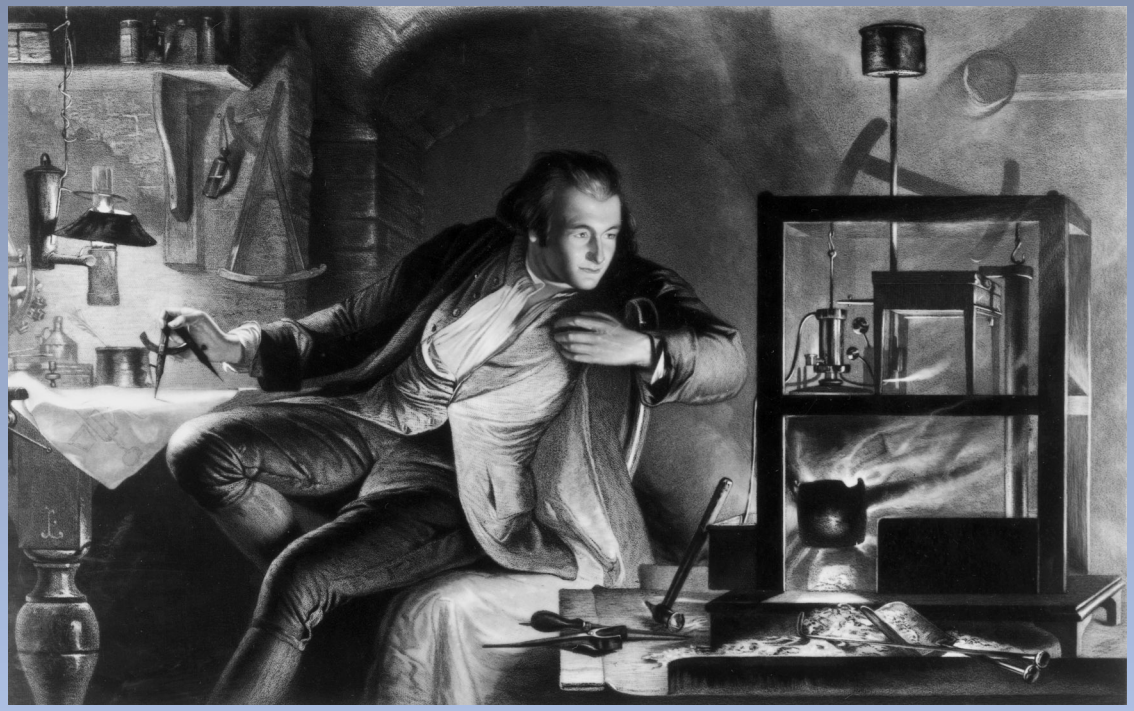


Historical fact: modern science arose in the context of Christianity in Europe.

Other cultural basins had some advanced math and astronomy, but these were abortive: they did not lead to significant changes in society.

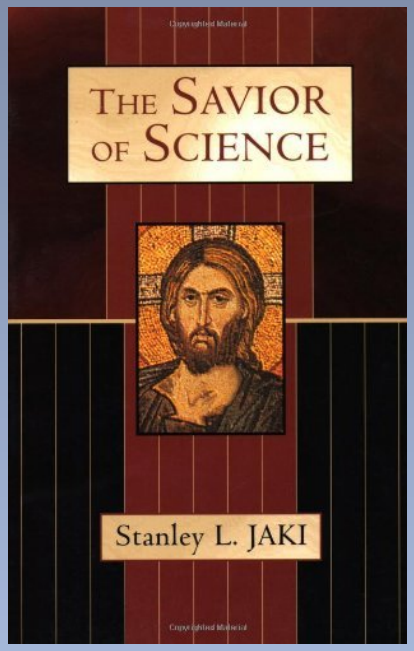
Questions:

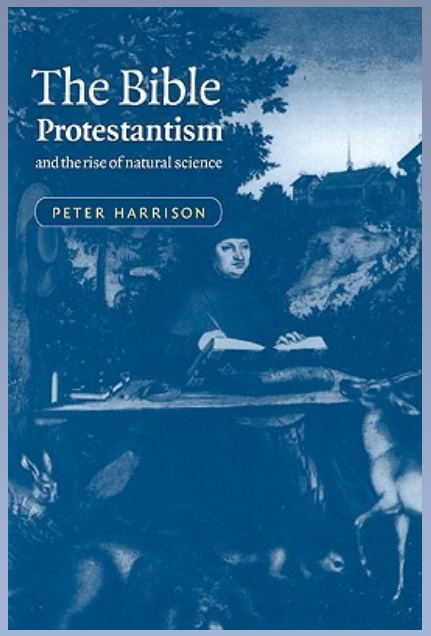
1. Was Christianity *essential*, *tangential*, or *detrimental* to the rise of science?

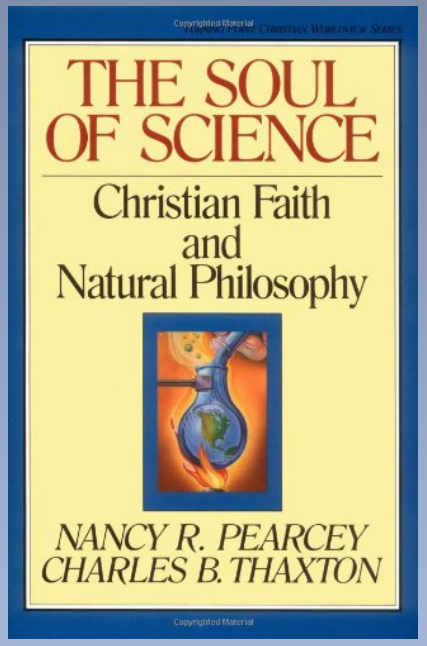
2. If it was essential, what were the essential attributes that gave rise to science?

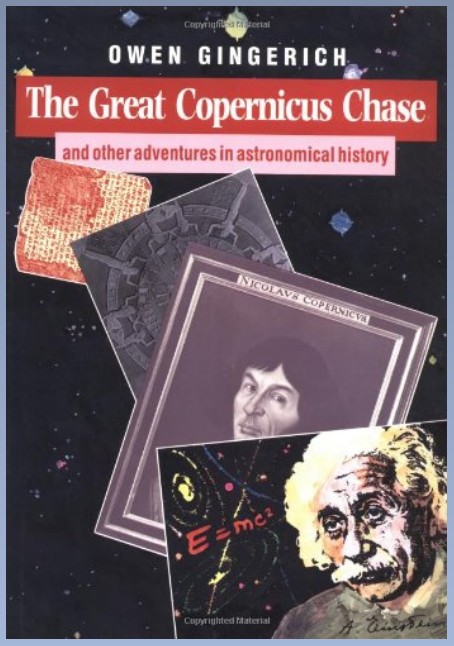
3. If it was essential, why is there a standard story line that science is antithetical to Christianity?

Some historians who make good reading:
Stanley Jaki, Peter Harrison, Nany Pearcey, Owen Gingrich





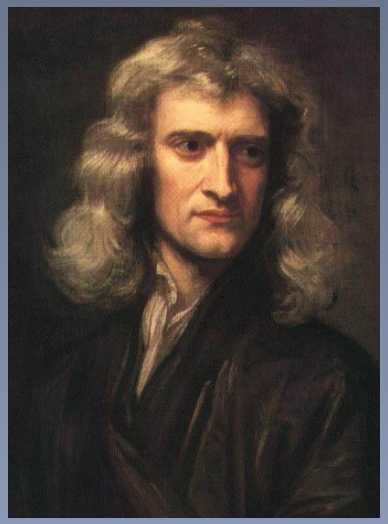




1. A tour of influential scientists

Christianity was viewed by them not as tangential or detrimental to their scientific lives, but as *essential*.

Isaac Newton, father of classical physics



“It is the perfection of God's works that they are all done with the greatest simplicity. He is the God of order and not of confusion. And therefore as they would understand the frame of the world must endeavor to reduce their knowledge to all possible simplicity, so must it be in seeking to understand these visions.”

“In the absence of any other proof, the thumb alone would convince me of God's existence.”

“**Atheism is so senseless and odious to mankind that it never had many professors**. ... Whence is it that the eyes of all sorts of living creatures are transparent to the very bottom and the only transparent members in the body, having on the outside an hard transparent skin, and within transparent juices with a crystalline lens in the middle and a pupil before the lens all of them so truly shaped and fitted for vision, that no artist can mend them? **Did blind chance know that there was light and what was its refraction and fit the eyes of all creatures after the most curious manner to make use of it**? These and such like considerations always have and ever will prevail with man kind to believe that there is a being who made all things and has all things in his power and who is therefore to be feared.”

Blaise Pascal, founder of fluid mechanics

"There is a God shaped vacuum in the heart of every man which cannot be filled by any created thing, but only by God, the Creator, made known through Jesus."

"What reason have they for saying that we cannot rise from the dead? What is more difficult, to be born or to rise again; that what has never been should be, or that what has been should be again? Is it more difficult to come into existence than to return to it? Habit makes the one appear easy to us; want of habit makes the other impossible."

"**Men despise religion; they hate it and fear it is true. To remedy this, we must begin by showing that religion is not contrary to reason**; that it is venerable, to inspire respect for it; then we must make it lovable, to make good men hope it is true; finally, we must prove it is true.Venerable, because it has perfect knowledge of man; lovable because it promises the true good."

G.W. Leibniz, father of calculus

“The conception of God which is the most common and the most full of meaning is expressed well enough in the words: God is an absolutely perfect being... And with respect to ourselves it can be said that the more we are enlightened and informed in regard to the works of God the more will we be disposed to find them excellent and conforming entirely to that which we might desire.

“Therefore I am far removed from the opinion of those who maintain that there are no principles of goodness or perfection in the nature of things, or in the ideas which God has about them, and who say that the works of God are good only through the formal reason that God has made them. ... Excellence is recognized in regarding the works themselves, even if we do not consider their evident dependence on their author. This is confirmed by the fact that it is **in reflecting upon the works that we are able to discover the one who wrought**. They must therefore bear in themselves his character.”

William Harvey, father of modern medicine (discoverer of the circulation of blood)

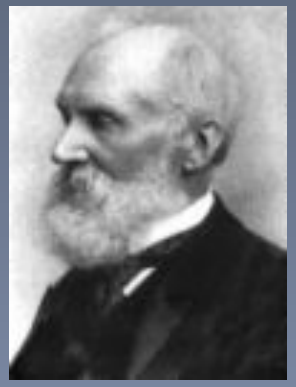
"**So Provident a Cause as Nature had not so placed so many Valves without design**; and no Design seemed more probable than that, since the Blood could not well, because of the interposing Valves, be sent by the Veins to the Limbs; it should be sent through the Arteries, and Return through the Veins, whose Valves did not oppose its course that way."

"The examination of the bodies of animals has always been my delight; and I have thought that we might thence not only obtain an insight into the lighter mysteries of Nature, but there perceive a kind of image or reflex of the omnipotent Creator himself."

Michael Faraday, father of electricity and magnetism

“The law of God required perfect obedience, which man could not render, and it was in the room and stead of guilty man that Christ fulfilled it.

“And therefore, brethren, we ought to value the privilege of knowing God's truth beyond anything we can have in this world. The more we see the perfection of God's law fulfilled in Christ, the more we ought to thank God for His unspeakable gift.”



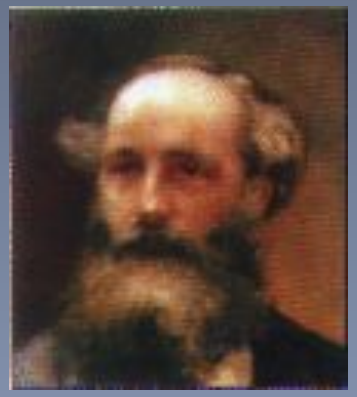
William Thompson, Lord Kelvin
father of thermodynamics

"I have long felt that there was a general impression in the non-scientific world, that the scientific world believes Science has discovered ways of explaining all the facts of Nature without adopting any definite belief in a Creator. **I have never doubted that that impression was utterly groundless**."

"We are all out of our depth when we approach the subject of life. The scientific man, in looking at a piece of dead matter, thinking over the results of certain combinations which he can impose upon it, is himself a living miracle, proving that there is something beyond that mass of dead matter of which he is thinking. **His very thought is in itself a contradiction to the idea that there is nothing in existence but dead matter**.

"Science can do little positively towards the objects of this society. But it can do something, and that something is vital and fundamental. It is to show that **what we see in the world of dead matter and of life around us is not a result of the fortuitous concourse of atoms**."

James Clerk Maxwell, founder of theory of electromagnetic fields



“What a field for ambition there is---for climbing up, or rather, being drawn up, into Christ's love, and receiving into our little selves all the fulness of God. Let us bless God even now for what He has made us capable of, and try not to shut out His spirit from working freely.”

“I think that men of science as well as other men need to learn from Christ, and I think that **Christians whose minds are scientific are bound to study science that this view of the glory of God may be as extensive as their being is capable of**.”

Wernher von Braun, father of space travel

"Finite man cannot begin to comprehend an omnipresent, omniscient, omnipotent, and infinite God ... I find it best to accept God through faith, as an intelligent will, perfect in goodness and wisdom, **revealing Himself through His creation** ... "

20th century Novel prize winners

Arthur Compton, inventor of cyclotron

*"*It is not difficult for me to have this faith, for it is incontrovertible that where there is a plan there is intelligence - **an orderly, unfolding universe testifies to the truth of the most majestic statement ever uttered – 'In the beginning, God**.'"

Charles Townes, inventor of laser

*"If you look at what religion is all about, it's trying to understand the purpose and meaning of our universe. Science tries to understand function and structures. If there is any meaning, structure will have a lot to do with any meaning**. In the long run they must come together."***

Richard Smalley, discoverer of carbon fullerenes

"The purpose of this universe is something that only God knows for sure, but **it is increasingly clear to modern science that the universe was exquisitely fine-tuned** to enable human life. We are somehow critically involved in His purpose. Our job is to sense that purpose as best we can, love one another, and help Him get that job done."

Summary of historical facts:

Most of early scientists were Christians, many with very strong Christian commitments. Many were priests, monks, and theologians.

• They saw their science as entirely compatible and supportive of their faith.

• There later arose opposition to Christianity (the "Enlightenment") which made science its standard of all things. This movement sought to re-tell the story of science, creating the myth of "warfare of science and Christianity."

• Some Christians reacted to the Enlightenment by pulling out of science and creating a "simple faith" approach.

• Nevertheless there has always been a good number of influential scientists with strong Christian faith.

Arguments for why Christianity was so crucial for science to take root.

1. Linear time, sense of progress (Jaki)
(creation-fall-redemption-glory narrative)

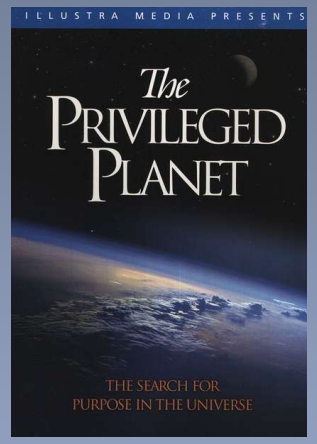
2. Incarnational theology means “stuff” is good (Harrison)
e.g. monk Roger Bacon (1200’s), experimental method

3. High value on Truth and honesty.
e.g. Francis Bacon
Present day: rapid increase of false science, pseudoscience, scholasticism (publishing for the sake of publishing)

4. High value on applied science
(benevolence/love instead of secret powers)

5. Expectation of rationality due to rational God
(not whims of demons which are different every day)

Einstein: “The most incomprehensible thing of the universe is its comprehensibility.”
Cf. Gonzalez and Richards, *The Privileged Planet*



6. Reformation focus on Bible leads to less superstition (Harrison)

“stuff” has causal power in itself, it is not primarily messages/symbols.

Paganism: “reading tea leaves,” astrological “signs,” “portents” as seeking for message; Bible is clear message

6. Reformation/focus on Bible leads people to fear God, not man.

Many scholastic efforts stymied by fear of contradicting authorities .

7. Open communities, not secret societies.

Monastic communities as centers of learning, later scientific societies such as Royal Scientific Society

Why the common story line of warfare of science and Christianity?

"Enlightenment," starts late 1700's in Germany and France

- Focus on dismissing all connection with the past (reaction against monarchies, nobles, rich priests)

- Belief in science as arbiter of all truth. Scientific laws as "self-evident"

- Eventually leads to "scientific" approaches to society in communism (France), Nazism (Germany) which are exported elsewhere in the world

As part of Enlightenment, revisionist history is produced.

- myth of warfare of Christianity and science.

Actually, the church sponsored science for centuries.

Trial of Galileo: similar to trial of Luther. Entrenched authorities in Roman church rejected contradiction which could undermine their positions.

- myth of “God of the gaps”

Storyline that people believed in God only because of things they didn’t understand, science progressively closing these gaps.

Actually, all ancient and modern philosophers argued for God on basis of what they *did* understand, e.g. eternity, causation, design, mind, etc.

The serious “gaps”, namely, basic realities of our world that point to God
—origin of universe, origin of life, origin of mind—
are no more explained by science now than 500 years ago.
(more on this later)

- myth of scientific laws as inviolable pure theory

Determinism: laws as absolutes, logical necessities.

Laplace: Newton's laws as absolutes
(overturned by relativity and quantum mechanics).

In fact, scientific laws we have grew out of observation, on basis of belief that God is orderly, not pure deduction of self-evident logic.

They have many free parameters, approximations, and are open to revision.

Downfall of the Enlightenment (Modernism)

"Postmodernism" has many strong critiques of modernism.

- "self-evident" arguments usually aren't, are often used to justify the interests of those making them.

- "objective" science often isn't; scientists do their work based on their moral and aesthetic beliefs (Polanyi)

- reliance on science as solver of all society's problems has led to huge abuses (Nazism, communism, eugenics, pollution)

- rejection of history and community leads to rootless individualism and corruption

Can science survive being post-Christian?

In many ways, science is operating on “Christian momentum”

- Honesty lost– fabrication increasing
- Love lost– pointless scholasticism increasing
- Community lost– secrecy increasing
- Fear of God lost– replaced by fear of authorities
- Incarnation lost—increased value of theory over handwork
- Downfall of modernism and replacement by postmodernism means paganism is increasing (spirits, superstition, pseudoscience)

Does science make belief in the Bible irrational?

1. Miracles
   - Russell's argument
   - Hume's argument

2. Evolution– contradicts the Bible's story of origins?
   - What does the Bible say and what does it not say?
   - Adam and Eve

3. God of the gaps- no place for God?

1. Can we believe rationally in miracles?

If God exists, it is obvious that he can do what he wants, including suspend the laws of nature he created.

Laplace/Enlightenment idea of universe as sealed box: no deviation from natural law allowed.

This is a *presupposition* made by Enlightenment thinkers, not a conclusion from scientific evidence.

Bertrand Russell's argument (silly)

Define miracles as impossible.

Then believing in miracles is believing the impossible is possible, which is a self contradiction.

Clearly, Christians view miracles as possible!

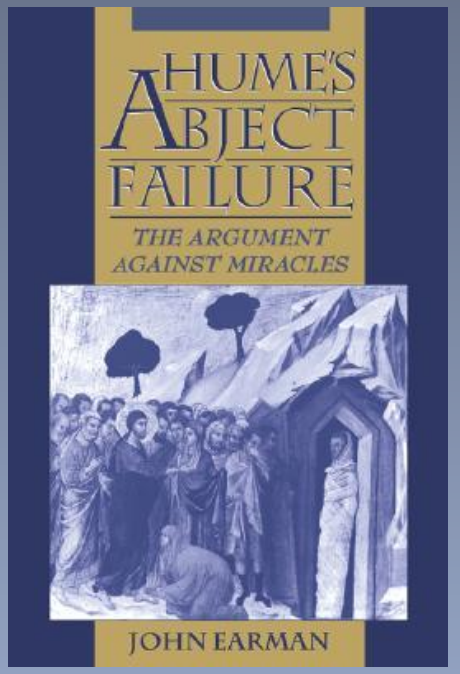
Hume's argument (better)

Miracles are rare.

To believe an unusual story requires extra evidence.

Miracles are so unusual they require extraordinary evidence, which is lacking.

John Earman (chaired prof. of philosophy, Pitt)



Basic failure of Hume's argument: he did not understand or treat probabilities correctly.

1. *Role of null observations*

Lack of observation of something is only evidence of its nonexistence if we expect it to be common. If we expect something to be hard to see, non-observation is normal.

Plantinga: "no-see-um's"

Why are miracles rare?

Miracles as *revelation* and *signs*.

Analogy of the good software designer:

A random program is bad design.

But ability to make changes when he chooses shows the power of the designer.

God's refusal to do miracles on demand is not evidence of no miracles, any more than a person's refusal to answer your phone call is evidence of their non-existence.

2. *The role of testimony*

In science, many things cannot be produced on demand but have adequate record.

Conjuction of independent testimony quickly makes it extremely unlikely that all the witnesses were mistaken.

We reject strong testimony of a rare event only when we have overriding reason to view the event as impossible.

E.g. finding a pot of gold in a backyard.

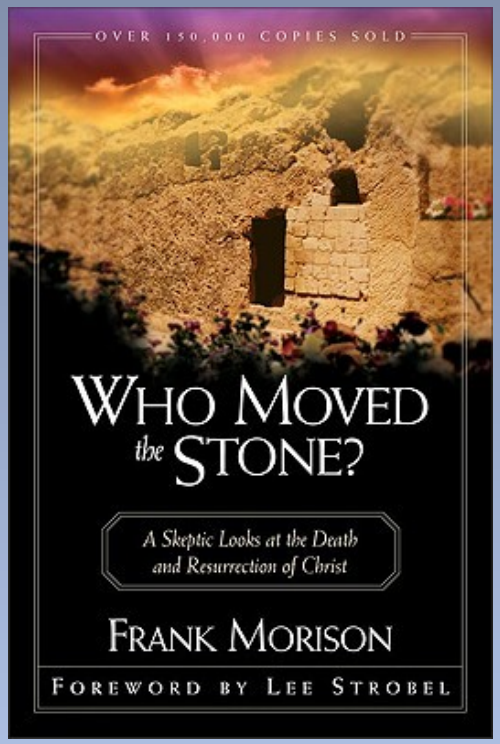
Bayesian conditional probability:
Given the existence of God, miracles are unlikely but not impossible.

Chain of logic on miracles

Some miracles extremely well documented:
e.g. the resurrection of Christ.

This leads us to believe in Christ and the general possibility of miracles by God.

This in turn leads us to accept stories of other miracles which are affirmed by Christ, though less well documented.



Does belief in miracles undermine science?

Will people stop looking for natural explanations?

Should Christians adopt “methodological naturalism,” i.e. “functional atheism”?

As discussed earlier, this was not how science in Christian Europe proceeded.

A strong Creator/creature distinction is all that is needed for good science: belief that creatured things have causal power in themselves.

2. Does the story of Evolution undermine Christianity?

Two arguments:

A. The story of evolution contradicts the Bible.

B. The story of evolution explains everything, so religious belief is not necessary.

A. Does well established science contradict the Bible?

Things well documented by science:

- Age of the earth ~ 4.5 billion years.
- Transformation of some species into others.
- Existence of hominids for ~ 1 million years.
- Common elements of people and animals.

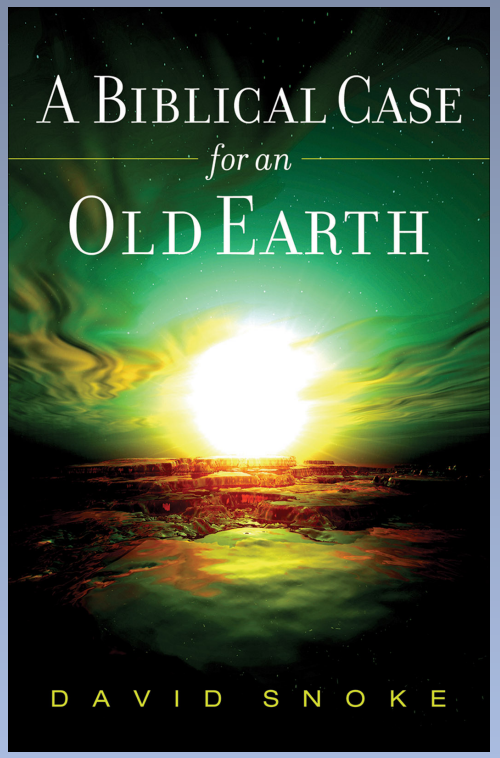
The Bible does not teach against any of this, although some claim it does.

Strong points made by the Bible:

• Origin of universe. It is not eternal. (Jaki: linear time)

• God's role as absolute sovereign over creation, no competing powers.

• Special role for humans: "image of God," "dominion blessing"



Adam and Eve?

Bible teaches "special creation" at two times: Adam and Eve, and Christ.

Special role as representatives of humanity.

But will we observe that in DNA?

B. Does evolution explain everything? No need for God?

One mechanism: natural selection.

Requires as antecedents:

- existence of life
- ability to reproduce
- ability to change in reproduction, but not too much ("error catastrophe")

Story: the well-designed flying object.

3. God of the gaps?

Storyline of evolution is that almost everything is explained, just a few things remaining.

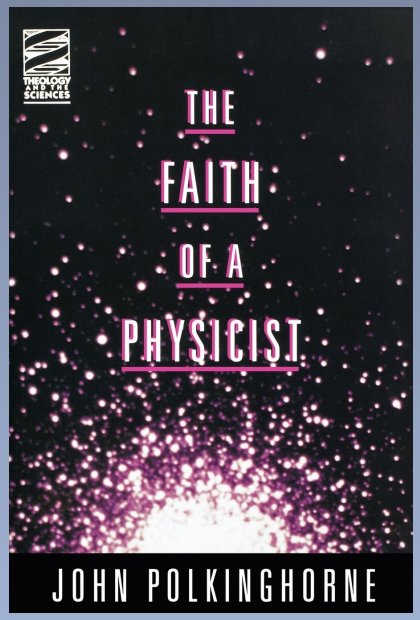
“Evolution made it possible to be an intellectually satisfied atheist.”-Dawkins

Atheism *must* have a complete story of origins.

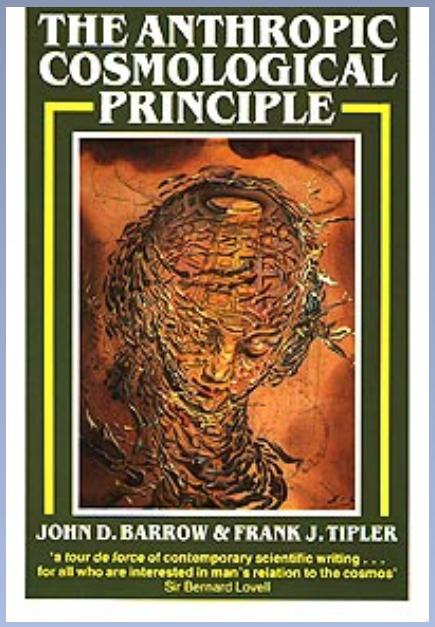
In fact, huge things are not explained.

Origin of universe: “fine-tuning paradoxes”

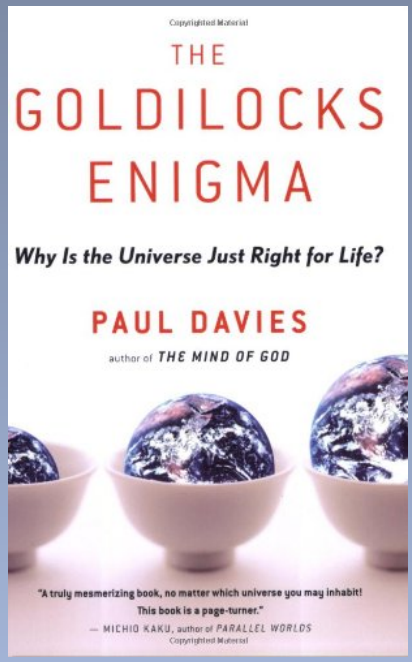
John Polkinghorne (Cambridge Math/Physics professor)



Frank Tipler (Tulane)



Paul Davies (chaired prof., Arizona State)



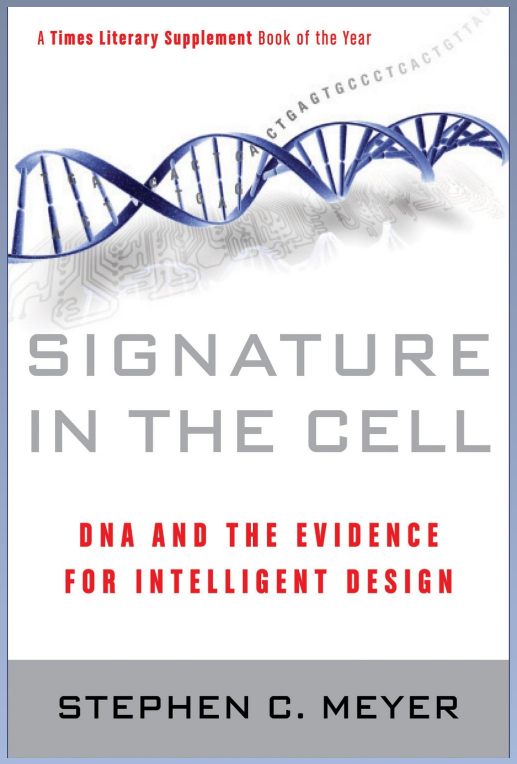
Many Universes?

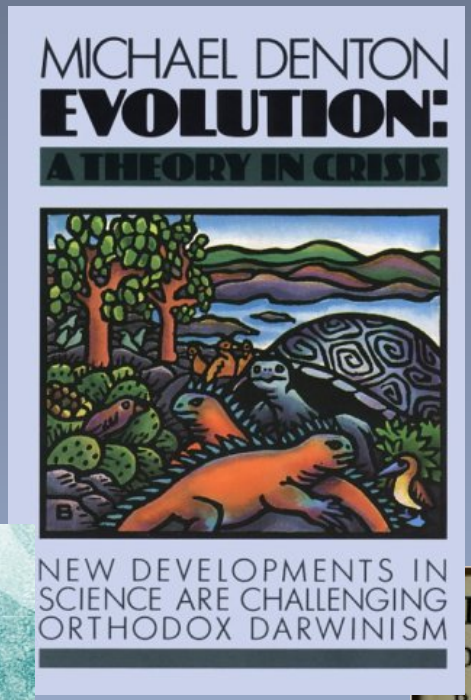
An assumption of infinite degree!

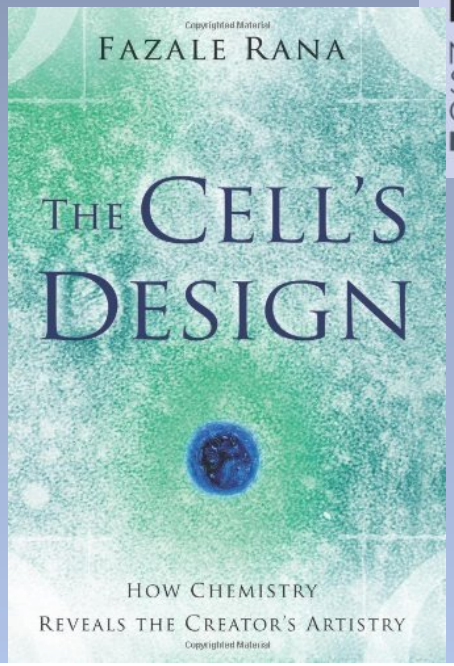
Infinite number of unobserved entities, all different.

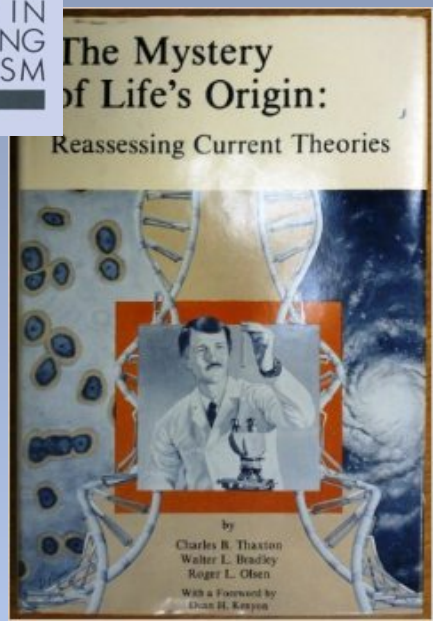
Origin of life: “chicken and egg” paradoxes

Stephen Meyer (philosophy Ph.D., Cambridge)









e.g. “error catastrophe”: size of genome

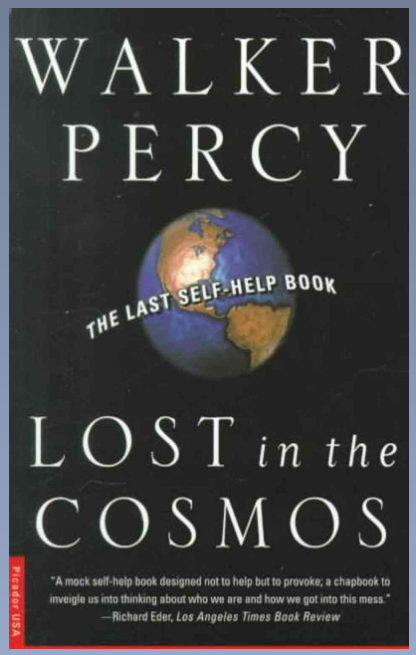
machines for error correction and replication are themselves coded by DNA

Panspermia?

Life came to earth from outer space?
Created by space aliens?

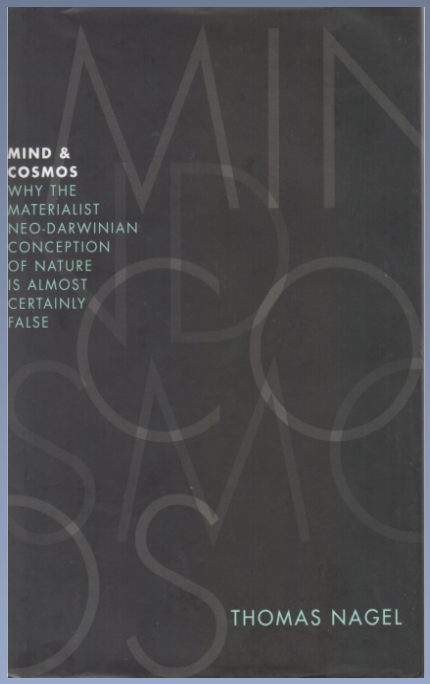
Gaia-goddess theory?

The problem of the origin of Mind



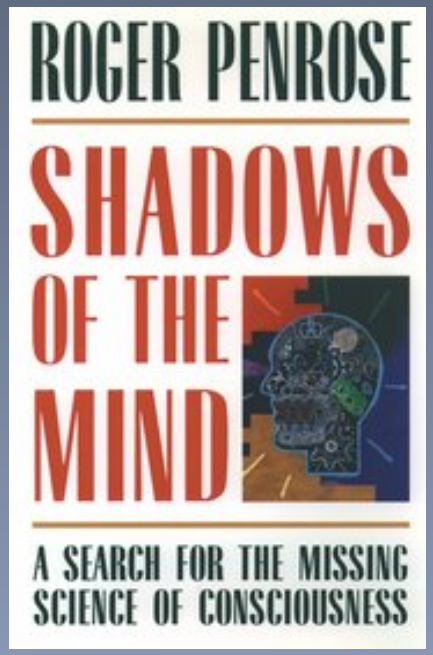
Walker Percy.
Lost in the Cosmos

Thomas Nagel
Mind and Cosmos



Truth, consciousness, virtue not required for survival.

"Adequate explanation": Analogy of great city



Roger Penrose, chaired prof. of physics, Oxford

The problem of Goedel's theorem: thinking cannot be algorthmic

New Age/neo-paganism?

Pseudoscientific use of quantum mechanics, role of "observer": mind as "force" without mind

Conclusions

1. Arguments against miracles tend to argue from presumption of nonexistence of God, natural law as closed system.

2. Miracles are not used in Christianity to argue for existence of God– this is assumed to be known from the regular things observable to all people.
Miracles in the Bible are testimonies of God speaking to certain people.

3. Much of the evolutionary story is not a threat to Christianity, but it does not provide a whole account of the relavant universe as atheists would like it to.

4. Believing in miracles does not undermine science, rather it indicates a willingness to “go where the evidence leads,” not to predetermine what things are possible.