

A background image of a starry night sky. The sky is dark with numerous small, bright stars of various colors, including blue, red, and yellow. There are also some larger, more prominent stars and nebulae, such as a bright yellow star in the upper left and a red nebula in the lower right.

“Reflections on Science and Religion”

Leslie Wickman, Ph.D.

Science & Religion

- ***“There can never be any real opposition between religion and science, for one is the complement of the other.”***
 - Max Planck, atomic physicist, 1900s
- ***“Religion without science is blind. Science without religion is lame... I want to know God’s thoughts; the rest are details.”***
 - Albert Einstein, author of relativity theory, 1941
 - ***“Study astronomy and physics if you desire to comprehend the relation between the world and God’s management of it.”***
 - Moses Maimonides, Jewish philosopher, 1190 AD
- ***“The significance and joy in my science comes in the occasional moments of discovering something new and saying to myself, ‘So that’s how God did it!’ My goal is to understand a little corner of God’s plan.”***
 - - Henry “Fritz” Schaefer III, chemist, 1991

Perceived DICHOTOMY



“Science”

“Evolution”

No God

Humanist Ethics



Scientism

Science & Secular WV

“Religion”

“Creation”

God

Biblical Ethics



Fundamentalism

Christianity & 6 Days

←EXTREME POSITIONS→

DICHOTOMY?



“Science”

“Evolution”

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Scientism

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CONFLATION



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Fundamentalism

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CONFLATION

Scientists Are Still Keeping the Faith

Ed Larson & Larry Witham

Nature
3 Apr 97



- I believe in a God in intellectual and emotional communication with humankind, i.e. a God to whom one may pray in expectation of receiving an answer. By “answer” I mean more than the **subjective psychological** effect of prayer.

40%

- I believe in continuation of the person after death **into another world**

DICHOTOMY



“Science”

“Religion”

Science

**40% Believe in a Personal God
Science-Religion Dialogue**

Religion

**Pope John Paul II Accepts Evolution
Billy Graham Open to Evolution**

Natural Philosophy => Natural Science

- Natural Philosophy: precursor to natural science
- Study of unanswered questions about nature
- Search for understanding via study of physical world
- Looking at the world with curiosity
- Theoretical, not empirical or experimental

BIG questions...

- **Where did all this come from?**
 - **How big is it?**
 - **What's it all made of?**
 - **How long has it been here?**
- **Was there anything before all this?**
 - **Why are we here?**
 - **Where are we going?**
 - **How will it all end?**
- **Is there anyone else out there?**

Development of the Scientific Method

From trying to understand the heavens in the 16th and 17th centuries, modern science was born

- Roger Bacon, 1214-1294
- Francis Bacon, 1561-1626
- Galileo Galilei, 1564-1642
- Robert Hooke, 1635-1703
- Isaac Newton, 1642-1727



- A rational, empirical way of studying nature

Overview of the Scientific Method

- Rooted in observations
- Formulate hypothesis: tentative explanation
- Make predictions about future events
- Verify/Test
- Analysis/Interpretation/Evaluation of test results
- Publish
- Reproduce
 - Evidentiary considerations: theories can't be proven, only disproved
 - Rather, looking for the best explanation given existing evidence
 - Inductive reasoning

“Scientific knowledge is a body of statements of varying degrees of certainty – some most unsure, some nearly sure, but none absolutely certain.”

- Richard Feynmann

Today's Scientific Marketplace of Ideas

- **Anthropic Principle**
- **Quantum Physics**
- **The Multiverse Hypothesis**
- **Probabilities**

Teleological Argument - Anthropic Principle - Fine-tuned Universe

- **Teleological Argument: The design & order observed in the natural world point to a purposeful Creator**
 - Plato, William Paley, many others
- **Cosmological Anthropic Principle/Goldilocks Principle/Fine-tuned Universe: The universe has a large number of parameters with values that seem to be finely tuned to accommodate life.**
 - Modern-day astronomers
- “Ever since the creation of the world his eternal power and divine nature, invisible though they are, have been understood and seen through the things he has made. So they are without excuse...”
 - St. Paul, Romans 1:20
- “The heavens are telling the glory of God; and the firmament proclaims his handiwork. Day to day pours forth speech, and night to night declares knowledge.” - King David, Psalm 19:1-2
 - “***Whence arises all that order & beauty we see in the world?***”
 - Sir Isaac Newton, 1650

Our Unique Earth

Even though 1000s of extra solar planets have been detected, and perhaps 10% or more of sun-like stars could support planetary systems...

All of our space exploration SO FAR has shown that our neighbors in space are not remotely capable of sustaining life of any complexity.



The Best?

If the earth is the result of some cosmic accident, surely we could find some attribute which could be improved upon...

- *Distance from Sun, temperature ranges*
 - *Size, gravity*
 - *Water: vapor, liquid, solid*
 - *Thickness of crust*
 - *Rotation rate*
 - *Axial tilt, seasons*
 - *Magnetic field*
 - *Moon*
- *Atmospheric pressure and composition*

But to change any of earth's essential attributes would decrease the likelihood of life existing or continuing to exist!

Fine-tuning throughout the universe

- **Velocity of light: amount of radiation**
- **Electromagnetic force: chemical bonding**
- **Strong nuclear force: atom/element building**
- **Expansion rate of universe: galaxy/star formation**
- **Mass density of the universe: expansion/crunch**

Against the odds...

- **Probability for 9 life-supporting design characteristics existing in one of the traditional 9 planets of our solar system:**

1 in 50 million

- **If we consider the 300+ finely tuned characteristics of the entire universe, the odds are more like 1 in 10^{282} for such a planet to exist anywhere in the cosmos!**

Quotes from Famous Scientists

“As we survey all the evidence, the thought insistently arises that some supernatural agency — or rather Agency — must be involved.”

George Greenstein, theoretical astrophysicist, Amherst College, *The Symbiotic Universe*.

“The impression of design is overwhelming...It seems as though somebody has fine-tuned nature’s numbers to make the Universe.”

Paul Davies, physicist, *The Cosmic Blueprint*

The Multiverse Hypothesis

An infinite number of separate universes, each with a different set of physical laws

Better “odds” of one universe getting the numbers right?

Chance, or Design?

“...the degree of bio-friendliness we observe in the universe seems far in excess of what is needed to give rise to a few observers... If the ingenious bio-friendliness of our universe were the result of randomness, we might expect the observed universe to be minimally, rather than optimally, biophilic. Note too, that multi-verse explanations still need to assume the existence of laws of some sort, so they do not offer a complete explanation of the law-like order of the universe. Finally, invoking an infinity of unseen universes to explain certain features of the universe we do observe seems the antithesis of Occam’s Razor: It is an infinitely complex explanation.”

- Paul Davies, theoretical physicist

The Physical Laws...

“The ‘law’-like regularity and consequent modelability of natural phenomenon are the unquestioned assumptions that underlie all scientific research... But common to all except for the most extreme relativists is the conviction that there is some basic, deep order in Nature that allows for the emergence of meaningful scientific practice... This view and the refrain of ultimate goodness (‘God saw all that He had made, and it was very good’) stands in clear contrast to the Babylonian imperial cosmology in which Creation results from warfare in a power struggle between competing gods... In particular, laws of Nature are not self-explanatory. To me, they are most powerfully interpreted as traces of the Creator’s handwriting.”

- Lydia Jaeger, physicist and academic dean at l’Institut Biblique de Nogent-sur-Marne, *Cosmic Order and Divine Word*

“... in Him all things hold together...” – Colossians 1:17

“...I established my covenant with day and night and the ordinances of heaven and earth...” - Jeremiah 33:25

Quantum Physics

"God does not play dice..." - Einstein

Does quantum uncertainty provide the space wherein God acts?

Our orderly universe is governed by physical laws

If God intervened haphazardly (miraculously) to overrule those laws:

- Order would cease
- Cause and effect would be de-coupled
- Actions would have no predictable consequences
- Free will would be meaningless

If we could PROVE God's existence, where would faith come in?

Even though the odds of getting everything just right for life are highly improbable, it's not absolutely impossible.

Maybe God is in the business of making the improbable probable!

The Big Bang

“Almost everyone now believes that the universe, and time itself, had a beginning at the Big Bang.”

– Stephen Hawking, physicist

“Suppose you suddenly hear a loud bang... and you ask me, ‘What made that bang?’ and I reply, ‘Nothing, it just happened.’ You would not accept that.”

- Kai Nielsen, atheist philosopher

The Big Bang

“If the rate of expansion one second after the big bang had been smaller by even one part in a hundred thousand million million, the universe would have re-collapsed before it ever reached its present state.”

– *Stephen Hawking*

- "A common sense interpretation of the facts suggests that a superintellect has monkeyed with physics."

- *Fred Hoyle*

Science, Religion & the Big Bang

- (The idea that God created the universe is) “a more respectable hypothesis today than at any time in (the) last hundred years.”
 - science historian Frederic Burnham, quoted by David Briggs in *Science, Religion, and the Big Bang Theory*, Los Angeles Times

The Origin of Life

- A single living cell contains as much information as 100 million pages from an encyclopedia
- The odds of getting the basic enzymes together for life: 1 chance in $10^{40,000}$ th
- Irreducible complexity
- No plausible explanation for abiogenesis

The Origin of Life

- “The mathematical odds of assembling a living organism are so astronomical that nobody still believes that random chance accounts for the origin of life.”

- Walter Bradley

Science and Theology can enlighten and inform each other as we seek to know ultimate TRUTH



Tips for Getting Comfortable with the “Science & Faith” Dialog

- Approach the dialog with humility and grace
- Understand the spectrum of positions/arguments on all sides
- Realize that most people are on a journey, still figuring out where they stand
- Learn to live with the tension
- It's okay not to have it all figured out
- You don't have to have all the “right” answers
- Don't let arguments/disagreements upset you

Saint Augustine's Advice:

In essentials, unity;
In non-essentials, liberty;
In all things, charity