

Does Modern Science Communicate Purpose?

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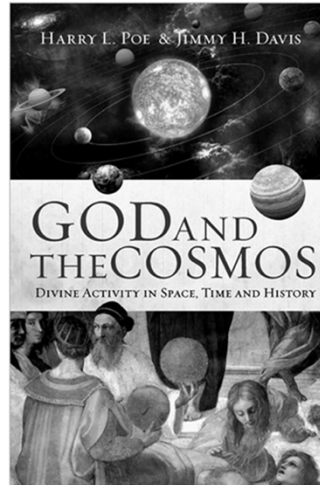
Good morning. [CLICK]

Jimmy Davis and Hal Poe



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For the last decade and a half, I have had the pleasure of being able to work with Hal Poe [CLICK], Colson Professor of Faith and Culture at Union and a member of the ASA Executive Council. [CLICK] This presentation is an elaboration on ideas presented in our latest book *God and the Cosmos* published by InterVarsity Press this year

Purpose in Christianity

- “...there is the Christian doctrine of the divine plan, which affirms that an all-wise, all-powerful, good **God has from all eternity planned what is to occur and that history is carrying out his intention.**” - Millard J. Erickson, *Christian Theology*, 2nd Ed. (Grand Rapids, MI: Baker Books, 1999), 390.

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Biblical writers and orthodox theologians through the ages agree that there is Christian doctrine of the divine plan.

Purpose and Science

- **“The universe we observe** has precisely the properties we should expect if there is, at bottom, **no design, no purpose....”** - Richard Dawkins, *River Out of Eden: A Darwinian View of Life* (New York: Basic Books, 1996), 133.

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On the other hand, “purpose, plan, direction” are words that seem to only appear in modern science when we are being told that “purpose, plan, direction” do not exist in modern science, whether in natural or biological sciences

Faith-Learning Integration Model

CHRISTIAN
SCHOLAR'S
REVIEW

William Hasker,
*Christian Scholar's
Review*, 21.3 (March
1992): 234-48

- World-view Foundations
- Disciplinary Foundations
- Disciplinary Practice
- World-view Contributions

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My talk will use the Faith-Learning Integration Model of the philosopher William Hasker which was published in the 1992 issue of *Christian Scholar's Review*. The four sections of this model are

1. World-view Foundations

In regard to our integration question (purpose), what insights and convictions are provided by the Christian World-view

- Divine Creation
 - God by wisdom created the world out of nothing
- Reflected Glory
 - The world reflects God's glory, a fact that ought to be evident to humanity
- Human Exceptionalism
 - Humans alone among the creatures on earth are made in the image of God
- Divine Providence
 - God, in contravention of nature's ordinary powers, raised Jesus bodily from the dead
- Eschatology
 - Triumphant return of Christ as King of Kings and Lord of Lords

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From the creeds and systematic theology, one has the Christian world-view metanarrative of God as Creator [CLICK] who prepared and sustains a pleasant world for humans who were created in the image of God [CLICK]. The history of the world will end in the triumphant return of Christ as King of Kings and Lord of Lords [CLICK]

2. Disciplinary Foundations

In regard to our integration question (purpose), what are the foundational assumptions that are the basis of science

- Universe had a beginning
 - Space and time began with the Big Bang
- Knowable, Understandable, and Orderly Universe
 - This allows science to function
- Human Continuity
 - Humans are continuous with other animals, exhibiting no fundamental difference in kind but only differences in degree
- Methodological Naturalism
 - The physical world, for purposes of scientific inquiry, may be assumed to operate by unbroken natural law (all physical events have physical causes)

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For Disciplinary Foundation, we have [4 CLICKS]

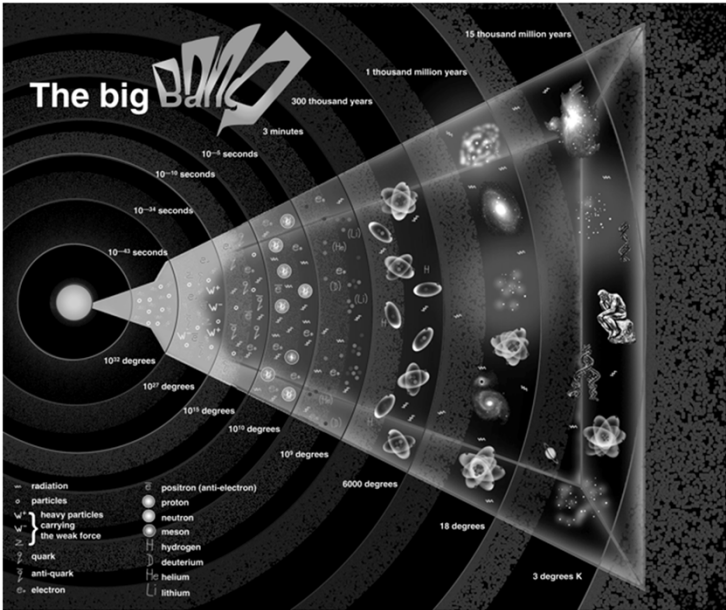
3. Disciplinary Practice

- What issues or statements of scientists cause concern to Christians?
- How do the scientific answers to questions at the interface of science and faith square with the Christian faith?

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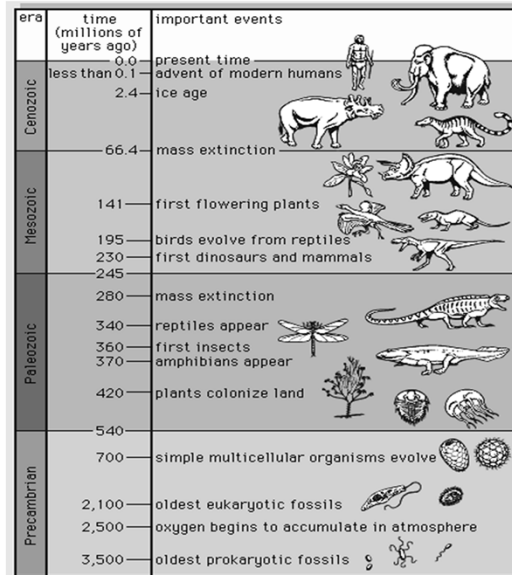
What issues or statements of scientists cause concern to Christians? How do the scientific answers to questions at the interface of science and faith square with the Christian faith? Most of presentation will be spent of this section of Hasker's model. Now for the scientific metanarrative [CLICK]

Scientific Metanarrative



About 13.7 billion years ago, simultaneous appearance of space and time – the Big Bang
 As universe cooled and expanded, the scientific metanarrative goes from subatomic particles to atoms, stars, galaxies, planets, life

Scientific Metanarrative, contd.



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http://abyss.uoregon.edu/~js/images/life_history.gif

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Earth formation about 4.5 billion years ago

Life (first fossils) about 3.5 billion years ago

Scientific metanarrative continues, with cells to multicellular organisms, and finally humans

3. Disciplinary Practice

How well do the scientific & Christian metanarratives relate?

- Consonance
 - Beginning of universe and doctrine of creation
 - Scientific metanarrative ends with humans and Christian doctrine of humans made in image of God
- Dissonance
 - Methodological naturalism (using only naturalistic explanations) can lead to
 - No evidence of purpose in nature
 - No purpose at all

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In relating these two metanarratives, I will use the terms consonance and dissonance
Consonance: areas of accord or harmony between scientific understanding of nature and the theological understanding of God's creation [CLICK] [CLICK] [CLICK]
Dissonance: areas not in harmony [CLICK] [CLICK] [CLICK]

3. Disciplinary Practice

- Any opening for common ground?

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Let's first consider the physical sciences

3. Disciplinary Practice Purpose and Physical Sciences



Steven Weinberg

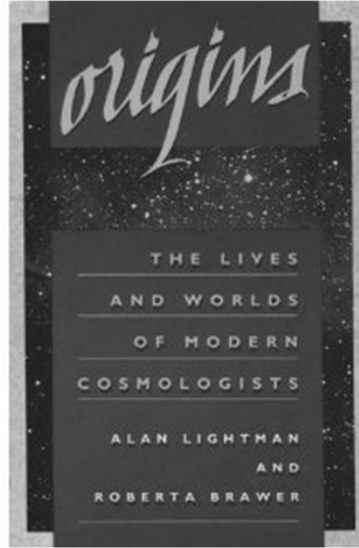
- **It is almost irresistible for humans to believe that we have some special relationship to the universe**, that human life is not just a more-or-less farcical outcome of a chain of accidents reaching back to the first three minutes, but that we were somehow built in from the beginning.... **The more the universe seems comprehensible, the more it seems pointless.** - Steven Weinberg, *The First Three Minutes: A Modern View of the Origin of the Universe*, updated edition (New York: BasicBooks, 1977, 1988), 154.

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Steven Weinberg won 1979 Nobel Prize in Physics for his work on the unification of the weak force and the electromagnetic force.

In his 1977 book, *The First Three Minutes*, he presented the metanarrative from the Big Bang to three minutes after the Big Bang. In his conclusion to the book, Weinberg states [CLICK]

3. Disciplinary Practice Purpose and Physical Sciences



The leading astronomers consistently replied that the universe was pointless since it was just a physical process.

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[CLICK] In the late 1980s, Lightman and Braver interviewed 27 leading astronomers about their work and lives. Among their questions was the inquiry if the astronomer agreed with Weinberg's conclusion that the universe is completely pointless. The reply [CLICK] Alan Lightnam and Roberta Braver, *Origins: The Lives and Worlds of Modern Cosmologists* (Cambridge: Harvard University Press, 1990), 340.

3. Disciplinary Practice Purpose and Physical Science

Fine-Tuning

Arises out of a purely methodological naturalistic approach to the Big Bang Model and not from a God-of-the-gaps argument.

The issue: if one could vary the size/magnitude of physical constants such as size of Big Bang or size of force of gravity, would the universe still have enough time and the right ingredients for life to appear.

Approximately 67 fine-tuning examples have been reported.

Let's examine one of these: having the right atoms

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Although physicists, such as Weinberg, conclude that there is no evidence of purpose,
[CLICK] certain apparent fine-tuning in astronomical constants imply purpose to others
[CLICK]
[CLICK]

Let's examine 1 of these: having the right atoms to review how fine-tuning arguments are presented[CLICK]

3. Disciplinary Practice Purpose and Physical Science Having The Right Atoms

- Atoms: Nucleus (protons, neutrons) surrounded by electrons
- All living organisms: H, C, N, O, P, S
- Strong Nuclear Force holds together protons & neutrons in nucleus
 - Increase by 0.3%
 - the attraction between the proton and neutron becomes so great that protons are always bound to neutrons. No H
 - Decrease by 2%
 - protons and neutrons would not bind in the nucleus. Only H

Hugh Ross, *The Creator and the Cosmos* (Colorado Springs, CO: NavPress, 1993), 112-113.

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CLICK, CLICK H found in living organisms has only proton in nucleus, all rest have both protons and neutrons

CLICK CLICK CLICK CLICK CLICK Life as we know it could not exist in either case.

3. Disciplinary Practice Purpose and Biological Science

- The physical sciences provide a common ground for discussions with theology in regard to purpose through fine-tuning findings that point toward life and humanity
- However, some evolutionary biologists seem to throw cold water on this common ground by denying purpose in the story of life.

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Let's briefly examine some views from well-known biologists. [CLICK]

3. Disciplinary Practice Purpose and Biological Science

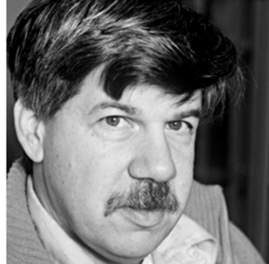


Richard Dawkins (1941 -) Oxford University's Professor for Public Understanding of Science (1995 to 2008)

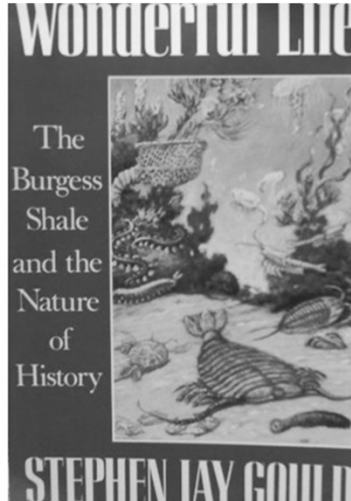
- “The **universe we observe** has precisely the properties we should expect if there is, at bottom, **no design, no purpose, no evil and no good, nothing but blind, pitiless indifference.**” - Richard Dawkins, *River Out of Eden: A Darwinian View of Life*. (New York: Basic Books, 1996), 133.

The British evolutionary biologist, Richard Dawkins (1941 -) served from 1995 to 2008 as Oxford University's Professor for Public Understanding of Science. What kind of “public understanding” did Dawkins promote? A book published at the beginning of his professorship was *River Out of Eden: A Darwinian View of Life* (1996) where he states,

3. Disciplinary Practice Purpose and Biological Science



Stephen Jay Gould (1941-2002)
Harvard paleontologist,
evolutionist, historian of
science



<http://www.biography.com/imported/images/Biography/Images/Profiles/G/Stephen-Jay-Gould-9316907-1-402.jpg>
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[CLICK] The American paleontologist Stephen Jay Gould (1941-2002) was one of the most widely read popularizers of modern science through his *Natural History* articles and books.

[CLICK] In *Wonderful Life* (1989) Gould used the Cambrian Burgess Shale fossils to popularize the idea that evolution had no purpose because of contingency. The Burgess Shale contains fossil remains of what is called the Cambrian explosion, the relatively rapid appearance of most major phyla (body types) around 540 million years ago. Gould's theme was [CLICK]

3. Disciplinary Practice Purpose and Biological Science

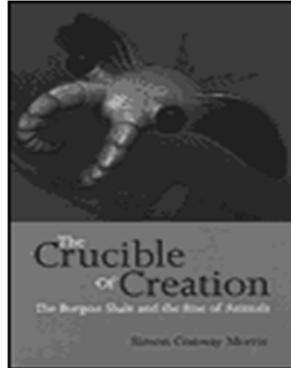
- “if we could perform the great undoable thought experiment of **‘rewinding the tape of life’** back to the Cambrian and ‘distributing the lottery tickets’ at **random** a second time, the history of animals would **follow an entirely different** but equally ‘sensible’ course that would almost surely **not generate a humanoid** creature with self-conscious intelligence.” Stephen Jay Gould in Simon Conway Morris and Stephen Jay Gould, “Showdown on the Burgess Shale,” *Natural History* 107:48-55.

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3. Disciplinary Practice Purpose and Biological Science



Simon Conway Morris
Cambridge paleontologist



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[CLICK] As a graduate student Simon Conway Morris had been involved in the study of the Burgess Shale fossils.

As Conway Morris (1951-) continued to study the Burgess Shale fossils as well as similar fossils found in Greenland and China, he changed his interpretation of the implications of these fossils in regard to purpose/direction in evolution which he expressed in his book [CLICK] *The Crucible of Creation: The Burgess Shale and the Rise of Animals* (1998) where he challenged Gould's idea that contingency played such an important role in evolution. [CLICK]

3. Disciplinary Practice

Purpose and Biological Science

- “Replaying the tape” would result in similar lineages and properties evolving again
- Convergence
- Organisms acquiring similar biological traits in similar environments but from unrelated lineages (saber-teeth, wings, consciousness)



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[CLICK] Why

[CLICK] [CLICK] The saber-toothed anatomy has occurred at least 3 times in the fossil record. [CLICK] The most recent shows up as fossils in the La Brea tar pits.

[CLICK] At the same time in the southern hemisphere, in similar environments, there was a marsupial saber-toothed animal [CLICK]

As Conway Morris states, [CLICK]

3. Disciplinary Practice Purpose and Biological Science

- **“Similar environmental selection pressures, acting on differing anatomies, can create convergent or parallel adaptations....Given certain environmental forces, life will shape itself to adapt. History is constrained, and not all things are possible....perhaps there is a course and a direction to evolution that would be achieved despite diverse anatomical starting points.”** – Simon Conway Morris in Simon Conway Morris and Stephen Jay Gould, “Showdown on the Burgess Shale,” *Natural History* 107:48-55.

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While classical Neo-Darwinism states that all things are possible and result from evolutionary accidents. To Conway Morris, convergent evolution implies that there are stable points in biological space toward which things navigate. The reoccurrence of same solution over and over suggests a deeper pattern – not all things are possible – there is direction.

3. Disciplinary Practice Purpose and Biological Science

- Are there “patterns” or “tendencies” in evolution that give it a predictive power?



NAI Workshop Without Walls
on Molecular Paleontology
and Resurrection: Rewinding
the Tape of Life

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[CLICK] Are there ‘patterns’ or ‘tendencies’ in evolution that give it a predictive power? [CLICK] In 2010, the NASA Astrobiology Institute hosted the workshop, “Molecular Paleontology and Resurrection: Rewinding the Tape of Life,” which addressed this question.

3. Disciplinary Practice Purpose and Biological Science



Lynn J. Rothschild,
evolutionary
biologist
NASA Ames
Research Center
& Stanford
University

- Likely universal biological patterns
 - The likelihood of life being based on **organic carbon** because of the prevalence of organic carbon in comets, meteorites and interstellar medium;
 - The likelihood of **water** as a solvent because of widespread occurrence and chemical properties of water;
 - The universality of the **laws of chemistry and physics**;
 - The universality of the **principle of natural selection**;
 - The selective tyranny of the **environment**;
 - The likelihood of the availability of **solar radiation** as a source of energy
 - The observations of **convergence** at both the molecular and organism level
 - Photosynthesis
 - 20 amino acids
- Lynn J. Rothschild, "Replaying the tape of life: The potential of evolution as a predictive science," *Molecular Paleontology and Resurrection: Rewinding the Tape of Life*. NAI Workshop Without Walls, November 8-10, 2010. Conference presentation.

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To some, Conway Morris has returned purpose to biology

[CLICK] The American evolutionary biologist Lynn J. Rothschild (1957-) of NASA Ames Research Center and Stanford University proposed that there are [CLICK] likely universal biological patterns based on the following observations [CLICK] X9 At the Workshop, these principles were used to examine among other topics, Why photosynthesis has a convergent pattern and Why all living organisms use the same 20 amino acids.

To some, the work of Conway Morris and convergence has returned purpose to biology.

4. World-View Contribution

- What specific contribution does science make to the Christian vision of reality?
 - Must be careful to not base one's theology on the latest science but rather to based one's theology on the book of the word.
 - A better path is considering areas of consonance and dissonance between science and theology.

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The Galileo events reveal how damaging accepting prevailing views of science as proof of one's theology can be.

4. World-View Contribution

Some Contributions of Science

- The universe had a beginning
 - Here there **is consonance** between the latest theory of science and the doctrines of the church. However, one should never forget that before 1927, the accepted scientific theory was that the universe was static and eternal.
 - Also, one needs to keep in mind that there is **dissonance** between the Big Bang model's heat death of the universe and Christian eschatology.
- The unfolding of physical and biological entities
 - There is **consonance** between this idea and the statements in Genesis about the Earth bringing forth living creatures.
- Purpose/direction is reflected in methodological naturalistic findings (fine-tuning & convergence).
 - A common ground seems to be available for dialogue between scientists and theologians.

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From all the previous discussions, some contributions that science can make to the Christian vision of reality include:

Conclusion

- Hasker model
 - has proved productive in organizing my thoughts
 - has allowed me to focus on primary issues at interface of science and faith and not get sidetracked by secondary and tertiary issues
- Primary issue
 - Purpose
 - Refreshing to discovery consonance between science and faith
- Humility is needed as much as technical expertise for future exploration

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Thank you. Questions.