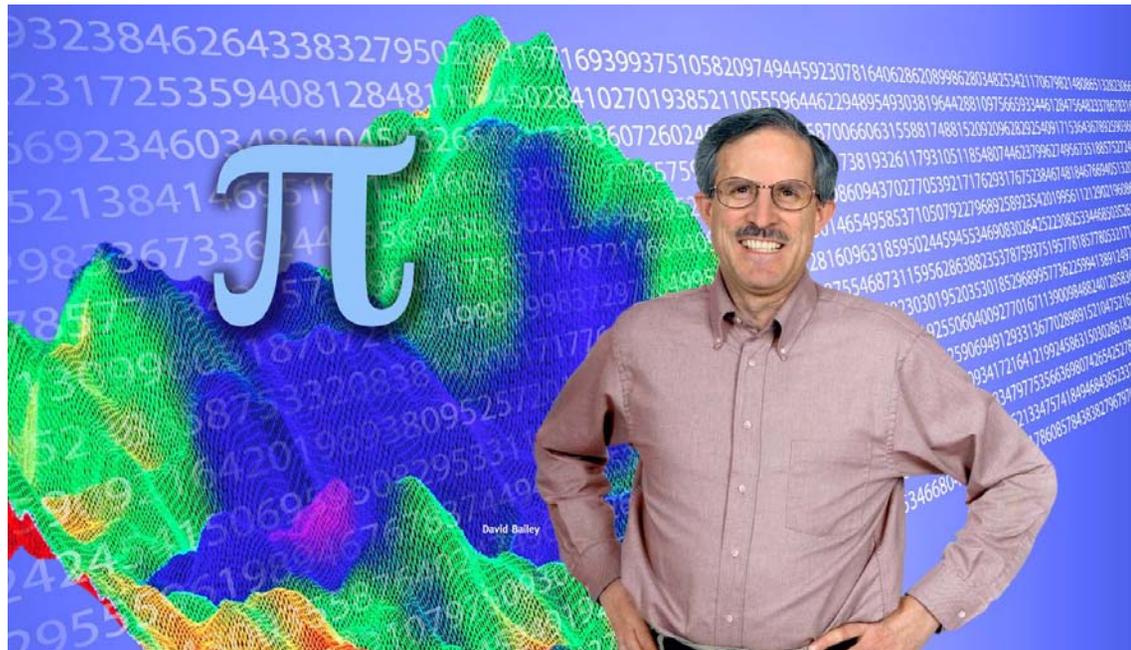


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# Mormonism and Intelligent Design

## David H. Bailey

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# The Challenge

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How can we formulate a personal religious creed that will be resilient in the world of 21st century science?

Choices:

- ◆ View the progress of modern science as the enemy of religious faith.
- ◆ Dismiss much of the LDS and/or Christian tradition as unscientific.
- ◆ Find a reasonable compromise that works.

Recent email from an LDS colleague: “Our students need to ... build robust testimonies that won’t crumble under pressure.”

# My Personal Position

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I am completely comfortable with the notion that an intelligent Being governed the creation of the world, and that the universe, earth and humans all have some transcendent purpose. In this sense, I am a firm believer in “intelligent design.”

However:

- ◆ I believe that much of modern science is quite well grounded and must be taken seriously.
- ◆ I feel that the “scientific creationism” and “intelligent design” literature that has appeared to date is not scientifically sound. I do not recommend this material as a foundation for religious belief.
- ◆ The notion of a Designer or Creator who works exclusively outside of natural law inevitably leads to “God of the gaps” difficulties.
- ◆ Rejecting this assumption, as several early LDS writers have done, eliminates the need for a “war” between science and religion.
- ◆ We can neither “prove” nor “disprove” God via scientific arguments -- we must find God on our own, in the old-fashioned way.

# Overcoming Misunderstandings in the “War” Between Science and Religion

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There are many prominent scientists who are also deeply religious. Examples:

- ◆ Kenneth Miller, a leading biologist and author of several widely used textbooks, is Roman Catholic.
- ◆ Francis Collins, head of the human genome research project, is an evangelical Christian.
- ◆ John Polkinghorne, a leading British physicist, is an Anglican priest.
- ◆ Frank Tipler, a leading mathematical physicist and cosmologist, is Roman Catholic.
- ◆ Donald Knuth, the world’s most widely cited computer scientist, is Lutheran.

Each of these scientists has written and lectured widely on the topic of science and religion.

# Overcoming Misunderstandings in the “War” Between Science and Religion

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Religious believers and non-scientists should keep in mind:

- ◆ Most scientists have a deep reverence towards the natural world, even if they are not outwardly active in a religious sect.
- ◆ In most cases, scientists have strong evidence for their theories, and their conclusions should not be casually dismissed. There is no “conspiracy” in the scientific world to uphold the “party line.”

Scientists should keep in mind:

- ◆ Many religious believers are uncomfortable with certain aspects of modern science, and thus such topics should be discussed with respect and sensitivity.
- ◆ Scientists are completely out of order when they denigrate religious beliefs:

“Scientists who ... attack religious beliefs for being unscientific, do their discipline a disservice, not [the] least because such attacks are themselves unscientific.” [L. Krauss, *New Scientist*, 2006]

# Scientific Creationism

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The “scientific creationism” movement was founded in the 1920s, then gained momentum in the 1960s and 1970s.

Common themes:

- ◆ The earth is merely a few thousand years old.
- ◆ The many layers of fossils were laid down in Noah’s flood.
- ◆ Species are unchanged since their individual creation.
- ◆ Some writers have asserted that God created the world with an extensive system of adjustments (rocks, fossils, light rays from stars), all giving the world an “appearance of age,” perhaps as a test of faith.

The movement foundered in late 1980s, when a federal judge ruled that this material is religious dogma and thus inappropriate for public classrooms.

# Intelligent Design

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The ID movement was formed in early 1990s by scholars Michael Behe, William Dembski, Phillip Johnson and Jonathan Wells:

- ◆ They believe that an intelligent Designer governed the creation, and that the existence of this Designer can be established scientifically.
- ◆ They accept the conventional timeline and high-level scientific account of the creation, but dissent from full-fledged evolution.
- ◆ They suggest that some aspects of our world are “mysteries,” beyond the realm of scientific investigation or human understanding.
- ◆ They question methodological naturalism (the basic scientific assumption that the universe is governed by comprehensible natural laws).
- ◆ Most writers are affiliated with evangelical denominations (except Behe is Catholic).

# Recent Developments

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- ◆ In a 2001 Gallup poll, 45% agreed that “God created man pretty much in his present form at one time within the last 10,000 years.”
- ◆ In Dec 2004, the Dover, PA school board voted to require the teaching of ID; a year later a federal judge ruled against the district in a widely publicized decision.
- ◆ In May 2005, ID advocates in Kansas pressed to add ID to the curriculum, and to emphasize that evolution is a theory.
- ◆ In Mar 2005, the Eagle Forum announced plans to promote ID in Utah schools.
- ◆ In a Mar 2005 poll, 64% of Utahns think evolution should be taught; but 70% think creationism should be taught also.
- ◆ A bill to regulate instruction on human origins was introduced in the Utah legislature, but died in Feb 2006.

# The LDS Church and Modern Science

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- ◆ The LDS Church takes no official stance on scientific issues.
- ◆ BYU and BYU-Idaho faculty are free to teach and do research in biology (including evolution), geology, physics and other fields.
- ◆ With regards to evolution, the LDS First Presidency has approved an official “packet” for use at BYU and institutes, which includes a handful of official statements plus the Encyclopedia of Mormonism article on evolution. Excerpt:

“Leave geology, biology, archaeology and anthropology, no one of which has to do with the salvation of the souls of mankind, to scientific research, while we magnify our calling in the realm of the Church.” [EOM; from 1931 FP letter to LDS general authorities]

In my view, this is a very wise position -- religious movements that have ventured into scientific debates have almost always regretted such excursions.

# Creationism in LDS Literature

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- ◆ A 1998 *Ensign* article asserted that Noah's flood was global.
- ◆ A 2002 *Ensign* article reprinted a 1909 First Presidency statement on evolution, but did not mention any of the more recent updates.
- ◆ The institute *Old Testament* manual:
  - ◆ Mentions Velikovsky's arguments in support of a young earth.
  - ◆ Quotes a lengthy passage from a Seventh-day Adventist creationist in opposition to evolution.
  - ◆ Asserts that one cannot entertain modern evolutionary biology and accept the plan of salvation -- one must choose one or the other.
- ◆ Some (but not all) BYU religion faculty remain broadly opposed to evolution and old-earth geology. Example:

“This world will know seven thousand years of temporal history. ... To argue for a longer time is to suggest ages for which God has forgotten to call for accountability.”

“[W]e cannot overcome the irreconcilable differences between the theory of organic evolution and the doctrine of the Fall.” [J. F. McConkie, 1998]

Even if we do not accept such views, we should be aware of them.

# Sample of Modern Evidence for Evolution

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## Percent Agreement between Beta Hemoglobin in Various Species

	Human	Chimp	Gorilla	Red Fox	Dog	Polar Bear	Horse	Rat	Chicken
Human	100.0	100.0	99.3	91.1	89.7	89.7	83.6	81.5	69.2
Chimp	100.0	100.0	99.3	91.1	89.7	89.7	83.6	81.5	69.2
Gorilla	99.3	99.3	100.0	91.8	90.4	90.4	82.9	80.8	68.5
Red Fox	91.1	91.1	91.8	100.0	98.6	95.2	80.8	80.1	72.6
Dog	89.7	89.7	90.4	98.6	100.0	94.5	80.1	79.5	71.2
Polar Bear	89.7	89.7	90.4	95.2	94.5	100.0	80.8	82.9	71.9
Horse	83.6	83.6	82.9	80.8	80.1	80.8	100.0	76.0	67.8
Rat	81.5	81.5	80.8	80.1	79.5	82.9	76.0	100.0	65.8
Chicken	69.2	69.2	68.5	72.6	71.2	71.9	67.8	65.8	100.0
Salmon	49.7	49.7	49.0	49.7	49.0	48.3	46.3	49.7	54.4

Anyone with a web browser can generate similar comparisons:

<http://www.indiana.edu/~ensiweb/lessons/p.stdnt.pdf>

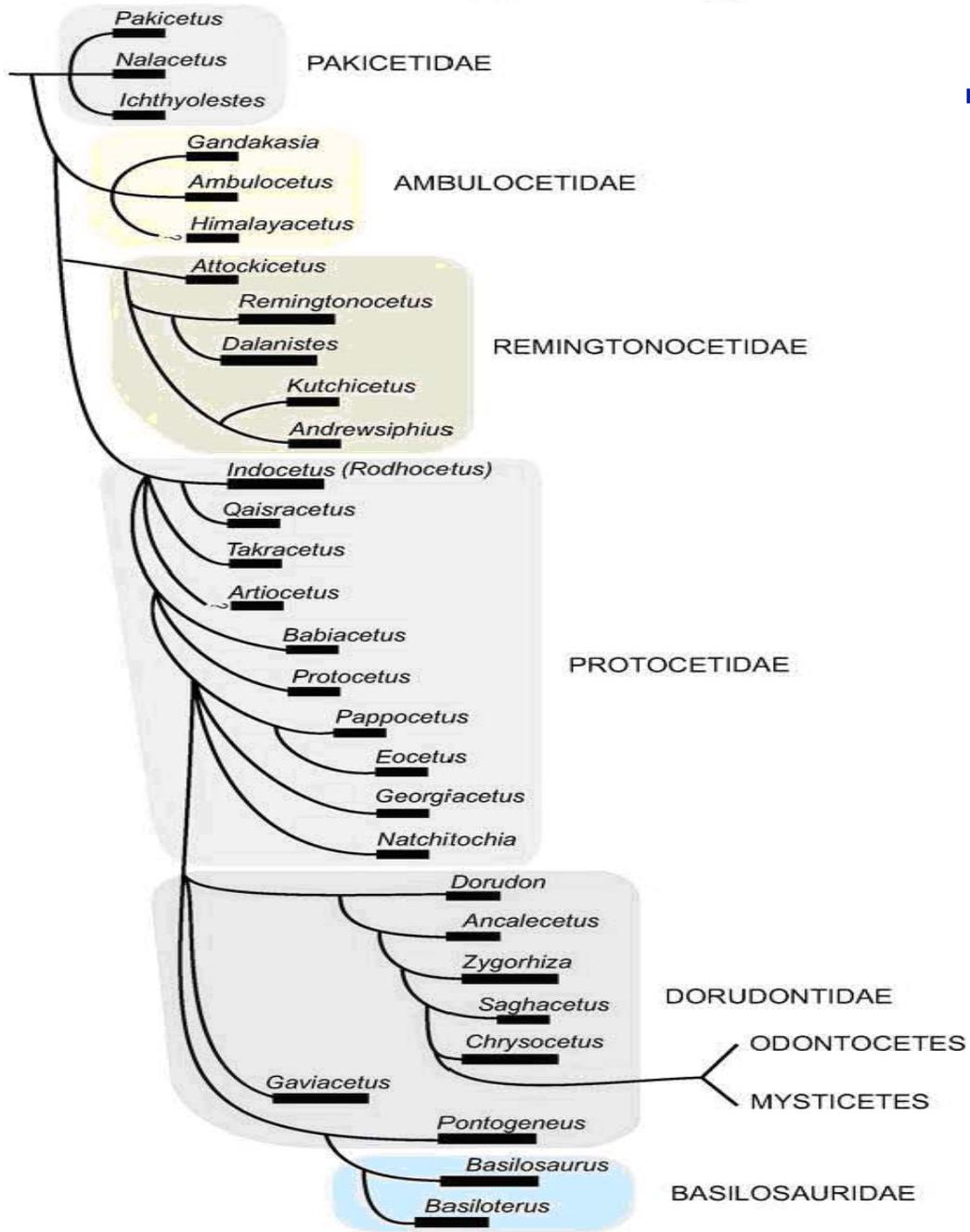
# ID Literature: Gaps in the Fossil Record

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- ◆ ID and creationist writers have assailed biologists for gaps in the fossil record.
- ◆ Example: At least two writers have questioned the existence of hypothesized fossils linking land mammals to marine mammals.

However:

- ◆ Hundreds of instances of transitional fossils are now known.
- ◆ Example: Numerous fossil species have recently been found intermediate between land and marine mammals (see next slide).



# ID Literature: Irreducible Complexity

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ID scholar Michael Behe argues that certain biochemical systems, such as vision, blood clotting and flagellum, are “irreducibly complex” -- removal of any component renders it nonfunctional. Thus such a system must be designed.

However:

- ◆ It is not clear that Behe’s examples are truly irreducibly complex.
- ◆ Scientists have found evidence that certain biological systems have arisen by combining parts that arose independently for other purposes.

“Behe’s entire premise ... is wrong -- the bacterial flagellum is not irreducibly complex.” [K. Miller, Catholic biologist, 2004]

# ID Literature: Evolutionary Novelty

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Several writers have argued that whereas minor changes may occur within an established “kind,” nothing fundamentally new can arise through natural evolution. Yet numerous experiments have demonstrated new biological functionality via natural evolution:

- ◆ In 1974 scientists removed the three genes from *E. Coli* bacteria that process lactose -- within 24 hours the bacteria had evolved a new capability to utilize lactose, using a completely different pathway.
- ◆ In 1994, scientists found a mutant species of bacteria thriving in nylon waste -- a “frame shift” mutation had enabled the bacteria to metabolize nylon.
- ◆ Between 1985 and 1997, guppies introduced into a pool above their natural habitat were observed to change significantly.
- ◆ Certain individuals in Italy, all descended from a single individual, possess a mutation that results in improved cardiovascular health.
- ◆ Computations mimicking biological evolution have been used to develop new circuit designs and computer programs.

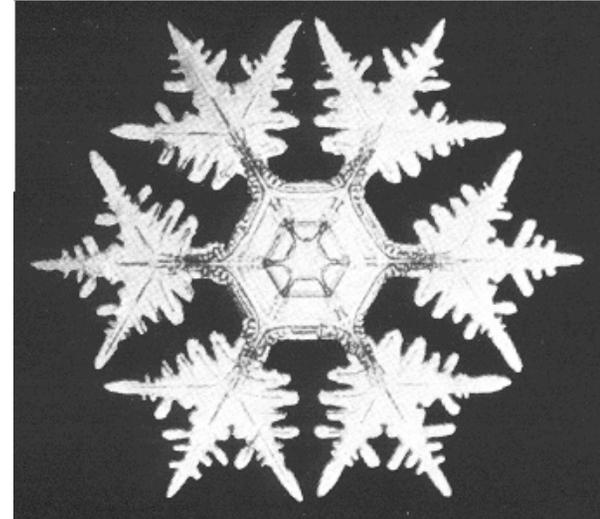
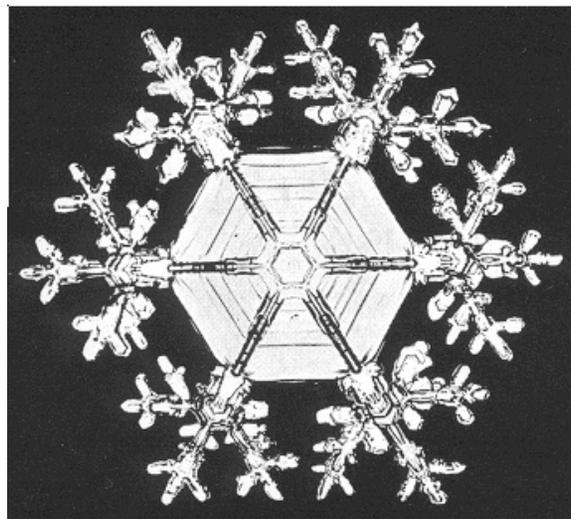
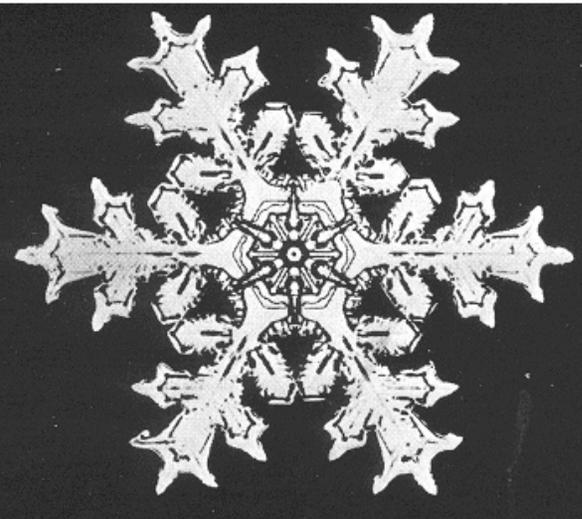
# ID Literature: Probability Arguments

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Several writers have cited probability arguments:

- ◆ Example: Human alpha hemoglobin, consisting of 141 amino acids -- only one chance in  $10^{183}$  that it could arise at random.
- ◆ Fallacy: Just because a structure is mathematically improbable does not mean that it must have been “designed.”
- ◆ Consider snowflakes -- the probability that such a symmetric structure could arise “at random” is less than one chance in  $10^{2500}$ . Is each individual snowflake “designed”?

Such arguments are highly treacherous and can easily mislead.



# ID Literature: Information Theory

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ID scholar William Dembski argues, using sophisticated mathematics, that truly novel information cannot arise through natural evolution. He views his work as the purely scientific study of how to identify intelligent effects in nature.

But knowledgeable scientists are not convinced:

- ◆ Robert Pennock [Quaker]: Dembski's "Law of Conservation of Information" is merely a new version of the creationist argument that evolution can't happen because it "violates" the second law of thermodynamics.
- ◆ Howard Van Till [evangelical Christian]: The acts of intelligent design posited by Dembski "seem indistinguishable from miracles."
- ◆ Jeffrey Shallit and Wesley Elsberry: Dembski's notion of "complex specified information" is unworkable.
- ◆ Gert Korthoff: Dembski's arguments can't be used against evolution.
- ◆ Richard Wein: Dembski's *No Free Lunch* is "pseudoscience."

# ID and Natural Law

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- ◆ ID scholars seek to identify phenomena that science and natural law can't explain.
- ◆ ID scholar Phillip Johnson argues against methodological naturalism, since he feels this rules out a supernatural Designer.
- ◆ ID scholar Michael Behe: “By ‘intelligent design’ I mean to imply design beyond the laws of nature.”
- ◆ ID scholar William Dembski: “So long as methodological naturalism sets the ground rules for how the game of science is to be played, [ID] has no chance.”

# Difficulties with a Supernatural Worldview

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A supernatural worldview leads to some difficulties when attempting to harmonize religion with science:

- ◆ Such views lead to “God of the gaps” difficulties, where religious faith is challenged by each new scientific discovery.
- ◆ Scientists do not have much choice about methodological naturalism:

“Methodological Naturalism is not a dogmatic ideology that simply is tacked on to the principles of the scientific method; it is essential for the basic standards of empirical evidence.”

[R. Pennock, 2001]

# Theological Difficulties with ID

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- ◆ Some creationist writers have claimed that God created the world with an extensive system of adjustments, giving the world an “appearance of age,” perhaps as a test of faith.
- ◆ Some ID writers have suggested that certain aspects of our world are “mysteries,” not subject to scientific investigation or human understanding.

LDS writers are not alone in questioning an inscrutable, mysterious or deceptive deity:

“Their version of God is one who intentionally plants misleading clues beneath our feet and in the heavens themselves. ... To embrace that God, we must reject science and worship deception itself.”

[K. Miller, Catholic biologist, 1999]

“You’re forced to the conclusion that God was trying to mislead us and test our faith -- and I have trouble with that kind of conjecture.”

[F. Collins, evangelical biologist, 2006]

# Overall Assessment of ID

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The basic notion that an intelligent designer has governed the creation (either at a high level or a low level) is a perfectly reasonable religious philosophy, and is consistent with scientific knowledge.

However:

- ◆ The ID scholars so far have not succeeded in their efforts to “prove” the existence of a Designer via scientific arguments (even if one believes that some of their ideas may have some merit).
- ◆ Even many God-believing scientists remain unconvinced.
- ◆ The assumption that the Creator or Designer works outside of natural law suffers from “God of the gaps” difficulties.
- ◆ The ID worldview contrasts with the LDS tradition of a rational, comprehensible God who works within natural law, and is pleased when we advance in knowledge.

For these reasons, I do not recommend ID (meaning the present-day movement and literature) as a foundation for religious belief.

# LDS Scriptures

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- ◆ D&C 88:42: “And again, verily I say unto you, he hath given a law unto all things, by which they move in their times and seasons;”
- ◆ D&C 93:29: “Man was also in the beginning with God. Intelligence, or the light of truth, was not created or made, neither indeed can be.”
- ◆ D&C 93:30: “All truth is independent in that sphere in which God has placed it, to act for itself, as all intelligence also; otherwise there is no existence.”
- ◆ D&C 93:36: “The glory of God is intelligence, or, in other words, light and truth.”

These and other passages depict God as co-eternal with mankind and natural law. They also suggest that God is pleased when we progress in scientific knowledge.

# LDS Authorities on the Bible

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In contrast to the Biblical literalism taught by some evangelicals, LDS leaders from the beginning have acknowledged limitations in the biblical account. Indeed, the LDS faith is founded on a rejection of Biblical infallibility:

- ◆ “Ignorant translators, careless transcribers, or designing and corrupt priests have committed many errors.” [J. Smith, c. 1840]
- ◆ “As for the Bible account of the creation we may say that the Lord gave it to Moses, or rather Moses obtained the history and traditions of the fathers, and from these picked out what he considered necessary, and that account has been handed down from age to age, and we have got it, no matter whether it is correct or not, and whether the Lord found the earth empty and void, whether he made it out of nothing or out of the rude elements; or whether he made it in six days or in as many millions of years, is and will remain a matter of speculation in the minds of men unless he give revelation on the subject.” [B. Young, 1873]

# LDS Authorities on the Creation

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Some LDS authorities have taught highly traditional views on the creation, but others have advocated a more open-minded stance:

- ◆ James E. Talmage cautioned against reading the scriptures too literally:  
“The opening chapters of Genesis [and related scriptures] were never intended as a textbook of geology, archaeology, earth-science, or man-science.” [1931]
- ◆ B. H. Roberts recognized the futility of young-earth creationism:  
“On the other hand, to limit and insist upon the whole of life and death to this side of Adam’s advent to the earth, some six or eight thousand years ago, as proposed by some, is to fly in the face of the facts so indisputably brought to light by the researcher of science in modern times.” [1931]
- ◆ Pres. David O. McKay argued that evolution could be seen as evidence that mankind is destined for eternal life:  
“[E]volution's beautiful theory of the creation of the world offers many perplexing problems to the inquiring mind. ... [but] a creature that travels such distances and fought such battles and won such victories deserves what we are compelled to say, ‘To conquer death and rob the grave of its victory.’” [1952]

# LDS Authorities on Natural Law

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“Yet I will say with regard to miracles, there is no such thing save to the ignorant -- that is, there never was a result wrought out by God or by any of His creatures without there being a cause for it. There may be results, the causes of which we do not see or understand, and what we call miracles are no more than this -- they are the results or effects of causes hidden from our understandings.” [B. Young, 1869]

“Among the popular errors of modern times, an opinion prevails that miracles are events which transpire contrary to the laws of nature, that they are effects without a cause. If such is the fact, then, there never has been a miracle, and there never will be one. ... A law of nature never has been broken.” [P. P. Pratt, 1891]

“Latter-day Saints are inclined to hold that forces about us, known in part through common human experience, especially in the field of physical science, were employed in the formation of the earth.” [Widtsoe, 1960]

This progressive and unique philosophy eliminates the need for a “war” between science and religion.

# LDS Scientific Achievements

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- ◆ LDS scientists have achieved recognition in numerous fields:
  - ◆ Botany and zoology (zoology is BYU's highest rated department).
  - ◆ Geology and paleontology.
  - ◆ Chemistry and physics.
  - ◆ Computer science and mathematics.
- ◆ A 1974 study noted that Utah produced more research scientists per capita than any other state.
- ◆ The LDS tradition of viewing God as working within natural law and championing human progress were cited as likely reasons for this phenomenon.

In a more recent update, Utah still has a strong showing, although not as strong as before.

# Does Modern Science Refute Free Will?

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Many LDS (and others) are uncomfortable with modern science because they feel it is inconsistent with free will. This harkens back to Laplace's "clockwork universe" of the 18th-19th century.

But modern science has overturned the "clockwork universe":

- ◆ Quantum mechanics tells us that it is fundamentally impossible to precisely determine both position and momentum.
- ◆ Chaos theory tells us that many physical processes possess the "butterfly" property: a small change in the present state will lead to arbitrarily large changes in future states.
- ◆ Example: Supercomputers can simulate climate decades into the future and determine overall climate trends, but cannot predict the weather at any given location more than a few weeks ahead.

"The dead hand of the Laplacean calculator, totally in control of the sterile history of his mechanical universe, has been relaxed. In its place is a more open picture... that can accommodate human agency and divine action within the same overall account." [J. Polkinghorne, 1998]

# A Scientifically Viable Framework for Religious Faith

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- ◆ A positive approach to scientific progress is in order -- a combative or “God of the gaps” approach will not work in the 21st century.
- ◆ There is much that we don’t know, both in science and also in religion. Doctrinal speculation on such matters is largely futile.
- ◆ We can neither “prove” nor “disprove” God via scientific arguments -- faith will always be essential.
- ◆ By viewing God as acting in accord with natural law, there is no need for a “war” between science and religion.
- ◆ LDS writers have expressed a variety of views, and the LDS Church officially takes no position on scientific questions.
- ◆ Ultimately we must find God the old-fashioned way: on our knees, in service to the less fortunate and in good, honest, Christian living.

“Render unto science the things which belong to science; and unto God the things which belong to God.” [cf. Matt 22:21]

# Concluding Thoughts

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- ◆ All of us can stand in awe at the majesty of the universe, which is now known to be much vaster, more exotic and more magnificent than ever before realized in human history, and is governed by equally beautiful natural laws.
- ◆ The wondrous discoveries we have made to date most likely will be dwarfed by future discoveries, given the rapid pace of technology advancement.

As Eleanor Arroway (played by actress Jodie Foster in the movie *Contact*) exclaimed, as she contemplated a spiral galaxy from her spacecraft, “It’s so beautiful!”

Photo on next slide courtesy NASA:

[http://hubblesite.org/gallery/album/galaxy\\_collection/pr2005001a/](http://hubblesite.org/gallery/album/galaxy_collection/pr2005001a/)

