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Science & Mormonism Series 1: Cosmos, Earth, and Man

Chapter Title: Questions and Comments about Evolution

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Recommended Citation

David M. Belnap, "Questions and Comments about Evolution" in *Science & Mormonism Series 1: Cosmos, Earth, and Man*, edited by David H. Bailey, Jeffrey M. Bradshaw, John S. Lewis, Gregory L. Smith, and Michael R. Stark (Orem, UT, and Salt Lake City: The Interpreter Foundation and Eborn Books, 2016), <https://interpreterfoundation.org/reprints/science-and-mormonism/SM1Chap15.pdf>.

SCIENCE & MORMONISM SERIES 1

COSMOS, EARTH, AND MAN

DAVID H. BAILEY, JEFFREY M. BRADSHAW, JOHN S. LEWIS,
GREGORY L. SMITH, AND MICHAEL R. STARK



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David H. Bailey, Jeffrey M. Bradshaw, John S. Lewis,
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The Interpreter Foundation
Eborn Books

2016

QUESTIONS AND COMMENTS ABOUT EVOLUTION

David M. Belnap

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The publication of an earlier version of my chapter, “The Theory of Evolution is Compatible with Both Belief and Unbelief in a Supreme Being,” as an article in the *Interpreter: A Journal of Mormon Scripture*¹ generated many comments on the journal website. Here are some thoughts in response to those comments. I have formatted them as questions and answers or as statements and responses.

1. As shown by some contentious statements on the website, evolution remains controversial among Latter-day Saints. Evolution does not affect what many people do in their daily lives and only seems relevant to biologists. Why should such controversial articles be published in a journal dedicated to building faith among Latter-day Saints?

Regardless of whether biology, geology, anthropology, or a related field becomes one’s profession or avocation, many of us who learn about evolution are confronted by promoters of atheism who use evolution as evidence of atheism. As evidenced by the popular opinion that evolution and faith in God are incompatible, promotions of atheism can be very compelling. In addition, as seen through the popular media, the orientation of Western culture is becoming more secular. At least part of this trend is because influential people think the biblical creation story is a fable. People need to know that alternatives are reasonable. People need to know that faith in God and acceptance of science are compatible.

I had a teacher in graduate school who promoted a godless point-of-view. One day in a class on biophysical chemistry, my professor said that everything could be explained by chemistry and physics. The context in which he said this and his lack of clarification strongly suggested that he was bearing witness of atheism. Fortunately, I had multiple other examples of scientists who believed in God. A few active members of my Latter-day Saint ward, including one of my bishops, were scientists at Purdue University, which I attended. One of these active members was on my thesis committee. A fellow biology graduate student was a Jew and a good friend. He was very observant in the orthodox tradition. One day I was talking to him and another professor on my thesis committee who belonged to a Protestant church. We were commenting that a poster advertising an upcoming lecture by James D. Watson, the co-discoverer of the structure of DNA, mistakenly called Dr. Watson the “inventor of DNA.” The professor replied that he “prayed to the inventor of DNA every night.” Another good example was my major professor. Before having dinner at his home, his family and I joined hands around the table and prayed. They attended a Protestant church. In one of his children’s bedrooms was a plaque with a very familiar verse: “I am a child of God and He has sent me here ...” All of these good examples were people who also accepted evolution. Another good example was one of my stake presidents who was a plant breeder for an agricultural company. During an interview, he asked me what my field of study was. When I told him it was biochemistry, he voluntarily exclaimed, “Ah! those people that think evolution isn’t real. I use it in my work every day!”

My approach to creation and evolution is not about “sugar-coating” scientific data or doing “mental gymnastics” with the scriptures. I don’t think that is helpful or necessary. I accept the scriptures as truth and scientific observations as fact. Geologist and Apostle James E. Talmage wrote:

Discrepancies that trouble us now will diminish as our knowledge of pertinent facts is extended. The Creator has made record in the rocks for man to decipher; but He has also spoken directly regarding the main stages of progress by which the earth has been brought to be what it is. The accounts cannot be fundamentally opposed; one can not contradict the other; though man’s interpretation of either may be seriously at fault.²

The use of evolution in designing proteins and constructing objects is new knowledge that has come into the world. How antibodies are formed is also new knowledge. I think this new knowledge can help us gain new understanding of how God could have formed life on earth. I think this new knowledge can bring us closer to resolving the contentious creation-evolution controversy.

I respect my colleagues and others who are agnostic or atheist in their belief about God. As our faith teaches, we allow each person to believe how he or she chooses (Articles of Faith 1:11). These colleagues and friends have been kind people who have respected my belief in God. I have learned good things from them, even moral lessons. However, people who espouse atheism need to know that evolution is not proof of their point-of-view. Youth, especially, need to know that faithful alternatives exist. Many responses to my article on the *Interpreter* website clearly showed that the idea is prevalent within the Latter-day Saint community that evolution is incompatible with faith in God. This is simply not true, as my active Latter-day Saint brothers and sisters showed me in Indiana and as the U.S. National Academy of Sciences and Institute of Medicine have stated.³

Of course, serving other people and the Lord is more important than knowing how God created life on earth. But, reconciling evolution and creation has helped build my faith in God and, hence, helped motivate me to do those more important things.

2. Evolution claims that undirected, natural processes account for the world. Many scientists hold this view. The creation means that miraculous, directed processes account for life on earth. Only one of these views can be true. If the former is true, then the prophets and scriptures are false.

A person’s view of creation and evolution can be heavily biased by his or her core religious beliefs and assumptions that come from those beliefs. This is true for most people, including me. (I use the term “religious” broadly to mean any belief system that deals with a person’s beliefs in God, the afterlife, morality and ethics, and so forth. Therefore, I include belief in God or atheism as religious beliefs.) Many people are convinced that if evolution is true God does not exist and if evolution is false

God does exist. Therefore, the stakes are high and emotions very strong. I hope my essay will challenge assumptions that lead believers in God and believers in atheism to conclude that scripture and science are incompatible.

On the *Interpreter* website, several responders to my essay wrote comments that showed they assume that evolution = atheism or evolution = “an accidental process.” These assumptions are not based on science. One person quoted the following statement by the late William Provine, a prominent scientist:

Let me summarize my views on what modern evolutionary biology tells us loud and clear. ... There are no gods, no purposes, and no goal-directed forces of any kind. There is no life after death. When I die, I am absolutely certain that I am going to be dead. That’s the end of me. There is no ultimate foundation for ethics, no ultimate meaning in life, and no free will for humans, either.⁴

This view is a religious view. It is not scientific. The U.S. National Academy of Sciences and Institute of Medicine do not define evolution this way.⁵ Their report emphasizes the mechanism of biological evolution. They also emphasize that many scientists find evolution compatible with faith in God. The evolution website sponsored by the University of California at Berkeley notes, “in the scientific community there are thousands of scientists who are devoutly religious and also accept evolution.”⁶ Several years ago, the Public Broadcasting Service produced a documentary series on evolution. The website for this series makes clear that evolution is compatible with belief in God:

Does evolution prove there is no God? No. Many people, from evolutionary biologists to important religious figures like Pope John Paul II, contend that the time-tested theory of evolution does not refute the presence of God. They acknowledge that evolution is the description of a process that governs the development of life on Earth. Like other scientific theories, including Copernican theory, atomic theory, and the germ theory of disease, evolution deals only with objects, events, and processes in the material world. Science has nothing to say one way or the other about the existence of God or about people’s spiritual beliefs.⁷

The main difficulty for believers in God is the idea that evolution is a random process. But what are the religious implications of humans using evolution in constructive ways? If a researcher desires a protein to perform a specific function and uses evolution (random changes followed by selection) to achieve that purpose, does that mean that the result was accidental or without design or purpose? No, the designer achieved his or her purpose. Therefore, if God used this same process to create life on earth, should that process undermine belief in him or belief that he created the world?

Yes, many scientists, philosophers, and others believe that evolution is a godless, accidental process. But, must I agree with them? If thousands or millions of our Christian brothers and sisters think Mormonism is unchristian, does that make it so?

3. You pointed out how flowering-plant and whale evolution can be harmonized with the scriptural Creation accounts. What can you say about the Fall of Adam and Eve and its relationship to evolution?

After hearing a scientist colleague suggest that the poor or imperfect design of some parts of life was evidence for a godless evolutionary process, I was impressed with how the fallen world would be expected to be imperfect and even cruel, as indicated by the Lord's statement to Adam and Eve that the world would contain sorrows, painful childbirth, thorns, thistles, and sweat (Genesis 3:16–19; Moses 4:22–25). Thorns, thistles, weeds, and sweat suggest the competition among living things that we observe in nature and the hard work people have had to do to compete and survive. These scriptural ideas are consistent with the kind of world that could be created by an evolutionary process where fierce competition occurred and where the design might not be optimal but was adequate. Some claim the “less than optimal design” is evidence of a godless process. I disagree. I think this is another example of the congruence of scripture and nature. (In my chapter, “The Theory of Evolution Is Compatible with Both Belief and Unbelief in a Supreme Being,” in the present volume, see the section entitled “An Imperfect World.”)

The scriptures teach us that Adam and Eve were placed in the Garden of Eden where they lived for a time, were tempted to eat a forbidden fruit, partook of that fruit, and then were expelled from the garden into the harsh outside world. The scriptures and modern prophets tell us the Fall was important for ushering in mortality and was part of God's plan.⁸ Just as unanswered questions remain about the Atonement of Christ, many unanswered questions remain about the Fall of Adam and Eve. Most, if not all, of these questions remain outside the realm of science. Nevertheless, the following four ideas have helped me reconcile current Latter-day Saint teachings on the Fall and current scientific understandings about life on earth.

A. The scriptures indicate that the Garden of Eden was a separate place from the rest of the world (Genesis 2:8, Moses 3:8, Abraham 5:8). These verses say that Adam was formed before being placed there, suggesting he was formed outside of the Garden of Eden. These statements are consistent with the idea that processes happening outside the Garden could have been very different from the peaceful, ideal environment within the garden. Therefore, life could have developed outside the garden through evolutionary means, with death and other mortal consequences absent from the Garden of Eden.

B. For Latter-day Saints, authoritative statements come from the First Presidency or from the President of the Church.⁹ Although positions against evolution, sympathetic to evolution, or somewhere in-between (neutral) have been expressed by individual church leaders,¹⁰ the First Presidency has never ruled on “organic evolution” as a biological process, only on the origin of man as a divine creation of God,¹¹ on the acceptance of demonstrated truths from science, and on the acceptance of diversities of opinion.

In 1931, two Latter-day Saint leaders (Elder Brigham H. Roberts, President of the First Quorum of Seventy, and Elder Joseph Fielding Smith, Jr. a member of the Council of Twelve Apostles) had a disagreement over human evolution that came before the First Presidency.¹² Elder Roberts argued that human-like creatures, formed by evolutionary processes, existed before Adam and Eve. He proposed that these “pre-Adamite” creatures were destroyed in a cataclysmic event and then Adam was brought to earth from another world. Elder Smith stated that no death occurred anywhere on earth before the Fall and that the doctrine of pre-Adamites was not church doctrine. After much discussion, the First Presidency ruled that neither view represented church doctrine:

The statement made by Elder Smith that the existence of pre-Adamites is not a doctrine of the Church is true. It is just as true that the statement: “There were not pre-Adamites upon the earth,” is not a doctrine of the Church. Neither side of the controversy has been accepted as a doctrine at all.

Both parties make the scripture and the statements of men who have been prominent in the affairs of the Church the basis of their contention; neither has produced definite proof in support of his views. ...

We call attention to the fact that when one of the general authorities of the Church makes a definite statement in regard to any doctrine, particularly when the statement is made in a dogmatic declaration of finality, whether he express it as his opinion or not, he is regarded as voicing the Church, and his statements are accepted as the approved doctrines of the Church, which they should be.

Upon the fundamental doctrines of the Church we are all agreed. Our mission is to bear the message of the Restored Gospel to the people of the world. 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.

We can see no advantage to be gained by a continuation of the discussion to which reference is here made, but on the contrary are certain that it would lead to confusion, division and misunderstanding if carried further. Upon one thing we should all be able to agree, namely, that Presidents Joseph F. Smith, John R. Winder and Anthon H. Lund were right when they said: “Adam is the primal parent of our race.”¹³

Furthermore, the matter of *how* Adam and Eve were divinely created was declared unknown. Speaking of Adam and Eve in 1976, President Spencer W. Kimball said, “We don’t know exactly how their coming into this world happened, and when we’re able to understand it the Lord will tell us.”¹⁴ A statement in 1910 attributed to the First Presidency¹⁵ emphasized that revelation does not say how the mortal bodies of Adam and Eve were created. Among two other possibilities, they stated that their mortal bodies could have “evolved in natural processes to present perfection, through the direction and power of God.”^{16, 17} Therefore, as long as a creation mechanism includes God and one accepts the divine origin of God’s

human and other creations, that mechanism is not inconsistent with Latter-day Saint doctrine.

C. In thinking about the Fall and the Creation, Latter-day Saints and other believers in God often assume that the process of Creation and the Fall was linear — that is, first the earth was created followed by the Fall, which only then introduced death into the world. The implication is that the Fall had to come before death anywhere on earth could occur. Is this premise correct? Reconciling evolution and the scriptural teachings of the Fall is much easier if this assumption is incorrect. An unpublished idea presented to me by Larry E. Dahl, Professor Emeritus of Church History and Doctrine at Brigham Young University, suggests this presumption is not valid. Brother Dahl asked, “Could the Fall have been retroactive? Christ’s Atonement was applicable to people who came before it occurred; could not the effects of the Fall also be applicable before it occurred as well as after?”¹⁸ Plants and other animals had to be present for Adam and Eve to live on the earth. Therefore, some creation had to occur before Adam and Eve could be present to instigate the Fall. If evolution is necessary to produce their mortal bodies and the rest of life on earth, if the Fall must occur for God’s children to experience mortality, and if the Fall was retroactive, then no conflict need exist between our current understandings of the scriptures and science. Death and competition could occur before the Fall, as life progressed to the state where humans could exist. After the Creation, Adam, Eve, and a few other living things could have been placed apart (perhaps by a miraculous process¹⁹) in the special environment of the Garden of Eden, where the Fall could take place. The Fall then legitimized all fallen conditions on the earth.

Because we mortal humans think only in terms of linear time, the idea of the Fall being applied to the future and the past seems strange. But, is this tactic strange to God who is not limited by time (see Alma 40:8)?

D. Having an incomplete understanding of life is part of living in mortality. Dilemmas and seemingly conflicting ideas are part of the world in which the Lord sent us to be tested. This is necessary for us to develop faith. Therefore, we should not be surprised that our understanding of events such as the Atonement, Fall, and Creation is incomplete. My faith is the scriptures are true, the observations of science are true, and someday all will be clear:

In that day when the Lord shall come, he shall reveal all things—things which have passed, and hidden things which no man knew, things of the earth, by which it was made, and the purpose and the end thereof — things most precious, things that are above, and things that are beneath, things that are in the earth, and upon the earth, and in heaven. (D&C 101:32–34)

4. People who promote creationism sincerely believe in God but simply have a different viewpoint of the scriptures and scientific data from you and others.

I have not intended to spurn people who have sincere beliefs in creationism, Intelligent Design, or atheistic evolution. I respect their beliefs. But whether they know it or not or whether they intend to or not, those supporting and pushing these efforts are trying to prove the existence or non-existence of a creator. Can God's existence be proven?

Of course, many people are simply questioning evolution or divine creation. Sincere questions are worthwhile.

At least some of the evolution-creation conflict is attributable to what people think God is like or other religious teachings. The Restored Gospel gives perspectives that can help you and I see the Creation differently from what other believers in God teach and believe.

- Some theologians suggest that if God had a hand in evolution this makes him responsible for evil and cruelty in the world. They suggest that if evolution occurred it is the domain of Satan and that the physical death brought on by the Fall is an aberration in God's plan. The restored gospel gives us a different perspective. The Fall was part of the Lord's plan.²⁰ He sent us into a world where competition, cruelty, and disease are present. Death comes to every living thing and is a necessary part of our existence.²¹ Although painful, these, and other, difficulties are necessary for us to prioritize and make decisions about what is most important to us (see Abraham 3:24–25). How could we develop faith and how could we make independent choices if we were not subject to a world where we must face difficult situations? How many potentially dangerous or difficult things do parents encourage their children to do—knowing that their child may face excruciating, even life-threatening, challenges in the process? Does this mean the parent is evil? For example, if parents encourage their children to marry but a child's marriage ends in abuse and divorce, does that make the parent responsible for the abuse and divorce?
- During graduate school at Purdue University, I attended a presentation by a representative of the Institute for Creation Research. I think the presenter was the late Henry Morris. The Institute for Creation Research promotes the idea that God created the world in six 24-hour days *ex nihilo* (out of nothing). At the end of Dr. Morris' presentation, the audience was permitted to ask questions. I asked him why matter could not be eternal just as God was eternal. In other words, why is creation *ex nihilo* significant?²² He replied that if matter was also eternal, then matter would be co-equal with God. That is an assumption he and other people have made. Is their assumption legitimate? What says that if God

and matter are eternal that the two are co-equal? No scripture says that. In fact, the Book of Mormon teaches that both things to act and things to act upon exist (2 Nephi 2:14). Therefore, a better assumption should be that whatever acts is more powerful than whatever is acted upon, and so, if God and matter are eternal, God is above matter. In addition, modern revelation teaches that creation *ex nihilo* is incorrect. Joseph Smith taught that the Creation was a process where God took elements that were also eternal and organized them into the earth.²³ The Lord revealed to Joseph Smith, “the elements are eternal” (D&C 93:33).

5. Why assume that God will not provide physical evidence of the Creation and other spiritual things? This view seems to indicate you are embarrassed about faith in God.

My views are motivated in part by the following experience. When I was a student at Brigham Young University, I took a religion class that discussed some of the evidence for the Book of Mormon. For example, we talked about the book coming from a very unlearned young man in a very short time and witnesses who saw the golden plates and never denied their testimonies of that observation, even after leaving the church. I was astonished when my professor insisted that this evidence was not proof that the Book of Mormon was true. He told us we had to get our own spiritual conviction. I did not want to have to work for a spiritual conviction! I wanted the easy way out! My professor explained that those facts were just consistent with the book being true. God seems to give just enough physical or logical evidence to help believers see they are not crazy, but not enough to make belief in him a mathematical-like proof. On the other hand, those who have atheistic beliefs can also find evidence for their position. Faith is required for either belief in God or belief in atheism. The principal evidence that God is the Creator comes from the scriptures. That witness and my own spiritual experiences are what I believe. Secondary evidence is the order, complexity, and beauty of nature (see Alma 30:44). But, our atheist brothers and sisters have a different view from the same secondary evidence.

I am not embarrassed about faith, but I think each of us has to do the spiritual work necessary to build faith. We cannot expect a crutch or an easy way out through scientific proof. That said, I find my faith strengthened by what I learn through science, including evolution. My views are also motivated by scriptural statements that signs follow belief (Mark 16:17; Ether 4:18; Ether 12:6; D&C 58:64). In other words, faith must come first. Then we can see physical things through spiritual eyes. As taught in the Book of Mormon, people can observe physical signs that corroborate spiritual teachings, but without a spiritual foundation, the observed phenomena can be easily excused as mere happenstance (3 Nephi 1–2). Yes, an orderly, beautiful, well-tuned earth is consistent with a divine creator. Yes, many have been motivated to come to God by observing or being in nature. However, those people had spiritual experiences in those situations. The concept that God

truly is the Creator comes to us through revelation. In other words, when I observe nature and “see God,” I see through my spiritual eyes.

What physical observation indicates or could indicate that God was the Creator? Would that observation need to show something that could not be explained by natural means? That seems to be the assumption of creationists, atheistic evolutionists, and Intelligent Designers. Is that premise legitimate? Why could God not apply natural means to create the world? That would still take great skill and knowledge!

If humans can use evolutionary processes for constructive work, then certainly a super-intelligent, omnipotent being could too. This awareness can help all of us realize (1) evolution should not be equated with godlessness and (2) the mechanism is irrelevant to the question of whether God exists or not.

6. Evolution says nothing about how the first life began. This is a serious flaw in the theory.

Evolution is an explanation for how life as we know it today came to be from primitive or ancestral life forms. How the first life form came to be is unknown, although hypotheses exist.

If current scientific understanding is unclear on how the first life started, how is that a flaw in evolutionary theory? Many scientific—and religious—principles raise significant, unanswered questions. Is the law of gravity flawed because it cannot explain how gravity works (i.e., how two objects with mass have an attraction for one another)? Are our beliefs in the Fall and Atonement flawed because we cannot completely explain either one?

The length of time required to answer a question is irrelevant. Some religious and scientific questions are very difficult to answer. How life originated from the sterile earth is one of those questions. As stated, some hypotheses have been made, but nothing is settled yet. One responder on the *Interpreter* website suggested that evolution could not be correct if we have had over one hundred years to answer how the first life came to be and yet we still do not know. You and I must be careful in arguing that many years is enough time to answer a difficult question. One could also argue that two thousand years of Christianity or two hundred years since Joseph Smith’s first revelation is enough time for us to learn how the Fall and Atonement works.

A famous experiment in the 1950s by Harold Urey and Stanley Miller showed that electrical discharges could produce amino acids (the building blocks of proteins) from compounds that may have been found in the atmosphere before life on earth began. Many have surmised that lightning strikes on the pre-biotic earth could have stimulated formation of amino acids and other compounds essential for life, and that this was one of the first steps in how life began. Many have assumed

that this experiment showed that life began as a godless process. Is that assumption legitimate? If lightning occurs, does that mean God was not involved? What would be the evidence that God is or is not involved? We cannot assume that formation of the first life form was some miraculous, supernatural event or that the formation of the first life form is the evidence that will prove God did or did not create the earth. Establishing the first life form could have been a natural process, such as lightning strikes forming amino acids and life being introduced from outer space. Again, the evidence that God was the Creator comes from the scriptures. They say that God was responsible. They do not say the creation was an unnatural, supernatural, or “magical” process. Besides, how could we ever tell from physical evidence if something was produced “miraculously” or by a natural process?

7. Why do you emphasize that evolution is compatible with atheism as well as belief in God?

Too much of the creation-evolution controversy has descended into an argument over which side can prove its point-of-view with scientific evidence or logical argument. I have tried to emphasize that science does not take sides in whether God exists or not. Although human use of evolution to construct machines, design proteins, and so forth does indicate that a being more intelligent than us could use the same means to create and maintain life on earth, I also conclude that believers in God need to be aware that this does not prove that God used this mechanism or that God created the world.

8. Evolution cannot produce biological complexity.

Lipson’s and Pollack’s engineering experiment and the protein design experiments show that evolution can produce increased complexity and even new functions.²⁴ The philosophical implications of these experiments are that a being more intelligent than us could have used these same processes to create us and our world. Just because artificial evolution experiments failed in some instances (as one responder noted on the *Interpreter* website) does not mean they will not work. They have worked for others. We humans are likely at a very elementary stage of using this technology. We should not be surprised at failures. The analogous experiments done in my laboratory have not always worked either. My lab’s experiments, Lipson’s and Pollack’s work, and protein design experiments have produced successful results by starting with something randomized.²⁵ This does not mean that things are happening by chance. Coupling selection to random variation means that this is not “an explosion in a printing shop producing a dictionary.”

9. Your comment about Intelligent Design was terse. Is not Intelligent Design proposing that God directed the production of life on earth?

My comment was terse because the purpose of my essay was not to review or critique Intelligent Design. However, for those who might think my ideas were part of that

movement, I felt I needed to clarify that my thesis (that evolution is a constructive process and could have been used by God to form life on earth) was not the same as what people in the Intelligent Design movement are proposing. That is the main point readers should get from the “Intelligent Design” section.

Intelligent Design is controversial.²⁶ The principal idea behind the movement is that if one discovers a complex object, he or she can infer that an intelligent designer is responsible. This concept is not new. Perhaps most famously, William Paley made an analogy based on a person finding a stone and a watch in a heath.²⁷ The person would likely infer that the stone was there “naturally” but the watch was made by someone with intelligence, an intelligent designer. Paley then argued that the design apparent in the biological world was evidence of a creator.

The scientific dilemma is the following: how does one show that geological, astronomical, chemical, and biological complexity is indeed the action of a designer or intelligent agent? Unlike our experience with mechanical complexity (e.g., in watches, buildings, and so forth), we humans have not seen how an intelligent creator could have directed the formation of the universe, the earth, and life on earth. As seen so far, formation of the natural world appears to be a process that simply occurred. Nothing seems to indicate the presence or intervention of an intelligent agent—but, again, what is the test that would show the need for or actions of one? Scientific verification cannot be based on faith in scripture, which is the principal evidence for God being the creator.

Intelligent Design proposes that complex biological structures are too intricate to have arisen through natural processes, such as evolution. But, even Paley’s watch was manufactured by natural, not supernatural, processes. In my essay,¹ I have shown that evolution could have been used by a super-intelligent being, an intelligent designer, to make life on earth. Use of that method would appear as a natural process in the fossil record and elsewhere. Therefore, God could still have designed the world and created it through natural, evolutionary processes. Evolution is a principal of construction and can indeed generate increased complexity, as demonstrated by Lipson and Pollack and others (see my chapter “The Theory of Evolution Is Compatible with Both Belief and Unbelief in a Supreme Being” in the present volume). The argument that some biological processes or objects are complex is a moot point if an intelligent agent used evolution to form living things.

Is finding God through science even possible? Alma taught that the world around us “denote[s] there is a God” (Alma 30:44). The Psalmist said, “The heavens declare the glory of God; and the firmament sheweth his handywork” (Psalm 19:1). But, other gospel teachings suggest that belief in God or a sincere seeking for belief must come before a person can recognize the hand of God in signs and wonders (Mark 16:17; Alma 32:26–43; Ether 4:18; 12:6; Moroni 10:4; D&C 58:64). In 1977, President Spencer W. Kimball said,

If I can only make clear this one thing, it will give us a basis on which to build. Man cannot discover God or his ways by mere mental processes. One must be governed by the laws which control the realm into which he is delving. To become a plumber, one must study the laws which govern plumbing. He must know stresses and strains; temperatures at which pipes will freeze; laws which govern steam, hot water, expansion, contraction, and so forth. ... One might be the best of bookkeepers and yet not know anything of electricity. ... One might be a noted theologian and yet be wholly untrained in watchmaking. One might be the author of the law of relativity and yet know nothing of the Creator who originated every law. ...

Any intelligent man may learn what he wants to learn. He may acquire knowledge in any field, though it requires much thought and effort. It takes more than a decade to get a high school diploma; it takes an additional four years for most people to get a college degree; it takes nearly a quarter-century to become a great physician. Why, oh, why do people think they can fathom the most complex spiritual depths without the necessary experimental and laboratory work accompanied by compliance with the laws that govern it? Absurd it is, but you will frequently find popular personalities, who seem never to have lived a single law of God, discoursing in interviews on religion. How ridiculous for such persons to attempt to outline for the world a way of life!

And yet many a financier, politician, college professor, or owner of a gambling club thinks that because he has risen above all his fellowmen in his particular field he knows everything in every field. One cannot know God nor understand his works or plans unless he follows the laws which govern. The spiritual realm, which is just as absolute as is the physical, cannot be understood by the laws of the physical. You do not learn to make electric generators in a seminary. Neither do you learn certain truths about spiritual things in a physics laboratory. You must go to the spiritual laboratory, use the facilities available there, and comply with the governing rules. Then you may know of these truths just as surely, or more surely, than the scientist knows the metals, or the acids, or other elements. It matters little whether one is a plumber, or a banker, or a farmer, for these occupations are secondary; what is most important is what one knows and believes concerning his past and his future and what he does about it.²⁸

Endnotes

1. D.M. Belnap, "The Theory of Evolution Is Compatible with Both Belief and Unbelief in a Supreme Being," *Interpreter: A Journal of Mormon Scripture* 16 (2015): 261–281.
2. "The Earth and Man," *The Latter Day Saints' Millennial Star* 93 (No. 53; 31 December 1931) 851.
3. National Academy of Sciences and Institute of Medicine, *Science, Evolution, and Creationism* (Washington, D.C.: The National Academies Press, 2008).

4. From the transcript of a debate between William B. Provine and Phillip E. Johnson at Stanford University, 30 April 1994; <http://www.arn.org/docs/orpages/orl61/161main.htm>, accessed 29 September 2015.
5. National Academy of Sciences and Institute of Medicine, *Science, Evolution, and Creationism* (Washington, D.C.: The National Academies Press, 2008). Accessible at <http://www.nap.edu/catalog/11876/science-evolution-and-creationism>, accessed 29 September 2015.
6. See http://evolution.berkeley.edu/evolibrary/misconceptions_faq.php#h1, accessed 29 September 2015.
7. The website also comments on randomness: “Is evolution a random process? Evolution is not a random process. The genetic variation on which natural selection acts may occur randomly, but natural selection itself is not random at all. The survival and reproductive success of an individual is directly related to the ways its inherited traits function in the context of its local environment. Whether or not an individual survives and reproduces depends on whether it has genes that produce traits that are well adapted to its environment.” (<http://www.pbs.org/wgbh/evolution/library/faq/cat01.html>, accessed 29 September 2015.)
8. For example, Richard G. Scott, “Make the Exercise of Faith Your First Priority,” *Ensign* 44 (November 2014): 92–95.
9. *BYU Evolution Packet*, quoted in William E. Evenson and Duane E. Jeffery, *Mormonism and Evolution: The Authoritative LDS Statements* (Salt Lake City: Greg Kofford Books, 2005), 1–38. Since 1992, a packet known as the *BYU Evolution Packet* has been distributed to students at Brigham Young University and to others. The packet contains authoritative statements from the First Presidency with respect to evolution. A complete set of statements contained in this packet, along with notes and additional statements, is also included in a chapter of the present volume.
10. Respectively, examples of a statement against evolution, sympathetic to evolution, and neutral (emphasis is mine in each quote):
 - [Speaking of the fifth day of creation:] Next came fish and fowl and “every living creature” whose abode is “the waters.” Their Creators placed them on the newly organized earth, and they were given the command: “Be fruitful, and multiply, and fill the waters in the sea; and let fowl multiply in the earth.” This command—as with a similar decree given to man and applicable to all animal life—they could not then keep, but they soon would be able to do so. Appended to this command to multiply was the heaven-sent restriction that the creatures in the waters could only bring forth “after their kind,” and that “every winged fowl” could only bring forth “after his kind.” *There was no provision for evolvment or change from one species to another.* (See Moses 2:20–23; Abraham 4:20–23). (Elder Bruce R. McConkie, “Christ and the Creation,” *Ensign* 12 (June 1982): 8–15).

- Science dominated by the spirit of religion is the key [to] progress and the hope of the future. For example, *evolution's beautiful theory of the creation of the world* offers many perplexing problems to the inquiring mind. Inevitably, a teacher who denies divine agency in creation, who insists there is no intelligent purpose in it, will infest the student with the thought that all may be chance. I say, that no youth should be so led without a counter-balancing thought. (President David O. McKay, "A Message for L.D.S. College Youth," speech, Brigham Young University, Provo, Utah, USA, 8 October 1952, pp. 6–7; quoted in Evenson and Jeffery, *Mormonism and Evolution*, 100–102.)
- The simple truth is that we cannot fully comprehend the Atonement and Resurrection of Christ and we will not adequately appreciate the unique purpose of His birth or His death — in other words, there is no way to truly celebrate Christmas or Easter — without understanding that there was an actual Adam and Eve who fell from an actual Eden, with all the consequences that fall carried with it.

I do not know the details of what happened on this planet before that, but I do know these two were created under the divine hand of God, that for a time they lived alone in a paradisiacal setting where there was neither human death nor future family, and that through a sequence of choices they transgressed a commandment of God which required that they leave their garden setting but which allowed them to have children before facing physical death. (Elder Jeffrey R. Holland, "Where Justice, Love, and Mercy Meet," *Ensign* 45 (May 2015): 104–106.)

11. Of course, the heavens, earth, and non-human forms of life also are understood to be divinely created.
12. James B. Allen, "The Story of *The Truth, The Way, The Life*," *BYU Studies* 33 (No. 4; 1993), 690–741.
13. Memo from the First Presidency, 5 April 1931, quoted in Evenson and Jeffery, *Mormonism and Evolution*, 54–67.
14. "Man became a living soul—mankind, male and female. The Creators breathed into their nostrils the breath of life and man and woman became living souls. We don't know exactly how their coming into this world happened, and when we're able to understand it the Lord will tell us." Spencer W. Kimball, "The Blessings and Responsibilities of Womanhood," *Ensign* 6 (No. 3; March 1976): 72.
15. Though unsigned, the statement was published in the monthly column of instructions from the First Presidency (see Evenson and Jeffery, *Mormonism and Evolution*, 42–44).
16. *Improvement Era* 13 (No. 6; April 1910): 570. Here is the statement in its entirety:

Origin of Man.— "In just what manner did the mortal bodies of Adam and Eve come into existence on this earth?" This question comes from several High Priests' quorums.

Of course, all are familiar with the statements in Genesis 1: 26, 27; 2: 7; also in Moses 2:27 and Abraham 5:7. The latter statement reads: “And the Gods formed man from the dust of the ground, and took his spirit (that is, the man’s spirit) and put it into him; and breathed into his nostrils the breath of life, and man became a living soul.”

These are the authentic statements of the scriptures, ancient and modern, and it is best to rest with these, until the Lord shall see fit to give more light on the subject. Whether the mortal bodies of man evolved in natural processes to present perfection, through the direction and power of God; whether the first parents of our generations, Adam and Eve, were transplanted from another sphere, with immortal tabernacles, which became corrupted through sin and the partaking of natural foods, in the process of time; whether they were born here in mortality, as other mortals have been, are questions not fully answered in the revealed word of God. For helpful discussion of the subject, see *Improvement Era*, Vol. XI, August 1908, No. 10, page 778, article, “Creation and Growth of Adam;” also article by the First Presidency, “Origin of Man,” Vol. XIII, No. 1, page 75, 1909.

17. For other statements on creation and evolution by Presidents of the Church or statements approved by the First Presidency, see Evenson and Jeffery, *Mormonism and Evolution*. These statements and others are also reproduced in a chapter of the present volume. One other statement is worth noting here. In 1911, Joseph F. Smith highlighted the then contested scientific controversies surrounding evolution and asked that the theory and its accompanying speculations not be taught in church schools at that time. Although expressing doubts about the theory and worries that people who had accepted evolution had then “discarded the Bible,” he also emphasized that “the church itself has no philosophy about the *modus operandi* employed by the Lord in His creation of the world.” (Joseph F. Smith, “Philosophy and the Church Schools,” *Juvenile Instructor* 46 (No. 4; April 1911), 208–209, emphasis in original; quoted in Evenson and Jeffrey, *Mormonism and Evolution*, 45–50).
18. For a similar idea, see the chapter by Trent D. Stephens, “Who Is Adam?” in the present volume.
19. For example, a miracle such as that used by the Lord to allow some of his disciples to remain on the earth without tasting of death, see 3 Nephi 28:4–15. Of course, church leaders such as Elder James E. Talmage, himself a scientist, taught:

Miracles are commonly regarded as occurrences in opposition to the laws of nature. Such a conception is plainly erroneous, for the laws of nature are inviolable. However, as human understanding of these laws is at best but imperfect, events strictly in accordance with natural law may appear contrary thereto. The entire constitution of nature is founded on system and order. (J. E. Talmage, *The Articles of Faith*. 1924 Revised ed. *Classics in Mormon Literature*. [Salt Lake City: Deseret Book, 1984], 20).

20. For example, Richard G. Scott, “Make the Exercise of Faith Your First Priority,” *Ensign* 44 (November 2014): 92–95.

21. For example, Russell M. Nelson, “Doors of Death,” *Ensign* 22 (May 1992): 72–74.
22. An audience member near me commented to me afterwards that my question sounded like something a Mormon would say. I was happy to tell him that I was a Mormon.
23. *Teachings of the Prophet Joseph Smith*, compiled by Joseph Fielding Smith (Salt Lake City: Deseret Book, 1977), 350–352.
24. See “Evolution Is a Constructive Process” section in my chapter, “The Theory of Evolution Is Compatible with Both Belief and Unbelief in a Supreme Being” in the present volume.
25. Ibid.
26. For example, William A. Dembski, *The Design Revolution: Answering the Toughest Questions about Intelligent Design* (Nottingham, England: Inter-Varsity Press, 2004) and Matt Young and Taner Edis, Eds. *Why Intelligent Design Fails: A Scientific Critique of the New Creationism* (New Brunswick, New Jersey: Rutgers University Press, 2004).
27. William Paley, *Natural Theology or Evidence of the Existence and Attributes of the Deity, collected from the appearances of nature*, Matthew D. Eddy and David Knight, Eds. (Oxford: Oxford University Press, 2006). This book was first published in 1802 and has since been reprinted by many publishers.
28. Spencer W. Kimball, “Absolute Truth,” speech, Brigham Young University, Provo, Utah, USA, 6 September 1977. Available at <http://speeches.byu.edu> and *Ensign* 8 (September 1978) 2–8.

DAVID M. BELNAP



David Michael Belnap was born in Ixelles, Belgium. His American parents, Parley and Bona Belnap, were in Belgium while his father was working on a graduate degree in music at the Royal Flemish Conservatory in Antwerp. David grew up primarily in Provo and American Fork, Utah. Up through his elementary school years, he also lived in London; Ann Arbor, Michigan; Boulder, Colorado; and Salzburg, Austria—as his father did additional graduate studies and other work assignments. When David was ten years old, his family moved from Provo to American Fork, to a home with a large backyard. There, David and his parents, brothers, and sister spent many hours tending a very large garden and several animals. It was a wonderful way to grow up. Weeding the garden provided him and his siblings a lot of time to think. Growing up, David loved camping and hiking in the desert and mountains. He graduated from American Fork High School in 1981. David served a mission for The Church of Jesus Christ of Latter-day Saints in the Cleveland, Ohio area. He also served as an enlisted member of the Army National Guard in Utah and Indiana from 1982 through 1989, completing his service at the rank of staff sergeant. After returning from his mission, David attended Brigham Young University, receiving a BS degree in biochemistry in April 1989. That summer he began graduate studies at Purdue University, where he earned a PhD in biology in 1995.

While at Purdue University, David began studying the structure of viruses primarily by three-dimensional electron microscopy (3DEM). He has continued this research to the present day. He has published work on papillomaviruses (human, rabbit, and bovine), polyomaviruses (human, mouse, simian, and avian), poliovirus, hepatitis B virus, herpes simplex virus, and bacteriophages (bacterial viruses). David has also published papers on other biological macromolecules and 3DEM methods. He helped establish conventions for 3DEM work, and this aided the development of the EM Data Bank, an internet resource for 3DEM data. Following graduate studies, David worked at the National Institutes of Health in Bethesda, Maryland from 1995 to 2004 and Brigham Young University from 2004 to 2012. He currently is a research faculty member in the Departments of Biochemistry and Biology at the University of Utah, where he also directs the Electron Microscopy Core Laboratory.

David married Julie Hasting in the Salt Lake Temple in 1986. They are the parents of four daughters and one son, and the grandparents of four. David and Julie have enjoyed each place they have lived and have especially appreciated the gospel insights they have learned and Christ-like love they have felt from associating with brothers and sisters in the church, good neighbors, and friends. David enjoys serving in his church responsibilities. He has served in teaching, leadership, and secretarial positions. He has especially enjoyed working with youth in Scouting and Sunday School. David enjoys gardening, playing sports, cycling, running, reading, and especially anything outdoors with his wife and family.