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

Chapter Title: Science and Mormonism

Chapter Author: Henry Eyring

This book from which this chapter is excerpted is available through Eborn Books:

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***Recommended Citation***

Henry Eyring, "Science and Mormonism" 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/SM1Chap04.pdf>.

SCIENCE & MORMONISM SERIES 1

# COSMOS, EARTH, AND MAN

DAVID H. BAILEY, JEFFREY M. BRADSHAW, JOHN S. LEWIS,  
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The Interpreter Foundation  
Eborn Books

2016



# SCIENCE AND MORMONISM

Henry Eyring

When one of my grandsons was a small boy, just starting Primary, someone remarked to him, “So now you are a Sunbeam.” His face clouded, and he answered, “I am not an ‘unbeam, I’m Henry Johnson Eyring!” I can understand how we sometimes object to being labeled. Some labels we accept. For instance, I’m content with “Mormon,” “devout,” “Christian,” “chemist,” “husband,” “father,” and so forth. Sometimes, however, a label is loaded with emotional baggage far beyond its usefulness and importance. For example, “organic evolutionist” or “creationist” are labels, either one of which I would reject for myself, at least. They simply carry too much baggage and confusion for my taste.

Considering the difference in training of the members of the Church, I never cease to marvel at the degree of agreement among believing Latter-day Saints. However, organic evolution is one topic upon which there is apt to be wide disagreement.

Such a topic becomes controversial partly because it is interesting to us, but it seems to be sufficiently nonessential to our salvation that the Creator has only briefly treated it in the scriptures. If you think about it, it makes almost no difference at all to the way we should live our lives and treat one another. Still, there are those who line up on both sides as if everything depended on the outcome of this year’s “monkey trial.”

Some people object to the slightest hint of being related to the rest of the animal kingdom, particularly the hairy apes. The idea is right next to the three “S’s” — spiders, snakes, and sharks — on their list of things beyond the pale. I’ve never had that aversion. In fact, I’ve kind of enjoyed what little I’ve seen of them.

One time I was stuck most of a day in London and couldn’t face the thought of sightseeing, so I went to the London Zoo. I was attracted by a crowd watching the great apes. One fellow in particular was getting a lot of attention as he sat close to the front of the cage on a tree platform. As the zoo visitors moved closer, he suddenly



spewed them with water that he had in his mouth. Now, that was interesting! I found a bench across the path — out of range — and watched. The ape got down and went over to his water trough to reload. He then went about the cage awhile and finally repositioned himself on the platform. He waited — patiently. Finally a new group of humanoids, not aware of the danger, moved into range. Spray! Splat! Bullseye! The fellow practically chortled out loud as he made his trip to the trough. I spent the entire afternoon enjoying his enjoyment. Theoretically, he was there for our amusement, but quite clearly, he didn't understand that. He thought we were there for his. I have to admit I kind of admired the fellow. Animals seem pretty wonderful to me. I'd be content to discover that I share a common heritage with them, so long as God is at the controls.

I have always felt comfortable with the views of our trained scientists among the General Authorities. For example, James E. Talmage delivered a sermon entitled "The Earth and Man" from the Salt Lake Tabernacle on August 9, 1931, and John A. Widtsoe published "Science and the Gospel" in the Young Men's Mutual Improvement Association manual of 1989. Each of these brethren regarded the earth as having a very great age and were open to the testimony of science to uncover the truth of those questions.

What, then, is to prevent us from seeking to understand God's methods of creation by any and all means available to us? Many avoid seeking understanding from science because they believe that any theory in conflict with the Lord's revelations will finally be proven false. Of course, given those assumptions, the position is clearly correct, since I don't believe that God intentionally misleads his children.

We have a dilemma, however, because God has left messages all over the physical world that scientists have learned to read. These messages are quite clear, well understood, and accepted in science. That is, the theories that the earth is four-and-one-half billion years old and that life evolved over the last billion years or so are as well established scientifically as many theories ever are. So, if the word of God found in the scriptures and the word of God found in the rocks are contradictory, must we choose between them, or is there some way they can be reconciled?

The scriptures state that Adam was the first man on the earth and that he was also the first flesh. Other scriptures teach that Adam was not subject to mortal and spiritual death before the fall and that the fall brought these deaths into the world. Also, the scriptures say the earth is passing through seven periods (“days”) of temporal existence and that it was not temporal before the fall. Each of these ideas seems to be in conflict with the scientific views of organic evolution, but are they?

The fundamental principle that has guided my religious life is that I need believe only what is true. The gospel is the truth as learned or discovered by whatever means and tools I can lay my hand or mind on. I appreciate the scriptures for their insights into how to love God and my neighbor and how to learn obedience to the laws and ordinances of the gospel. These teachings are precious to all devoted Latter-day Saints. However, the brevity of the scriptures about God’s methods of creation indicate that this may be a subject we will understand sometime but do not need to worry about for the time being. “Yea, verily I say unto you, 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.)

In the meantime, I think it is perfectly appropriate for us to study and learn as much as we can about this wonderful place God has prepared for us.

We should keep in mind that scientists are as diligent and truthful as anyone else. Organic evolution is the honest result of capable trying to explain the evidence to the best of their ability. From my limited study of the subject I would say that the physical evidence supporting the theory is considerable from a scientific viewpoint.

In my opinion it would be a very sad mistake if a parent or teacher were to belittle scientists as being wicked charlatans or else fools having been duped by half-baked ideas that gloss over inconsistencies. That isn’t an accurate assessment of the situation, and our children or students will be able to see that when they begin their scientific studies.

“Now wait a minute,” you say. “I thought you weren’t an ‘evolutionist!’” I’m not. I’d be just as content to find out that God stirred up some dirt and water, and out stepped Adam, ready to occupy the Garden or Eden. The only important thing is that God did it. I might say in that regard that in my mind the theory of evolution



*The Creation and the Marriage of Adam and Eve*, ca. 1470-1475. Illustration from Flavius Josephus, *Les Antiquités judaïques*, illustrated by Jean Fouquet (ca. 1420-ca. 1480) and studio

has to include a notion that the dice have been loaded from the beginning in favor of more complex life forms. That is, without intelligent design of natural laws in such a way as to favor evolution from lower forms to higher forms of life, I don't think the theory holds water. I can't see randomly generated natural laws producing these remarkable results. So, in my mind, God is behind it all whether we evolved or not.

Probably one of the most difficult problems in reading the scriptures is to decide what is to be taken literally and what is figurative. In this connection, it seems to me that the Creator must operate with facts and with an understanding that goes entirely outside our understanding and our experience. Because of this, when someone builds up a system of logic, however careful and

painstaking, that gives a positive answer to this difficult question, I can't help but wonder about it, particularly if it seems to run counter to the Creator's revelations written in the physical world. At least I would like to move slowly in such matters.

The really awful thing about me is that I really don't care one way or the other. Sometime, a billion years from now, it may come up in some heavenly science class and I'll be glad to know, but until then I'll be content.

God likes me and won't give up on me no matter what. He'll keep encouraging and praising me when he can, chastising me when he must, but will never stop hoping that I'll make something out of myself. He is so much more advanced than I am, he couldn't be very impressed with my wisdom; it's my effort that really counts. I'm not apt to teach him anything he hasn't already known for a long time. One of the nicest things is his tolerance of us.

Once when I was speaking at the University of Utah as part of a panel on man in the cosmos, I built my talk around the famous question of Pontius Pilate, "What is truth?" After my talk, a young man in the audience stood up and said, "Well, Dr. Eyring, they tell me that what you do is put science in one compartment and your religion in another. Isn't that inconvenient? In the *Young Women's Journal*, Joseph Smith is reported to have said that people are living on the moon." He continued, "Now, Dr. Eyring, we know there is no oxygen on the moon, so that couldn't possibly be true. What do you say to this question?"

I answered about as follows:

I especially appreciate being asked that question because it is easy to answer, and I like easy questions better than hard ones. As a Latter-day Saint, like any other honest man, I am obliged to accept only the truth. I simply have to investigate whether men live on the moon. I am reasonably certain they don't, but we'll soon know by direct exploration. If we don't find them there, they don't live there. As a Latter-day Saint, my problem is as simple as that.

Many times men of importance have statements attributed to them they never made. I think that if J. Golden Kimball said all the things he is credited with saying, he would have had to talk even more than he did, and he did very well.

Now what about the Prophet Joseph Smith? I don't know whether or not he said men live on the moon. But whether he did or not troubles me not in the least. A prophet is wonderful because he sometimes speaks for the Lord. This occurs on certain occasions when the Lord wills it. On other occasions, he speaks for himself, and one of the wonderful doctrines of this Church is that we don't believe in the infallibility of any mortal. If in his speculations the Prophet thought there were people on the moon, this has no effect on my belief that on other occasions, when the Lord willed it, he spoke the ideas that the Lord inspired him to say. It is for these moments of penetrating insight that I honor and follow him.

There is a further point that needs emphasis. The gospel is not the people in the Church. The gospel is not even the people who direct it. *The gospel is the truth.* One will have difficulty finding better men than we have presiding over the Church at present and than we have had in times past. Still, they are human beings, as we are.

Some people have pointed to some member of the Church and said, "Now, Dr. Eyring, that's one of your brethren, and he's not what he ought to be." My answer is this: "Well, you ought to see what he'd be like if it weren't for the Church." We have to keep firmly in mind at all times the two aspects of the Church: its divinely inspired perfect side and the human side.

Perhaps I can say it another way. This Church would have been perfect if the Lord had not let people into it. That is where the mistake seems to have been made, but we understand this, too. The Church is part of the Lord's wonderful plan to work with you and me. Mankind is thus singled out because of man's divine origin and transcendent destiny.

I would leave the Church and abandon its teachings if I could figure out some way to do so honorably and consistent with my desire to know the truth, no matter what the source. I find myself unable to build out of my experience an acceptable case for disbelief. In fact, the case favors belief. It goes something like this:

1. The physical universe exhibits striking characteristics: the complexity of the nucleus, the exactness of the atom, the unity of life, the predictability of the everyday world, and the enormity and longevity of space.

2. Not only is the universe complex, exact, orderly, and predictable, but it is also running down. The second law of thermodynamics indicates that since a closed system can only run down and can never get wound up in the first place, either there are some exceptions to these natural laws we don't know about or the physical universe is not a closed system. That is, there is something or someplace outside the physical world from which energy was obtained to fire "the big bang."
3. The combination of intelligence and power that assembled the materials and energy, set off "the big bang," and provided order, complexity, exactness, and precision in the physical universe is called the Creator, the Supreme Being, God, and so on.
4. As scientists believe that nature is not capricious, and therefore we can expect things we can't measure to behave in ways similar to things we can, it is reasonable to assume that the Creator's world is also a place of order, complexity, exactness, and precision. This is an example of the importance of postulates in science and religion. In order to seek to learn truths about the physical world we must assume some things we can't prove. (An example is uniformitarianism — the proposition that the rules as we now observe them were the same in the past and will be in the future and that therefore we can understand the past and predict the future based on what we observe now.) Similarly, in order to seek for truth in spiritual things, we must adopt some basic assumptions or postulates that also can't be proved.
5. Basic spiritual assumptions or postulates might include: (a) God exists, (b) God has curiosity and interest in what he has created, (c) God knows me, (d) God is at least as compassionate and just as the good people I know.
6. The truth of these postulates is determined by seeing if the results of "experiments" can be best predicted by their adoption. That is, as we experience life, study history, and seek communion with God, is what we find best explained by acceptance of our postulates?
7. God is tolerant of our efforts. He's willing to have truth discovered "line upon line, precept upon precept." That is, he doesn't mind that we don't yet know everything about science or religion.
8. The gospel is the truth. All truth is part of the gospel, regardless of how the truth has been learned.
9. The safest course is to work like the dickens and do even more than is required to be done. That's the way I get the most freedom to maneuver.
10. Most important, the foregoing nine points don't answer all the

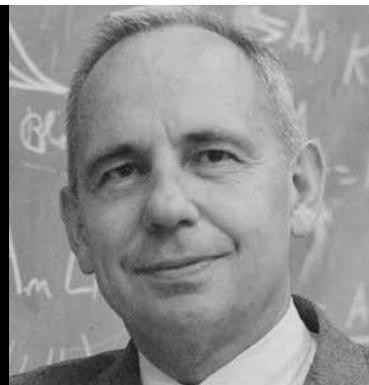
questions. If I take everything I know from the scriptures and the prophets and everything I know from science and reconcile them, I still have as many unanswered questions as I have ones with answers. No intellectual approach nails down everything. In this life there will always be unanswered questions. In fact, each answer seems to raise more questions. That's the way it is in science, too, and I don't apostatize from science for that reason. Actually, that's what makes science and religion fun. Faith is feeling along after truth as best I can.

11. Finally, perhaps a believer never does more disservice to religion than to support the truth with bad arguments. The listener spots the obvious errors, becomes impatient, often "throws out the baby with the bath," and turns away, even from true religion.

As parents and teachers, we pass on to our children and pupils our world picture. Part of this picture is religious, and part of it deals with the world around us. If we teach our pupils some outmoded and nonessential notions that fail to hold water when the students get into their science classes at the university, we run grave risks. When our protégés shed the bad science, they may also throw out some true religion. The solution is to avoid telling them the world is flat too long after it has been proved round. Don't defend a good cause with bad arguments.

So, I am certain that the gospel as taught in The Church of Jesus Christ of Latter-day Saints is true. It's a better explanation of what I observe in science than any other I know about. There are still lots of things I don't know, but that doesn't bother me. I'm a happy muddler. The gospel simply asks me to find out what's true as best I can and in the meantime to live a good life. That strikes as the best formula for living there could be.

# HENRY EYRING



Henry Eyring (February 20, 1901 – December 26, 1981) was a Mexican-born American theoretical chemist whose primary contribution was in the study of chemical reaction rates and intermediates.

A prolific writer, he authored more than six hundred scientific articles, ten scientific books, and a few books on the subject of science and religion. He received the Wolf Prize in Chemistry in 1980 and the National Medal of Science in 1966 for developing the Absolute Rate Theory or Transition state theory of chemical reactions, one of the most important developments of 20th-century chemistry. Several other chemists later received the Nobel Prize for work based on it, and his failure to receive the Nobel was a matter of surprise to many. Other awards included: AAAS Newcomb Cleveland Prize (1932), Bingham Medal (1949) of the Society of Rheology, Peter Debye Award in Physical Chemistry (1964), National Medal of Science (1966), Irving Langmuir Award (1967), Linus Pauling Award (1969), Elliott Cresson Medal (1969) from the Franklin Institute, Golden Plate Award (1974), T. W. Richards Medal (1975), Priestley Medal (1975), Berzelius Medal (1979). Eyring was a member of the International Academy of Quantum Molecular Science. He was elected president of the American Chemical Society in 1963 and the Association for the Advancement of Science in 1965. Eyring authored, co-authored, or edited twenty-three professional books or journals, and three religious books.

Eyring was a member of the LDS Church throughout his life. His views of science and religion were captured in this quote: “Is there any conflict between science and religion? There is no conflict in the mind of God, but often there is conflict in the minds of men.” He served as a branch president, district president, and, for over twenty years, a member of the general board of the Deseret Sunday School Union.

Eyring married Mildred Bennion. She was a native of Granger, Utah, who had a degree from the University of Utah and served as head of the physical education department there. She met Eyring while pursuing a doctorate at the University of Wisconsin. They had three sons together. The oldest, Edward M. “Ted” Eyring is an emeritus professor of chemistry at the University of Utah. Henry B. Eyring is an apostle and current counselor in the First Presidency of the Church. Harden B. Eyring is a higher education administrator for the State of Utah.