

Thoughts on Mormonism, Evolution, and Brigham Young University

Duane E. Jeffery, interviewed by Keith E. Norman

DUANE JEFFERY IS A PROFESSOR OF ZOOLOGY (now integrative biology) at BYU. He has published numerous articles on genetics, evolution, and LDS history and doctrine. He is also a member of the American Association for the Advancement of Science, the Society for the Study of Evolution, and the Genetics Society of America. He has been named Honors Professor of the Year at BYU and has been recognized with the Karl G. Maeser Teaching Award. This interview was conducted by *Dialogue* Associate Editor Keith Norman on 11 August 2001 at the Sunstone Symposium in Salt Lake City.

K.N.: It's a privilege to be here today to talk with Duane Jeffery. As we were coming in, he said he felt a little intimidated by the size of the room and the number of people. I think Duane should know he's a hero to an awful lot of people here for what he has done and written. I want to start out by asking you, Duane, how you got started in science as a career, and what kind of issues you faced in reconciling the conflicts that would inevitably come up between your religious upbringing and beliefs and your developing scientific career.

D.J.: Well, I was raised in a rather unscientific environment, a little farming community. It was only when I got to Utah State University that I began encountering a number of problems. I majored in just about everything for the first couple of years, but on my mission I had some experiences with what we might call doctrinal dissident groups or off-shoot groups from Mormonism, and for the first time in my life I began to see that even inside Mormonism there were different ways of looking at scripture.

On returning to college, I decided to major in biology, and that in-

stantly threw me together with a number of students who were very strong for science and very anti-religious, as well as many others like me who were rather new to the issues. I was also called on a stake mission at that point, and for some reason it seemed as if many of the so-called problem cases were delegated to me. I ended up working with members of various dissident groups—the Church of the Firstborn of the Fullness of Times was a group of major concern in those years and was making tremendous headway among LDS church members—and we didn't have very much doctrinally at that time with which counter it. So I found myself not only working with several missionary contacts who were in science and interested in evolution and materialist philosophies and so on, but also trying to find out what was going on in my own religion. In all of that mix, I was having a very heady time but expended far more effort studying my religion than studying science, which in many ways has not benefited my career.

I was impressed with the director of the LDS Institute of Religion at Utah State, Wendell Rich, who was in the process of finishing his book *Distinctive Teachings of the Restoration*, trying to look at different ways of "knowing," and at how Mormonism interacted with such things. I was also very impressed with Eldon Gardner, who was one of Utah's premier scientists and also a very active and committed member of the church. These two were critical in helping me in those early years, as were a number of other institute and university faculty.

I encountered a book of fiction called *Dorian*, written by Nephi Anderson, one of the LDS books written by him back in the twenties and thirties, trying to teach moral principles to LDS youth. This one really dealt with science and religion but quoted extensively from a book called *Natural Law in the Spiritual World*, and I was impressed with those quotes. This latter book was purportedly by an author named Henry Drummond, but I encountered it in a novel, and I assumed that Henry Drummond and his book were really nothing more than literary devices used by Anderson to get across his message in *Dorian*. Then I visited a family in Malad, Idaho, at about that time and I found *Natural Law in the Spiritual World* by Henry Drummond sitting on the bookshelf. It was really a spiritual experience for me because Drummond's argument was that the natural laws we see here in the physical world are just extensions of the laws recognized in the religious universe. That resonated greatly with the Mormonism I had been taught. Evolution clearly presented a problem, and I quickly borrowed the book and devoured it. It clearly was well out of date. Then I began to discover that it had been a very popular book in Mormonism at the turn of the century. It was, for instance, one of the alternate books recommended for use with B. H. Roberts's *Seventies Course in Theology*, 1907 to 1912. Apostle John Henry Evans, in his biography of Joseph Smith, indicates that Henry Drummond had these mar-

velous ideas about how God uses the natural laws that we on Earth know, to operate the whole universe, and we see just the lower end of those same laws. He also said that Henry Drummond had made these concepts popular, but he was fifty years behind Joseph Smith in coming to the concepts.

So those were very heady ideas for me. I was proceeding through a master's degree in wildlife ecology, and it became evident to me that evolution was rather a critical area, which I needed to study further. It seemed to me there were two major ways to evaluate it. One was by means of paleontology and fossils, but I thought that approach was primarily interpretive—you find a fossil, then you “interpret” what it means. (I was very naïve!) You need to do much more than that, I thought. It seemed to me that what was critical and testable was the process of evolution, and the process lay in genetics. So I then shifted gears in my career and started doctoral work in genetics, trying to see what could be learned about the mechanisms of evolution. It's been an interesting study ever since.

K.N.: I wanted to talk a little bit about how you came to BYU and how that experience has been. BYU has a renowned paleontology collection. It seems paradoxical, all those dinosaur bones which used to be under the stadium somewhere, and I guess many still are. I'm told the Zoology Department was recently rated as the top graduate program on the same BYU campus where the religion department tends pretty much toward literalism in interpreting the scriptures. Is there still a religion department? Did I hear they were doing away with that?

D.J.: College of Religion.

K.N.: Okay, well, the religion faculty has traditionally been opposed to the scientific concept of organic evolution, so you have this conflict on campus. You go to one class and hear one thing, and go to another class and hear the opposite thing. To me this is a very intriguing campus paradox. How free do you feel the discussion is on these topics, and how do you deal with students who are troubled by the conflicts they see?

D.J.: Well, that covers a lot of territory. I came to BYU because BYU's Zoology Department critically needed a geneticist. I had been there a relatively short time when Dallin Oaks became president of BYU. One of his first undertakings was to organize a seminar between selected faculty members in science on campus and what was supposed to have been all the College of Religion faculty. This was an ongoing seminar series. I should explain that a number of those people did not participate. You indicated there may have been some animosity. One of the members of the religion faculty wrote a seven-page letter to his dean to tell him he would never participate in such a Satanic enterprise as meeting with the scien-

tists on campus, and he never did show up. But we had a wonderful series of seminars that established some good among those who did participate.

K.N.: This would have been when?

D.J.: This was the early 1970s, and it went on for—oh, I don't know—a year and a half, two years. I don't remember. Somewhere I've got the notes from that seminar, but it was a wonderful discussion between the groups. It did a lot to bring about common understanding. There were still those who felt that science was Satanic. Most of those with that persuasion never attended. Even though one was on the steering committee, he would never come to the formal meetings. However that may be, we established a good rapport. Now a number of those individuals—nearly all, in fact—have since retired and have been replaced, in general, by others who seem not so threatened by science. There are a number there in the College of Religion who seem quite open to many ideas of science and who express the feeling that God can reveal things through sources other than strictly ecclesiastical ones. That has helped.

Now, you asked about paleontology at BYU. Years ago we did have a gentleman by the name of James Jensen, who loved to collect dinosaur fossils and who pioneered many of the techniques to display those fossils with internal structures. The old way was to put up a big structure with a rebar framework or "cage" and hang everything from that, so you could barely see the dinosaur fossil. Jim was a pioneer in developing internal supports. For those of you who haven't been down to the new North American Museum of Ancient Life at Thanksgiving Point, I would strongly recommend you go. It is marvelous. It's being billed as the largest dinosaur museum on the planet. There you will see the internal suspensions that Jim Jensen pioneered. You see the animals standing there, bigger than this room, a couple of them, and it really is worth the price of admission. They have scores of such reconstructed fossils.

Well, however that may be, Jim was doing a lot of collecting, and the only place we had to store things was under the stadium, as you indicated. We do have the small dinosaur museum on campus, and people are continuing to work with that. There have been people at BYU who have recognized the strength and power of having this museum, but also others who have been uncomfortable with it.

There was a movement several years ago to try to get rid of the museum and its collections, which very nearly succeeded, but let me share, if I may, a little anecdote that goes along with that. Wade Miller, a researcher who specializes in mammal evolution from relatively recent periods—Pleistocene and so on—was the director of the museum at that time. He was invited to go to Italy by CES, the Church Education System,

and give a seminar to the LDS youth in Italy on science and religion. After he came back from that seminar, Wade came into my office still searching for words, telling me he was still overwhelmed emotionally with not only the deference and respect, but also with the sense of near worship, of awe, with which he had been treated by the young LDS people in Italy. Now it wasn't just Italians; word had gotten out, so there were young people there from Italy, France, Austria, Switzerland, Spain, and Portugal. Young LDS people from six or seven nations were there to hear a Mormon scientist. Wade said it seemed beyond their comprehension that you could be an active Latter-day Saint and be a scientist. He said they would stand around him almost reverentially. He was somewhat embarrassed by the whole way they were treating him.

K.N.: Were these primarily Mormon students?

D.J.: Oh, these were Mormon students, but beyond that Wade was invited to be on national television. Since then he's been back on Italian television again, and reporters have made a big point of asking how a religious institution can be studying dinosaurs and fossils. Wade has had the wonderful opportunity of speaking on this issue on national Italian television—how do you buy that kind of coverage?

But we consistently downplay the whole connection between science, religion, and the gospel. I had an opportunity a few years ago to speak with one of the European CES directors, and I asked him about the situation our young people face in reconciling science, religion, and the church. He said, "Let's be very clear. Our young people face two choices—they grow up, they go on their missions, they come home, then they make a choice. Do they go to university, or do they stay with the church? Those are seen as mutually exclusive categories." The European, and particularly the Italian, universities, he said, are aggressively atheistic, and anyone who goes to university doesn't usually stay with the church. So he said, "Yes, we lose many of our young people."

We're also losing many in this country. I find myself wondering why this dichotomy—of being forced to choose between science and religion—exists. Certainly, we can find a lot of problems. There really are problems, and I think we ought to be addressing them, but when we're getting such positive publicity—for instance in Italy on national television—it seems to me we're missing a good bet by not doing a little more with that paleontology collection and our other science programs at BYU.

You mentioned that maybe BYU's Zoology program has recently been rated among the top graduate school programs. That is true; we came out fairly well. Chemistry is also a very powerful department. I think the evolutionary biology team at BYU probably does lead in terms of international recognition and the number of non-LDS students coming to BYU to get degrees. Numerous post-doctoral students from other

institutions and countries have been coming to BYU for evolutionary biology programs also—we have them from throughout Latin America, South Africa, Europe. There are frequently visiting professors on sabbaticals who are coming as well as post-docs, as well as people coming for Ph.D. degrees. It has become a strong program. One of our administrators recently said, “It might seem a little strange that the evolutionary biology program at BYU would be one of our best, but we need to let that be known. We have people of faith who are working with that; we need to let that be better known.” So I hope that may happen, but I don’t know how extensively it will.

You raised the question of how free the discussion is at BYU. I wouldn’t want to say that we have open discussion of these topics on campus. It still is a science-versus-religion thing for too many people. This problem got pushed to a head in 1992.

President Rex Lee indicated that he was getting weary of explaining to people what the church’s official documents really say about evolution, so he requested that a packet of authoritative materials be placed in the library. At an upcoming “open forum” where anyone could ask him questions about campus matters, he planned to have a student ask him about church and evolution. He planned to then notify the campus community about the collection of materials in the library and, thus, spare himself considerable future time and energy. Such a packet was, in fact, prepared, containing only statements from either the presidents of the church or the entire First Presidency, but after President Lee’s announcement, certain campus parties registered concern that the anti-science sentiments of certain apostles had not been included in the library materials. So a small committee was formed to consider the matter, and eventually a packet of materials was presented, with an appropriate explanatory cover letter, to our Board of Trustees in the summer of 1992. The Board at that time consisted of the entire First Presidency, seven of the Twelve, and a few other persons. They approved the packet as representing the official position of the church.¹

The packet includes five items: 1) the cover letter indicating that the church has addressed the origin of man but not the origin of species and that only the First Presidency can make pronouncements of official doctrine or positions; 2) the oft-quoted November 1909 First Presidency “Origin of Man” statement with its anti-evolutionary sentiments; 3) a brief excerpt from that same First Presidency’s 1910 Christmas message, indicating that our religion is not hostile to real science and that “that which is demonstrated, we accept with joy”; 4) the First Presidency’s

1. This decision was reiterated to the university in March of 2002.

"Mormon View of Evolution," issued during the famous Scopes trial of 1925, which consists entirely of excerpted paragraphs from the 1909 statement but with all the anti-evolutionary sentiment deleted; 5) the "Evolution" entry from the Encyclopedia of Mormonism, into which the First Presidency had considerable input and for which they furnished excerpts from their official minutes of 1931.

Personally, I add to these five documents another two of comparable status: 1) the April 1910 responses to questions addressed to the First Presidency after the 1909 statement, and 2) President Joseph F. Smith's editorial of April 1911, indicating that, although he has personal concerns with evolution, the church itself has no philosophy on the matter. The first of the two documents does address the origin of man, giving three options, not one of which includes the literal reading of scripture. The three possibilities, for those not familiar with that literature, are: a) evolution of man by natural processes under God's direction, b) transplantation from another sphere, and c) having been "born here in mortality as other mortals have been." This 1910 document is the last and most explicit, direct statement on the subject traceable to a First Presidency—and in this case, the same Presidency that issued the 1909 statement in the first place.

All faculty members at BYU were asked, through their deans, to make the packet available to students whenever the question of evolution arises. This has not always been done, but it has greatly reduced, in general, the previous selective quoting of different brethren. But, finally, we do not have open discussion of the topic on campus. It is a matter confined to individual classrooms.

K.N.: It sounds as if the situation at BYU is a little less polarized, at least, than I had thought, but my perception is that the drift in the church has been toward a creationist interpretation of the scriptures, which seems a little strange to me, given Mormonism's materialist theology—God has a physical body and creation really means organizing preexisting matter. In that sense, shouldn't Mormonism be particularly unthreatened by organic evolution?

I'm really concerned that we are losing the best and brightest of the generation coming up. You talked about the students in Italy and Europe who were thirsting for discussion of these issues and how rare it is for them to get that. My oldest son started his college career at Case Western Reserve University, which is probably the premier scientific technical school in Ohio, and he was at the time kind of chafing in his church involvement. I unwisely told him I would give him financial support if he went to Institute. (I should have known exercising control or dominion or compulsion over the souls of the children of men is not the way to go.) Anyway, the institute teacher was talking about the scriptural account of

creation in very narrow terms, and the question was raised in the class, "What about the dinosaurs?" and he said, "Ah, that's a good question. I've thought a lot about that, and I think I've come up with something that resolves that quite neatly." Of course the class leaned forward; they were all eager to hear it. Remember these were sophisticated science students, and he said, "You see, the dinosaurs couldn't fit on the ark."

D.J.: Well, there you have it!

K.N.: Well, that's what the teacher thought. You know, the class sat in stunned silence. My son said they were incredulous, but apparently the teacher interpreted that as having solved the issue, so he went on with his lesson plan. Sometimes when you ask for bread, you know, you get a stone. When my son recounted this to me, he said, "Dad, I don't think this institute experience is having quite the effect on me that you planned." So how do we salvage this upcoming generation of students, as both scholars and faithful members of the church, when their encounters with the official church border on stubborn irrationalism and even downright silliness?

D.J.: You ask a difficult question. Of course, that's why you bring it up. I think probably a classic example of that would be the current lesson manual featuring Joseph F. Smith. Many here will have undoubtedly run into lesson number 37, which has to do with our being the sons and daughters of God. It builds its entire presentation around the November 1909 First Presidency statement on the origin of man, but it totally ignores everything else that happened in the Joseph F. Smith administration. I talked with a friend of mine who's a member of that writing committee and said, "You know, you put us in a real bind. We in the sciences first of all have to try to reconcile the gospel with demonstrable realities in the sciences, but now you've put us in a position where we have to reconcile Joseph F. Smith with the present church. It makes this even more difficult to do—and to try to defend you as a writing committee—when it is obvious to our students that you have not been honest with the Joseph F. Smith materials."

He said, "Oh my, I'm afraid we just didn't bring ourselves up to speed on Joseph F. Smith and science," and I had to say, "Well yes, that's a nice statement, but what will we do about it in the future?" I had heard rumors that the next manual would be excerpts from John Taylor, and I had great concerns that they might use a passage from John Taylor wherein he says that new species cannot be generated. I pointed out to my friend that we've been making species since about 1926 or 1927. In that same statement—and this never gets quoted by the anti-science writers—President Taylor said that chemical elements cannot change from one to another. So I said, "You don't go to Hiroshima and tell people the atom can't be split and

made into new kinds of atoms, because it jolly well can. President Taylor was trying to say that there are eternal laws that do not change, and unfortunately he picked a couple of bad examples, but if you're going to do the manual on John Taylor, please don't put in those passages, because you're just going to further complicate the credibility of both the writing committee and a prophet of the church, and I don't think we need to get into that."

He said, "Well, the manual is not going to be on John Taylor." He wouldn't tell me what it was going to be. The church tries to keep that very, very quiet so people don't write all sorts of "supplementary materials" about how to explain what so-and-so said. I can understand that. I'm sympathetic with that, and I don't know what the manual will be, and I just hope it doesn't provoke these kinds of questions.²

But it does put us in a real bind. One thing I have learned over the years is how extremely fragile religious faith can be for many people and how absolutely firecracker volatile it can be for others. Sometimes it's the tiniest little thing that will trigger reactions. I had a student come to me one day. He said, "I went to a fireside you gave three months ago on evolution and Mormonism, and I've finally gotten back to the point where I can pray again." I said, "Well, what was the problem?" He said, "You read that letter from President David O. McKay that said the church had no official position on evolution. I could not imagine a real prophet of God ever saying that, and I haven't been able to pray since because of that statement." How unbelievably fragile. I wonder what has gone on in this young man's background to make it quite that way, but he's not alone, and I've certainly seen others like him since.

So how do we work with students at BYU? We try to work with them in classes, sensitively, openly, honestly, and I try to make clear to them first that the one thing I will not do is lie to them if I can possibly help it. "If there's a topic of controversy here," I say, "I want to make sure that you know everything substantive that's been said on the issue, and I personally don't have any problem at all with divergent statements because it means there's not really a definitive position out there. It's the ones who say there is a position who have to start selecting and choosing their sources." Then, in addition, we spend a lot of time in the office just talking to people individually, trying to help them through some of these questions.

There has, indeed, been a drift in the church toward creationism. And creationism itself as it is generally used in American society is completely incompatible with basic Mormon theology. We won't take the time here to explore that, but it is just incompatible. People seem to think, "I believe in creation, so therefore I am a creationist." I have to ask,

2. The next manual featured President Harold B. Lee.

“If you live in a democracy, does that make you a Democrat? We live in a republic; does that make us all Republicans? You’re clearly an adult, does that make you an adulterer?” Believe me, you can believe in creation without being a creationist. Creationism is a very, very precise theological position that is absolutely incompatible with Mormonism.

You mentioned dinosaurs on the ark. . .

K.N.—Not on the ark.

D.J.: Creationists have had a lot of problems with what to do about the ark and have pointed out that the Bible says that nothing survived other than what was on the ark, but they have tried to make what was in the water an exception to that, not recognizing that if you have all the sedimentary material that makes up the present strata suspended in the water, which is what they argue, you really have a muddy soup in which virtually no fish and no sea life could live.

So there are various games the creationists play, but the one I like best is the recent publication, *Noah’s Ark: a Feasibility Study*, by a John Woodmorappe. He’s done some things that I think may be of interest here. The publication is advertised as the answer to all the objections about Noah’s ark without invoking anything supernatural at all. Well, that’s wonderful—that’s even in the preface—but as you read the book, you realize that every other page he’s invoking supernatural this, that, and the other.

Still, it’s interesting what he’s done with dinosaurs. He and other people have suggested that dinosaurs did indeed survive the flood, that they were taken on the ark, that they were taken on as little babies (or possibly dwarf species), and that’s why you had to have the clean and the unclean animals. You had to have a few of the clean to feed the dinosaurs and so on. One often finds the argument that the legends of dragons mean that dinosaurs did survive from the ark, and that’s where the whole idea of dragons comes from. Post-Noachian people saw dinosaurs, some of which may even have breathed fire—that’s perfectly acceptable to those folks—which gave rise to the legends of dragons.

I do like one little thing Woodmorappe does. He’s had to totally give up on the historical creationist position that there could be no beneficial mutations and no new species. He thinks that he can put about 8,000 different kinds of organisms on the ark. Then, after they get off the ark, he has God miraculously speed up the mutation and speciation rates to generate new species so that in only a short time following the date the Bible gives us as the date of the flood (2344 B.C.—it’s pretty easy to calculate), we generated all the several million species that are on the planet today from those 8,000 founders. Then God slowed the rates all down again to look like what we have today—this is the book that is not proposing any supernatural events. The dinosaurs got lost in the scramble. I guess the

knights killed them all off or something. Woodmorappe never quite deals with that, but that's his book, the latest position from young-Earth creationism.

K.N.: I'm interested in how you stayed out of trouble or stayed at BYU at all. I work with the *Dialogue* editorial board, and we've been talking about putting out an issue with the ten or twelve most important articles of all time published in *Dialogue*. Almost invariably near the top of everybody's list is "Seers, Savants and Evolution," which you wrote, when, about 1975?

D.J.: 1974.

K.N.: It's one of the most important things *Dialogue's* ever published. I've heard—I think Devery Anderson writes about this in his history of *Dialogue*—that when Ezra Taft Benson heard about the article (I don't know if he was president of the Quorum of the Twelve at the time, but whatever his position), he was flabbergasted that a wacko such as the author could be on the BYU faculty and publish something like this. What kind of flak did you experience, and how have you dealt with that?

D.J.: Well, that's a long history too. President Benson did get disturbed with my presence at BYU. He did get disturbed over my paper "Seers, Savants and Evolution," and apparently, without naming either me or the paper explicitly, denounced both at a BYU fireside. It turned out that he'd never read it, but he had been told about it by some ambitious underlings in the church who will remain unnamed.

Gary Bergera and Ron Priddis, in their book *Brigham Young University: House of Faith*, have a chapter on the issue of evolution at BYU, and they go into a good deal of what went on there. There were attempts to see that I no longer received a check from BYU, but President Oaks headed that off with the help of President Hinckley. And there have been other episodes since. They're probably best left unelaborated.

I have had the support of a good many friends and other faculty members at BYU and of certain administrators who felt that the kinds of things we have been doing have been positive, have been absolutely necessary. Some of them have themselves had young members of their family who had much the same experience that your son has had, and so they have recognized that people must be given the ability to address these issues. I should perhaps relate that when I was recruited to BYU, I indicated in my interview with BYU's vice president that the university did not have a very good reputation in biology among the nation's universities. Even one of my good friends up at Utah State, a biology professor and stake mission president (who subsequently became a mission president), said, "When we get graduate students from BYU, the first thing we do is throw them into the evolution class, so they can learn

what biology is all about." He said, "All they've had is just a mish-mash. They have ideas about biology that are no more organized than confetti at a New Year's party, and we've got to help them get some sort of organization into what they've got in their heads."

So I mentioned this to the vice president at BYU, and I said, "Why don't you have an undergraduate class in evolution?" and he said, "Well, because nobody's ever proposed it." Well, I happened to know that was not an accurate reflection of the situation, but we left it at that. He was recruiting. So I said, "If I were to come here, we'd probably be suggesting one. How would it be considered?" He said, "The same as any other course."

So Dr. Clayton White and I proposed such a course. All new courses at BYU have to be approved by the Board of Trustees—and I will shorten this story—in the end, word came back to us from Harold B. Lee (he was at that time the powerful person in the church hierarchy). He said, "Clearly this course is needed in the curriculum at BYU. Tell those brethren to teach the most demanding and rigorous course of which they are capable. Just don't get on any bandwagon and beat the church with it."

Now by that time we already knew the material that about three years later would go into the paper, "Seers and Savants," so we replied that we didn't see any need to be beating the church with it and did not intend to. We have taught that course steadily ever since 1971—and I see one member here in the audience who was a member of that first class—and over the years, so far as I am aware, we have had two complaints from students to the administration. Both of those have been from students who were rather interested in cultivating a relationship with people upstairs and thought this was a good way to do so. One of them wrote to our president and said, "My grandfather and I have done a pamphlet that clearly sets this whole story straight, and we'd be happy to meet with you, after you have chastised these faculty members here, and show you how God really did things." Our president was not particularly interested in being so instructed, so that sort of died there, but I know of only two such cases.

Our introductory biology course, where students have less background, often generates more negative response. One of the instructors of the course is a former mission president, and he makes certain that his students get a solid exposure to evolution. One of our vice presidents told me he can always tell when that instructor gets to the evolution part of the course, just from the letters he receives from parents. But so far as I know, we've only had those two complaints about the evolution class itself.

Just this last Tuesday morning, our college announced that we were going to completely reorganize the six departments in our college of biological and agricultural sciences. Along with that, the committee has developed a college core of courses. I was gratified to see that these core

courses included the evolution class. So the course will now be required of virtually all the college majors.

K.N.: Our time is fleeing rapidly. Before we quit—and I certainly want to leave time for questions from the audience—I want to talk a little about this book, *Evolution and Mormonism*,³ by Trent Stephens and Jeff Meldrum, who, I guess, are two of your former students and are now at Idaho State University.

D.J.: They're both here this morning.

K.N.: Yes, great. I really enjoyed this book. Duane wrote the preface to it, and I guess you might even say he's its grandfather.

D.J.: The "fossil."

K.N.: Well, the book really piles on the physical evidence supporting organic evolution, including the deluge of data in biogenetics and the array of new fossil discoveries, which put to rest the idea of a missing link, as far as I can tell. Talking about a missing link was a big deal when I was growing up, but I guess the links are no longer missing. What kind of response has this book gotten, positive or negative, to your knowledge?

D.J.: Well, I am aware of many positive responses. I'm aware of a couple negative ones. I see one young entrepreneur has read the book in the last ten days and is already trying to sell a pamphlet here at the Sunstone Symposium to refute it. So it's clearly been seen as significant enough to require a response, though not from any official sources. Trent and Jeff were very, very careful to work through their stake president and have this project carried all the way to the First Presidency, so I don't expect anything negative from official sources at all.

I hope it will be seen positively because it is a positive book. I spoke with one person who's very familiar with many publications from Signature Books, and he said, "In all honesty, that's probably the most faith-promoting book Signature publishes." I find that rather interesting, considering the fact that they've published Wilford Woodruff's journals, and the biography of Rudger Clawson, and other similar works. So I certainly know of many, many positive, good reports about the book and only a couple of negative.

K.N.: Let's take some questions from the audience.

Audience Member: What will be the challenges for Mormonism in the

3. Trent D. Stephens and D. Jeffrey Meldrum, *Evolution and Mormonism: A Quest for Understanding* (Salt Lake City: Signature Books, 2001).

coming century? All we've done here today is stir up fossils; what about the science of the coming century?

D.J.: Well, there will be more from the fossils, I'm pretty sure of that. The fossil record is getting more and more complete every day. Many people think, as I did, that fossils are something you find out there, which you just have to speculate about and interpret, and it's not that way at all. There's a tremendous amount of data that can be derived paleontologically about past climates and so on, which will challenge many of the concepts that our people have traditionally taught or believed.

But I also see such things as the human cloning controversy, stem cells, debates over resource management and human populations, and continuing brain research as generating significant challenges. I see major fundamental challenges in our still infantile, but already incredible, ability to localize specific behavioral traits to precise areas in the brain and to relate them to specific genes. This rather flies in the face of the concepts of spirit/physical body relationships the Mormons have taught historically, that your body is just kind of a shell. It's like your house; you can live in it, but your personality is totally that of the spirit. Your body is molded to look as it does by your spirit, your personality is that of the spirit, and so on. Clearly we're running into great difficulty as more data accrue, for instance, on mental illnesses and ways to treat these illnesses. Our best ways to treat many of them have certainly been either with surgery or with drug therapy. Those both involve fundamentally materialistic ways of looking at mental illness, and I think that will present considerable challenges to the way that Mormons historically have looked at what a human being is and what humanness really means.

Audience member: How do you live with the lack of morality in science, especially in such cases as the manipulation of DNA?

D.J.: Scientists will argue that science is amoral; there will be those persons who argue that it's immoral. Those are two different things. Historically, scientists have said that they're in the business of generating knowledge rather than of determining how that knowledge should be put to use. They, therefore, try to wash their hands of any immoral uses of their knowledge. That kind of naiveté was forever shattered August 6, 1945, when the bomb exploded over Hiroshima.

Many scientists have struggled with that ever since, and we're caught. Knowledge always has two sides to it—it can be used, it can be abused. With the manipulation of DNA, we're going to be able to do some wonderful, wonderful things to better the quality of human life, but we are unquestionably opening up the potential for deep abuse. Now scientists in general, very frankly, do not have the background, the training, the expertise, or the interest to really engage very meaningfully

in deciding what regulations we ought to put on those kinds of things. They will argue, as they're doing with stem cells, that you are consigning many people to death if you do not permit stem cell research. The response to that is, yes, but you're killing embryos in the process.

President Bush, two days ago, tried to take the middle course to permit research only on sixty-some cell lines where the question of life and death has already been decided. That's not likely to be a very workable conclusion. It's a purely political one, even though President Bush insists it's not. Whom are we kidding?

So, where should the moral fiber for society come from? It won't come from the scientists, because science can't generate morals. It can tell you the implications of certain kinds of practices relating to morals, but it can't really generate guiding moral principles. This is why it is of great concern to me that religious organizations get more actively involved in this entire discussion and debate, but they cannot do it by remaining aloof from the arena of discussion and merely pontificating. That goes nowhere. The Pope has learned this over the years, and so now he puts out formal encyclicals. His recent one on faith and reason is a masterpiece, but the Pope does have a background in philosophy, so he understands a lot of the problems, and he doesn't argue, as we're prone to do in the LDS church, that material and information gained through faith are superior to anything gained through reason. He takes a really much more balanced approach, and even goes so far as to say that it is reason which keeps faith from becoming superstition.

Now, it seems to me, that religions can do three things with science. They can ignore it, which is what many of our own people do. They can combat it, which is what young-Earth creationists do. Or they can engage it and strive for a meaningful synthesis of interests from a variety of perspectives. But you can engage in that synthesis only if you have built a background that enables you to do so. In all honesty, and it is to be regretted, we in Mormonism have not built a foundation from which we can meaningfully contribute.

A classic case occurred in the recent controversy over cloning. The National Bioethics Advisory Committee sought to collect sentiments from America's religions. These included Native American religions; they included Islam, Buddhism, Judaism, and many varieties of Christianity, but we as a church opted to say nothing that could be included. Even though the head of the polling committee was an LDS person, the publication appeared with input from a wide variety of religions, but nothing from Mormonism. We became, in that sense, irrelevant to the national discussion on the ethics of cloning, and I think that means we have some work to do. I'm sorry I've given a very long answer that wasn't really an answer.

Audience member: My follow-up question is, how do we get away from this ivory tower suppression? In 1936 at Ricks, we were studying organic

evolution in our zoology and geology classes. We were far enough away from the micro-management of Salt Lake City that that was possible. I'm wondering if our Mormon websites and list-serves such as MormonL wouldn't be the way that we can disseminate information and perspective to these young people you mentioned who are desperate to try to find some accommodation between their religion and science.

D.J.: Excellent question. There are many websites available. I am not an expert on the internet, so I can't tell you about very many. EyringL has certainly been the granddaddy, I think, of discussions on science and Mormonism on the internet. There are a good many others. As with all other things on the internet, you find a lot of assertions that are not founded substantially on the relevant data, so one has to sort through that as well.

We have tried two or three times to put together organizations of LDS scientists to help with some of these issues, but interest flagged fairly quickly because there's this feeling of always having to swim upstream when dealing with these issues in the church. I wish I had a good answer. I just don't. I think that books such as Jeff and Trent's *Evolution and Mormonism* are going to be a critical start, but I don't know if they'll be enough to turn the current at all. In the last fifty years, Mormonism has taken on a very evident public stance of anti-intellectualism, anti-science; there has been a real shift since 1954. That has, I think, worked to our detriment.

Audience member: You mentioned the bias of the curriculum writers for the Sunday School, Relief Society, and Priesthood manuals on Joseph F. Smith. It seems to me this conveys a pervasive bias in the seminaries and to some extent the institute programs of the church, which are influencing so much of our young people's thought. I know the seminary student manuals and the teacher curriculum clearly have a bias against organic evolution, even though we have a number of neutrality statements about the church's taking no position. It seems to me that, as a science department at BYU, you would help yourselves if you'd write a letter that asked for, at least, neutrality.

D.J.: There are some institutional problems with BYU faculty putting out a letter to the brethren. A letter has to follow institutional expectations and go through all the channels between us and the brethren, and sometimes those channels have worked well, and sometimes not. Our administrators are burdened with a great many other issues as well—dress codes and raising money, for example—and sometimes for various reasons their agendas do not seem to find time for these sorts of issues. I've personally been a bit hardened by experience. I also teach a course on the history of philosophy and biology, and we do a good deal with LDS history and doctrine in that as well. I've had two students now who have

been training to be seminary teachers, both of whom have told me that in their classes it has been drilled into them that they are not to use the scriptures as a battering ram to try to recruit students to their own particular views of the gospel. Rather they should introduce the scriptures as a place where individuals can go to try to find answers to their personal questions. I don't know that that has become pervasive yet in the system. We still continually hear about LDS seminary and institute teachers giving answers to their students much like the one Keith's son got. The Old Testament manual, for instance, has quoted Seventh-Day Adventist scientists—it quotes young-Earth creationist ideas as though these were good solid science and compatible with Mormon doctrine. I'm just not sure how effectively to address this. There are people who are trying.

Audience member: This is another follow up on the last question. I'm a retired high school biology teacher, and when I started in the 50s, I got a little bit of flak from the seminary teachers on evolution, but not much, and I thought that by the time I retired, we would have won the battle or war or whatever. Just the opposite happened. As this last gentleman said, it was in the 70s and 80s—I retired in '88—when the seminary teachers began attacking us for teaching evolution in biology, and that was a big disappointment. It's been one of the biggest disappointments of my career that we haven't won the battle in the minds of members of the church, not even in those of the bright students. It's gone the other way.

D.J.: That has been a common problem. I do know of schools where there's a regular animosity between seminary and science teachers. Others seem to work very, very well together. I know of some places where the science teachers have just gone over and sat down with the seminary people and have said, "Let's work together on this." Sometimes that has worked well, and sometimes it hasn't. I would like to say one thing about seminaries, however. Those brethren and sisters are very, very dedicated people, and I think we can thank them for the fact that we have not had, in Utah, the waves of attempts to put creationism into the public schools that other states have had. You know, those states and legislatures have been torn apart. Hawaii just got their fight resolved a week ago. These conflicts have taken place in Iowa and Kansas and Pennsylvania and Michigan and Wisconsin, and states all over the country. We've had none of it in Utah—no significant suggestion that we put creationism into the science classrooms. It doesn't belong there; it's not science. It could perhaps be brought up in social science classrooms—that would be all right—but certainly not in the science classrooms. Now I think the reason we've not had the pressure here is because our LDS people feel that the seminary system can take care of our children's spiritual concerns; we don't have to be messing around with the curricula of the public schools. Now that can be seen as both good and bad, but I

think it has reduced the level of division that otherwise could have developed in Utah communities, and I think seminaries need to be credited and given appreciation for that, though maybe that's a back-handed compliment. They've done some good things, some bad things, but all institutions, including science, do good things and bad things.

K.N.: A profoundly safe closing statement. Thank you very much, Dr. Jeffery.