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Source: *The Truth, The Way, The Life: An Elementary Treatise on Theology (2nd Edition)*

Editor(s): John W. Welch

Published: Provo, UT: BYU Studies, 1996

Page(s): 633–651



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Science: The Universe, Creation, and Evolution

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William E. Evenson

In *The Truth, The Way, The Life*, Roberts grounds his theological and religious views upon a carefully laid metaphysical framework. He develops natural philosophy, using the scientific knowledge and philosophical understanding available to all plus the additional advantage provided by religion and modern revelation. He describes a physical universe in which God and the gods are able to do their work, in which the earth was created, and in which life came to the earth. He then interprets the scriptures and teachings of the Prophet Joseph Smith, setting forth a remarkably comprehensive and systematic picture of relations between human and divine beings, of God's creations, the place of human beings therein, and the way to joy and happiness provided by the gospel of Jesus Christ.

Science and Religion

Roberts shows in this work that he takes science very seriously, demonstrating a view of truth that allows for multiple sources while expecting logical consistency among truths that come from different sources. He uses science to clarify religious ideas, and he requires religious and theological statements to be consistent with scientific knowledge.

Nevertheless, he gives precedence to insights from revelation over those from science or philosophy,¹ and he is selective in his use of statements by scientists. For example, Roberts is critical of Herbert Spencer's definition of truth in chapter 1, but he relies heavily upon Spencer's "truths" throughout the rest of the work. Roberts's relative priority for

science as compared with revelation is illustrated by a comment in chapter 10 on the purpose of the earth:

Here I cannot refrain from adding the voice of revelation, the “more sure word of prophecy” (2 Pet. 1:19) to these tentative admissions of scientists, their more or less weak “probabilities,” “possibilities,” and their tentative “perhapses” in relation to the habitancy of other worlds and world systems than our own. The Prophet of the New Dispensation brought forth and developed more or less this “sure word of prophecy” upon the subject in the Mosaic fragment—book of Moses, chapter 1. (99)

Perhaps most important for understanding Roberts’s attitude toward science is his clear and deep commitment to the insights of modern revelation through the Prophet Joseph Smith. He emphasizes repeatedly that Joseph Smith correctly understood fundamental issues, whereas no one from the world of science or philosophy has done so. For example, in chapter 1 he writes:

Again, in 1833, but unknown to Mr. John W. Draper, who in 1875 declared that no satisfactory definition of truth had yet been written; and before either Mr. Spencer or Mr. Fiske had written their definitions of truth, there had another voice spoken upon this subject which claimed for itself a divine authority to speak upon this and kindred questions, and this is what it said of truth: “Truth is knowledge of things as they are, and as they were, and as they are to come” (D&C 93:24). If this is spoken with a divine sanction, under inspiration of God, then it ought to be the completest definition of truth extant among men. I hold it to be so. It deals with truth under several aspects: relative truth; absolute truth; and truth in the “becoming” or unfolding; and truth in the sum. (22)

Joseph Smith’s revelations take priority in other areas, including the indestructibility of matter. After citing modern revelation, Roberts says:

This somewhat antedates Dr. Millikan’s remark (1928) that Lord Kelvin (an astronomer of the 19th century . . .) would be shocked “if he should hear the modern astronomers talking about the stars radiating away their mass through the mere act of giving off light and heat! And yet this is now orthodox astronomy.” (47)

Examples of respect for the revelations of Joseph Smith may be found throughout the work, on the reign of law (ch. 6), the relationship of mind and matter, the existence of “that which acts and that which is acted upon” (ch. 7), the purpose of the earth (ch. 10), the creation (ch. 22), and the eternal existence of humans and the nature of intelligences (ch. 26). In chapter 22, Roberts emphasizes the divine source of

Joseph Smith's understanding. There Roberts contrasts the Prophet's insights on the Creation with those of learned scientists:

Let it be remembered that these wonderful statements were made by a confessedly unlearned youth, unschooled in the sciences, even of his time, unlearned in the lore of astronomy, and the speculations as to origins; and it is not until recent development that modern science and modern instruments of science have brought to light such fullness of knowledge concerning the universe and the extent of it as is here proclaimed by the Prophet of the new age of revelation in the Dispensation of the Fullness of Times. That is to say, a knowledge of the immensity of the universe, and the notion of worlds passing away and others created to take their place, or the recreation of those which had passed away coupled with the notion, already referred to, that all this obtains under a reign of law in the universe, holding that the destructive forces—so called—as well as the creative forces in the universe are under the dominion of law, which will conserve and perpetuate through eternity the orderly cosmos. (218)

Taking science seriously but giving definite priority to insights from revelation leads Roberts to view the world on three separate lines of evidence: revelation, tradition, and the works of nature (ch. 12). Roberts simply assumes that these three lines of inquiry are mutually consistent, and he apparently sees no need to probe the knotty problems arising from the differing standards of evidence and methods of interpretation that are inherent in the three approaches.

Readers should be alert to Roberts's approach to ideas. It is rational in the sense that it takes thought and ideas very seriously, but it is not strictly rationalist because Roberts believes deeply in divine revelation and in human abilities to interpret that revelation both with the mind and with the help of personal inspiration. In fact, Roberts's approach in this work is very similar to what some non-LDS thinkers attempted in the nineteenth century, namely the development of a "natural theology." One of his sources, William Paley's *Natural Theology* (1802, American edition 1854), may have served as a model for parts of *TWL*. Roberts is doing natural theology for an LDS audience, perhaps with the hope that he can also show non-LDS thinkers that the LDS framework allows one to carry off this program more satisfactorily than others have been able to do.

Both strengths and weaknesses can be found in any program that, like Roberts's, seeks to interpret scriptures and religious teachings in terms of current science and to comprehend science in terms of current religious understanding. This effort to integrate has great value because of its potential to yield lasting insights, to provide experience in pursuing deep understanding of large and fundamental issues, and

to focus attention on matters of cosmic and eternal significance. Nevertheless, *TWL* provides another reminder that one can only be very tentative in drawing inferences from such efforts and that one must clearly distinguish conclusions dependent on specific scientific theories or theological assumptions and those consistent with generally established facts. Roberts is not generally as cautious as is warranted, but rather is given to sweeping generalizations and strong assertions.²

Roberts viewed science as inevitably supporting and validating faith, but today's science, still tentative with respect to many fundamental questions, is essentially neutral as to matters of faith. Those who use scientific evidence to support either faith or a speculative philosophy that seeks to justify faith (as Roberts does in much of *TWL*) may find the same scientific evidence used by others to challenge faith. Science has a large impact on both our conditions of life and our world view, and it must be taken seriously. Nonetheless, its relationship to faith depends on establishing faith on an independent foundation.

With faith, one sees everywhere evidence of God's hand in creation, as Alma declared to Korihor: "All things denote there is a God; yea, even the earth, and all things that are upon the face of it, yea, and its motion, yea, and also all the planets which move in their regular form do witness that there is a Supreme Creator" (Alma 30:44). Without faith, on the other hand, one may see the natural beauty of the world, one may wonder about the purpose of it and whether there is a creator, but one cannot see any sure evidence for God—even in the majesty of his creations—without faith to guide the vision. Roberts's use of science suggests that he realized that people of faith need science to guide their interpretations of the revelations in order to clothe those pronouncements with concreteness. Only by integrating human knowledge with revelation to the best extent possible can people avoid building vain theories that do not relate to reality.

The Physical Universe

In chapters 3, 4, and 5, Roberts discusses both the physical universe in which God acts and the scientific knowledge of that universe. Readers will find these chapters dated, both as to data and concepts. Roberts includes specific data about the properties of the solar system and the star systems, but any current textbook of astronomy, such as those cited in the footnotes, will provide contemporary information. Roberts also uses scientific concepts to interpret the data and relevant scriptures and prophetic teachings. In light of the changes in scientific knowledge that have occurred since he wrote, it is ironic that Roberts

closes chapter 5 with the statement that this scientific information is “of unquestioned authority” (58).

Nevertheless, as Roberts sets forth his view of the physical universe, beginning with the notions of time, space, matter, and force (ch. 3), and then moving to the solar system (ch. 4) and the star (or sidereal) system (ch. 5), his central purpose is only to demonstrate the greatness of God’s creations. Changes in the scientific understanding of the properties of the planets, for example, detract not at all from this central point. A discussion of the planets and stars based on more current information³ would carry and perhaps extend the same affirmation of the beauty and grandeur of creation for anyone coming from the attitude of faith that Elder Roberts exhibited. And undoubtedly, any current exposition of astronomy and cosmology will itself seem dated in twenty years: scientists are constantly learning more about the specific properties of God’s creations, confident that current facts are good approximations but that interpretations may change in light of additional knowledge in the future.

Roberts puts forward “time, space, matter, and force” as “building stones of knowledge” (ch. 3). Why these? There are several problems here. First, since the formulation of Einstein’s theories of relativity and their validation in observations, scientists can no longer speak of time and space separately and independently, and even matter is inextricably linked with the properties of space-time. This realization means that the measurement of time and space and the properties of matter are always connected to each other, and each influences the other. How one perceives space-time depends on the motion of the observer; matter distorts space-time, and force (which Roberts confuses with energy) is not a clear and useful concept in the microscopic world of quantum mechanics. Are Roberts’s notions, then, the appropriate “building stones of knowledge”? Einstein argued that the solution to the confusion over the interpretation of quantum mechanics was to be found by developing new concepts for microscopic systems to replace the ideas of position and momentum. While he acknowledged that he could not see how to proceed with this effort, one is left to wonder if more appropriate “building stones of knowledge” are as yet undiscovered.⁴

Roberts writes of “time” as if it flows eternally and uniformly from infinity to infinity (ch. 3). He seeks to deduce the properties of “time” and thereby arrive at “necessary truths”—that is, to show that time could not be other than he has described. Specifically, he says that “it is impossible to postulate to consciousness the contrary, viz. that duration, future, or past has limitations. This brings us to what in philosophy is

held to be ‘a necessary truth’” (39). Similarly, Roberts writes of space as necessarily infinite in extent.

General relativity theory, however, contemplates a curved space-time, perhaps curved upon itself in such a way that there is no boundary. So space-time could be of finite extent, like the surface of a sphere: having finite area, but no boundaries. Then time and space would not be limitless. Moreover, current big bang cosmology postulates a beginning event of space-time for our universe. But other universes, not accessible to us, may be possible. Regardless, strong observational evidence supports some form of big bang cosmology.

How can one, then, think of time as an eternal on-rolling, such as Roberts describes, even in a single reference frame or for a single observer, if there may have been a beginning and possibly will be an end to time? Roberts conceives space and time in terms of a standard plane Euclidean geometry, and he makes the mistake, more than a decade after the discovery of the theory of general relativity, of assuming that this is the only conceivable space-time geometry. But more general geometries, including those now used to describe curved space-times, have been studied by mathematicians since the late nineteenth century, and these mathematical constructs have been applied by physicists to understand the space-time of the universe since 1916. In addition, it is possible that the known world of space and time has more dimensions than four. People are used to thinking of three-dimensional space plus one more dimension for time, but modern physics at least holds open the possibility, even likelihood, of a higher dimensional space-time. Roberts seems to assume that three-dimensional space is necessary and that anything else is inconceivable.⁵

Present concepts of space-time and big bang cosmology may be replaced in the future by very different views. These present concepts, however, remind us that Roberts takes a far too restricted view when reasoning toward “necessary truths.” We should be careful, as we now wish Roberts had been, when we reason about the nature of the ultimate reality of the physical universe.

Roberts’s ideas run into additional problems with relativity theories in connection with the concepts of “matter” and “energy.” He confuses force and energy, which are distinct physical concepts measured in different units. Energy is the more fundamental of the two concepts by current scientific understanding. Moreover, the transformability of matter and energy into one another has been well established since Einstein proposed his famous equation, $E = mc^2$, in 1905. Matter and energy are just two forms of the same thing. Roberts knows of this result of relativity, but he dismisses it as unimportant, missing the

point when he says, “Let it be noted that the definite amount of matter has not been annihilated, but merely changed to something else, namely into ‘energy’” (46). While he is right to say that “matter has not been dissolved into ‘nothing,’” he is not correct to say that “the old truth on the conservation of matter and force has not in reality been changed” (46).

In fact, it is not appropriate to speak of matter and energy as separate basic building blocks of the universe; therefore, Roberts’s reasoning toward necessary truths about these building blocks is invalid. He relies on Professor Duncan’s 1905-vintage distinction between matter and non-matter (42), a distinction which founders when one learns that “light, heat, electricity and magnetism”—“forms of non-matter” (42)—also possess mass. And his use of “Haeckel’s Law of Substance” as an important scientific generalization will be unfamiliar to modern students of science (44). This obsolete “law” is inconsistent with the principles of relativity and quantum mechanics, being subject to the difficulties discussed above regarding a limited conception of space-time.

While specific scientific anachronisms or errors are not particularly troubling and, indeed, may not significantly decrease the force of the central point that Roberts seeks to establish by their use, problems of greater concern arise in using science to support some of his broad philosophical positions. His discussion of a monistic versus a pluralistic universe in chapter 9 is a case in point. This is a philosophical issue that goes back to the ancient Greeks. The question is whether all phenomena can be referred “to a single, ultimate, constituent or agent” (85) expressed in a nearly infinite variety of forms and combinations (monism), or whether more than one ultimate constituent or agent is necessary (dualism or pluralism). One wonders why Roberts gives so much attention to this issue in *TWL*. His concern may be related to the nineteenth-century debate over mechanism versus vitalism: are living things simply physical entities or is there a nonphysical spirit that animates life? Since Roberts focuses directly in chapter 9 on the question of the spirit in humans and the source of intelligence, this issue seems to be his central concern. Furthermore, he characterizes dualism in terms of two fundamental elements: spirit and matter. He says, “The phase of this matter, however, which concerns us chiefly is with reference to mind and intelligence outside of our own world” (87). He then goes on to discuss the nature of God, the gods, and the necessary union of spirit and matter, thus combating sectarian notions of monism which arise from the oneness of God and the unity of nature.

In addressing the issue of monism versus pluralism, Roberts seems to adopt a predetermined philosophical position based on his understanding of the scriptures. However, he tries to argue the inevitability of dualism or pluralism from atomic theory, starting from a naive description of the relevant scientific concepts and continuing with, at best, an incomplete argument. His use of science in this case might be viewed as simply an attempt to provide a plausibility argument, but Roberts is not always careful about the tentativeness of the arguments he makes, and he actually claims that reason has led him to “necessary truths” about the universe.

Roberts uses the divisibility of the atom into positive and negative charges as evidence for a pluralistic universe. In addition, he argues that atomic structure supports a division of things into those that act and those acted upon:

All the new knowledge, however, respecting the atom and all that comes of it, including resolving it into electrons, leaves us with the fact that it has within it something which “acts,” and something which is “acted upon”; a seemingly necessary positive and negative substance in action and reaction out of which things proceed an atom; an aggregation of atoms, a world; or a universe of worlds. (86)

Roberts does not identify the active substance in the atom or that which is acted upon. Furthermore, he does not make clear the relevance of this simplistic discussion of atomic theory to the pluralism of the universe. In light of modern science, the argument about atomic theory seems almost irrelevant to dualism versus monism. The fact of positive and negative charges in atoms does not mean that more than one kind of fundamental entity exists in the universe, which is thereby dualistic. Instead, these charges might be viewed as two manifestations of the same fundamental property.

Scientists would not claim that their ability to calculate atomic properties in remarkable detail and accuracy establishes the reality of their model of the microscopic world. And, especially, they would not claim that these successful scientific theories, in turn, clarify the philosophical issues. In fact, in this case as in some others, Roberts has apparently worked out the answer before asking the question. He accepts first the answer he believes comes from revealed sources. But instead of arguing that the revelations teach the concept at issue, he casts the question in a form in which he believes science will support the predetermined answer. This is the equivalent of proof-texting using scientific evidence rather than scriptures. It is a risky procedure, given the inevitable evolution of scientific understanding. It may also

appear to elevate science to some special position as a source for truth, when a wiser course would be to keep clearly before the reader the tentativeness of knowledge both of science and of interpretations of scriptures.

In general, Roberts's approach to religion and science exhibits a deep need to integrate religion and well-established scientific knowledge, and he expends much effort to make rational sense of various religious and scientific ideas. Making sense of science was much easier at the turn of the century, however, than it is today. Much of modern quantum mechanics (proposed in 1926), special relativity (1905), and general relativity (1916) can be interpreted only in ways that seem strange to everyday notions of time, space, and matter. Therefore, these theories, while stunningly successful in predicting physical phenomena, do not admit the kind of commonsense interpretation Roberts seems to seek. Their interpretation is, in fact, generally counterintuitive with respect to commonsense ideas of the world. For example, relativity teaches that the measured sizes of objects and durations of events depend on the speed of the person observing the object or event. These effects lead to an intrinsic connection between matter and energy. All these effects are very different from what people think they know from everyday experience, yet such effects are validated in great detail by precise experiments.

Quantum mechanics is even stranger than relativity. Quantum mechanics postulates that all microscopic objects in the universe, like electrons, are connected in some way, instantaneously, across the vast reaches of space. This connection is necessary to satisfy symmetry requirements on the quantum mechanical wave function. The symmetry requirements underlie all of chemistry and are well validated.

Because these effects have no counterpart in ordinary experience, scientists do not really try to make simple sense either of the microscopic atomic world or of the world of very rapidly moving and massive objects in the cosmos. Instead, we have beautiful and consistent mathematical theories, and we view these domains almost exclusively through the mathematical abstractions of those theories. We have needed to develop new intuitions that either seem inconsistent with our everyday notions or that are outside our ordinary experience and considerations. So when Roberts argues that the universe must behave in particular ways, that "necessary truths" follow from pure reason (chs. 3 and 9, for example), he comes into immediate conflict with important fundamental theories of modern science that have been confirmed meticulously by experiments during the last sixty years.

From Humans to the Gods

Roberts gives considerable attention in *TWL* to reasoning from what we know in order to deduce answers to deep questions. He argues both syllogistically (reasoning from what we know) and analogically (for example, using analogies with human communication to argue the plausibility of divine revelation). Unfortunately, modern science since the early 1900s has opened many possibilities in the nature of the universe that Roberts considered inconceivable. With these constraints removed, Roberts's argument is vulnerable. Even his analogical arguments have difficulties due to new insights into constraints on very fast or very distant activities.

In chapter 10, Roberts elaborates a theme introduced in chapter 9 and continued later in chapters 12 and 32, namely, the theory that one can extrapolate from information about the best of humanity to reveal the likely state of the gods or other "higher intelligences." Given his own checkered political career, it is ironic that he expresses this remarkable view in terms of the wisdom of political leaders:

By choosing the most highly developed intelligences of the community as representatives, and bringing them together in councils of various kinds, parliaments, congresses, cabinets, courts, and other national assemblies—from these, nations and the world finally get expressed the wisest and therefore the best judgments as to what ought to obtain as public policies and provide for the best securities for the freedom of men and the welfare of nations. From the deliberations of such bodies rise the wisest and best systems of governments and laws. (88)

He explicitly assumes that greater intelligence entails greater moral development:

Higher intellectual life and higher states of civilization produced exalted moral feelings, resulting in higher states of righteousness and love of truth and sympathy for fellow men, leading to desire for the uplift of those less highly developed, and thus is produced among our own earth-people a desire to restrain the strong and vicious by laws and group agencies under forms of governments, and to uplift and better the conditions of the lowly and undeveloped peoples. (97)

I am puzzled about the basis for Roberts's faith that more advanced civilizations will be more humane and altruistic. The reader has an advantage over Roberts, having a perspective on the German nation shortly after the writing of *TWL*. Germany was one of the nations most advanced in knowledge at the time, yet within a few years German

Nazis perpetrated some of the world's greatest atrocities. The same could be said of ancient Egypt or China. History has not borne out the claim that civilizations more advanced in knowledge will be more humane and altruistic.

Roberts viewed the relationship between humans and the gods as one of natural development. He referred to the gods as higher intelligences from more advanced worlds (chs. 9, 10, 12, and 32). While this view is consistent with the LDS belief that humans are literally the spirit children of God, Roberts did not address the present gap between the human and the divine: Are resurrection and immortality possible simply through natural development? Or is some form of divine intervention or setting in motion necessary? If not, how is the Atonement valuable, and why is it necessary? The reader may want to consider how these views on higher intelligences relate to what Roberts teaches later, where he is very clear about the necessity of the Atonement in the Plan of Salvation.⁶

Chapter 10 also deals broadly with cosmology and the existence and nature of extraterrestrial life, Roberts once again seeking to extrapolate from what makes this world purposeful to us now and thereby conclude what makes all worlds purposeful. He concludes that life—human life—is the only object of the existence of the physical universe, and that the earth without humans would be “stale, flat, unprofitable, and meaningless” (95). But was the earth meaningless during the long preparation period before humans entered it? Roberts appears to believe that human beings waiting in the wings are sufficient potential to give purpose to the earth. This is a case where Roberts seems to assume the answers before asking the questions—answers which determine the form of the questions he asks. He accepts from science and scripture that there was an extensive preparation period for life on earth and he uses scientific evidence to support his view of the purpose of the universe. However, he has not used science entirely fairly in this case. If science is to shed light on the purpose of the universe or any other religious issue, it must be used in accordance with its rules of procedure, which are designed to protect us from misleading ourselves in the name of science. The methods of science require that questions be asked of nature without preconditions on what scientific answers may be acceptable. One cannot determine the answers in advance and then legitimately claim that science supports the predetermined conclusions.

Chapter 12 deals with revelation, treating it as a matter of intergalactic communication and transport. In this chapter, Roberts also discusses the three lines of support for theology (revelation, tradition,

and the works of nature) to argue that the advances of modern technology in this world provide plausible grounds for comprehending and believing in God's powers, for example, his ability to communicate across vast distances of the universe or to travel across interstellar distances. This naturalistic argument assumes that God uses physical mechanisms to accomplish his work, including physical means known to mortals on earth or that could be made known or discovered. This argument is consistent with the view Roberts espouses that God operates by law, even eternal law. However, the particular physical means used by God to accomplish any specific purpose may be as yet undiscovered and hence unknown to human beings. Thus, Roberts's argument is reasonable as a plausibility argument that helps lift our sight from human limitations to human accomplishments and thence to divine possibilities, but it remains inconclusive. While it may open imagination and provide reassurance for faith, it gives no assurance that we understand how specific physical or biological processes operate in particular divinely ordained events.

Just as Roberts did not address other problems of relativity theory, he does not address the effect of a universal speed limit (namely, that within the confines of relativity theory no information can be transmitted or carried from place to place faster than the speed of light) on interplanetary travel and communication. In addition, his statement that "telepathy, or the power of one mind to be in such sympathetic affections, feelings or emotions with another as to make thought transference possible between them is now accepted by men of science as a reality" (114) is wrong today and was wrong when it was written. Much scientific evidence exists to the contrary; and while scientific evidence continues to be put forward from time to time in support of the reality of mental telepathy, up to the present, upon closer examination, these studies have each been found lacking.⁷ Most scientists do not accept telepathy as a reality. Nevertheless, Roberts uses the interplanetary travel and communication arguments in chapter 12 to lay groundwork for his theory that Adam and Eve were transplanted to the Garden of Eden from some other world (ch. 32).

In chapter 32, Roberts returns to the discussion of time, specifically, time as experienced by the gods. He says, "For the God-mind all distinctions of time as to past and present and future, so stand that they live and work in the eternal '*now*.'" In what physical sense is God in an "eternal now"? Speaking to his son Corianton, Alma commented that "all is as one day with God, and time only is measured unto men" (Alma 40:8). On the other hand, the book of Abraham refers to "the Lord's time" and "celestial time," both of which are identified with the time

of the revolutions of Kolob (Abr. 3:4, 9; 5:13; Facsimile 2:1). Moreover, Roberts does not address the tension that may exist between any concept of a divine “eternal now” and his general reliance on the idea that man can know God’s ways and attributes by relating temporal conditions to those of higher spheres.

Chapter 23 addresses Abrahamic cosmology and the nature of the Godhead. Readers may wish to compare this chapter with other LDS writings on astronomy and the book of Abraham.⁸

Creation and Evolution

Chapters 21, 24, 25, and 30 deal with the Creation. Chapter 21 addresses the doctrines of the Christian world regarding *ex nihilo* creation, the origin of humans, and God’s purpose in creating the earth and human beings. Chapter 24 considers the time period in which the earth was created and the manner of creation. Roberts leaves a very open interpretation of the time period of the earth’s creation, allowing the widest possible accommodation to scientific evidence. Here and in chapter 25, Roberts reviews the various theories of the evolution of life forms on the earth that were most commonly held at the time of his writing.

Roberts addresses three forms of evolutionary theory with which he was familiar from science: materialistic or mechanical evolution, agnostic evolution, and theistic (or purposeful or creative) evolution. He finds all three approaches to be inadequate and rejects all current theories as he understands them. Instead he puts forward his own theory of evolution, which he calls “developmental theism.” This view

starts from the eternity of life—the life force; and the eternity of some life forms, and the possibilities of these forms, perhaps in embryonic status, or in their simplest forms (save as to man) are transplanted to newly created worlds there to be developed each to its highest possibilities, by propagation, and yet within and under the great law of life of Genesis 1, viz., each “after,” and within, “its kind.” (240)

Roberts’s opinions are not those of an evolutionist. The differences of opinion between Roberts and Elder Joseph Fielding Smith on the subject of evolution⁹ were not centered on the scientific theories of origins of life forms. Rather, the central point of concern was whether death occurred on earth before the fall of Adam. Roberts found both scriptural and scientific support for pre-Adamite humans and other extinct life forms. Elder Smith, on the other hand, interpreted 2 Nephi 2:22 quite literally as applying to all life at all times on earth and took it to mean that there was no death on earth before the Fall. Although



James E. Talmage. Talmage's August 9, 1931, speech, "The Earth and Man," about the age of the earth and the origin and nature of Adam's race won approval from the First Presidency and the Council of the Twelve. This speech emphasized that geology and scripture "cannot be fundamentally opposed, . . . though man's interpretation of either may be seriously at fault." Courtesy LDS Church Archives.

Mormons have a long history of discussion about different views of evolution and the origins of life forms, the Church has adopted no settled and detailed position on the role of various physical or biological processes in these origins. Statements made by the First Presidency in 1909, 1925, and 1931 contain the position of the Church on evolution;¹⁰ anything else is opinion—including much of what Roberts says in *TWL*.

In the last part of chapter 24, Roberts describes “the gloomy outcome of evolution,” that is, the winding down of the earth to a thermal equilibrium in which no further development is possible.¹¹ This concept is sometimes termed the “heat death” of the universe. Chapter 24 deals with two fundamental scientific concepts whose relationship and mutual interaction are still not widely understood. These two are the concepts of entropy, associated with the second law of thermodynamics, and evolution. After quoting Herbert Spencer’s definition of evolution and giving an explication of this definition by Will Durant, Roberts follows Durant in setting out a description of the “heat death” of the universe as a logical consequence of the definition of evolution. This winding down of the universe is, however, a consequence of the second law of thermodynamics, a result that follows if the universe does not exchange energy with some outside entity or region. All evolutionary processes and all other large-scale physical processes are subject to the second law of thermodynamics. Contrary to Durant’s misapprehension, the “heat death” is not intrinsically connected to the theory of evolution. Instead, any purely physical theory of the universe will be faced with an eventual equilibration of energy and motion. Hence, heat death is an effect that should not be laid at the door of evolution; it is part of a much larger issue and not a defect of evolutionary theory.

In addition to the various theories of evolution discussed above, chapter 25 deals further with the manner of creation, addressing the role of God in creation and the possibility that life was transplanted here from other worlds. Because Roberts takes life forms to be eternal, with no beginning, he sees “no problem of the origin of life or of forms of life” (238). But what was God’s creative role? Did the various life forms exist coeternally with God in a fully developed form? The origin of both spirit bodies and physical bodies for plants and animals and humans seems still to be a significant question of deep import. Roberts’s view simply pushes the origin question for Adam back to another world, but he does not dispose of the problem.

Roberts also enunciates in chapter 25 “the great law of life” from Genesis, that reproduction is within “kinds,” but he fails to address the main question that haunts those addressing the origins of life forms from religious, philosophical, or scientific points of view. Specifically,

Roberts ignores the question of how one defines “kinds.” Can one ever be sufficiently clear about “kinds” to know whether an observed change in a life form is a change within or between “kinds?” Without such a clarification, one cannot address the consistency or inconsistency of organic evolution theories with the revelations. Do modern hybridizations between species or developments of new species violate this perceived barrier by crossing “kinds?”

Roberts did not envision any genetic connection between pre-Adamites and humans. Then why did pre-Adamic humans exist? Are they a separate “kind”? Are they related to apes? Why are they extinct? Indeed, why have extinctions occurred at all?

Finally in chapter 25, Roberts discusses the nature of God, in whose image humans were created. He argues against the common Christian fear that God would be diminished if he had the form of man, holding instead that both God and man are elevated by their relationship.

In chapter 30, Roberts seeks to reconcile the two Genesis accounts of the Creation (Gen. 1-2), putting forward a theory of an earthwide catastrophe that allowed Adam and Eve to come to a new world that nevertheless carried geological traces of previous life and development. In Roberts’s view, Genesis 1 and 2 refer to different creative events: Genesis 1 to the creation of the earth itself, and Genesis 2 to the creation which prepared the world for Adam and his dispensation. Hence, Roberts accepts the existence of pre-Adamite races of humans as both scripturally and scientifically justified.

Chapters 31 and 32 consider these pre-Adamite humans, including a catalogue of types of early humans discovered by scientists up to the time of writing. These chapters also consider Adam and Eve, how they came to the earth, and the form of their bodies in the Garden of Eden. In chapter 31, Roberts elaborates further his interpretation of the command to “multiply and replenish the earth” as meaning to “refill” the earth, an unfounded interpretation that he used to support his theory of an earthwide catastrophe in chapter 30.¹²

In chapter 32, having set the stage in many previous chapters, Roberts finally develops his transplantation theory to explain the arrival of Adam and Eve on earth. He also argues here that Adam and Eve were translated beings in the Garden of Eden but not immortal. He never discusses the role of the forbidden fruit, however, in effecting any physical changes in Adam and Eve. In Roberts’s transplantation theory of the arrival of humans on earth, the transplantation was effected by “higher intelligences” from more advanced worlds. In other words, the gods brought Adam and Eve to the Garden. Roberts accepts geologic evidence for a very old earth and for pre-Adamite humans.

Then, as mentioned above, he argues that a cataclysm must have wiped out previous life to begin the Adamic dispensation, but he does not present scientific evidence for or against such a cataclysmic event. Can one find such evidence today? I do not believe so. Modern creationists have tried to argue for geologic evidence of a worldwide catastrophe or massive change in the earth at the time of the flood of Noah or the advent of Adam and Eve, but they have produced no credible evidence for the kind of event Roberts postulates.¹³

Roberts argues at length for the consistency of his theory of earth-wide catastrophe and the transplantation of Adam and Eve with the biblical account of creation and the origin of humans. Roberts believes that his formulation allows one to bring the biblical account and the scientific evidence into harmony. He does not explain, however, why God—knowing the confusion to be introduced by future scientific discoveries—would not speak plainly in the scriptures if they were intended to tell the story of actual creative events. Of course, this question can be asked much more broadly than in the narrow context of creation. It certainly arises today in connection with interpretations of Genesis and other scriptures. But Roberts does not address it at all. Is the detailed process of reconciling scripture with science necessary and appropriate in every case? The answer would seem to depend on the extent to which particular scriptures were intended to be read literally or figuratively. Again, Roberts does not address this kind of question here.

The foregoing are the main elements in Roberts's theories about the creation of the earth. I see significant value in his attempt to develop a comprehensive view of the world—in spite of the difficulties and dangers—that takes both religion and science seriously. In fact, I believe humans' divinely inherited intelligence requires the use of the intellect to struggle for understanding and meaning. Thus, in identifying some difficult issues that are raised by Roberts's treatment of the physical universe, the theory of evolution, the origin of life forms, and the origin of humans in this book, I do not seek to discourage the effort he so valiantly made, but rather to identify additional questions the contemporary reader might raise in light of current scientific understanding and to encourage tentativeness in all such efforts to merge science and theology.¹⁴

Many questions can and should be raised by modern readers of *TWL*. Such problems, however, do not seriously detract from the evidence this work gives of Elder Roberts's faith, his love of the scriptures and the teachings of the Prophet Joseph Smith, and his respect for the importance of using the spirit and the intellect together to seek to comprehend

the things of God. Elder Roberts rejected narrow sectarianism in all its forms, closing chapter 31 with a strong affirmation of his faith in human striving for knowledge, referring to “the researcher of science in modern times” as

the highest type in the intellectual and moral world; . . . among the noblest and most self-sacrificing of the sons of men—of the type whence must come the noblest sons of God, since the glory of God is intelligence; and that too the glory of man. These searchers after truth are of that class. To pay attention to, and give reasonable credence to their research and findings is to link the Church of God with the highest increase of human thought and effort. On that side lies development, on the other lies contraction. It is on the former side that research work is going on, and will continue to go on, future investigation and discoveries will continue on that side, nothing will retard them, and nothing will develop on the other side. One leads to narrow sectarianism, the other keeps the open spirit of a world movement with which our New Dispensation began. As between them, which is to be our choice? (318)

NOTES

¹In the lesson outline for chapter 3, in which he lays the metaphysical foundation for this work, he says, “All the works given in the column of ‘References’ should be read with discrimination; not accepting either all the premises laid down, or the conclusions reached. They are given merely as sources through which the student may pursue his thought-investigations, not for unquestioning acceptance.” The “References” referred to in this citation are scientific and philosophical works on which Roberts relies extensively.

²Roberts’s use of generalizations reflects an accepted rhetorical style of his generation, see the essays by Gary Hatch and Doris Dant above.

³See the textbooks cited in the editorial footnotes to chapters 4 and 5, above.

⁴Arthur Fine, *The Shaky Game: Einstein, Reality and the Quantum Theory* (Chicago: University of Chicago Press, 1986).

⁵Stephen Hawking, *A Brief History of Time: From the Big Bang to Black Holes* (New York: Bantam Books, 1988).

⁶This point demonstrates once again the need to approach *TWL* as a whole, as discussed further by John W. Welch, xiv–xv, xxxi–xxxiii above.

⁷Such a study is reported by Daryl J. Bern and Charles Honorton, “Does Psi Exist? Replicable Evidence for an Anomalous Process of Information Transfer,” *Psychological Bulletin* 115 (January 1994): 4–18, with a response and rebuttal, 19–27.

⁸Erich Robert Paul, *Science, Religion, and Mormon Cosmology* (Urbana: University of Illinois, 1992); and R. Grant Athay, “Worlds without Number: The Astronomy of Enoch, Abraham, and Moses,” *BYU Studies* 8 (1968): 255–69.

⁹Duane E. Jeffery, “Seers, Savants, and Evolution: The Uncomfortable Interface,” *Dialogue* 8 (Autumn–Winter 1973): 41–75; Richard Sherlock, “A Turbulent

Spectrum: Mormon Reactions to the Darwinist Legacy,” *Journal of Mormon History* 5 (1978): 33–59; Duane E. Jeffery, “‘We Don’t Know’: A Survey of Mormon Responses to Evolutionary Biology,” in *The Appearance of Man: Replenishment of the Earth*, vol. 2 of *Science and Religion: Toward a More Useful Dialogue*, ed. Wilford M. Hess and others (Geneva, Ill.: Paladin House, 1979), 23–37; and Jeffery E. Keller, “Discussion Continued: The Sequel to the Roberts/Smith/Talmage Affair,” *Dialogue* 15 (Spring 1982): 79–98.

¹⁰William E. Evenson, “Evolution,” in *Encyclopedia of Mormonism*, ed. Daniel H. Ludlow, 5 vols. (New York: Macmillan, 1992), 2:478. The approach to be taken in the *Encyclopedia of Mormonism* article on evolution was considered by the leaders of the Church in 1991, and the Church advisors to the *Encyclopedia* editorial board counseled that it should be a very brief presentation of official Church statements. A packet approved for use at Brigham Young University in June 1992 views only the published statements of the First Presidency as “the definitive source of official Church positions” on these subjects.

¹¹See B. H. Roberts, “Protest Against the Science-Thought of ‘A Dying Universe’ and No Immortality for Man: The Mission of the Church of the New Dispensation,” in *Discourses of B. H. Roberts* (Salt Lake City: Deseret Book, 1948), 11–30.

¹²On “replenish,” see page xiii and accompanying note above.

¹³See Arthur N. Strahler, *Science and Earth History: The Evolution/Creation Controversy* (Buffalo, N.Y.: Prometheus Books, 1987).

¹⁴For further reflections on research into physical evidence of human origins, see Richard G. Klein, *The Human Career: Human Biological and Cultural Origins* (Chicago: University of Chicago Press, 1989); Donald C. Johanson, Lenora Johanson, and Blake Edgar, *Ancestors: In Search of Human Origins* (New York: Villard, 1994); Maitland A. Edey and Donald C. Johanson, *Blueprints (Solving the Mystery of Evolution)* (New York: Penguin Books, 1989).