

SCIENCE AND MORMONISM

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Editor's Note: In celebration of the long-awaited publication of the expanded proceedings of the 2013 Interpreter Science and Mormonism Symposium — Cosmos, Earth, and Man (Orem and Salt Lake City: The Interpreter Foundation and Eborn Books, 2016), we share an expanded version of the introduction to that volume in this issue of the journal. The second Interpreter Science and Mormonism Symposium, subtitled Body, Brain, Mind, and Spirit, will be held at Utah Valley University in Orem, Utah in the Classroom Building, Room 101, from 8:30 am-3:30 pm on March 12, 2016. For more information about the book and the upcoming symposium, see MormonInterpreter.com.

Abstract: From the beginning, Latter-day Saints have rejected the notion that science and religion are incompatible. In this article, we give an overview of studies that have surveyed the professional participation of Mormons in science and the views of American academics and scientists on religion in general, Mormons in particular, and why many thoughtful people in our day might be disinclined to take religion seriously. We conclude with a brief survey of current LDS perspectives on science. Our brief survey demonstrates that it is not only futile for religion and science to battle each other; it is also unnecessary.

We often hear claims that science and religion are separate, incompatible domains waged in all-out war. For example, in a 2015 Pew Research Center survey, 59% of Americans say that science and religion are “often in conflict.”¹

Yet the leaders of The Church of Jesus Christ of Latter-day Saints have rejected this notion from the beginning. As Brigham Young explained, “The idea that the religion of Christ is one thing, and science is another, is a mistaken idea, for there is no true religion without true science, and consequently there is no true science without true religion.”² He later elaborated on this point as follows, contrasting the LDS Church’s

teachings on science with those prevailing among numerous other Christian denominations at the time:³

I am not astonished that infidelity prevails to a great extent among the inhabitants of the earth, for the religious teachers of the people advance many ideas and notions for truth which are in opposition to and contradict facts demonstrated by science, and which are generally understood. ... In these respects we differ from the Christian world, for our religion will not clash with or contradict the facts of science in any particular. ... [W]hether the Lord found the earth empty and void, whether he made it out of nothing or out of the rude elements; or whether he made it in six days or in as many millions of years, is and will remain a matter of speculation in the minds of men unless he give revelation on the subject.

In a recent study, Latter-day Saints (50%) were more likely than atheists or agnostics (13%), and than any other religious group surveyed (31-48%) to believe that science and religion can work together in collaboration.⁴

Another precept taught from early on in the Restoration — and also in sharp contrast to prevailing religious discourse at the time — is that God operates within the bounds of natural law rather than by contravening natural law. As Elder James E. Talmage, a twentieth-century Apostle, wrote:⁵

Miracles are commonly regarded as occurrences in opposition to the laws of nature. Such a conception is plainly erroneous, for the laws of nature are inviolable. However, as human understanding of these laws is at best but imperfect, events strictly in accordance with natural law may appear contrary thereto. The entire constitution of nature is founded on system and order.

Subsequent Presidents and General Authorities of the Church have advanced similar views about the ultimate compatibility of religious and scientific truths and, with notably few exceptions, have maintained markedly positive attitudes toward both the methods and conclusions of mainstream science and the advance of modern technology. Selected LDS perspectives on these issues are explored later in this article.

What Can Be Said About the Professional Participation of Mormons in Science and Academia?

In the 1990 listing of 120,000 individuals in *American Men and Women of Science*, “Utah stood 21% above the second place state, which was Delaware.”⁶ This was despite the fact that there were more Mormon

scientists outside of Utah and Idaho than inside, that practicing Mormons no longer constituted the majority population in Utah, and that there has been an increase in the overall orthodoxy of Mormon scientists. Noel B. Reynolds reports his informal observation that: “The overwhelming majority of LDS academics and intellectuals are active, faithful Latter-day Saints.”⁷

Such findings about LDS scientists are consistent with other studies affirming an exceptional proportion of Mormons in American university faculties across all disciplines. A major survey published in 2007 reported that while non-LDS “Christians are underrepresented among faculty,” Mormons are “overrepresented compared to the general public.”⁸

The reasons for the attraction of science and academia for members of the Church have not received the formal study they deserve. However, BYU professor and administrator Noel B. Reynolds offers a personal opinion on the matter:⁹

In spite of occasional eruptions of anti-intellectualism in the LDS community, the long-term reality has been that Mormons, perhaps more than any other religious group, seek and respect learning. Joseph Smith set the example himself, establishing schools for adults and studying biblical languages. The LDS community has always produced far more than its share of highly educated people, ... [and in the LDS community] the more educated a person is, the more likely he or she is to be fully observant and faithful.¹⁰

There may be good reasons for this surprising characteristic of the Latter-day Saints. Mormonism is a religion of both the spirit and the intellect. Mormon missionaries tell their investigators that they have answers to the great human questions. Conversion stories are always stories of learning and inspiration. ... Mormonism is not a religion that tells its members they have no right to know the divine mysteries. Rather, it tells them to seek knowledge of all things. There is nothing that God is not willing to reveal to his children, even to the point of showing himself to them on special occasions.

In line with what Reynolds expresses above, Elder Neal A. Maxwell wrote: “For the disciple of Jesus Christ, academic scholarship is a form of worship. It is actually another dimension of consecration. Hence one who seeks to be a disciple-scholar will take both scholarship and discipleship seriously and, likewise, gospel covenants.”¹¹ Gerald Stott similarly

concludes from his research that “Latter-day Saint theology appears to negate the secularizing impact of education by sacralizing it.”¹²

What Do American Academics and Scientists Think of Religion in General and Mormons in Particular?

In 2013-2014, Rice University sociologist Elaine Howard Ecklund conducted the largest study to date of American views on religion and science, including a nationally representative survey of 10,000 Americans along with over 300 in-depth interviews with Christians, Jews, and Muslims. She found that the size of the segment of American scientists characterizing themselves as “very religious” and engaged in some key traditional religious practices — though different from the public at large — was still in the same general ballpark. Roughly 18% of the scientists in her sample attended weekly religious services, compared with 20% of the general population; 15% considered themselves “very religious,” compared with 19% of the population; 13.5% read some religious text weekly, compared with 17% of the population; and 19% prayed once or more per day, compared with 26% of the population.¹³

Although Ecklund’s survey revealed that the sizable segment of U.S. scientists involved in religious practice and identifying themselves as “very religious” was not too different from the general public, another segment of scientists described themselves as indifferent to religion and skeptical of a belief in God. In a study of university faculty published in 2007, 75% of the sample said that religion was not important to them.¹⁴ Only about 36% of scientists have no doubt about God’s existence, compared to 55% of the general population.¹⁵ However, it still should be recognized that 36% represents a significant segment of American scientists.

In the 2007 study previously mentioned, 53% of university faculty surveyed held unfavorable views of evangelical Christians, “leading Mormons as the least liked religious group by 20%.”¹⁶ Notably, faculty opinion about the LDS tended to be much more polarized than that of the general public, with significantly fewer reporting neutral feelings (20% vs. 42% of the general population) and 40% (vs. 33%) reporting favorable feelings.¹⁷

One of the possible reasons for such polarization is suggested in a 2007 poll of the general public. The results revealed that “having an acquaintance who is Mormon is linked with more positive opinions of Mormons and Mormonism. The large majority of those who know a Mormon (60%) express a favorable view of Mormons, compared with

fewer than half (44%) of those who do not personally know a Mormon. And those who are acquainted with a Mormon are 11 points more likely than others to say that Mormonism and their own religion have a lot in common.”¹⁸

Why Might Many Thoughtful People Be Disinclined To Take Religion Seriously?

Among the reasons for this state of affairs is the fact that popular religious understanding often solely “rests on a caricature of religious fundamentalism” which is seen “as a reactionary movement bent on reversing all the progressive measures achieved over the last . . . decades.”¹⁹

In addition, many scientists who consider themselves spiritual (comprising 51% of the believers, 27% of the agnostics, and 22% of the atheists²⁰) reject institutional religion because of its deep dependence on authority as a primary source of truth (e.g., church leaders, scriptures). “Spirituality,” according to Ecklund’s study, “has more potential to align with scientific thinking and reasoning” because it is “open to being shaped by personal inquiry.”²¹ The study also elaborates on reasons why, for many scientists, science trumps religion of any sort:²²

When scientists take the norms they perceive as governing science and apply them to all of life, religion is weighed against science, and it does not measure up. Religious views are not based on the kind of information that can be judged impartially, such scientists would argue. There is a personal bias in religion; religious individuals have a stake in findings that support their faith (they lack the disinterest that scientists have). These scientists . . . compare all religion to science and find it wanting.

Scientists who have this view think that in all spheres of life, only knowledge that is found through science is reliable. Likewise, for them, only questions answerable through science are worth exploring. Questions concerning the *meaning* of life are not even worth asking.

Some scientists have become disenchanted with religion because of experiences similar to non-scientists. These include negative encounters with leaders and teachers who have dismissed or ridiculed their sincere questions, unsatisfying struggles with the problems of evil and pain in a world that religion claims is created and managed by God, and what are perceived as harmful social and political consequences of some religious beliefs and practices.²³

Moreover, as fewer people in America than ever before are being raised in homes where religion is regularly discussed and practiced, many of the influences and much of the knowledge of religion formerly obtained in childhood are waning.²⁴ It is not surprising that many people today simply don't connect with religion, since they may not have anyone in their family or close circle of acquaintances who is at all religious.²⁵ In such cases, their perspective may be shaped in large measure from current events noteworthy enough (i.e., extreme or unusual) to make the daily news or humorous enough to be remembered and repeated. Data points of this sort provide little insight on the lives and views of the more typical believer.

According to sociologist Rodney Stark, thoughtful people may be put off from religion in knowing "that many illusory or even fraudulent religious claims have been advanced" over the course of history.²⁶ Moreover, "comparisons among religions can easily be corrosive to faith because one must confront the fact that, since they disagree, not all religions can be entirely true. From there it is a small step to conclude that all religions are false, that 'all are refuted by all,' as the renegade monk Jean Bodin put it in 1593."²⁷ Conversely, "similarities among the world's religions ... [sometimes may be] taken as 'proof' that they all are human inventions."²⁸ Finally, some people are swayed by arguments that religious belief is nothing more than a combination of biological, psychological, and/or cultural imperatives.

While ultimate satisfaction of such concerns cannot be obtained by reasoned argument alone, perhaps at least a few fallacies can be swept aside. First, no serious believer would hold that each of the sundry, contradictory collections of spiritual beliefs and practices held at one time or another by individuals are rooted in divine revelation. "Some revelations are of God," the Prophet Joseph Smith is remembered as saying, "some revelations are of man: and some revelations are of the Devil."²⁹

Moreover, it should not be forgotten that even authentic revelations may be "subject to misunderstanding, exaggeration, and faulty transmission."³⁰ Regarding religious similarities among diverse groups, many believers are prepared to accept the possibility that "authentic revelations underlie many of the major faiths."³¹ Finally, with respect to the "insufficiency of all biological approaches to explaining religion, or any other aspects of human culture," the most important consideration in Stark's view "is that they are unnecessary! The fundamental biological

basis of all culture is general intelligence, and nothing more needs to be postulated.”³²

“Thus,” writes Stark, “we reach the fundamental question: Does God exist? That is, have we discovered God? Or have we invented him? Are there so many similarities among the great religions because God is really the product of universal wish fulfillment? Did humans everywhere create supernatural beings out of their need for comfort in the face of existential tragedy and to find purpose and significance in life? Or have people in many places, to a greater and lesser degree, actually gained glimpses of God?”³³ Once the possibility of authentic divine revelations is granted, attention can be turned to the “immense and humbling challenge” of determining “which ones are valid.”³⁴

LDS Perspectives on Modern Science

A survey of LDS discourse on modern science yields numerous very positive assessments, such as the following:

True science is a discovery of the secret, immutable and eternal laws, by which the universe is governed.³⁵

Every discovery in science and art, that is really true and useful to mankind, has been given by direct revelation from God, though but few acknowledge it.³⁶

Truth is truth forever. Scientific truth cannot be theological lie. To the sane mind, theology and philosophy must harmonize. They have the common ground of truth on which to meet.³⁷

We should all be interested in academic research. We must go out on the research front and continue to explore the vast unknown. We should be in the forefront of learning in all fields, for revelation does not come only through the prophet of God nor only directly from heaven in visions or dreams. Revelation may come in the laboratory, out of the test tube, out of the thinking mind and the inquiring soul, out of search and research and prayer and inspiration.³⁸

Religion and science have sometimes been in apparent conflict. Yet the conflict should only be apparent — not real — for science should seek truth, and true religion is truth. There can never be conflict between revealed religion and scientific fact. That they have often occupied different fields of truth is a mere detail.

The gospel accepts and embraces all truth; science is slowly expanding her arms and reaching into the invisible domain in search of truth. The two are meeting daily — science as a child, revealed religion as the mother. Truth is truth, whether labeled science or religion. There can be no conflict. Time is on the side of truth — for truth is eternal.³⁹

[The twentieth century] has been the best of all centuries. ... The life expectancy of man has been extended by more than twenty-five years. Think of it. It is a miracle. The fruits of science have been manifest everywhere. By and large, we live longer, we live better. This is an age of greater understanding and knowledge. ... This has been an age of enlightenment. The miracles of modern medicine, of travel, of communication are almost beyond belief.⁴⁰

The last statement, which was made by President Gordon B. Hinckley, is particularly interesting in light of the pervasive talk that is often heard of the inexorable decline of society. He acknowledges that such talk can be self-defeating; to the contrary, there is much to celebrate, and the progress due to science and technology is certainly among the proudest achievements of our society.

The comments we have cited above are certainly not exhaustive, and there are certainly instances of LDS leaders voicing critical comments towards certain aspects of modern science (e.g., evolution). Such comments are often highlighted by critics of the LDS movement who attempt to portray the LDS movement as anti-scientific. But a larger study of LDS discourse reveals such comments to be in the minority, easily outnumbered by much more positive commentary.

It should be noted that Brigham Young University has strong departments in numerous arenas of modern science, certainly including astronomy, botany, zoology, geology, physics, chemistry, computer science, and mathematics. With regard to the Church's "official" position on the age of the Earth, a good source is the *Encyclopedia of Mormonism's* article "Age of the Earth," which starts with the noncommittal statement, "The scriptures do not say how old the earth is, and the Church has taken no official stand on this question. ... Nor does the Church consider it to be a central issue for salvation."⁴¹

With respect to evolution, the first formal class on the subject was instituted at BYU in the fall of 1971 with the First Presidency's approval, and is currently a required part of the core curriculum of all BYU students

in the biological sciences. Evolutionary biology has since become “one of the largest and most successful graduate programs at BYU,⁴² with professors publishing in major evolutionary conferences and journals. Terryl Givens has summarized efforts of Mormon scientists that “not only incorporate evolutionary science, but break new ground in the field.”⁴³ Elsewhere he specifically cites the contributions of Keith Crandall, Michael Whiting, and Jack Sites in molecular evolution, noting that all three are “major players in the National Science Foundation’s ‘Tree of Life’ project.”⁴⁴ Given adds: “Neither Creationism nor Intelligent Design find a home in the science departments of the LDS-owned school.”⁴⁵

The Church’s view on evolution has “evolved” somewhat over time. In 1909, the First Presidency released a statement entitled “The Origin of Man,” which included a comment skeptical of the notion that “the original human being was a development from lower orders of the animal creation.” However, in 1925 the First Presidency released another statement, largely a condensation of the 1909 statement, which omitted this language.⁴⁶

In 1930, Elders Joseph Fielding Smith, Brigham H. Roberts, and James E. Talmage became engaged in a discussion over whether there were “pre-Adamites” or other living organisms before Adam. After several manuscripts were circulated, the First Presidency concluded that additional discussion would be fruitless and released a letter to all general authorities. It noted that the statement that pre-Adamites existed was “not a doctrine of the Church” and similarly for the opposite assertion. It concluded with the instruction:

Upon the fundamental doctrines of the Church we are all agreed. Our mission is to bear the message of the restored gospel to the world. Leave geology, biology, archaeology, and anthropology, no one of which has to do with the salvation of the souls of mankind, to scientific research, while we magnify our calling in the realm of the Church.⁴⁷

In 1992, this passage was included as part of a brief article on “Evolution” in the *Encyclopedia of Mormonism*.⁴⁸ Though the 1931 First Presidency minutes were prepared in specific response to the question of death before the Fall that was raised by Elder Roberts’ manuscript, its application to the broader context of evolution was deemed appropriate by later Church leaders. At the initiative of the First Presidency and members of the Twelve — and specifically by the action of then-First Counselor Gordon B. Hinckley — it was included in the “Evolution” article.⁴⁹ Subsequently this article, together with the 1909 and 1925

statements and one other document were assembled to form what is now known as the BYU Packet on “Evolution and the Origin of Man,” approved by BYU Board of Trustees and LDS First Presidency.⁵⁰ As far as we are aware, this packet, including the *Encyclopedia* article, is the latest word on the subject.

We are convinced that the noncommittal approach taken by the Church is a wise one. Just as it is important for science to stay “scientific,” focused on studying natural laws, processes, and empirical data, so it seems important for the Church to avoid accommodating its teachings to whatever scientific theories or worldviews happen to be in vogue at the time. As Holmes Rolston observed, “The religion that is married to science today will be a widow tomorrow. ... Religion that has too thoroughly accommodated to any science will soon be obsolete.”⁵¹

Conclusion

We have presented here a brief survey of issues relating to perceived conflicts between science and Mormonism. Certainly there are many specific questions and issues that have not been treated. What’s more, this article only briefly discusses how these specific issues connect to LDS scriptures and discourse. But we hope that the series of Interpreter symposia on Science and Religion, along with the published volumes that follow these meetings, will be helpful in the process of working out a framework within which such a dialogue can begin.

The overall consensus of respected writers from both the science and religious worlds, including several LDS writers, is that it is not only futile for religion and science to battle each other; it is also unnecessary. Most major religious denominations, including the LDS Church, have either made peace with the scientific world or at least have recognized that it is pointless to attack the world of science. Most leading scientists either affirm a religious faith in some general sense or at least recognize that it is pointless to attack the world of religion.

And both scientists and religious believers can stand in awe at the majesty of the universe, which is now known to be much vaster, more intricate, and more magnificent than any of us previously might have imagined.

David H. Bailey is a mathematician and computer scientist. He recently retired from the Lawrence Berkeley National Laboratory, but is still a very active research scientist. He has published six books and over two hundred technical papers on topics such as high-performance scientific

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References

- Albrecht, Stan L., and Tim. B. Heaton. "Secularization, higher education, and religiosity." *Review of Religious Research* 26, no. 1 (September 1984): 43-58.
- Allen, James B., Ronald K. Esplin, and David J. Whittaker. *Men with a Mission: The Quorum of the Twelve Apostles in the British Isles, 1837-1841*. Salt Lake City, UT: Deseret Book, 1992.
- Ash, Michael R. "The Mormon myth of evil evolution." *Dialogue* 35, no. 4 (2002): 19-59.
- Bailey, David, J.M. Bradshaw, John S. Lewis, Gregory L. Smith, and Michael R. Stark. *Cosmos, Earth and Man. Science and Mormonism Series 1*. Salt Lake City, UT: The Interpreter Foundation and Eborn Books, 2016.
- Benson, Ezra Taft. "In his steps." *The Improvement Era* 69, no. 6 (June 1966): 545-47.
- Brown, Hugh B. *An Abundant Life: The Memoirs of Hugh B. Brown*. Second Enlarged ed., edited by Edwin B. Firmage. Salt Lake City, UT: Signature Books, 1999.
- BYU Packet on Evolution and the Origin of Man, June 1992. Reprinted in W. E. Evenson et al., *Mormonism and Evolution* and D. H. Bailey et al., *Cosmos, Earth, and Man*, pp. 446-461. See also <http://www.sciencemeetsreligion.org/lds/byu-packet.php> (accessed January 1, 2016).
- Consolmagno, Guy. *God's Mechanics: How Scientists and Engineers Make Sense of Religion*. San Francisco, CA: Jossey-Bass, 2008.
- Ecklund, Elaine Howard, and Christopher Scheitle. 2014. *Religious Communities, Science, Scientists, and Perceptions: A Comprehensive Survey*. Paper prepared for presentation at the Annual Meetings of the American Association for the Advancement of Science, February 16, 2014. In Elaine Howard Ecklund Blogs. http://elainehowardecklund.blogs.rice.edu/files/2014/02/RU_AAASPresentationNotes_2014_0220.pdf#sthash.QR7riVEq.dpuf. (accessed November 11, 2015).
- . 2010. *Science vs. Religion: What Scientists Really Think*. New York City, NY: Oxford University Press, 2012.
- Evenson, William E. "LDS science counsel still valid." Salt Lake City, UT: *The Salt Lake Tribune*, July 2, 2005.
- . "Evolution." In *Encyclopedia of Mormonism*, edited by Daniel H. Ludlow. 4 vols. Vol. 2, 478. New York City, NY: Macmillan, 1992. <http://www.lib.byu.edu/Macmillan/>. (accessed November 26, 2007).

- Evenson, William E., and Duane E. Jeffery, eds. *Mormonism and Evolution: The Authoritative LDS Statements*. Draper, UT: Greg Kofford Books, 2005.
- Funk, Cary, and Becka A. Alper. 2015. "Religion and science." In *Pew Research Center*. <http://www.pewinternet.org/2015/10/22/science-and-religion/>. (accessed November 11, 2015).
- Givens, Terryl L. *People of Paradox: A History of Mormon Culture*. Oxford, England: Oxford University Press, 2007.
- . *Wrestling the Angel: The Foundations of Mormon Thought: Cosmos, God, Humanity*. Oxford, England: Oxford University Press, 2015.
- Hinckley, Gordon B. "Thanks to the Lord for His blessings," *Ensign* 29:5 (May 1999), 88–89.
- Kinnaman, David, and Gabe Lyons. *Unchristian*. Grand Rapids, MI: Baker Books, 2007.
- Lasch, Christopher. 1995. *The Revolt of the Elites and the Betrayal of Democracy*. New York City, NY: W. W. Norton, 1996.
- Maxwell, Neal A. "The disciple-scholar." In *On Becoming a Disciple-Scholar*, edited by Henry B. Eyring, 1-22. Salt Lake City, UT: Bookcraft, 1995.
- Pennock, Robert T. *Tower of Babel: The Evidence Against the New Creationism*. Cambridge, MA: Bradford, The MIT Press, 1999.
- Petersen, Morris S. "Earth." In *Encyclopedia of Mormonism*, edited by Daniel H. Ludlow. 4 vols. Vol. 2, 431-33. New York City, NY: Macmillan, 1992. <http://www.lib.byu.edu/Macmillan/>. (accessed November 26).
- . "Fossils and scripture." *Ensign* 17, September 1987, 28-29.
- Poulsen, Ezra J. "Make your teaching live." *The Instructor* 83, April 1948, 178-79, 99. <http://archive.org/stream/instructor834dese#page/n31/mode/2up>. (accessed November 14, 2015).
- "Public expresses mixed views of Islam, Mormonism." In *The Pew Research Center for the People and the Press*. <http://people-press.org/reports/display.php3?ReportID=358>. (accessed April 27, 2008).
- Reynolds, Noel B. "Preface." In *Expressions of Faith: Testimonies of Latter-day Saint Scholars*, edited by Susan Easton Black, ix-xiv. Salt Lake City, UT: Deseret Book, 1996.
- Roberts, Brigham H. *Comprehensive History of the Church*. 6 vols. Salt Lake City, UT: Deseret News Press, 1930. Reprint, Salt Lake City, UT: Brigham Young University Press, 1965.

- Rolston, Holmes, III. 1987. *Science and Religion: A Critical Survey*. Philadelphia, PA: Temple University Press, reprinted 2006.
- Ruth, David. 2014. Misconceptions of science and religion. In *Rice University News and Media*. <http://news.rice.edu/2014/02/16/misconceptions-of-science-and-religion-found-in-new-study/>. (accessed November 14, 2015).
- Smith, Joseph, Jr., Robin Scott Jensen, Robert J. Woodford, and Steven C. Harper. *Manuscript Revelation Books*, Facsimile Edition. *The Joseph Smith Papers, Revelations and Translations*, ed. Dean C. Jessee, Ronald K. Esplin, and Richard Lyman Bushman. Salt Lake City, UT: The Church Historian's Press, 2009.
- . 1938. *Teachings of the Prophet Joseph Smith*. Salt Lake City, UT: Deseret Book, 1969.
- Stark, Rodney. *Discovering God: The Origins of the Great Religions and the Evolution of Belief*. New York City, NY: HarperOne, 2007.
- Stott, Gerald. "Effects of college education on the religious involvement of Latter-day Saints." *BYU Studies* 24, no. 1 (1984): 43-52.
- Talmage, James E. 1899. *The Articles of Faith*. 1924 Revised ed. *Classics in Mormon Literature*. Salt Lake City, UT: Deseret Book, 1984.
- Tate, H. to John Taylor. Nauvoo, IL: *Times and Seasons* 4:3, December 15, 1842, 46-7.
- Tobin, Gary A., and Aryeh K. Weinberg. *Religious Beliefs and Behavior. Profiles of the American University 2*. San Francisco, CA: The Institute for Jewish and Community Research, 2007.
- Welch, John W. "And with all thy mind." In *Brigham Young University 2003-2004 Speeches*, 105-12. Provo, UT: Brigham Young University Publications and Graphics, 2003. <http://speeches.byu.edu/?act=viewitem&id=145>. (accessed June 17, 2014).
- Whitmer, David. *An Address to All Believers in Christ by a Witness to the Divine Authenticity of the Book of Mormon*. Richmond, MO, 1887.
- Widtsoe, John A. *Joseph Smith as Scientist: A Contribution to Mormon Philosophy*. Salt Lake City, UT: The General Board, Young Men's Mutual Improvement Associations, 1908. <https://books.google.com/books?id=un9559MrJAUC>. (accessed November 12, 2015).
- Wooton, Richard T. *Saints and Scientists*. Mesa, AZ: EduTech Corporation, 1992.
- Young, Brigham. 1862. "Apostleship of Joseph Smith; Destruction awaiting the nations (Remarks by President Brigham Young, made in the Bowery, Great Salt Lake City, August 31, 1862)." In *Journal of Discourses*. 26 vols. Vol. 9, 364-70. Liverpool and London, England:

Latter-day Saints Book Depot, 1853-1884. Reprint, Salt Lake City, UT: Bookcraft, 1966.

- . 1871. “Remarks delivered in the Tabernacle, Salt Lake City, 14 May 1871.” In *Journal of Discourses*. 26 vols. Vol. 14, 114-18. Liverpool and London, England: Latter-day Saints Book Depot, 1853-1886. Reprint, Salt Lake City, UT: Bookcraft, 1966.
- . 1874. “Discourse delivered in the new Tabernacle, Salt Lake City, Sunday Afternoon, 3 May 1874.” In *Journal of Discourses*. 26 vols. Vol. 17, 51-56. Liverpool and London, England: Latter-day Saints Book Depot, 1853-1886. Reprint, Salt Lake City, UT: Bookcraft, 1966.

Endnotes

1. C. Funk et al., Religion and Science. A 2013-2014 study by Ecklund concluded that “27 percent of Americans feel that science and religion are in conflict” (E. H. Ecklund, *Religious Communities*, p. 16. Cf. R. David, Misconceptions). According to the same study, nearly 20 percent of the general population and 22 percent of scientists think that religious people are hostile to science, and nearly 22 percent of the general population think that scientists are hostile to religion (E. H. Ecklund, *Religious Communities*, pp. 17-18. Cf. R. David, Misconceptions). That said, in Ecklund’s large 2005-2008 study of science and religion, she found only “five (!) of the atheist scientists [she] talked to were so hostile that they were actively working against religion” (E. H. Ecklund, *Science vs. Religion*, p. 150).
2. B. Young, 3 May 1874, p. 52.
3. B. Young, 14 May 1871, pp. 115
4. E. H. Ecklund, *Religious Communities*, p. 16.
5. J. E. Talmage, *Articles of Faith*, p. 20.
6. R. T. Wooton, *Saints*, p. 58.
7. N. B. Reynolds, Preface, p. x.
8. G. A. Tobin et al., *Religious Beliefs*, p. 20. Other groups specifically noted as being overrepresented were Jewish faculty, faculty espousing atheism or no religion, and Buddhist faculty (ibid). Similar results were found in Ecklund’s 2013-2014 study, which ranked proportions of scientists in various religious traditions as follows: Muslims/Hindus/Buddhists/Sikhs/Jains (13.7%), Jews (10.1%), Atheists/Agnostics/No Religion (7.7%), Mormons (4.6%), Mainline Protestants (4.5%),

Catholics (3.9%), and Evangelical (3.6%) (E. H. Ecklund, *Religious Communities*, p. 9).

9. N. B. Reynolds, Preface, pp. x-xi.
10. While national data indicate that, overall, the most educated are the least religious, among some denominations — and most dramatically among Mormons — a strong positive correlation has been reported. “Highly educated Mormons are more likely to pray frequently, to have strong religious beliefs and to attend meetings, suggesting that devotion is even more important for those with higher levels of education than those with lower educations” (S. L. Albrecht et al., *Secularization*, p. 308). This is due at least in part to the fact that from its very beginning, the Church has placed significant emphasis upon education. “One result of this has been a standard of educational attainment that is significantly higher than the national average. ... For both males and females, the percentage of Mormons who have completed post-high-school education is significantly higher than is the case for the [U.S.] population as a whole. For Mormon males, 53.5 percent have some post-high school education compared to 36.5% for the U.S. population. For females, the figures are 44.3 for Mormons and 27.7 for the U.S. population generally” (ibid., p. 302). That said, “the results are not consistent across college majors (philosophy and religion majors do not fare well in maintaining ‘high orthodoxy,’ for example)” (T. L. Givens, *Paradox*, p. 238, citing Armand Mauss) — though it is possible that LDS students fare better in religiosity than students with such majors from other Christian denominations.
11. N. A. Maxwell, *Disciple-Scholar*, p. 7.
12. G. Stott, *Effect*, p. 52. See also T. L. Givens, *Paradox*, pp. 65-99, 195-240; J. W. Welch, *Thy Mind*.
13. E. H. Ecklund, *Religious Communities*, p. 11; D. Ruth, *Misconceptions*.
14. G. A. Tobin et al., *Religious Beliefs*, p. 12.
15. E. H. Ecklund, *Religious Communities*, p. 11; D. Ruth, *Misconceptions*. In a different study by Ecklund conducted in 2005-2008 (E. H. Ecklund, *Science vs. Religion*) that included 1,700 natural and social scientists at elite universities (a much more narrowly defined and less religious set of scientists than the ones sampled in the 2013-2014 study), results were significantly different. In this earlier study only “about 64 percent of scientists at elite research universities either are certain that they do not believe in God, the classic atheist position,

or they do not know whether or not there is a God, the classic agnostic view,” compared to about 6 percent of the general public (*ibid.*, p. 16). Put another way, “only 9 percent of scientists say they have no doubt that God exists, compared to well over 60 percent of the general public.” Of course, “agnosticism may mean something different to scientists than it does to members of the general public. By definition, their life-work of science requires insurmountable evidence. ... A scientist is rarely absolutely convinced about anything!” (*ibid.*, p. 36). That said, 71 percent of scientists were willing to grant that there are basic truths in many religions (*ibid.*, p. 35).

Results of religious surveys can be appreciated fully only if a nuanced view is taken of the findings. For example, Ecklund’s survey found that nearly 50% of American scientists identify with a religious label, compared to 84% of the general population (*ibid.*, p. 33). However, of those who believe, “the highest proportion are Jewish (about 16 percent), but many of these identify as Jewish as an ethnicity, not in terms of an active religious faith” (*ibid.*). This is why nearly 50% of scientists surveyed could identify themselves with a religious label, even though 64% declared themselves to be atheists or agnostics.

16. G. A. Tobin et al., *Religious Beliefs*, p. 12.
17. A September 2007 Pew opinion poll (Public Expresses Mixed Views of Islam, Mormonism), taken of the general American public following a period of greater visibility of Mormonism during the Mitt Romney presidential campaign, gave the following Favorable-Unfavorable-No Opinion breakdowns: Jews (76-9-15%), Catholics (76-14-10%), Evangelical Christians (60-19-21%), Mormons (53-27-20%), Muslim Americans (53-29-18%), Muslims (43-35-22%), Atheists (35-53-12%).
18. Public Expresses Mixed Views of Islam, Mormonism.
19. C. Lasch, *Revolt*, p. 215. E. H. Ecklund, *Science vs. Religion*, pp. 153-155. See also D. Kinnaman et al., *Unchristian*. The authors of this book are evangelical Christians who think that it’s important to understand some of the stereotypes (all admittedly having some basis in reality) that people of the Mosaic (born 1984-2002) and Buster (born 1965-1983) generations have of religion. Some of the chapters are entitled: “Hypocritical,” “Get Saved!,” “Antihomosexual,” “Sheltered,” “Too Political,” and “Judgmental” — thus making clear many of the issues that make it difficult for religion to get a serious hearing among some people today.

20. E. H. Ecklund, *Science vs. Religion*, p. 58.

21. *Ibid.*, p. 56.

22. *Ibid.*, p. 17. For example, Robert T. Pennock writes (R. T. Pennock, *Tower*, pp. 178, 179):

To the faithful, having faith means sustaining belief despite the lack of [observable] evidence and sometimes even in the face of countervailing evidence. This accounts for the difference between a scientific test of a hypothesis and a theological test of faith. In the former case, we believe a proposed hypothesis only because it is supported by [observable] evidence and has survived attempts to disconfirm it [through the scientific method], and we reject it if the evidence opposes it. In the latter case, to survive a test of faith means to hold fast to one's belief even when everything goes against it. ... [S]cience, far more than any of its specific conclusions, is fundamentally scientific method. Creationists would have us turn science on its head and replace scientific reasoning based on observable evidence with human interpretations of revealed truth. The confusion of human languages would be nothing compared to the great confusion that would result from such a program.

23. See *ibid.*, pp. 20-24. In an article in *The Instructor*, for many years the Church's magazine for teachers, we read (E. L. Poulsen, *Make Your Teaching*, pp. 179, 199):

The Sunday School teacher who makes a pastime of ridiculing men of science, and of holding them up as the arch enemies of religion, usually loses the respect of the most intelligent members of his class. Others, who for the time being accept his conclusions, are forced later on to believe they must choose one or the other. Sometimes, they don't choose religion. And if they don't, the deceptions of unscrupulous and irreligious teachers of science may have been one of the causes; but it's equally true that the Sunday School teachers themselves may have been the worst offenders.

Little good comes from overstressing immature, childish versions of the creation, or from castigating unpopular political and economic theories, though this sort of thing is frequently done. Perhaps such a tendency is the second line

of defense for those teachers who find themselves facing their classes without adequate preparation for the lesson at hand.

Many notable men and women, as everyone knows, have given the Sunday School credit for successfully laying the spiritual foundations of their lives, or of guiding them through periods of doubt and uncertainty when they were wavering. ...

There are safeguards, however, with which the Sunday School teacher can surround himself so that he will almost certainly be able to inspire youth. The first of these is humility. Nothing so completely disarms an opponent or softens the edge of an argument as the removal of all sham and pretense from one's character, revealing a mind willing to learn, and eager to enlarge its own horizons, and a heart beating with good will for every individual God has created.

24. See *ibid.*, pp. 24-26.

25. Some years ago in Edinburgh, the city of the common sense philosophers where Charles Darwin's interest in natural history had budded, where his father and uncle and grandfather had studied before him, and where Elder Orson Pratt poured out his soul in discouragement on the top of Arthur's Seat for the Lord to give him just 200 Scottish converts (J. B. Allen et al., *Men*, pp. 163-164), Bradshaw remembers having lunch with a few colleagues:

The topic of religion came up, and though the comments were derisive, I held my peace for the moment. Later, sitting with the faculty on the hard wooden pews of the 300-year old chapel waiting for a lecture to begin, an opening came for me to share the fact that I was an active member of the LDS Church with a friend seated to my left. In shock, the friend expressed his sincere apologies for his comments at lunch. He said that the idea that I was a believer had never occurred to him, that there was only one other person he knew at work who had any kind of religious belief, that both he and his wife were both raised without any religion, as were their parents before them. Once rare, this situation has become commonplace.

26. R. Stark, *Discovering*, p. 8.

27. *Ibid.*, pp. 1-2.

28. *Ibid.*, p. 2.

29. Cited in D. Whitmer, *Address*, p. 31; cf. J. Smith, Jr., *Teachings*, 16 May 1841, p. 189. See also B. H. Roberts, *Comprehensive History*, 1:162-163; J. Smith, Jr. et al., *Manuscript Revelation Books, Facsimile Edition*, Canadian Copyright Revelation, circa early 1830, BCR 30-31, pp. 31, 33.
30. R. Stark, *Discovering*, p. 52.
31. *Ibid.*, pp. 2-3.
32. *Ibid.*, p. 43.
33. *Ibid.*, p. 20.
34. *Ibid.*, p. 8. See, however, the findings of Guy Consolmagno, who concluded from his interviews that while younger scientists and engineers often saw religion as a source of truth, older ones, already settled in what they believe, tended to see it principally as a source of community (G. Consolmagno, *God's Mechanics*, pp. 102-118).
35. H. Tate to J. Taylor, p. 46.
36. B. Young, 31 August 1862, p. 369.
37. J. A. Widtsoe, *Joseph Smith as Scientist*, p. 156.
38. H. B. Brown, *An Abundant Life*, p. 138.
39. E. T. Benson, *In His Steps*, p. 546.
40. G. B. Hinckley, *Thanks*, p. 88.
41. M. S. Petersen, *Earth*. See also M. S. Petersen, *Fossils*.
42. M. R. Ash, *Myth*, pp. 32-33.
43. T. L. Givens, *Paradox*, pp. 209-210, 378-379 nn. 59-64.
44. T. L. Givens, *Wrestling*, p. 369 n. 132
45. *Ibid.*, p. 219.
46. These and other LDS statements on evolution and the origin of man by the First Presidency and the Presidents of the Church, along with explanatory notes, can be found in D. H. Bailey et al., *Cosmos, Earth, and Man*, pp. 445-484. Another convenient source for many of these statements is W. E. Evenson, et al., *Mormonism and Evolution*.
47. D. H. Bailey et al., *Cosmos, Earth, and Man*, p. 456.
48. W. E. Evenson, *Evolution*.

49. W. E. Evenson, *Counsel Valid*. See also D. H. Bailey et al., *Cosmos, Earth, and Man*, pp. 460-461.
50. BYU Packet on Evolution and the Origin of Man.
51. H. Rolston, *Science and Religion*, p. ix.

