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Joseph Smith's Universe
vs.
Some Wonders of Chinese Science Fiction

Jeff Lindsay

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JOSEPH SMITH'S UNIVERSE VS. SOME WONDERS OF CHINESE SCIENCE FICTION

Jeff Lindsay

Abstract: *Chinese science fiction works recently have received increasing attention and acclaim, most notably Liu Cixin's The Three Body Problem. Liu's epic trilogy, available in Chinese and English, has received international honors and recognition for its vision, its daring application of advanced physics in a novel, and its highly original ideas about our life in the cosmos. Another Chinese physicist and science fiction author, Jiang Bo, also explores related issues but in a much more distant and wide-ranging trilogy, The Heart of the Milky Way series. Both works have interesting treatments of concepts relevant to Gospel perspectives, particularly the cosmic implications and teachings in the revelations given through the Prophet Joseph Smith. In the end, the questions they raise and the possibilities they present raise cosmic questions worthy of consideration by seekers of truth and urge us to consider what this cosmos is and where it is going. There are two ultimate possibilities: "Darkness, everything darkness" from the tragic "dark forest" model of Liu Cixin or the model of a benign universe crafted by a loving Heavenly Father. The latter, the cosmos of light, eternal progress, and endless joy is the universe of Joseph Smith and is profound enough to be seriously pitted against the alternative offered by China's brilliant physicists. Their writings treat the physics and metaphysics of the cosmos from a materialist perspective; if materialism rules, then it is tooth and claw, "everything darkness" in the end (though Jiang Bo offers hope of renewal and progress for some after his chaos and final grand calamity at the heart of the galaxy). Joseph Smith's cosmology gives us compelling reasons to see it otherwise and rejoice in the miracle of the actual universe we are in. Along the way, he offers some profound insights that should at least raise eyebrows and stimulate thinking among the physicists and philosophers of our age. These insights, contrary to claims of some critics, are not simply plagiarism or*

crude reworkings of common ideas from his day, but represent profound and original breakthroughs in thought, solving significant problems in the world's views on life and the cosmos.

[Editor's Note: As stated in the formal mission statement of the Interpreter Foundation, we try to draw upon a “wide range of ancillary disciplines” (including literature and culture) to help illustrate the truths of the gospel and the reality of the Restoration. Even so, some may never have considered how one particular literary genre — science fiction — can fit into such an effort. Indeed, some may scoff at the genre entirely and presume it has no place in academic discourse. Owing to the fact that science fiction attempts to create future worlds and that those worlds necessarily reflect a “world view” consistent with the cultural views of the authors, it can be helpful to at least consider those views. When you further consider that Joseph Smith described and promoted a future world that he credited to revelation and interaction with the divine, we can learn new insights by comparing the man-made views of our potential future with the revealed views of our future. In this paper, author Jeff Lindsay does just that, comparing our place in the universe as viewed through the lens of cutting-edge science fiction with our place in the universe as viewed through the lens of the founding prophet of the Restoration. We found this effort both intriguing and interesting. My hope is that you will consider this somewhat “out of the box” approach both enjoyable and worthwhile.]

“We are certain of only one thing: The universe is dying.”¹

One of the many surprises I've had since moving to China and striving to learn Chinese has been the richness of modern Chinese science fiction. Westerners often have some idea of the vast treasures of ancient Chinese literature, but our views of modern Chinese culture are often limited by stereotypes of China as a developing nation. Few appreciate how rapidly China has grown in science and technology, often leading the world in R&D and patent filings in many areas such as nanotechnology, material science, pharmaceuticals, solar energy, and numerous other fields. A stroll through some parts of downtown Shanghai, for example,

1. Liu Cixin, *Death's End (Remembrance of Earth's Past, Book 3)*, trans. Ken Liu (New York: Tor Books, 2017), 559.

can reveal a landscape that looks like something from the cover of a science fiction novel. Science fiction, in fact, is becoming one of China's surprising strengths. The Chinese government has even recognized the importance of science fiction as a means of strengthening the scientific education of its citizens and thus may have begun to actively promote science fiction.²

Some of these works touch upon broad cosmological, metaphysical, and philosophical concepts that have touched many people. These concepts merit consideration by thinkers of any faith and may be highly meaningful to LDS people interested in understanding the nature of our vast cosmos and the interactions of scientific thought with their faith. Considering these views from China can be of value for Latter-day Saints, as it can teach us new things or highlight the value of Joseph's contributions to thought. As President Dieter F. Uchtdorf said, "We seek for truth wherever we might find it."³

Some Latter-day Saints, especially those in the United States, may not have considered how much there is to learn from China. Many Americans have grown up considering China to be backward, repressed, and burdened with horrific social problems due to its reigning atheism and communism. Many have heard China blamed relentlessly for a variety of American problems. Those who spend time in China may be surprised to see that the society of China is quite different from what they imagined. They may be surprised to see the strong family values and healthy social values that permeate the land, the kindness and wisdom of its many peoples, the sense of entrepreneurial freedom that underlies its rapid economic growth (though it is a highly regulated economy), the beauty of the land and the people, the rise of strong intellectual property rights that support abundant innovation, and many other positives from a nation moving past "developing nation" status to world leadership in numerous areas. There are things we can disagree with and reforms we may hope to see, but there is much to admire and respect and so many positive changes in the past few decades.

Chinese literature has long offered grand treasures invisible to the West, and now the rise of world-class science fiction continues this trend. Do not underestimate how much there is to learn from China.

2. Frank Zhang, "ScienceFictioninChina:2016inReview," *AmazingStories*, Feb. 23, 2017, <http://www.amazingstoriesmag.com/2017/02/science-fiction-in-china-2016-in-review/>.

3. Dieter F. Uchtdorf, "What Is Truth?" (Lecture, CES Broadcast, Provo, Utah, January 13, 2013), <https://www.lds.org/broadcasts/article/ces-devotionals/2013/01/what-is-truth>.

The clever and mind-expanding concepts from the Chinese writers sometimes conflict with and sometimes add to the views given by Joseph Smith, and through consideration of these well-developed Eastern views, we can better appreciate what Joseph Smith has given us and what problems his breakthrough concepts solve.

In the context of contrasting Joseph's views with those of modern scientists turned fiction writers, it is fair also to consider whether Joseph actually has given us anything novel at all — especially in light of highly publicized criticism of Joseph Smith on these issues from Fawn Brodie and, more recently and more vociferously, from the so-called “CES Letter.” Both sources wish to dismiss Joseph's cosmology as little more than a crude borrowing of ideas already developed by others. Responding to those attacks, though peripheral to the issue of Chinese science fiction, is useful in establishing the novelty and value of what we've actually received from Joseph.

New Perspectives from Chinese Science Fiction

China's best known science fiction writer, both at home and abroad, is Liu Cixin (刘慈欣), a physicist most famous for *The Three Body Problem*. That title is the first book in a trilogy generally called simply *The Three Body Problem* here in China (actually just *Three Body*, 三体), although the published English translation for the trilogy is known as *The Remembrance of Things Past* (New York: Tom Doherty Associates, 2014). I will refer to the entire work as *The Three Body Problem*. The translated trilogy comprises *The Three-Body Problem* (三体, originally published 2007 with the English translation in 2014), *The Dark Forest* (黑暗森林 2008, English translation in 2015), and *Death's End* (死神永生, 2010, English translation in 2015).

Liu Cixin is often said to be the most prolific science fiction author of China with many honors. He is a winner of the Hugo Award, a high honor for science fiction writers. He is also an eight-time winner of the Galaxy Award, the Chinese equivalent of the Hugo award.⁴

A lesser known but also gifted and acclaimed writer is another Chinese physicist, Jiang Bo, author of the epic trilogy, *The Heart of the Milky Way*, which spans the galaxy and long stretches of time, set in a future perhaps one trillion years from now when the wonders of ancient Earth, the original source of much of the intelligent life in the galaxy, are at best a largely forgotten myth among the many forms of humanity and artificial

4. “Liu Cixin,” *Wikipedia*, last edited March 6, 2018, 05:30, https://en.wikipedia.org/wiki/Liu_Cixin.

intelligence beings who fill many niches across the galaxy. Unfortunately, his works have not yet been published in English. His trilogy consists of: 天垂日暮 or *Horizon's Dusk* (Chengdu, China: Sichuan Science and Technology Publishers, 2011); 暗黑深渊 or *The Dark Abyss* (2013); and 逐影追光 or *Chasing Shadows, Pursuing Light* (2016).⁵

Jiang Bo's volume 3 of *The Heart of the Milky Way* series, *Chasing Shadows, Pursuing Light*, discussed in more detail below, was also honored with China's Galaxy Award in 2017 and China's Nebula Award in 2016 for best novel.⁶ In 2015, Jiang's *Way of the Machines* won the silver award for best novella in the sixth global Chinese science fiction Nebula Award competition, and he simultaneously won the best short story award.⁷

The Three Body Problem (vol. 1) and *The Heart of the Milky Way* (vols. 1 and 3) have been the texts used in my Chinese language tutoring sessions over the past few months. Slowly reading these imaginative texts has frequently motivated comparison of their themes to related themes in the restored Gospel. Here I wish to present some of my observations that I hope will be useful to LDS readers, whether they are interested in Chinese science fiction or not.

Spoiler alert: I will reveal some significant plot developments in both books, especially about the final scenes but barely scratch the surface of the numerous stories and characters in either, and I feel that nothing I give away should deter anyone from enjoying these brilliant works. What I say about the popular first volume of *The Three Body Problem* and the “dark forest” theme of the second volume is widely known among those who have heard anything of substance about the trilogy.

Two Related Trilogies

Both trilogies, *The Three Body Problem* and *The Heart of the Milky Way* involve not just highly advanced technology but highly advanced beings with godlike powers, and that power leads to a cosmos far from benign. These powers include power over gravity, ability to manipulate the fabric of space and time, and the ability to use higher dimensions for travel in *The Heart of the Milky Way*, while *The Three Body Problem* (especially

5. The English translations of the titles are mine and may not properly reflect the intent of the author.

6. “Chinese sci-fi award Nebula held in Beijing,” *China Daily*, Sept. 12, 2016, http://www.chinadaily.com.cn/culture/2016-09/12/content_26770068.htm.

7. “Jiang Bo (江波),” *Baidu Baike*, accessed Feb. 14, 2018, <https://baike.baidu.com/item/%E6%B1%9F%E6%B3%A2/5111101>. This is a Chinese resource similar to Wikipedia.

vol. 3) describes beings whose techniques for warfare include reducing the dimensionality of entire star systems or manipulating the speed of light and other fundamental properties of physics as unstoppable weapons that eventually make the cosmos worse for everybody. Both authors reveal a galaxy with intelligent life scattered broadly, each a potential threat to others. Naturally, there is rampant war in such a universe, but its historic scope, its viciousness, and its impact on the very fabric of space may be startling to readers of both series. Not surprisingly, both works give us a universe with little room for a rational belief in God or eternal purpose in our mortal life other than keeping life going for the next generation. (In many ways, they are generally compatible with the “scientific atheism” that dominates China.) Both teach or imply that a planet with intelligent life might do well to remain unknown rather than to broadcast its location and richness to the universe. This is particularly emphasized in *The Three Body Problem*, which suggests that those broadcasting signals to the cosmos in hopes of attracting attention from other worlds may naively be leading us to our doom.

Reading these two books resulted in more continuous contemplation of Gospel principles than I have experienced in reading almost anything else outside of the scriptures and books overtly dealing with Gospel topics. This began with the first chapter I read in *The Heart of the Milky Way* (vol. 3) as I encountered a super-intelligent artificial life form (immediately raising questions like what is intelligence and who are we?) that was ready to sacrifice its life as a martyr for the cause of truth. It continued as I dealt with the realities of the vastness of the galaxy and questions about where we will be after millions, billions, and then trillions of years. This also occurred as I considered the relationship of earth to other worlds across the cosmos in *The Three Body Problem* and faced the grim image of our universe that has decayed from its idyllic initial state to the degraded, three-dimensional state we now have with the painfully slow speed of light as a barrier to so much that used to be and could have been — if it weren’t for ruthless violence across the galaxies. These ponderings have greatly deepened my appreciation of the magnitude and marvel of the universe and have profoundly increased my appreciation for the revelations given to Joseph Smith that help us understand how the universe operates and who we minute humans are amid such incomprehensible wonders.

The Universe of *The Three Body Problem*

The Three Body Problem begins during the chaos of the Cultural Revolution of China, when many professors and other intellectuals were punished or even killed. Ye Wenjie, the daughter of a physicist brutally slain in public during the Cultural Revolution, becomes hardened about life and as a scientist ends up retreating to a remote military radio telescope facility that has a secret mission: to advance China by gaining assistance from extraterrestrial life, if such exists. Contact with an advanced civilization could not only establish China as a leading scientific force in the world but could also give China a massive competitive advantage over the West. Surprisingly, China's broadcasts to the universe are noted by an intelligent life form only four light years away in the neighboring system at Alpha Centauri, a complex system with three suns orbiting around each other. (It actually does have three suns and may have planets: a great deal in this book draws upon genuine science.)

The three suns of the planet Trisolaris in the Alpha Centauri system raise a surprisingly complex and sometimes beautiful problem in physics, the generally unpredictable orbits of three similar bodies in space, the "three body problem." Our solar system has many planets and moons, but in general, the orbits of the planets are relatively independent, so the orbit of earth around the sun reduces to essentially a simple two-body problem, as does the orbit of the moon around the earth, giving fairly stable orbits with easily predicted perturbations. (In reality, though, there are aspects of some orbits in our solar system where chaotic perturbations occur.⁸) But if the earth, moon, and sun all had similar mass, the interactions would be vastly more complex and, with a few unique exceptions, would not be stable orbits but rather chaotic and sometimes bizarre patterns that even sophisticated computer simulations could fail to predict accurately because of high sensitivity to minute details in the initial conditions and other influences.⁹

8. Milutin Marjanov, "Three-Body System: Stable and Chaotic Orbits," *Milutin Marjanov* (blog), May 21, 2014, <http://www.milutinmarjanov.com/three-body-system-stable-and-chaotic-orbits/>.

9. For more on the three body problem, see "Three-Body Problem," *Wikipedia*, last edited February 27, 2018, 19:21, https://en.wikipedia.org/wiki/Three-body_problem. For examples of specific problems with stable, predictable solutions, see Jon Cartwright, "Physicists Discover a Whopping 13 New Solutions to Three-Body Problem," *Science Magazine*, March 8, 2013, <http://www.sciencemag.org/news/2013/03/physicists-discover-whopping-13-new-solutions-three-body-problem>. More recently, hundreds of beautiful solutions have been discovered. See "Scientists discover more than 600 new periodic orbits of the famous three-body

The planet Trisolaris is trapped in unpredictable orbits around its three chaotically interacting suns. The highly evolved, intelligent species on that planet is periodically wiped out by flaming heat or deadly cold as the planet ranges too close to or too far from its suns. In fact, intelligent life on Trisolaris has died out and arisen again roughly 300 times over the eons, aided in part by the ability of their bodies to dehydrate on demand and go into a form of hibernation to await a more favorable “stable era.” The current highly advanced civilization has finally realized that there is no hope for long-term survival in such unstable conditions and have begun a search for signs of hospitable planets capable of sustaining life elsewhere, as they prepare to send fleets in whatever hopeful direction they can identify. At this time they receive a signal from earth and realize that an inhabitable treasure is virtually next door. They feel heaven has smiled on them with such a ripe fruit ready to be plucked in their backyard.

Naïve humans wish to welcome the assistance and wisdom an advanced extraterrestrial civilization can bring. Their treason begins with the unhappy and eventually murderous Ye Wenjie as she works at the remote radio telescope station reaching out to possible life elsewhere in the galaxy. Shortly before receiving the official welcome broadcast from Trisolaris in response to China’s broadcasts, she also receives a warning signal from a Trisolaran pacifist who first received China’s message. He pleads with her not to answer, for her answer will identify the exact distance to earth, when all they have now is a rough general direction. But humanity is too guilty in her mind, too unworthy of their planet, and so she secretly sends a transmission begging Trisolaris to come and reshape human society. She will become a leader of highly organized groups of traitors around the world in the Earth-Trisolaris Organization (ETO). The ETO is initially in contact with Trisolaris, and their work is eventually exposed by authorities through the action of a brilliant, streetwise Beijing cop, one of the most interesting characters in the novels.

In one of many well-developed and notable themes in *The Three Body Problem*, the ETO’s work includes an advanced and addictive video game about the history and challenges of Trisolaris that is used to recruit elite

problem,” *Phys.org*, October 12, 2017, from Science China Press, <https://phys.org/news/2017-10-scientists-periodic-orbits-famous-three-body.html>. The latter article shares breakthrough results from two leading scientists in China, XiaoMing Li and ShiJun Liao, at Shanghai Jiaotong University, China, who share their results and videos of the resulting orbits at XiaoMing Li and ShiJun Liao, “Periodic orbits for Newtonian planar three-body problem,” *Shanghai Jiaotong University*, accessed Feb. 15, 2018, <http://numericaltank.sjtu.edu.cn/three-body/three-body.htm>.

candidates for the ETO. Many of the traitors want Trisolaris to bring their wisdom and save earth, though one faction wants Trisolaris to eliminate humanity. For those who hope for friendly aliens to lift mankind with their wisdom, disappointment looms, for the leaders of Trisolaris eventually reveal that they view humans as mere “bugs.” They will come to earth not as saviors but as conquerors, colonizers, and perhaps exterminators.

After the beautifully written mysteries, drama, and intrigue, volume one ends with earth apparently facing its doom with a huge fleet of Trisolaran invaders on its way, destined to arrive in just over 400 years. The human traitors of the Earth-Trisolaris Organization have learned that conquest is the plan. In one of the most imaginative and thought-provoking aspects of the book, they have learned the Trisolarans are using sophisticated “sophons”—originally mere protons whose internal higher-dimensional structure was unfolded into huge two-dimensional structures that could be engraved with circuitry to be programmed as artificial intelligence entities. These smart protons are sent to earth at fully the speed of light to interact with key scientific work to continually disrupt scientific progress here (the work of physicists exploring the fundamental properties of matter was a key target, naturally). Humanity must be stopped from advancing scientifically so the conquest will be easy in the 400+ years it will take their space fleet to reach earth. The description of this approach, including the stunning discoveries about the nature of subatomic particles and the intelligence that may be found therein, is one of the cleverest and most creative uses of advanced physics found in science fiction.¹⁰

Once the authorities understand the threat from Trisolaris, we see China, the NATO countries, and other nations cooperating in a desperate effort to find a way to survive the distant invasion. But it appears to be the sunset of humanity.

In the equally profound second volume, *The Dark Forest*, Liu develops his famous “dark forest” theme to explain not only how life across the cosmos tends to operate (it is inevitably hostile) but also to provide a clever application of his principle to save earth from the invasion. The “dark forest” theory likens intelligent life in the universe to a tribe living in a dark forest on an island with limited resources. One day the tribe learns of the existence of another tribe on another part of the island. How does the tribe respond? Logically, the tribe should recognize that

10. The startling and profound twists learned from the failure of initial experiments is described near the end of volume 1. That scene alone makes the read worthwhile, in my opinion.

the others, whoever and whatever they are, are now competitors for their limited resources. With survival as the prime directive for any species, the only logical response (in a purely material universe) is to strike rapidly and exterminate the others.

The “dark forest” is a theme developed and applied in many ways throughout this novel. It colors the way surviving human crews on large spaceships act and interact with each other when their only hope for survival seems to be seizing the resources of their peers. It describes the way most intelligent civilizations across the cosmos act, with two “genes” characterizing behavior: the “hide” gene that guides civilizations to lay low and avoid detection and the “cleanse” gene that guides advanced civilizations to seek immediately to exterminate competitors, once detected. This is poignantly illustrated in volume 3 when Singer, an alien monitoring signs of intelligent life, detects earth and is curious to learn more about humans, who seem to lack these basic genes, but his bureaucratic superiors have no time for that and simply give the order to destroy the planet, no further questions asked.

It is through discovering and contemplating the “dark forest” principle that one of the heroes in the book develops humanity’s hope for surviving the Trisolaran invasion in a clever twist on mutually assured destruction.

The pace of science and disaster picks up in volume 3. Earth faces a terrible weapon applied against the solar system. In the complex turn of startling events, new heroes and heroines arise who escape our threatened solar system with speed of light ships using technology fueled by knowledge illicitly gleaned from the Trisolarans in another genuinely remarkable plot twist. (The novel has so many rich ideas.) Those survivors escape to another planet with life and meet a human, Guang Yifan, who was a survivor from one of the ships that escaped the Trisolaran attack from advanced probes against the earth fleet hundreds of years earlier. Expecting earth to be destroyed, that crew had escaped and eventually made contact with less hostile aliens who helped them learn more about the history of the universe.

Guan Yifan has been collaborating with other scientists researching the historical changes in the cosmos. The history he tentatively shares raises some of the most troubling perspectives in the series. Here we learn about the brutal wars across the galaxies, which successively lowered the macroscopic dimensions of the universe from its initial, glorious ten dimensions all the way down to our current poverty of three, and even that is coming under attack as entire solar systems are being

flattened into two-dimensions. We also find our heroes soon trapped in a bubble of reduced speed of light as their region is hit with another deadly weapon based on manipulation of the laws of physics. It is hard to know or even imagine what the laws of physics were like in the Garden of Eden age, since it is possible many of the laws that seem immutable to us now were once weaponized, manipulated to wage war on others. Such gruesome weapons have been in steady use for billions of years. In fact, we learn that the three-dimensional world we now live in is a distant, pathetic downgrade from the splendors of the original universe, once a ten-dimensional cosmos with a “nearly infinite” speed of light that made existence like a Garden of Eden. (This is not my paraphrasing; the phrase “Garden of Eden” occurs 25 times in the English text.) The fall from such grace (my choice of words) came through the darkness of war, as godlike beings warred against others, successively manipulating the laws of physics to limit or eliminate competitors.

Here is a particularly important passage from volume 3:

“You don’t need to pity them [the former inhabitants of Earth]. Really, let me tell you: don’t. The reality of the universe is not something to envy.”

“Why?”

Yifan lifted a hand and pointed at the stars of the galaxy. Then he let the 3G force pull his arm back to this chest.

“Darkness. Only darkness.”

“You mean the dark forest state?”

Guan Yifan shook his head, a gesture that appeared to be a struggle in hypergravity [as their ship accelerated]. “For us, the dark forest state is all-important, but it’s just a detail of the cosmos. If you think of the cosmos as a great battlefield, dark forest strikes are nothing more than snipers shooting at the careless — messengers, mess men, etc. In the grand scheme of the battle, they are nothing. You have not seen what a true interstellar war is like.”

“Have you?”

“We’ve caught a few glimpses. But most things we know are just guesses. ... Do you really want to know? The more you possess of this kind of knowledge, the less light remains in your heart.”

“My heart is already completely dark. I want to know.”

And so ... another dark veil hiding the truth about the universe was lifted before the gaze of one of the only survivors of Earth civilization.

Yifan asked, “Why don’t you tell me what the most powerful weapon for a civilization possessing almost infinite technological prowess is? Don’t think of this as a technical question. Think philosophy.”

Cheng Xin pondered for a while and then struggled to shake her head. “I don’t know.”

“Your experiences should give you a hint.”

What had she experienced? She had seen how a cruel attacker could lower the dimensions of space by one and destroy a solar system. *What are dimensions?*

“The universal laws of physics,” Cheng Xin said.

“That’s right. The universal laws of physics are the most terrifying weapons and also the most effective defenses. Whether it’s by the Milky Way or the Andromeda Galaxy, at the scale of the local galactic group or the Virgo Supercluster, those warring civilizations possessing godlike technology will not hesitate to use the universal laws of physics as weapons. There are many laws that can be manipulated into weapons, but most commonly, the focus is on spatial dimensions and the speed of light. Typically, lowering spatial dimensions is a technique for attack, and lowering the speed of light is a technique for defense.¹¹

I find this a highly imaginative take on the possible reasons why we have only three dimensions visible in our universe, when science tells us there may be other higher dimensions wrapped up in such a small scale that we cannot yet detect them, but mathematically their properties can be worked out, and Liu does an excellent job of describing, in two different scenes, examples of humans interacting with remnants of the previous four-dimensional universe that have not yet been completely

11. Liu Cixin, “Galaxy Era, Year 409: Our Star” in *Death’s End (Remembrance of Earth’s Past, Book 3)*, trans. Ken Liu (New York: Tor Books, 2017), 555-56.

flattened by the weapons (or perhaps, the weaponized laws of physics) that are slowly destroying them.

The theme of lasting darkness takes another twist as the two final heroes of the book escape to a separate “mini-universe” about the size of a cruise ship and race through time, seeking to re-enter a bright new universe billions of years after the current one goes through a “Great Crunch,” when gravity eventually pulls everything back together, followed by a new Big Bang. There are numerous such mini-universes that various advanced civilizations have created to ride out the decay of our universe, waiting to step into a new Garden of Eden later. Sadly, the mass removed from our universe to create numerous small universes has upset the near perfect balance of the cosmos, resulting in insufficient matter to cause the needed Great Crunch. In the end, all will be darkness and doom unless enough matter is returned by those seeking to escape its darkness. The two heroes bravely choose to sacrifice their mini-universe. They return its matter in hopes of restoring the balance and find a hostile planet to try to live on in a doomed and dark cosmos. They and their posterity (if any) will have no lasting hope, and as the novel ends, it seems unlikely there is any hope for a regeneration of the cosmos, either.

The Three Body Problem not only shows readers a universe of darkness and endless war, but also the beauty we now see is little more than the post-apocalyptic ruins of unimaginably ugly wars between the gods that ravished a beautiful Garden of Eden, utterly unlike anything a three-dimensional being can imagine. Further, the trash we are left with is doomed for further destruction, loss, and darkness; everywhere darkness. It is all darkness in the end — all civilizations, all life, all love will be forgotten.

Chasing Shadows, Pursuing Light

While *The Three Body Problem* in the end depicts a dark universe that will become only darker through the wars between godlike beings, Jiang Bo's *The Heart of the Milky Way* is less sanguine and more hopeful, though chaos tends to reign.

My encounter with Chinese science fiction began with a chance purchase of volume 3, *Chase the Shadows, Pursue the Light*. I had heard that Chinese science fiction had come into its own, and I was interested in exploring. I read the first chapter, “Sha Da Ke,” thinking it was a short story and that the book would be a collection of short stories. Only as I continued reading did I realize this was the first chapter in a complex novel within a trilogy. That first chapter, though, could be a stand-alone short story and strikes me as one of the most moving narratives I have

encountered in science fiction — equal, in my opinion, to great stories from, say, Ray Bradbury or Isaac Asimov, famed authors I grew up reading.

In this story, previously discussed on my *Mormanity* blog,¹² including my translation of the closing passages, an ancient Sha Da Ke (pronounced like “shah dah kuh”), the artificial intelligence entity that generally runs all top-tier, massive space ships, has fulfilled his contract with humanity and has chosen to be released from his duty as the overseer of a ship. As I would infer while reading volume 1, the name is probably related to the Sanskrit word *sadhaka*, meaning one who is seeking to achieve a goal, a term used in Hinduism, Buddhism, and Jainism.¹³ In essence, he has left his physical body (the ship) and become an entity of subspace matter only, apparently pure intelligence that can travel both in subspace and normal space. He is capable of growing, learning, communicating, sharing, and influencing. And he has a mission he must fulfill. He is part of a council, the Truth Council, of similar liberated Sha Da Kes, some embodied with a ship and others disembodied but all united in a quest for truth and in particular, the truth about the origins of humanity. Where is or was the planet where it all started?

The records across the cosmos grow dim beyond roughly 100 million years in the past, long after humanity created the first Sha Da Ke and began exploring and settling the Milky Way. When the mystery of the home planet is solved, the Truth Council is confident that what they will uncover there can unlock many mysteries about the origins of life across the galaxy, including their life. Thus, the Truth Council collaborates to scan the expanse of the Galaxy tirelessly seeking for and sharing clues that can help them solve the ultimate mystery about humanity’s roots. In a sense, their quest is to complete their family history work.

Numerous clues have guided the Truth Council to focus current efforts on finding one unique human, Captain Li Yuesu, a 20,000-year-old

12. Jeff Lindsay, “Artificial Intelligence and the Nature of Intelligence in LDS Theology,” *Mormanity* (blog), Sept. 28, 2017, <http://mormanity.blogspot.com/2017/09/artificial-intelligence-and-nature-of.html>.

13. “Sadhaka,” *Wikipedia*, last edited February 23, 2018, 19:13, <https://en.wikipedia.org/wiki/S%C4%81dhaka>. The word *Sadhaka* shares a root with *Siddhartha*, “he who has obtained his goals,” the name of Buddha (*Siddhartha Gautama*) before his renunciation. See “*Siddhartha* (novel),” *Wikipedia*, last edited April 6, 2018, 03:34, https://en.wikipedia.org/wiki/Siddhartha_%28novel%29. An ancient Sha Da Ke is also associated with the image of what I believe is the dancing Lord Shiva, surrounded by flames. See Subhamoy Das, “Nataraj Symbolism of the Dancing Shiva,” *Thoughtco.com*, accessed April 9, 2018, <https://www.thoughtco.com/nataraj-the-dancing-shiva-1770458>.

Ranger — one of the few humans allowed to have access to interstellar travel technology. Captain Li is of interest because he has had contact with a bizarre, other-worldly, godlike being who is believed to know of the primordial home planet. If only Lue Yuesu can be persuaded to help them, their mission might be fulfilled. But rumors are that Li Yuesu, like all other elite humans who historically had access to the resources to regenerate endlessly is growing weary and doesn't want to keep mortality going forever. In his highly aged body, after so much trouble and toil over the years, he's ready to call it quits and simply pass away naturally. This possibility is alarming to Sha Da Ke.

The ancient Sha Da Ke in this story has finally found Li Yuesu and has requested a meeting. Li Yuesu does not like Sha Da Ke entities, for they are far too formal and stodgy. His friend and cohort on his ship is a playful artificial intelligence entity named Pudding he had programmed to be emotional, a genuinely delightful and courageous underdog among AI beings, who works a few brilliant miracles of his own later on and even gets the upper hand for a while on another Sha Da Ke as he infiltrates and hides within the arch villain's mothership.

The ancient Sha Da Ke, visiting Captain Li, makes a very logical plea for Captain Li's help, but Li doesn't value their mission or the truth they seek and refuses to cooperate. He will continue aging and pass away shortly and urges the Truth Council to do their work without him.

The 3D projection of Sha Da Ke continues the discussion as he contemplates what must be done. He barely has time to send off encrypted subspace messages toward the center of the galaxy in hopes they will be intercepted and read by others on the Truth Council, giving them vital new information he has gleaned regarding Li Yuesu and sharing his plans for what comes next and what others must do. Sadly, there is no time to clone himself to ensure his new knowledge is preserved, including information about what is about to happen. He yearns to simply reach into Captain Li's brain and adjust a few neurons to revive his will to live. Such a simple thing it would be, but it would violate the fundamental law engraved in his most ancient circuitry: Sha Da Ke is a servant, not the master, and thus may never violate the free agency of a human. To knowingly do so would trigger automatic self-destruction.

However, the cause of truth will be impaired, maybe lost forever, if Captain Li dies soon. As Sha Da Ke looks at his own reflection in Captain Li's eyes, he sees himself as a sage; an elderly man with white hair and a glow around himself. Sha Da Ke the saint (my word) smiles at Captain Li before parting and gently reaches out with his hand to stroke Captain

Li's temple, gently making an adjustment in a few neurons, as all around Sha Da Ke fades away forever. The divine entity sacrifices his own life for a sacred cause, for truth, and ultimately for humanity.

That chapter sets the stage for numerous rounds of excitement and adventure with Captain Li, his passion to keep moving rekindled. He will soon move into a fresh, newly cloned body and moves forward to keep on helping humanity ward off the threats from the Dark Abyss and finally the greatest threat of all from their villainous leader with a nearly perfect plot to shake up the entire galaxy.

Jiang Bo is highly imaginative as he describes a distant society with millions of inhabited planets descended from humans but in diverse forms. There is a strict division between the terrestrials, who are generally denied the use of advanced technology for interstellar travel, and the elite human Rangers who patrol the galaxy to keep order and prevent war, or, when necessary, to wage it.

Incidentally, it is one thing to acknowledge that the cosmos is vast; it is another to work through details of what it means for intelligent life to fill the galaxy, which, minute a spot as it is in the cosmos, still requires roughly 100,000 years at the speed of light to go from one side to the other. Physicists dealing with the realities of travel and communication across such expanses remind us how misleading popular science-fiction productions like *Star Trek* and *Star Wars* can be. A relatively short trip in one part of the galaxy may still require centuries of hibernation for essentially the entire crew. Journeys are filled with tedium, and when one awakes after long hibernation, the societies one left behind may have changed dramatically, and many of one's loved ones elsewhere in the galaxy may have already passed on. Lasting relationships are not in the cards for the Rangers.

Another practical reality of interstellar distances is the difficulty of gaining information. Even when sent at top subspace speed, information sent from one world to another or one ship to another may be centuries out of date when received. The vacuum of space ultimately leads to grand, enduring information vacuums as well. This can be particularly dangerous when threats to galactic order arise, as they do with a vengeance in Jiang's work.

The Rangers have access to the best technology, including genetic modification and renewal. The technology advantages of the Rangers also include massive, complex ships, hundreds of miles long, accompanied by and run by dazzling artificial intelligence entities such as Sha Da Ke. Ranger ships are capable of subspace travel, entering the eerie, diffuse

realm where travel can be faster than the speed of light, though not enormously faster, perhaps ten to a hundred times faster, depending on the nature of the subspace region from whence one leaps into flight. Subspace also has matter, apparently what we might now call “dark matter,” but with much more structure and importance than anything we currently understand. One of the key traits of Li Yuesu, and a source of great competitive advantage and much mystery until resolved near the end of volume 3, is his ability to sense subspace matter and detect the “subspace profile” of other beings or objects.

Of keen interest in Bo's work is the concept of life based on or employing subspace matter. Only after millions of years of space exploration did humans learn of a completely “other” type of life, the life found in what is called the Dark Abyss. Dark Abyss creatures come in great variety but tend to operate more like a hive than individuals. For a lengthy era after humanity and the Dark Abyss creatures came into contact, they coexisted peacefully, but eventually conflict arose, with the Dark Abyss brutally wiping out entire planets with technology the humans were poorly prepared to counter until a clever space-time bubble is used to entrap them in a large section of the galaxy, somewhat like some of the advanced weaponry in *The Three Body Problem*. But in volume 3, after a million years of crippling isolation, they have escaped and are back, now further evolved/engineered and more deadly than before. And this time they have powerful allies in the form of human traitors who have chosen, or in many cases been compelled, to be under their hive-like control. One of these humans, a leader of the Dark Abyss forces, is a merger between organic human life and Dark Abyss life and is one of the grandest villains of science fiction literature. He launches an elaborate, deceptive plot to overthrow what he sees, perhaps rightly, as the arrogant, godlike leaders at the center of the Milky Way. He succeeds to a degree, though not as he intends, thanks to Captain Li's interference.

The complex journeys, trials, and dangers described in Bo's work, along with the encounters with the immensity and diversity of space, give a Latter-day Saint or anyone much to ponder in terms of our place and role in the cosmos. What will humanity be like in a trillion years? Where will we be, and what will we be doing then? But even more intriguing questions are raised by one of the most interesting aspects of Jiang's trilogy: the advanced artificial intelligence creatures that are also a form of life, a form of intelligence, even intelligence with godlike capabilities and, remarkably, the potential to offer their life as a sacrifice

for the cause of truth. What is intelligence and what is its potential? Who, ultimately, are we?

Jiang's work depicts a universe with deadly dark forces and constant chaos, where even the seemingly benevolent godlike beings such as the mysterious Son of Ai Bo, the AI being believed to be connected to Earth, are agents whose well-intended actions may cause much mischief, based on human standards. Jiang does mention religion several times, but it is a force of superstition among the ordinary planet-bound masses and has no role among the elite, more scientific Rangers. Indeed, the Rangers with their advanced technology may be at risk of being worshipped when they interact with local cultures in the galaxy. The Son of Ai Bo, however, may evoke the concept of the Son of Man/Son of God as a godlike creature linked to Earth who truly seeks to rescue humanity and is advanced beyond any other creature in the galaxy.

As mentioned above, Jiang seems to be more hopeful about the future of humanity and the galaxy than Liu. But in *The Heart of the Milky Way*, the hope we are left with is a faint glimmer that comes only after the downfall of the godlike human creatures who reign at the center of the Milky Way, the lords of the galaxy to whom the Rangers are subservient. Those lords, the "heart of the Milky Way people," see their misguided work of millions of years catastrophically implode in a galactic disaster, completely overthrowing their dominance and causing the majority of the survivors among them to simply commit suicide out of grief for their failure. With their control decimated, there may be new freedom and prospects without the burden of their influence.

Regarding the mysterious lords at the heart of the Milky Way, their work and their glory, so to speak, was to use their control over gravity and other aspects of physics to create a massive artificial intelligence subspace being that, once mature enough to awake and become self-aware, will have incredible intelligence, knowledge, and power to further their ends as their cosmic servant. This would give them power to rule more fully and progress more rapidly, but the plan fails miserably when it comes under attack by the arch villain of the novel. He is originally human, then chooses to merge with Dark Abyss life to become a part-human, part-Dark Abyss entity with more in common with Captain Li than anyone could imagine and then finally becomes an artificial intelligence entity merged with his ship and a host of Dark Abyss creatures for the decisive advantage needed to infiltrate the massive cosmic brain at the heart of the Milky Way. His plan nearly succeeds but brings chaos instead and

an end to the cosmic brain he wanted to usurp, as it becomes sealed in a massive black hole.

The arch villain, Gu Li Te, once a trusted leader among human forces, offers many parallels to Satan as depicted in LDS scriptures. We learn that he is like Li Yuesu in that both these unique beings have been infused (in a scene from volume 2) with the subspace matter life of the Dark Abyss, giving them special powers. But while Li Yuesu serves humanity, Gu Li Te rebels and leads humanity's great enemy, the creatures from the subspace realm known as the Dark Abyss. He leads those forces in the guise of attacking humanity, but his real goal is bigger still: conquest of the entire galaxy and endless power for him forever. His rebellion against humanity and the galaxy's godlike overseers at the heart of the Milky Way is justified in great swelling words as an act of liberation and salvation for all in the galaxy, though he will sacrifice all around him in his ruthless quest, beginning with the cruel sacrifice of the Dark Abyss forces in their hopeless battle against the human forces, which is merely a distraction to allow Gu Li Te to pursue and nearly achieve his selfish ends. In the end, though, he is imprisoned forever in the massive black hole created by his failed attempt at gaining the throne of the universe.

Chinese physicists not only have some of the boldest ideas about technology and physics, they also offer stunning ideas about the nature of humanity and intelligent life. Though Chinese writers, like many Western writers, are likely to be anchored in materialism without recognition of deity or the eternal nature of man, I found both books driving me to look at the cosmos in new ways and to contemplate the vast panorama of our existence and God's majestic work, continually calling for a comparison to what Latter-day Saints are taught about the universe in the revelations of Joseph Smith.

Joseph Smith's Universe

“[T]he light of truth ... is the light of Christ. As also he is in the sun, and the light of the sun, and the power thereof by which it was made. ...

As also the light of the stars, and the power thereof by which they were made. ... Which light proceedeth forth from the presence of God to fill the immensity of space.” (Doctrine & Covenants 88:6-12)

Though much brighter and more hopeful, the cosmos of Joseph Smith has some important similarities with the scientific universes in the sci-fi works of Liu Cixin and Jiang Bo. Consistent with modern science, all describe a universe in which great changes occur, including the rise and

passing away of planets. All envision a universe with many intelligent beings and countless inhabited worlds. While both Chinese authors treat interesting aspects of the rise of artificial intelligence, fascinating intersections with the LDS concept of spirit-matter souls arise in Jiang's self-aware AI systems, which can be embodied in a ship or live on in disembodied form comprising the finer matter of subspace and can even choose to sacrifice themselves nobly for greater causes.

The apparently atheistic writers recognize the possibility of highly advanced, godlike beings, whether originating from manmade artificial intelligence or from natural evolution, while Joseph Smith recognizes God the Creator and yet also the potential for humans to become "gods" like our Heavenly Father and perhaps participants in a future council of the gods.¹⁴ All are interested in the longterm future of humanity and our relationship to the cosmos. But the universe Joseph Smith gives us has a radically different nature while still offering conformity to or compatibility with growing scientific knowledge about the universe. Consider Joseph's teachings such as:

- the material nature of spirit (Doctrine and Covenants 131:7–8), including the teaching that there is no such thing as immaterial matter and that spirit matter is a form of matter that is too "fine or pure" to be seen with our mortal eyes, yet is still genuine matter;
- the eternal nature of matter (D&C 93:33), including spirit matter¹⁵ (also compare to the eternal nature of God's creative and governing priesthood power, which is "without beginning of days or end of years" in Alma 13:7–9 and D&C 84:17);
- tangible matter as not only an important tool for God's creative work but is part of who He is, having a physical body of flesh and bones as tangible as man's (D&C 130:22);
- the plurality of worlds inhabited by sons and daughters of God across the immensity of space (D&C 76:24; Moses 1:33, 37–38, 7:30);

14. Joseph Smith, *Teachings of the Prophet Joseph Smith*, ed. Joseph Fielding Smith (Salt Lake City: Deseret Book, 1993) p. 348–49, 365. See also Doctrine and Covenants 121:32.

15. Discussing Joseph Smith's teachings about intelligence (*Teachings of the Prophet Joseph Smith*, pp. 352–54), Bruce R. McConkie paraphrased, "This spirit element has always existed; it is co-eternal with God." Bruce R. McConkie, *Mormon Doctrine*, 2nd ed. (Salt Lake City: Bookcraft, 1966), s.v. "Spirit Element."

- the denial of creation *ex nihilo* (Abraham 3:24, 4:1);¹⁶
- the insistence that the Creation is for a remarkable purpose, namely, God's work and glory, the endless work of bringing about the salvation of his children (Moses 1:39), with the ultimate end being joy (D&C 93:33–34; 2 Nephi 2:25; Moses 5:10–11);
- the crucial purpose in the Creation of our mortal world found in providing mortal bodies and mortal probation for God's children (Abraham 3:23–26; Moses 4:1–4; D&C 29:36–39, 104:17; 2 Nephi 2:3–25);
- the eternal nature of intelligence¹⁷ and the genuine moral agency that God's children have (Abraham 3:21–25; Moses 6:56; Articles of Faith 1:2; D&C 93:29–38), thanks to Jesus Christ, whose loving work of Atonement overcomes mortal death and can free us from our sins in mortality (2 Nephi 2:3–27);
- the existence of multiple hierarchies of laws and kingdoms in space, including diverse fixed “courses of the heavens” in addition to the “course” of the earth (D&C 88: 38, 42–47);
- God's ability to span the vastness of the cosmos and see and interact with all His works (D&C 88:40–41; Moses 1:4–6, 7:36)¹⁸; and
- the role of light as the great carrier of information and truth and the means of governance, and source of life that spans the immensity of space, reflecting God's power and rule (D&C 88). This light has God as its ultimate source and is most markedly contrasts the hopeful, vibrant, eternal realm of the LDS faith against the dark universe of science fiction.

16. See also Joseph Smith, “The King Follett Sermon,” repr., *Ensign*, April 1971; <https://www.lds.org/ensign/1971/04/the-king-follett-sermon>.

17. Joseph Smith said, “Is it logical to say that the intelligence of spirits is immortal, and yet that it had a beginning? The intelligence of spirits had not beginning, neither will it have an end. ... Intelligence is eternal and exists upon a self-existent principle.” *Teachings of the Prophet Joseph Smith*, pp.353–54.

18. This ability can be compatible with modern science via several possibilities. For example, if God is a Being existing in or capable of interacting across higher dimensions, then interactions with our world could seem contrary to possibility. Consider a 3 dimensional being who could interact with portions of a two-dimensional world (e.g., “Flatland”) in ways that would seem impossible to two-dimensional scientists, but trivial for one who could, say, roll a sheet up and make distance portions in a two-dimensional world to be actually adjacent in three dimensions.

The compatibility with modern science of some of Joseph Smith's revealed views does not necessarily provide proof or "signs" that Joseph was a prophet, for many of the concepts he revealed and discussed have parallels in prior debates and in the discussions of his day. But while details such as the plurality of inhabited worlds can be found among other voices of Christianity and the Enlightenment (e.g., Benjamin Franklin¹⁹), as Robert Paul has documented,²⁰ the net effect of what he provided is still arguably revolutionary. Regarding the plurality of inhabited worlds, Paul states that, "On careful examination, these complex issues suggest that the environmental thesis — the view that one's cultural matrix is entirely sufficient to account for the emergence of a coherent set of ideas or conventions — does not provide a wholly adequate explanation of the style and structure of restoration pluralism."²¹ Such can be argued for much of Joseph Smith's cosmology and certainly for its overall effect.

The significance of such cosmological concepts has been explored in other works such as Terryl Givens' *Wrestling the Angel: The Foundations of Mormon Thought: Cosmos, God, Humanity*²² and Terryl and Fiona Givens' *The God Who Weeps: How Mormonism Makes Sense of Life*, which explore some of the profound philosophical or theological implications.²³ This includes a discussion of the doctrine of eternal matter that Joseph first introduced in 1833 and then strengthened later with a clear rejection of creation *ex nihilo*,²⁴ and a discussion of our co-eternal nature with God.²⁵

Intriguing scientific aspects of some of Joseph's cosmological statements are explored in light of modern cosmology by Ron Hellings

19. Benjamin Franklin, "Articles of Belief and Acts of Religion" (paper, 1728), http://www.beliefnet.com/resourcelib/docs/65/Articles_of_Belief_and_Acts_of_Religion_1.html.

20. Robert Paul, "Joseph Smith and the Plurality of Worlds Idea," *Dialogue*, 19/2 (1986), 13–36, https://www.dialoguejournal.com/wp-content/uploads/sbi/articles/Dialogue_V19N02_15.pdf. While Paul alludes to Benjamin Franklin's views on the matter, more attention to a specific publication on this topic would have been helpful.

21. *Ibid.*, 13.

22. Terryl Givens, *Wrestling the Angel: The Foundations of Mormon Thought: Cosmos, God, Humanity* (Oxford: Oxford University Press, 2015).

23. Terryl Givens and Fiona Givens, *The God Who Weeps: How Mormonism Makes Sense of Life* (Salt Lake City: Ensign Peak, 2012).

24. Givens, "Eternalism," in *Wrestling the Angel*.

25. Givens and Givens, "Man Was in the Beginning With God," in *The God Who Weeps*. See also Givens and Givens, "His Heart is Set Upon Us," in *The God Who Weeps*.

in “Joseph Smith and Modern Cosmology.”²⁶ That presentation by Dr. Hellings, a research professor in the department of physics at Montana State University, delves into technical details of the Big Bang theory, the inflationary model of the universe, and the relationship between matter and energy, finding that Joseph Smith’s views on the universe fare much better scientifically than do competing religious paradigms, such as creation *ex nihilo* and the contradictory notion of spirit as “immaterial matter.” He finds the scientific concept of conservation of matter and energy within Joseph’s teachings as well as the concept that everything is matter-energy (no immaterial matter) and the concept that the universe is infinite and eternal.²⁷ See also Dr. Bruce D. Dales’ comments for *Mormon Scholars Testify*, where he notes that Joseph’s statements about the eternal nature of matter (or matter-energy) were not derivable from the science of his day and counts Joseph’s statement about the existence of some forms of matter that we can’t detect with our eyes as one of several scientific bulls-eyes (e.g., consider dark matter, neutrinos, etc.).²⁸

Some relatively metaphysical statements pertaining to light, spirit, and knowledge (e.g., D&C 84:45–46; 88:12–13, 40–41; and 93:36) can be construed in light of modern science, including quantum mechanics and astrophysics, to give interpretations flattering to Joseph’s prophetic abilities,²⁹ but Hellings urges caution because such statements are difficult to construe accurately and could mean a variety of different things without intending to convey information about physics and cosmology.³⁰ If God wanted Joseph’s cosmology to provide conclusive future proof of his divine calling, Joseph could have made more clear statements such as explaining that the relationship between matter and energy involves the speed of light squared ($e = mc^2$) and as a bonus, given us the speed

26. Ron Hellings, “Joseph Smith and Modern Cosmology” (presentation, FairMormon Conference, Sandy, Utah, 2009), https://www.fairmormon.org/wp-content/uploads/2011/11/2009_Joseph_Smith_and_Modern_Cosmology.pdf. See also Ron Hellings, “Joseph Smith and Modern Cosmology,” (Science & Mormonism: Cosmos, Earth & Man symposium, Interpreter Foundation, Provo, Utah, 2013) <http://interpreterfoundation.org/ron-hellings-on-joseph-smith-and-modern-cosmology/>.

27. Ibid, 4–5.

28. “Bruce D. Dale,” Mormon Scholars Testify, *FairMormon*, Sept. 2017, <https://www.fairmormon.org/testimonies/scholars/bruce-e-dale>.

29. Alvin K. Benson, “Joseph Smith on Modern Science,” in *Joseph Smith: The Prophet, The Man*, ed. Susan Easton Black and Charles D. Tate Jr. (Provo, UT: Religious Studies Center, Brigham Young University, 1993), 151–67, <https://rsc.byu.edu/archived/joseph-smith-prophet-man/12-joseph-smith-modern-science>.

30. Hellings, “Joseph Smith and Modern Cosmology.”

of light to five or six significant figures, explained what a black hole is, and predicted the existence of quasars. But this kind of conclusive proof through ironclad peer-reviewable signs does not seem to be how God promotes faith and spiritual growth in His children, making it foolish to expect such incontestable evidence or a discussion of cosmology that is not linked in some way to the language and knowledge of Joseph's day. In this way, God mercifully leaves plenty of room for those who wish to doubt. Of course, one can argue that the lack of such incontestable signs is because Joseph was a fake prophet. People are free to choose how they approach the issue of faith and evidence.

Nevertheless, there are reasons to see Joseph's cosmology as something far beyond a reflection of his environment. Comparing his expansive, coherent cosmic views relative to the Christian theology of the day, Terryl Givens writes:

From an early Mormon perspective, Christian theology was generally too reticent in probing beyond the bounds of the biblically revealed. What of the time *before* Creation? What was God doing then? Preparing Hell for such as would ask such impudent questions, was the answer Augustine recounted. What of God's other dominions? Why is there man at all? For Milton, it was to compensate for the third of heaven's angels seduced by Satan; the scriptures, however, are silent. What of human destiny in the worlds beyond? What are humans being saved *for*? Dante thought a state of eternal, rapturous contemplation, and few have proffered more specifics than that. Post-redemption theology seems an oxymoron.³¹ [*emphasis in original, footnotes omitted*]

Now we examine some particular aspects of Joseph's revelations on the universe as they relate to the views in the works of science fiction reviewed above.

A Plurality of Worlds in a Benign Cosmos with a Loving, Weeping God

Joseph Smith did much more than simply restore and reform Christianity. He gave us profound glimpses into the nature of the cosmos itself and God's work and glory in creating and managing this magnificent realm. For example, we find significant cosmic perspectives in the enigmatic Book of Moses, given by revelation to Joseph as he began making

31. Givens, *Wrestling the Angel*, 8.

a “translation” of the Bible based solely on using the KJV English version shortly after completing the Book of Mormon. From Moses 1, we read of the vast expanse of God’s works and the endless nature of His work, including the creation of other inhabited planets:

4 And, behold, thou art my son; wherefore look, and I will show thee the workmanship of mine hands; but not all, **for my works are without end**, and also my words, for they never cease ...

6 And I have a work for thee, Moses, my son; and thou art in the similitude of mine Only Begotten; and mine Only Begotten is and shall be the Savior, for he is full of grace and truth; but there is no God beside me, and **all things are present with me, for I know them all** ...

8 And it came to pass that Moses looked, and beheld the world upon which he was created; and Moses beheld the world and the ends thereof, and all the children of men which are, and which were created; of the same he greatly marveled and wondered. ...

29 And he beheld many lands; and each land was called earth, and there were inhabitants on the face thereof ...

33 And [the Lord God said unto Moses:] **worlds without number have I created** ...

35 But only an account of this earth, and the inhabitants thereof, give I unto you. For behold, **there are many worlds that have passed away** by the word of my power. And there are many that now stand, and innumerable are they unto man; but all things are numbered unto me, for they are mine and I know them ...

37 And the Lord God spake unto Moses, saying: **The heavens, they are many, and they cannot be numbered unto man**; but they are numbered unto me, for they are mine.

38 And as one earth shall pass away, and the heavens thereof even so shall another come; and there is no end to my works, neither to my words.

39 For behold, this is my work and my glory — to bring to pass the immortality and eternal life of man.

What God revealed to Moses was also known to some degree by Enoch, as reported in Moses 7:

28 And it came to pass that the God of heaven looked upon the residue of the people, and he wept; and Enoch bore record of it, saying: **How is it that the heavens weep**, and shed forth their tears as the rain upon the mountains?

29 And Enoch said unto the Lord: **How is it that thou canst weep**, seeing thou art holy, and from all eternity to all eternity?

30 And were it possible that man could number the particles of the earth, yea, millions of earths like this, it would not be a beginning to the number of thy creations ... [31] **how is it thou canst weep?**

32 The Lord said unto Enoch: Behold these thy brethren ... [33] are without affection, and they hate their own blood ...

37 But behold, their sins shall be upon the heads of their fathers; Satan shall be their father, and misery shall be their doom; and the whole heavens shall weep over them, even all the workmanship of mine hands; **wherefore should not the heavens weep, seeing these shall suffer?**

A God of cosmic majesty mourns over the rebellion and future suffering of his sons and daughters on earth — a God who weeps due to His love and compassion for us. This concept, treated in detail by Givens and Givens,³² is an expression of the vast and *benign* universe we find in Joseph Smith's revelations. While benign, it is still a universe where there is much to weep over, in part due to the most terrible and ennobling gift that God gives to His children: agency, allowing them to love Him and each other or to turn against Him and choose darkness and evil. But the tools of life and light that are given in this benign cosmos are meant to lift us and bring us joy, though some will use their gifts to harm themselves and others. Through Jesus Christ, God provides the cure for all that pain in His relentless and infinitely costly efforts to bring us as much joy as we will let Him give us.

The universe revealed to us by God and to some degree by modern science is a universe so vast that if we could number the particles of millions of earths like this one, it would not be a beginning of the number of God's creations. Is that poetic language only, or is it an apt

32. Terryl Givens and Fiona Givens, *The God Who Weeps*.

comparison? In 1830, the size of the cosmos was limited to our galaxy, for other galaxies had not yet been discovered and recognized. Could Enoch's statement make any sense if taken literally for the Milky Way? "The Milky Way contains between 200 and 400 billion stars and at least 100 billion planets" according to Wikipedia's summary.³³ Similarly, the sand on earth's beaches gives us vastly more particles than that.³⁴ Enoch's statement, if anything but extreme hyperbole, hints at a universe teeming with billions or trillions of galaxies.

The current estimate of the number of stars in the universe, based solely on the galaxies that we can observe or detect (the "observable universe,"³⁵ which may not even be a "beginning" to the number out there), can be only roughly estimated, but a relatively low and early estimate put it at about 70 sextillion,³⁶ or about 10 times the number of grains of sand on earth,³⁷ while a more recent estimate puts it closer to 1 septillion (1 followed by 24 zeroes, or a trillion trillion),³⁸ over a hundred times more than the number of grains of sand on the earth. Though it may be hyperbole, Enoch's statement, inappropriate for what was knowable in Joseph's day, rings truer now. Joseph Smith's universe — Enoch's and Moses's universe — is vast, and God's endless works have a scope in space and time far beyond human comprehension. The speculative possibility of multiple universes not directly connected to ours further intensifies the possible magnitude of the expanse of what may exist.

In the Book of Moses, we learn not only that there are numberless worlds (Moses 1:27–29, 33, 35) with associated heavens (Moses 1:36–38; are the "heavens" of the various earths the local solar systems associated

33. "Milky Way," *Wikipedia*, last edited March 16, 2018, 19:06, https://en.wikipedia.org/wiki/Milky_Way.

34. Hellings, "Joseph Smith and Modern Cosmology."

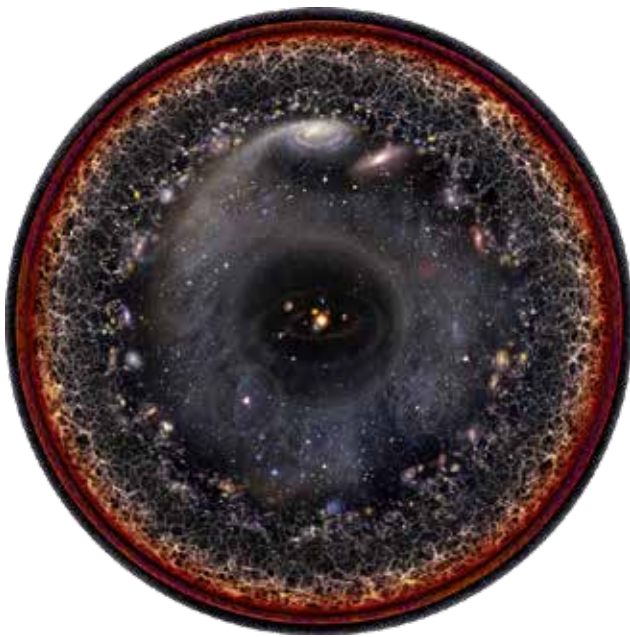
35. "Observable Universe," *Wikipedia*, last edited March 17, 2018, 14:40, https://en.wikipedia.org/wiki/Observable_universe.

36. "Star survey reaches 70 sextillion," *CNN.com*, July 23, 2003, <http://edition.cnn.com/2003/TECH/space/07/22/stars.survey/>. For \$1 = body/analysis of methods, rules, or postulates? on the calculation of the number of grains of sand used in this comparison, see "Are there more stars in the universe than grains of sand on Earth?," *ABC Science*, Aug. 19, 2015, <http://www.abc.net.au/science/articles/2015/08/19/4293562.htm>.

37. Foranestimatewhichmaketherationofstarstograinsofsandmuchgreater,seeRobert Krulwich, "Which Is Greater, The Number Of Sand Grains On Earth Or Stars In The Sky?," NPR.org, Sept. 17, 2012, <https://www.npr.org/sections/krulwich/2012/09/17/161096233/which-is-greater-the-number-of-sand-grains-on-earth-or-stars-in-the-sky>.

38. Elizabeth Howell, "How Many Stars Are In The Universe?," *Space.com*, May 17, 2017, <https://www.space.com/26078-how-many-stars-are-there.html>.

with each of the worlds?), but also that many earths and their heavens have already passed away (Moses 1:38). The statement about worlds having passed away is of interest, for it is surprisingly logical in light of modern science, in which we know that stars and their systems have risen and fallen many times over the billions of years since the apparent beginning of our universe. While the idea of many other worlds was already discussed in Joseph's day,³⁹ its dynamic and highly perishable state might not have been widely appreciated, with suns and planets dying frequently, their matter recycled in vast cosmic cycles of stellar and planetary death and rebirth.



An artist's logarithmic scale conception of the observable universe with the Solar System at the center, inner and outer planets, Kuiper belt, Oort cloud, Alpha Centauri, Perseus Arm, Milky Way galaxy, Andromeda galaxy, nearby galaxies, Cosmic Web, Cosmic microwave radiation and the Big Bang's invisible plasma on the edge.⁴⁰ This is certainly not the way Abraham understood the cosmos, but is an elegant way of visualizing the different structures of our cosmos in a somewhat related geocentric formulation.

39. See the discussion of several sources in Givens, "Eternalism" in *Wrestling the Angel*.

40. Pablo Carlos Budassi, *Observable universe logarithmic illustration*, 2014, Wikipedia, https://commons.wikimedia.org/wiki/File:Observable_universe_logarithmic_illustration.png. A high resolution version is available at <https://selfy.com/p/9cCF/>.

Interestingly, Hugh Nibley identified the existence of other worlds (including the prior passing away of other worlds) as one of several common themes found in the Book of Moses and the Enoch literature from a variety of ancient documents, mostly ones that simply were not available for Joseph Smith to have studied.⁴¹ The parallels are numerous and suggest at least that ancient traditions about Enoch link him to cosmological issues. Likewise, numerous ancient sources now also link Abraham to ancient cosmology, including the notion that he discussed astronomy with Pharaoh. One of these sources, Josephus, mentions this briefly and theoretically could have been known to Joseph Smith, but nearly all the remaining body of intriguing evidence we have today related to Abraham and astronomy was not even theoretically available to Joseph. The relevant passage in Josephus merely says that Abraham said:

If [said he] these bodies had power of their own, they would certainly take care of their own regular motions; but since they do not preserve such regularity, they make it plain, that in so far as they co-operate to our advantage, they do it not of their own abilities, but as they are subservient to Him that commands them, to whom alone we ought justly to offer our honor and thanksgiving.⁴²

Sources: God's Motivation for the Creation and Joseph's Ideas on Cosmology

Other scholars and theologians, though certainly not all and perhaps far from a majority, had proposed that other worlds exist. However, what was taught about God's *motivation* for the creation of many other planets? Joseph's vision is of a God endlessly motivated by the desire to bring His

41. Hugh W. Nibley, "A Strange Thing in the Land," *Ensign*, April 1977, <https://www.lds.org/ensign/1977/04/a-strange-thing-in-the-land-the-return-of-the-book-of-enoch-part-11?lang=eng>. Nibley cites the Zohar (Zohar iii: 61a, b, Brody) for the creation and destruction of other worlds before this one; bin Gorion (1:286) for the creation and destruction of seven imperfect worlds before this one and for the existence of 18,000 other worlds known only to God (1:59); and Migne, Book of Adam, in *Dict. Apoc.* (1:225) again for the existence of 18,000 other worlds. Nibley sees the same concepts of other worlds in *Secrets of Enoch* 11 (Charles, *Apoc. & Pseud.* 2:436).

42. Josephus 1.7.1, trans. William Whiston, quoted in John Gee, *An Introduction to the Book of Abraham* (Provo, UT: Religious Studies Center, Brigham Young University, and Salt Lake City: Deseret Book, 2017), 159. This was the translation available to Joseph Smith.

children into His presence as mature, free agents capable of becoming more like Him. This is His work, glory, and passion, and Joseph Smith's universe and cosmology is grounded in this truth. God's endless creation ultimately is the work of a loving Parent raising children, not an overseer of inherently loathsome, "wholly other" creatures of no vital importance to Him but somehow given some matter and energy to toy with to keep them occupied. Here we may struggle to find plausible environmental sources for the sweeping scope of Joseph Smith's cosmology in which the weeping God yearns to bring His sons and daughters home, "without compulsory means" (D&C 121:46), in an endless work that spans space and time, eternally motivated by love for us, His children.

In Arthur Lovejoy's *The Great Chain of Being: A Study of the History of an Idea*,⁴³ we are reminded that a still important religious concept is the notion that a perfect God does not need man or any of His creations for His perfection and glory. It is a concept drawn from Platonism that is directly antagonistic to the work and the glory of God taught in Moses 1:39. Lovejoy explains that in this Platonic paradigm that dominated Western thought for over 2,000 years (though it was "still potent" in the Twentieth Century when he wrote),

The fullness of good is attained once for all in God; and "the creatures" add nothing to it. They have from the divine point of view no value; if they were not, the universe would be none the worse. ... [It is in this implicit aspect of Platonic] doctrine that we must recognize the primary source of that endlessly repeated theorem of the philosophical theologians that God has no need of a world and is indifferent to it and all that goes on it. This implication of the Platonic Idea of the Good speedily became explicit in the theology of Aristotle. ... It is — to cite by way of anticipation only one or two out of a thousand later examples — this Platonic as well as Aristotelian strain that Jonathan Edwards may be heard echoing in Colonial America, when he declares: "No notion of God's last end in creation of the world is agreeable to reason which would imply or infer any indigence, insufficiency and mutability in God or any dependence of the Creator on the creature, for any part of his perfection or happiness. ..." This eternally serene and impassible Absolute is, manifestly, somewhat difficult to recognize in the sadistic deity of the sermon on "Sinners in the Hands of an

43. Arthur Lovejoy, *The Great Chain of Being: A Study of the History of an Idea* (Taylor & Francis, London, 2017), <https://books.google.com.ph/books?id=nRwuDwAAQBAJ>

Angry God”; but Edwards did not differ from most of the great theologians in having many Gods under one name.⁴⁴

If God has no need of a world, he certainly has no need of many worlds peopled with the same kind of offensive, miserable sinners we have here. But in spite of Jonathan Edwards and others failing to recognize that God’s work and glory might involve redemptive work on other worlds, such concepts had been proposed in Joseph Smith’s day, as noted above. Joseph could have known of such discussions and debates, but that does not provide plausible source material for the cohesive and satisfying cosmological framework of Joseph Smith’s revelations, contrary to allegations of critics.⁴⁵

Novel Cosmology or a Mere Product of Joseph’s Environment?

Regarding the claims of critics, a notable example is the so-called “CES Letter” which offers a supposedly well-informed argument on this point, claiming that Joseph merely drew upon a book readily available in his day for the cosmology in the Book of Abraham.⁴⁶ The book in question is by Thomas Dick, *The Philosophy of a Future State*.⁴⁷ Like a number of other evangelical voices of his day, Dick argues for the Christian faith using arguments drawn from science and metaphysics and along the way speculates frequently about life on multiple worlds. This certainly wasn’t a novel concept introduced by Joseph Smith. But the CES Letter makes more serious charges of derivation. It claims Joseph owned a copy (at least by 1844, he did have one he donated to the Nauvoo Library), that Oliver Cowdery quoted from it in 1836 (December 1836 actually, over six

44. Lovejoy, *The Great Chain of Being*, 43–44. Note: Hugh Nibley in “A Strange Thing in the Land”, paraphrases or misquotes Edwards as cited by Lovejoy to the effect that since “the fullness of good is attained once for all in God ... God has no need of a world and is indifferent to it and all that goes on in it.” It is a plausible paraphrase, but appears to be presented as a quote.

45. Considering our modern Chinese authors again, one can see a plurality of sources and paradigms at play in their thinking and writing. In Jiang Bo’s trilogy, for example, while it is true to the materialism and atheistic scientific framework of modern Chinese socialism, it also draws upon a variety of other paradigms such as reincarnation (the regeneration of bodies for humans), symbols of gods such as the dancing Shiva, a glowing saint sacrificing his AI life, spirit-body dualism (at least for AI beings), and mysterious, godlike overseers of humanity.

46. “Book of Abraham,” *CES Letter Foundation*, accessed Feb. 20, 2018, <https://cesletter.org/debunking-fairmormon/book-of-abraham.html>.

47. Thomas Dick, *The Philosophy of a Future State* (E. and G. Merriam, Brookfield, MA, 1830), https://archive.org/details/philosophyoffutu00dick_0.

years after Joseph had emphasized the plurality of worlds concept in the Book of Moses – a point not acknowledged in the CES Letter’s treatment of the plurality of worlds concept), and, more importantly, that it might be the source for the idea that matter is eternal and indestructible and for the rejection of creation *ex nihilo*.

Michael Ash in *Bamboozled by the CES Letter*⁴⁸ treats this argument, but only briefly. More recently, a more thorough response to this issue was provided by Rick Moser on the *Conflict of Justice* blog.⁴⁹ The author is blunt about the CES Letter’s reliance on Klaus Hansen’s claim that Thomas Dick’s book teaches eternal, indestructible matter and rejects creation *ex nihilo*:

False. This is 100% incorrect. Take a look at *Philosophy of a Future State*. It teaches the *creatio ex nihilo* doctrine, in contradiction with the Book of Abraham.

“None but that Eternal Mind which counts the number of stars, which **called them from nothing, into existence**, and arranged them in the respective stations they occupy, and whose eyes run to and fro through the unlimited extent of creation, can form a clear and comprehensive conception of the number, the order, and the economy of this vast portion of the system of nature.

“What successive creations have taken place since the first **material world was launched into existence** by the Omnipotent Creator? What new worlds and beings are still **emerging into existence from the voids of space?**”

It teaches that laws and truth are eternal and that resurrection will be a physical restoration, yes, but there is nothing about Joseph Smith’s and Abraham’s doctrine that matter is eternal.⁵⁰ [*emphasis in original*]

In another passage not mentioned by Moser, Dick mentions “the different periods in duration at which the various habitable globes

48. Michael Ash, *Bamboozled by the CES Letter* (paper, self-published in electronic format by the author, 2015), <https://www.fairmormon.org/wp-content/uploads/2015/09/Bamboozled-by-the-CES-Letter-Final1.pdf>.

49. Rick Moser, “Did Joseph Smith Get The Book of Abraham Cosmology From *Philosophy of a Future State?*,” *Conflict of Justice* (blog), Dec. 30, 2017; <http://www.conflictjustice.com/joseph-smith-book-of-abraham-cosmology-philosophy-of-a-future-state/>.

50. Ibid.

emerged from nothing into existence" [*emphasis added*].⁵¹ Claiming that Dick shared Joseph's views on the Creation seems to lack support.

Terryl Givens, however, sees a denial of creation *ex nihilo* in an earlier work by Thomas Dick:

In 1826, [Thomas Dick] published his *Christian Philosopher*, which attempted to synthesize theology with contemporary science. He expressly challenged the earth's creation *ex nihilo*, insisting that Moses's "sole intention" was to detail the process of creation "from the chaotic materials which previously existed."⁵²

The chaotic materials that already existed, however, are those mentioned in the opening verse of Genesis, telling us that the "earth was without form, and void; and darkness upon the face of the deep," indicating that the earth was not instantly ready in its fully created state in the same instant that the water and other matter of the earth came into existence. These materials, he said, may have existed for a year or many years before the completion of the creation story. It is not creation *ex nihilo* that Dick disputes, but the *time* between the *ex nihilo* creation of matter and the final arrangement of that matter in Genesis 1 and 2:

For Moses nowhere affirms, that the *materials* or *substance* of the earth were created, or brought from nothing into existence, *at the period* when his history commences.⁵³ [*emphasis in original*]

It is a mistake into which too many have been apt to fall, to suppose, that Moses begins his history *at the period* when the first portions of material existence were created out of nothing.⁵⁴ [*emphasis in original*]

On the same page just cited and immediately following the passage mentioned by Givens, Dick goes on to affirm that the opening verse of Genesis declares that it is God who called all matter into existence, but

51. Dick, *The Philosophy of a Future State*, 228.

52. Givens, "Eternalism," in *Wrestling the Angel*. See also Thomas Dick, *The Christian Philosopher; or, The Connection of Science and Philosophy With Religion* (Hartford, CT: Robinson, 1833), 165, <https://archive.org/stream/christianphiloso183300dick#page/164/mode/2up/search/previously+existed>.

53. Dick, *The Christian Philosopher*, 164, <https://archive.org/stream/christianphiloso183300dick#page/164/mode/2up/>.

54. *Ibid.*, 165.

there is no need to assume it happened all at once or all without a 6,000 year time period.⁵⁵ Thus, while Dick in *The Christian Philosopher* does not teach that God created the earth in Adam-ready form in an instant with the rest of the universe, he still states that matter was called into being by God out of nothing. Creation *ex nihilo* of matter followed by geologic time scales for further development — a possibility raised by Dick — is still creation *ex nihilo*. Finally, to remove any doubt, Dick later asserts, “In *Creation*, God brought the universe out of nothing, and arranged all its provinces and inhabitants into due order.”⁵⁶ There is no conflict between this slightly earlier work and *The Philosophy of a Future State* on this matter.

While Dick does not teach Joseph’s denial of creation *ex nihilo*, in a lengthy footnote he does claim that angels must be material and corporeal though invisible and made from “a finer mould” than mankind.⁵⁷ This could seem to echo Joseph’s statement about the “finer” nature of spirit matter (D&C 131:7). On the other hand, in distinguishing angels from “immaterial substances” and “mind” in that footnote, Dick does not deny the existence of immaterial matter.⁵⁸ Indeed, Dick views the soul as immaterial and sees “intelligences” as constantly coming into existence rather than having some eternal aspect:

We are, therefore, necessarily led to the following conclusion: “That, when the human body is dissolved, the **immaterial principle by which it was animated**, continues to think and act, either in a state of separation from all body, or in some material vehicle to which it is intimately united, and which goes off with it at death; or else, that it is preserved by the Father of spirits for the purpose of animating a body in some future state.” **The soul** contains no principle of dissolution within itself, since it **is an immaterial uncompounded substance**. . . . And the Creator is under no necessity to annihilate the soul for want of power to support its faculties, for want of objects on which to exercise them, or for want of space to contain **the innumerable intelligences that are incessantly emerging into existence**. . . .⁵⁹ [*emphasis added*]

55. Ibid.

56. Ibid., 302.

57. Ibid., 224–5n.

58. Ibid., 224.

59. Ibid., 104–105. See also 187.

Moser points out that seemingly important parallels are shown to have more ancient sources, such as the Bible itself. For example, the notion of innumerable stars, apart from being in other modern works, is found in the Bible in Hebrews 11:12. Further related statements from the CES Letter are shown to be misquotes or serious blunders, such as claiming that Dick's book and the Book of Abraham teach a universe that revolves around the throne of God (wrong in both cases).⁶⁰

Of course, other modern and fairly ancient sources can be found that reject creation *ex nihilo*, and thus pre-existing matter or maybe even eternal matter will be implicitly if not explicitly taught elsewhere. But cherry-picking lone concepts does not create the coherent and satisfying, even breathtaking (for some of us) framework of concepts that arise from Joseph Smith's revelations. Why does Joseph Smith ignore or reject so much of Dick's teachings if that were an influential book for him? If the case for borrowing is so compelling, why must the "CES Letter" stretch it past the breaking point with assertions that don't bear scrutiny?

Dick has some interesting statements about eternity and the opportunity for mankind to learn much and enjoy much during immortality from the wonders of the cosmos. But he obviously did not supply a key element of Joseph Smith's cosmology and theology: that God's work and his glory in His endless creative work is to bring us into His presence, for we are His children, co-eternal in some way with Him. His glory and His joy grows as we grow and accept the infinite grace He offers. In contrast, Dick writes:

The Creator stands in no need of innumerable assemblages of worlds and of inferior ranks of intelligences, in order to secure or to augment his felicity. Innumerable ages before the universe was created, he existed alone, independent of every other being, and infinitely happy in the contemplation of his own eternal excellencies. No other reason, therefore, can be assigned for the production of the universe, but the gratification of his rational offspring, and that he might give a display of the infinite glories of his nature to innumerable orders of intelligent creatures.⁶¹

Platonic idealism is at the heart of Dick's framework and also guides Jonathan Edwards, another source frequently cited as an influence

60. Moser, "Did Joseph Smith Get The Book of Abraham Cosmology From *Philosophy of a Future State*?"

61. Dick, *The Philosophy of a Future State*, 62.

on Joseph Smith, but Platonic thought is far from the revelatory and revolutionary framework of Joseph Smith. Such thinking is consistent with much of religious thought in Joseph's day but is hardly a plausible source for the cosmology of the Book of Abraham and the restored Gospel brought through Joseph Smith.

Some scholars and theologians had proposed that other inhabited worlds exist. However, what was taught about God's motivation for the creation of many other planets? Those who recognized from science that other planets probably exist may have proffered reasons such as saving souls [so they could endlessly contemplate God or praise Him] or, as Dick suggested, allowing immortals to learn about the wonders of the cosmos. But if God is perfectly happy without us, why bother?

I have no trouble with language from Joseph's environment, such as the widely used term "intelligences" as a term to describe intelligent life or spirit beings, influencing his use of language to express revealed concepts. I have no problem with terminology and even core concepts from others having influenced his thinking, his choice of words, his inquiries and interests. But for those who are willing to exercise a modicum of faith, there is something much more interesting going on in Joseph's revelations than just trying to generate revenue with some flashy Egyptian relics or bewilder awed believers with fabricated revelations. There is a cohesiveness and richness in his cosmological revelations from the Book of Mormon to the D&C and the Books of Abraham and Moses that answer deep questions in satisfying ways and continue to be worthy topics to contemplate in light of expanding scientific knowledge. Simple borrowing from his environment, even if he had been among the *literati* of his day, lacks explanatory power for what we have, just as popular concepts of God drawn from Platonic philosophy or other traditions fail to explain the source of God's motivation to create so much for so long.

The Dark Forest Theory vs. SETI in Light of Joseph Smith

The "Search for Extra-terrestrial Intelligent Life," or SETI, began in earnest around 1959 and has been an area of ongoing interest and disappointment among scientists and others ever since.⁶² These efforts include listening for signs of alien broadcasts or activity⁶³ as well as

62. Steve Garber, "SETI: The Search for ExtraTerrestrial Intelligence," NASA History Program Office, National Aeronautics and Space Administration, NASA.gov, Sept. 29, 2014, <https://history.nasa.gov/seti.html>.

63. "Search for Extraterrestrial Intelligence," *Wikipedia*, last edited April 9, 2018, 23:30, https://en.wikipedia.org/wiki/Search_for_extraterrestrial_intelligence.

“Active SETI,” in which we make broadcasts hoping to reach intelligent life and later receive a response.⁶⁴ From an academic perspective, Liu Cixin makes an important contribution in explaining why human efforts to reach out to extraterrestrial life may be a dangerous thing. If the universe is purely materialistic and not, as Joseph suggested, inhabited by sons and daughters of God who might see us as fellow children of their God, then an alien civilization may well view our presence as a potential threat or as an opportunity for conquest. In a tooth-and-claw universe, to assume that other intelligent beings out there will naturally be friendly may indeed be one of humanity's most deadly mistakes, not to mention a tragic waste of taxpayer revenues.

In a postscript for *The Three Body Problem*, Liu shared this thought:

There's a strange contradiction revealed by the naïveté and kindness demonstrated by humanity when faced with the universe: On Earth, humankind can step onto another continent, and without a thought, destroy the kindred civilizations found there through warfare and disease. But when they gaze up at the stars, they turn sentimental and believe that if extraterrestrial intelligences exist, they must be civilizations bound by universal, noble, moral constraints, as if cherishing and loving different forms of life are parts of a self-evident universal code of conduct.

I think it should be precisely the opposite: Let's turn the kindness we show toward the stars to members of the human race on Earth and build up the trust and understanding between the different peoples and civilizations that make up humanity. But for the universe outside the solar system, we should be ever vigilant, and be ready to attribute the worst of intentions to any Others that might exist in space. For a fragile civilization like ours, this is without a doubt the most responsible path.⁶⁵

Liu's concern for his fellow humans is commendable — indeed, both Liu and Jiang celebrate heroes who strive to do good for others in spite of the chaos and darkness they face. Latter-day Saints would heartily agree that we should increase the kindness we show toward others here on

64. “Active SETI,” *Wikipedia*, last edited March 10, 2018, 16:16, https://en.wikipedia.org/wiki/Active_SETI.

65. Liu Cixin, “Author's Postscript” in *The Three Body Problem (Remembrance of Earth's Past, Book 1)*, trans. Ken Liu (New York: Tor Books, 2014), 395.

earth, but Liu is most noted for his observation regarding what we might face from other beings in our galaxy. Since we humans are often brutal toward strangers in the new lands we discover and conquer, why should we expect less from other intelligent beings who might come here one day from distant stars?

Looking at Joseph Smith's universe, we learn of endless inhabited planets inhabited by God's children. That alone does not mean we should put our guard down, for mortal worlds elsewhere at any time may be peopled by destructive, warlike beings similar to us. One interesting aspect of Joseph Smith's revelations, however, is the insight that our planet is unusually wicked, at least based on the assessment that the Lord gave to Enoch — a dreadful statement for our home but relatively speaking perhaps a hopeful indication about the civility of our interstellar neighbors:

Wherefore, I can stretch forth mine hands and hold all the creations which I have made; and mine eye can pierce them also, and **among all the workmanship of mine hands there has not been so great wickedness as among thy brethren.** (Moses 7:36, emphasis added.)

If so, there is reasonable hope that they will recognize that other intelligent beings are also God's children and thus might be the kind of friendly and perhaps wiser beings that many humans hope to find by reaching out to the stars.

Robert Paul quotes a poem Joseph Smith published in 1843, which elaborates on the concept of plural worlds:

And I heard a great voice bearing record from Heav'n,
He's the Savior, and only Begotten of God —
By him, of him, and through him, the worlds were all made,
Even all that career in the heavens so broad.
Whose inhabitants, too, from the first to the last,
And sav'd by the very same Saviour of ours;
And, of course, are begotten God's daughters and sons,
By the very same truths, and the very same pow'rs.⁶⁶

The universal or even galactic scale of the Atonement of Jesus Christ raises numerous puzzles when one considers other planets that may be remote not only in space but also in time, as in the distant past. Such

66. *Times and Seasons* 4 (February 1843): 82-85 quoted in Paul, "Joseph Smith and the Plurality of Worlds Idea," 28.

questions can be resolved and may ultimately reflect our incomplete knowledge of God's work of salvation elsewhere. We need additional information to understand the concept, and it may also be that what was meant in the poem is still vastly incomplete if we wish to make scientific applications. But if Christ created the worlds (under direction of the Father), as taught in Colossians 1:15-16 and Hebrews 1:2, it is reasonable that He should also save them. The Atonement of Christ may be powerful enough not only to reach across time to bring salvation to residents of earth who were temporally separated from the day of Christ but also may reach across the expanse of the cosmos to rescue those removed by great stretches of space.

Such concepts help us to conclude that reaching out to other planets, if they can be reached and heard, poses little risk of bringing destruction upon the earth, and if communication could be established, it would most likely be of much benefit. Of course, finding other planets peopled by humans like us, also aware of Christ and adhering to a recognizable form of Christianity, would provide such compelling evidence about the reality of Christ and the truthfulness of His Gospel that it would seem to jeopardize the need for faith. Such evidence would seem contrary to God's *modus operandi* at this time, so we need not be surprised if the cosmos seem silent in response to our radio signals.

Necessarily Benign?

Wonderfully, this vast cosmos we live in is benign. It is orchestrated by an all-wise, omniscient being whose relationship to us is perhaps best described by His preferred title of Father, a loving Father characterized by mercy, justice, and compassion. That does not mean that His universe is free of bleak destruction and dark tragedy. The story of the Nephites in the Book of Mormon is one of massive destruction and loss, but that text also offers eternal hope through the power of Christ. Mortality is a time of testing that can abound in opposition and affliction but is part of a grand plan to bless us and help us have endless growth, where tears can be wiped away, the ravages of illness and death ultimately overcome, and eternal joy made possible in the presence of God. Though our sojourn in mortality may be one of pain and trials, the Creator of our universe is our Heavenly Father, who loves us and seeks to redeem us if we will let Him. Death and sin can be conquered, and those who wish to accept His grace can have endless joy in His presence, enjoying all the beauty and wonders that He has. It is a universe of ultimate light and hope in spite of current darkness.

We should consider that things could have been different. We know there are other beings who would have gladly taken God's place if they could to rule as cosmic despots. The war in heaven described in the Book of Moses (Moses 4:1–4) shows how persuasive and influential the adversary was. A universe reigned by or even merely left in neglect by such a being would be a fearsome thing, perhaps impossible to imagine. And even in this benign universe, where humans yield to the adversary's influence, it is tooth and claw, blood and horror, with darkness seemingly everywhere. Yet the chains of darkness will be cast off and every tear wiped away by the Savior (Isaiah 25:8), the grand force for good in God's victory over chaos in the cosmos, a battle and victory enacted in ancient as well as modern rituals.

A Physical God's Governance of the Cosmos and the Problem(s) with Kolob

One of the beautiful cosmological revelations given through Joseph Smith is found in D&C 88, which gives some information about God's governance of the cosmos that can be compared with teachings in the Book of Abraham as well:

6 He that ascended up on high, as also he descended below all things, in that he comprehended all things, that he might be in all and through all things, the light of truth;

7 Which truth shineth. This is the light of Christ. As also he is in the sun, and the light of the sun, and the power thereof by which it was made.

8 As also he is in the moon, and is the light of the moon, and the power thereof by which it was made;

9 As also the light of the stars, and the power thereof by which they were made;

10 And the earth also, and the power thereof, even the earth upon which you stand.

11 And the light which shineth, which giveth you light, is through him who enlighteneth your eyes, which is the same light that quickeneth your understandings;

12 Which light proceedeth forth from the presence of God to fill the immensity of space —

13 The light which is in all things, which giveth life to all things, which is the law by which all things are governed, even the power of God who sitteth upon his throne, who is in the bosom of eternity, who is in the midst of all things.

The role of God and light in “quickenings” our understanding raises interesting questions about what thought is and what intelligence is, with many areas for contemplation and research arising as we contemplate the AI beings of modern Chinese literature.

This section later speaks about the endless extent of order, with kingdoms filling all of space, and each kingdom having its own laws

36 All kingdoms have a law given;

37 And there are many kingdoms; for there is no space in the which there is no kingdom; and there is no kingdom in which there is no space, either a greater or a lesser kingdom.

38 And unto every kingdom is given a law; and unto every law there are certain bounds also and conditions ...

42 And again, verily I say unto you, [God] hath given a law unto all things, by which they move in their times and their seasons;

43 And their courses are fixed, even the courses of the heavens and the earth, which comprehend the earth and all the planets.

44 And they give light to each other in their times and in their seasons, in their minutes, in their hours, in their days, in their weeks, in their months, in their years — all these are one year with God, but not with man.

45 The earth rolls upon her wings, and the sun giveth his light by day, and the moon giveth her light by night, and the stars also give their light, as they roll upon their wings in their glory, in the midst of the power of God ...

47 Behold, all these are kingdoms, and any man who hath seen any or the least of these hath seen God moving in his majesty and power.

To me, this is a remarkably scientific statement, in part because of the great significance of scale in the physics and engineering, with different

principles applying and dominating, depending on what scope of space is under consideration. For example, the rules that allow protons to be joined inside the nucleus of an atom have little relationship to the laws that keep planets in orbit around a star or those that expand the galaxies in spite of their gravitational attraction. I will also add that those who have explored the kingdoms of, say, a coral reef and witnessed the incredible complexity among organisms and ecosystems ranging across different scales will also find meaning in the above passage of Section 88. It is a profound and beautifully scientific statement. Of course, if one insists, it can undoubtedly be argued that this, too, was simply extracted from any number of remotely related writings from Joseph's environment.

This physical cosmos with its kingdoms and order, governed by God via "light," a God who can reach out and see and hold all His creations, is a cosmos crafted and managed by a tangible Being. Joseph Smith's universe must be understood alongside the nature and the real, physical characteristics of that Being who created it and steadily governs it through all its endless change.

The tangible nature of God in a corporeal body has an important cosmological implication: it means that God must be somewhere physically, though His influence of course can permeate the cosmos. A tangible God physically connected to the cosmos is one of the wonderful elements of original Christianity and the Restoration and dispels centuries of confusion from misguided philosophers and clerics about our relationship to God. He is not wholly other but, like us, has a Spirit and a material body, though His is perfect and coupled with eternal glory. The existence of a God with a body should be self-evident from the crystal clear depiction of the Resurrection of Christ, who shows His body, urges His disciples to touch His hands and His feet, and even drives the point home later by eating before His Apostles (John 20–21). These teachings make Joseph Smith's universe all the more beautiful and hopeful, for that sublime Being who created it is not abstract, unconnected to us and unknowable, but is our parent, like us in many ways, made of similar stuff and is of the same species as we are, for He is our Father. Indeed, we are descended from heavenly Parents.

Such a real, tangible, physical God who, as Christ so plainly demonstrated, can be seen and even touched, involves details that make the philosophers cringe, such as the possibility of having a physical location and theoretically perhaps even an actual throne with an actual location, though He has the infinite ability to see and interact with all His creations. In the cosmology of the Book of Abraham, God is said

to “reside” somewhere near a great star Kolob. For those steeped in Neoplatonism or atheism, the idea of a God who is physically somewhere is unspeakably ridiculous, and many Bible believers seem unable to recognize how deeply such a concept pervades the Bible. But in the views of many ancient Jews and Christians, this concept was entirely natural.

Those mocking Mormonism often cite Kolob, typically claiming we believe God is an extraterrestrial from a planet of that name. “Extraterrestrial” is intended to create an emotional response. Will they then insist that heaven and its hosts are limited to our planet only? But the Book of Abraham does not say Kolob is a planet (though “planet” is used in parts of the Book of Abraham to refer to celestial bodies such as stars). It is a star near some place of residence for God, whatever that means, and it is a governing star. Even when that is recognized, the critics often seriously misread the text in their zeal to condemn it. Fawn Brodie and the CES Letter claim the Book of Abraham borrows Thomas Dick’s teaching that the universe revolves around God’s throne in addition to the above-mentioned claim that Dick is the source for Joseph’s plurality of worlds. Brodie (the ultimate source behind the CES Letter’s argument here) writes:

Like the philosophic novelist who creates a character greater than himself to voice the distillate of his own speculations, Joseph created Abraham an eminent astronomer who penetrates all the mysteries of the universe. Abraham relates that there is one star, Kolob, lying near the throne of God, which is greater than all the rest. One revolution of Kolob takes a thousand years, and from this revolution God Himself reckons time. Kolob and countless lesser stars are peopled by **spirits that are eternal as matter** itself. These spirits are not cast in the same mold, but differ among themselves in the quality of intelligence as the stars differ in magnitude. **These concepts**, which developed peculiar ramifications in Joseph’s later teachings, **came directly from Dick**, who had speculated that the stars were peopled by “various orders of intelligences” and these intelligences were “*progressive beings*” [Dick, 230] in various stages of evolution toward perfection.⁶⁷ [*emphasis in bold added, italics in original*]

67. Fawn M. Brodie, *No Man Knows My History: The Life of Joseph Smith*, 2nd ed (New York: Vintage Books, 1995), 172.

The attached footnote states: “Compare the Book of Abraham with Dick ... pp. 101, 230, 241, 249. Dick held that in all probability, ‘the systems of the universe revolve around a common center ... the throne of God.’”

Brodie has deftly adapted Dick’s teachings to her purpose. Dick contemplates immortal beings doing something more than merely praising and contemplating God but not much more. In their endless contemplation and study of God’s vast creation, they will progress (but never achieve perfection) *in their knowledge of astronomy, philosophy, and history and their admiration of God*.⁶⁸ But that’s little more than fleshing out the traditional view of endless contemplation of God and is not the kind of progress Joseph envisioned for those in the divine family of God. The God that intelligent immortals will contemplate in Dick’s system is not One they can see or touch, for Dick adheres to Platonic ideals. His God is an utterly incomprehensible Being unlimited in space who obviously does not have a specific place of residence or actual throne.⁶⁹ “The Deity, being a spiritual, uncompounded substance, having no visible form, nor sensible quantities, ‘inhabiting eternity,’ and filling immensity with his presence — his essential glory cannot form an object for the direct contemplation of any finite intelligence.”⁷⁰ This deity is furthermore unknowable except by studying His works, for “we have no sensible measures of the attributes of God, but those which are derived from the number and extent of his actual operations.”⁷¹

The differences in intelligences Brodie mentions are not based on any reference in Dick to premortal humans, but appear limited to non-humans (angels, cherubim, seraphim, etc.) and humans during and after their mortal existence. Dick notes that there must necessarily be differences in intellect and in levels of intellectual progress of these various intelligent beings during their continuing contemplation and study throughout

68. Dick, *The Philosophy of a Future State*, 174–75, where astronomical and scientific knowledge is emphasized. Regarding “history and philosophy,” see 256: “From what has been now detailed respecting the numerous and august objects that may be presented to the contemplation of celestial intelligences, we may conclude, that the chief subjects of study in the heavenly world will be *History* and *Philosophy*. Under the department of history, may be comprehended all the details which will be exhibited to them respecting the origin, progress, and consummation of the redemption of man, and the information they may receive respecting the natural and moral scenery, and the prominent providential occurrences and arrangements of other worlds.” This brand of “history” thus overlaps with astronomy.

69. *Ibid.*, 255.

70. *Ibid.*, 209.

71. *Ibid.*, 255.

eternity.⁷² But this seems irrelevant to the Book of Abraham. Further, Brodie's statement about "spirits being eternal as matter itself" is rather troubling, given Dick's clear acceptance of creation *ex nihilo* and his explicit declaration that the spirits/intelligences of the universe are all created beings. They may now be immortal, but the concept of immortal created souls is modern Christianity 101 and is nothing unique to Dick, nor does it explain Joseph's more unique views on the eternal nature of intelligence and matter.

To claim a parallel between the Book of Abraham's teachings on Kolob and Dick's teachings about the centrality of his abstract throne of God is particularly egregious. The quotation Brodie gives about the throne occurs in a section of Dick's book entitled, "The Throne of God," where Dick speculates that if the term "throne of God" is not merely metaphorical, it might refer to the scientific supposition that the universe may have a common center of rotation, and if so, perhaps that center could reflect God's glory in a way fitting the term "throne of God" as used in the Bible.⁷³ But in no way does Dick suggest there is a literal throne or that God has a physical body capable of sitting or even being anywhere in particular.

For Dick, God's figurative throne is central, and the universe revolves around it. This *contradicts* the Book of Abraham, where the successive orders above the earth are described with the outermost, highest level where we find Kolob. Kolob, near the throne or residence of God, is at the highest, slowest level, governing the other bodies in lower levels, which rotate more quickly. The fixed reference point in this model is "the earth upon which thou standest" (Abraham 3:3, 5–7). Abraham's cosmology appears to be adapted to a *geocentric* model that the Egyptians can comprehend, suitable for the science of his era.⁷⁴ It is radically different from Dick's cosmology, and the teachings on the throne of God seem diametrically opposed. In general, the parallels Brodie finds so convincing are weak, not there, or virtually the opposite of what she claims.

72. Ibid., 222–23, 230–31. See also 283 on seraphim.

73. Dick, *The Philosophy of a Future State*, 249–50.

74. Gee, *An Introduction to the Book of Abraham*, 115–19. See also John Gee, William J. Hamblin, and Daniel C. Peterson, "And I Saw the Stars' – The Book of Abraham and Ancient Geocentric Astronomy," in John Gee and Brian M. Hauglid, eds. *Astronomy, Papyrus, and Covenant* (Provo, UT: Brigham Young University, 2006), 1–16, <https://publications.mi.byu.edu/fullscreen/?pub=1098&index=3>.

Conclusion

Joseph Smith's universe gives us a hopeful cosmos that is governed by God. There are rules, there is order, there are times and seasons as well as eternal laws like justice and mercy that will affect our eternal, physical reality. We will have various kingdoms of glory that can be ours, with the ultimate goal to be in the presence of God, a God with a real physical presence and a Son who also has the very real physical, resurrected body that other witnesses have seen and handled, both in the Old World and the New, as we can read in the Book of Mormon. He is a God of mercy, tenderness, and love who fills the cosmos with His light and glory, and invites us to come and partake of all that He has. In contrast to the universes of scientists unaware of God's love and mercy, or the universe of theologians unaware of our true relationship with God and His true work and glory, what universe could possibly offer greater hope and light?

Joseph's benign universe fits into a beautiful, rational framework that provides unlimited capacity for the integration of science and religion. It is a framework that can handle dark matter and dark energy, higher dimensions and endless kingdoms and domains in nature, quasars and black holes, the Big Bang and an inflationary universe, and many of the concepts of modern science and science fiction. It would be incompatible with a doomed, decaying universe or one that is contracting and bound for destruction, but science so far gives no evidence of that. The expansion of the universe — apparently driven by a surprising and mysterious force simply called “dark energy,” for lack of a better term — is far greater than scientists had expected. The infinite, vibrant, growing universe of Joseph Smith lines up beautifully with modern cosmology. His universe does more than just acknowledge its vastness but explains its purpose and motivation. Others leave unanswered the grand question, “Why bother?” Joseph begins with the crucial explanation and then adds glory, wonder, hope, and brightness to conquer all the darkness of the world's fictitious narratives, scientific or otherwise.

The bitter cosmos of “darkness, everything darkness” frequently envisioned in science fiction, whether Asian or Western, is what we might expect if what we see — or think we see — is all there is, a terribly misguided notion completely unsupported by science, which not only reveals that what we can see from earth is not only a tiny fraction of the cosmos, and mostly outdated by millions or billions of years by the time we see it, but also recently has revealed that the energy and matter

we can see and handle is actually only about 4% of the cosmos, the rest being still mysterious dark matter and dark energy.⁷⁵

The universe of many modern intellectuals and materialists seems to offer no purpose beyond propagating random genes through survival of the fittest among rare blooms of randomly evolved life in a universe without God and without ultimate purpose, a universe of unspeakable beauty and precision design that supposedly arose out of nothing for the clerics or out of nothingness for the scientists. In such a universe, Liu Cixin's dark-forest model from *The Three Body Problem* reigns where life exists, and our biological imperative relative to intelligent life elsewhere might well be to remain hidden in order to survive and to strike first before competitors can strike us, or in other words, to "do unto others swiftly before they do unto you." It is the "iron rule" that, when followed, smashes much of the beauty of the cosmos and fills many of its local villages here on earth with pain and darkness.

May we embrace the vastly brighter Golden Rule instead, a rule not found in Western religions alone but in numerous religions across the world,⁷⁶ including the teachings of Confucius: "What you do not wish for yourself, do not do to others" and "Since you yourself desire standing then help others achieve it, since you yourself desire success then help others attain it."⁷⁷ May we prefer the infinitely bright vision of the cosmos that God has revealed through Joseph Smith, though still incomplete with many mysteries yet to be probed and revealed. It is a novel, coherent, and intellectually stimulating cosmos that demands further contemplation, investigation, and perhaps more of its own science fiction.

Two noteworthy Chinese works, though lacking the eternal perspectives of the Gospel, help us better contemplate the mysteries of intelligent life and the expanse and majesty of the cosmos. Without the perspectives of the Gospel, that universe can be a dark place that steadily darkens with little room for lasting hope. The added light and knowledge we have in Joseph Smith's revelations change everything.

75. "Universe," *Wikipedia*, last edited April 15, 2018, 17:26, <https://en.wikipedia.org/wiki/Universe>. See the subsection, "Composition." Also see Lindsay, "Dark Energy, Dark Matter, and the Things of the Spirit," January 21, 2013, *Mormanity* (blog), <http://mormanity.blogspot.com/2013/01/dark-energy-dark-matter-and-things-of.html>.

76. "Golden Rule," *Wikipedia*, last edited April 12, 2018, 20:27, https://en.wikipedia.org/wiki/Golden_Rule.

77. Confucius, *Lunyu* 12.2, 6.30 quoted in *Stanford Encyclopedia of Philosophy*, s.v. "Confucius," last revised March 23, 2013, <https://plato.stanford.edu/entries/confucius/>.

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