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Beyond Calculation: A Review of Robert J. Sawyer's Calculating God

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BEYOND CALCULATION: A REVIEW OF ROBERT J. SAWYER'S *CALCULATING GOD*

Jeff Lindsay

Review of Robert J. Sawyer, *Calculating God* (New York: Tom Doherty Associates, 2000). 336 pp. \$23.99 (paperback).

Abstract: *In an entertaining and provocative science fiction novel, Calculating God, Robert J. Sawyer presents us with a likable alien scientist visiting earth to obtain more data about God's ongoing work of creation. The alien is astounded that a human scientist does not believe in God despite the obvious evidence. Sawyer's work introduces a variety of reasonable scientific arguments for the existence of God in a series of cleverly conceived dialogs and uses dramatic events to develop some perspectives on God. Sawyer's purpose is not to evangelize, and the troubling concept of an utterly impersonal God who emerges in Sawyer's interplay between multiple worlds is quite alien to Christianity and especially to the revelations from Joseph Smith, which offer a much more hopeful perspective. Calculating God is a delightful read that raises some questions that need to be discussed more often, but to obtain meaningful answers, a different calculus is needed.*

[Editor's Note: We have, from time to time, published reviews or essays that draw upon disciplines that some may not consider as having bearing on The Interpreter Foundation's mission. For example, how can a literary genre such as science fiction fit into our mission? Some may even scoff, presuming that science fiction has no place in academic discourse. Consider, though, that science fiction attempts to create fantastic worlds, and that those worlds (and the beings that populate those worlds) necessarily reflect a "world view" consistent with the cultural views of the authors. In the realm of religion, Joseph Smith similarly described and promoted a future world which he credited to revelation and interaction with the divine. Perhaps we can learn new

insights by comparing the man-made views of our potential future with the revealed views of our future. In this review, Jeff Lindsay describes one science fiction author's take on the question of God's existence and compares the God in these pages to the God described by Joseph Smith.]

Robert J. Sawyer, a Canadian science fiction author who has published 23 books and won major awards for his writing, such as the Nebula Award (1995) and the Hugo Award (2003), takes on an unusual and controversial topic in his 2000 novel *Calculating God*, nominated for the 2001 Hugo Award. Scientists from two alien civilizations have teamed up to visit earth to learn more about God's work and God's plans. They are astounded to learn that humans, in spite of their basic scientific knowledge, are not absolutely convinced of the reality of God.

The book begins with a humorous but dramatic visit of an eight-legged alien being whose ship descends next to Toronto's Royal Ontario Museum (ROM). The alien that steps out of the smooth, sleek ship is a female, we later learn, looking something like a large brown spider with a torso resembling a big beach ball with eight limbs going in every direction, two of which have six-fingered hands, with a couple of moving eye stalks as well. She makes an awkward entrance up the steps and through the doors to the ROM, then approaches a security guard and in perfect English says, "Excuse me. I'd like to see a paleontologist."

Her name is Hollus, she's a mom with two children of whom she's very proud and misses very much, and she has come to Earth to learn more about God by studying our fossil record.

The novel is narrated by Dr. Thomas Jericho, a paleontologist who works at the ROM conducting research on the Burgess Shale collection. Here I must recommend spending some time at the ROM's fascinating website *The Burgess Shale*.¹ This famous and gargantuan collection of 500-million-year-old fossils comes from the Canadian Rockies in British Columbia, discovered in 1909 by paleontologist Charles Walcott, who spent years collecting and studying the fossil treasures there. The fossils are highly unusual in that the soft body parts of many creatures have been preserved. The Burgess Shale illustrates the incredible and often bizarre richness of marine life during the Cambrian Period after a dramatic event 541 million years ago known as the Cambrian explosion, in which large numbers of new species of life appeared. The importance of the fossils in the Burgess Shale was not recognized until

1. "The Burgess Shale," Royal Ontario Museum, <https://burgess-shale.rom.on.ca/en/index.php>.

the 1960s, when scientists noted that numerous bizarre species in the collection often did not fit any known category of life. Since then it has been used to provide many treasures of knowledge about early life. A *New York Times* bestseller, Harvard paleontologist Stephen Jay Gould's book *Wonderful Life: The Burgess Shale and the Nature of History* (New York: Norton, 1989) created increased popular awareness of the Burgess Shale. There are two other massive deposits of fossils, both in China: the Chengjiang fossil site in Yunnan Province,² and the newly discovered Qingjiang fossil site in Hubei Province.³

The security guard at the ROM is used to having film crews in the area and thinks the alien is part of a stunt, so he is not shocked by the visitor. He gives Dr. Jericho a call, and he arrives promptly, not knowing who the visitor is but instantly recognizes that this is a real biological entity that could not have evolved on earth. There is a great deal of humor but also seriousness in the early encounters of Hollus with humans, including authorities who insist that Hollus must go see the local political leaders because — well, isn't that what aliens are supposed to do? "Take me to your leader" and such? Hollus asks them to send her regards, but she has no time to meet and must get on with her scientific work.

A genuinely engrossing and entertaining aspect of the book is the series of conversations between Hollus and Dr. Jericho, who has a family of his own and is struggling with his own mortality as he fights terminal cancer. Very quickly we see that Hollus is stunned to learn that Dr. Jericho is an atheist. How could a man with advanced scientific education miss the obvious evidence that the universe has been designed by a creator? This is certainly an unusual twist in mainstream science fiction.

Jericho learns that two alien species have examined the scientific evidence and independently recognized that, of course, there is a God. But far more than that, God is clearly up to something, and they wish to learn more. Information from Earth may help them solve the mystery.

Hollus is a paleontologist herself, a member of the Forhilnor species living about 25 light years away in the Beta Hydri system. They have also brought along a team of scholars from yet another planet about 20 light years away from the species known as the Wreeds. The Wreeds are

2. Xianguang Hou and Jan Bergström, "The Chengjiang fauna — the oldest preserved animal community," *Paleontological Research* 7/1 (2003): 55-70, <https://doi.org/10.2517/prpsj.7.55>.

3. Dongjing Fu, et al., "The Qingjiang biota — A Burgess Shale-type fossil Lagerstätte from the early Cambrian of South China," *Science* 363/6433 (March 22, 2019):1338-1342, <https://doi.org/10.1126/science.aau8800>.

an intensely devout people who dedicate half of their time every day to prayer, though there is no evidence so far that God has heard or answered their prayers.

When the two species first met and shared information, they were stunned to find that during the evolutionary history of both planets, there were five major cataclysmic events at approximately the same times that helped shape the development of life. Hollus wanted to see if something similar had happened to Earth and quickly learned that yes, there were indeed five major cataclysms in Earth's history and that each occurred at about the same times as on the planets of the Forhilmors and the Wreeds.

The mystery is why God was tailoring life on these planets to develop intelligent species at precisely the same times.

Jericho, of course, doesn't accept the belief that these coincidences are due to God or that God is needed to explain life and the cosmos. With my personal interest in science and faith in and marveling at the divine Creation, I enjoyed the depiction of the alien scientist trying to explain to a human scientist why God as the Creator should be self-evident. Here Sawyer draws upon many of the arguments that have been used to support the need for a Creator, including

- The combination of fundamental constants governing the properties of matter that seem perfectly balanced to allow stars to exist and life to form. Hollus explains, for example, that if the strength of gravity were stronger or weaker by 1 part in many trillions, stars could not exist for long and would either collapse into dwarves or black holes due to gravitational force, or explode (53-54). Such a delicate balance in the fundamental properties of matter surely seems designed to make life possible.
- The ability of stars not only to exist but also to create the heavier elements we need, especially carbon, which depends on a mathematical coincidence involving resonance states of the carbon nucleus that allows three helium nuclei to fuse and create carbon (58-59).⁴
- The design of amino acids (92).
- The complexity and brilliance of DNA (91-92).

4. Wikipedia, s. v. "Triple Alpha Process," https://en.wikipedia.org/wiki/Triple-alpha_process#Resonances.

- The clever and complex design of the cilia on many different bacteria and in human lungs, essential for removing dust and debris (89–90).
- The remarkably unusual properties of water that are essential not just for cellular life, but for the ability to maintain liquid oceans that don't fill up with ice due to the unusual ability of water to expand and float rather than condense and sink when it freezes (60–61).

I would have liked to see included a discussion of the wonders of proteins, including such improbabilities of engineering as the motorized energy-producing enzyme ATP synthase, the spliceosome,⁵ and the enzymes that create and control microtubules and the stunning robot-like proteins that literally walk along them, transporting payloads vast distances to keep cells functioning smoothly. I would have enjoyed a discourse on the wonders of melanin, the widely used biopolymer that shields our DNA from damage from the sun, helps protect some nerves and brain tissue from other threats, adds beauty and diversity to human skin and hair, colors our lips, fortifies many fungi, enhances the feathers of many birds, and cloaks deep-sea fish with near invisibility in a bioluminescent world using some of the strangest, darkest materials known. I also might have included a discussion on the elaborate systems that repair DNA damage, with a complex of tools that detect DNA damage and that automatically prioritize responses to cope.⁶

But it would take countless chapters to mention most of the remarkable clues in nature or just within our own bodies that cry out as witnesses of not just intelligent creation but miraculously brilliant creation. I say “miraculously brilliant” because, in my view, the real question is not whether God designed this cosmos, but how it was even possible to find the combination of the fundamental properties of matter and energy that enabled the achievement of the wonders before us. How can the delicate balance of these basic properties that allow stars to exist also allow them to be carbon producing engines, and also allow water not only to be the ideal solvent to allow proteins to function in cells but also to sustain the planet's ecosystem? Here we have water vapor, liquid water, and solid ice that can all exist in harmony without, as mentioned, ice sinking and overwhelming oceans or water vapor turning earth into a Venus-like overheated greenhouse. There are so many interactions

5. Wikipedia, s. v. “Spliceosome,” <https://en.wikipedia.org/wiki/Spliceosome>.

6. Wikipedia, s. v. “SOS Response,” https://en.wikipedia.org/wiki/SOS_response.

to consider, so many wonders at every level, how was it even possible to make all this with a single selection of fundamental properties? Beyond those marvels, the brilliance behind DNA and protein design and function is simply beyond comprehension and worthy of frequent, reverent contemplation and rejoicing. On and on the wonders go. ...

In response to Hollus's statements, Jericho explains that seemingly improbable events can still occur by chance (58). He also explains that simple rules can lead to complex patterns, citing the numerical simulation from a computer program called "Life" developed in the 1970s by John Conway, a cellular automation in which pixels can move and change with many surprising features based on simple rules (79–81).⁷ He is not ready to admit that God must exist.

Hollus's belief that scientific observations and calculations provide evidence for God is not presented in a way meant to resonate with opponents of evolution. In fact, fundamentalist believers are the villains in this novel, as two violent and fanatic religious thugs who have recently bombed abortion clinics come to the ROM ready to shoot up the Burgess Shale so that alien worlds won't be influenced by evil evolutionary theory. The shallow, stereotypical portrayal of Christian zealots who are willing to kill and destroy in order to stop the spread of evolutionary doctrine is a weaker element of the novel, though it leads to a dramatic moment in which Hollus demonstrates remarkable presence of mind and saves the day without blasting the bad guys with advanced weaponry.

For Hollus and apparently all her people and for the Wreeds, God — whatever or whoever that Being is — is brilliant and powerful but is not concerned with individuals. God's goals seem to be to provide the conditions for the evolution of intelligent life and to bring about intelligence on multiple nearby planets at the same time through carefully planned cataclysmic intervention that has spanned over 500 million years. But why? For what purpose?

Through their conversations, Jericho helps Hollus solve one set of mysteries. Other worlds with intelligent life have been found in our corner of the galaxy, but there is no sign of life anymore as if the intelligent species chose to flee somewhere else, but where? Hollus notes that near one seemingly abandoned planet, they could still see the traces of a plume from a fusion engine that had propelled a ship toward the star

7. Wikipedia, s. v. "Conway's Game of Life," https://en.wikipedia.org/wiki/Conway%27s_Game_of_Life. The simulation can be tried at <https://playgameoflife.com/>.

Betelgeuse. With no habitable planets in that direction, the purpose of their journey is puzzling.

As Hollus describes the remnants found on that planet, such as vast slabs of rock placed over parts of the planetary surface, Jericho speculates that some of the inhabitants may not have left but rather have chosen to abandon organic life and instead have uploaded their minds into a massive computer system buried beneath those protective slabs, where they — as purely digital beings — may persist in an endless, vast simulation. The barren surface is likely meant to keep visitors away lest their virtual lives be threatened from the outside. Hollus sees that this may well explain the abnormal status of several once-inhabited planets, and may point to a defect in God's plan.

God apparently wants organic life to evolve for some purpose, but when that life chooses to abandon its organic form and stop evolving, it may frustrate some purpose God had. And perhaps this new collaboration between the Forhilmors, the Wreeds, and now Earth (at least via Jericho and a handful of other humans associating with other team members elsewhere on the planet) may play some role in further advancing God's plans.

The impersonal God recognized by the Forhilmors and worshipped daily by the Wreeds finally in a sense reveals Itself when a dramatic tragedy strikes. The star Betelgeuse suddenly becomes a supernova. Hollus and Jericho recognize that the fusion trail that had been detected heading toward Betelgeuse was that of a ship not loaded with fleeing migrants, but with a doomsday weapon meant to trigger the supernova that would produce a brief burst of massive radiation intense enough to sterilize all planets within roughly 100 light years, thereby eliminating potential threats to their virtual paradise beneath the surface of a seemingly forsaken planet. This reflects the dark and utterly selfish potential of intelligent life similar to the "dark forest" theme developed in the *Three-Body Problem* trilogy of China's most famous science fiction writer, Liu Cixin,⁸ discussed in my review of some key Chinese science fiction works.⁹ It is even possible that Sawyer's depiction of widespread

8. The English translation by Ken Liu is published as *The Remembrance of Things Past* (New York: Tom Doherty Associates, 2014). The translated trilogy comprises *The Three-Body Problem* (originally published in Chinese in 2007 with the English translation in 2014), *The Dark Forest* (2008, English translation in 2015), and *Death's End* (2010, English translation in 2015).

9. Jeff Lindsay, "Joseph Smith's Universe vs. Some Wonders of Chinese Science Fiction," *Interpreter: A Journal of Mormon Scripture*

planetary cleansing to preemptively destroy potential enemies was an inspiration for Liu Cixin, and a reasonable depiction of what we might expect from other inhabited planets in a tooth-and-claw universe unchecked by the teachings of a loving, personal God.

As the exploding Betelgeuse becomes brighter and brighter, on course to outshine the sun, the Wreeds and the Forhilmors recognize that their planets are doomed, as is Earth. At this dramatic juncture, the advanced telescope on the Forhilmors' ship detects what appears to be a rupture in space out of which a jet-black fluid seems to emerge and form a massive shield around part of Betelgeuse, enough to protect their planets. This, no doubt, is God, intervening to stop a premature destruction of intelligent life. Indisputable evidence of divine intervention is suddenly on the table.

Jericho, who is dying from lung cancer, has a strong desire to learn more. He was frustrated to learn that cancer appears to be a common incurable illness on other planets as well. Forhilmor technology, not very much more advanced than our own, can do nothing to help him. (A defect in the novel, actually — the more advanced Forhilmors seem to have given up on medical advances to treat cancer and probably could learn much from the progress that humans continue to make.) But they do make a life-changing offer to Jericho. Now that the hand of God has, in effect, been revealed, with God for the moment apparently being near Betelgeuse, the Forhilmors and the Wreeds feel they must go seek God, and decide they must bring some of their favorite earthlings along, if they are willing. A Chinese peasant, Jericho, a few others, and an ape are selected. All agree to go on the hundred-year journey to Betelgeuse, spending most of the time in suspended animation.

Jericho leaves, knowing that when he awakes near Betelgeuse, his family will long since have died. But he, being months away from death as it was, felt that in this way he could add some meaning to his life. When the delegates of three planets approach the great black cloud that is associated with God, a miracle happens that reveals the purpose for the millions of years God has invested in creating these lifeforms. For the first time, it seems, the prayerful Wreeds receive a clear communication from God telling them to take DNA samples from all three planets and place them together in a cell. A strange light from the black cloud then passes through the ship and activates the DNA mix, joining genes and creating what will rapidly grow into a godlike baby apparently destined to guide the universe through its next cycle of collapse and rebirth. It's

a strange, unsettling ending. So many eons of work to create one new being? But this is science fiction, not theology, and Sawyer still does much to bring clever, complex possibilities to our attention.

In spite of the interesting discussion of the evidence for God, the God of *Calculating God* leaves us and its various intelligent species with little reason not to be atheists, apart from the cold calculations that point to something's apparent design of the laws of physics and occasional well-timed eradications of vast swaths of life. God's existence and plans don't involve us as individuals. Further, calculated awareness that there must be a Designer behind the brilliant design around us and in us does not necessarily transform us. It is not sufficient to make us yearn to overcome our natural selfishness and rise to higher standards of behavior, to love our fellow men, to seek to adore God, or emulate, for example, His Son.

The goal of the remote, detached Being in *Calculating God* seems to be to create an unusual mix of genes from multiple worlds in order to make a junior god ready to guide the cosmos after everything in this galaxy and all the other galaxies in the cosmos collapse into nothingness. It's perhaps a calculated god to be acknowledged by scientists and mathematicians, but what is there to seek? Or to worship? Such a god is even more remote from the pains and joys of individuals than the god of the ancient Greek philosophers may seem. The novel's God is wholly other and incomprehensible, inaccessible, ethereal, and always remote, even when It drops in for a visit to a nearby star.

On the other hand, the unsettlingly narrow purpose of the God's cosmic work in the novel is not much more disappointing than some competing theologies of our day that cannot comprehend the majesty of God's real work and glory in mercifully giving life, agency, and the opportunity for eternal joy and enormously productive, meaningful, eternal lives to endless millions of His children across an endless cosmos.

I much prefer the God revealed in the scriptures of Restoration and taught by Joseph Smith, a God who weeps for us, a God who knows our pains, and has even taken them upon Himself to atone for our sins. The God of infinite love, of ultimate mercy, Who is so close to us that we are His children and He is our Father, Who sent His Son, the Creator, to represent Him and live among us, thus coming to know all that we face and all that we suffer. His work and glory is not to just create one successor after hundreds of millions of years of life and death on many planets, but to help each one of us be embraced with His love and be brought into His presence eternally, sharing with us all that He has in

lives of endless joy and growth. The universe that we see through the revelations given to Joseph Smith is one of infinitely expanding joy and meaning, not one with no purpose other than to perish and start again, guided by a remote, reborn God whose only purpose seems to be to persist.

Calculating God is an impressive novel well worth the read, but nothing compares to the views of God and His loving plans for us that are found in the scriptures of the Church, and especially in the revelations given to the prophet Joseph Smith.

Jeffrey Dean Lindsay recently returned to the United States after almost 9 years in Shanghai, China. Jeff has been providing online materials defending the LDS faith for over twenty years, primarily at JeffLindsay.com. His *Mormanity* blog (<http://mormanity.blogspot.com>) has been in operation since 2004. He is currently Vice President for The Interpreter Foundation and co-editor of *Interpreter: A Journal of Latter-day Saint Faith and Scholarship*. Jeff has a PhD in chemical engineering from BYU and is a US patent agent. He is currently Senior Advisor for ipCapital Group, assisting clients in creating intellectual property and innovation. From 2011 to 2019 was the Head of Intellectual Property for Asia Pulp and Paper in Shanghai, China, one of the world's largest forest product companies. Formerly, he was associate professor at the Institute of Paper Science and Technology (now the Renewable Bioproducts Institute) at Georgia Tech, then went into R&D at Kimberly-Clark Corporation, eventually becoming Corporate Patent Strategist and Senior Research Fellow. Jeff served a mission in the German speaking Switzerland Zurich Mission. He and his wife Kendra are the parents of four boys and have twelve grandchildren.