

## Book Reviews

“Of all orders of animals, primates were core Huxley business, their appreciation stretching from the wild to the captive, from the historical to the filmic” (p. 198). Chapter 6 focuses on primates, principally apes. Thomas was instrumental in applying Darwinian themes to the origin of humans, especially in his 1863 volume *Evidences as to Man’s Place in Nature*. There were few fossils available for him to discuss, so his emphasis lay on the anatomy of contemporary monkeys and apes. Julian, in turn, became entranced with apes and particularly gorillas while with the London Zoo, and was in turn a tutor and promoter of the work of primate ethologists George Schaller and Jane Goodall. His collaborative work with the latter included publicity trips to East Africa to advocate for conservation of primates in the wild.

Part III, “Humans,” examines Thomas’s and Julian’s evolving perceptions of the role of humans in the history of life. Chapter 7 carries the story of the Huxley family’s contributions to paleoanthropology forward, and the following chapter reviews the involvement of Thomas and then Julian in politics. Notably, Julian was a member of a select committee of geneticists, including Hermann Muller, J.B.S. Haldane, C.H. Waddington, and Theodosius Dobzhansky, who issued a (1939) manifesto controverting the overt racism of the Nazi regime and its purported biological basis. This manifesto for racial parity would later become known as the Humanist Manifesto. When Julian took on the directorship of UNESCO, in 1946, it became the template for its foundational document, *UNESCO: Its Purpose and Philosophy*. Julian made sure that the underlying philosophy was areligious, monistically evolutionary, and Freudian.

Chapter 9 tells a sad tale, interweaving the Huxleyan family preoccupations with Malthusian biology and with mental illness. Julian pondered what likely was a genetic predisposition to his own temperament, even as he took on leadership roles in the British and international eugenics movement. Along with geneticist R.A. Fisher and others, he served on the Committee of the Eugenics Society for Legalising Eugenic Sterilisation. He praised the efforts of states like California to implement mandatory sterilization policies.

Part IV, “Spirits,” is a dénouement of sorts, documenting the paradoxical return to a vague spiritualism on the part of Julian, prodded by his brother Aldous’s experiments with mind-altering drugs and the research of his son, the ethnologist Francis Huxley (1923–2016).

This book comprises a magnificent narrative of a family marked by brilliance, accomplishment, and tragedy, and is highly recommended. It is symphonic in scope. Sadly, an underlying dirge is audible within

the Huxleyan polyphony; perhaps it is a product of an insistent turning of the face away from the Almighty.

*Reviewed by Ralph Stearley, professor of geology emeritus, Calvin University, Grand Rapids, MI 49546.*

## PHYSICS

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**LOST IN MATH: How Beauty Leads Physics Astray** by Sabine Hossenfelder. Basic Books, 2020. 304 pages. Paperback; \$19.99. ISBN: 9781541646766.

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**EXISTENTIAL PHYSICS: A Scientist’s Guide to Life’s Biggest Questions** by Sabine Hossenfelder. Atlantic Books, 2023. 248 pages. Paperback; \$19.99. ISBN: 9781838950385.

“I invent new laws of nature; it’s what I do for a living.” This is the way German physicist Hossenfelder begins her 2020 book, *Lost in Math*. She goes on, through ten chapters, to explain why particle physics is at an impasse. Particle physicists have been unable to improve upon their “Standard Model,” which goes back to the 1970s, largely because experimentation has become so expensive. The \$6 billion Large Hadron Collider (LHC) is a prime example. It confirmed, as expected, the existence of the Higgs boson, but otherwise its results have been disappointing. So, Hossenfelder laments, “The LHC hasn’t seen anything that would support our newly invented laws of nature” (*Lost*, p. 5).

By her account, contemporary particle physicists have little to work with besides their imaginations and mathematics. Driven to make progress, but without experimental data to guide or constrain them, physicists increasingly rely on aesthetics, on an unreasonable quest for beauty and mathematical simplicity, to theorize. The result: mathematical constructs—new and imaginary particles, string theories, and the multiverse—that pose as science, but are neither testable nor useful. In other words, anyone hoping for an overarching theory of everything is at a dead end. Disaffected with both physics and academia, Hossenfelder’s attention has shifted to writing and a popular YouTube channel, “Science with Sabine.”

As an engineer, I was barely able to follow Hossenfelder’s story since several sections were beyond me. What drew my attention was her honesty and provocative style. She is not a religious person but, like some other scientists, she understands that studies of the fundamental properties inherently involve discussions of God. She acknowledges that religious faith can be consistent with science, while scolding scientists who are dismissive of religion since their criticisms are ill-informed and harmful.

In *Existential Physics*, Hossenfelder looks beyond how physics is (un)done to examine “big questions” about science, academia, life, consciousness, and the nature of reality itself. She prefaces her discussion with “A Warning,” letting readers with religious views know she is “both an agnostic and a heathen,” and the book might “negatively affect some readers’ mental health” (pp. xv–xvi). Readers may be “genuinely disturbed” and ask, “What sense does life make without free will? What is the point of human existence if it is just a random fluke? How can you not freak out knowing that the universe might blink out any moment?”

After the preface, her nine chapter titles are all questions, such as “How did the universe begin? How will it end?” “Why doesn’t anyone ever get younger?” and “Are you just a bag of atoms?” Several chapters examine questions of special interest to Christians: “Has physics ruled out free will?” “Was the universe made for us?” and “What’s the purpose of anything anyway?” Between chapters are four short conversations with fellow scientists, each beginning with the same question: “Are you religious?” Three respond negatively, but all, to one degree or another, hold to unscientific explanations of existence, even ones that are spiritually laden.

Hossenfelder thinks “Stephen Jay Gould got it right when he argued that religion and science are two ‘non-overlapping magisteria’” (p. 219). Employing that perspective, she emphasizes that science has limits, and its findings do not conflict with many religious beliefs. She closely examines the “fine-tuning” of physical constants (pp. 152–53) that make life possible, as well as competing explanations of them, both religious (i.e., a creator God) and scientific (i.e., the multiverse). Again, she notes the limits of science, admitting that some things are beyond our ability to test them experimentally. Given those limits, she allows people to decide, without prejudice, what they will believe.

Christian readers will appreciate Hossenfelder’s openness to theism and her readiness to admit that science is limited, even doubting that it could ever settle some questions. They will also like her condemnations of philosophical naturalism and scientism, such as her statement that

It’s not that I want to be nice to religious people for the sake of being nice. To begin with, I’m not exactly known for being nice. But more important, scientists who claim, as Stephen Hawking did, that “there is no possibility of a creator,” or as Victor Stenger has, that God is a “falsified hypothesis,” demonstrate that they don’t understand the limits of their knowledge. When prominent scientists make such overconfident proclamations, they make me cringe. (p. 218)

Even more, Hossenfelder’s appreciation of creation and its religious significance is worthy of praise. She well

understands, “Religion matters to many people in a way that science doesn’t” (p. 219). Further, she notes:

Scientists can learn from religion that not every get-together needs to come with a teachable lesson. Sometimes we just enjoy the company of like-minded people, want to share experiences, or look forward to a traditional ceremony. Science is severely lacking in such social integration. (pp. 220–21)

Perhaps she would enjoy the fellowship of an ASA Annual Meeting?

I recommend both books to *PSCF* readers. *Existential Physics* is more accessible, and of more value to a wider audience. Although Hossenfelder would not likely specify, readers may appreciate that “all things were created through him and for him,” and “in him all things hold together” (Col. 1:16, 17). Without that knowledge, science can only reach dead ends.

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## PSYCHOLOGY/NEUROSCIENCE

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**DETERMINED: A Science of Life Without Free Will** by Robert M. Sapolsky. Penguin Press, 2023. 528 pages. Hardcover; \$35.00. ISBN: 9780525560975.

In his latest book, Robert Sapolsky takes on the monumental task of trying to convince his readers that personal agency, free will, and moral responsibility do not exist. As a staunch determinist, he argues for the philosophical position referred to as “hard incompatibilism” (determinism and free will are incompatible positions to hold simultaneously). Sapolsky readily acknowledges how challenging this task will be, settling for a more modest goal—to get readers to intellectually move in the direction that there is less free will than they previously assumed.

Sapolsky is an author who should be read, and his arguments, whether you agree with them or not, need to be discussed. He is a neuroscientist and primatologist, and holds the position of professor in biology, neurology, and neurosurgery at Stanford University. By the age of 30, he was awarded a MacArthur Foundation “Genius” grant. His writing is intelligent, clever, lucid, and at times hilarious, infuriating, and profane. Personally, I admire Sapolsky’s command of the written word. In one sentence he can make the reader laugh by employing whimsical literary devices and in the next sentence he can be punishingly argumentative and scholarly. He writes with a chip on his shoulder, knowing that most people reading the book disagree with his extreme deterministic position. His prose is never dull or boring,