

compete at the same level as men in sports that require physical strength. He acknowledges that there are some examples of transgender women who would have a competitive edge but maintains that using such a small proportion of people in an already small population of elite athletes as the “key group to understand human-wide patterns of sex biology is misleading and faulty science” (p. 146).

The major point Fuentes makes in this book is that “sex involves *all* the processes of sexual reproduction—not just gametes” (p. 38). That is true, but despite the overlapping ranges for many sexual aspects of men and women, some aspects of sex biology are inescapably binary. The gametes one produces are either large (eggs) or small (sperm). DSDs notwithstanding, only one sex can gestate a baby. This does not make men and women fundamentally different kinds. After all, most of our genetic inheritance is the same in both sexes, and sexual differentiation does not begin until six weeks of development under hormonal influence. However, when it comes to reproduction, sex is clearly binary. Broadening the definition of sex to include behavioral and cultural aspects (i.e., redefining sex to mean gender), as Fuentes does, gives the impression that sex is a spectrum but, from a biological perspective, sex is first and foremost about reproduction.

Overall, *Sex is a Spectrum* presents many good arguments that dispel the idea that males and females are fundamentally different. However, Christians should be aware of Fuentes’s agenda. He focuses on sociological aspects of sex (which are on a spectrum) and minimizes binary biological differences. Moreover, one must be cautious in applying what happens in animals to that in humans. Is sex binary or on a spectrum? Many processes of sex are indeed on a spectrum or bimodal, but the reproductive aspects of sex are inescapably binary.

Reviewed by Tony Jelsma, Department of Biology, Dordt University, Sioux Center, IA 51250.

EVOLUTIONARY THEORY

DOI://<https://doi.org/10.56315/PSCF3-26Garte>

BEYOND EVOLUTION: How New Discoveries in the Science of Life Point to God by Sy Garte. Tyndale Refresh, 2025. 304 pages, including technical details, glossary, and notes. Hardcover; \$19.98. ISBN: 9798400501364.

Sy Garte is an accomplished biochemist who has been a professor at New York University, University of Pittsburgh, and Rutgers University. His work has been widely published in peer-reviewed scientific journals. He is the author of numerous essays and blogs exploring the integration of science and Christian faith, and of two previous books, *The Works of His Hands* (Kregel, 2019)

and *Science and Faith in Harmony* (Kregel, 2024), plus a chapter in the book, *Coming to Faith Through Dawkins*, ed. Denis Alexander and Alister McGrath (Kregel, 2023).

Beyond Evolution is his newest book exploring faith and science. Here Garte poses provocative questions and makes many bold claims. He makes it crystal clear that he accepts evolutionary theory but is critical, however, of neo-Darwinism. The author argues that the neo-Darwinian (modern synthesis) form of evolution has been overemphasized in public discourse; this explains why evolution is such a flash point for many Christians. He suggests that too many Christians and scientists treat evolution almost as a metaphysical worldview rather than a tool for understanding life’s diversity.

In chapter 2, Garte starts to build his argument by pointing out deficits in evolutionary theory. For example, it cannot frame fitness mathematically, which makes the theory susceptible to misuse, and it is insufficient to explain the origin of life. Furthermore, new research suggests that epigenetic changes are long lasting, perhaps permanent, and mutations are not completely random; bacteria have some degree of control (by mechanisms yet unknown) over where mutations occur, thereby enhancing their survival.

According to Garte, evolution by natural selection is not the most fundamental principle in biology, a claim he explores in chapter 3. Instead, high-accuracy self-replication (HASR), or biological inheritance, provides a more foundational insight into life than simple variation and natural selection. He believes evolution is an inevitable consequence of HASR and claims that HASR could not have evolved by natural selection and is therefore strong evidence for God.

I found the most provocative arguments and claims in chapter 4 in which Garte explores agency, cognition, and teleology in biology (ACT). He claims that all living things are agents (A) or entities that act intentionally in goal-oriented ways. The author refers to teleology (T) as explanations that consider the purpose or end of something. Here he makes bold statements that may require a new understanding of purpose. Garte says that “no rock cares about being eroded ... but bacteria, oak trees, and dolphins *do* care” (p. 85, italics in original). Some readers may need to remind themselves that the goal-oriented purpose Garte describes includes simply staying alive and reproducing. Although he blends cognition (C) into his teleology argument, he explores cognition most deeply at the end of chapter 4. He quotes Andreas Wagner in defining cognition as “the mechanisms by which animals acquire, process, store, and act on information from the environment” (pp. 94–95).¹ These mechanisms include perception, learning, memory, and decision-making. The author cites several examples

Book Reviews

of simple creatures—bacteria, slime mold, fungi, and plants—that use signal transduction and cellular learning processes to predict and manage future events based on current conditions.

Garte circles back to the origin of life in chapter 5, where he carefully and accurately describes what science does and does not know about abiogenesis. He briefly covers energy requirements for life, the RNA world hypothesis, and more, and includes problems with the hypotheses that attempt to explain how life first came to be. Here the author accurately points out that science is missing a lot when it comes to explaining abiogenesis—most notably laws and theories that explain the transformation of chemistry into living cells. Discovering these laws and theories will require new scientific approaches, but even then, science may fall short of providing a complete explanation for the origin of life, demanding acknowledgment of the existence of a divine designer. In this respect, Garte comes close to, if not fully, embracing a “God of the gaps” argument.

In chapter 6, Garte explores emotions, thoughtful reflection, humor, creating and appreciating art, and non-kin altruism as aspects of human behavior—aspects that cannot be explained by evolution, but by a loving, divine Creator God who made humans in his own image. He also suggests that a clue to consciousness lies in the human propensity to tell stories. After exploring the soul and the mind-body problem, Garte ends this chapter with a discussion of love. He connects love to story, emotions, and beauty and says the existence of love is enough to point us to a divine Creator. Although he mentions artificial intelligence in his discussion of consciousness, a deeper exploration in the context of his argument would have been fascinating.

Garte ends his book with a story to draw his arguments together, attempting to move away from a “God of the gaps” argument by encouraging us to forget about the gaps. He urges scientists to continue to explore “both books”: scripture and the book of the natural world. Garte’s writing is accessible and his tone generous; he deliberately avoids overly technical jargon and provides an appendix with technical details, as well as a glossary for non-scientists who want more information. The author is deeply committed to both his Christian beliefs and to evidence-based science, inviting both believers and skeptics to follow the evidence wherever it leads. His theological framing could, at times, be stronger, but he readily admits he is not a theologian.

I admire his willingness to take on difficult questions and recommend this book to anyone who wants to hear how a respected scientist uses good, current science, scripture, and theology to explore interesting, provocative questions at the intersection of science and faith.

Readers may want to be on the alert to see if Garte’s prediction—that biology is on the verge of major breakthroughs that will incorporate ACT and design into its foundational theories—comes true.

Notes

¹Andreas Wagner, *Arrival of the Fittest: Solving Evolution’s Greatest Puzzle* (Current, 2014).

Reviewed by Sara Sybesma Tolsma, Department of Biology, Northwestern College, Orange City, IA 51041.

DOI: <https://doi.org/10.56315/PSCF3-26Schreiner>

FRIGATEBIRDS, SEA LIONS, & DARWIN: Musings on Evolution, Creation, and Ecology by David B. Schreiner. Wipf & Stock, 2025. 140 pages. Paperback; \$27.00. ISBN: 9798385203178.

According to the two books model of revelation, God can communicate theological truths through both scripture and the created world. Experiencing nature can therefore stimulate questions about biblical interpretation we might not otherwise have entertained. In *Frigatebirds, Sea Lions, & Darwin*, David B. Schreiner, Associate Professor of Old Testament and Inductive Biblical Studies at Asbury Theological Seminary, recounts several trips to the Galapagos with his wife, daughters, and biologist brother. His family’s encounters with the beauty and savagery of nature challenged some of his presuppositions about evolution. The double-edged sword of ecotourism in the Galapagos as both a source of conservation revenue and pressing environmental destruction challenged his understanding of humans as stewards of a land in need of taming. Presented as a mix of travelogue, musings, and biblical hermeneutics, the author has sought to provide “reflections and thoughts...as an inroad to a conversation that remains very difficult” (p. 16). Rather than try to convince through systematic biblical analysis or persuasive rhetoric, his hope is to share his experiences to “possibly produce similar reflections in the minds of my readers” (p. 9). This book is therefore more conversational than many in the science-faith realm, akin to *The Fool and the Heretic* by Todd Charles Wood and Darrel R. Falk (Zondervan Academic, 2019), or *How I Changed My Mind About Evolution*, ed. Kathryn Applegate and J. B. Stump (IVP Academic, 2016) rather than to more systematic treatments of science and faith. Its success, therefore, depends on how thought provoking you find his experiences and reflections.

The author provides three major contributions to the science-faith conversation. First, questions about evolution naturally came to mind when he was confronted by the same species Darwin observed. Schreiner, therefore, spends some time reflecting on his own theological journey within a fundamentalist context, and how major findings in the Ancient Near East and a strong