

The authors also argue that the “move fast and break things” mentality is symptomatic of a shift in the direction of digital technology and that the current AI vision of technology leaders is an illusion. This vision claims that AI will benefit humankind, yet in reality, it sidelines humans while generating huge wealth by reshaping our view of digital and AI technology away from creating new tasks and opportunities toward automating work and cutting labor costs, re-creating the old two-tier society of the previous millennia. Nevertheless, while some data is provided to justify this assertion of the authors in the use of robotics, there is much debate about the real impact of AI among white collar workers, a topic about which the authors offer no projections of their own.

Central to the book’s thesis is the claim that a deterministic view of technology is a fallacy. Different choices could have been made in developing AI, away from automation and in directions more beneficial to society. However, what these directions might be are not really examined in any detail. A Christian redemptive approach to culture, while resonating with this non-deterministic view, would want to frame the argument in terms of responsible design choices involving stewardship, love for neighbor, and avoiding technological design that dumbs down humanity or leads to addiction or results in idolatry.

The final chapter outlines how Progressive movement activists, reformers, and journalists changed the views of the public, organized politically, and challenged institutions and government in America in the late 19th and early 20th century, leading to a redistribution of power and a change in direction for technological progress. A three-pronged formula is proposed as a way out of our current predicament: (1) “altering the narrative” and “changing the norms,” (2) “cultivating countervailing powers,” and (3) providing “policy solutions.” How this would work is then sketched out using examples, such as how the environmental movement worked to redirect technologies. The authors’ proposals for “Remaking Digital Technologies” were rather weak. Their suggestion that “improving productivity in workers’ current jobs” (p. 394) is precisely what companies such as Microsoft would argue they are offering through their “co-pilot.” I was also not convinced by the longer section on policy solutions that missed any reflection on proposed standards for responsible AI or policy proposals, such as the EU AI Act, details of which have been under discussion for the last few years.

In the complex world of social history and economics, it is often hard to prove a causal link between one factor and another, let alone when there are several variables in play. No doubt other economists and social historians will have a different take on the role of power and technological progress in shaping our world, and Christians

will want to provide an interpretation through the lens of biblical truth. This book does, however, provide a helpful counterpoint to the prevailing AI vision that innovation is essential for growth and prosperity and that regulation stifles progress.

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**RADICAL BY NATURE: The Revolutionary Life of Alfred Russel Wallace** by James T. Costa. Princeton University Press, 2023. 552 pages. Hardcover; \$39.95. ISBN: 9780691233796.

Most people, when asked, “Who is Charles Darwin?,” would quickly respond, “Isn’t he the survival of the fittest guy?”; or at least make some reference to evolutionary theory. If the same people were asked, “Who is Alfred Wallace?,” they probably would furrow their brows and make some guess (“Isn’t he the Braveheart guy?!”) or proclaim they had never heard of him. But Alfred Wallace (1823–1913) should get as much credit for formulating the theory of evolution as Darwin, and, I would guess, if he were pushed, *more* credit, according to James T. Costa, the author of *Radical by Nature: The Revolutionary Life of Alfred Russel Wallace*.

Costa’s 419-page tome (not counting chapter notes, figure credits, and index) was written to mark the 200th anniversary of Wallace’s birth. The author argues that Wallace is “not well enough known” in spite of many recent publications documenting Wallace’s life and accomplishments (p. xi). Costa attempts to make this book unique in several ways. He hopes that what he has written is an updated story of Wallace’s life; the book does include information from newly discovered notebooks and manuscripts. He also wanted this biography to explore Wallace’s life “as he lived it, in a narrative that traces the arc of the remarkable adventures, poignant personal life, and breathtaking sweep of thought of this singular human being” (p. xi). Costa intentionally includes vivid descriptions of the landscapes and geology of the places where Wallace collected his vast number of specimens, as well as the cultural context of his life and work.

The biography begins with Wallace’s life as a child. His family, although having limited finances, yet encouraged Wallace’s innate creativity, reading, love of the outdoors, and intellectual exploration. It is clear that Wallace’s keen sense of observation—particularly about place—was born along the River Usk in South Wales. As a young teen, Wallace traveled to London where he spent six years as a surveying apprentice. His curiosity and intellectual pursuits were nurtured in this environment in which he explored science—especially geology, entomology (he loved beetles!), and botany—in the

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Zoological Gardens and the Hall of Science. He even started lecturing and writing.

Costa's narrative about Wallace's first two decades of life includes not only information about how he was shaped as a scientist, but also how he was shaped politically and socially—especially by the Owenites, a utopian socialist group, known for promoting cooperation, free thinking, and social equality. They advocated a form of religion based on reason and human goodness. The Owenites were therefore unimpressed by societal hierarchies; their views likely emboldened Wallace to debate with anyone, regardless of social standing. Since Wallace was a self-trained biologist, his courage in engaging the scientific establishment probably stemmed, at least in part, from his interaction with the Owenites.

The majority of this book is dedicated to vivid and detailed descriptions of Wallace's travels, from South America to the Malay Archipelago. The level of detail, including lists and descriptions of collected species, may be overwhelming to some readers. I found the tales of the challenges Wallace faced, fascinating. I was captivated as I pictured how Wallace figured out ways to prevent ants from devouring his precious specimens; escaped shipwrecks; overcame disease, fire, hostile native peoples, injury; avoided snakes; and more. Through all the challenges, Wallace collected, preserved, and sent his specimens back to Great Britain, along with drawings, descriptions, travelogues, and scientific papers. Some of Wallace's drawings as well as photographs and other figures are scattered throughout the book. In the center, there is a section of color photographs from Wallace's notebooks, family portraits, and some of his most interesting collected species.

Costa masterfully reminds readers of the relationship between Wallace's early interest in geology and the theory he was formulating as he connected the places he was in and the species he was collecting. Wallace's deft mind was never satisfied with thinking about discoveries in isolation—everything was related, and he carefully looked for connections between landscape and the creatures that inhabited it.

Toward the end of Wallace's travels, the author nicely begins to unfold the relationship between Wallace and Darwin, including, obviously, the publication of their seminal papers outlining their theories of evolution by natural selection. Costa describes their relationship throughout the book as cordial, even friendly, with Wallace never tilting toward any jealousy that it is Darwin's name more than Wallace's that is so tightly connected to evolutionary theory—even when their papers were first published. I found the correspondence between these two brilliant men fascinating. Darwin was strongly supportive of Wallace's scientific efforts.

Wallace's return to Great Britain after almost two decades of travel did not mean he slowed down. In addition to avid gardening with his wife Annie, with whom he had two children, Wallace sorted, studied, wrote, and spoke. His writings included papers, books, letters, and more. He wrote about his vast collections, published his travelogue, wrote on human evolution, biogeography, and a coevolutionary framework for Earth and life (p. 289). His writings were not restricted to science. Wallace wrote about spiritualism quite extensively, much to the disappointment of the scientific community (p. 314). He even seems to fall prey to a God of the gaps theology (although more of an intellectual "higher power" of the gaps theology for Wallace) when he claimed that human brains were too complex to arise by evolution alone.

Wallace's writings also heralded social justice causes, harkening back to the influences of Owenites. His trip to the United States sparked interest in women's education and rights. During this trip, he traveled to California and met John Muir. These experiences were important in generating his new interest and in his writings about environmentalism, conservation, and land ethics. Toward the end of his life, he even began thinking and writing about extraterrestrial life. Wallace remained an active and vibrant scholar until his death at nearly 91 years old. His last two books were published during the last year of his life.

It's quite clear to me upon reading this biography that Costa is a "Wallaceophile." If I were to find something to criticize about this book (besides the sometimes-exhaustive descriptions of Wallace's collections), it would be that Costa is quite forgiving of any of Wallace's shortcomings. With the exception of chapter 12, "A Tale of Two Wallaces?," in which Costa describes Wallace's extensive foray into spiritualism, Costa seems to write about Wallace in the most favorable light possible. Any suggestion, for example in Wallace's own writings, that he thinks of the people groups he encountered during his travels as less human than civilized Europeans, is excused. Perhaps Costa is right. Wallace was an extraordinary person, one I came to appreciate deeply after reading this book, but we all have our blind spots and Wallace was no exception. In spite of this, I recommend this book to anyone wanting a deeper understanding of one of the most important scientists of the 19th century. It gave me a profound appreciation of the physical danger involved in procuring such an extensive collection of species, the intellectual depth required to pull his vast observations and experiences into a compelling theory, and the intellectual risks Wallace was willing to take to synthesize all his life's experiences. Wallace's life is one worthy of a book of this length and detail.

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