

each with a unique revelation of salvation from the one God. Vainio concludes that Christians should approach the study of science and theology with a sense of awe and an awareness of what is not known. This is an unnecessary conclusion as most scientists and theologians in the field, Christian or otherwise, take exactly that approach. His statement reveals his ignorance toward what it means to pursue scientific study. Perhaps this statement was intended for readers lacking in both scientific and theological academic pursuits, but this would not be in line with the book's apparent intended audience.

This book suffers from being mistitled. While it is true that the definition of cosmology in a literary sense includes the human perception of the totality of knowledge, most modern readers will think of the scientific field of physical cosmology. This is the scientific study of the origins and ultimate fate of the universe, which are typically not studied from a life science perspective. On the topic of scientific physical cosmology, Vainio says very little. As a physicist, looking forward to expanding my understanding of philosophy relating to my field, I was disappointed. It is clear that the main purpose of this book is to discuss the philosophical implications of astrobiology, another deeply important and nuanced field. A more accurate title, emphasizing the astrobiology focus, would have set a better perspective and drawn the intended audience.

While there are many minor issues with this book, the most grievous is the author's clear lack of scientific understanding. In analyzing different scientific theories such as the multiverse, Vainio cites primarily science philosophy books that have summarized these papers. There is no sense that Vainio has read the original research or done the equational analysis needed to deeply understand the physics theories that he is attempting to discuss. I am reminded of reading works by William Lane Craig, such as *Theism, Atheism, and Big Bang Cosmology*. In this work Craig has rightly been criticized for having a clumsy grasp of the physics for which he is trying to offer philosophical perspective. The difference is that Craig is deriving his physics knowledge from original scientific sources and makes a valiant attempt to wrestle with the theories and equations. Vainio does no such thing. All of the science Vainio presents in both the fields of physical cosmology and astrobiology is coming from science philosophy or popular science books. This is not an acceptable substitution for learning scientific theories at the level needed to offer insightful analysis. The reader is left with the perception that he does not have a real understanding of the science, and as a result most of Vainio's conclusions are weak.

The book, despite its flaws, does have some redeeming qualities which some readers may find beneficial. The summary of the western perception of universal understanding is surprisingly thorough for its short length. Those who are fans of C. S. Lewis and his writings on theological issues of astrobiology in his fiction works will appreciate how these discussions provide a guiding force in the philosophical analysis of extraterrestrial life in this book. This may be an interesting read for those pondering the implications of life outside of Earth from a somewhat Christian perspective. The discussion on Christology and astrobiology is an effective counter argument for anyone (secular or theistic) who holds the belief that the discovery of extraterrestrial life would compromise Christian belief. These sections alone may make it worth a skim. However, with the wealth of available books on the topics of science and faith as well as on the Christian perspective on astrobiology, this one falls flat.

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READING GENESIS AND MODERN SCIENCE: A Study Guide by Frank De Haan and David De Haan. Grand Rapids, MI: Credo, 2018. 112 pages. Paperback; \$9.99. ISBN: 9781625861177.

Reading Genesis and Modern Science is a relatively brief work produced by a father-son team of Christian chemists. Both have earned PhDs and have spent their careers teaching, researching, and ministering among college students at major universities. One is now retired from Occidental College in Los Angeles and the other is working at the University of San Diego. The authors confess a biblically based Christian faith, with deep roots in the Reformed tradition, and a confidence that modern conventional science is not at odds with the authority and truth of scripture. A love for the church and for God's natural creation prompted the project.

The book is intended to be used as a study guide for Sunday School classes or small group discussions to introduce scientific topics with which many Christians struggle. The authors acknowledge that there are risks on either side of positions taken on these topics. Taking an overly skeptical approach to science may lead to rejection of good science and loss of benefits that progress in those fields could bring. On the other hand, rejecting parts of the Bible that seem inconvenient may result in an anemic, ineffective, and misdirected faith. With the risks in mind, their position unabashedly favors an embrace of scientific findings related to the age of the earth, evolution of life including humans, and human-induced or exacerbated climate change.

Book Reviews

The book's stated objectives are to appreciate the strength of scientific evidence; critique young-earth creationist methods; utilize alternate ways to understand Genesis; express why this really matters; understand the causes and seriousness of climate change; and consider how to be stewards of the earth.

The book is divided into eight lessons, with short descriptions or vignettes designed to facilitate discussion. The authors take a novel approach of shifting a significant portion of their own arguments to the back of the book. This final section, "Answers and Comments for Discussion Questions," fills the last one-third of the book.

The strengths of the book, considering its purpose, start with its relatively small size. The book is not an intimidating tome on the subject of science and faith. It is not intended to be a thorough defense of the chosen topics, but to be a starting point for discussions. Participants interested in more-thorough coverage of subjects are directed to other sources. Descriptions of scientific understanding and biblical hermeneutics are generally accurate, though oversimplification in some places is an inevitable artifact of the book's brevity. The tone of the book attempts to draw participants together in discussion rather than to preach, though the authors do make a strong case for their viewpoints.

The brevity is also a drawback, given the complexity of the subjects addressed. Readers or group leaders looking to go deep with a discussion group may find the material falling short of expectation, with some lessons less than two pages in length leading up to the questions. Given the beginning of the book title, *Reading Genesis ...*, readers might also expect more discussion of the Genesis text than is found. Chapters do ask readers to consider the meaning of many Bible verses, though mostly verses outside Genesis. If using the book in a Sunday School setting, leaders will need to forewarn participants that questions dealing with specific verses are saved for lesson three and beyond. Finally, while the questions are good, they are not always obviously tied to the stated subject of the chapter.

Lesson one covers plate tectonics. Readers are provided with a brief history of Wegener's theory of continental drift and its eventual confirmation based on alternating bands of iron-mineral orientation on the ocean floor. The lesson ties in an explanation of how earthquakes happen, and even how human activity can cause smaller earthquakes in some parts of the world. There is no biblical discussion in this lesson, though questions ask participants to think about whether earthquakes started only after sin.

Lesson two focuses on dating. A simple description of radioisotope dating is provided, with a good example of a method scientists use to determine the starting composition of minerals being dated. The lesson does not address the challenges raised by young-earth advocates or how scientists respond to those challenges. Apparent conflicts with biblical ages is saved for later chapters.

Lesson three covers the age and origin of the universe. This is a short chapter, with fewer than two pages of discussion leading into the questions (though the "Answers and Comments" section at the end offers more). One example of a method for estimating the age of the universe is provided, based on the current position of galaxies in the universe and the rate of expansion. Questions begin to draw participants into scripture here, addressing subjects such as the understanding of the original audience and whether God speaks through his natural creation.

Lesson four concentrates on the question, "Where Does the Idea of a Young Earth and Universe Come From?" The authors provide a brief history of modern thought on the age of the cosmos, noting that many conservative theologians of the 1800s did not consider Genesis to constrain the age of creation. Half the lesson is an extended quote from *The Bible, Rocks, and Time* by Davis Young and Ralph Stearley. Questions ask participants to consider whether science and faith have always been in tension and why some scientists try so hard to dismiss God.

"An Alternate Way to Understand Early Genesis, Especially Genesis 1" is the focus of lesson five. This lesson draws largely from John Walton's work in *The Lost World of Genesis One*. A brief case is made that Genesis was effectively a love poem: God telling God's people that they need not fear darkness, or the sea, or monsters, or the unknown, for he has made the creation to function for their benefit. This lesson is the first time participants are asked why some feel the Genesis story must be taken literally and whether there was death before sin.

Lesson six explores "Why This Really Matters." The authors reiterate material from lesson three, reminding participants that insisting on a young earth in spite of overwhelming evidence can place stumbling blocks to faith in the path of Christian youth and adults considering the Bible. They also note that some powerful apologetic arguments are undermined by the young-earth position. Questions range from exploring why people believe in a multiverse to whether God could have created by evolution.

Lessons seven and eight both focus on "Topics for Further Study and Discussion." The seventh chapter

probably should have been titled “Climate Change and Christian Stewardship,” as this is the subject addressed. An overview is provided for the science of human-induced climate change, how the discussion is often derailed by political polarization, and what we should be doing as stewards of God’s creation. Some will argue that the acceptance of human agency in the earth’s warming trend is overstated, though a good case is made for seeing ourselves as caretakers of the earth, rather than simply as users. The final chapter probably should have been wrapped into the previous one, for it continues the subject of stewardship. The lesson is just two questions, both tied to climate change. An appeal is made for churches to be more active in discussing the impact of human activities on the earth’s climate, and recommending active participation in solutions.

I recommend the book for groups already comfortable with the possibility that science may have something to say about our understanding of scripture or earth stewardship. It will not be as useful for groups looking for a strong scriptural defense before giving science an ear.

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SOCIAL SCIENCE

MINDS MAKE SOCIETIES: How Cognition Explains the World Humans Create by Pascal Boyer. New Haven, CT: Yale University Press, 2018. 376 pages. Hardcover: \$30.00. ISBN: 9780300223453.

Encompassing updated research findings from evolutionary anthropology, history, economics, and social psychology, Boyer has embarked on an arduous and audacious task to provide psychological and cognitive underpinnings of a wide range of human social behaviors. Within the framework of evolutionary psychology, Boyer frequently provides comparative as well as historical accounts of human social behaviors to explain how such behaviors have evolved. While doing so, Boyer emphasizes the importance of cognitive underpinnings of social behaviors and explains how cognitive systems played a role in shaping and influencing various social behaviors.

Boyer suggests that at the core of understanding various social behaviors lies the functional capacity of human mind. This implies that we need a set of cognitive capacities or detection systems that enable people to extract information from the social world—termed as the “intuitive inferences systems.” Boyer argues that there exist a plethora of these intuitive inference systems shaping, guiding, and direct-

ing cognitive processes of information pertaining to specific social contexts. These intuitive inference systems share some common properties: (1) they operate outside consciousness; (2) they are specialized; and (3) the operation and function of these systems can be best understood from the evolutionary perspective. Under such assumptions, Boyer presents how these systems operate and function in group formation and conflict (chap. 1), junk culture, including odd belief, rumors, and conspiracy theory (chap. 2), religion (chap. 3), family (chap. 4), societal cooperation and justice (chap. 5), and human society (chap. 6).

In the first chapter, Boyer focuses on the operation and function of the cognitive system in group identity and group formation. He begins the chapter by describing one’s inherent tendency toward group formation and antagonism toward out-group members (group conflict). Coalitional psychology emerged to understand the psychological and cognitive underpinnings of human alliance that enable people to form a group. Cognitive systems shape and reinforce the coalition by playing a vital role in recognizing in-group members in order to build solidarity and identifying out-group members based on accent and phenotype. For example, race is one of the most salient and explicit ways to predict social alliance. Furthermore, the system makes implicit statistical estimations of different out-group members, which have significant impacts on people’s physical health as well as attitude. As such, one’s survival and well-being hinges upon group cohesion and continuity, and cognitive systems play a vital role in group solidity and conflict.

In the second chapter, Boyer focuses on the functional role of cognitive processes involved in seemingly unreasonable and odd belief with little value—termed “junk culture.” In chapter 3, he defines religion as a subset of supernatural concepts systematically structured and codified. In light of evolutionary psychology, religion is adaptive and enhances fitness by promoting one’s commitment to a group and cooperation with others. Boyer proposes three cognitive representations of religion: (1) an interesting fiction; (2) a way to cultivate spiritual self; and (3) a way to promote group solidarity and intergroup hostility.

In chapter 4, Boyer presents the cognitive computation underpinning sexual preference, identity, and behavior. Sexual psychology has heavily relied on the theory of evolution, which is supported by a wealth of evidence. However, according to Boyer, this explanation also poses a challenge because the notion of fitness is difficult to measure and it takes a