

Book Reviews

well have been speaking of songwriting: “To create consists precisely in not making useless combinations. Creation is discernment, choice ...” (p. 228).

Unlike his Simonyi Professor predecessor Richard Dawkins, du Sautoy demonstrates no antipathy toward religion, yet his musings on human identity and religious motivations for art ring, at times, strangely superficial in comparison to the other topics he covers so deftly. At one point, without any hint of irony, he tells a story about how religion arose from humans’ need to tell stories to explain the world around them. Almost the entirety of the book is concerned with the *how* of creativity (i.e., in the processes), as well as concerns about the implications for the future employment of artists, writers, musicians, and, indeed, mathematicians in the face of AI advances. These lead naturally to the capstone final chapter, “Why We Create,” in which he quotes from psychologist Carl Rogers and author Paul Coelho on the roots of creativity as a human need to communicate and to bind communities together. While du Sautoy doesn’t go on to provide it, these reasons form a subset of a Christian response to the *why* of human creativity, for example, as seen in *Creator Spirit: The Holy Spirit and the Art of Becoming Human* (Baker Academic, 2011) by theologian/musician Steven Guthrie, who likens creativity to gift-giving: “God invites us into the ecology of gift that is at the center of God’s own life ... God’s intention is that we would, like God, be agents capable of giving to others” (p. 158).

The Creativity Code is current with respect to AI developments up until the time it went to press. However, this was prior to the debut of the “transformer” language models in early 2019, which far surpassed many people’s conceptions of the capabilities of generative language models, even inspiring widespread concerns regarding their potential misuse (for example, see J. Vincent, “OpenAI’s New Multitalented AI Writes, Translates, and Slanders,” *The Verge*, Feb. 14, 2019). Thus, in reading the later chapters on AI, language, and text-creation, one wonders how differently an updated edition of this book would read in light of these developments. With AI changing so quickly, it may be impossible to produce a book that will stand the test of time in every respect, and it remains to be seen what other “updates” the coming years will bring as far as AI’s capabilities. Yet, as both a comprehensive historical survey and as an authoritative statement of values about creativity, du Sautoy’s book will remain a significant contribution and should be read by anyone interested in the intersection of AI and creativity.

Reviewed by Scott H. Hawley, Professor of Physics, Belmont University, Nashville, TN 37212.



MEDICINE AND HEALTH

CARE AND CURE: An Introduction to Philosophy of Medicine by Jacob Stegenga. Chicago, IL: University of Chicago Press, 2018. 248 + xiii pages, including bibliography and index. Paperback; \$25.00. ISBN: 9780226595030.

As I began writing this review, our Minneapolis newspaper reported on the controversy that Blue Cross Blue Shield Minnesota raised when it decided to work with a for-profit contractor in South Carolina to use evidence based medicine (EBM) for prior approval of procedures that it will cover. Many physicians, hospitals, and patients are complaining that the newly aggressive denials are tantamount to fraud. This is the intersection of medicine, economics, and public policy and, according to Jacob Stegenga, philosophy of medicine can help us clarify the issues. He sees it as a branch of philosophy of science (he is a philosopher teaching in the Department of History and Philosophy of Science at the University of Cambridge) and defines philosophy of medicine as “the study of epistemological, metaphysical, and logical aspects of medicine, with occasional forays into historical, sociological, and political aspects of medicine” (p. 1). As defined, it covers a lot of territory, so an introduction that provides a map of the main issues and the controversies involved in them is very useful, and that is what Stegenga provides. He does not provide a detailed discussion, much less a resolution of all or any of the debates, but he gives an informed overview and a clear outline of the dueling positions and even of the intramural debates within them.

Part I, “Concepts,” begins with chapters on health and disease: is the former simply the absence of disease or, more positively, the sort of flourishing that includes mental and social well-being? The reader will find problems (or, as Stegenga is fond of saying “puzzles”) with either of these answers. And defining disease raises similar issues: both “naturalism” (disease is simply dysfunctioning physiological systems) and “normativism” (disease is a disvalued state), as well as the hybrid effort to mediate them, elicit enough puzzles that “eliminativism” tries unfruitfully to get along without a theory of disease. The role of phenomenology is to describe what it is like to be diseased, something even naturalists try to recognize with the category of “illness.” Chapter 3, “Death,” asks whether it is a biological event (such as the whole brain death of an organism) or a metaphysical one (higher brain death of a person). Some might like more detail here, especially when he dis-

cusses in a few pages whether one's death is bad for oneself (dating the argument as "going back to" Lucretius, when it actually goes back 250 years earlier to Epicurus) as well as the ethics of euthanasia and abortion. I think that he could have reiterated his decision to let medical ethics be its own field and have spent more time on the definitional issues, but he might reply that he is trying to provide only a high-flying overview or map of the debates.

Part II, "Models and Kinds," begins with an important chapter on nosology—the classification of diseases—that shows the puzzles involved in the three main theories: the *etiological* (with its three sub-theories about what it means to cause a disease), the *pathophysiological* (what biological mechanism is malfunctioning?), and the *symptoms-based* such as we find in the *Diagnostic and Statistical Manual of Mental Disorders*. A chapter on reductionism (biomedically disease centered) and holism (patient centered) gives the book its title: the former is aimed at *cure* and the latter at *care*. Medicine needs both.

Part III, "Evidence and Inference," is the most philosophically laden section and the one I found most revealing. Chapter seven lays out what counts as evidence for the effectiveness of pharmaceuticals. Randomized controlled trials (RTC) are thought to be the gold standard, and meta-analysis amalgamates the outcomes from multiple studies. So why do meta-analyses of the same primary evidence sometimes reach contradictory conclusions? Here Stegenga provides what for me is his eye-opening summary of the sources of bias in medicine (perhaps 56 of them), of threats to objectivity, of distressingly common fallacies of inference, of problematic elements in claims of effectiveness, and of difficulties in decisions about diagnosis and the wisdom of screening. It is enough to make one skeptical and, indeed, in 2018, the same year as this book, Stegenga also published a book sympathetic to *Medical Nihilism* (Oxford University Press). His informed medical skepticism (a better, albeit less snappy phrase than medical nihilism) about the effectiveness of medical interventions, such as anti-depressants, can elicit both praise and blame, as seen here: <https://aeon.co/essays/the-evidence-in-favour-of-antidepressants-is-terribly-flawed>. If you click on the comments you will see the contours of the debate, as well as his willingness to engage his critics.

The final section, "Values and Policy," has a chapter on "Psychiatry: Care or Control?" that shows the difficulties in reaching agreement on diagnoses and treatments when decisions are based mainly on symptoms. The resultant room for social and political abuse of psychiatry is underscored. The chapter

on public "Policy" highlights the "10/90 gap": 90% of the world's medical research resources are devoted to studying diseases that affect only 10% of the world's population and, of course, it is the poor who are left to suffer the diseases that could easily be fought except that there is little financial incentive to do so. So, should medical research be socialized the way medical delivery is? The final chapter on "Public Health" raises the question of whether "prevention" should be added to "cure and care" as part of the mission of medicine. One problem is that most of the developments that prevent diseases are non-medical ones such as improved sanitation and clean drinking water. And when we consider preventative medicine, we encounter the problem of deciding how much mass screening (with its inevitable negative side effects) is worth how many lives saved. Stegenga does not raise the currently hot issue of vaccination and whether we should allow nonmedical exemptions that undermine herd immunity. This omission and others (is gun violence a public health issue?) underscore the fact that even a comprehensive map of philosophy of medicine cannot cover all the relevant issues in 250 pages.

Stegenga calls his approach "analytic naturalism," which connotes careful analysis of scientific ideas appealing only to empirical facts about nature and history (p. 3). As expected in analytic philosophy, the emphasis is on clarity and relevant distinctions. Indeed, he loves distinctions and subcategories, often saying, "Let's call this ..." Sometimes I wondered if his labels are commonly accepted; for example, he refers to "Pre-Conscious Hypersomniferosis" (PCH) without defining it (he invites the reader to say which normal condition is being medicalized here), but when I googled it, the only reference I found was to this very book. The writing prizes clarity over eloquence, and prizes argument over consensus. Often in one paragraph, we find a claim, an objection or two to it, a response or two to the objection(s), and sometimes a reply or two to the response(s). This method gives a good overview of the debates, although it conveys the impression that we have an endlessly contested field.

Most of the book can be understood by laypersons, though at least one explanation—that of frequentism versus Bayesianism (theories of statistical inference)—presupposes more background knowledge than many of us have. And this was part of the very important points about the difference between "risk reduction" and "risk difference" and about the "base-rate fallacy," points that not only show how big pharma can commercially exploit the confusion, but also seem important to understanding problems

Book Reviews

with the use of EBM that I mentioned at the beginning of this review.

The “Note to Teachers” at the beginning of the book indicates that the main intended audience is college and medical school students. I think that the book could be an excellent supplemental text in college and medical school classes. In fact, the author lists his websites with sample syllabi for such courses. The readings listed at the end of each chapter are included (with links) in the syllabi; they are also the ones referenced in the chapters. Each chapter begins with a useful summary of the coming discussions and ends with discussion questions that tend simply to ask what the reader thinks about the arguments summarized. Anyone interested in the debates of the methodologies and effectiveness of contemporary medicine will find this clear and concise survey of the issues very useful.

Stegenga’s “analytic naturalism” does not entail “metaphysical naturalism,” which is the denial of any reality beyond the natural phenomena that science studies (though it can affirm that nature may well contain realities that are beyond what current science studies or can even imagine). But his approach does entail “methodological naturalism,” which denies appeal to any supernatural realities. Many Christians in science accept the latter as intrinsic to doing science, and they will feel at home with Stegenga’s approach. But even those who believe, say, in the supernatural power of petitionary prayer and see it as a legitimate part of medicine, can learn a lot from this well-informed study of the difficulties and limits of current medical practice and research.

Reviewed by Edward Langerak, Professor Emeritus of Philosophy, St. Olaf College, Northfield, MN 55057.



JESUS, BEGINNINGS, AND SCIENCE: A Guide for Group Conversation by David A. Vosburg and Kate Vosburg. Farmville, VA: Pier Press, 2017. 101 pages. Paperback; \$12.95. ISBN: 9780996991513.

David A. Vosburg, a chemist, and Kate Vosburg, an InterVarsity Christian Fellowship campus minister, wrote this small book for groups that want to have healthy, respectful conversations about faith and science. Their book is organized into three sections with four chapters per section—perfect for a twelve-week adult Sunday school class or small group study. Each chapter is only 5–7 pages long, so the book will accommodate busy participants who would not take the time required to read lengthy assignments in

preparation for a discussion. The three sections focus on science in the context of creation/origins. Part one is entitled “What does the Bible say about creation?” Part two shifts the creation focus to humans in “What does the Bible say about human origins?” The last part pulls the focus outward to science and faith broadly in “What does the Bible say about science?”

This book is a call to reflect on biblical texts that can inform our understanding of the relationship between science and the Christian faith. It is a gentle, faithful, easily accessible, thoughtful starting point for a respectful dialogue.

This book is not a resource in which you can find scientific evidence for or against evolutionary theory or an old earth. It is not a place to find deep, complex theological or hermeneutical arguments, although it includes an extensive list of excellent additional resources if a leader, small-group participant, or reader wanted to dig deeper. It does make the argument that science and faith are not in conflict, but it does not argue for a particular point of view on origins. It does not explore other points of integration between science and faith such as creation care, medical ethics, or genetic technologies.

People considering using this book to lead a small-group study do not necessarily need extensive scientific or theological knowledge, but some background in one or both would be helpful, depending on how deeply participants might want to delve into foundational information and/or evidence. If, however, participants are generally open to a discussion of what scripture says about science, anyone could use this book to lead a group.

Jesus, Beginnings, and Science has many strengths. The authors bring expertise in both science and faith to each chapter of this book. They both have experience working with young people who are struggling to put science and faith together faithfully. Vosburg and Vosburg use Genesis but do not limit themselves to Genesis. They include Old Testament texts from Psalms, Job, and Isaiah as well as passages from the Gospels, Paul’s letters, and Revelation. I appreciated that their use of the whole of the Bible naturally broadens any discussion of origins/creation out from a singular focus on the creation narratives of the first chapters of Genesis. The open-ended and thought-provoking questions they include for reflection and discussion are excellent. Each chapter incorporates scripture, prayer, and worship, which I imagine help keep a group focused on the unifying tenets of their faith, even if they are discussing something about which they might strongly disagree.