

creates unnecessary conflicts between Christianity and science. For example, he states that we have "had to abandon our belief in heaven, because our inherited concept of heaven is in too direct a line of descent from a geocentric – and anthropocentric – universe" (150). But when the Bible speaks of heaven it often does so in poetic and symbolic fashion, and even though some of this imagery might reflect a geocentric view of the solar system, the concept of heaven certainly does not depend on it. Discarding our belief in heaven is an unnecessary accommodation to naturalism that hamstring a central soteriological and eschatological concept of Christianity.

Feehan's book is a worthy contribution to the integration of science and Christianity, filled with challenging thoughts and concepts. In my view, however, his hyperaccommodation to naturalism leaves us with a God who is alien to the pages of Scripture and a gospel that does not save.

Cynthia Crysdale and Neil Ormerod, *Creator God, Evolving World*. Minneapolis, MN: Fortress Press, 2013. 368 pp. \$18.00. ISBN 9780800698775.

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Life evolves according to something like *PANDA*: Progressive complexity, Ancestors in common, Natural selection, Descent with modification, Ancient earth. The phenomenon of natural selection, for example, reveals that living things with the most adaptive traits continue to exist. But some aspects of how adaptive traits become selected remain mysterious. For example, adaptive traits rely on random genetic mutations with no statistical favoritism apparent as to whether a trait will enhance fitness. As Jerry Fodor and Massimo Piattelli-Palmarini argue, the heart became selected for its fitness-enhancing ability to pump blood, but it may just as well have become selected for the thumping noises it makes.¹¹ In addition, natural selection seems unable to account for the reliability of the cognitive processes by which science (and its description of natural selection) came to be, as Alvin Plantinga has often argued.¹² If we are to believe these difficulties, natural selection seems to be the weak link of the strongest theory for how life changes and diversifies.

Cynthia Crysdale and Neil Ormerod, the authors of *Creator God, Evolving World*, attempt to steer clear of these perceived difficulties for natural selection by arguing that some adaptive traits show signs of emergent order. Some systems spontaneously generate novel complex patterns, like the symmetry of snowflakes, out of simple and randomly occurring parts and relations. Their argument is grounded on numerous examples of complex structures emerging from simpler structures without specific organizational goals. For instance, when individual social amoebas find themselves in hostile conditions, they self-organize into a single slug-like creature that looks and functions as a distinct organism altogether (72). While this slug-making clustering trait is adaptive, enabling survival in an otherwise hostile environment, clustering is not itself a teleological goal. Nor can clustering be described as random change. Clustering is "emergent." From this and other examples, the authors argue for an alternative account of natural selection based on the idea that "there is in the world a dynamism that drives emergence... this dynamism is directed toward ever-

¹¹Jerry Fodor and Massimo Piattelli-Palmarini, *What Darwin Got Wrong* (Great Britain: Profile Books, 2010).

¹²Alvin Plantinga, *Where the Conflict Really Lies: Science, Religion, and Naturalism* (New York: Oxford University Press, 2011).

greater systematization and integration, but ... the particular integrations that emerge are not determined a priori" (74).

Crysdael and Ormerod use this notion of emergent structures to answer what must be the most important question in the debate between science and religion: is human evolution special? This question is important because evolutionary processes and their products are inherently unpredictable; most biologists are no more willing to speculate how modern humans evolved than to claim that intelligent and moral beings even had to exist. Conversely, most religious believers hold that God created humans to exist just as they are. For instance, Plantinga claims that the process of species modification is not random, but guided by bottom-up causal influence from God's careful manipulation of quantum states or some other as-of-yet-discovered strategy.¹³ Any "guiding hand" proposal is, however, not one that fits within the reigning paradigm of scientific inquiry. Nor do many evolutionary biologists believe that such a narrative is consistent with the known randomness involved in a species' modification and descent. The result of these divergent views on human evolution is a widening divide between biology and religion.

Crysdael and Ormerod's application of emergence hopes to avoid the guiding hand narrative; humanity emerged through a process of emergent self-organization. More specifically, the traits that make humanity unique, "meaning, truth, and goodness" (109), occurred through a process of what Bernard Lonergan called, "emergent probabilities." Emergent probabilities self-organize by the repetitive mechanistic processes of evolution building upon one another to form more and more complex structures without guiding principles. This is human emergence through the "Evolving World." But what about the "Creator God?"

Crysdael and Ormerod argue that emergent probabilities provide a unique space for understanding God's role in creation; God set up an emergent system that does not need to be micro-managed, but which is geared for selecting human traits of meaning, truth, and goodness. "God is involved not as a secondary agent but as the primary cause of all that is, who has directed the dynamism of the world toward the good, ultimately the good of being in communion with God's self" (121).

The implications of viewing intelligence and morality as emergent structures are taken up in the concluding chapters of the book, though other questions remain for me. First, those attentive to the science of emergence will bristle at the thought that emergent systems did not themselves naturally emerge. Is it really for religion to say how natural systems originate? It seems out of place for a scientist to allow for God's primary creative agency in the formation of the natural world. To their credit, Crysdael and Ormerod seem attentive to this worry. Employing the resources of the Standard Model of particle physics, in particular the multiverse (that our universe is one of an infinity of possible universes, each with its own laws and structures), God's primary agency is tied to his selecting which potentialities are to be actual for our universe, rather than creating our universe wholesale. "With perfect wisdom and love, God chooses one possibility in its totality from its beginning to its final consummation, for all the myriad options presented by divine intelligence, in that same creative act" (55). From what I understand of this explanation (which is not much), it still seems to encroach on the role of science to account for all issues natural. In a sense, God's hand still guides, but rather than directing the orchestra the divine hand merely selects which music to play.

Those sensitive to understanding God's specific role in human origins will feel un-

¹³Ibid.,

easy with Crysdael and Ormerod's story of God's selection-at-a-distance. However, they may find solace in the author's use of an intriguing metaphor of God's creative agency: God "breathes fire" (46, 55, 127) into the potentialities required for human existence. This expression, while something to ponder, does not bring about the kind of clarity for which one might hope. While Crysdael and Ormerod attempt to turn this obscurity to advantage, claiming that God has an ineffable and mysterious nature, "beyond anything that we can imagine" (56), I can only see disadvantage. How are we to think that an incomprehensible being, whose activities are likewise mysterious, might provide insight into human origins, particularly human evolution?

In contrast with the obscurantism of pondering God's dragon-like qualities, I find deeper insight in the possibility that God finds no need to create, or select, for the human traits of meaning, truth, and goodness. We might, for instance, find alternative readings in biblical scholarship; one may interpret the Genesis narrative with the ancient Near Eastern view of "Functional Ontology," where things exist insofar as they serve some function.¹⁴ In such a view, "guiding hand" (and "fire breathing") accounts of evolution are motivated by an anachronistic interpretation of the Genesis narrative using the modern view of "Material Ontology," where what matters is an object's constituent parts, properties, and processes. With this distinction, what is crucial to being human is not the material constitution of humans—that they possess moral and intellectual traits—but that whatever traits occur by evolutionary processes would serve a functionally equivalent role, allowing communion with God's self. In sum, human evolution need not be viewed as being a product of "intelligence" or "moral" trait selection, as this is neither warranted by evolution nor assumed by biblical scholarship.

These issues aside, with their insightful, articulate, and informed book, Crysdael and Ormerod have added a welcome position to the literature in the science and religion debate. They inspire readers like me who remain open to shared space for accounts of God's creation and nature's evolution and who reject a conception of a micro-managing God. And it may just be that Bernard Lonergan's theory of emergent probability holds the right set of keys for unlocking the mystery of natural selection.

Vern Sheridan Poythress. *Logic: A God-Centered Approach to the Foundation of Western Thought*. Wheaton, IL: Crossway, 2013. 733 pp. \$45.00, ISBN 9781433532290.

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At its best, Vern Sheridan Poythress's *Logic* offers succinct arguments and thoughtful explanations. For example, informal fallacies work by counterfeiting genuine arguments, such as how the fallacy of bifurcation (or false dilemma) "counterfeits the truth that in some cases there are actually only two alternatives" (125). Venn diagrams and Euler diagrams work because they are "spatial representations of logical relations" (259), and so on. These explanations are succinct and clear. *Logic* also presents a thoughtful discussion of how arguments are used in the Bible (30–32) in order to undercut claims that arguments are in themselves unspiritual (43). That is helpful. Finally, *Logic* can be almost poetic in its description of things: "We may arrive at conclusions that become the starting point for still

¹⁴John Walton, *The Lost World of Genesis One: Ancient Cosmology and the Origins Debate* (Downers Grove, IL: IVP Academic, 2009).