

Editorial

EMERGENCE AND REDUCTION: THE SAME COIN?

“Emergence” has become a popular term in “religion and science” discussions. A publication that has attracted wide interest recently has been Deacon’s (2012) *Incomplete Nature*. The rhetoric of “emergence” is often that of antireductionism, even though with the reductionists the advocates of emergence object to additional ingredients and to an additional organizing actor. “Higher” entities or phenomena come about by the organized interplay of “lower” entities. Thus, even though the analysis of the behavior of higher entities may need a vocabulary of its own, their existence is understood to be material in kind. An often used example: “paying someone money” is always a physical process; material objects (coins, paper) change places or the physical state of the computer at the bank is modified. However, the economics of paying is not intelligible when described in such physicalist terms. A simpler example: wetness is a property of drops of water, but it is not a property of individual molecules of H₂O.

As I understand it, “emergence” is a useful notion to understand relations between theories in science. It is useful to correct an unwarranted extrapolation from fairly simple connections between theories at different levels of description (e.g., the reduction of thermodynamics to statistical mechanics) to all cases. At the same time, “emergence” is a word that indicates that “higher” level phenomena are fruits of “material processes” even though our *description* of the “higher” level phenomena cannot be reduced in a straightforward way to a description of the underlying processes. The main difference with “reductionist” visions seems to be that advocates of a religious appreciation of “emergence” value “higher” over “lower” structures, and “complexity” over “simplicity.”

This issue of *Zygon: Journal of Religion and Science* has far more subtle reflections on reduction and emergence. From the late Ernan McMullin, we have a very fine article on human nature, and the competition between a dualist view and a monist, physicalist one. He reminds us that in the development of a “reductionist” view, we also come to understand the underlying reality differently. With a materialist understanding of humans has come a different understanding of what matter is. Paul Allen, author of a book length study on McMullin’s philosophy of science (Allen 2006), provides a helpful introduction that clarifies the position of McMullin, as neither “independence” nor “dialogue” nor “integration,” to draw on the widely used categories of Barbour (1997, 77–105). For me, Paul Allen’s

essay contributed significantly to a better understanding of Ernan McMullin's human and religious stance.

The Augustinian orientation of McMullin comes through as well in the other reprint of a major article by him, in which the understanding of God's eternity as timelessness plays a key role. He addresses the issue of contingency in evolution, an issue poignantly raised by the late Stephen Jay Gould. If evolution could easily have gone differently, it is hard to see how one could claim that the process had to produce humans, or even sentient, social, and rational beings that would be "in God's image." The prominence of contingency seems to undermine any belief in an intended, predetermined cosmic purpose. Among the ways out would be (i) divine intervention, to guide the process, or (ii) convergent evolution, claiming that despite the contingency, the overall outcome would have to be something like the richness we see. McMullin presents a third view, which arises when God is not seen as someone who predicts whether purposes will be realized by a particular process (bound to time). Whether contingent or lawlike, all that is, is God's creation and thus realizes God's purposes. A somewhat different articulation of such a position was offered some time ago by Wilkins (2012). With the reprint of Ernan McMullin's essay "Cosmic Purpose and the Contingency of Human Evolution," William R. Stoeger offers another helpful introduction that points out how fundamental the choice is between two views of God in relation to temporality. Various other contributions in this issue of *Zygon* are, implicitly or explicitly, placing God in time. Thus, they face issues about divine action and natural processes that need not arise on McMullin's Augustinian program.

Causality and emergence are central themes in three articles that have been grouped together in another thematic section, which also deals with nonpersonal theologies and with "panentheism," almost a decade after the volume *In Whom We Live and Move and Have Our Being* (Clayton and Peacocke 2004). Benedikt Göcke analyzes the panentheism of Karl Christian Friedrich Krause, the thinker who coined the term panentheism (pan-en-theism). Krause once shared a house with Schopenhauer, saw his membership in freemasonry revoked because of an orientation toward reform, and never received a tenured position. More important for us, he is to be understood in the context of German Idealism, with a particular drive to establish a system in which all the sciences would be interconnected, as they all are about the intellectual intuition of the Absolute as the one infinite principle of being and cognition. Mariusz Tabaczek offers definitions of emergence of higher level entities and properties. To understand their ("downward") causal efficacy, Tabaczek goes back to Aristotle's four causes and offers a proposal to understand "downward causation" as a modern variant of the "formal cause." Zachary Simpson discusses the central role of emergence in the theological writings of Philip Clayton, and contrasts this with Deacon's (2012) recent study on emergence. Simpson's plea for

a “nonpersonal” notion of ultimacy is illustrated not only with Deacon’s approach, preferred over Clayton’s use of emergence, but also with notions from the thought world of the Navaho, native Americans.

The section on Human Nature continues from a thematic section published in *Zygon: Journal of Religion and Science* in December 2012, “Human Nature in Theistic Perspective.” As Celia Deane-Drummond, the guest editor of these sections, and Paul Wason wrote in their introduction on boundaries between reasonable science and theology, these contributions go back to a symposium “where the porosity of such boundaries” was explored (Deane-Drummond and Wason 2012, 871). The section in December 2012 focused primarily on the theological angle—the role of the Bible and the understanding of humans as being “in God’s image” (Deane-Drummond 2012; McFadyen 2012; Schneider 2012; Stenmark 2012; Torrance 2012; Walton 2012). From the same colloquium came Stephen Pope’s contribution on ethics and evolution (Pope 2013), published in *Zygon: Journal of Religion and Science* in March 2013. In the current issue, Michael Spezio discusses social neuroscience, especially intersubjectivity and love. David Fergusson offers an alternative understanding of *imago Dei* that would avoid the assumption of any special property; the expression refers to our ordinary lives as creatures for God. Thomas Tracy picks up the debate on divine action, specifically in the course of human evolution when the natural order has the right kind of indeterminism. Thomas Jay Oord takes a somewhat similar approach in arguing for the role of the divine spirit as causal and personal. John Cooper reflects upon theistic evolution, distinguishing between naturalistic and supernaturalistic versions. In his preference for supernaturalistic theistic evolution, he comes fairly close to the positions defended in the two preceding papers. I want to express my gratitude to Celia Deane-Drummond for serving as a guest editor of these packages on theological and scientific perspectives on human nature and to Rebecca Artinian Kaiser, her research assistant in the department of theology at the University of Notre Dame.

Two further papers with which this issue opens are on related topics. The first one by Erkki Vesa Rope Kojonen is on Intelligent Design and Theistic Evolution, and hence is related to Cooper’s paper on naturalistic and supernaturalistic versions of theistic evolution. Joshua Reichard writes on Pentecostal views of miracles and the potential for a fruitful interaction with a process view (in the tradition of Alfred North Whitehead, and more recently David Ray Griffin.) As I see it, such programs are not satisfied with “emergence”; the process view considers sentience as part of the fundamental structure of reality, and thus comes closer to treating psychology, rather than physics, as foundational. The understanding of reality, reduction, emergence, and our selves addressed in many different ways in this issue, allows for many interesting discussions. The book reviews add more—including the challenge presented by Bolger (2012) (see the

review by Annemarie Van Stee in this issue) in his *Kneeling at the Altar of Science* that certain ways of articulating and defending theology with the help of science risk passing over important categorical differences between accepting a scientific theory and taking a religious stance and a scientific theory.

Willem B. Drees

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