

## Author Response

Yes, there are many points of development that are argued as to when we should start to recognize the presence of a fellow human being. Magner has cited the line enforced, for example, by the government of the United Kingdom. If it is not yet biologically settled whether there are one, or two, or more souls present, then no one soul is present.

Caveat emptor, the usual theological response to this argument from those who advocate the full presence of a soul from the meeting of the egg and sperm, is that God knows the future and assigns the proper number of souls to the initially single embryo, for the number of physical individuals who will eventually result.

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## Did God Guide Our Evolution? It from Bit?

The question of how to reconcile events in our spacetime with God acting in his creation is a very difficult and profound one (J. B. Stump, "Did God Guide Our Evolution?," *PSCF* 72, no. 1 [2020]: 15–24). In the attempt to uphold both the science of evolution and Christian theology, J. B. Stump makes two claims:

- C1. Evolution is the best scientific explanation for the origin of *Homo sapiens*.
- C2. God intentionally created human beings in God's image.<sup>1</sup>

Stump reconciles these claims by viewing the same situation with scientific or theological glasses, a sort of cognitive dualism. Even though Stump did not use the term complementarity, introduced in quantum physics by Niels Bohr, nonetheless in response letters, Randy Isaac associates the notion of cognitive dualism with complementarity.<sup>2</sup> Isaac actually considers God as working through the random mutations inherent in evolution as a way to reconcile Stump's two claims. On the other hand, Chris Barrigar emphasizes that his three strategies for reconciling science and theology does not lead to deism.<sup>3</sup> Stump retorts that his position is not exactly the same as complementarity as implied by Isaac and that he actually does not reject the three strategies of Barrigar but rather that Barrigar's account is sophisticated and subtle, and definitely worth further consideration.<sup>4</sup>

More recently, Peter J. Bussey argues that Creation took place in three stages of inclusive cognitive

dualism: physical with the Big Bang, mental, and spiritual—in concordance with the biblical notion of body/mind/spirit—with the Big Bang containing the seeds of life.<sup>4</sup>

A strict evolutionist claim would consider only Bussey's physical stage in explaining all that exists, disregarding the mental and spiritual stages as arising actually from the physical. On the other hand, a strict theological claim would consider the account in Genesis 1:1–26, which may have actually been an inspiration for the theory of evolution, to give a temporal account of creation from the simple to the complex. The apex of creation is life in unfallen or Paradisaal Man via the breath of God. Therefore, according to Christian theology, the present state of all that there is, including modern man, would be a consequence of the Fall of Man.

How then to reconcile these two disparate claims? J. A. Wheeler is one of the staunchest advocates of the idea that information is more fundamental than anything else in physics, an idea summarized by his slogan "it from bit."<sup>6</sup> Wheeler claims that existence is an information-theoretic entity. However, the notion of existence is not in the realm of physics but in that of metaphysics and theology,<sup>7</sup> which notion Wheeler contests with his Four No's and Five Clues. Accordingly, a strict scientific depiction of all that exists is thus untenable.

The presence of God in our spacetime is in the person of Jesus, God Incarnate, that is, the self-existing Word, which also upholds all things by the word of his power: that is, he created *ex nihilo* and sustains the existence of his creation.

The study of man on Earth is a historical science akin to forensic science and is best conducted with the truth of scripture in mind. Surely, this approach is quite consistent with Bussey's argument since the presence of God is needed in our spacetime to create not only life and mind but also human beings in God's image.

### Notes

<sup>1</sup>J. B. Stump, "Did God Guide Our Evolution?," *Perspectives on Science and Christian Faith* 72, no. 1 (2020): 16.

<sup>2</sup>Randy Isaac, "Does Complementarity Explain Anything?," *Perspectives on Science and Christian Faith* 72, no. 2 (2020): 126.

<sup>3</sup>Chris Barrigar, "The Agape/Probability Proposal Is Not Deist," *Perspectives on Science and Christian Faith* 72, no. 2 (2020): 126–27.

<sup>4</sup>J. B. Stump, "Response to Randy Isaac and Chris Barrigar," *Perspectives on Science and Christian Faith* 72, no. 2 (2020): 127–28.

<sup>5</sup>Peter J. Bussey, “How Might God Have Guided Evolution? Scientific and Theological Viewpoints,” *Perspectives on Science and Christian Faith* 73, no. 2 (2021): 91–99.

<sup>6</sup>John A. Wheeler, “Information, Physics, Quantum: The Search for Links,” in *Proceedings III International Symposium on Foundations of Quantum Mechanics* (Tokyo: 1989), 354–68, <https://philpapers.org/archive/WHEIPQ.pdf>; and John Archibald Wheeler, *Information, Physics, Quantum: The Search for Links*—PhilPapers [Index].

<sup>7</sup>Moorad Alexanian, “Theistic Science: The Metaphysics of Science,” *Perspectives on Science and Christian Faith* 59, no. 1 (2007): 85–86.

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### Failure to Engage the Problem of Life’s Origin

The discussion of “simplicity” versus “complexity” in abiogenesis seems to me to be the wrong question, and fails to engage the problem of life’s origin in a specific way (Emily Boring, J. B. Stump, and Stephen Freeland, “Rethinking Abiogenesis: Part I, Continuity of Life through Time,” *PSCF* 72, no. 1 [2020]: 25–36; and Emily Boring, Randy Isaac, and Stephen Freeland, “Rethinking Abiogenesis: Part II, Life as a Simplification of the Nonliving Universe,” *PSCF* 73, no. 2 [2021]: 100–113). For one thing, the two terms are ambiguous, and were not defined sufficiently to allow a definite conclusion.

More importantly, the article glossed over the unique feature that makes life possible, namely, its ability to reproduce something after its kind. To accomplish this (in anything less trivial than crystals) required the emergence of a novel level of being, that is, a genetic code that is “gratuitous,” decoupled from chemistry. The operon model with allosteric enzymes that was discovered by Monod, Jacob, and Lwoff (Nobel Prize 1965) is, after DNA, the “second secret of life.” All of life exhibits this feature, and as such it perhaps should be included in the definition of life.

Freeland’s persistent emphasis on continuity in abiogenesis ignores such decoupling and discontinuous system-level features of life. I wonder why, since it is widely emphasized in the classic literature on emergence, such as in Michael Polanyi’s article on “Life’s Irreducible Structure” (*Science* 160, no. 3834 [1968]: 1308–1312) and Philip Anderson’s essay “More Is Different” (*Science* 177, no. 4047 [1972]: 393–96). I too wrote about this decoupling feature in an article on its application to information technology. The design

of the internet, for instance, includes the idea of an information “packet” that contains external routing codes and an internal message. The content of the message is irrelevant—decoupled or “gratuitous” with respect to the routing of the packet (Paul T. Arveson, “Gratuity in Nature and Technology,” *Journal of the Washington Academy of Sciences* 85, no. 4 [1998]: 281–89).

The discovery of novel ontological levels in nature has, I believe, useful applications for ASA members, as a refutation of reductionism and as an awareness of category distinctions that we commonly encounter in science and faith discussions.

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### “Rethinking Abiogenesis Part II” Authors Respond

We thank Arveson for raising some key points of discussion. While we do not formally define “simplicity” or “complexity,” we do identify specific features of life that present lower diversity and less randomness than the universe at large. Our intent is not to declare biological complexity wrongheaded, but rather to suggest that other views are possible and worthy of deeper consideration. However, Arveson’s main focus is the underlying point of both our papers (Emily Boring, J. B. Stump, and Stephen Freeland, “Rethinking Abiogenesis: Part I, Continuity of Life through Time,” *PSCF* 72, no. 1 [2020]: 25–35; and Emily Boring, Randy Isaac, and Stephen Freeland, “Rethinking Abiogenesis: Part II, Life as a Simplification of the Nonliving Universe,” *PSCF* 73, no. 2 [2021]: 100–113), which he accurately summarizes as the following challenge: Does any clear, objectively defined state of (bio)chemistry distinguish nonliving chemistry from living biology?

We agree that life may be distinguished clearly from nonlife from the perspective with which we perceive the world today. In particular, the Central Dogma of Molecular Biology<sup>1</sup> reflects five mid-twentieth-century Nobel prizes which collectively define the material (molecular) basis for all known life:<sup>2</sup> nucleic acid genes specify protein catalysts which synthesize nucleic acid genes. Collectively, these components establish what Arveson calls “the unique feature that makes life possible, namely, its ability to reproduce something after its kind.” Indeed, Arveson refers to a sixth Nobel prize from the same time period—Monod and colleagues’ discovery of operons, regulatory