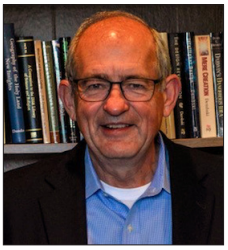

Randy Isaac

Essay Book Review

The Significance of *The Mystery of Life's Origin*

Randy Isaac

The Mystery of Life's Origin: The Continuing Controversy *by Charles B. Thaxton, Walter L. Bradley, Roger L. Olsen, James Tour, Stephen Meyer, Jonathan Wells, Guillermo Gonzalez, Brian Miller, and David Klinghoffer. Seattle, WA: Discovery Institute Press, 2020. 486 pages with index. Paperback; $25.00. ISBN: 9781936599745.*

In 1984, Charles Thaxton, Walter Bradley, and Roger Olsen wrote *The Mystery of Life's Origin: Reassessing Current Theories* (hereafter referred to as MLO-1) as a critique of the assumption that naturalistic processes for the abiotic development of life on Earth had been established. The book laid the foundation for the rise of the movement known as intelligent design (ID), championed by the Discovery Institute, though that term is not found in the book. In honor of the thirty-fifth anniversary of MLO-1, the Discovery Institute has published this new edition (hereafter referred to as MLO-2). It includes a reprint of MLO-1 with updates and five additional chapters.

The messages of both editions are clear:

1. *A natural origin of life on Earth has not been established.* The scientific community and the general public would all agree.
2. *A natural origin of life on Earth may never be established.* Most people, including researchers in the field of origin of life, would likely agree—though many would argue that its plausibility may be indicated.
3. *Textbooks often overstate the extent to which abiogenesis has been established.* This may be anecdotally correct, but the authors do not show how widespread it is.
4. *It can reasonably be inferred that the best explanation is the existence of an intelligent designer who created life in the prebiotic world.* On this final point, the authors are in a minority in the scientific community. This reviewer agrees with the existence of the intelligent designer we worship as God the creator, but disagrees with the authors that it is a logical inference from the failure to find a scientific explanation of the origin of life.

While the purpose of MLO-1 is purportedly to present a purely scientific assessment of the status of research on the origin of life, MLO-2 reveals that the original idea for MLO-1 emerged from a desire for a Christian worldview perspective of such research. As will be discussed later in this review, the discussion by Thaxton in the MLO-1 epilogue and his update in a later edition (1997) clearly stated that the metaphysical implication was the existence of an intelligent designer. Furthermore, the purpose and motivation for MLO-2 is clearly stated to show the key role of MLO-1 as the foundation of the intelligent design movement and to add, not only some additional scientific research, but also a stronger statement on the argument for an intelligent designer. Therefore this review will focus primarily on the metaphysical

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implications of the scientific work and less on the science itself.

Before delving into the reason why their conclusion is rejected by most scientists, let us first consider the structure and the content of MLO-2. A short foreword by Robert Marks and John West sets the stage and rationale for this edition. They summarize the core message of MLO-1 as, "Current approaches to the origin of life were abysmal failures … and the difficulty is fundamental" (p. 7).

David Klinghoffer provides a very informative twenty-three-page introduction titled "Introduction: Intelligent Design's Original Edition." He maps out the motivation and background of MLO-1, tracing its roots to the early 1970s.

> … the idea for the book that became *The Mystery of Life's Origin* was first discussed among a group of friends and colleagues affiliated with Probe Ministries, operated by Jon Buell and his associate James Williams to advocate a Christian worldview … In 1975, Buell was seeking an author for a rigorous book on evolution, and he proposed it to Bradley, then a professor at the Colorado School of Mines. (p. 15)

Jon Buell held a liberal arts and sciences degree in communication arts and worked for Campus Crusade for ten years, becoming a regional director before leaving in 1972 to found Probe Ministries. Walter Bradley, a materials scientist and not a biologist, preferred to focus more on the origin of life than on evolution. He solicited the collaboration of Roger Olsen, a graduate student in geochemistry at the Colorado School of Mines. Buell showed the first draft of their manuscript to physical chemist Charles Thaxton who had come from Boston, where he had been a post-doc in history of science and molecular biology, to Dallas to work for Buell. Thaxton was intrigued and joined as co-author, leading a major rewrite, and contributing several chapters on chemistry and the epilogue. Klinghoffer goes on to describe the reaction and impact of MLO-1 as a major inspiration for the leaders of ID.

Part 1 of MLO-2 is a reprint of the original twelve chapters from MLO-1 and two update chapters that were published in the 1997 Hungarian edition. MLO-1 has an intriguing foreword by Dean Kenyon. Kenyon had previously published his own naturalistic explanation of the origin of life but had changed his mind by the time he read the manuscript for MLO-1 and agreed to write a complimentary foreword. There are eleven chapters devoted to scientific discussions of research in the origin of life, emphasizing the essential failure of all approaches but not discussing the implications. Only in chapter twelve, the epilogue, and in one of the update chapters (note that both of the update chapters were penned by Thaxton), is there a discussion of the metaphysical implications, which will be discussed later in this review.

Part 2 is titled "The State of the Debate" and comprises five chapters, each by a co-author of MLO-2. James Tour, arguably one of the best synthetic chemists in the world today, begins the section with his chapter that excoriates origin-of-life researchers for what he sees as a failed enterprise, while they nevertheless present their work as significant progress. He writes, "Scientists have no data to support molecular 'evolution' leading to life. The research community remains clueless" (p. 323).

Tour then explores in detail two fields of origin-of-life research, namely, chemical synthesis and molecular assembly. Citing nearly a dozen hurdles and challenges in each of these two fields, he scornfully derides the work, the researchers, the journals that publish their work, and the media who exaggerate and propagate the implications. He concludes that "the direction of origin-of-life research is suspect, and the petty dismissal of questioning is unhelpful to the field" (p. 347). He ends with this recommendation:

> Therefore, I appeal to the research community and funding agencies to consider whether a moratorium on origin-of-life research is warranted. (p. 353)

Tour stops just short of claiming that a scientific explanation of the origin of life can never be found or that it is assuredly not naturalistic, as some of the other authors do. Nowhere does he allude to any metaphysical implications of the failings of this research, leaving it to other authors.

The next chapter, provided by Brian Miller, a physicist at the Discovery Institute, bears the title "Thermodynamic Challenges to the Origin of Life." Building on ideas suggested by Bradley in MLO-1, Miller considers the number of configurations that are possible for various arrangements of the

components of a rudimentary living organism. He then calculates the probability of a successful random assembly of all these components at one time to be so many orders of magnitude improbable that no one would rationally consider it possible. He is right, of course, and no one does. He asserts that the results would be the same if the assembly occurred in multiple steps rather than in one glorious shot. But his calculations fail to account for the Bayesian probabilities given the feedback and impact of natural selection at each step. He considers neither the influence of population effects nor the effect of a more generalized goal.[1] Miller concludes with this single paragraph on the metaphysical implications though he has not stated what constitutes signs and evidence of intelligence:

> In summary, the formation of the original cell cannot plausibly be explained by any undirected process. In addition, its minimal requirements demonstrate unmistakable signs of intelligence … In particular, cellular structures and operations demonstrate unmistakable evidence of foresight, coordination, and goal-directedness, which are telltale signs of intelligent agency. (pp. 368–69)

Guillermo Gonzalez, known for his 2004 book *The Privileged Planet*, contributes the most valuable chapter of the book in the sense of presenting the latest scientific results. In his chapter titled "What Astrobiology Teaches about the Origin of Life," Gonzalez summarizes the discoveries in a multidisciplinary field that began in the 1990s to address the origin of life. Just one of the examples he presents will indicate the value of this chapter:

> Previously, the consensus among origin-of-life researchers had been that life began almost immediately after the end of the late heavy bombardment 3.8 billion years ago. This conclusion was based on the now largely discarded theory of the late heavy bombardment and discredited evidence for fossils near 3.8 billion years ago. Given what we now know, the best current evidence and modeling indicates a single origin of life sometime between ~4.4 and ~3.7 billion years ago. (p. 378)

This example shows how recent research has determined a much broader time frame for the origin of life than the 170 million years thought previously. Though he appears pessimistic for the prospect of determining the origin of life, he makes no mention of what the metaphysical implications might be of such a failure. His account of the new insights gained in astrobiology indicate that, contra Tour, there is indeed significant value in origin-of-life research.

Chapter sixteen, "Textbooks Still Misrepresent the Origin of Life," by Jonathan Wells, is another chapter of minimal value. He takes one example, the Miller-Urey experiment, from his 2002 book, *Icons of Evolution,* and delves deeply into what he considers its fatal flaws. This is a favorite whipping boy for the ID community, and Wells spares no detail or sympathy. He castigates the experiment for failing to solve the mystery of life's origin and the textbooks for saying that it does. In reality, while some textbooks do claim more than is warranted, the scientific community lauds the experiment, not for solving the true natural origins of nucleic and amino acids but for being the first to demonstrate that these acids can be generated by natural means. Therefore, the work is credited for influencing the direction of much fruitful research. Wells also leaves discussion of metaphysical implications to Thaxton and Meyer.

The grand finale of MLO-2 is chapter seventeen, "Evidence of Intelligent Design in the Origin of Life." In this chapter, the longest by far at sixty-four pages, Stephen Meyer provides a synopsis, though with little new substantive insight, of the books and lectures in which he lays out his case for ID. At last we have a chapter that, along with Thaxton's epilogue and update, constitutes the only substantive discussion of the metaphysical implications of the failure to find a naturalistic explanation for the origin of life. We now turn to this topic.

When discussing the metaphysical implications of this work, they consider three arguments:

1. **The argument from ignorance**, also known as "the god of the gaps." No one in the book advocates this argument. Indeed, both Thaxton and Meyer state in passing that this is not a valid argument and is not the message of the book. However, the casual reader of the book could be forgiven for assuming that it was. The vast majority of the book, namely, all the scientific sections, strongly emphasizes that no naturalistic explanation for the origin of life has been found and may not exist. The update by Thaxton examines seven scenarios for the origin of life and finds them all wanting. The inference drawn in Thaxton's

epilogue and update and in Meyer's chapter is that this failure leads to the inference that there exists an intelligent designer. An attentive reader, remembering these major points and missing the small details, and mindful of the intent of MLO-1 to provide a Christian perspective on the origin of life, would easily conclude that the message is the following: *since there is no naturalistic explanation of the origin of life, therefore the best explanation is an intelligent designer*. Thaxton merely says this is not a strong argument while Meyer states the argument cannot be from ignorance since a more positive argument is also provided, one which we will examine in this review shortly.

2. **The argument from analogy.** In his 1997 update, Thaxton presents the following argument from analogy. Since the genomic sequence and the genetic code are information of the kind that we know to require human input, therefore, by analogy, the origin of the genome required intelligent design. This argument recalls William Paley's original design hypothesis based on the analogy of a watchmaker, and inferred solely from the discovery of a watch found in the forest. Thaxton says that "were we to hike in the Black Hills of South Dakota and come upon granite cliffs bearing the likenesses of four United States Presidents, we would quickly identify Mount Rushmore as the work of artisans instead of a product of wind and erosion" (p. 312). But Thaxton goes on to acknowledge, correctly in this reviewer's opinion, that this argument is weak, and in his update, he moves on to the following very similar argument which he considers to be stronger.

3. **The argument from identical information**, also known as the argument from complex specified information (CSI). In this usage, "information" is a potentially meaningful sequence of elements; "complex" means too many elements and combinations to be ordered randomly into a meaningful sequence; and "specified" indicates a particular sequence that is meaningful or functional. Thaxton argues in his epilogue, "Why then doesn't the message sequence on the DNA molecule also constitute prima facie evidence for an intelligent source? After all, DNA information is not just analogous to a message sequence such as Morse code; it is such a message sequence" (p. 284).[2] Therefore, Thaxton says, the argument from analogy is strengthened and the genetic code must have originated from an intelligent mind. Meyer picks up on this approach in his chapter, emphasizing that genomic information is *real* information, is complex, and, above all, is specified because the particular genomic sequence has the correct information for a functioning organism. He claims all known CSI in human-designed systems requires an intelligent agent and therefore so does biological CSI.

However, in the opinion of this reviewer, Thaxton and Meyer fail to consider the basic reason why CSI depends on an intelligent agent. They state that specificity requires intelligence, but they consider neither why it does, nor why such requirement would be universal. They have overlooked two aspects of specificity that, in the opinion of this reviewer, nullify their argument.

First of all, they miss a critical difference between the two types of CSI, namely, the way in which specificity is determined. All the systems cited by Thaxton and Meyer as the basis for claiming that CSI requires intelligence are determined to have specificity through symbolic or abstract relationships. Consider the following examples.

a. How can we determine whether a 10-digit phone number is random or specified? It is clearly information and it is complex, but is it specified? We say it is specified when calling that phone number correctly connects two parties for an intentional conversation. This is a subjective, symbolic relationship that exists only in human intelligence.

b. How can we determine whether a sequence of letters form a meaningful sequence? We say it is specified if the intended meaning can be decoded and understood by the recipient. Such decoding depends on the symbolic, abstract significance placed on those letters and their sequence through the understanding of the language in which the letters are written. These are abstract relationships that require intelligence.

c. Does a machine or computer program or a construction project represent specified information? If it correctly reflects a blueprint or intention of a symbolic or abstract representation of an intention, then it does.

How can we understand whether a genomic sequence or the biomolecular assemblage in a living cell is specified? We can determine only whether the organism, in which the cell exists, survives and can reproduce. In sharp contrast to the previous examples, no symbolic or abstract connection is involved. In fact, there is no example of an intelligent agent ever providing an a priori complete genomic sequence that would assure specificity. The information is not encoded in an abstract code but in a code embodied in a biomolecular system. It is indeed a true code, but it can function only in its physical embodiment and not in a symbolic form. As humans, we represent and model this information symbolically, but its specificity can be determined only in nature in its physical form. No intelligence is required. Neither is it clear that it is even possible for an intelligent agent to make such a determination.

From these examples we can differentiate between two types of CSI. At the risk of expanding the catalog of acronyms, we might call one type CASI (complex abstract specified information) and the other CESI (complex embodied specified information). For CESI, the physical configuration *is* the information while in CASI the physical configuration *represents* the information in a non-unique form. In CESI, the code is executed solely through a physical series of biomolecular action while, in CASI, the code is interpreted symbolically. In CESI, the determination of specificity is physical and can be done in nature without an intelligent agent while, in CASI, the determination of specificity can be done only with an intelligence capable of abstract reasoning. Thaxton's claim that DNA is a message sequence is correct, but he misses the point that the method of determining the meaning is different.

The second error occurs in Meyer's claim that "indeed, experience affirms that functionally specified information routinely arises from the activity of intelligent agents" (p. 450). In other words, he asserts that all CSI requires an intelligent agent, and that this claim is based on our universal experience. But he overlooks the immense experience we observe in the biological realm during every reproductive event. Virtually every event results in a unique set of genomic information, most changes of which are inconsequential but many of which are not. There is no experience of any intelligent agent establishing a set of desired information according to which the genome is modified. In other words, it is not sufficient to show that information is real, is complex, and is specified in order to infer the influence of an intelligent agent. It must also be shown that it is CASI in which the determination of specificity requires an intelligent agent. Virtually all human-designed systems do, whereas biological organisms do not and represent CESI. The primary argument for an intelligent designer from CSI therefore fails to be compelling.

Both MLO-1 and MLO-2 provide some useful scientific information about research in search of the origin of life, offering a pessimistic outlook. Thaxton writes,

> We have seen the failure, perhaps the impotence, of presently known fundamental physical and chemical laws to explain the origin of biological structures. (p. 258)

Sadly, both books fail to provide a coherent and credible discussion of any metaphysical implication of that failure. The initial motivation for MLO-1 was to provide a Christian worldview perspective on scientific research in the origin of life. It offers an explicit inference that the best explanation is an intelligent designer. MLO-2 emphasizes that connection but fails to provide a compelling argument for that inference. In the opinion of this reviewer, metaphysical inferences from scientific data are subjective. One scientist appreciates the complexity of life and sees God's hand at work, while another equally accomplished scientist sees a mindless process operating independently of God's action. Origin-of-life research offers no compelling apologetic either for or against a Creator. †

Notes

[1]Randy Isaac, "Review of *Introduction to Evolutionary Informatics,*" by Robert J. Marks II, William A. Dembski, and Winston Ewert in *Perspectives on Science and Christian Faith* 69, no. 2 (2017): 99–104; Robert J. Marks II, "Meeting Chaitin's Challenge: A Response to Randy Isaac's Review of *Introduction to Evolutionary Informatics,*" *PSCF* 69, no. 2 (2017): 104–108; Randy Isaac, "Rejoinder," *PSCF* 69, no. 2 (2017): 108.

[2]Hubert P. Yockey, "Self Organization Origin of Life Scenarios and Information Theory," *Journal of Theoretical Biology* 91, no. 1 (1981): 13–31, https://doi.org/10.1016/0022-5193(81)90370-2.

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