Review: Intelligent Design

*Darwin’s Doubt: The Explosive Origin of Animal Life and the Case for Intelligent Design* by Stephen C. Meyer

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The Cambrian Explosion reviews the current state of research on the earliest forms of metazoan life. Chapters on geological and environmental “contexts” set the stage for thorough treatment of the fossil record, especially from Ediacaran and Cambrian formations known throughout the world. These are followed by more detailed examinations of the evolution of the earliest metazoan ecosystems and earliest metazoan genomes. The penultimate chapter covers current theories regarding ancestral lineages and relationships connecting Cambrian, Ediacaran, and earlier phyla. Finally, the authors present their best integration of all the evidence to tell the story of a critical and exciting time in our planet’s history, roughly from 640 mya to 500 mya.

Erwin is Curator of Paleozoic Invertebrates at the Department of Paleobiology of the National Museum of Natural History (Smithsonian), and Valentine is Professor Emeritus in the Department of Integrative Biology, UC Berkeley. Although these two are true specialists in Cambrian paleontology, they have nonetheless written with great clarity. One gets the impression that it was a personal and professional challenge to see whether they could summarize, for a wide readership, just where things stand in their field. The exposition is calm, logical, and not jargon bedeviled. The illustrations are profuse, wisely placed, and clear.

Although the phrase “Cambrian Explosion” is never likely to disappear, it’s too catchy and convenient, there’s ample evidence that tens of millions of years were involved. Erwin and Valentine delineate many, many long, intertwining threads that detail the best ideas of what was happening over this period on a planet that would be quite unrecognizable to us. The continents, of course, were completely differently distributed, but even more unfamiliar to us would have been a world where niches themselves were alien and rapidly evolving. The evidence that genomes and genomic architecture were changing rapidly, partly in response to each other, giving rise to the establishment of disparate phyla early in the history of metazoan life, matches the excitement of new fossil discoveries.

Understanding of the Cambrian animals is exploding because of the integration of paleontology, comparative anatomy, developmental biology, and comparative genomics. This integration is leading to the following picture of the late Proterozoic: “The relative importance of changes in protein-coding genes to the evolution of cis-regulatory elements began to change at this time because morphological changes were increasingly underpinned by the evolution of cis-regulatory networks. The morphological differences between different early bilaterians increased faster than differences in gene composition” (p. 326). And, as good scientists, the authors report about this same period: “We do not, however, have fossils to tell us how disparate the body plans of these preexplosion bilaterian clades were; indeed, it is not clear that paleontologists have even appropriate search images for fossils of this interval” (p. 325).

“It is to the explosion, and not to the origin of phylum-level clades, that we are indebted for the body plans of living phyla, those familiar morphological themes that are still with us … Those body plans have – so far, at least – proven robust to very severe environmental perturbations over geological time. An important caveat to our reading of the explosion is that we have learned about it by peering through newly opened taphonomic windows that have surely made the explosion appear to be more abrupt than was actually the case” (p. 328).

To close this masterful account, the authors choose their words carefully, epitomizing the processes of science: “Complex patterns of causality, the importance of contingency, and the interaction of many different processes are the norm. Clearly, the biosphere has promoted its own evolutionary trajectory, and the Cambrian explosion was a once-in-an-era happening; it could hardly have been more complicated and could hardly be more tantalizing. In addition, there can hardly be more of a challenge to paleobiologists, evolutionary biologists and many other scientists than to describe and interpret the confluence of history and process responsible for events during that remote and critical time in life’s history” (p. 342).
The reliance on “strictly material processes” that Meyer finds limiting is the basis of modern (since the 17th century) science. His concern for “generating the information necessary” reflects the Intelligent Design movement’s premise that anything really complex requires a blueprint, despite the fact that modern biology has shown that this is not true: DNA is not a blueprint and organisms are not constructed like machines.

In addressing how a designer actually manipulated atoms and molecules to create brand-new life forms, all Meyer claims is that “intelligent agents can act suddenly or discretely in accord with their powers of rational choice or volition, even if they do not always do so…. If body plans arose as the result of an intelligent agent actualizing an immaterial plan or idea, then an extensive series of material precursors to the first animals need not exist in the fossil record…. Mental plans or concepts need not leave a material trace” (p. 375). To quote Nick Matzke, formerly of the National Center for Science Education, this explains the appearance of the first animals and their body plans by saying, in effect, “POOF!”

The author and his institute claim that Darwin’s Doubt is an important contribution to modern biological science. There are major clues that it isn’t. HarperCollins chose to publish this under their HarperOne imprint, and HarperOne describes itself thus: The most important books across the full spectrum of religion, spirituality, and personal growth…. A more important clue is found in the last chapter, entitled What’s at Stake. In science, what would be at stake would be a better understanding of the Cambrian fossil record and the processes of life and evolution. But Meyer instead tells us: “Modern life suspends many of us, so we feel, high over a chasm of despair. It provokes feelings of dizzying anxiety – in a word, vertigo. The evidence of a purposeful design behind life, on the other hand, offers the prospect of significance, wholeness, and hope.” A heavy burden for a trilobite to bear!

*for the confusion this book causes about the evidence and the science of studying the evidence. It rates four frogs as a review of the thinking of the Intelligent Design movement.

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Darwin’s doubt. The Explosive Origin of Animal Life and the Case for Intelligent Design. About the Book. Stephen C. Meyer. Buy the Book. Dr. Scott Turner Professor of Biology, State University of New York, author of The Tinkerer’s Accomplice: How Design Emerges from Life Itself. An excellent book and a must read. Dr. Russell Carlson Professor of Biochemistry and Molecular Biology, Director of the Complex Carbohydrate Research Center, University of Georgia. Stephen Meyer has masterfully laid out one of the most compelling lines of evidence for intelligent design. Dr. William S. Harris Professor, Sanford School of Medicine, University of South Dakota. An engaging investigation of the origin of animal life. In Darwin’s Doubt, Stephen C. Meyer tells the story of the mystery surrounding this explosion of animal life and makes a compelling case for the theory of intelligent design as the best explanation for the origin of the Cambrian animals and the biological information necessary to produce them. With a new epilogue responding to critics. About the Author. Stephen C. Meyer received his Ph.D. from the University of Cambridge in the philosophy of science after working as an oil industry geophysicist. He now directs the Center for Science and Culture at the Discovery Institute in Seattle, Wash. Darwin’s Doubt may be described as both a companion to and a follow up of Meyer’s prior book, Signature in the Cell: DNA and the Evidence for Intelligent Design (hereafter Signature). Although not quite as hefty as Signature, it does come in at a little over 400 pages of text which are divided into three parts and twenty chapters, with an additional hundred or so pages for notes, index, etc. The book is similar in topic and scope to Signature, except in this case it’s about the Cambrian explosion, rather than the origin of life and the evidence for intelligent design. There is a