Anthropology Book Forum
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BRIAN VILLMOARE, 2023, *The Evolution of Everything: The Patterns and Causes of Big History.* Cambridge: Cambridge University Press, 416 pp., ISBN 978-1-108-79732-0

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This book, *The Evolution of Everything*, is the latest entry into the interdisciplinary field known as Big History. The term "Big History" was coined by the historian David Christian in the 1980s; his 2004 book *Maps of Time* is still splendid, although slightly out-of-date in some details. "Big History" as a field of study attempts to unify human history with all of the sciences – most notably astronomy, geology, evolutionary biology, and anthropology – into a consilient whole, with economics and demography attending gamely. A typical semester-long Big History course starts with the Big Bang and ends either in the present or with probable futures, exploring biological and human history along the way, hence presenting human history in the broadest possible context. The first modern work of this type was H.G. Wells' 1920 *An Outline of History*. The field has mushroomed in the past few decades. These works marvelously vary in focus depending on the discipline of their authors: geologist Walter Alvarez's Big History book *A Most Improbable Journey* is heavy on the geology; astrophysicist Eric Chaisson's *Epic of Evolution: Seven Ages of the Cosmos* emphasizes astronomy.

The book reviewed here offers a Big History focused on biology and anthropology. Its author, Brian Villmoare, is a paleoanthropologist at the University of Nevada, Las Vegas specializing in biological anthropology, human paleontology, and evolutionary theory, and has done much fieldwork in Africa.

First, the structure. The book consists of an Introduction and two evenly divided Parts. There are useful digressive "Boxes" peppered throughout on topics such as "Progress in Science" and

"Disease and the Neolithic." The Introduction explains science as a method to understand reality, as well as exploring pseudoscience and what objections exist to science. It will be especially salutary for students lacking an understanding of the scientific method's importance, who possess negative attitudes toward science stemming from religiosity or postmodernism.

Part 1, "Introduction to the Scientific Perspective on the Past," contains fourteen chapters, stretching from "The Origins of the Universe" and many chapters on biology and evolution, through "The Genus Homo" to "Evolution and Human Behavior" to "Brain Evolution" and onward. Sections on the importance of the magnetosphere to atmospheres and hence to life, why spheres recur in nature, and stellar nucleosynthesis illustrate the author's skill in explanation. Villmoare gives due attention to panspermia, which (one suspects) will soon loom larger in scientific and popular discussions of life's origins. Superb explanations abound upon the evolution of primate physiology, brain evolution, gene flow, mutation, genetic drift, natural selection, stabilizing selection, and sexual selection, and historical Christian resistance to Darwin's ideas. A fine chapter details evolutionary-biological roots of human culture (for example, altruism's biological basis) and the resistance to these viewpoints (see also Ulica Segerstråle's *Defenders of the truth: The battle for science in the sociobiology debate and beyond*). A discussion of chaos and complexity, and engineering versus emergence, comprises a chapter closing Part 1. The emergence of complex structures from simpler ones is, unsurprisingly, essential to Big History: it is one of the chief ways to maintain themes across phenomena as disparate as the emergences of molecules and empires.

Part 2, "Science and History" commences with the Neolithic, then hops to chapters entitled "States and Nations," "Religion and Philosophy," "The Enlightenment," "The Industrial Revolution" and then the modern period. Villmoare elucidates the gains and losses in the shift from foraging to farming – naturally, amidst today's critics such as Jared Diamond, Yuval Noah Harari, David Graeber, and David Wengrow. Much material after the emergence of early civilizations is thematic rather than narrative. This should appeal to non-historians offering Big History-type courses, such as biologists. The earlier discussion of altruism could have benefitted the discussion of religion and philosophy, but a box entitled "The biological origins of religion" helps address this, along the lines of Daniel Dennett's book *Breaking the Spell: Religion as a*

Natural Phenomenon. Chapters entitled "The Enlightenment," "The Industrial Revolution," "Economics," and "Globalism: Money and Power" investigate these immense phenomena from a scientific materialist perspective. Chapter 23, "Modernism," distinguishes the modernity's elements and worldview as well as resistance against these, such as religion, traditionalism, and fascism. Chapter 24 usefully discusses demography and the Demographic Transition, birth control, and disease; Covid-19 references anchor the book to today.

No Big History book will delight everyone. This book gives little broad, comparative World History; those needing that should prefer *Big History: Between Nothing and Everything* by Christian, Brown, and Benjamin. The half of the book dedicated to human history seems selective and oddly proportioned, taking only about sixty pages for the Neolithic Revolution to the 17th century. However, twice that is occupied by the history of the modern period, much concerning the Second World War. And there is little outside of the West. But the book is by professor of physical anthropology rather than World History.

Those quibbles are small. This is a fine book, and as a biologically-oriented take on Big History, with beautifully clear explanations of and emphases on evolution, especially of primates, it is a most welcome addition to the field, suitable as a scientific introduction to Big History, a college textbook, and for scholars.

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