Fred Spier. *Big History and the Future of Humanity*. Chichester: Wiley-Blackwell, 2015. Pp. 335. Paper $33.95.

Fred Spier, Senior Lecturer in Big History at the University of Amsterdam, introduces a new theoretical approach for Big History and its application in interpreting major events from the Big Bang to the potential future of humanity. As a new historical methodology, Spier recognized Big History was in need of a theoretical framework to establish itself and to provide a foundation for future research. This new view attempts to break down the barriers between social and natural sciences and is an example of how the judicious merging of the fields can produce new ways of understanding human behavior and our relationship with the universe.

Drawing on a number of academic fields including biology, geology, cosmology, and physics, the textbook reflects Big History's multidisciplinary approach. The use of knowledge ranging from work by Hubert Reeves, Vaclav Smil, and James Lovelock, shows the potential of historians incorporating non-traditional sources in their analysis. In one example, Spier applies astrophysicist Eric Chaisson's concept of "free energy rate density" to analyze levels of physical complexity over time. The integration of these approaches, however, is not without its problems. The textbook teleologically presents one form of complexity leading to another, finally resulting in human life. Although such issues are valid, they should not detract from the book's primary goal of breaking down the intellectual division between social and natural science, an implicit critique of the compartmentalization of knowledge.

The book is organized in eight chapters starting with an introduction to Big History, followed by an explanation of his general approach in analyzing history from the widest scale possible. The remaining chapters move chronologically, beginning with the Big Bang and ending with several predictions regarding the future of humanity. Throughout, Spier demonstrates the application of this framework and its implications for how historians interpret big historical events. Each chapter ends with notes, a bibliography, and recommended reading. Together, they provide information for those looking to explore this new field.

The goal of Big History is to identify patterns operating over long periods of time. Spier argues that when analyzing all of history, certain trends emerge. Energy and matter are the first of these significant forces impacting history. Without matter, there would be no humans nor world to analyze. Energy is also important because of its ability to change matter. Equally critical to his argument is the rise and decline of complexity, where greater forms of complexity emerge from lower forms. In order to quantify what makes one form more complex than another, Spier proposes calculating the amount of energy flowing through matter: the more energy a form can handle without disintegrating, the more complex it is. The final major concept is "The Goldilocks Principle." Taking inspiration from the children's tale, it states that conditions must be "just right" for complexity to emerge. These major concepts guide the interpretation of both natural and human history.

Big History and the Future of Humanity has the potential to change the way both scholars and interested people view themselves and the surrounding world. The book is successful in constructing an interplay between history and science. Although both social and cultural history have aided in understanding our past, Spier's theoretical approach provides a new method that can broaden our understanding. While textbooks have the notoriety of being too general and tedious, *Big History and the Future of Humanity* serves as a starting point for those interested in a new field of scholarship.

Edwin Hurtado