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CLARION REVIEW ★★★★☆ SCIENCE

From the Big Bang to the Big Crunch and Everything in Between: A Simplified Look at a Not-So-Simple Universe

Vlad Van Rosenthal
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Vlad Van Rosenthal removes the air of mystery surrounding various scientific theories in *From the Big Bang to the Big Crunch and Everything in Between*. A physician, amateur scientist, and award-winning Soviet Union historian, his personal scientific interests cover a broad spectrum.

His book is divided into four sections, and each section is subdivided into chapters. The sections are “The Past,” “The Present,” “The Beyond,” and “The Future.” In the second chapter of “The Past,” called “Forces of Nature,” he writes that, “There are four known fundamental forces recognized in physical nature, and all the particles in our universe interact by these forces. These forces are: gravity, electromagnetism, the weak nuclear force, and the strong nuclear force.”

After he defines and describes the fundamental forces and their effect on the universe, Rosenthal covers everything from the Big Bang (a theory of how the universe began) to the Big Crunch (a theory of how the universe might end). With the straightforward, demystifying elegance of Bill Byrson, author of *A Short History of Everything*, Rosenthal writes that “the smallest density of matter in the universe is the critical density, and it separates the universe’s expansion from its contraction. When the density reaches this value, the expansion of the universe will stop and contraction will follow.”

Readers who enjoy books like Carl Sagan’s *Cosmos* and Stephen Hawking and Leonard Mlodinow’s *The Grand Design* will like *From the Big Bang to the Big Crunch and Everything in Between*. Like Sagan and Hawking, Rosenthal writes about black holes, the sun, space and time, and quantum physics. Unlike Hawking, Rosenthal does not suggest a grand scheme or design behind the universe.

Rosenthal discusses and offers his own opinions about subjects such as geology, the pros and cons of alternative energy, the greenhouse gas effect, and the theory of global warming. Keeping the technical terms and mathematical formulas to a minimum, he writes about these complex topics in an accessible and conversational manner that adds wonder and spice to normally dry material by making pop-culture references to the likes of *Back to the Future* and *Star Trek*.

Though some readers might take offense at Rosenthal’s inclusion of topics that are considered more pseudoscience than hard science (aliens, time travel, and conspiracy theories about weather-control devices), *From the Big Bang to the Big Crunch and Everything in Between* is both entertaining and informative.
LEE GOODEN (March 5, 2013)

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