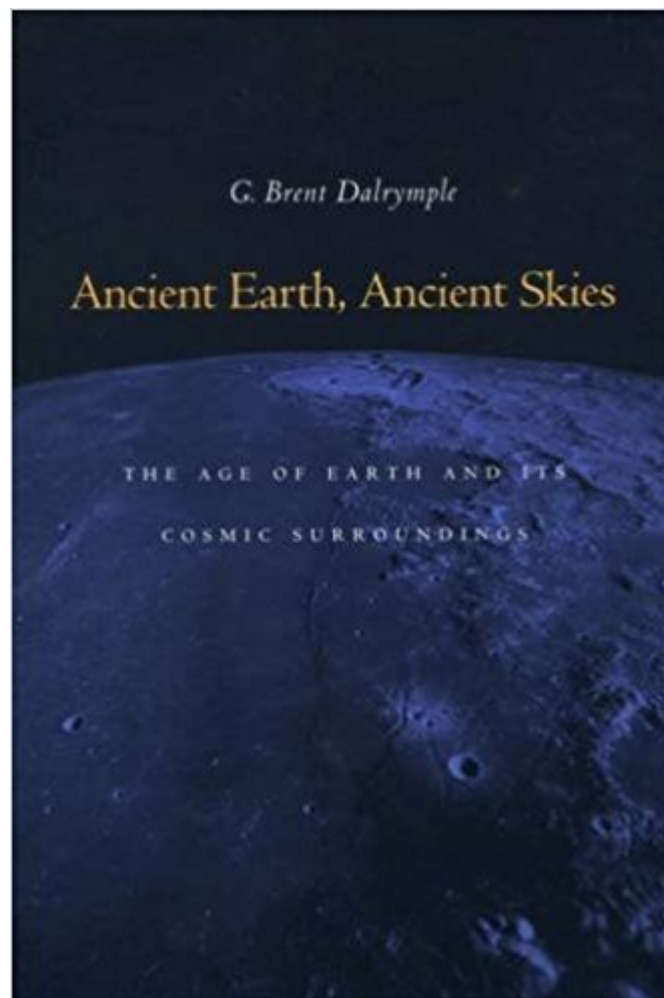




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Ancient Earth, Ancient Skies: The Age Of Earth And Its Cosmic Surroundings



Synopsis

How old is Earth? How old are the planets, the Moon, meteorites, stars, and the Universe itself? How do scientists know these things? If you've ever asked yourself some or all of these questions, then this book is for you. Planet Earth and the other bodies of the Solar System are 4.5 billion years old. They reside in a galaxy (the Milky Way Galaxy) that is 12-14 billion years old, and are part of a universe that is 13-15 billion years old. G. Brent Dalrymple, a geologist and widely recognized expert on the age of Earth, reviews the evidence that has led scientists to these conclusions and describes the methods by which this evidence has been gathered. The book is written in a highly accessible style, free of mathematics and complex graphs, and is intended for non-scientists who have an interest in the subject. People with scientific backgrounds who wish to have a thorough summary of the subject will also find the book useful.

Book Information

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Customer Reviews

This is an update to his earlier text book on The Age of the Earth published in 1991 and 474 pages. This book is shorter at 264 pages and a less technical synopsis of the main methods used to determine the age of the earth. It includes the age of the moon, meteorites, solar system and the age of the universe. There is a section on the nucleosynthesis of heavy elements in stars and supernovae. In short, this book is superb. Chapter headings are: 1. Sleuthing the Past 2. The Birth of the Universe, the Galaxy, the Solar System, and Earth 3. Early attempts. 4. Clocks in Rocks: How radiometric dating works. 5. Earth's most ancient rocks. 6. Moon Rocks: Samples from our nearest

neighbor.7. Meteorites: Ancient wanderers of the Solar System.8. Lead isotopes: Hourglass of the Solar System.9. The formation history of Earth and Meteorites: Sorting out the details.10. The ages of the Universe, the Galaxy, and the Elements.11. Summing up and looking ahead.Plus. Recommended reading, references, glossary, and index.

This book is a shorter, thoroughly revised update of his earlier book, *The Age of the Earth*, which has received a number of excellent reviews. It has a somewhat different focus, and is, I think the better for it -- although the earlier book has more technical details that the reader may find interesting. To a person who is relatively new to the area, I would suggest reading this first.Ch. 4, "How Radiometric Dating Works" is excellent and readable. It explains how rock dating is done using multiple overlapping techniques. It describes the problem of initial contamination by daughter products, and what is done to address it. I appreciate this detail because the author anticipates the questions that an intelligent reader might ask. I find his answers well thought out.The remainder of the book shows how these techniques apply to the dating of "Earth's Most Ancient Rocks" (Ch. 5), "Moon Rocks" (Ch. 6), "Meteorites" (Ch. 7), and to the "Formation History of Earth and Meteorites" (Ch. 9) and "Age of the Universe" (Ch. 10).In my mind one of the most impressive applications of these dating methods is described in J. William Schopf *Life's Origin: The Beginnings of Biological Evolution*, in which the role of zircon crystals in lava flows is described. I found the immediacy of Schopf's treatment quite interesting, and would recommend his book as an excellent companion.

This book is exceptional! It explains how the scientific process works and clarifies that the findings are not influenced by philosophy or religion. It gives great insight into how the age of the earth has been examined for the past several hundred years, and it details how the age of enlightenment gave rise to modern science. It explains that the results of biology, chemistry, and physics change over time as more data is generated by more precise measurement tools. This book has the most understandable explanation of radioactive decay that I've ever read.

This is an excellent introduction to the subject of dating the earth and its features. It goes into sufficient detail to explain the concepts clearly, without demanding a careful examination of the mathematical details.The most recent data on the subject shows that the material from which the earth agglomerated was formed 4,568,200,000 years ago, to a precision of better than 0.01% [1]. It took some time for the earth to agglomerate and cool; this process was complete by 4.4 billion years ago [2].1. Bouvier, et al, The age of the Solar System redefined by the oldest Pb-Pb age of a

meteoric inclusion. Nature Geoscience, vol. 3, Sept. 2010, p. 637.2. Wilde, et al, Evidence from detrital zircons for the existence of continental crust and oceans on the earth 4.4 Gyr ago. Nature, vol. 409, 2001, p. 175.

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