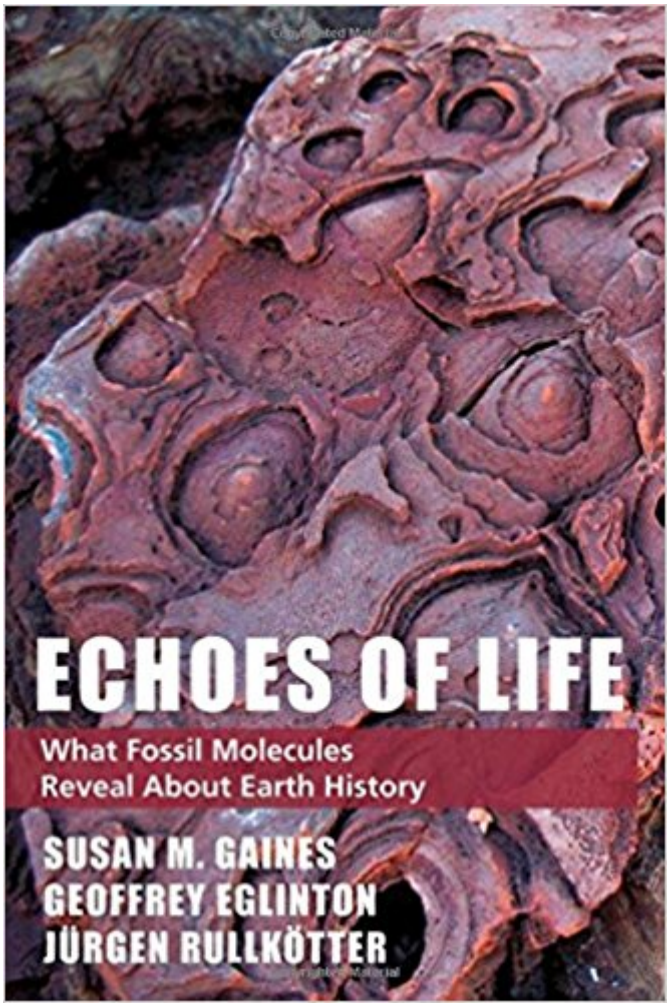
Echoes Of Life: What Fossil Molecules Reveal About Earth History



Synopsis

In 1936 a German chemist identified certain organic molecules that he had extracted from ancient rocks and oils as the fossil remains of chlorophyll--presumably from plants that had lived and died millions of years in the past. It was another twenty-five years before this insight was developed and the term "biomarker" coined to describe fossil molecules whose molecular structures could reveal the presence of otherwise elusive organisms and processes. Echoes of Life is the story of these molecules and how they are illuminating the history of the earth and its life. It is also the story of how a few maverick organic chemists and geologists defied the dictates of their disciplines and--at a time when the natural sciences were fragmenting into ever-more-specialized sub-disciplines--reunited chemistry, biology and geology in a common endeavor. The rare combination of rigorous science and literary style--woven into a historic narrative that moves naturally from the simple to the complex--make Echoes of Life a book to be read for pleasure and contemplation, as well as education.

Book Information

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Customer Reviews

"An excellent read, very accessible for the academic and enthusiast alike."--The Astrobiology Society of Britain"Echoes of Life is a book that simply must be read by all interdisciplinary science enthusiasts. The book knits together in a unique way the context and characters of a remarkable field that has spawned and touched so many others. It is a delightfully endearing Who’s Who of organic geochemistry; self-deprecating and respectfully irreverent in the way the central characters

are linked to the landmark developments. Overall, the book will captivate and inspire the uninitiated, while current practitioners will be enthralled; it is quite simply ’everything you wanted to know about organic geochemistry but were afraid to ask’."--Richard Evershed, Chemistry World"Echoes of Life: What Fossil Molecules Reveal about Earth History is in many ways a remarkable book. At once a highly readable introduction to the field of organic geochemistry, it also manages to capture the deep sense of curiosity and wonder associated with scientific investigation...Deserves a wide readership, not only by practitioners of the sciences mentioned here but also by historians and philosophers of science who are interested in more than abstractions."-- Bill Green, Chemical & Engineering News"A festive celebration of why science is fun and of the "rampant human curiosity" that fuels sciene, scientists, and young elephants alike."--Science"A compelling, readable chronicle of scientific research, that blends the basics of organic chemistry with the needs of other scientific pursuits including geology, paleoclimatology, ocean sciences, petroleum geochemistry, environmental sciences, archeology, and the origin of life. The description of the research is understandable for the layperson and retains sufficient scientific details for scientists." -- John W. Farrington, Scientist Emeritus, and former Senior Scientist, Vice President for Academic Programs and Dean, Woods Hole Oceanographic Institution"Echoes of Life provides answers to all the questions that any chemist, or indeed any scientist, could possibly ask about the history of life on Earth. Its authors of this book conduct a forensic analysis of bodies discovered over a period of nearly 80 years to make it read more like a detective story than a text book".-- Colin Pillinger, Head Scientist on Beagle 2, the UK-led project to land on Mars"Perhaps too late scientists begin to realise how much the living and the material Earth are one. Through the authors’ pioneering research we gain glimpses of the character of our planet from childhood to its present seniority. Although a first-rate biogeochemical text, the book features some of the qualities of a family photograph, and is all the more interesting. Life and Earth scientists both should have it on their shelves." --James Lovelock, Honorary Visiting Fellow, Green College, Oxford"As scientists’ descriptions of earth history grow more detailed and more relevant to public policy and economics, laymen are bound to be both curious and suspicious. ’How do they know what the climate was like 200 million years ago, or why petroleum formed in some places and not in others, or what happened to marine life during the last great mass extinction?’ Echoes of Life provides clear explanations of the molecular tools used to answer such questions and an engaging narrative of scientific history, skillfully encompassing both the science and the personalities that produced it." -- John Hayes, Scientist Emeritus, Woods Hole Oceanographic Institution"Echoes of Life is a fascinating and comprehensive history of biomarker research spanning the birth of the field to the application of biomarkers to a

variety of scientific disciplines. Gaines et al. present an enormous amount of information in a simple yet elegant manner. This wonderfully interdisciplinary book is a must read for biomarker experts and for those who enjoy intriguing scientific detective stories." -- Samantha Joye, Professor, Department of Marine Sciences, The University of Georgia"Echoes of Life is well written and valuable to anyone interested in the intersection between different scientific fields and in learning about the process of scientific discovery. Highly Recommended."--Choice Magazine"For some, the path taken is a good introductory textbook or review article, but this book is a far more enjoyable read...To someone who has been introduced to biomarkers, the individual chapters stand alone as an interesting biography of a scientific line of inquiry."--Astrobiology"Those who are interested in geochemistry, and those who are looking to broaden their knowledge of the connections between chemical compounds and the diversity of life, will find Echoes of Life well worth reading. Readers will come away with an understanding of what those compounds mean in a given time and place."--Bioscience

Susan Gaines was trained as a chemist and oceanographer, but abandoned the laboratory to pursue a writer’s vocation. Her short fiction has appeared in numerous literary anthologies and been nominated for the Pushcart Prize, and she is the author of the novel Carbon Dreams. Geoffrey Eglinton is Professor Emeritus at Bristol University, Adjunct Scientist at Woods Hole Oceanographic Institution and Adjunct Professor at Dartmouth College. JÃ rgen RullkÃ¶tter is a professor of organic geochemistry at the Institute of Chemistry and Biology of the Marine Environment (ICBM), University of Oldenburg, Germany. Books by the same authors: Carbon Dreams |a Susan M. Gaines The Monterey Formation - From Rocks to Molecules |a Caroline M. Isaacs and JÃ rgen RullkÃ¶tter, Eds.

Susan M. Gaines, Geoffrey Eglinton, and JÃ rgen RullkÃ¶tter with scientific illustrations by Florian Rommerskirschen have produced an excellent history of the discovery of biological trace molecules in ancient sediments. Their stated goal was to write a book that is first rate science and understandable to most readers without being condescending or simplified. I think they have succeeded admirably, but potential readers do need to understand that there are molecular diagrams and chemical terminology in Echoes of Life that will not be readily understandable without some background in organic or bio-chemistry. Readers who can remember a term from one page to the next, even if they can’t pronounce it, will have no trouble following what is happening, they just won’t be able to visualize things like a chemist does. For those like me whose memory doesn’t always extend across pages and chapters, Echoes of Life has an excellent glossary.Text on every

page is dense, by which I mean that the leading (space between lines) is less than usually seen in the popular press - the pages are filled with good writing and good information. The authors deal with their subjects in chronological order as much as possible, they use acronyms and scientific buzz words as seldom as practical, and the diagrams are very clear. Unfortunately, there are no portrait photographs and only one work-site photograph, so the reader never learns what the authors and scientists who are discussed look like except for Eglinton. A minor point, perhaps, but one that would have humanized even more these very human stories. There are also no dinosaurs, but each investigator and research result has a fascinating story that the authors clearly relate and link appropriately to the stories of other researchers and results. Last and perhaps least but much appreciated, Pete Smith and Tim Knowles drew some interesting and humorous cartoons to accompany the chapter bibliographies. Echoes of Life is a good read.

Fantastic science written as a story, the way it is in fact developped.Content is exhausting wonderful you forget to breath just looking for next written line information.I burnt literally my eyes on it, but perhaps was contributing to this sensation the too small size of typing leters chosen, please for any new edition (for sure this will be done) make it more comfortable and let the only stress to the reader about enjoy addiction.

Kindle version gets 2 stars. Using the Kindle format, the images are blurry, even on iPad.I recommend you check the free sample on your device prior to purchasing an electronic copy. The first illustration is prior to the introduction.

This book is a narrative recounting the last several decades of advance in the area of organic geochemistry. The primary focus is on the work of Geoff Eglinton and his colleagues. An interesting and informative read. Would be interesting to most environmental scientists, oceanographers, and especially geochemists.

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