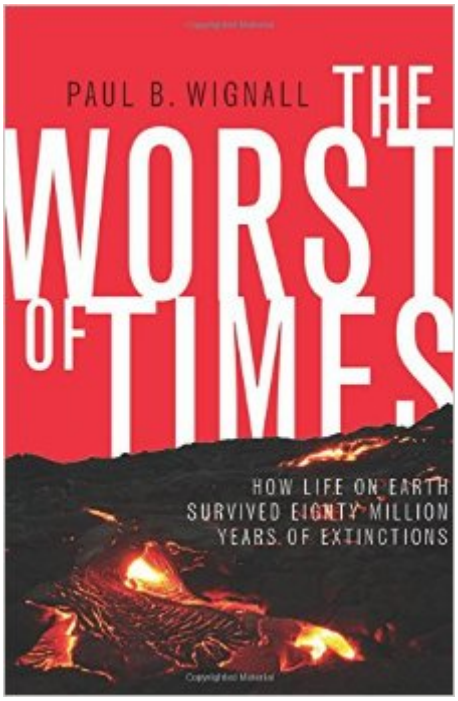
The Worst Of Times: How Life On Earth Survived Eighty Million Years Of Extinctions



Synopsis

Two hundred and sixty million years ago, life on Earth suffered wave after wave of cataclysmic extinctions, with the worst--the end-Permian extinction--wiping out nearly every species on the planet. The Worst of Times delves into the mystery behind these extinctions and sheds light on the fateful role the primeval supercontinent, known as Pangea, may have played in causing these global catastrophes.Drawing on the latest discoveries as well as his own firsthand experiences conducting field expeditions to remote corners of the world, Paul Wignall reveals what scientists are only now beginning to understand about the most prolonged and calamitous period of environmental crisis in Earth’s history. He describes how a series of unprecedented extinction events swept across the planet in a span of eighty million years, rapidly killing marine and terrestrial life on a scale more devastating than the dinosaur extinctions that would come later. Wignall shows how these extinctions--some of which have only recently been discovered--all coincided with gigantic volcanic eruptions of basalt lavas that occurred when the world’s landmasses were united into a single vast expanse.Unraveling one of the great enigmas of ancient Earth, The Worst of Times also explains how the splitting apart of Pangea into the continents we know today ushered in a new age of vibrant and more resilient life on our planet.

Book Information

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Customer Reviews

Looked at broadly, there have been five major extinction events in the history of life on Earth, with long stretches of relative stability between, in which evolution filled the emptied niches. The most

devastating event, which destroyed almost all life on the planet occurred at the end of the Permian period, some 252 million years ago. The previous major extinction, which concluded the Devonian, had taken place more than 100 million years earlier, while the next ended the Triassic, fifty million years later. After that, life flourished for a further 135 million years, until the gigantic Chicxulub meteorite set off the train of events that led to the disappearance of the dinosaurs, 65 million years ago.In detail, however, the picture becomes much more complex. Recent research, much of it carried out during the past decade, reveals that over a period of 80 million years, spanning the latter part of the Permian and the whole of the Triassic, the earth suffered no fewer than six extinctions. The question this fascinating book sets out to answer is, What combinations of conditions caused this devastating series over such a relatively short geological time span?The common factor in these extinctions appears to be volcanic activity on a vast scale, which continued for long periods, flooding the earth with enormous volumes of basalt. The probable effects of these on the atmospheric and ocean chemistries, and hence on living creatures, are discussed comprehensively, but in language that is minimally technical and very accessible.Another question asks why several earlier and later volcanic eruptions of equal magnitude had very little effect on life, and did not lead to extinctions. The overall conclusion, for which the author argues persuasively, is that the Permian-Triassic devastations occurred because the dry land on Earth during that time was concentrated into a single mass, Pangea, which later broke up into the continents we know today.This is an intriguing, even exciting story that is very well told, and more of it is likely to emerge with further discoveries over the coming years. Readers interested in the natural history and geology of our living planet will love this book, and will learn a great deal from it that is new.

About 251 million years ago, life on planet earth was almost extinct. Most species were lost in a catastrophic event along with the loss of habitats for of most land and marine creatures. It took almost 100 million years for life to return to pre-existing level, and the biodiversity returned in the form of diverse marine creatures, insects, dinosaurs, mammals and plants. In this process, animals and plants took various shapes, sizes and habitats. In this book, University of Leeds professor, Paul Wignall examines the environment of Pangea when the planet was fused into one single super continent. Atmospheric and geological conditions were vastly different with few coastline habitats, limited rainfall, and the deeper part of the land uninhabitable. Huge volcanic eruptions resulted in catastrophic events that filled the atmosphere with carbon dioxide and covered the land with lava. Changes in atmospheric temperatures, acidification of the ocean and depletion of life-supporting oxygen made the planet very hostile for life. Eventually a slow and steady separation of the single

land mass into five continents changed the planetÃ¢Â Â™s atmosphere and created diverse environment. Species evolved in the reformed planet with a tremendous increase in diversity.Recent studies have suggested that the asteroid that hit Yucatan Peninsula 65 million years ago also intensified volcanic eruptions in the Deccan Plateau of India. Volcanic eruptions became twice as intense, throwing out a deadly cocktail of sulfur dioxide and carbon dioxide. The shockwaves produced at this time shook up earth and its volcanic Ã¢Â Âœplumbing systemsÃ¢Â Â• around the world, creating larger magma chambers that spewed out more material. This Ã¢Â Âœcombined effectÃ¢Â Â• is now believed to be responsible for wiping out dinosaurs.Sir Charles Lyell was the first geologist to propose, in the first half of the nineteenth century, that earth was formed after cataclysmic events on giant scale in the distant past. He observed that the earth was shaped by slow-moving forces still in operation today, but acting over for a very long period of time. This idea still holds good and it was quite bold for his time when it was believed in the idea of abrupt planetary changes that conforms to beliefs of the Book of Genesis.While geological and paleontological studies have been helpful to understand the formation of a habitable planet such as earth, we are still a long way to account for all factors that shaped our world. This is especially critical when NASA is investigating life on exoplanets with vigor and enthusiasm. Professor WignallÃ¢Â Â™s seminal work in this area is fascinating and should encourage readers to get interested in this field and learn more about the ancient history of our planet.

Fascinating and insightful picture of plate tectonics and major extinction events of Late Mesozoic.Clearly shows that geology is more than rocks, minerals and stratigraphy. For me it opened some interestinganalytical inferences re the relationships of tectonics and extinctions that made more clear whathappened beyond a mega-meteroic assault on our planet. Read it, then read it again!.

Not exactly dramatic, but informative.The author covers, briefly, the 5 other mass extinctions in Earth’s history but concentrates on the Permian event.If you have NO knowledge of the geology of ancient Earth and little knowledge of chemistry or palentology then skip this book. It will just confuse the snot out of you.The author, out of necessity, uses scientific terms for most of his indicator species which almost no one (including me) will ever have heard of.What this book will give you is excellent insight into how the greenhouse effect works, the CO2 cycle in the rocks and oceans, and how time and nature gradually fix out of balance environments.

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