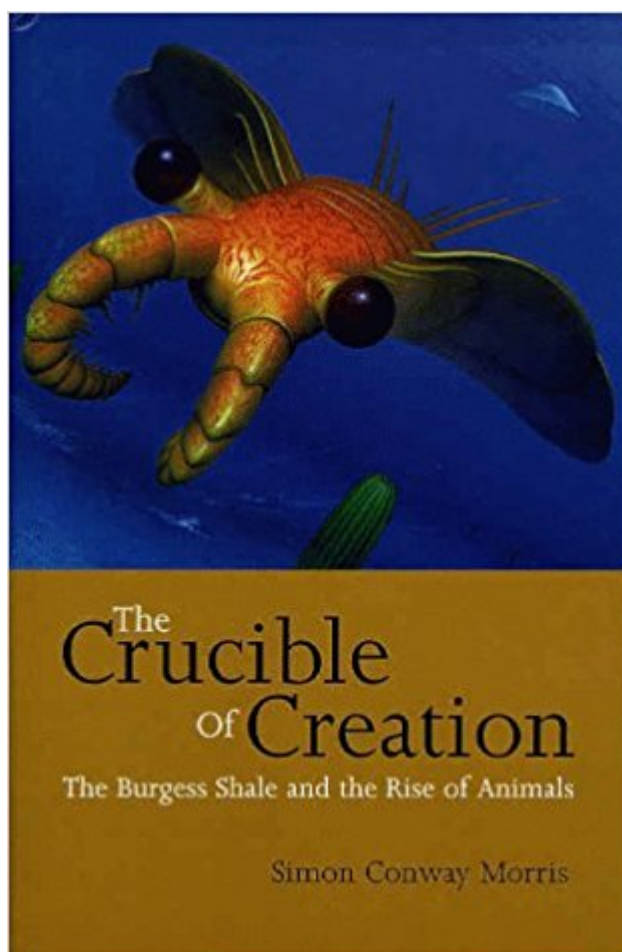


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# The Crucible Of Creation: The Burgess Shale And The Rise Of Animals



## Synopsis

In *The Crucible of Creation*, paleontologist Simon Conway Morris describes the marvelous finds of the Burgess Shale--a fantastically rich deposit of bizarre and bewildering Cambrian fossils, located in Western Canada. Conway Morris is one of the few paleontologists ever to explore the Burgess Shale, having been involved in the dig since 1972, and thus he is an ideal guide to this amazing discovery. Indeed, he provides a complete overview of this remarkable find, ranging from an informative, basic discussion of the origins of life and animals on earth, to a colorful description of Charles Walcott's discovery of the Burgess Shale and of the painstaking scientific work that went on there (as well as in Burgess collections held at Harvard and the Smithsonian), to an account of similar fossil finds in Greenland and in China. The heart of the book is an imaginative trip in a time machine, back to the Cambrian seas, where the reader sees first-hand the remarkable diversity of life as it existed then. And perhaps most important, Conway Morris examines the lessons to be learned from the Burgess Shale, especially as they apply to modern evolutionary thinking. In particular, he critiques the ideas of Stephen Jay Gould, whose best-selling book *Wonderful Life* drew on Conway Morris's Burgess Shale work. The author takes a fresh look at the evidence and draws quite different conclusions from Gould on the nature of evolution. This finely illustrated volume takes the reader to the forefront of paleontology as it provides fresh insights into the nature of evolution and of life on earth.

## Book Information

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## Customer Reviews

The Burgess Shale deposits, in western Canada, have joined the Galapagos Islands as a

destination of choice for vacationing scientists and fans of evolutionary theory. The fame of these places is in part due to the unique flora and fauna (living or dead) they boast, and in part to the scientists who have described and attempted to explain them. Like Stephen J. Gould's *Wonderful Life*, this book from Simon Conway Morris, original describer of the fascinating, troubling fossil *Hallucigenia*, gives an account of the Burgess Shale and the scientists who argue over the tiny remains of once-living creatures. Conway Morris calls the place "the most wonderful fossil deposit in the world," and his emotion is contagious. Beyond describing the creatures that formed the fossils, he speculates about how the Burgess Shale fits in to the story of human evolution.

The Burgess Shale, a thin outcrop of rock in the Canadian Rockies, contains a rich store of extraordinarily well preserved fossils of creatures that lived in the Middle Cambrian period, 500 million years ago. The fossils have provided a vital key to understanding the early evolution of animal life. Conway Morris, professor of evolutionary paleobiology at the University of Cambridge, has explored the shale since 1972. He describes the scene and the fossils vividly, using the device of a time machine that takes a group of scientists back to the Middle Cambrian and disgorges a small submersible wherewith they venture into the sea to view the creatures as they looked and acted in life. But he has a further purpose, which is to dispute the interpretation that some other scholars-notably Stephen Jay Gould of Harvard University-have put on the evolutionary significance of the Burgess Shale animals. Gould, he says, argues that if the tape of life were rerun from Cambrian time, we would end up with an entirely different world, which would include among its various features the absence of human beings. "On the contrary," Conway Morris writes, "I believe it is necessary to argue that within certain limits the outcome of evolutionary processes might be rather predictable."

Exhaustive and detailed perspective on the the still lively debate on evolutionary biology (SJ Gould versus convergent evolution).

I got the impression from the previous reviewers that this book had a great deal of negative energy focused on refuting Gould's *Wonderful Life*. But overall I didn't get that; it seems like a fairly reasonable and balanced disagreement with Gould's conclusions. But I haven't read their later fracas so perhaps I don't read with the bias of knowing the true relationship...Certainly the first chapter was tough going just in his writing style (I skipped the glossary), I'm sure I missed things throughout and he actually mostly lost me on the trilobite head shape analysis. But overall, a very

interesting discussion of the creatures and how evolution might have been working during that strange time.

The book was in great condition. Thank you.

This is a book you would expect from an Englishman: lucid, logical, and insightful. For the interested, it isn't all that difficult to read. Actually, it's fun compared to S. J. Gould's excellent, but far more difficult, *Wonderful Life*. Conway Morris is also very persuasive in how much prominence "contingency" (randomness) in biological evolution deserves. Against Gould, Conway Morris finds it unremarkable and discusses how evolution by natural selection is more coherent and predictable than Gould would have one believe. CM also shows that the facts just do not support Gould's contention that anatomic forms are more impoverished today compared to the welter of body forms that appeared during the Cambrian Explosion. In sum, this is a fun, well-written book for the lay crowd that enjoys paleontology, the Paleozoic Era, and a glimpse at the issues debated in the academic arena.

About 90% of this book can be said to be "fascinating", if only because it deals with a fascinating subject, the creatures of the Burgess Shale. The author, Simon Conway Morris, is one of the authors of the scientific descriptions of many of these animals. That alone should make this book of some value. And it does have a value of sorts, but one that is spoiled by a sometimes odd writing style, hints of design and religion, and a needless and constant poking at Stephen Jay Gould, the famous late professor of paleontology at Harvard University. Oddly enough, it was Gould who made Morris famous in his book *"Wonderful Life"*. Morris returns the favor with backhanded slaps at Gould's view on how life would turn out if the "tape" of life were re-run again. Gould thinks everything would be different; Morris thinks convergence would play a major role to make things all closely similar. While it is clear that Morris disagrees with Gould, Morris' argument is not convincing and sometimes seems like mere meanness. I think Gould wins. Nice pictures, though.

...based on the Burgess shale fauna. If you liked *"Wonderful Life"* then this is a book for you. Conway Morris is at his best describing the animals of the Burgess shale and similar sites around the world, in particular the newer interpretations that have occurred since *Wonderful Life* was published. Conway Morris takes a diametrically opposite view to S.J. Gould on the implications of the Burgess shale - perhaps mainly due to the Religious and political views he expresses strongly in

this book. Perhaps this antagonism forces Conway Morris into adopting the extreme view that "while contingency exists it is unimportant." Here his arguments are at their weakest, and are far from convincing. The chapter on quantitative measurements of disparity and convergence is fascinating (the book is almost worth getting for this alone - I wish it were longer). It is clear that the data is not yet of sufficient quality to quantify the degree both random events and more conventional evolutionary pressures constrain the history of life, but that it may soon be. Add this book to your collection alongside *Wonderful Life!*

Can't beat the subject and this book provides a nice counter to the late Stephen Jay Gould's opus "*Wonderful Life.*"

The Burgess Shale is interesting in itself as well as for the deeper points that it makes (or rather than people make with it) for evolutionary history. Conway Morris' updated explanation of the fauna from the Burgess and recent research into similar deposits in China and Greenland is important but suffers in comparison with *A Wonderful Life*. It is simply not as detailed or engaging. As for his larger points, Conway Morris points out several flaws and hidden assumptions in Gould's work but his conclusions are themselves quite weak. His later book *Life's Solution* does a much better job at presenting his points and marshalling evidence for them, even if they still, in my opinion, remain unproven.

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