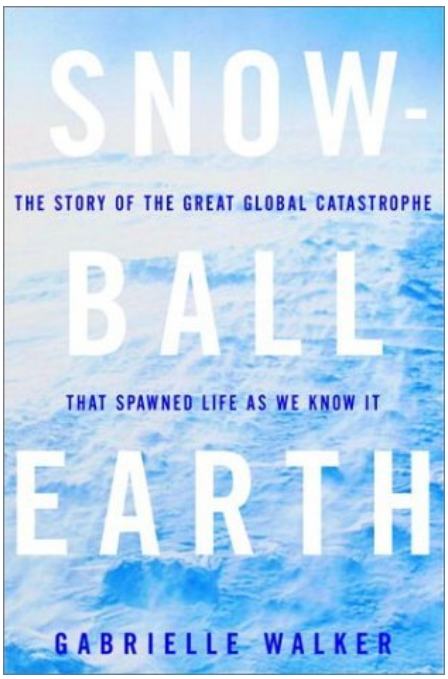

Snowball Earth: The Story of the Great Global Catastrophe That Spawned Life as We Know It

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Did the Earth once undergo a super ice age, one that froze the entire planet from the poles to the equator? In **Snowball Earth**, gifted writer Gabrielle Walker has crafted an intriguing global adventure story, following maverick scientist Paul Hoffman's quest to prove a theory so audacious and profound that it is shaking the world of earth sciences to its core.

In lyrical prose that brings each remote and alluring locale vividly to life, Walker takes us on a thrilling natural history expedition to witness firsthand the supporting evidence Hoffman has pieced together. That evidence, he argues, shows that 700 million years ago the Earth did indeed freeze over completely, becoming a giant "snowball," in the worst climatic catastrophe in history. Even more startling is his assertion that, instead of ending life on Earth, this global deep freeze was the trigger for the Cambrian Explosion, the hitherto unexplained moment in geological time when a glorious profusion of complex life forms first emerged from the primordial ooze.

In a story full of intellectual intrigue, we follow the irascible but brilliant Hoffman and a supporting cast of intrepid geologists as they scour the planet, uncovering clue after surprising clue. We travel to a primeval lagoon at Shark Bay in western Australia, where dolphins cavort with swimmers every morning at seven and "living rocks" sprout out of the water like broccoli heads; to the desolate and forbidding ice fields of a tiny Arctic archipelago seven hundred miles north of Norway; to the surprising fossil beds that decorate Newfoundland's foggy and windswept coastline; and on to the superheated salt pans of California's Death Valley.

Through the contours of these rich and varied landscapes Walker teaches us to read the traces of geological time with expert eyes, and we marvel at the stunning feats of resilience and renewal our remarkable planet is capable of. **Snowball Earth** is science writing at its most gripping and enlightening.

Snowball Earth: The Story of the Great Global Catastrophe That Spawned Life as We Know It Details

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From Reader Review Snowball Earth: The Story of the Great Global Catastrophe That Spawned Life as We Know It for online ebook

Shelagh Plunkett says

Such a joy to read a really well written and engaging science book. Offers alternative theories to global warming which may or may not hold up but are worth learning either way.

Edward H. Busse, III says

I really enjoyed this book. Boy...are the geologists, biologists, scientists and others who do the reseach on this event dedicated...they are all in on this issue. I never knew that the idea had been proffered that Earth has been completely covered in ice on more than one occasion. The science behind the ice covering is fascinating. Even more so, how life developed/exploded as the last Snowball disappeared. Dr. Walker does an excellent job of weaving the various scientists and their complex relationships together along with each of their scientific disciplines. This book was a real eye opener for me...which is the point of a good book...right?

Meera says

This is the first book of it's kind that I've read and I have to say I really enjoyed it. While I do have a strong interest in geology and climate change, I thought the author did a great job of telling the story without making it too technical. The stories of the different scientists and their journey to discovering evidence for their theories and hypotheses were well told, suspenseful, and interesting. There was also so much fascinating information throughout the book that I never knew, which made it a fun read. I will say, if you have any remote interest in this topic, geology, ice, climate, etc., then this will probably be a book right up your alley. If you don't particularly have an interest in these areas, then you might find the book a little technical and may want to pass. However, if you've never read a book like this before, this is a great place to start! Also, it's a very inspiring read...what these researchers have managed to discover and contribute to our understanding of our planet is insane (in a good way!) when you think about it.

Angus Mcfarlane says

The 'national geographic' tone to this book irritated me from the very beginning and I felt I'd made a mistake in taking it on. The main protagonists are referred to a first name basis and the extended narratives of the authors experience visiting various geological sites and tangential historical anecdotes (e.g. Huxley and Wilberforce) were generally distracting to me, although there was eventually enough substance to make the read worthwhile. At times the tense seems to merge between the past and the present and attempts to describe a stormy winter landscape as 'granite' coloured (as in dappled pink like the orthoclase feldspar?) were not helpful either.

The scientific story about snowball earth, both how it happened geologically and how it was discovered, is a fascinating one. Like many new ideas, there have been numerous personal, theoretical and logical challenges

to overcome in making them coherent and credible. That ice could have reached the equator and shut down the planet for a few million years is a radical idea, as it 'should' push the earth into a runaway icehouse mode. (Although not stated in this book, this possibility opens the options for the habitability of other planets, provided volcanism can counteract other cold mode settings.) The evidence for the snowball needed to be compiled from numerous sources which are somewhat obvious in hindsight, but subtle beforehand. The elucidation of these gives a useful illustration about how geological science works. For all the discussion of field observations, however, the absence of illustrations (in the kindle version at least) was disappointing, especially since the author seems to have visited many of the key sites.

I suspect there is more to the science of this story than was given room in this book, but if this approach is needed to make key geological stories accessible then I welcome it.

George Cook says

Slow starter but a really interesting story of the science and scientists behind discovering the huge snow ball ice ages. Shows the hard work behind the scientific method and putting forward new theories

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BrokenTune says

I had this book on my to-read shelf for years, after I read about another book by the same author. The other book is on my to-read shelf, too, but I am now not sure I want to start it - ever...

It's not that I hated the book but I just got bored with about a third way in. I am not a geologist and have no special interest in the details of how a theory was attempted, then disproved, then proved again over time - had hoped the story would be about the phenomenon of "snowball earth" rather than the personal life stories of the geologists involved in proving and disproving different theories in connection with snowball earth. Also the tone of the book grated on me - every story seemed to be told with overly dramatic effect - like a bad TV documentary.

John Kaufmann says

This book explores the hypothesis that the earth nearly froze solid about 700 million years ago, which then triggered the explosion of life on earth. It is told from the perspective of one scientist uncovering clues and trying to make sense of them. In addition to broaching a bold new idea in clear, understandable language, it reads like a detective story. An easy read, considering its intellectual heft.

Clare O'Beara says

I enjoyed this read about the early life of Planet Earth which focuses on geology and geologists. The primary scientist featured, Paul Hoffman, is first shown running his first marathon in a great time. He then has to choose between concentrating on his running and going back to study. The author is showing readers that theories and discoveries are made by real people, with real choices. The facts may be embedded in the rocks under our feet, but unless and until sufficient work is done and science is sufficiently developed, the answers

cannot be proven.

Stromatalites, very early forms of plant life, took carbon from the air and replaced it with oxygen. These are still found in a bay in Australia. Before them the fossil record shows glaciation. But samples of rock proved, due to the way magnetised particles had lined up at the time the rocks formed, that the ice covered rocks were near the equator, not the poles. Through work by many geologists over many years, these rocks were found all around the world. Namibia, Canada, Australia, Svalbard were all part of land masses which due to continental drift then lay around the equator. And they bore ice.

Drop stones are rocks embedded in icebergs that break off glaciers and are dropped to the sea floor as the ice melts. Geologists learn to spot them in the rock record. These, moraines, ice-scraped rocks, oolites, volcanic glass, pillow lava and more are all part of the picture. But geologists pick a spot and return to it year after year, building up a detailed study, jealous of their patch. So we have to follow different people - almost all male, but not all. Science works by one team presenting a hypothesis which is challenged by others who try to prove or disprove it. So we learn what challenges were presented, why this broke up many friendships and created friction, when Paul took up a previous theory that Earth had been solidly covered in ice.

Since ice reflects heat, a white Earth should stay frozen. The solution presented was volcanic activity which threw carbon dioxide and other greenhouse gases into the air, until the hothouse effect melted the ice. This appeared to have occurred more than once. Then proof of this had to be found in the rock record. This hunt and struggle occupies most of the book, with only a final chapter or two left to see what caused advanced life to form once the ice melted for the last time. I found the book easily readable but I know a lot of the terms and background.

If you are interested in geology you will love this book; if you are interested in biology you should also read it as background. A geology student may already be familiar with much of the basic content but still find the concentrated presentation useful. Anyone reading up on continental drift will also be fascinated. What I found many times over to be lacking was photos and maps. Photos of the mountain ranges, stromatalites and fossil tracks of early creatures. Photos, surely, of some of the geology professors. Maps of where the continents used to lie and how they might have girdled the equator. Instead we get a couple of contrasting expeditions the author undertook with professors - one in African bush where she got lost and one on a cold, rainy sea peninsula cliff where she huddled with a group to look for fossils. We have to thank the universities for funding this research by so many people over so many years. I don't want to mark down the rating for the lack of maps and photos, which can probably be hunted for on the net, but if a future edition is being published they would be a big help.

Jessica says

Paul Hoffman is amazing. I'm a grad student in the geology department at the University of Michigan, and PHoff came to give a speech this winter. I had him autograph a stromatolite from Australia. He also signed my friends cap carbonate. He wrote "The C in this rock came from the CO2 that melted the snowball Earth".

The book itself is great. My field of study has nothing to do with any of this stuff, so I appreciated being able to approach it from a less intense angle than the academic world tends to provide. And quarreling scientists are always entertaining.

Quinox says

A very good narrative of how a theory is developed over time and the functioning of the scientific community. Easy-read even for those who are not geology buffs. The research for the book takes the author to the ends of the earth and she meets the scientists hunting for proof that the earth at some points in history was completely covered with ice. It can be read as a rea cold case CSI story, with the crime commited billions of years ago. The author also paints a vivid pictures of some of the odd, cool characters that you'll find nowhere but among one of the least known class of scientists - geologists.

Neal Kerrigan says

Great look into the creation of a theory. Since I've read it his theory has pretty much been accepted.

Nose in a book (Kate) says

I picked up this book because Walker came highly recommended, not because of the subject matter. In fact, the one aspect of the book I had been interested in (the biology angle) was squeezed largely into one chapter. It turns out that this is a book about geology, which I have very little knowledge of or interest in, yet I found it hugely readable and genuinely enjoyable.

The idea is that sometime around 650 million years ago the Earth froze completely over, even at the equator, for a few million years. There’s a lot of geological evidence pointing to this having happened, possibly multiple times in quick (geologically speaking) succession, and it is the theory that best answers a lot of questions raised by odd rock formations and other geological anomalies. However, it’s also a controversial idea that has taken a lot of time and accumulated evidence to reach the state of semi-approval it currently has.

It really is to Walker’s credit that she has made a book about looking at rocks so very appealing to me. I think this is partly because she puts the emphasis firmly on the people and personalities involved. This book is as much about Paul Hoffman, a professor of geology at Harvard, as it is about anything else. Walker depicts him as quite the character, difficult and brilliant, with long-standing rivalries and a long string of we-used-to-be-friends, but her picture is still a warm one.

- See my full review at: http://www.noseinabook.co.uk/2014/06/...

Steve Van Slyke says

As is often the case, with me at least, the last book I've read leads me to the next one. In this case it was Supercontinent: Ten Billion Years in the Life of Our Planet about plate tectonics that led me to read this book. The former had a section about how it might have been the supercontinent of Rodinia, which is believed to have existed prior to 700 million years ago, that was the partial cause of the so-called Snowball Earth.

I was a little put off by the author's flowery, adjective and adverb loaded bio's of the various scientists

involved, but overall she does a good job of telling the evolving story of the genesis of the Snowball Earth theory, which posits that the Earth was completely covered with ice not long before complex, multicellular life first appears in the fossil record close to 600 million years ago.

I have to admit that there is some morbid fascination to be had from reading how brutally the various scientific factions attack each other as they attempt to promote and prove or denegrate and disprove a major new theory. For a lay person like myself it quickly dispenses any notion that the whole process is very cordial and diplomatic. Nope. Let the mud and spit fly.

Like plate tectonics and continental drift theory before it, the Snowball Earth theory is going through an intense period of testing and criticism and is far from being as accepted as plate tectonics is today. So, it's an interesting time to sit on the sidelines and watch the science equivalent of a mixed martial arts tournament take place.

Bill says

This is a rollicking tale of exploration, clashes of big egos, travel and discovery. The book proves you need a very thick skin if you want to be a scientist as the whole point of science seems to be to demolish the current theory and build a new or better one. The good ones stand up to the dynamite, the snowball earth theory appears to be doing just that.

Art says

Good book about geology, and I'm a geologist so either I'm biased, or I'm a good judge. Maybe both. It discusses a controversial theory (hypothesis, really) that the earth was completely covered with ice for millions of years during the late Proterozoic, right before multicellular life burst upon the Earth. The author has spent time with many of the central investigators, Paul Hoffman in particular, and nicely shows their differing personalities, and how those affect their interactions and the development ideas. Fascinating. It has a bit of the flavor of a travelogue in parts, too, taking us to several places in Australia, to Namibia and the Kalahari, and to both poles.

After finishing it, I picked up a recent copy of Science magazine, read an article on the Cambrian Explosion and the Ediacaran fauna, and was surprised to see no mention of global freezing and thawing. Hmm...
