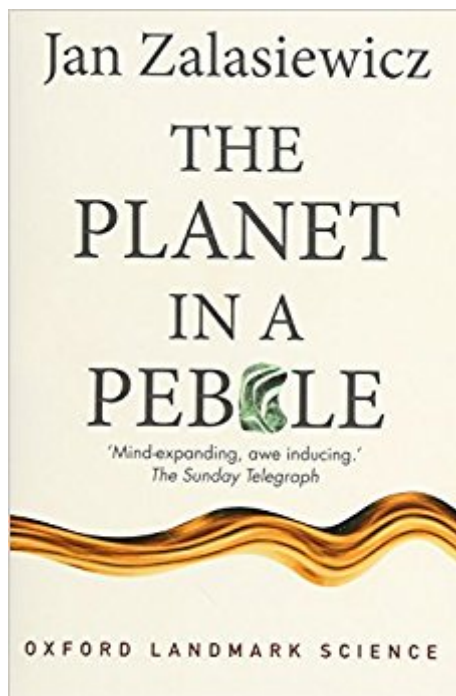




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The Planet In A Pebble: A Journey Into Earth's Deep History



Synopsis

This is the story of a single pebble. It is just a normal pebble, as you might pick up on holiday - on a beach in Wales, say. Its history, though, carries us into abyssal depths of time, and across the farthest reaches of space. This is a narrative of the Earth's long and dramatic history, as gleaned from a single pebble. It begins as the pebble-particles form amid unimaginable violence in distal realms of the Universe, in the Big Bang and in supernova explosions and continues amid the construction of the Solar System. Jan Zalasiewicz shows the almost incredible complexity present in such a small and apparently mundane object. Many events in the Earth's ancient past can be deciphered from a pebble: volcanic eruptions; the lives and deaths of extinct animals and plants; the alien nature of long-vanished oceans; and transformations deep underground, including the creations of fool's gold and of oil. Zalasiewicz demonstrates how geologists reach deep into the Earth's past by forensic analysis of even the tiniest amounts of mineral matter. Many stories are crammed into each and every pebble around us. It may be small, and ordinary, this pebble - but it is also an eloquent part of our Earth's extraordinary, never-ending story.

Book Information

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Customer Reviews

Zalasiewicz, a Lecturer in Geology at the University of Leicester, uses the pebble as his muse, traveling backwards in time to explain how it came into existence. As Zalasiewicz writes, "In some ways the pebble is like one of the newer computer chips, tightly packed with more information than one could ever surmise from gazing on its smooth surface." The pebble's journey into existence is

fascinating, but the real magic trick here is how immensely readable Zalasiewicz's book is. It's packed with scientific fact, down to the atomic structure of the elements found in the pebble, but still comprehensible to the layman. Zalasiewicz also deploys his dry sense of humor, noting, for example, that "the underground realm is pervasively fluid-soaked... regrettably dinosaur-free" (no matter what science fiction may claim). No one who reads this book will ever kick a pebble down the road or pocket one from the beach in the same careless way ever again. Photos. (Dec.) --This text refers to an out of print or unavailable edition of this title.

Review from previous edition: "Extraordinary book." --Times Literary Supplement 07.01.11 "I have rarely learned so much in so few pages, and this book...has the making of a minor classic." --Geographical 01.01.11 "It builds to a satisfying picture of how our planet's history is etched into every fragment of the pebble." --New Scientist 18/09/2010 "Impressively skilful narrative...Geology has a gifted new popular science writer." --New Scientist 18/09/2010

This is an imaginative book. The author re-creates the geologic evolution of the Earth by examining more and more features of a small pebble. I found every part of it engaging both for the geology and the creativity of the author.

Excellent text, but the kindle edition does not reproduce the color plates. I would not buy the kindle edition until it has the plates

You pick up a rock and it's just a rock. Jan Zalasiewicz picks up a rock and sees a history of the whole Earth. That's because Zalasiewicz is a geologist, so rocks have more meaning to him than they do to most of us. He has imparted some of his specialized meaning in The Planet in a Pebble: A Journey Into Earth's Deep History (Oxford University Press), one of the most accessible works of geology for the layman available. William Blake rhapsodized on the possibility that one could "see a world in a grain of sand," but of course he was speaking of the mystical and poetical. He probably would not have gotten much inspiration from Zalasiewicz's scientific view, but there is inspiration aplenty here for those who want to look at demonstrations of human cleverness. It is quite wonderful that we can make sense of how the Earth came to be and can understand how certain rocks came to have the characteristics they do, since it requires tracing back billions of years. Zalasiewicz does the tracing back, indeed, to the Big Bang and the eventual formation of the Earth right up until the pebble he describes is brought out to be picked up on the beach. The scope of the story is thrilling,

and if you can't picture every step he describes in every chapter (few of us can imagine adequately, for instance, time extending back for such periods), there will always be more astonishments in the next one." A pebble of gray slate from a Welsh beach - perhaps from somewhere like Aberystwyth, or Clarach, or Borth on the west Wales coast." Why pick such a source? Simply because Zalasiewicz has had a "career devoted to untangling the intricacies of Welsh slate," a rock he says is underappreciated and "has often had, alas, the reputation of being wet, grey, and monotonous." So the choice of pebble might be arbitrary, but we can take for granted that any pebble from anywhere else has someone taking the same tenacious geological stare at it. "In some ways," writes Zalasiewicz, "the pebble is like one of the newer computer chips, tightly packed with more information than one could ever surmise from gazing on its smooth surface." First things being first, the book starts with the Big Bang, long before there were all the elements that the pebble is made of. There is plenty of violence, but there are other periods in which the pebble (or the rock mass wherein it was formed) just waits, shifted in millions of years from one locale to another and infiltrated with ions carried by water into it. It's a geological story, but there is plenty here to learn about cosmology, astronomy, and chemistry. Biology is surprisingly important, for the pebble contains fossils of graptolites, animals that date the rock with fine precision. Neodymium isotopes tell when the stuff that makes up the pebble was released from the Earth's mantle, for instance. There are zircon grains, and the decay of radioactive potassium, and many more up until 1945 when all rocks above ground began to be tinged with the leavings of the nuclear age. There is even lichenometry, whereby the exceedingly slow and steady growth of lichen gives a clue about how long the rock on which it is growing has had a surface for its growth. The different chronometers have been calibrated and matched because geologists have to deal with such huge spans of time and "have racked their brains to find as many ways as possible to say _what_ happened _when_. As racking goes, it has been quite fruitful, all told." Toward the end of the book, the pebble, inching toward the surface, begins to feel the effects of climate (not seasonal weather, but the broader temperature patterns). It had, before this, drawn any heat it felt from the Earth's interior. Eventually the external climate would make an impression on it, but it would have been millions of years after that before it felt any seasonal change, and even longer for it to have come to the surface. Once it got there, though, things could change a lot. Split off from its mother rock and washed by tides, it might have lost as much as half its mass in one storm season as it banged around on its neighbors. Zalasiewicz winds up in a final chapter with a few pages about the pebble's future, where in a few billion years it will perhaps join all the molecules on Earth as they are swept into the Sun. Maybe bits of it will be exploded out into cosmic dust that become part of a new solar system with

new planets. The speculation on the pebble's fate is similar to the mind-stretching understanding of what it has already been through. It is an astonishing journey, and Zalasiewicz has provided a valuable and detailed account of it, beginning to end.

One small pebble from the beaches of Wales is our guide through an odyssey that takes us from the beginning of time to the present day and beyond. This vicarious journey begins with the big bang that heralded the beginning of space and time, and explores the creation of the elements as they are forged in the furnaces of supernova explosions. We follow the elements and their journey through earth's complex geologic history to the creation of a single pebble on the beaches of Wales. Throughout the book Dr. Jan Zalasiewicz maintains a compelling wonder of the world around him. It brings back memories of the awe and excitement expressed by Dr. Carl Sagan as he explored the science of the universe. The book is factual, and entertaining with a sprinkling of wit and humor. It is a hybrid between a novel and a scientific journey through time. Imaginative metaphors and similes provide the reader with relevant mental images as the pebble moves through the geologic/biologic history of our planet. Dr. Jan Zalasiewicz's intellectual understanding of the nuances of technology, micropaleontology, stratigraphy, tectonics and geologic history provides incredible attention to detail throughout the book. There is perhaps a slight over indulgence on the life and history of the graptolites, but the reader can forgive this dalliance given that the author is a world renowned expert on these interesting, extinct organisms. A good read for someone with at least a college level background in physical and historical geology. Even the experienced geologist will appreciate some of the details that the author brings to light. As a teacher of general science and geology for 35 years, here was everything laid out in a new refreshing manner. It would make an excellent gift for your Geology/Earth Science college graduate this year. I thoroughly enjoyed it and will never look at a pebble on a beach in quite the same way again.

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