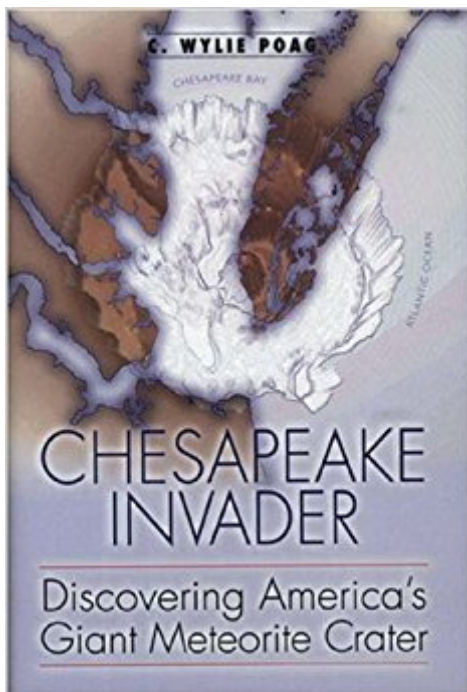


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# Chesapeake Invader



## Synopsis

Thirty-five million years ago, a meteorite three miles wide and moving sixty times faster than a bullet slammed into the sea bed near what is now Chesapeake Bay. The impact, more powerful than the combined explosion of every nuclear bomb on Earth, blasted out a crater fifty miles wide and one mile deep. Shock waves radiated through the Earth for thousands of miles, shaking the foundations of the Appalachians, as gigantic waves and winds of white-hot debris transformed the eastern seaboard into a lifeless wasteland. *Chesapeake Invader* is the story of this cataclysm, told by the man who discovered it happened. Wylie Poag, a senior scientist with the U.S. Geological Survey, explains when and why the catastrophe occurred, what destruction it caused, how scientists unearthed evidence of the impact, and how the meteorite's effects are felt even today. Poag begins by reviewing how scientists in the decades after World War II uncovered a series of seemingly inexplicable geological features along the Virginia coast. As he worked to interpret one of these puzzling findings in the 1980s in his own field of paleontology, Poag began to suspect that the underlying explanation was the impact of a giant meteorite. He guides us along the path that he and dozens of colleagues subsequently followed as--in true scientific tradition--they combined seemingly outrageous hypotheses, painstaking research, and equal parts good and bad luck as they worked toward the discovery of what turned out to be the largest impact crater in the U.S. We join Poag in the lab, on deep-sea drilling ships, on the road for clues in Virginia, and in heated debates about his findings. He introduces us in clear, accessible language to the science behind meteorite impacts, to life and death on Earth thirty-five million years ago, and to the ways in which the meteorite shaped the Chesapeake Bay area by, for example, determining the Bay's very location and creating the notoriously briny groundwater underneath Virginia. This is a compelling work of geological detective work and a paean to the joys and satisfactions of a life in science.

## Book Information

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## Customer Reviews

A senior scientist with the U.S. Geological Survey, Poag recounts the years of painstaking research that led to the identification of a 50-mile-wide meteorite crater formed 35 million years ago and now lying beneath newer rock and the waters of Chesapeake Bay. The chapters on the biological side of the research are a little weak, but the focus is on earth science and meteorology. Poag does a good job of making his text accessible to a lay audience and of explaining why it is important to study such phenomena as this crater. This book focuses on a specific site, but earlier volumes, for example, Bevan French's *Traces of Catastrophe* (Luna and Planetary Inst., 1998), Paul Hodge's *Meteorite Craters and Impact Structures of the Earth* (Cambridge Univ., 1994), and Kathleen Mark's *Meteorite Craters* (1987) have already covered the subject of meteorite craters in general. For academic libraries and larger public libraries.

AJean E. Crampon, Science & Engineering Lib., Univ. of Southern California, Los Angeles Copyright 1999 Reed Business Information, Inc.

In days of yore, 35 million days yore, a tremendous astral slap to earth's thin crust devastated the eastern seaboard of North America. Research geologist Poag reports the event like a 1950s news flash when he can, and like a conscientious scientist when he must. Out of the ether, in the late Eocene, hurtled a fabulous meteorite, 23 miles in diameter, traveling at 60,000 miles per hour, sizzling through the atmosphere, and slamming into the Chesapeake Bay. It kicked out supersonic shock waves, a hypercane (a super-hurricane with winds up to 500 mph) laden with white-hot rock debris, and tsunamis that could have measured in the thousands of feet. "The blast wave alone would have instantly incinerated all higher life forms within six hundred miles." It left a crater 50 miles wide, a mile deep, now buried under younger rock and the thin waters of the Chesapeake. All this Poag relates with clipped vibrancy, and it makes for riveting reading, as other such events could happen at any time. You can run, but you can't hide. Nor can Poag escape the more mundane aspects of his work for instance, explaining how he figured all this out. He tells that story by detailing the way he went about establishing a complete picture from fragmentary evidence. In this case, he combines examination of seismic samples provided by Texaco and core samples drilled by the government with an overview of evolutionary theory and rock principals (there are enough impact breccias and crystalline basements to keep readers on their geological toes). Poag also goes to great lengths to give practical justification for such research, pointing out how local subsidence is

influenced by the crater structure and how its briny reservoir may contaminate groundwater supplies. A light-handed tale of scientific exploration, fascinating as living theater, where the daily grind has a chance to reveal more cosmic thrummings. (16 maps, 60 halftones, not seen) --  
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This book is a treasure, I refer to it time and time again. The manner in which the book is laid out makes it a fluid read, from start to finish. The information that it contains is well thought out. There are diagrams that explain the nature of this crater in the Earth left behind by an ancient impact with something out of this world. The author dutifully gives credit to other researchers who notated the anomalies that they found while studying the Chesapeake, even though they did not understand full how the anomalies were created. This book is of interest to me because of the detailed evidence for a meteor impact in our distant past, that rocked the ancient East Coast permanently altering the topography. It is also interesting from a geological perspective, because this impact crater's evidence is hidden under the water of a truly unique estuary, cores samples and geologic detective work was employed to prove the case of the Chesapeake Invader. I am not sure that this book is still in print, so buy it when you can, its amazing. Don't let the book's publication date throw you, this book maybe even more relevant now than when it was first published. I consider it a scientific gem and I wasn't suffice reading the library's copy so I bought one of my own to re-read and share with my daughter.

As a resident of the Chesapeake bay region, I have been impressed by this wonderful book. I now can see the effect that the remains of the crater impact has had on my home area. As I drive from Gloucester to Mathews there is a very clear escarpment that follows the rim of the ancient crater which one can observe for several miles. I can see from my home on the York river the subsidence of the Mumford Islands which have virtually disappeared in the sixty years that I have lived there. The drinking water at my church at Ark Virginia is salty and almost unpotable as is much of the water in some Gloucester County and most Mathews County wells. For the first time all of the empirical evidence I have wondered about is made clear in simple understandable terms. Dr. Poage has written a fine book with great illustrations and a minimum of scientific jargon. If you love the Bay this book is a must read. Frederick Carter 2244 James Drive Hayes Va.

My location is within the effect of that "Invader"...almost pure iron located at Cape Charles. My water supply is acidic with high iron content. Even with 5K worth of filters, I cannot drink or make hot

teas\coffee.

The book begins with a series of seemingly disconnected geological puzzles and gradually knits the skeins together as the surprising cause - a marine impact by a massive asteroid more than 30 million years ago - reveals itself.

Very technical at times, but at times extremely enlightening and enjoyable. Students of geology and rock hounds will find this book fascinating

Does a great job of explaining the stratigraphy and paleo-water characteristics of the southern Chesapeake. An easy, very informative read.

Geology is a fun science and part of the fun is due to the historical nature of much of geology - geology is all about solving ancient mysteries. Chesapeake Invader by C. Wylie Poag excellently describes the solving of one such geological mystery. Starting in the middle of the 20th-Century, geologists began to find unusual rock formations in coastal Virginia that didn't have a garden variety geologic explanation. The plate tectonics revolution, which provided so many solutions to so many geologic conundrums, didn't unravel these weird East Coast rocks. This mystery had to wait until humans wrapped their minds around one of the last great discoveries of geology, the realization that asteroid and comet impacts are an important force in our Solar System and that the Earth is not immune from the devastation of these impacts. Poag gives the reader a good glimpse of how geologists [and scientists in general] go about solving problems. Folks who enjoy learning about impacts, but are tired of reading about the end of Cretaceous impact, should enjoy Chesapeake Invader as a welcome change of pace. [If you haven't read enough about the end of Cretaceous impact, I would highly recommend *The End Of The Dinosaurs* by Charles Frankel and *Night Comes To The Cretaceous* by James Lawrence Powell.] I enjoyed going along for the ride while C. Wylie Poag solved this great geological mystery and I recommend that you also take this ride.

The book presents an interesting first-person study of how the 53 mile-wide Chesapeake impact structure was identified. The 40-million year-old feature is not apparent from surface observation, and its unmasking forms this classic tale of scientific detective work at its finest. The author is not hesitant in issuing praise to those who knew some atypical feature was present, but who lacked the means or opportunity to categorically identify the structure for what it was. In this respect, the

narrative is delightfully free of much of the acrimony that has marked so many of the works about the Chixulub dinosaur killer. The book's text is highly readable and explains in an unpatronizing manner many of the tools and concepts used in solving this great scientific puzzle. Also, the book's author doesn't allow himself to be bogged down in minutiae, an all-to-easy peril in a work of this nature. The book is recommended to any teen or adult with a limited background in science, and to any and all persons with an interest in earth science or the scientific method in action. I liked it very much. Enjoy.

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