Pterosaurs: Natural History, Evolution, Anatomy
For 150 million years, the skies didn’t belong to birds--they belonged to the pterosaurs. These flying reptiles, which include the pterodactyls, shared the world with the nonavian dinosaurs until their extinction 65 million years ago. Some pterosaurs, such as the giant azhdarchids, were the largest flying animals of all time, with wingspans exceeding thirty feet and standing heights comparable to modern giraffes. This richly illustrated book takes an unprecedented look at these astonishing creatures, presenting the latest findings on their anatomy, ecology, and extinction. Pterosaurs features some 200 stunning illustrations, including original paintings by Mark Witton and photos of rarely seen fossils. After decades of mystery, paleontologists have finally begun to understand how pterosaurs are related to other reptiles, how they functioned as living animals, and, despite dwarfing all other flying animals, how they managed to become airborne. Here you can explore the fossil evidence of pterosaur behavior and ecology, learn about the skeletal and soft-tissue anatomy of pterosaurs, and consider the newest theories about their cryptic origins. This one-of-a-kind book covers the discovery history, paleobiogeography, anatomy, and behaviors of more than 130 species of pterosaur, and also discusses their demise at the end of the Mesozoic. The most comprehensive book on pterosaurs ever published. Features some 200 illustrations, including original paintings by the author. Covers every known species and major group of pterosaurs. Describes pterosaur anatomy, ecology, behaviors, diversity, and more. Encourages further study with 500 references to primary pterosaur literature.

Book Information

Hardcover: 304 pages
Publisher: Princeton University Press (June 23, 2013)
Language: English
ISBN-10: 0691150613
Product Dimensions: 1.2 x 9 x 11.2 inches
Shipping Weight: 3.3 pounds (View shipping rates and policies)
Average Customer Review: 4.7 out of 5 stars See all reviews (54 customer reviews)
Best Sellers Rank: #258,814 in Books (See Top 100 in Books) #1 in Books > Science & Math > Biological Sciences > Paleontology > Paleozoology #34 in Books > Science & Math > Biological Sciences > Animals > Dinosaurs #37 in Books > Science & Math > Biological Sciences > Animals > Reptiles & Amphibians
Pterosaurs, flying reptiles from the Mesozoic, have always taken a back seat to dinosaurs in terms of popular books. I own three books on pterosaurs: *The Illustrated Encyclopedia of Pterosaurs* by Peter Wellnhofer from 1991, *The Pterosaurs: From Deep Time* by David Unwin from 2005. "Pterosaurs" by Mark Witton from 2013. These are all excellent books. The last is the subject of today's review. You should not confuse the Witton book "Pterosaurs" with a book from 2012 "Pterosaurs: Flying Contemporaries of the Dinosaurs," of which Witton is one of three coauthors. By the way, the first popular book on pterosaurs "Dragons of the Air" (1901) by H.E. Seeley is available as a free e-book at [...]. Witton is at the School of Earth and Environmental Sciences at the University of Portsmouth. He is a freelance artist as well as a paleontologist and has a blog at [...] . I will start with a little background on pterosaurs, which will make further discussions more understandable.

Pterosaurs are the first vertebrates that learned powered flight. Compared to most vertebrates, pterosaurs tend to have extremely large heads and extremely small legs relative to their torsos. Many pterosaurs had a large ridge of bone above their dorsal vertebrae called the notarium, to which the scapula sometimes articulated. Bird wings are made of feathers attached to their (relatively short arms). Bat wings are made from skin stretched between the body and between five elongated fingers. Pterosaur wings were made from skin stretched from the body to an enormously elongated fourth finger, which is unique among vertebrates.

Before reading this book I knew almost nothing about pterosaurs but now I see them for the amazing, ecologically diverse creatures they were--an experiment with vertebrate flight that produced all sorts of interesting parallels with birds. I'm a professional paleontologist, so for me the discussion of bones and taxonomy is no barrier. But like many readers, I expect, the most interesting parts of this lovely book lie in the discussions of paleoecology, the controversies in 'pterosaurology' and the fuzzy, still emerging vision of an alternate world of flying animals. Witton is a good writer--witty, a bit informal, and an expert with a skill at telling a story well. For me, it is a perfect combination of wit and fact; I can gloss over the bone names and inside-controversy if I want to glean the meat of how the animals worked and what their world was like. His descriptions of these animals as living things are not particularly technical and should be accessible to an general reader. People who know something about birds will likely particularly enjoy this book. But, increasingly as I read each chapter while brushing my teeth or sitting on the pot, I have taken to absorbing it all. Indeed, I have taken to comparing this book very favorably to other works of this kind, such as Long's "The Rise of Fishes" (much more taxonomic than it should be) and similar...
books that survey major groups. Three cheers for Mark Witton! Witton is also a good illustrator, and has put flesh, color, and speculative reality on his pterosaurs. The book is illustrated with lots of paintings, some of which are a bit more artistic than fully informative, but which give you a sense (in an `informed-speculation' way) of what these animals were like as living things.

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