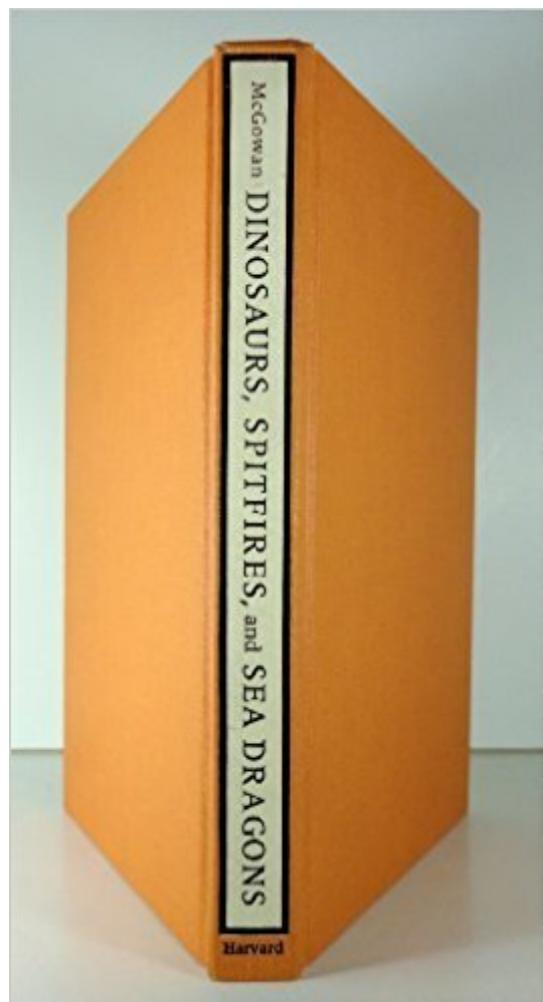


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# Dinosaurs, Spitfires, And Sea Dragons



## Synopsis

Christopher McGowan sets out to solve some of the enduring mysteries about dinosaurs and other prehistoric reptiles. He makes fascinating comparisons between living and extinct animals while presenting topics that range from gigantism to intellect. In addition to exploring the natural history of the Mesozoic Era, McGowan draws on science and engineering concepts to explain curiosities such as the similarities between the aerodynamics of pteranodons and Spitfire planes.

## Book Information

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## Customer Reviews

You don't have to be an eight-year-old to fall in love with Dinosaurs, Spitfires, and Sea Dragons...Fun, scholarly, imaginatively written and wondrously anecdotal, this is the perfect companion for eight-year-olds of all ages. (San Francisco Chronicle)At last, a grown-up's book about dinosaurs. This beautifully illustrated work, written by a literate scientist for an educated lay audience, shines a bright new light into the darkness of the 150-million-year reign of the dinosaurs...An altogether captivating book. (John Wilkes Los Angeles Times)[A] wonderful book...Ultimately the great virtue of this book is that it faces down our instinctive desire to leap from bone to biology and in so doing produces a particular kind of wisdom which transcends its subject matter. For implicit in how McGowan and his kind have approached the dinosaur is a point of view humans almost never assume about themselves. How much are we pure physics? Our walks, our musculature, our electric nerve impulses?...Delicious...In addition to its intellectual strengths, for a book that is often technical, Dinosaurs, Spitfires and Sea Dragons is extremely well-written...The

lovely word 'classic' is already engraved upon it. But be advised: This is a science classic. It requires close reading. It demands not just that we approach, but that we be prepared to learn. But is not that the lesson hiding in our fascination with the dinosaurs in the first place? (Stephen Strauss Toronto Globe and Mail)The net effect of [this] book is to make one extremely jealous of anyone lucky enough to take Professor McGowan's class in evolutionary biology at the University of Toronto...The problem with the several dinosaur controversies is that merely to argue about them requires an appreciation of many aspects of Newtonian physics, aero- and thermodynamics and both applied and theoretical geophysics. Since one wishes to be read by more than the world's half-dozen genuine polymaths, one must explain everything along the way, and that is the stunning success of this book. It is a text that can be read with profit by a teen-ager willing to learn a few new words and by a professional in the field of paleontology. (M. R. Montgomery Boston Globe)

Dinosaurs are so popular that we often neglect the even more fascinating reptiles of their time that evolved in the most unreptilian habitats of sea (ichthyosaurs, plesiosaurs, and their allies) and air (pterosaurs). McGowan, world's leading expert on ichthyosaurs, and a fine writer as well, tells their wonderful story better than ever before--and doesn't neglect the more conventional dinosaurs either. (Stephen Jay Gould)

Wonderful book for anyone who likes dinosaurs, and is ready to go beyond a big book o' names and pictures to find out HOW we know what we know about them. Goes into the physics and engineering involved in skeletal structure, implications of gigantic scale, fluid mechanics and aerodynamics as they apply to ichthyosaurs and pterodactyls, how fossils are made and the limitations that puts on how little we can possibly know about the behaviour of the actual living animals. For instance, instead of simply posing the question, Were dinosaurs warm-blooded?, McGowan explains homeothermy, endothermy, and high metabolic rate, and the differences between them; the difference between aerobic and anaerobic metabolism, and why a lizard can never get in better shape no matter how much it works out. All the mechanical explanation is done simply enough for me (the most liberal of liberal arts majors) to follow, and with a wonderful sense of humour. (The "Spitfires" in the title comes from comparing and contrasting the wing aspect ratios of the Spitfire I and the Messerschmitt 109 E-1 in the chapter on pterosaurs, btw.)Now, one might ask do we need THREE chapters on ichthyosaurs? Well, McGowan is the world's leading expert on ichthyosaurs, I guess he needed to write them. I know that the mainstream population sees continued fascination with dinosaurs into adulthood as somewhat dorky; to them I say, read this

book and learn how much more there is to them.

You already know about the first seadragon, although you probably do not know you know. Mary Anning, a girl of 11 or 12, found the first ichthyosaur to be recognized as an ancient reptile on an English beach in 1810. The tongue-twister "she sells seashells down by the sea shore" refers to her career as the first person to establish a commercial business in fossils as fossils (rather than as "dragons' teeth," which have been sold by Chinese druggists for centuries; they grind them to powder). Although nowadays the examination of fossils is a recondite subject, the basic principles of the subject are rather easily understood -- and very commonly misunderstood. Christopher MacGowan, curator of vertebrate paleontology at the Royal Ontario Museum and an ichthyosaur specialist, says that much of the information specialists feed to the public about dinosaurs and their allies is far overstated. 'We can begin to understand extinct animals only by understanding living ones,' writes MacGowan. And we can never understand any extinct animal as well as we can know a living one. Thus arguments over whether some or all dinosaurs were warm-blooded or did or did not care tenderly for their young are usually excessive. MacGowan's approach is to ask what, in principle, a particular animal could have done, based on engineering constraints. Thus a comparison to a Spitfire fighter and its World War II opponent, the Messerschmidt 109, illustrates his inquiry into how well a pterosaur could have flown -- or perhaps merely glided. 'Dinosaurs, Spittires & Seadragons' is an engaging approach to the endlessly fascinating topic of dinosaurs (and ichthyosaurs, pterosaurs, plesiosaurs and the first birds), because MacGowan invites the reader to understand these animals at the same level the experts do -- or, he implies, sometimes don't. The sophistication of popular books about paleontology has evolved tremendously since the days of the adventurous but simplistic tales of Roy Chapman Andrews and his dinosaur eggs from the Gobi Desert in the 1920s. MacGowan pioneered in this elevated approach, for which all dino fans can be grateful. This 1991 book is a revision of his 1983 'The Successful Dragons.'

I thoroughly enjoyed this volume even though I am not really a dinosaur enthusiast. A little old (c. 1992), it is still a very readable and comprehensive text on the paleontology of dinosarus. The author covers recent findings regarding dinosaur skeletal structure and what it tells of lifestyle, their modes of locomotion and what it implies of thermoregulation, etc. The book would definitely be a valuable first line undergraduate textbook on the subject and on paleontology as a field of research. It also might interest an enthusiastic younger student even to the level of junior high as long as he or she was a reader with a sophisticated vocabulary or one with some knowledge of the discipline

already.

This book is a bit different. It examines the extent of what we know, or do not know, and on the basis of what evidence. The discussion of what we can tell from teeth, or marks on the bones, etc is the meat of the book. What we can tell with high confidence and what we cannot! Very interesting indeed, and he is not afraid to say "look, this is slender evidence for such and such a theory." I really liked this approach.

This book is ideal for paleontology students or avid dinosaurphiles. Math is used extensively to demonstrate how dinosaurs and other prehistoric creatures walked, ran, swam, flew, etc. The book gives a wonderful glimpse into how the hard science of paleontology is performed, instead of glossing over the math like many other popular books do. Once you finish this book, you will never look at dinosaurs the same way again.

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