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Book Review

NEPTUNE'S ARK: FROM ICHTHYOSAURS TO ORCAS. David Rains Wallace. University of California Press, Berkeley, 2007. ISBN 978-0-520-24322-4, 282 pp.

David Rains Wallace has made a career out of writing "natural history" books in the classical, 19th-century sense of the term: popular, well-written books that sprinkle a bit of hard science here and there with anecdotes about the scientific discoveries, tales and stories that are connected with the science, and a bit of his own personal musings and poetic descriptions of events he has witnessed. They are fun to read and sometimes very moving, as well as informative. Some of his works have been acknowledged by the John Burroughs Medal or honored as a New York Times Notable Book because they uphold the classical tradition of nature writing with real scientific content as well. He has tackled the mysteries of northern California (*The Klamath Knot*), evolution in Central America (*The Monkey's Bridge*), the feud between paleontologists E. D. Cope and O. C. Marsh in the late 1800s (*Bonehunter's Revenge*), and his unorthodox account of the evolution of Cenozoic mammals (*Beasts of Eden*).

Neptune's Ark tells the tale of the evolution of marine vertebrates, focusing especially on those from the northwestern Pacific Coast of North America, which is famous not only for its spectacular extant marine mammals but also for the many amazing fossil discoveries in western North America that have illuminated our understanding of marine vertebrate evolution. Like all his previous books, the writing is engaging and even lyrical in places as he describes witnessing these amazing creatures up close. Interlaced with these accounts of his personal experiences are his descriptions of how their ancestry was deciphered, and how some of these amazing fossils came to be found in the first place. In this respect, the book will be a bit of a struggle for anyone who is not a paleontologist working on marine vertebrates. It can be very difficult to paint a vivid word picture of an incomplete fossil, and give the non-paleontologist reader a sense of what it looked like and how it lived (even though the occasional illustrations by Ken Kirkland are excellent). How does one describe the "oyster bear" *Kolponomos*, whose postcranial skeleton is very incompletely known, or the early desmostylian *Behemotops*, known only from jaw fragments? Although Wallace tries his best, sometimes we just don't know that much about these things. In many cases, Wallace is prone to highly speculative accounts about how these animals lived and why they were or were not found in certain places. He often fills in the gaps in the fossil record in a way that few paleontologists would find acceptable today. Having worked on many of these same Pacific Coast Cenozoic outcrops myself for many years, I know how scarce these fossils are, and I would not put too much emphasis on the absence of a given taxon from a region at any particular time. Marine mammal fossils are generally quite rare. The few fossils we have are lucky accidents, and absence of evidence is NOT evidence of absence!

One of the main threads of this book is the strange career of Doug Emlong, a brilliant but eccentric man who single-handedly collected more of these amazing fossils than any person in history. His discoveries were the key to deciphering the origins of seals, desmostylians, and many groups of whales. But he also battled mental problems, and committed suicide when he was still in the prime of his life. A photograph of Emlong would have been a nice touch since he has been honored by many paleontologists since that time.

Although Wallace has done a lot of homework interviewing the major researchers in the field, his text was apparently not peer-reviewed, and many errors (small and large) have crept in. Some should have been caught in copy editing (for example, *Aysheaia* is misspelled consistently in Chapter 1, yet spelled correctly in the index). Most of the errors were ones that a competent paleontological reviewer would have caught. This was a problem in his previous book, *Beasts of Eden*, as I noted in my review (Prothero, 2005). Some of the errors that I found in this book, for example, were that chalicotheres were not related to horses but to tapirs and rhinos (p. 144); likewise, entelodonts are distantly related to living pigs, contrary to what Wallace states (p. 144); Koch's "Hydrarchus" whale bones come from Eocene outcrops, not Cretaceous outcrops, in Alabama and Mississippi (p. 45); Ruben A. Stirton was a paleontologist at UC Berkeley, not the American Museum of Natural History (p. 99); and so on.

More serious, however, was the fact that many crucial recent discoveries are not mentioned at all. For example, he concludes his chapter on sirenian

evolution with the poorly known *Prorastomus* but does not mention the amazing discovery of *Pezosiren*, the Eocene manatee known from a nearly complete skeleton from Jamaica with four limbs and feet rather than flippers. It was reported by Daryl Domning in 2001, but even though Wallace interviewed Domning for this book, *Pezosiren* is not mentioned. Further, during his discussion of desmostylian diet, Wallace fails to mention recent work (Clementz et al., 2003) from isotopes in the teeth that demonstrates that desmostylians were not mollusk-eaters but fed on aquatic plants. Since he mentions several other discoveries that were only reported in recent abstracts, it is disappointing that he missed this.

All in all, however, the book is an enjoyable read for the layperson and scientist alike as long as they don't use every detail in the book as a final scientific source for a particular fact but, instead, track down the original citation and the primary literature.

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Literature Cited

Clementz, M. T., Hoppe, K. A., & Koch, P. L. (2003). A paleoecological paradox: The habitat and dietary preferences of the extinct tethythere *Desmostylus*, inferred from stable isotope analysis. *Paleobiology*, *29*, 506-519.

Domning, D. P. (2001). The earliest known fully quadrupedal sirenian. *Nature*, *413*, 625-627.

Prothero, D. R. (2005). Review of *Beasts of Eden* by David Rains Wallace. *American Paleontologist*, *13*, 32-33.