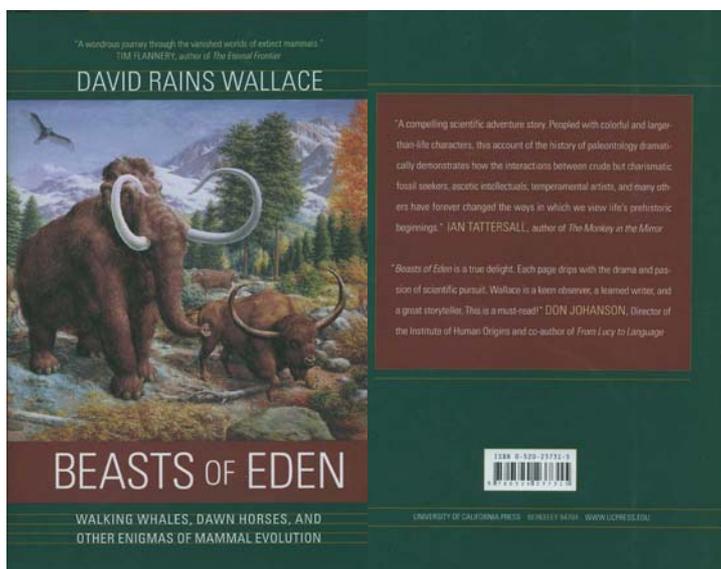


Wallace, D.R. 2004. *Beasts of Eden. Walking whales, dawn horses, and other enigmas of mammal evolution.* – Berkeley/Los Angeles/London, University of California Press

Book review by J.W.F. Reumer



Beasts of Eden is a remarkable book. Its subtitle ‘Walking whales, dawn horses, and other enigmas of mammal evolution’ only barely covers the real contents of the book, which could be described as three-books-in-one. In the first place, Wallace presents a vivid description of one of two magnificent mural paintings present in the Peabody Museum of Yale University. There, the artist Rudolph Zallinger painted two enormous murals: ‘Age of reptiles’ (on which he worked from 1943 through 1947) and ‘Age of mammals’ (executed two decades later, during the 1960s), depicting the evolution of mainstream vertebrate life during the Mesozoic and the Cenozoic ages. I have never seen the murals myself but, after having read the book, visiting them is a desire as strong as other people have wishing to see the Egyptian pyramids, the Borobudur, or Naples. See Zallinger and die, so to speak. Until then, I have to do with the book. It starts with scant information on Zallinger himself, who Wallace compares with Michelangelo in artistic importance. It would then have been interesting to read somewhat more about Zallinger than only the dates of birth and death, and the fact that he was “born to Siberian refugees”. Where was that? In Siberia? In the US? Why was the family in refuge? Given his year of birth, 1919, it seems plausible that the family had fled for the Bolsheviks, but no information at all about these circumstances is provided. This and perhaps a complete reproduction of the ‘Age of mammals’ mural itself are really the only things I missed. There are low quality black-and-white reproductions of small parts of the mural interspersed through the text, but the overall picture regrettably remains to be seen *in vivo*.

Then the book is about two other major subjects: about mammalian evolution, and about the history of the people who studied the vertebrate bones. By mixing these three elements, a description of the mural, stories of fossil mammal researchers, and the evolutionary history of the mammals themselves, the book becomes unputdownable. It starts with the early days of European palaeontology, with Cuvier and the bones of the Montmartre gypsum quarries, Richard Owen and the British involvement in South American palaeontology. The scene then quickly shifts to America, where Cope and Marsh started to set the stage for decades to come. After them came Osborn, Wortman, Matthew, Brown, Colbert, Simpson, and plenty of other demigods of our science. All are described by Wallace with ample indications as to their character, their personal tribulations with unhappy marriages, divorces, feuds, suicides and early deaths, and their contribution to vertebrate palaeontology. Of course the beasts themselves are the backbone of the book. From Cuvier’s *Palaeotherium* to the latest developments in early primates and Mesozoic mammals, the animals are described in vivid terms, as if *Purgatorius* could still be expected alive in Central Park or the Jardin des Plantes. A subject I found most rewardingly described is the evolution of Mesozoic mammals. We all know, but somehow refuse to realise, that the Cenozoic only spans one third of mammalian existence: two thirds of mammalian history took place in dinosaur times. The idea that mammals could only thrive due to the demise of the reptilian giants is too easy a notion. There were many mammals before the Chicxulub event: insectivores, omnivores, carnivores, even herbivores. The K/T boundary extinctions perhaps only allowed the mammals to become larger than previous badger-size and to diversify into niches formerly occupied by others. This notion immediately points to the importance of small mammals: just as the term ‘dinosaurs’ is generally seen as synonym for giants (*T. rex* and

the like), are fossil mammals most readily synonymised with mammoths, buffaloes, and woolly rhinos. The ecological importance of small mammals for such aspects as seed dispersal, pollination, insect removal, soil turn-over, or simply being prey, can doubtlessly be traced back to the Mesozoic. I found this part of the book, this looking towards the misty past of early mammals, most interesting.

If there should be criticism only one mistake is to be mentioned. Herbivore evolution is tightly linked to vegetational changes. One important change is the shift from predominantly C3 plants to predominantly C4 plants in the northern hemisphere. C3 and C4 denote the number of C-atoms in the sugars that are the first products of photosynthesis. Unfortunately, Wallace talks about different 'carbon isotopes' C3 and C4, while C3 and C4 have nothing to do with isotopes. (¹²C and ¹³C isotopes can be used in palaeotemperature reconstructions, but that is quite another matter). But apart from this single flaw, the book is absolutely recommendable. While reading the book, I let my coffee get cold on several occasions, which is quite a compliment. Buy it!

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