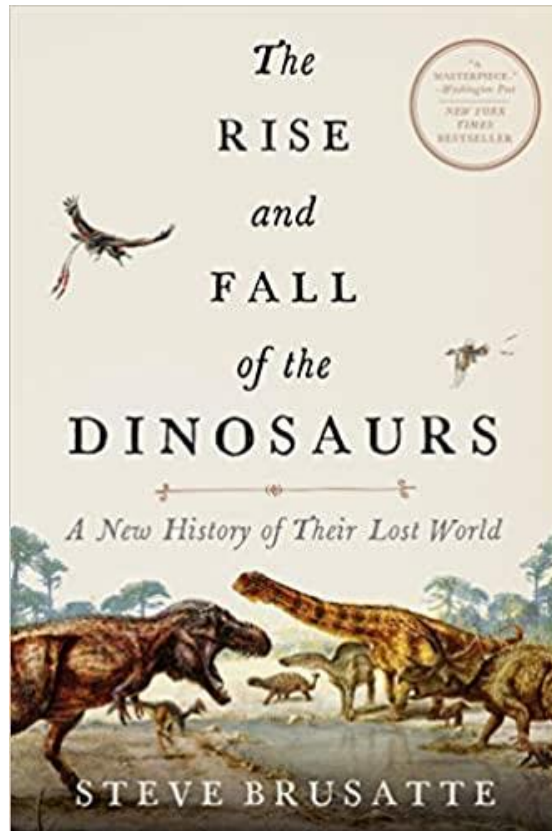




The Rise and Fall of the Dinosaurs: A New History of Their Lost World

Steve Brusatte

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404 pp.

It seems somewhat strange to imagine that it was not until the 1970s that evidence started being brought forward in earnest to demonstrate that birds are descendants of dinosaurs. That this must be the case seems to be a straightforward fact with which it is scarcely worth quibbling. The evidence is very clear, of dinosaur fossils gathered over the centuries demonstrating their evolution and the development of the characteristic feathers. Yet this realization, together with a number of others related to the realm of the dinosaurs, has only become apparent because of a revolution in scientific practice over the past 50 years. We are familiar with the idea of the dinosaur hunter carefully uncovering bones in a remote location and then also familiar with seeing those bones being displayed for inspection in a museum. What is less obvious, to the outside observer at least, is that bone collection has been successfully conducted for such a long time that museum warehouses became replete with them and, having been catalogued, they were subsequently mostly ignored. It was not until the advent of digitalization within scientific research that systematic mapping of the dinosaur world and quantitative analysis of different specimens could take place. Steve Brusatte, the author of this reasonably comprehensive and certainly very readable history of dinosaurs, chronicles his own contributions to this process using tools no more complex than Microsoft Excel. Using this program, he was able to create a database that captured on a systematic basis the various physical differences between similar species made possible by the personal inspection by the expert eye

(his own). Having created the database, Brusatte is able to pass it on to a statistician to conduct the analysis that demonstrates the nature of the relationships between the different specimens and, hence, their families. This is just one example of the bridge that the author represents between the heroic and not-so-heroic collectors of the past – for every idealistic dinosaur-lover there was a hard-eyed mercenary with a desire for the money offered by ambitious would-be owners unwilling to risk the travail – and the hyper-connected world of contemporary scientific research. He includes numerous character portraits of significant figures in dinosaur archaeology, often shown through the lens of a personal relationship, while acknowledging that while these people (and he includes himself in this category) are the real heroes, the value of their work can only really become evident through the efforts of the lab-based specialists. One might even represent this as a form of the ageing of the academic: the young researcher is dynamic and energetic and bounds from research site to research site, prominent in the field and making headlines; but as the academic ages and takes on the responsibilities of committee work, graduate students, public service and so on, that same dynamic figure spends time assimilating and reinvigorating the work of others, adding value to it no doubt but rarely able to return to the field and less able to contribute once there. The potential for mental disorder is obvious.

It is certainly ambitious to tell a 200 million years-long history within a single volume but it is one which Brusatte has managed well (although I find his use of Americanisms as a form of cultural reference somewhat provincial). He begins with the struggle with the Saurosuchids, the proto-crocodylians which seem to have been so successful that they have scarcely changed since. Then he moves on to the rise of the charismatic megafauna with which we are most familiar, the brontosaurus, the stegosaurus, triceratops and, above all, tyrannosaurus rex. In fact, this last-named was present only in the western part of North America (by the time they emerged the continents had settled down into the pattern we are accustomed to seeing today); in other parts of the world, alternative hierarchies of giant apex predators predominated. During this section, he is able to shine further insights that have been gained by recent scientific examination of the fossils, such as how some sauropods could become so big and that tyrannosaurus rex was a sprinter in its youth and a stocky heavy weight as an adult and compensated for this change by hunting in multi-generational packs. Further, these lizard kings were not stupid as they are sometimes criticized as being by those who confuse history with teleology; they were, instead, complex problem-solvers with a level of intelligence comparable to that of a chimpanzee. Not only that but it had rudimentary feathers – for warmth – which would go on to characterize the birds that are our companions today. The evolution of flight among the dinosaurs is another story within the overall history that is told with breathless excitement as important gaps in knowledge are in the process of being filled by an international partnership of dinosaur enthusiasts, professional and amateur. Brusatte's love of the subject provides an infectious and vicarious joy in the process.

If it had been possible, I would have liked to have seen some treatment of what took place in the oceans and rivers of the prehistoric world but I assume this would have increased the length of the book beyond what a non-specialist reader would consider feasible and, as a non-specialist, I have little idea of the relationships between land and sea in this respect. The book, in the edition I have, extends already to 404 pages and more than 50 of these are devoted to acknowledgements, a lengthy discussion of the sources and the index. There are no footnotes and a number of the dinosaurs included have only walk-on parts and it is not always obvious where new information about them might be found (of course the internet provides clues). However, these are minor concerns; this is a very good account of dinosaurs told in a way that draws the reader into the process of discovery and suggesting some of the reasons why the story is so exciting.

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