BOOK REVIEWS

Sepkoski, D. & Ruse M. (eds). 2009. The Paleobiological Revolution. – Chicago, The University of Chicago Press

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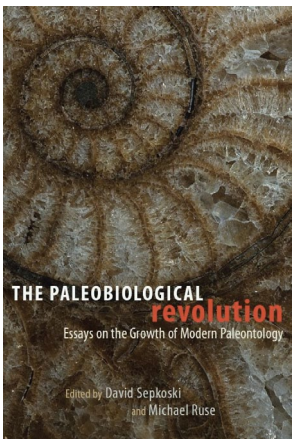

The history of palaeontology tends to focus on Darwin, Cope and Marsh, or if someone is particularly scholarly, the Burgess Shale. But with the exception of studies on Darwin, few of these ever delve deeper in the broader meaning of the history of palaeontology in any Kuhnian paradigm shifting nature. That may be because palaeontology, despite all the excitement over new technologies and integrations with developmental biology, morphometrics or cladistics, is still largely dependant on classical methods – one needs to find and dig up the fossils, then identify and describe them, before much else can be done with them. Palaeontology had remained something of a "stamp-collecting" science, at least on a procedural basis as it was perceived, until the development of what most would call paleobiology. This book, edited by David Sepkoski and Michael Ruse, is a chronicle of the history of how paleobiology got "to the high table" in evolutionary biology. Perhaps most impressive, these editors managed to get these chapters together so cohesively, and by many of the original authors of seminal papers in what started in the early 1970s, including Raup, Bambach, Hallam, Sepkoski, and Valentine. It is unfortunate that Steven J. Gould and Jack Sepkoski and Tom Schopf did not live to contribute to this, but it is clear from the repeated focus on these individuals in the chapters by others that their influence is omnipresent despite their lack of authorship here.

The book is broken down into three parts: Part I, Major Innovations in Paleobiology; Part II, The Historical and Conceptual Significance of Recent Paleobiology; and Part III, Reflections on Recent Paleobiology. These groupings are seemingly arbitrary, as each group of 8-9 chapters are a mix of personal reflections, historical treatises, and conceptual reviews of a number of

aspects of paleobiology, including biomechanics, biogeography, and groundbreaking discoveries (such as the Burgess Shale and Ediacaran faunas, earliest vertebrates, and the nature of conodonts). But primarily most of these chapters center on the growth of paleobiology as it effects evolutionary theory, and how the work of a particular group of people in the 1970s and 1980s (Sepkoski, Bambach, Raup, Valentine, Eldridge, and Gould) led to paleontology getting to the "high table" of evolutionary biology. Many of these chapters focus on the history and impact of a handful of highly influential papers and people, in particular the "Consensus paper" (Sepkoski, et al., 1981), "Punk-eek" (Eldredge & Gould, 1972) and Gould himself. Though I would love to see a second volume of such a book that focuses equally on paleobiological methods such as biomechanics/functional morphology, paleoecology, paeopathology, evo-devo, and paleodemography, among other types of research that Simpson would have referred to as "gamma level taxonomy" (Laporte, 2000, Simpson, 1944), this collection of essays is an extraordinary account of the birth and growth of paleontology as a serious discipline of science. Perhaps this hopeful second volume may be considered as a history of the generation after the one conveyed here, one of the 1990s, 2000s, and beyond. As it is, this collection is an important part of the record of our science that can be found nowhere else and should stand as a model for the potential importance of what a few people can do, and inspire us to recognize the same in current scientists, including those with unpopular ideas.

More than any other history, this book has inspired my own research and reading interests to take a broader view of the place of my own work in the scope of the world and its meaning to evolution. This is perhaps because this mix of authors, in their variety of approaches from personal and low-key to technical, discussing complex concepts and theory, encourage me, and I suspect you as a reader, to see how every aspect of paleontological work is part of something bigger. Despite the minutia of what you and I do, every one of the fossils we study is important to the story of life and represents the same evolutionary processes that these clever minds unravelled. Whether or not the fossils, or even just the samples you or I are studying are particularly appropriate for answering these questions is up to you and I to figure out (which is, after all, the hard but fun part of it all, no?). But in the end, these authors demonstrate that these complex questions and ideas are the acts of a few people seeing that there is meaningful data in the record of life, and that paleontologists can, and should be, empowered to sort out what that data means.

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