histories of various past slides. The Foreword also asserts that 'the venue of the symposium at Santorini provided a unique incentive to present various case histories. . .around volcanic islands'. Maybe so, but it only seems to have led to two short papers, one on Santorini itself and the other just across the water at Milos Island.

In other words, the book's content has fallen some way short of the laudable aspirations of the conference. It is little more than a compilation of conference papers, a snapshot of where things are in this field: work in progress.

A. J. Maltman

PROTHERO, D. R. 2006. *After the Dinosaurs. The Age of Mammals*. xvi + 362 pp. Bloomington, Indianapolis: Indiana University Press. Price US $39.95 (hard covers). ISBN 0 253 34733 5.
doi:10.1017/S0016756808004433

Good books reviewing the Cenozoic are few and far between, and in *After the Dinosaurs*, Donald R. Prothero has succeeded in producing what might be the first well-rounded, modern review of the biological, geological and climatological history of the last 65 million years. The volume is very well illustrated and written for the non-specialist, though even seasoned veterans should find it a useful compilation.

Special attention is given to areas where interpretations and ideas have recently been revised or augmented: Prothero provides extensive coverage of the remarkable greenhouse conditions of the early Eocene, the middle–late Eocene extinction event, and the Oligocene transition to 'icehouse' conditions. Much of the coverage here of the tempo and possible causes of these events will be new to people who don't specialize on the Palaeogene. His sceptical coverage of the catastrophic mass extinction scenarios sought to explain events in the Late Cretaceous and Eocene present the case for gradualism well.

Particularly novel and compelling is his well-argued chapter on how the rise and fall of human civilizations and cultures have been tied to climatic events. The Holocene Climatic Optimum of 6000–7000 years ago saw the rise of the great civilizations of Egypt, Mesopotamia, India and China, and the Subatlantic Deterioration of about 2500 years ago, the Medieval Warm Period of 2000–700 years ago, and the Little Ice Age of 450–150 years ago can all be linked to cultural events and the changing fortunes of different societies. Rather than being the inevitable result of our intelligence, a good argument can be made that the rise of human civilization owed itself to fortuitous timing. The book ends with a summary of modern trends in biodiversity and habitat loss, and leaves us with a depressing, but absolutely realistic, look at the future.

I will admit that I expected this book to be mostly about fossils mammals – and indeed you might get this impression given the artwork on the cover – and thus more like an updated version of Bjorn Kurtén's *The Age of Mammals*. Fossil mammals do receive a considerable amount of discussion, but many groups (particularly those that are particularly interesting and/or charismatic) are only mentioned in passing, and for details you'll need to go elsewhere. I noted a few questionable or incorrect statements about fossil mammals: *Eurotamandua* is described as an anteater (the evidence marshalled in support of this is suspect, and the affinities of this taxon probably lie elsewhere), and the diminutive Paleocene proboscidean *Phosphatherium* is inadvertently referred to as *Paschatherium* (there is a Paleocene mammal called *Paschatherium*, but it's a hyopsodontid, not a proboscidean).

A good selection of field and specimen photos is included, and the book is very well illustrated with both black-and-white and colour reconstructions of fossil mammals. While there are clearly some very talented artists producing some excellent reconstructions of fossil mammals, there remains an awful lot of ground to cover: many of the pictures that show some of the obscure animals date to the first few decades of the 20th century, among them Robert Bruce Horsfall's pictures from Scott's 1913 *A History of Land Mammals of the Western Hemisphere*.

As with so many of the Indiana University Press books, it is unfortunate that the editing in this volume is not so hot, and various typos and other errors have slipped through the cracks. While, as mentioned above, the author appears to have gone to great pains to include as many illustrations as possible, some pictures are of truly appalling quality, the commonest problem being that they are far too dark. Several images look like they've been hurriedly scanned from their original sources, and the text on the other side of the figure can still be seen. Poor image reproduction seems endemic to Indiana University Press and, given the many times it's been commented on by reviewers, you'd think that they might have sorted this out by now.

After the Dinosaurs is an excellent and enjoyable review that should be widely promoted by those who study, or teach about, the Cenozoic, or geological history in general. The author has produced an accessible work that both reviews our current state of knowledge, and (with a bibliography exceeding 30 pages) acts as a good introduction to the literature.

Darren Naish

References

KURTÉN, B. 1972. *The Age of Mammals*. New York: Columbia University Press, 250p.
SCOTT, W. B. 1913. *A History of Land Mammals of the Western Hemisphere*. New York: Macmillan, 693p.

GUBBINS, D. & HERRERO-BERVERA, E. (eds) 2007. *Encyclopedia of Geomagnetism and Paleomagnetism*. xxvi + 1054 pp. Berlin, Heidelberg, New York: Springer-Verlag. Price Euros 399.99, SFr 695.00, US $499.00, £307.00 (hard covers). ISBN 9781 4020 3992 8.
doi:10.1017/S0016756808004469

This is major work whose aim is to provide a comprehensive review of all aspects of geomagnetism and palaeomagnetism as the subjects are currently understood. With well over 200 contributors, all specialists in their particular field, it is hardly surprising that the individual articles are both current and sufficiently detailed to satisfy most users of such a volume. However each article also provides a sound starting reference list for those wishing to pursue things to a greater depth. While it is impossible to bring attention to the complete scope of such a work it was a pleasure to find the many short biographies of leading historical contributors to the field which helps put the development of the subject into perspective.

The editors have obviously worked hard to ensure that the articles are well illustrated, well written and comprehensible

to the reader. While I cannot see this book being on many individual's bookshelves, given its high cost, I do believe that it is an indispensible library tool for graduates, academics and professionals alike involved in the application or study of geomagnetism and palaeomagnetism. For those already involved in a particular aspect of this broad discipline it provides a useful pathway to allied subjects.

Graeme Taylor

GYR, A. & HOYER, K. 2006. *Sediment Transport. A Geophysical Phenomenon*. Fluid Mechanics and its Applications Series Volume 82. xi + 283 pp. Berlin, Heidelberg, Dordrecht: Springer-Verlag. Price Euros 94.95, US $119.00, £73.00 (hard covers). ISBN 9781 4020 5015 2. doi:10.1017/S0016756808004457

The study of sediment transport is complex, and in this book the authors aim to bring together the most recent research with which to present the updated theories of sediment transport. The authors summarize the classical and statistical approaches of the subject, before going on to review common problematic issues that researchers frequently encounter. Only then do they start to present the subject area from a micromechanical standpoint. These chapters centre on the turbulence of flow–sediment interactions and flow separation as it applies to bedforms. It ends with some practical advice on the application of the theories and its formulations. The authors state that they intend for the book to be a course textbook as well as a manual for engineers.

Unfortunately, there isn't really enough room in the initial chapters to cover the classical theories in sufficient detail. The authors recognize this, and they provide an extensive reference list for those interested in more details. However, this makes the book most suited for those students and researchers for whom the initial chapters will be a review rather than an introduction, and who will be more concerned with the later chapters. The authors themselves state that to be useful amongst the large volume of books already available on the mechanics of sediment transport, such a book must include the most recent research results – and the book becomes most interesting as it starts to detail the latest research into turbulent theory, bringing much recent research together in one place. The last chapter, which gives an indication of where each theory should be applied, and when it is acceptable to rely on the classical theories, manages to bring everything together at the end, and will probably be of most use to those looking to apply the theories.

The book is firmly based around transport in rivers, and as such there are certain areas missing that might be expected by those who approach sediment transport from a coastal or marine viewpoint. There is little discussion of cohesive sediments, and there is no coverage of wave-related transport theories, although the material covered is generally applicable outside rivers also.

For a book intended as a textbook the maths is probably off-putting to most students, especially as it starts early on, and uncompromisingly. This book is perhaps not suitable for readers without a firm grasp of mathematics. In sediment transport research as a whole, there is little consistency of symbols, and as such the reader should be prepared to see some symbols he or she may not be familiar with.

On the whole, the book accomplishes what it set out to do: present the most up-to-date theories of sediment transport. However, it is not the easiest book to read, with difficulties in the clarity of the English and large amounts of maths. And for those readers interested in the classical theories, there are clearer and more thorough books on the market.

C. E. L. Thompson

KIELAN-JAWOROWSKA, Z., CIFELLI, R. L. & LUO, Z.-X. 2004. *Mammals from the Age of Dinosaurs. Origins, Evolution and Structure*. xvii + 630 pp. New York: Columbia University Press. Price £126.00 (hard covers). ISBN 0 231 11918 6. doi:10.1017/S001675680800469X

It is very difficult for any palaeontologist who is not a mammal specialist to keep up with all the wonderful discoveries of fossil mammals over the last decade or so, let alone get any reasonable understanding of the debate over their evolution. A photo of the amazingly well preserved *Eomaia scansoria* from Dawangzhangzhi in China provides the frontispiece to *Mammals from the Age of Dinosaurs*. This hefty volume might look daunting to the non-expert but is well worth exploring as it is very well structured and indexed so that anyone can soon learn how to use the book. I have been very pleasantly surprised to find out how easy it is to recover information about specific topics, no matter whether it is some seemingly obscure locality (all properly located on maps) or stratigraphic horizon – they are all properly documented in Chapter Two. Chapter Three deals with the 'Origin of Mammals' and then the next eleven chapters detail the separate mammalian groups, and the final chapter discusses their interrelationships.

The authors build on the only other general book with similar scope, the 1979 *Mesozoic Mammals: The First Two-Thirds of Mammalian History* edited by Jason Lillegraven, Zofia Kielan-Jaworowska and William Clemens. For authorship of the present volume, only Zofia Kielan-Jaworowska remains from that editorial team. However, Lillegraven and Clemens provide a foreword to the present volume in which they graciously pass the 'intellectual baton' on to the new authors. And as they point out, our understanding of Mesozoic mammalian palaeobiology has progressed in leaps and bounds, just like the locomotion of some of the tiny Mesozoic mammals themselves that Kielan-Jaworowska and her Polish–Mongolian colleagues found in Mongolia back in the 1960s. And, as even these experts exclaim, '. . . oh-my, have there ever been expansions in the taxonomic detail and biological complexities applied to the understanding of these little animals!' Indeed, and we should be grateful to the present authors for assisting us through this particular minefield. This is a volume that any self-respecting zoological or palaeontological library should have on its shelves.

Douglas Palmer

Reference

LILLEGRAVEN, J., KIELAN-JAWOROWSKA, Z. & CLEMENS, W. (eds) 1979. *Mesozoic Mammals: The First Two-Thirds of Mammalian History*. x + 311 pp. Berkeley: University of California Press.