

applications of existing techniques. All cite case histories as examples, but the applications are potentially broader. Monteil introduces the concept of morphostratigraphy, a non-taxonomic biostratigraphical technique based on the stratigraphical occurrence of morphological characteristics, regardless of their taxonomic attribution. Gary *et al.* describe a method for two-well correlation based on calculating a sample-by-sample similarity/dissimilarity matrix that may better mimic how many biostratigraphers would approach the problem, namely by solving a series of smaller problems rather than searching for an optimal global solution. Dale *et al.* used ecological signals and correspondence analysis to determine ecological shifts in successions in the Paleocene of the Norwegian North Sea, correlating these shifts between wells and so linking the ecological signal to sequence stratigraphy. All these approaches have potential for further development and application in biostratigraphy. The fourth paper, by Williams *et al.*, describes the development of a non-acid technique for preparing palynological samples, avoiding the use of chemicals such as hydrofluoric and other acids. Given the significant risks for health and safety and the environment that these chemicals pose, especially at the well-site, the ongoing development of alternative methods is welcome.

The remaining papers are mainly case studies applying more traditional biostratigraphical methods. Three provide new data and zonations on various stratigraphical intervals: Ilyina *et al.* on the foraminiferal and dinoflagellate cyst zonation of the Callovian–Volgian reference section in the Tyumenskaya superdeep well, West Siberia; Stead & Awad on a palynological zonation of Cenozoic non-marine sediments in the Muglad Basin, Sudan; and Jaramillo *et al.* on the Paleocene of the Llanos foothills, Colombia, using graphic correlation. Payne *et al.* and Butler *et al.* both demonstrate the value of revisiting existing data. The first provides a ‘salutary tale (of) . . . biostratigraphy in complex terrains’, namely a reinterpretation of the stratigraphical and structural model of the Paleocene–Eocene succession in the Mungo Field, central North Sea, based on a reinterpretation of biostratigraphy combined with heavy mineral analysis. The second, data from the Middle Jurassic Ravenscar Group, Cleveland Basin, combined with sedimentary facies, offers new insights into the stratigraphical architecture of successions in the North Sea. The remaining three papers, by Jones *et al.* on the Eocene Ainsa System of the Spanish Pyrenees, by Hughes on the Shu’aiba Formation reservoir of Saudi Arabia and on the Permo-Triassic (Khuff Formation) of Saudi Arabia, look at the micropalaeontological discrimination of environments at reservoir scale.

One of the problems with conference volumes, especially those that contain a subset rather than the whole conference proceedings, as in this case, is that the range of topics covered is dictated by the papers submitted. This volume, however, provides plenty of interest biostratigraphers and those using biostratigraphical data in industry, research and academia, from case studies for teaching and analogous successions, to new data from frontier exploration areas, to new ideas and innovative approaches. The volume is generally well produced, with many diagrams in full colour or incorporating colour. Herein lies the only problem. Some of the other figures would clearly have benefited from either redrafting or publication in colour (what might work well in a PowerPoint presentation does not necessarily work at all in print, especially when reproduced in shades of grey), and others suffer from inadequate labelling or poor captioning. It is a pity about this, but the number of figures involved is

relatively small and does not detract overall from the value of the book.

Stewart Molyneux

LYKOUSIS, V., SAKELLARIOU, D. & LOCAT, J. (eds) 2007. *Submarine Mass Movements and Their Consequences*. Advances in Natural and Technological Hazards Series, Volume 27. xi + 424 pp. + CD-ROM. Berlin, Heidelberg, New York: Springer-Verlag. Price Euros 169.95, SFr 296.00, US \$229.00, £130.50 (hard covers). ISBN 9781 4020 6511 8. doi:10.1017/S0016756808004408

Considering its substantial price, this is a remarkably plain-looking volume. At 23 × 15 cm and a thickness of less than a couple of centimetres it is smallish and uses no colour. A DVD in the back pocket provides some colour illustrations together with larger versions of all the text-figures, which is just as well as a number of those in the book are decidedly spidery and on the margins of legibility.

The book is a collection of 43 papers derived from the Third International Symposium on Submarine Mass Movements and Their Consequences, held in Santorini in 2007. The miscellany of topics and standards is typical of conference volumes, though this does serve to illustrate the breadth of current approaches. However, as the book has no supporting material other than a one-page Foreword (e.g. no chapter commentaries, no attempt at synthesis, no index), it lacks context and cohesion. Thus I feel that while it provides a synopsis of current activities, the content is unlikely to excite those not working in the subject.

The papers are divided into seven thematic sections, of very uneven lengths. The first, entitled ‘Role of submarine slides in margin development’, is the longest. It has ten papers, containing a lot of bathymetric imagery and seismic sections from places as diverse as the E Indian, NW African and W Iberian margins, and the Storegga and Grand Banks slides. The second section deals with the evolution of slides into debris flows, etc., partly descriptively but also through laboratory and numerical modelling. The third section has a long title, ‘New techniques, approaches and challenges in submarine slope instability and analysis’, but only two papers totaling nine pages. Section 4 (five papers) focuses on geotechnical aspects; Section 5 provides eight case histories of slides in lakes and coastal areas such as estuaries. Section 6 is another short section (two papers, eight pages), this one on volcanic island settings. (And for some reason this section calls slides submarine landslides.) Presumably the final section (ten papers) is meant to address the ‘consequences’ of the book title as it is labelled ‘Submarine mass movements and tsunamis’. However, few of the papers have much to say about tsunamis other than passing remarks about the slides being ‘tsunamigenic’. There is some identification of areas at greater risk (e.g. Alexandria, Egypt; Long Island and New Jersey, USA) and a likely tsunami scenario for the Gulf of Corinth but there is very little for anyone concerned about practical mitigation of the consequences.

The Foreword tells us that the symposium provided an ‘opportunity to review the state of the art in risk evaluation. . . and its implication for coastal and offshore development’. This is hardly reflected in the content of the book’s papers. Neither am I convinced that ‘the interdisciplinary views gathered in this book. . . help identify future challenges, mitigation strategies and better management of the seafloor’. The majority of the papers are essentially descriptive case

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 hypsodontid, 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 20<sup>th</sup> 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