

extremely stringent rules? Yes, there is a chapter on assessing such impacts, no doubt being applied to the world's densest area of archaeological sites from the Last Glacial Maximum to the first civilizations – on the Tigris–Euphrates plains.

Studies in Military Geography and Geology is not as lugubrious as it could be: no studies about means of detecting mass burials (oddly nothing about finding buried weapons of mass destruction either), the geochemical dispersion of dust from depleted uranium projectiles, or contamination of water resources by white phosphorus. Apart from military historians, I think a likely readership might well be the irregular forces which modern warfare seeks to suppress, for they are exploiters of terrain and cover par excellence.

S. A. Drury

KENRICK, P. & DAVIS, P. 2004. *Fossil Plants*. 216 pp. London: The Natural History Museum. Price £16.95 (paperback). ISBN 0 565 09176 X. doi:10.1017/S0016756807003226

Popular books on fossil plants are relatively few and far between. This offering from the Natural History Museum is welcome being both well illustrated and authoritative. The book is arranged into eight chapters following a time line in general but also incorporating other themes. We start 'in the beginning' with a brief review of life in the Precambrian and into the early Palaeozoic with the spread of life onto land. This features the Rhynie Chert, which also starts the second chapter on the Devonian. In some respects this account is an opportunity missed as no reconstruction of the hot spring setting nor community is given and highlights a weak point in referencing. A link to the University of Aberdeen Rhynie website would have been a good idea. The rise of the seed plants and first trees are also covered.

Chapter 3 is on forests and here we lose some of the time element. There are many interesting stories and anecdotes but a reader has little chance in following up the stories as referencing is only to a few textbooks. Aspects of plant preservation are dealt with here but I would like to have seen some illustrations. There is little mention of the significance of charcoal, and fire receives scant attention. Chapter 4 is on coal, which deals mainly with Carboniferous peat-forming plants. There is little discussion here of the evolution of peat-forming vegetation which is a pity considering coals are found worldwide in all periods from the Devonian.

Chapter 5 is on measuring the past. This covers aspects such as plants as thermometers and proxies for CO₂ but illustrations such as of the cuticle with stomata could have been larger, clearer and annotated. Chapter 6 is on plant life through the ages. This looks at changing vegetation through time and considers evolution and extinction. A reconstruction of Gondwana is given but the changing pattern of the continents and biome development could have been given more prominence.

Chapter 7 on plants and animals deals with both plant–arthropod and plant–vertebrate interactions. Whilst interesting, it could have been improved with some good line drawings and a better sense of the evolution of interactions. The final chapter is on the rise of the flowering plants. I am sure that angiosperm palaeobotanists would like to see more detail and illustrations and to some extent I have some sympathy.

Overall the strength of the book is that it is well written and not expensive, but better illustrations could have been used in many places and the lack of websites and detailed

references makes its use more limited. Despite this I think that all interested in the evolution of life should have a copy.

Andrew C. Scott

ALLEN, M. R., GOFFEY, G. P., MORGAN, R. K. & WALKER, I. M. (eds) 2006. *The Deliberate Search for the Stratigraphic Trap*. Geological Society Special Publication no. 254. v + 304 pp. London, Bath: Geological Society of London. Price £75.00, US \$135.00; GSL members' price £37.50, US \$68.00; AAPG/SEPM/GSA/RAS/EFG/PESGB members' price £45.00, US \$81.00 (hard covers). ISBN 1 86239 192 0. doi:10.1017/S0016756807003184

This book results from a conference, 'The Deliberate Search for the Stratigraphic Trap – Where Are We Now?', held in London in 2004. In their introduction the editors state that 'in-depth understanding of analogue fields... and... deep insights... were generally not well demonstrated'. Judging from the published record this seems fair comment. The contents, which could in several cases have been refereed more rigorously, fall into four groups.

The first, authored by consultants, comprises three papers dealing with corporate strategy, organization and procedures for successful pursuit of stratigraphic plays, based largely on global lookbacks in which prices and evolving technologies might have figured more prominently. The approach in all is from a prospect portfolio perspective; conclusions are now surely fairly well known but at least stress the need to fund and conserve appropriate levels of long-term information gathering to steepen expectation curves. Young professionals and senior managers alike should heed what is surely a *cri de coeur* from Binns that 'frequent re-organizations... divert attention away from the technical process'.

The second, authored by staff of the Department of Trade and Industry and the British Geological Survey, contains four papers promoting the potential for stratigraphic traps in various regions of the UK Continental Shelf. To what extent the 'leads' illustrated are calibrated evaluations or conceptual arm-waving is unclear.

The third, authored by industry staff, includes three case history papers. That by Godo is an informative integration of sedimentology, sequence stratigraphy and rock properties employed in pursuit of an amplitude-supported gas play in the Miocene of the Gulf of Mexico. The account of the pre-discovery evaluation of Buzzard in the UK North Sea allows British Gas staff to give themselves a well-deserved pat on the back. The promotional story on the Indonesian rift plays sets out a simple play concept using only 2D seismic data and does not discuss rock properties.

The fourth, authored by academics, is a mixed bag of four papers. It includes an exhaustive geometrical classification of seals with no reference to their sedimentology or rock properties and geometrical evaluation of the pinch-out of turbidites against a confining slope without sedimentological insight. The paper on sand 'extrudites' nicely mixes seismic and field descriptions of these volumetrically minor stratigraphic curios. An interesting discussion of visual cognition pitfalls in seismic display has general application.

Exploration acreage is too valuable to evaluate solely in terms of structural closures; the more so as high oil prices seem here to stay. Interpreters need to conceptualize all possible closed contours of hydrocarbon fluid potential at spatially complex reservoir/seal interfaces in a context of time-variant access to charge, structural deformation,

compaction/diagenesis and dynamic basal water flow. From this perspective the book conspicuously fails to address two technical issues that are commonly so much more critical in the definition/evaluation of stratigraphic traps than for layer-cake geometries in structural traps: namely loop-level imaging and the calibration/prediction of rock properties. Shooting 3D seismic is only a beginning. For example, how best should one preserve true relative amplitudes through the seismic processing sequence, generate sedimentologically-defensible horizon attribute maps, design sedimentologically-smart horizon-picking algorithms, best use AvO and dedicated shear wave data in determination of lithology/pore-fill, trade large offsets against bandwidth? The need to explore for stratigraphic traps is obvious – what we want are better tools.

Creative sedimentary geophysicists will get little technical advice or inspiration from this book, nor should it compete strongly for scarce library funds.

David James

LI, R. & COOPER, P. 2006. *Early Silurian (Llandovery) orthide brachiopods from Anticosti Island, eastern Canada: the O/S extinction recovery fauna*. Special Papers in Palaeontology no. 76. 71 pp. London: The Palaeontological Association. Price £39.00 (paperback). ISBN 1 4051 6012 8, ISBN13: 9781 4051 6012 4. doi:10.1017/S0016756807003135

For students of marine Silurian megafossils there are globally two major sites for superlative specimens: the island of Gotland for the latest Llandovery–very Late Silurian, and the island of Anticosti for the earliest Llandovery into the latest Llandovery. The new treatment of the orthide brachiopods in this Special Paper substantially helps to update our understanding of the group's Llandovery record. The Special Paper is well written, provided with excellent illustrations and a text that carefully describes the taxa involved. Also provided is a brief account of the Anticosti litho- and biostratigraphy, together with a brief history of prior palaeontological investigations of Anticosti fossils, chiefly brachiopods. A detailed locality Appendix is a valuable adjunct for specialists, together with a warning (p. 11) about locality name changes during the past 150 years of publication on the fossils.

Variation was studied relative to length and width of the abundant taxa, but other characters remain to be considered. For those taxa represented by a good size range of specimens a study of their ontogeny, particularly internal features, remains to be carried out. For some taxa there is a need for further investigation of internal features by calcining shells followed by careful shaving away of the calcined material to reveal internal features preserved on the moulds.

Art Boucot

CARRANO, M. T., GAUDIN, T. J., BLOB, R. W. & WIBLE, J. R. (eds) 2006. *Amniote Paleobiology. Perspectives on the Evolution of Mammals, Birds, and Reptiles*. vi + 547 pp. Chicago, London: University of Chicago Press. Price US \$95.00, £60.00 (hard covers), US \$40.00, £25.50 (paperback). ISBN 0 226 09477 4; 0 226 09478 2 (pb). doi:10.1017/S0016756807003196

A memorial volume dedicated to Jim Hopson, who, during the past 40 years, has revolutionized our understanding of basal mammals, *Amniote Paleobiology* comprises a series

of papers authored by his former post-graduate and post-doctoral students at the University of Chicago, most of them unsurprisingly focusing on aspects of mammalian palaeobiology. Given the title, I was hoping for a volume composed of papers on large-scale evolutionary processes and incorporating techniques that would be applicable to all areas of vertebrate palaeontology. However, I was disappointed to find that most of the papers are descriptive, narrow in scope, and would only really appeal to those with extensive knowledge of the group in question.

The text is divided into five parts: the first, titled 'New Fossils and Phylogenies', comprises five papers on diverse topics from a re-description of a mandible of the early tetrapod *Whatcheeria*, which, given the in depth discussion on phylogenetic characters, would have benefited from a new phylogeny, to a phylogeny of living and extinct armadillos. Part two, 'Large-scale Evolutionary Patterns', comprises three papers, two of which, those by Parrish, and Rougier & Wible, appear to be essentially review papers, and offer little new information. Part three, 'Functional Morphology', includes an important contribution by Paul Sereno, in which, among other things, he proposes new phylogenetic definitions for mammalian higher taxonomy. Part four, 'Ontogeny and Evolution', includes an interesting contribution by Richard Blob, in which he examines the utility of limb-bone scaling in cynognathian cynodonts for usage in assessing metabolic modes, although the other papers in this section are somewhat disappointing. The final section, 'Reflections on James Allen Hopson', comprises a biography and a bibliography of Hopson's publications.

The quality of papers and editorial style varies widely throughout the book; in places the text is too chatty and informal, noticeably in the contributions by Lombard and Bolt, and that of O'Keefe. Quality of the illustrations is also extremely variable: those of Lombard and Bolt are beautiful, while in other contributions they are rather lacking. Munter and Clark would have benefited from line drawings of the pelvis of the theropod dinosaur being described, rather than the unclear photos presented, while O'Keefe's figures are recycled from his earlier publications, do not illustrate the braincases being described, and as such render the paper almost impossible to understand for the non-specialist. Although contributions to the book were apparently peer-reviewed, one feels that some of the papers may not have made it to publication in journals where the peer-review process was more stringent.

Although there are several fascinating and important papers in this book, it is hard to see to whom the volume as a whole would appeal: the topics are too disparate and narrow to warrant the title.

Susannah C. R. Maidment

THOMAS, P. J. HICKS, R. D. CHYBA, C. F. & MCKAY, C. P. (eds) 2006. *Comets and the Origin and Evolution of Life*, 2nd ed. xvii + 346 pp. Berlin, Heidelberg, New York: Springer-Verlag. Price £54.00 (hard covers). ISBN13 978 3 540 33086 8. doi:10.1017/S0016756807003603

Where, when, and how life began are the ultimate scientific questions to which there are, as yet, no answers. But evolve we did, so another question is, from what? *Comets and the Origin and Evolution of Life* is an updated and extensively rewritten second edition of a 1997 conference volume. Since the publication of the original work, there have been theoretical and practical advances in this fast-moving field. For example, several cometary and asteroid sampling missions are either,