

## Age of dinosaurs

### Gideon Mantell and the Discovery of Dinosaurs

by Dennis R. Dean

Cambridge University Press, 1999.  
£45.00/\$69.95 hbk (xix + 290 pages)  
ISBN 0 521 42048 2

Although the creator of the name Dinosauria, Richard Owen, is associated with many of the early contributions to our understanding of those great beasts, Gideon Mantell (1790–1852) played a crucial and underappreciated role in their initial discovery, scientific analysis and popularization. Dennis Dean's admirable historical summary, drawing on a previously untapped archive of 'Mantelliana', attempts to rectify that misunderstanding (owing to 'slipshod scholarship' of prior workers) through his own 'resolutely factual' account. Although there is little of immediate importance to practicing ecologists and evolutionists, Dean's compendium provides context for a key episode in intellectual history.

Dean's analysis is comprehensive and generally well written, but would benefit from tighter editing. Mantell's own writing tended towards the descriptive and lackluster, although some was quite evocative: 'From that quarry, long since filled up and the area covered by pasturage and gardens, I collected the first and most interesting remains of the iguanodon, hylaeosaurus, pelorosaurus, and other stupendous creatures whose existence was previously unknown and unsuspected.' The 28 illustrations and several tables included in the book are thoughtfully selected, but the quality of replication is extremely poor for some of them.

Dean has great affection for Mantell, jousting with his errant enemy knights (Sir Richard Owen and Baron Georges Cuvier) and their real or perceived slights, malicious competitiveness, devious actions or presumed intellectual larceny. But, the author often strays from his path of a 'resolutely factual' account, particularly when he includes editorial asides, such as 'Where had the evil magician [Owen] obtained it?' Dean also makes a peculiar suggestion that a serious accident might somehow be blamed on Owen, 'Two months after Owen's paper, and perhaps to some extent because of it, Gideon suffered his crippling carriage accident.' Although it is difficult to extract from Dean's relentless perspective of inadequate recognition for Mantell (congruent with Mantell's own view), he *was* lauded during his lifetime. Mantell was strongly supported by leading intellectuals (Lyell, Buckland and Murchison), elected to the Royal Society and awarded top honors of Royal Society medals. The British Museum,

with encouragement from Lyell (and even Owen before he became the 'archenemy'), purchased Mantell's entire personal museum collection in 1838. This foresight preserved an important archive of natural history, which otherwise might have deteriorated or been sold off piecemeal to private collectors (his other belongings were auctioned at his death).

Richard Owen's obituary of Mantell mocked him as only a collector, an amateur and no good at anatomy. However, Mantell's accomplishments in discovery, research and popularization contradict Owen's disparaging characterization. Dean's narrative surveys Mantell's education, career as a doctor ('surgeon'), personal life [with evidence of both sweet humanity (devotion to his daughter Hannah, who died at 18), and self-absorption and pettiness (leading to disaffection from his wife and several children)], and many contributions as an avocational paleontologist and geologist. For a part-time scholar, Mantell was quite productive. He described seven or eight new dinosaurs, published six influential books on geology and paleontology ('petrifications'), created an extensive personal museum and played a leading role in the intellectual life of 19th-century London. The book includes fascinating information about Mantell's life-long analyses of the second dinosaur ever named (1825), the plant-eating *Iguanodon*, and revisits Dean's earlier analyses of the '*Iguanodon* legend' of the role of Mantell's wife in discovering the original specimens. Scientific work on *Iguanodon* and *Hylaeosaurus* (an enigmatic armored dinosaur) are Mantell's most lasting contributions to paleontology, but he also emphasized that dinosaurs were different from any other land creatures, influencing Cuvier's conceptualization of a distinctive 'age of dinosaurs'. Dean also details Mantell's broader contributions to understanding the geology of England, changes in ancient environments and prescient use of a rudimentary ecological niche concept (comparing *Iguanodon* with subsequent mastodons, mammoths and giant ground sloths).

Mantell preceded the industrial revolution and subsequent technological advances, but aspects of the 19th-century scientific scene are strikingly contemporary. For example, the role of new fossils and novel interpretative contexts; academic rivalry; complex relationships between specialists and avocational scientists; resource limitations affecting science; science popularizer versus practitioner; and the role of museums in research and public education. Many of these converged shortly before his death, when Mantell was selected as scientific advisor for Benjamin Waterhouse Hawkins' famous Crystal Palace dinosaur restorations. But, Mantell resigned the commission (later accepted by Owen) because he 'disliked the idea of life-size models – as opposed to more scientific

displays', which is reminiscent of contemporary debates about levels of 'entertainment' or 'disneyfication' in museums. His decision of principle resulted in his most important dinosaur, *Iguanodon*, being reconstructed using Owen's conflicting anatomical interpretations!

This dense book is best read in shorter sections, perhaps as a bedtime tonic. Although slow at times, its depth builds a rich understanding of a key player in an important evolutionary drama. I recommend it to a broad range of readers, from dinosaur enthusiasts, to historians of science and biologists interested in the roots of our sciences.

John Flynn

Dept of Geology, The Field Museum, 1400 S. Lake Shore Drive, Chicago, IL 60605-2496, USA (flynn@fmnh.org)

## Marine mammals

### Conservation and Management of Marine Mammals

edited by J.R. Twiss, Jr and R.R. Reeves

Smithsonian, 1999.  
£35.95/\$60.00 hbk (xi + 471 pages)  
ISBN 1 56098 778 2

### Biology of Marine Mammals

edited by J.E. Reynolds, III and S.A. Rommel

Smithsonian, 1999.  
£44.95/\$75.00 hbk (viii + 578 pages)  
ISBN 1 56098 375 2

In marine systems, mammals (especially cetaceans) have been one of the areas of fastest growth in research and conservation focus over the past couple of decades. This has been achieved by a combination of research, invention and innovation (e.g. devices to reveal spectacular diving and migratory adaptations and abilities, and new methods of investigating links between sensory and communicatory ability), and a growing perception that these spectacular – and often threatened – denizens of the ocean are not primarily exploitable resources, but deserve special consideration and protection.

These two books are important contributions to the literature, albeit as works of consolidation rather than providing much in the way of novel approaches and/or new signposts for the future. A lengthy gestation (although not inappropriate for the taxa involved) has restricted coverage mainly to work pre-1996. There is a strong bias to US literature in most chapters, such that European and Australasian readers might incorrectly believe that there is little relevant research from these areas.

*Biology of Marine Mammals* is largely a review of traditional topics. However, some