

book series should be available in any library with a focus on tropical ecosystems. Results from the Central Cordillera are published in four volumes, the Sierra Nevada de Santa Marta covers one volume, and the Western and Eastern Cordilleras will each need one volume (Vols 6 and 7, respectively). It is hoped that Thomas van der Hammen, who recently celebrated his 80th birthday, is given the opportunity to finish this monumental work, the results of which will, undoubtedly, serve the scientific community during the coming decades.

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## Wonderful worms

Hou, X., Aldridge, R. J., Bergström, J., Siveter, D. J. & Feng, X.-H. (2003) *The Cambrian fossils of Chengjiang, China: the flowering of early animal life*. Blackwell Publishing, Oxford, UK. xii + 233 pp., figs, line diagrams, halftones, colour plates, indexes. Hardback: price £60.00, ISBN 1405106735.

Our knowledge of the history of life on Earth would be exceedingly sparse were it not for the existence of Fossil-Lagerstätten – exceptional occurrences of extraordinarily high quality preservation and/or density of fossils in the geological record. Such Lagerstätten provide occasional glimpses of almost complete ecosystems which stand out from the background, generally impoverished, record of mainly marine shelly fossils. The few Lagerstätten which punctuate the fossil record can be viewed as an incomplete record of the development of the Earth's ecosystems over time (Selden & Nudds, 2004). One of the most famous of these exceptional biotas is the Burgess Shale of British Columbia. Since its discovery in the early 1900s, it was thought for many years to be almost unique: a product of rare, local, exceptional circumstances. But this idea was challenged in the late twentieth century, when a number of similar biotas came to light around the world. It seems that the Burgess Shale Lagerstätte is not unique but typical of a deep-water marine biota which could be preserved in a variety of circumstances, albeit rather exceptional compared

with normal fossilization conditions. By far the most prolific of the Burgess Shale-type Lagerstätten of Cambrian age is the so-called Chengjiang biota of south China. This book is the first to catalogue the many remarkable finds for the general reader, and thus may be compared to *The fossils of the Burgess Shale* (Briggs *et al.*, 1994). These books are important because they bring the wealth of spectacular fossil finds, often startlingly beautiful, to the attention of non-specialists, as well as drawing together the results of many detailed studies, published in disparate and sometimes obscure journals, under one cover.

The Chengjiang biota was discovered by Hou Xian-Guang, the first author, in Yunnan Province in 1984. Since that time, an immense amount of research has revealed that the Chengjiang biota is not only 'another Burgess Shale', but also older (and hence closer to the enigmatic early Cambrian Explosion of metazoan life) and with an even greater diversity of organisms. The Chengjiang plants and animals are also preserved in a different matrix than those in the Burgess Shale. The latter are grey-on-grey, but the former are colourful impressions on a pale matrix, so are much more photogenic.

Primarily, this is an atlas of the biota and thus part 2 forms the bulk of the publication: some 180 pages. There is no doubt that the superb photographs of these wonderful fossils are the highlight of the book. In some cases the fossil is photographed in low-angle light to enhance the relief, whilst others are enhanced to bring out the contrasting colours. Such is the detail visible, that holding the book is as good as, indeed better than, holding a drawer of Chengjiang fossils. Like the Burgess Shale, the commonest and most diverse taxon is the Arthropoda. Whilst some of these can be referred to Crustacea, Trilobita or Chelicerata, many of the 60 or so species cannot be so pigeonholed and clearly represent stem taxa or failed branches. Armoured lobopods, such as *Hallucigenia*, are there, as well as the giant predatory anomalocarids. Typical Cambrian animals such as brachiopods, mollusc-like hyolithids and Porifera are numerous, and there is a variety of worms, both priapulids and nematomorphs. Of course, there is a long list of enigmatic taxa too; some, like *Dinomischus* and *Eldonia*, were known already from the Burgess Shale, but others are endemic to Chengjiang. Palaeogeographical maps indicate that south China was a separate plate from north China and the rest of Gondwana, and biogeographical studies, on trilobites in particular, indicate that the region was in a

different zoogeographical realm from the Burgess Shale. Both Lagerstätten were equatorial but on opposite sides of the globe, so it is perhaps surprising that they have so many genera in common.

But there is more to this book than the atlas. Part 1 consists of six chapters covering the history of discovery of the biota, the background to the Cambrian Explosion, the evolutionary significance of the Chengjiang biota, its geographical and geological setting, the preservation of the fossils and ideas about their palaeoecology. Though short, these chapters are equally as valuable as the atlas because they put the Lagerstätte into various contexts. The diagrams in this part are as beautifully executed as the photographs and reconstructions in part 2.

The book will appeal to professional and student palaeontologists and biologists interested in the history of life on Earth. The price is reasonable given the wealth of excellent colour plates and hardback binding. Without books such as this it is hard for students and the non-specialist to learn about these wonderful Lagerstätten. It is difficult or impossible to visit the localities; museums are getting much better at portraying the specimens and biota (the Royal Tyrrell Museum in Drumheller, Alberta, has a wonderful exhibit on the Burgess Shale and a new one on the Chengjiang will soon be open to the public at the Nanjing Museum of Palaeontology), but this still involves travelling to the country. This first book in English on the Chengjiang biota is a delight, and I hope it spurs on researchers on other Lagerstätten to showcase their biotas in the same way; its existence has already prompted calls for a new, colour edition of *The fossils of the Burgess Shale*.

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