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Book review

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A Jurassic Eldorado

Thomas Martin & Bernard Krebs (eds.) 2000. Guimarota: A Jurassic Ecosystem, 1–155. Verlag Dr. Friedrich Pfeil, Miinchen; price DM 120.00 (US $80.00).

The Late Jurassic (Kimmeridgian) locality of Guimarota, Portugal, has yielded a diverse vertebrate fauna, in some cases represented by spectacularly complete, richly informative specimens. As such, it is arguably the most important Late Jurassic locality, worldwide, for interpreting the evolutionary history of mammals and other small vertebrates. Not all of this material has been previously published, and that which has appeared has been published in scattered sources, some of which are not widely available. This volume thus serves the dual function of providing an extremely useful, single-source compendium of previous results, together with new information.

Excavations at the Guimarota coal mine represent one of the most ambitious field undertakings in the history of paleontology, and most certainly the most ambitious as far as fossil mammals are concerned. Following discovery of fossil mammals in 1959, Guimarota was worked under the direction of Walter Kühne in the 1960s. An initiative to further develop the locality was, ironically, opposed by Kiihne, in the mistaken belief that no new information would be forthcoming. Renewed investigations required enormous cost and effort, because the mine itself had to be pumped out and repaired. But these efforts yielded a fantastic treasure-trove of fossils: by the time excavations ceased in 1982, B. Krebs, G. Krusat, S. Henkel, and colleagues had assembled a collection that included more than 1,000 mammal jaws, a number of skulls, and two skeletons, not to mention some 10,000 isolated teeth.

A positive aspect of this handsome volume is its comprehensive coverage: in addition to chapters devoted to vertebrate groups, there are contributions on geological setting, flora, ostracodes and charophytes, molluscs, taphonomy, fossil preparation, and the ecosystem. A bibliography is included, together with (as an appendix) a list of the biota.

The chapters on lower vertebrates (fish, albanerpetontids, turtles, lizards, crocodiles, dinosaurs, pterosaurs and birds, and eggshell) are especially useful, as some of this information is new. Though some taxa (e.g., most of the dinosaurs) are known only by isolated elements, many records are notable. Rauhut (chapter 11), for example, reports the presence of the theropods Tyrannosauridae, Richardoestesia, Velociraptorinae, and Dromaeosaurinae. If correct, these occurrences help reconcile apparent discordances between the stratigraphic record and phylogenetic interpretation of advanced theropods, such as the origin of Aves and placement of Tyrannosauridae among Maniraptora.

But Guimarota is best known for mammals, and these occupy center stage in the book. The four included chapters (the docodont Haldanodon, multituberculates, dryolestids and ?peramurid, ?henkelotheriids) are not only extraordinarily useful summaries, they also include many splendid illustrations that have not been previously published, together with information that is new or is not widely available.

With a few minor exceptions (e.g., chapter 9), this book is remarkably well illustrated. The combination of ultra high-quality standard and SEM photography, together with fine reproduction, has produced results that are often breathtaking. Both editors and publisher are to be commended for this informative, important, and exquisitely produced addition to the scientific literature. One may hope that its high cost, the only negative aspect of the book, does not detract from the wide distribution and visibility it deserves.

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