

## BOOK REVIEW

Krister T. SMITH, Stephan F. K. SCHAAL, Jörg HABERSETZER (eds), 2018. **MESSEL – An Ancient Greenhouse Ecosystem**. E. Schweizerbart'sche, Stuttgart, Senckenberg Bücher, 80, 355 p. Hardcover. ISBN 978-3-510-61411-0. € 54.90.

The quarry at Messel near Darmstadt in Germany is one of the most famous palaeontological sites in the world. It is renowned for the high abundance of exceptionally preserved fossils found there, including details of soft tissues, stomach contents and even colour. These all date back to the Eocene, around 48 million years ago, when the site was a volcanic lake surrounded by rainforest.

This second book by Senckenberg, published in both English and German, provides an excellent point of reference for anyone interested in the incredible fossil ecosystem preserved here. Having worked as part of an excavation team at Messel in the summer of 2015, I am fortunate to have had first-hand experience of how spectacular these fossils are and I am pleased to see that this book does them justice.

The book starts with a timeline of the human history of the Messel Pit, outlining how the site and the treasures it contains were nearly lost to landfill before being saved through public outcry and granted UNESCO world heritage status. The subsequent chapters give an introduction to the geology of the site, its palaeoclimate, its taphonomy, as well as the challenges and techniques involved in the extraction and preparation of the fossils. As the Messel oil shale dries out very quickly any fossils discovered during excavation must be kept moist otherwise they will disintegrate. A concise introduction of evolutionary concepts and terminology is given for any readers who may not be familiar.

Each remaining chapter (with the exception of the last) is devoted to a specific taxonomic group represented in the Messel Shale. These have been written by a specialist in that clade and are all up to date with the most recent research and illustrated with beautiful, often full page, colour images of the fossils in question. The diversity of the fauna at Messel is enough to justify giving each clade a dedicated book of its own, however the chapters do an excellent job of summarising not only the taxonomic richness but also the unique insights these exceptional fossils give into ecology and biogeography. The final chapter closes off the book nicely by discussing the Messel ecosystem as a whole, bringing together the discussions of diversity (both ecological and taxonomic) in previous chapters whilst placing it into context within the lake habitat.

Given the sheer diversity of the Messel biota it is impressive that the book succeeds in giving attention to all of the significant finds. It cannot be emphasised enough how stunning the photographs of the fossils are. These are backed up by well-written text which nicely explains active areas of research and current debates in a way which is accessible to the layperson as well as useful to specialists. I would highly recommend this book to anyone interested in the palaeontology of the Messel *Lagerstätte*.

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