BOOK REVIEW

Martin BASSE & Peter MÜLLER, 2016. **Trilobiten aus dem Ober-Emsium und frühen Eifelium der südlichen Lahnmulde (Rupbach-Schiefer, Leun-Schiefer und Ballersbach-Kalk)**. Abhandlungen der Senckenberg Gesellschaft für Naturforschung, 572, 329 p., 7 figs, 9 tab., 33 pls, appendix A (94 tab.) + B. Paperback. ISBN 978-3-510-61407-3. Price € 64.80.

This monograph documents the diverse trilobite fauna of the late Early to Middle Devonian Rupbach Shale that crops out in the southwestern Lahn Syncline, Rhenish Mountains. Palaeogeographically these sediments were deposited on the epicontinental shelf of Avalonia, in a small basin created by subsidence during the Emsian. The trilobites were first mentioned in publications from the mid-19th century but received little attention until the 1990s. This is the first work to describe the trilobite fauna of the Rupbach Shale comprehensively while considering and partly describing those of the coeval Leun Shale and putatively allochtonous Ballersbach Limestone that crop out in the same region.

The paper is divided into two parts: a general part and another handling the systematic palaeontology. The general part contains (in order of appearance) the chapters Geological and biostratigraphic overview of the Rupbach Shale, Palaeogeography and facies, History of trilobite research, Potential of the trilobite faunas (taxonomy, geography, chronology), Potential of individual taxa, Palaeobiology, Goals and methodology, Profiles and stratigraphy, Stratigraphy and fauna of several comparable occurrences, and Technical matters. The chapters are comprehensive and generally informative although their organisation might have been slightly more efficient at times. That is, it takes some effort to understand the sequence of the chapters or even the meanings of individual terms used. For instance, section names (e.g., "Schaumburg VI") are repeatedly referred to from page 5 onwards, but their meanings and locations on a map are first revealed in chapter "Profiles and Stratigraphy" (starting on page 30), subsequent to chapters dealing with topics such as regional comparisons and palaeobiology. The authors discuss the goals of their work and although these appear to have been met, a chapter to summarise conclusions is lacking. The illustrations are all useful and to the point although some of the geological maps contain a large number grey shades, each with their own meaning, that are difficult to discriminate. These maps might have benefited from colour prints.

The second part dealing with systematic palaeontology of the trilobites is particularly well executed. The authors have clearly performed an exhaustive literature research and dug up old works that seem to have fallen in oblivion. The descriptions of the trilobites are both comprehensive and accurate; the specimens themselves captured in 33 plates comprising 377 photos, most of which are of high quality. To achieve this, the authors have examined several thousand trilobite specimens, both newly collected and from old museum collections. Many of the trilobites are complete (although the authors point out a sampling bias towards complete specimens in private collections) which is generally a luxury in the Ardenno-Rhenish Mountains. The trilobites of the Rupbach Shale are often decalcified and the authors created silicone casts from the moulds. These casts are of a high standard, rendering many fine details of the dorsal and ventral cuticle available for photography. Even secondary spines on top of spines, especially those of spiny odontopleurids, were successfully captured. Not even the well preserved trilobites from Devonian micritic limestones in Morocco can compete with this level of detail because such features are usually damaged or lost through mechanical preparation. Two new subgenera and thirteen new species (including one species from Spain and another from Morocco) are described. Important new data about problematic or enigmatic taxa such as *Cyphaspis* and *Cyphaspides* are provided. The taxonomy is slightly conservative at times whereas the description of *Lahnops* as a new subgenus of *Barrandeops*, on the other hand, might be premature. However, such viewpoints are really subjective and do not pertain to the generally high value of the systematic descriptions.

The authors are critical towards the established notion of regional "exotic limestones" which has been based, in part, on the trilobite associations that they yield. The need for a nomenclatoral revision of Devonian trilobites from both autochtonous and putatively allochtonous units in the Rhenish Mountains has been largely underrated. This fact becomes problematic when considering that some of the "exotic limestones" have been assumed by previous workers to yield trilobites of (peri-)Gondwanan affinity that do not occur in any of the autochtonous units. However as the present authors suggest, the Ballersbach and Günterod "exotic limestones", which occur interbedded in the Rupbach Shale and its lateral equivalents, have actually yielded trilobite associations with many similarities to those of the autochtonous units. This led them to conclude that it is more parsimonious to regard such "exotic limestones" as imbricates than assuming that they are the result of nappe tectonics.

In all, this interesting monograph with its numerous photos and extensive literature list is an indispensable resource for the specialist and comes highly recommended to anyone who is involved with the geology and palaeogeography of the Devonian in western Europe.

Allart VAN VIERSEN
Natuurhistorisch Museum Maastricht