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ABSTRACT BOOK

HOW TO PROVE BIOLOGICAL FEATURES IN PALAEOLOGY – THE EXAMPLE OF THE LATE TRIASSIC KRASIEJÓW FAUNA

E.M. Teschner^{1,2}, A. Bodzioch and D. Konietzko-Meier^{1,2,3}

¹ University of Opole, Department of Biosystematics, Laboratory of Palaeobiology and Evolution, ul. Oleska 22, 45-052 Opole, Poland

² University of Opole, European Centre of Palaeontology, ul. Oleska 48, 45-052 Opole, Poland

³ University of Bonn, Steinmann Institute of Geology, Mineralogy and Paleontology, Nussallee 8, 53115 Bonn, Germany

Email: eteschner@uni.opole.pl

Metoposaurids are a group of temnospondyl amphibians known from almost all continents. Their occurrence is limited to the Middle-Upper Triassic. Palaeohistology is a new and precise method which yields new insights into the biology of animals but since it is a destructive method, material available for sectioning is severely limited. However, the fossil richness which is present at the palaeontological site of Krasiejów enables such an analysis. Therefore various bones of *Metoposaurus krasiejowensis* – long bones, dermal bones, ribs and vertebrae – have been studied histologically. This study shows a high histovariability in a single taxon which is visible between various bones, between the same elements from various skeletons, but also along a single bone (e.g., sectioning plane while evaluating the sections). To explain the origin of those phenomena the intraspecific and interspecific variability have to be defined. If comparing different taxa from one locality, as in the present study, it is important to remember to compare in-between one family and the closest relative group and not to compare Amniotes with non-Amniotes. It is also important to think about life adaptations; therefore an actively swimming organism should not be compared with a terrestrial one. To explain the histological variability more methods have to be applied. Help comes from classic geochemistry at the level of chemical elements. The variability in one taxon/one family from the same locality has been studied. To this end, changes along a single *Metoposaurus* bone (five sections in a humerus and five core-drills in an interclavícula) have been studied and evaluated in the light of bone genesis, histological growth and geochemical change. High-resolution sampling with the use of a scanning electron microscope with an energy-dispersive spectroscopy in point mode and X-ray fluorescence in mapping mode has been applied. Together with the use of different methods, it may be possible one day to explain biological features such as population ecology in a palaeontological context.

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