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Foreword

by Gudrun DAXNER-HÖCK[1]

Vertebrate faunas from the Middle Miocene are rare in Austria. The terrestrial fauna from Mühlbach am Manhartsberg deserves special attention because it is deposited in marine sediments of the Molasse zone in Lower Austria and synoccurs with marine organisms. This fauna not only provides an insight into various ecosystems, but also allows a correlation to be established between continental and marine biozonations. Aside of Mühlbach, three marine faunas of the region yield interesting fossil finds of terrestrial vertebrates. These are the faunas of Grund, Guntersdorf and Niederleis. The localities Grund and Guntersdorf lie, as does Mühlbach, in the Molasse Basin, whereas Niederleis is located somewhat more to the east in the northern Vienna Basin. On a supra-regional level, Mühlbach is important on two levels: First, due to the marine correlation, second due to the close relationships with the vertebrate faunas of the Molasse zone in Bavaria and Switzerland – these faunas were deposited shortly before the Ries event. This yields a numerical age that corresponds very well with the remaining stratigraphic data.

This special issue focuses on terrestrial and marine ecosystems of Mühlbach. It requires a precise representation of the vertebrates (Pisces, Reptilia, Mammalia) and marine organisms (Foraminifera, Ostracoda, Mollusca and Calcareous Nannoplancton) of Mühlbach, supplemented by information on isolated vertebrate finds from Grund, Guntersdorf and Niederleis and by the few finds of Brachiopoda, Polyplacophora and Echinodermata from Niederleis and Grund. The result is an overview of terrestrial and marine ecosystems, and a stratigraphic correlation of continental and marine biozones, and on radiometric and magnetostratigraphic data of the Middle Miocene.

This special issue encompasses 17 contributions on the following topics and fossil sites: Geology / Mühlbach (R. Roetzel), calcareous nannoplankton / Mühlbach (S. Coric), Foraminifera / Mühlbach (F. Rögl & S. Spezzaferri), Ostracoda / Mühlbach (I. Zorn), Gastropoda and Bivalvia / Mühlbach (M. Harzhauser & O. Mandic), Brachiopoda / Niederleis (A. Kroh), Echinodermata / Grund, Niederleis (A. Kroh), Polyplacophora / Grund, Niederleis and Nodendorf (A. Kroh), Pisces / Mühlbach and Grund (O. Schultz), Herpetofauna / Mühlbach and Grund (P. Miklas-Tempfer), Aves / Grund (U. Göhlich), Insectivora / Mühlbach (R. Ziegler), Rodentia / Mühlbach, Grund, Niederleis (G. Daxner-Höck), Lagomorpha / Mühlbach (E. Boon-Kristkoiz), Carnivora / Grund (D. Nagel), Proboscidea / Grund, Guntersdorf (K. Huttunen), Paleoecology and Stratigraphy / Mühlbach (M. Harzhauser et al.).

A separate special volume will be devoted to the marine fauna of Grund and to the topic of the "Grund Beds" (editors: P. Pervesler and R. Roetzel - Geologica Carpathica); these issues are therefore only treated peripherally here.

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The site Mühlbach was discovered in 1996 by R. Roetzel (Geological Survey Vienna) and was sampled in cooperation with members of the Natural History Museum Vienna. The two major samples (Mü1 und Mü2), with a combined volume of nearly 700 kg sediment, contain the herein-described terrestrial and marine fauna. The fossils from Grund and Niederleis stem from fieldwork conducted by the Institute of Paleontology of the University of Vienna in the years 1998 - 2000, with the participation of students and members of the above-mentioned institutions. The fossils are stored in the collection of the Natural History Museum Vienna, Geology-Paleontology Department.

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