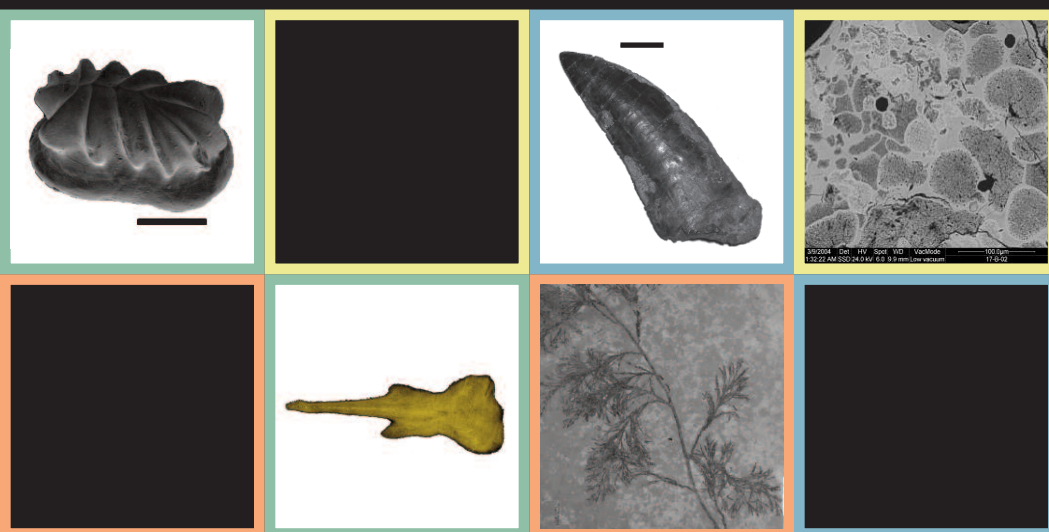


1ST INTERNATIONAL MEETING OF EARLY-STAGE RESEARCHERS IN PALAEOLOGY | 1ST IMERP
1XIV ENCUENTRO DE JÓVENES INVESTIGADORES EN PALEONTOLOGÍA | XIV EJP

New perspectives on the Evolution of Phanerozoic Biotas and Ecosystems



ALPUENTE (VALENCIA)
2016

CONFERENCE PROCEEDINGS

The Late Miocene endemic mollusc fauna of the Pannonian Basin (Carpathian region, Central Europe)

Dániel Botka^{1*} and Imre Magyar²

1 Department of Palaeontology, Eötvös Loránd University, Budapest, Hungary. *Email: botkadani@gmail.com

2 MTA–MTM–ELTE Research Group for Paleontology, Budapest, Hungary.

The Pannonian Basin was a Mio-Pliocene extensional back-arc basin surrounded by the chains of the Alpine-Carpathian-Dinaridic orogenic system, in Central Europe. Rifting and subsidence of the basin started in the Middle Miocene, which period is represented by marine deposits of the Central Paratethys Sea (ca. 18–11.6 Ma). Uplift of the adjacent mountains led to isolation of the basin from the ocean at about the same time as thermal subsidence began. Therefore, during the Late Miocene, an enormous lake – Lake Pannon – covered most of the intra-Carpathian Basin System, including the Pannonian Basin proper and the several smaller peripheral sub-basins. In the Plio-Pleistocene, the basin completely filled in with the sediments of paleo-rivers and continental-fluvial environment became dominant (Magyar *et al.*, 1999).

The Pannonian Basin inherited segmented basement morphology, thus the thickness of lacustrine deposits is variable. They can reach even 5 km thickness in some small, deep sub-basins. The sequence of these Pannonian (Late Miocene) sediments can be divided into 5 main lithostratigraphic units: marly-clayey basin fill, sandy turbidites of the toe-of-slope, clayey deposits of the prograding delta/basin slope, sandy deltaic and clayey-sandy fluvial deposits. The boundaries of these sedimentary rock bodies are not synchronous due to intense progradation.

As a consequence of isolation, highly diverse endemic mollusc, ostracod, fish, dinoflagellate, acritarch, calcareous nannoplankton and diatom fauna/flora evolved in the lake. On the basis of these fossil groups, 4 major conclusions were deduced. Lake Pannon was an enormous, long-lived

(11.6–4.0 Ma), brackish water (salinity: 5–12‰) and deep (max. depth over 1000 m) lake, similar to the modern Caspian Sea. The palaeontologists described more than 900 mollusc species from the sediments of Lake Pannon. The most diverse bivalve families were Cardiidae and Dreissenidae, while among the gastropods, Hydrobiidae and Melanopsidae were dominant (Müller *et al.*, 1999; Neubauer *et al.*, 2016).

Our current research aims at the less investigated Early Pannonian mollusc fauna of the Transylvanian Basin (Romania), one of the peripheral sub-basins. The studied localities are: Agârbiciu, Bologaia, Chibed, Cristuru Secuiesc, Gârbova de Jos, Gârbovița, Gușterița, Lopadea Veche, Mihail, Oarba de Mureș, Tău and Vingard. Most of these assemblages indicate profundal environment with the conspicuous dominance of the dreissenid *Congeria banatica* and the cardiid *Paradacna* species.

References

- Magyar I, Geary DH and Müller P. 1999. Paleogeographic evolution of the Late Miocene Lake Pannon in Central Europe. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 147(3): 151–167.
- Müller P, Geary DH and Magyar I. 1999. The endemic molluscs of the Late Miocene Lake Pannon: their origin, evolution, and family-level taxonomy. *Leithaia*. 32(1): 47–60.
- Neubauer TA, Harzhauser M, Mandic O, Kroh A and Georgopoulou E. 2016. Evolution, turnovers and spatial variation of the gastropod fauna of the late Miocene biodiversity hotspot Lake Pannon. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 442: 84–95.