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PRELIMINARY RESULTS OF INVESTIGATION OF THE PANNONIAN (LATE MIOCENE) MOLLUSCAN FAUNA FROM SEVERAL LOCALITIES OF THE TRANSYLVANIAN BASIN (ROMANIA)

D. BOTKA¹, I. DÁVID¹, I. MAGYAR²

¹*Department of Palaeontology, Eötvös Loránd University, Budapest, Hungary*

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

botkadani@gmail.com

During the Late Miocene, an enormous and long-lived lake – Lake Pannon – covered most of the intra-Carpathian Basin System, including the Pannonian Basin proper and several smaller peripheral basins. One of such basins was the Transylvanian Basin, the water mass of which was probably connected to Lake Pannon north and/or south of the Apuseni Mountains, i.e. through the Szilágyság/Sălaj area and/or the Maros/Mureş Valley. Today, the Pannonian sediments constitute a more or less contiguous area in the southern part of the Transylvanian Basin.

Since the Late Cretaceous, more than 5 kilometres thick sedimentary succession has been deposited in some parts of the basin. This basin fill can be divided into four tectonostratigraphic megasequences: Upper Cretaceous rift basin, Paleogene post-rift phase (sag basin), Lower Miocene flexural fore-arc basin and Middle to Upper Miocene compressional back-arc basin (Krézsek & Bally 2006). Simultaneously with the uplift of the adjacent Carpathians, more than 3500 metres thick Badenian to Pannonian sediments accumulated in the Transylvanian Basin. After the complete infilling of the basin, tectonic inversion occurred and exhumation and erosion started at the end of the Miocene. As a result, deposits younger than 8-9 million years have been eroded (Sanders et al. 2002).

In the beginning of the Pannonian, deep-water environments prevailed in much of the basin. In contrast to older theories (Marinescu 1994, Magyar et al. 1999), investigation of sublittoral to deep-water marls near Oarba de Mureş demonstrated that sedimentation was continuous across the Sarmatian/Pannonian boundary, at least in the deeper parts of the Transylvanian Basin (Sztanó et al. 2005, Filipescu et al. 2011). These deep-water sediments are exposed today due to the intense erosion. In the western-south-western part mainly lacustrine fans are preserved. Sedimentation continued in shallow lacustrine and fluvial environment probably until the end of the Miocene. In the south-eastern part some 100 metres thick shallow-water (delta and fluvial) and freshwater/paludal formations are preserved below the Pliocene volcanics that protected the youngest Pannonian beds from erosion (Krézsek et al. 2010).

No detailed and comprehensive treatise has ever been published on the Pannonian molluscs of this basin. We collected the faunal lists of 31 localities from the Romanian and Hungarian palaeontological literature. These records contain altogether 138 taxa (this number is very low compared to the more than 900 species of the Pannonian Basin), including 15 species described as new ones (Lubenescu 1981, 1985, Lubenescu & Lubenescu 1976, Pana 1975). We collected molluscs from several localities (Vingard, Lopadea Veche, Tău, Mihăiţ, Gârboviţa, Oarba de Mureş, Gârbova de Jos, Agârbiciu and Chibed), and compare them with the published data.

The fauna of 5 outcrops (Oarba de Mureş B, C, E, Chibed and Vingard) has been identified so far. In the grey calcareous clay of the Oarba de Mureş B outcrop 5 species („*Gyraulus*” *dubius* (Gorjanović-Kramberger), „*G.*” *praeponticus* (Gorjanović-Kramberger), „*Lymnocardium*” *praeponticum* (Gorjanović-Kramberger), *Orygoceras brusinai* Gorjanović-Kramberger and *O. levis* Gorjanović-Kramberger) were found. From the grey clay marl of outcrop C only one specimen of *Velutinopsis nobilis* (Reuss), while from the light grey calcareous marl of outcrop E many specimens of *Congeria banatica* R. Hörnes and „*L.*” *undatum* (Reuss) are available. These species indicate sublittoral or profundal depositional environment. The grey coarse sand of Chibed contains a lot of *C. banatica* and *Paradacna lenzi* (R. Hörnes), pointing to a profundal lacustrine environment. The Vingard locality – an outcrop consisting of yellowish grey fine sand – yielded the following taxa: *Melanopsis fossilis fossilis* (Martini & Gmelin), *M. magnus* Lubenescu, *Unio* cf. *mihanovici* Brusina, *Congeria* div. sp. and *Melanopsis* sp. This fauna obviously indicates a littoral nearshore environment.

With further collection and investigation of fossils, sedimentological field studies and revision of old fossil collections, our objective is to gain new information about the connection between the Transylvanian and the Pannonian Basins and to explore the palaeogeographical, palaeoenvironmental and palaeoecological context of the Late Miocene molluscan faunas.

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