



A sedimentological review of the Pannonian Basin late middle Miocene fossil primate locality at Felsőtárkány, Hungary

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The sediments that outcrop to the north of Felsőtárkány in Hungary (47° 58' 34" N, 20° 24' 46" E) were originally assigned to the Pannonian stage of the Central Paratethys realm (approximately MN9). Intensive sampling of micro-mammal fossil material from the locality in recent years has revised its stratigraphic placement to Sarmatian in age (MN7/8). The rhyolite tuff horizon, attributed to the Galgavölgy Formation, present at the base of the outcrop has been dated to 13.7±0.8 Ma using K/Ar isotope dating. The list of fossil vertebrate material collected at this locality includes Proboscidea, Carnivora, Artiodactyla, Primates, Insectivora, Lagomorpha and Rodentia. Of palaeoanthropological note is the intermediate phalanx attributed to *Pliopithecus*.

Four principle facies associations were observed at this locality. The basal association, assigned to the Sarmatian aged Kozárd Formation, generally comprises fossiliferous calcareous green siltstones and sandstones intergraded with silty, matrix supported conglomerates of reworked rhyolite tuff. These sediments are thought to be representative of a brackish, near-shore environment. The presence of an overlying lignite seam and associated evidence for palaeosol formation indicates water level fall and sub-aerial exposure. Repeated sequences of calcareous sandstones and mudstones, which contain a high abundance of exceptionally preserved leaf imprints, conformably overly the lignite and grade into thickly bedded sandstones up-section. These are considered to represent distal and proximal floodplain deposition respectively, and are tentatively assigned to the variegated clastics of the upper Badenian to Pannonian aged Sajóvölgy Formation.

The sedimentary succession is considered likely to correspond to a river-dominated delta-top, with the basal association marking an interdistributary bay environment, which becomes paludal as water level falls. Initial distal floodplain deposition is followed by more proximal sandstone deposits due to progradation of the delta southwards from the uplifted Bükk Mountains, and possible channel avulsion on the delta-top.

Felsőtárkány is effectively situated on a palaeo-coastline during the late middle Miocene and early late Miocene. The transition from Sarmatian near-shore, shallow water and nearby upper Badenian to Sarmatian reef facies to younger delta-top floodplain facies may indicate the initiation of the final Miocene regression from this area of the Pannonian Basin.