

Multi-method chronological investigation of a Middle Paleolithic stratigraphic context in Eastern Transylvania, Romania

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The Middle to Upper Paleolithic transition is one of the crucial periods of change in the prehistory of Europe due to the full emergence, continent-wide, of modern human technologies, detrimental of Neanderthal survival. Knowledge about the transition is vast, however, the evidence for cultural and technological developments in the Carpathian – Lower Danube area is still rather sparse.

Here we discuss latest results arising from an archaeological-chronological investigation of a Middle Paleolithic context within the Varghis karst, eastern Transylvania, Romania. Combining our results with those of previous excavations, we can distinguish several stages of habitation in the area comprising a rock shelter connected to a newly discovered filled-in cave entrance. Reanalysis of the deeper stratigraphy previously unexcavated shows that at least two main habitation levels have been preserved. In both levels, the bone assemblages (Bos/Bison, Capra, Canis lupus, Ursus spaeleus) directly associated with lithics point to human-accumulation of material. In order to augment the typological cultural considerations, we applied direct radiocarbon dating on bones from within the occupation layers and on scattered charcoal, for the latter following a two-step combustion protocol (1). Radiocarbon dating on bones suggests the lowermost occupation layer is >43.4 radiocarbon kyr BP old, whereas the preliminary infrared stimulated luminescence (IRSL) ages on the lowermost productive layer and above it indicate surprisingly old ages of ca. 120 kyr and respectively, ca. 70 kyr. Multiple-protocol dating of charcoal found within the two habitation layers produced ages >38 radiocarbon kyr BP, suggesting that the lowermost habitation layer unequivocally pertains to the Middle Paleolithic industries. For the upper productive layer, radiocarbon dating of charcoal found 20 cm above it produced a surprisingly young age of 17.4 radiocarbon kyr BP. However, as the carbon content of this sample was less than 3%, it shall be treated with caution until further age estimates are produced. Moreover, the upper habitation level is marked by a high percentage of lithics recovered from the excavated material; it is very likely that the assemblage represents yet another phase of a Middle Paleolithic industry. Overall, the recovered lithics, currently forming one of the most significant collections of this sort for the area, are consistent with two main habitation phases connected to Middle Paleolithic cultural affinities.

(1) Molnár, M., Janovics, R., Major, I., Orsovski, J., Gonczi, R., Veres, M., Leonard, A.G., Castle, S.M., Lange, T.E., Wacker, L., Hajdas, I., Jull, A.J.T., 2013. Status report of the new AMS 14C sample preparation lab of the Hertelendi laboratory of environmental studies (Debrecen, Hungary). Radiocarbon 55, 665-676.