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East Gravettian Khotylevo 2 site: Stratigraphy, archeozoology, and spatial organization of the cultural layer at the newly explored area of the site

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ABSTRACT

The present paper discusses the spatial and stratigraphic analysis of an assemblage of archeological remains from the newly found point B (lettered in Cyrillic) of the Eastern Gravettian site Khotylevo 2. The new find was discovered by the Khotylevo Archaeological Expedition in 2005. The cultural layer of the site relates to a level of initial soil formation at the base of the Desna loess horizon. The stratigraphic position of the cultural layer at point B is typical of the entire Khotylevo 2 site and does not differ substantially from those at points А and Б. Currently, two closely related assemblages of archeological remains have been discovered at point B over an area of 45 m^2. The first assemblage is noted for the presence of rounded shallow pits and embedded mammoth bones surrounding concentrations of bone coal; it also contains split animal bones, and flint splinters. Similar assemblages were discovered by F.M. Zavernyaev during the excavations at Khotylevo 2 in the 1970s. The second assemblage is marked by large clusters of intentionally arranged bones of woolly mammoth (*Mammuthus primigenius*). There is a certain pattern traceable in the bone arrangement, similar to those observed in mammoth bone structures of the Anosovka-Mesin dwellings. Microstratigraphic correlation of the two assemblages considered together with the radiocarbon dates strongly suggests them to be of different ages. The most abundant bone remains within the studied area belong to woolly mammoth. The list of mammal species identified from this site shows no significant difference from species lists known from other sites of the Russian Plain dated to the same chronological interval. The scarcity of bones belonging to other herbivorous mammals may be due to the fact that no butchering was performed at this part of the site. The abundance of mammoth bones does not directly indicate simultaneous overkill of those animals; it is quite possible, however, that individual animals were killed periodically.

1. Introduction

The Upper Paleolithic site Khotylevo 2 is situated 400 km SSW of Moscow and 25 km NW of Bryansk (Fig. 1). The site was discovered in 1968 by F.M. Zavernyaev (Zavernyaev, 1974) who continued the excavations from 1969 to 1981, with a few interruptions. In 1993 the field excavations were reopened by the Khotylevo Archeological Expedition (hereafter referred to as KhAE) of the Institute of Archeology, Russian Academy of Sciences.

Prior to the 2000s, the studies of Khotylevo 2 were mostly based on the results of excavations performed in the part of the site adjoining the valley slope (Zavernyaev, 1974; Gavrilov, 2008). It was as early as in the 1970s, however, that a team of researchers under the direction of A.A. Velichko (Velichko et al., 1977) discovered the presence of a cultural layer on the plateau at some distance from the valley To verify the information, test pit No. 5 was dug by the Khotylevo Archeological Expedition (IA RAS) in 2003, and the exposed sequence appeared to include a cultural layer abounding

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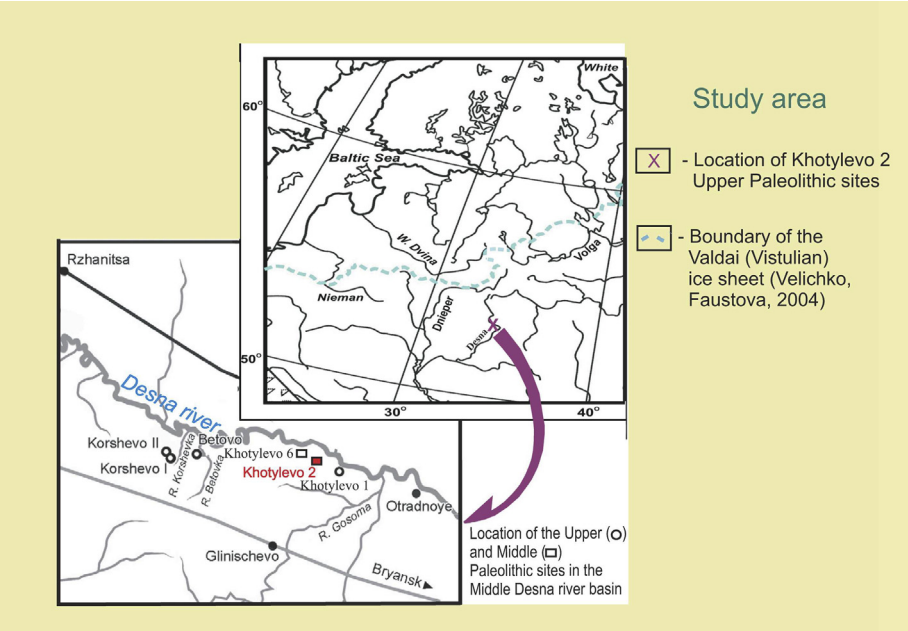

Fig. 1. Location of the site.

in archeological remains. The new area of the cultural layer was designated as "point B". It is at some distance from the Desna valley slope and 50 m south of the 1981 excavation by F.M. Zavernyaev. It was excavated between 2005 and 2011 (Gavrilov and Voskresenskaya, 2012).

2. Geomorphology and stratigraphy

The Khotylevo 2 site is located near the edge of the watershed plateau on the right side of the Desna R. valley, about 20–25 m above the water level (Fig. 2). The valley side rises steeply above the Holocene floodplain level. The relative elevation of the highest point on the watershed plateau above the river channel is up to 60 m. The watershed surface is gently rolling and densely dissected by an erosional network. The erosional landforms related to the Desna R. floodplain vary widely in size and cross-profile, from long well developed flat-bottom valleys ("balkas") penetrating deeply into the watershed area to smaller V-shaped ravines; the latter cut the valley side into a series of regular protrusions ("promontories") facing north. At present the cultural layer attributable to Khotylevo 2 was found in four points lettered in Cyrillic as **А**, **Б**, **В**, and **Г** (Fig. 2). The stratigraphic sequence of the loess, paleosols, and cryogenic horizons dated to the Late Pleistocene is practically identical in all four points (Voskresenskaya, 2007; Voskresenskaya and Gavrilov, 2011).

The bedrock in the Desna drainage basin is Middle Jurassic and Upper Cretaceous. The present-day Desna channel cuts Jurassic (Callovian) black clays extending below the water edge near Khotylevo village (Geological…, 1998). The Upper Cretaceous sediments are represented by Cenomanian quartz-glauconitic sands with phosphorite nodules exposed near the base of the recent river valley side about 1–2 m above the water level in the Desna channel. They are overlain with Turonian chalk and marls including grayish-black siliceous concretions. Directly on the top of Turonian rocks there are loess-paleosol-cryogenic series accumulated during the last glacial–interglacial cycle. The thickness of the subaerial series excavated at point B is 6.4 m (Fig. 3). In the upper part of the sequence (layers 1–3) there is a modern gray forest soil with horizons A_{arable} – A–B – Bt developed on the loess-like sandy loam attributed to the Altynovo loess horizon (layer 4) (Velichko et al., 2010). The Holocene soil-forming processes exerted a noticeable influence on the loess-like sandy loams to a depth of 1.5 m. In the excavations close to the valley slope, there are clearly distinguished funnel-shaped structures (standing out sharply due to oxidized interlayers of the illuvial horizon Bt) – the upper parts of huge ice-wedge pseudomorphs penetrating to a depth of 5 m. In the sequence of loess-like deposits (layers 4, 6, 8) up to 4.7 m thick, there are discernible intervals when sedimentation slowed or completely stopped (layers 5, 7). Traces of weakly pronounced soil formation are noticeable at a depth of 2.3–2.5 m. The resulting profile consists of a shallow humus horizon and carbonate accumulation with a characteristic tongue-like lower boundary. The described level is correlatable with the Trubchevsk soil-formation level dividing the Altynovo loess from the lower-lying Desna loess horizon. In the sandy loam of layer 6, there are thin lenses with a noticeable, though varying, admixture of sand, indicative of activated processes of slope wash. The gradient of the lenses suggests that the most active wash was directed eastwards (lenses dipping at an angle of 5–7°) at all the stages of loess accumulation, towards the depression at the head of a gully. It may be suggested that the depression east of the excavation already existed at the time of the site functioning and later, after it had been abandoned. The interlayers oriented northwards, towards the Desna valley, occur almost horizontally or at an angle no more than 2°.

The horizon of bluish-gray silt at a depth of 3.6 m fringed with iron oxide at the lower boundary (layer 7) probably indicates the position of the former active layer. There is a fine grid of oblique frost fissures traceable from the top of this horizon downwards, as deep as the cultural layer, and breaking the latter into polygons 30–50 cm across over the entire excavated area.

The boundary between the sterile loess-like deposits of layer 8 and the cultural layer is marked with isolated lenses of medium-to fine-grained quartz sand. This is evidence of the slope wash activation after the site stopped functioning. The cultural layer itself does not bear traces of distortion and deformations correlatable with the period of the early human habitation at the site.