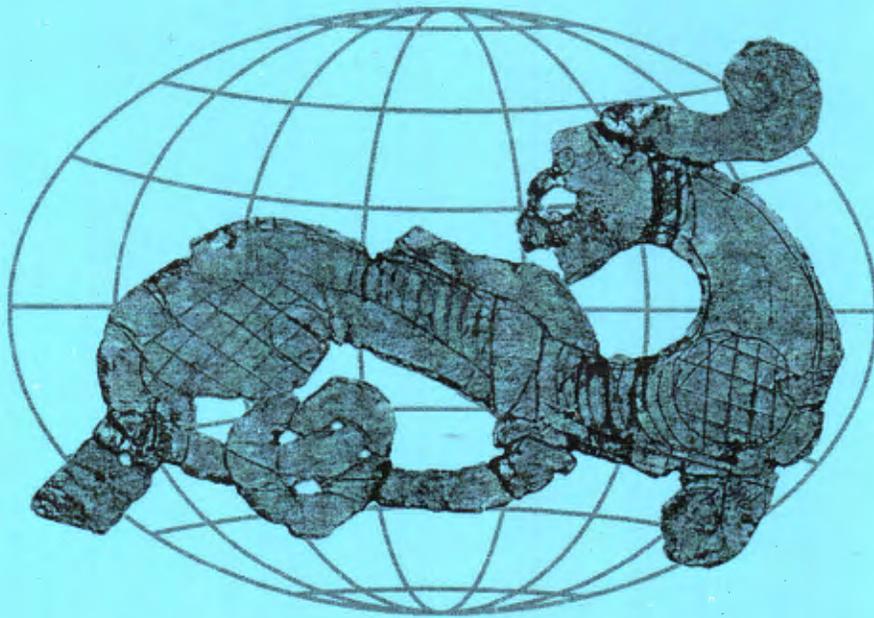


# **GEOMORPHIC PROCESSES AND GEOARCHAEOLOGY**

## **From Landscape Archaeology to Archaeotourism**

International conference  
August 20-24, 2012  
Moscow-Smolensk, Russia



## **EXTENDED ABSTRACTS**

ISBN 978-5-91412-129-9

Geomorphic Processes and Geoarchaeology: from Landscape Archaeology to Archaeotourism. International conference held in Moscow-Smolensk, Russia, August 20-24, 2012. Extended abstracts. Moscow-Smolensk. «Universum». 2012. 317 p.

Compiled by Maria Bronnikova and Andrey Panin. Computer design by Elena Sheremetskaya.

Printed with financial support from the A.I.Shkadov Foundation (Fond im. Alexandra Ivanovicha Shkadova)

ISBN 978-5-91412-129-9

Геоморфологические процессы и геоархеология: от ландшафтной археологии к археотуризму. Материалы Международной конференции. Москва – Смоленск, Россия, 20-24 августа 2012 г. Москва-Смоленск: «Универсум», 2012. – 317 с.

Составители: М.А. Бронникова, А.В. Панин. Компьютерная верстка: Е.Д. Шеремецкая.

Издано при финансовой поддержке Благотворительного Фонда имени Александра Ивановича Шкадова.

preliminarily. Nevertheless we can't name similar industries of the same period in the region.

Nowadays we are going to receive dates (radiocarbon analysis) from the 3<sup>rd</sup> and 4<sup>th</sup> layers as well as results of spore-pollen analysis of the sediments. Sediments in the profile contain pebbles and huge nodules (diameter 10-15 cm) and thin tablets of slate. This fact as well as huge thickness of alluvial soil at valley lowland river could hardly be explained. Usually multilayer sites in Siberia contain cultural layers in each humus stratum. Such strata (up to 10 cm) are thicker than at our site at the Izhma river (1-2 cm). Moreover, in Siberia there are groups of such sites – up to 10 in the mouth-area of the river. Vyls Tom 2 has no neighbor multilayer sites.

#### References

1. *Mochanov, Yu.A.* 1969. *Mnogosloinaya stoyanka Bel'kachi 1 i periodizatsiya kamennogo veka Yakutii*. Moscow, Nauka, 255 p. (in Russian).
2. *Ineshin, E.M., Teten'kin, A.V.* 2010. *Chelovek I prirodnyaya sreda severa Baikalskoi Sibiri v pozdnem pleistotsene*. *Mestonahozhdenie Bol'shoi Yakor'I*. Novosibirsk, Nauka, 270 p. (in Russian).
3. *Vetrov, V.M.* 1995. *The Ancient Cultures of the Upper Vitim: Early Pottery. The Origin of Ceramics in the Far East: International symposium*. Sendai. P. 31-46.
4. *Savel'ev, N.A., Abdulov, T. A., Generalov, A.G.* 1987. *Issledovanie mnogosloinogo poseleniya Kazachka*. In: *Issledovaniya pamyatnikov drevnikh kul'tur Sibiri i Dal'nego Vostoka*. *Sbornik nauchnykh trudov*. Novosibirsk, P. 135-137. (in Russian).
5. *Savel'ev, N.A., Goryunova, O.I., Generalov, A.G.* 1974. *Mnogosloinaya stoyanka Gorelyi les*. In: *Drevnyaya istoriya narodov yuga Vostochnoi Sibiri*. Irkutsk, Vypusk 1, P. 160-199 (in Russian).

#### NEW GEOARCHEOLOGICAL STUDIES OF THE MIDDLE PALEOLITHIC SITE KHOTYLEVO I (THE UPPER DESNA RIVER BASIN, RUSSIA)

**Voskresenskaja E.V.<sup>1</sup>, Ocherednoy A.K.<sup>2</sup>**

<sup>1</sup> *Institute of Geography, RAS, Moscow, Russia, kavosk@mail.ru*

<sup>2</sup> *Institute for the History of Material Culture, RAS, St. Petersburg, Russia, mr\_next@rambler.ru, a.otchednoy@gmail.com*

The Desna River valley is one of the most interesting places of concentration of Paleolithic sites in the East-European Plain. There is evidence of earlier presence of humans here, practically since the initial occupation of the East European Plain. In this paper we discuss the new data on lithology and environments of sedimentation of Late Pleistocene loess-soil and fluvial series at one of the most famous Middle Paleolithic site in this region known as Khotylevo I occurrence.

The Middle Paleolithic site Khotylevo I is situated on the high right bank of the Desna River, 18 km to the north-west from Bryansk city. The site Khotylevo I was first excavated by one of the main investigator of prehistorical archaeology of western Russian regions F.M. Zavernjaev during 1960-1964. He found only one cultural layer with numerous of debitage there – Levallois flakes, classical Levallois cores, unifacial and bifacial tools. These large collections, including more than 18.000 pieces, were divided

him according to F. Bordes system into several complexes: Acheulo-Mousterian complex (there were majority of bifacial forms), Quina complex and Ferrassie complex. The oldest one was dated as Riss-Wurm complex (Acheulo-Mousterian). This point of view was published in monography of F.M. Zavernjaev in 1978 [1]. Over years of study, various views have been formulated with regard to the typology of lithic industries and the stratigraphy. Different researchers of former Soviet Palaeolithic School at different times paid attention to Micoquian components in these collections and put this site in to the Eastern Micoquian.

The Khotylevo I is extended at a distance about 800 m along the riverbed of the Desna river. The right bank has a height of 22–25 m above the water level and gently slopes down in the valley of right tributant of Desna river named Gosoma downstream of the site. The features of relief such as high floodplain areas and the first terrace are clearly visible. The structure of the high bank shows considerable variability between the downstream and the upstream sections of the site. The downstream sections of Khotylevo I cultural horizon are associated with the basal alluvial horizon. Tabular flint pieces (including flinty artifacts), rounded pebbles of crystalline rocks and rare bones remains of the mammoth faunal complex were recovered at a depth of 10.44–10.55 m below the surface.

This culture-bearing horizon overlies bed-rock Cenomanian quartz-glaucinite sands. Overlying sediments are divided into alluvial and sub-aerial series. The alluvial unit up to 5-7 m thick comprises riverbed, oxbow lake, and floodplain facies. The upper portion of the profile contains sediments of subaerial origin. These sediments represent the redeposited Mezin pedocomplex overlaid by thick horizon of Late Valdai loess deposits with modern grey forest soil on the top. The material of paleosols was moved by process of solifluction in the periods of active slope erosion, obviously between the end of formation of the Mezin polygenetic complex and the Middle Valdai megainterstadial [2].

Recently we returned to the collections of Khotylevo I and found that cultural remains layers in different geologo-geomorphological positions depend on the location of key sections, which situated in upstera or downstream. We began field works at the upstera sections of site in 2010 and found cultural remains in buried soils there. This area, named Khotylevo I-6-2, located in several hundred meters upstream from the place, where the first excavations by F.M. Zavernjaev were situated. It should be noted, that on the thickness of loess and soil sub-aerial deposits increase in the upstera sections of occurrence. At the some sections of site Khotylevo I-6-2 sub-aerial Valdai deposits covered directly on the sandy Turonian chalk containing numerous of black flint concretions.

During the field season of 2010 we found four horizons with the cultural remains. The materials from the whole horizons have middle palaeolithic morphological and technological features. In all horizons we have different variants of Levallois cores (flat cores) and end cores, the Levallois flakes and simple tools, made on them; only in the Second horizon we have number of biface thinning flakes and chips (fig. 1).

The sediments enclosing fourth cultural horizon (lithological layer № 15) was represent light gray coarse-grained sand interlayered with bands of greenish clay and with numerous chalk and flint concretions. And only Fourth cultural horizon lies on the Cenomanian bedrock sands (lithological layer № 16) in the same positions like in

downstream section. This cultural horizon was overlaid by layers of floodplain alluvium up to 90 cm thick (lithological layers № 14-13), represented by gray laminated small-grained sands and loams.

The Third horizon of cultural remains presents only rare chips and two typical Levallois flakes and consists of light brown sandy loam (lithological layer № 13). Another four horizons with the cultural remains lie down in different variants of fossil soils.

The first (from the bottom of section Khotylevo I-6-2 (2010)) laminated buried soil (lithological layer № 12) consists of three thin humus horizons separated by layers of fine-grained rusty sands and has a characteristic of less developed alluvial soil. The cultural remains from the Second cultural horizon, lie in the humus horizons and are also divided into three sub-horizons. From the second sub-horizon (cultural horizon № 2 / 2) we have single  $^{14}\text{C}$  data  $42270 \pm 3300$  (GIN-14414) made of the humus acid from soil [3].

The second burial soil, enclosing artifacts of First cultural horizon, represents brown sandy loam with lenses of black humus (lithological layer № 9) underlying by horizon of greeny marl with pieces of chalk. The properties of reworked soil material indicate that soil profile was disturbed as result of moving of slope material in hydromorphic conditions with cryogenic deformation. The micromorphological structure feature of this soil has some similarities with Bryansk Middle Valdai paleosol [4].

The deposits overlying of paleosols with cultural layers represented by thick series of laminated loess-like carbonated-free silt sediments; some gley horizons and lenses of weathering pieces of chalk have been determined. The uppermost part of sections is modern sod-podsol soil.

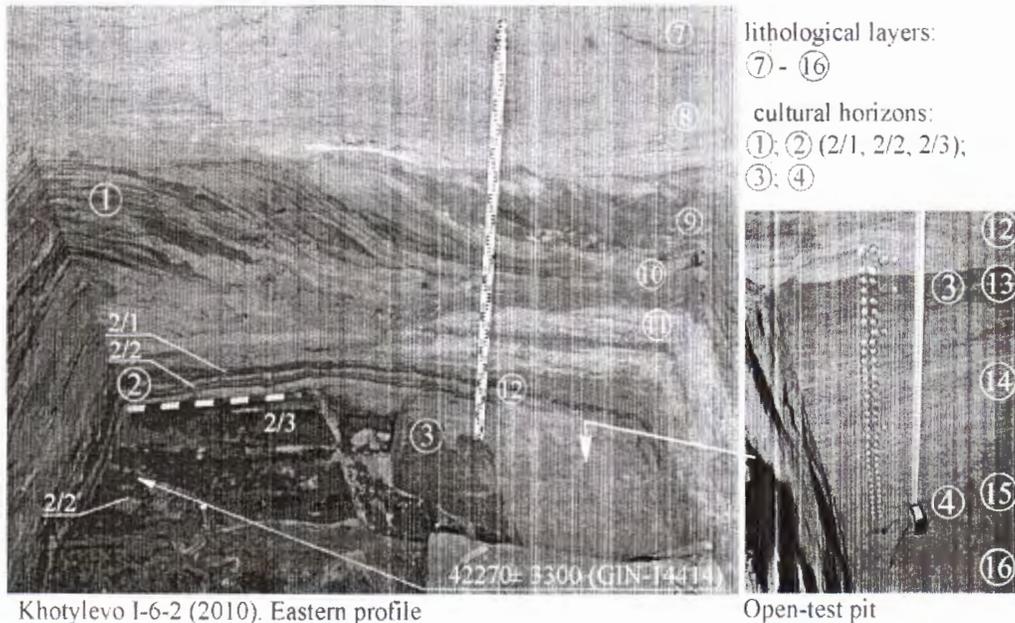


Figure 1. Distribution of buried soils and cultural horizons in Khotylevo I-6-2 (2010) section

The time of occupation of Khotylevo I by Middle Paleolithic men should be correlated with chronological interval of Early / Middle Valdai transition period which characterized by sharp and short-term climatic changes. The Middle Paleolithic men

preferred the areas of inner parts of floodplain near backslopes. During the second part of the last glacial epoch stages of loess accumulation on watersheds and fluvial sediments in valleys more than once alternated with those of mass movement activation on slopes and channel downcutting in the Desna valley. Therefore the most part of inhabited areas of Middle Paleolithic was destroyed and these areas have no traces in modern relief of the Desna river valley.

*Investigation is going on thanks to supporting of project RFBR 11-06-00380-a*

#### References

1. *Zavernyaev, F.M.* 1978. Khotylevskoe paleoliticheskoe mestonahozhdenie. Leningrad, Nauka (in Russian).
2. *Ocherednoi, A.K., Voskresenskaya, E.V.* 2009. Uslovija zaleganija srednepaleoliticheskikh pamjatnikov basseina Verhnei Desni. Archaeology, Ethnography and Anthropology of Eurasia, Vol. 2, Is. 28, P. 28-36 (in Russian and in English).
3. *Voskresenskaya, E.V., Vishniackii, L.B., Zaganova, I.S., Novenko, E.Yu., Ocherednoi, A.K.* 2011. New data on the evolution and age of sediments, enclosing the cultural horizon of the Middle Palaeolithic site Khotylevo I (Desna River basin). Materiali VII Vserossiiskogo soveschaniya po izucheniju chetvertichnogo perioda, Vol. 1 (A – K), Apatiti, Saint-Petersburg, P. 116-119 (in Russian).
4. *Voskresenskaya, E.V., Morozova, T.D.* 2009. The microstructure of the cultural layer and feature of soil formation in area of Upper Paleolithic site Hotylevo 2. Works of V International conference «Evolution of a soil cover: history of ideas and methods, holocene evolution, forecasts», Pushchino, P. 227-228.

### LATE MID-HOLOCENE CLIMATE VARIABILITY AND FALL OF THE OLD KINGDOM IN EGYPT CA. 2100 BC, A NEW GEOARCHAEOLOGICAL PERSPECTIVE

**Welc F. <sup>1</sup>, Marks L. <sup>2</sup>**

<sup>1</sup> *Institute of Archaeology, Cardinal Stefan Wyszyński University in Warsaw and Department of Climate Geology, Faculty of Geology, University of Warsaw, Poland, f.welc@uksw.edu.pl*

<sup>2</sup> *Department of Climate Geology, Faculty of Geology, University of Warsaw and Polish Geological Institute – National Research Institute, Warsaw, Poland, leszek.marks@uw.edu.pl, leszek.marks@pgi.gov.pl*

Geoarchaeological and textual data clearly indicate, that the second half of the Old Kingdom Period (from ca. 4400 BP) witnessed a gradual change of climatic conditions in Egypt. From the end of the Old Kingdom, i.e. 4200 BP, the climate throughout the country had become gradually more and more dry, resulting in droughts and famine [1]. In opinion of many Egyptologists, such environmental events are also reflected in textual data from the First Intermediate Period (ca. 4000 BP) [2]. It can be deduced from several inscriptions dating to the period in respect, that there was a series of catastrophically low floods between 4250 and 3950 BP [3, 4]. Unstable climate conditions strongly affected the Egyptian society. The most distinctive marker of these times is the almost complete breakup of the royal administrative system that caused internal unrest and in consequence the collapse of the country [5].