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UPPER PALAEOLITHIC ADAPTATION TO SURROUNDING LANDSCAPES IN DIVNOGOR'YE (MIDDLE DON, CENTRAL RUSSIA)

Alexander A. Bessudnov, Alexander N. Bessudnov

Institute for the History of Material Culture, Russian Academy of Sciences, St. Petersburg, RUSSIA, bessudnov_a22@mail.ru

Lipetsk Pedagogical State University, Lipetsk, RUSSIA, bessudnov_an@rambler.ru

The main problem for the reconstruction of Palaeolithic strategies of adaptation is the single sites separated one from other by long distances. Principal meaning for this purpose has accumulation of settlements, especially with sites of different functions (base camps, kill-sites, workshops for flint knapping, etc.). The best example of this accumulation of Palaeolithic sites is the Kostenki-Borshchevo group. New group of Late Upper Palaeolithic sites near Divnogor'ye in Middle Don, Voronezh region, was discovered and excavated during last decade. Remains of sites of distinct functional meaning allow us to reconstruct the human adaptation strategy to local environmental.

Divnogor'ye village is located on the right bank of the Tikhaya Sosna River, approximately 3 km from its confluence with the Don River. In the vicinity of the archaeological site the floodplain of the Tikhaya Sosna is 8 km wide. The right bank of the floodplain has two distinct topographic levels – central and high floodplain. High floodplain passes into the first terrace [1], which lies up to 12 m above the present-day elevation of the river channel. Cultural remains at the site Divnogor'ye 1 lie in loess-like deposits of this terrace (Fig. 1). Rights slope of the Tikhaya Sosna valley and the Don River is 100 m high, while the slope angle exceeds 60 degrees. The slope is cut by gullies and ravines. Bone bed at the site Divnogor'ye 9 is connected with the filling of one of these ravines (Fig. 1).

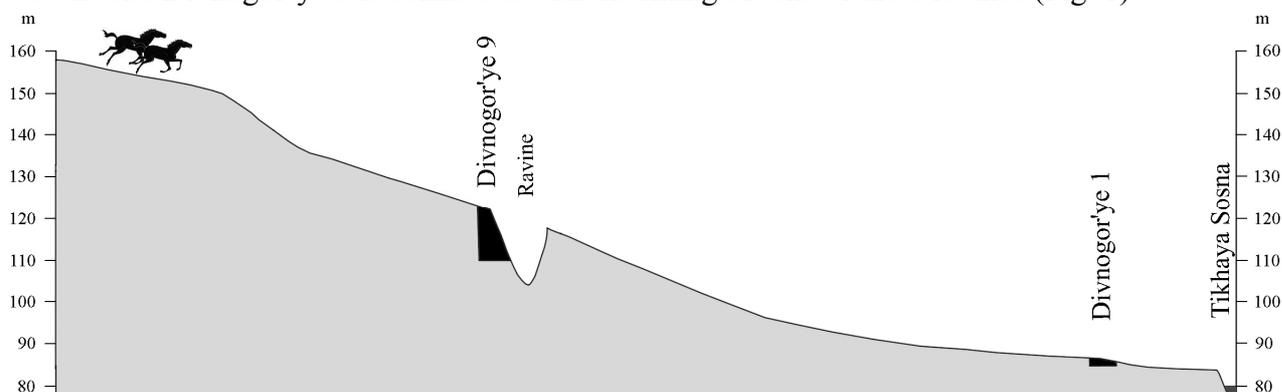


Fig. 1. Topographic cross-section of the Tikhaya Sosna Valley in the area of the location of the Divnogor'ye Palaeolithic sites.

There are two Palaeolithic sites and several localities of chipped stone concentrations near the Divnogor'ye village. [2]. Divnogor'ye 1 is a short-term occupation area, possibly a seasonal camp site. The site contains a thin cultural layer, with a dense concentration of lithic material (1500 items from a 53 m² excavation). The assemblage provides features of the Eastern Epigravettian techno-complex and contains truncated burins and points, end-scrapers and backed bladelets. Bones of various animals were also recovered at the site. Remains of wild horses (*Equus ferus*) are dominated in the faunal assemblage, while a small number of reindeer bones (*Rangifer tarandus*) were also recovered [3]. As a rule, mammal remains lie in chaotic position, but sometimes groups of bones in anatomical order are found. Elements

of the axial skeleton are very rare. Two horse bones were submitted for radiocarbon dating. The resulting dates are $12\ 050 \pm 170$ (Le-8649) and $13\ 380 \pm 220$ (Le-8648). The second date seems to be more representative for the actual age of the settlement.

The bone bed at the site Divnogor'ye 9 (2.5 km to northeast from Divnogor'ye 1) is located in the middle part of an old ravine (Fig. 2). The site contains six or seven levels separated by sterile layers of calcareous siltstones and contain horse bones. Radiocarbon dates acquired on a number of horse bones from the various cultural levels indicate that the human occupation of the site occurred between $13\ 150 \pm 200$ (Le-8136; Level 1) and $14\ 430 \pm 160$ (AA-90655; Level 6). The relatively small age difference between the oldest and the youngest date suggests that the bones accumulated during a relatively short time span. An important geo-chronological marker is a paleosol layer which caps the bones levels. This is the Alleröd soil, as confirmed by palynological data [4] and radiocarbon dates and formed during a warmer climatic episode during the Alleröd period.

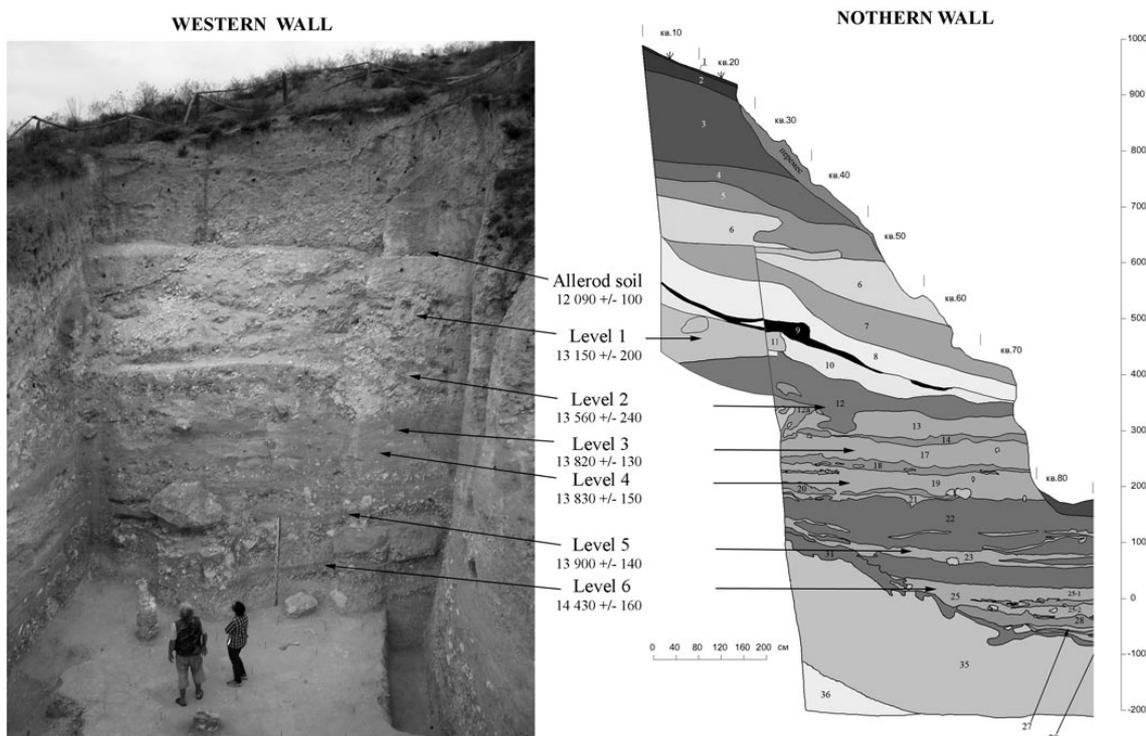


Fig. 2. The stratigraphic profile and associated cultural levels at the Divnogor'ye 9 site (2011).

The levels contain dense concentrations of horse bones in anatomical order. In some cases the bone beds yielded almost complete skeletons of individual horses. According to N.D. Burova (IHMC RAS), the minimum number of individual horses represented by the combined faunal material from all cultural levels is 59. The recovered material also contains a small assemblage of faunal remains of the polar fox (*Alopex lagopus*) and the wolverine (*Gulo gulo*). More than 60 chipped stone artifacts from the various cultural levels were also recovered at the site. Single flint implements were found in each level, the highest concentrations occurred in levels 4, 5 and 6. Typologically the artifacts are similar to those recovered from the Divnogor'ye 1 site, although flakes from the Divnogor'ye 9 site were substantially more commonly retouched than at the Divnogor'ye 1 site (38% and 10% respectively). The chipped stone assemblage includes truncated burins and blades, retouched flakes and baked bladelets. Several horse ribs contained thin parallel cut-marks indicating that stone tools were used during the butchering process in level 6 at the site.

Both sites appear to be contemporaneous as indicated by the radiocarbon dates and were occupied by people who relayed on similar tool kits and foraging patterns. Both contain similar faunal assemblages (dominated by horse remains), raw-materials (high-quality chalk flint), knapping technology, and tool design. It seems to be very probable that sites represent different kinds of activities of the same group of people because of the close spatial, temporal and cultural association. With a high degree of confidence we could assume the synchronous existence of sites with functional difference [4].

In contrast to mammoth and bison bone beds, Paleolithic settlements near locations where horses died from non-human related causes are almost unknown. Using of animals meat from cemeteries is possible only in winter when bone bed becomes a kind of "refrigerator". While horse meat can be potentially scavenged from horse cemeteries, this can only be effectively done during the winter season. However, since the Divnogor'ye 9 site contains the remains of horses which died mostly during the spring and summer months [3], the scavenging hypothesis appears to be unsupported by the evidence. On the other hand, since horses tend to gain fat, and gather in large herds during the spring and summer month, it is this time of the year when hunting of these animals can result in substantial returns. This time of year is supposed to be the best for hunting on horses, when the mammals reach the highest fatness and gather in large herds. In Divnogor'ye 9 N.D. Burova state the absence of distal parts of horse limbs that could be carried away with the limbs to the habitation area. Faunal assemblage and characteristics of the cultural layer of Divnogor'ye 1 does not contradict this interpretation.

Geomorphological position of Divnogor'ye sites are of great importance. Divnogor'ye 1 is situated on a low terrace of 5-6 m above the modern river level. The location was probably selected for occupation because its position nears a water source and protection from the wind. Divnogor'ye 9, in contrast, is located in an exposed position in the middle of the ravine, cutting through the slope of the watershed, at an altitude of 35-40 meters. This location offers a good horse hunting ground. Natural cliffs and ravines were commonly used by humans in Europe and North America to trap and kill animals. The Divnogor'ye 9 site appears to be a hunting locality which utilized the natural topography of the area for ambushing and killing of horses.

Thus, there are more reasons to consider Divnogor'ye 9 as a systematically horse hunting site (kill-site) mainly in spring/summer periods. Divnogor'ye 1 may have been a short-term campsite which facilitated the nearby seasonal hunts, where, parts of horse body were transported for butchering and cooking from the Divnogor'ye 9 bone bed. Despite of some questions such as mechanism of the hunt, several bones levels indicate quite successful hunting strategy and its long-term use during 13–14 thousand years ago.

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