

THE FORMATION OF MAMMOTH BONE ACCUMULATION AT THE GRAVETTIAN SITE KRAKÓW-SPADZISTA B+B1

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Abstract. The subject of this paper is sector B+B1 of the Upper Palaeolithic site Kraków-Spadzista. In this sector, situated on the rocky elevation above the Rudawa River valley in the loess deposits (layer 6), an accumulation of mammoth bones was partially excavated and provided some evidence of activities of Gravettian hunters (hearths, lithic artefacts, rare modified bones). The accumulation of mammoth bones is a result of several occupational episodes dated between 24,000 and 23,000 years BP; in every episode some mammoths were killed and butchered. Postdepositional factors, such as solifluction (forming a sequence of lobes), human and carnivore activities, and animal trampling disturbed the original structure of killing and butchering areas, particularly in the filling of the karstic depression in the bedrock. Some *in situ* structures have only been preserved on the platform surrounding the depression.

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INTRODUCTION

In the period preceding and directly following the Last Glacial Maximum (LGM) in central-eastern Europe, the occurrence of mammoth bone accumulations is characteristic. Some of these accumulations are found within the context of archaeological sites of the middle phase of the Upper Palaeolithic, mainly at Gravettian and Epigravettian sites.

Mammoth bones accumulations, especially those in the context of archaeological sites, have been the subject of a variety of interpretation. As early as at the end of the 19th century, WANKEL (1890) maintained that the accumulations discovered at Předmosti in Moravia were the effect of intensive mammoth hunting. Later, ABSOLON (1945) described the bone accumulation from Dolní Věstonice as “kjökkenmødding”, i.e. accumulation of waste from consumption; the claim that intensive, specialized mammoth hunting was one of the causes of the formation of bone accumulations at sites was common in the literature, owing to works by KLIMA (1990), MUSIL (1997), VALOCH (1997), KUBIAK (2000), and others.

ASSEMBLAGES OF MOLLUSCS AT THE PALAEOLITHIC SITE KRAKÓW-SPADZISTA

Stefan Witold ALEXANDROWICZ

Abstract. The sequence of three molluscan assemblages characterizing changes of the climate was found in the section of the middle and upper Vistulian loess. The first assemblage includes a relatively rich fauna with *Arianta arbustorum*, corresponding with the interpleniglacial or interstadial. Assemblages with *Succinea oblonga* and *Pupilla loessica* occur in the upper part of loess covering deposits of the bone-bed type. They point to the cold-humid and cold-dry phases of the Vistulian pleniglacial, respectively.

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Shells of subfossil snails were found during the exploration of the Palaeolithic site Kraków-Spadzista Street, excavated gradually since 1966. The fauna of molluscs was noted in two segments of this site: A (A1) (KOZŁOWSKI 1969, WIKTOR 1969) and C (C2) (KOZŁOWSKI and SOBZYK, eds. 1980, S. W. ALEXANDROWICZ 1987b). It occurs only locally in not decalcified loess and loess-like deposits containing an admixture of calcium carbonate. The bulk of this sediment is devoid of shells, which have been partly or even completely dissolved. They are preserved only in two layers, strictly corresponding with members 7 and 5 of the locality B+B1 described at present, where numerous bones of big mammals were found.

The section of the middle and upper horizon of the Vistulian (Weichselian) loess was accessible in 1980 at the pit within segment C2 of the mentioned archaeological site. Both horizons are divided by a fossil soil associated with solifluction loam. Shells of molluscs were found only below this soil, in a thin layer distinguished within member 7, which represents exclusively the middle loess horizon. The material was sampled from this layer along the entire wall of the pit. It comprises 360 specimens, including 8 species of land snails and shells of slugs. The assemblage analysed using quantitative methods (constancy and domination of species, malacological spectra) was already described by the author (S. W. ALEXANDROWICZ 1987b, 1995) and later revised, so that only supplementary data may be presented now.

Shells of *Pupilla loessica* Ložek are the main component of the fauna, showing the highest values of constancy and domination C-D = 5-5. Two other species: *Succinea oblonga* Draparnaud and *Vallonia tenuilabris* (Braun) are also numerous, reaching values C-D = 4-4, while two next ones: *Pupilla muscorum* (Linnaeus) and *Clausilia dubia* Draparnaud have C-D values 3-3 and 4-2, respectively. The remaining taxa represent accessory elements with indices C-D = 1-1. These are: *Trichia hispida* (Linnaeus),

THE GRAVETTIAN AND EPIGRAVETTIAN LITHIC ASSEMBLAGES FROM KRAKÓW-SPADZISTA B+B1: DYNAMIC APPROACH TO THE TECHNOLOGY

Jarosław WILCZYŃSKI

Abstract. Lithic assemblages from two main occupational phases of the Kraków-Spadzista B+B1 are discussed in this paper, including assemblages from the Gravettian layer 6 and the Epigravettian layer 5. Assemblages from layer 6 represent a number of consecutive occupational episodes, subsequently reworked by solifluction. Consequently, the two main activities: butchering and production of lithic tools are mixed up in the content of layer 6. Limited number of refits from this layer confirms the horizontal and vertical displacement of the whole lithic and bone material, making impossible the reconstruction of particular occupational and functional episodes. During the formation of layer 5, the site was not functionally related to mammoth hunting and butchering, but focused on exploitation and processing of local flint. Numerous technological refits indicate that the on-site lithic production included not only blades, but also pre-cores and cores.

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INTRODUCTION

The present work deals with the lithic inventory obtained in the course of many years of investigations conducted at the site of Kraków-Spadzista St., sector B and B1. The subject of our analyses are the Gravettian from layer 6 and the Epigravettian stratified in the bottom of layer 5. Particular emphasis is placed on the technological aspect of the assemblages. The site is situated on the northern slope of the Bronisława Hill, which is the eastern part of the Tenczyn Ridge, in Zwierzyniec – a former district of the town of Kraków. From the north the site is delimited by a rocky precipice built of Jurassic limestone, and on the west by canyons deeply cut in loess. The whole plateau with the triangular site surface, covers an area of about 2 ha. It rises to more than 40 m above the floor of the Rudawa River valley, a left-bank tributary of the Vistula River.

The stratigraphical interpretation of sector B+B1 is based on stratigraphical-palaeopedological analysis of the western profile of trench III (uncovered during the excavations in 1971) and the northern profile of trench V (uncovered in 1972). This analysis was done by Brigitte van Vliet (in: KOZŁOWSKI *et al.* 1974, p. 17–22). All the original descriptions of layers have been retained and also refer to the profile discussed in this work (Fig. 1).

FUNCTIONAL ANALYSIS OF BURINS

Damian STEFAŃSKI

A b s t r a c t. Traseological analysis has been performed on 225 burin points (in technological sense) on 181 artefacts from the Upper Palaeolithic site Kraków-Spadzista, sectors B+B1, in three chronological horizons: Aurignacian (layer 7), Gravettian (layer 6), and Epigravettian (layer 5). The percentage of functionally undefined tools is up to 30% in all horizons. Most frequently, burin blows shaped the edge of tools used as scrapers, relatively often they shaped the edge of tools functioning as burins; the function of perforators and knives were less important. Only the Gravettian horizon is characterised by a larger number of tools functioning as knives; this indicates clearly that the main activity during the Gravettian occupation was butchering. Some specimens used as a projectile points are characterised by impact fractures.

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INTRODUCTION

From the very beginning, prehistory commanded limited methods that would allow early researchers to speculate as to the functions of stone tools. KRUKOWSKI (1915, p. 68) sums up the problem: “the definition of the function of prehistoric stone tools can be defined by means of:

- 1 – comparison with modern tools of European civilization,
- 2 – by comparison with tools used in more primitive civilizations that have survived up till now,
- 3 – by intentional experiment,
- 4 – by comparison with other prehistoric tools whose function is known”.

However, from the perspective of a contemporary researcher with new methods at disposal, the problem seems much more complex. The classification introduced by KNECHT (1989, p. 29) distinguished three basic methods of studying burin functions:

- 1 – intuitive conclusions as to a tool function drawn on the basis of its form and the archaeological context in which a tool was found (inferred function),
- 2 – testing the usability of a tool during work (effective function),
- 3 – examination of a tool by use-wear method (actual function).

Functions based on induction – *inferred function*

When burins were classified for the first time, BOURLON (1911) proposed their functions. Burins with a straight edge would function as a knife producing v-shaped grooves (nick-