NIŽNÝ HRABOVEC: A SITE WITH EVOLVED LEVALLOIS TECHNOLOGY IN EASTERN SLOVAKIA

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Abstract

Surface assemblage of the site Nižný Hrabovec, located in a strategic position on the left bank of the Ondava River, was already a subject for detailed analysis. In the previous study the authors, on the basis of typological classification, distinguished several phases of occupation – from the Middle Paleolithic through Bohunician, Aurignacian, Gravettian, and Late Paleolithic to post-Paleolithic. Unfortunately, the test pits dug at the site in 1998 and 2000 did not clear the stratigraphic sequence of the chronological distribution of the industries. Here we focus on the presence of Levallois technology that most probably relates to the episode of Bohunician occupation.

HISTORY OF RESEARCH

The main part of the collection from Nižný Hrabovec consists of material collected by Peter Zubko during 1987–1997 (Bánesz and Zubko, 1992). The surface survey continued up to 2000 and a series of test pits was dug in 1998 and 2000 (Kaminská, 1998; Kaminská et al., 2000; Hudler et al., 2001). In this short work we focus on the presence of Levallois technology and the re-analysis of the Bohunician part of the collection.

GEOMORPHOLOGY AND GEOLOGY

The site of Nižný Hrabovec is located in a strategic position on the left bank of the Ondava river valley, on a southerly elongated ridge, in an area where the East-Slovakian Lowland ends and, through a narrow pass it connects to the Prešov region. The East Slovak lowland is bordered by the Vihorlat Highland to the east and the Slanské Hills, which separate it from the Košice basin to the west. The first exposure of the Pozdišovce gravel complex, a raw material source, is located south of Nižný Hrabovec. Several geologists describe the local raw material as chert (Vass and Elečko, 1977), others as silicified claystone (Příhystal, personal communication).

The elevation of the site above the current river level is 150–160 m. The significance of this position for prehistoric hunter-gatherers is without any doubt. Therefore, artefacts from many occupational phases from the Middle Paleolithic to the post-Paleolithic, were accumulated on the spot.

The site is located on a heavily eroded surface of pre-Quaternary rocks that formed a high terrace of the Ondava River. Several test pits were excavated in 1998, and their profiles were analyzed by M. Pawlikowski (Kaminská et al., 2000: 65), who distinguished 4 layers:

1. Holocene soil,
2. loamy loess deluvium,
3. clayey-loamy loess, probably the remnant of an Upper Pleniglacial loess,
4. brown clay, probably from Last Interglacial.
It should be mentioned that Kovanda (Kaminská, 2003: 10), who analyzed the profiles of the 2000 test pits, recognized the same four layers, including topsoil, clay, and colluvial sediments.

In situ artefacts were not found, and the stratigraphic relations of the occupational phases are unknown. Some indications of human presence were found (charcoal, burned quartz grains, bone fragments) only in the top of the clayey-loamy loess. A few lithic chips were also noted in the loamy loess colluvium.

**RECOGNIZED OCCUPATIONAL PHASES**

Since the finds were collected from the surface, a techno-typological approach was used for cultural attribution of individual artefacts. On this basis the following occupational phases were identified:

1. Middle Paleolithic: unifacial side-scrapers;
2. Bohunician: Levallois points;
3. Aurignacian and Epiaurignacian: Aurignacian tools, including steeply retouched scrapers, burins and retouched blades;
4. Gravettian/Epigravettian: combined endscraper/burin and several burins;
5. Late Paleolithic: a short endscraper and an arched backed blade;
6. Post-Paleolithic intrusion: some non-patinated blades and flakes.

**Levallois technology**

Levallois technology was recognized among cores, blades and flakes including Levallois points (Figs 3–5). This technology was applied only to local and semi-local raw materials, including local brown to green silicified claystone, which was brought from a distance no more than 25–30 km, and black menilitic cherts from a distance of 50–60 km (Kaminská et al., 2000). Both raw materials are available in nearby gravel accumulations. The erratic and Świecechów flint, limnic siliceous rocks, and obsidian were not documented among Levallois cores and debitage products.

The local “Ondava” silicified claystone was available in pebbles, often flat, predetermining the technology and final shape of products. The pebbles were reduced from a narrow edge and often initialized from a natural crest. However, several pebbles with prepared crests and crested blades present at the site can be considered as belonging to the other UP technocomplexes (Aurignacian and Gravettian). Their attribution to the Bohunician technology is not obvious. Only three cores with prepared opposed platforms and a series of cores with scars indicating Levallois products can be certainly attributed to the Bohunician. The low degree of weathering and patination may document the original deposition of the artefacts in silty sediments.

**Levallois cores**

The cores are in a residual stage of reduction, often terminated by the removal of a small flake (Figs 3: 4, 5, 7; 4: 1–5). However, the bidirectional reduction from two opposed platforms is still visible (Figs 3: 8; 4: 5, 6). The platforms were prepared by a series of flake removals.

**Levallois debitage**

Points and blades with faceted striking platform or the characteristic form of Levallois products were classified as Levallois debitage (Fig. 2). The majority of recognized artefacts show opposed direction of the dorsal scar pattern and are significantly elongated in shape: average L/W ratio (without small flakes) reached value of 2.44. However, the studied collection was selected on the basis of artefact morphology and probably not all artefacts made with Levallois technology (especially not the characteristic ones), were recognized. Therefore the presented frequencies have to be taken with caution.

**Refitting**

Although the material was collected through a surface survey, we attempted some refitting. We were able to make five refits. In two cases, two flakes were joined. Three others are: a broken blade, two Levallois points, and a Levallois blade/point. The latter two made of a local claystone, will be described in detail, as they are undoubtedly related to Levallois technology.

The conjoin of the two Levallois points with a well faceted striking platform (Fig. 2: 24) indicates a serial production of such points from one core. Similar refits are known from Bohunice (Demidenko and Usik, 1993: fig. 4) or from Stránská skála (Škrdla, 2003a: e.g. fig 9.15: a). Similarly, a repeated faceting of striking platform after the removal of the first point resulted in a characteristic step-like pattern, visible in a side-view. Although the dorsal scar pattern is unidirectional, the orientation of most of the distal scars is not clear. The first point (Fig. 2: 23) has partial proximal retouch on the left side, while the second point (Fig. 2: 22) has a similar retouch on the right edge. The operational sequence demonstrates a serial production of points, characteristic for the Bohunician technology.

The second refitted sequence includes one blade and one blade fragment (Fig. 3: 3), both detached from the same platform of a narrow pebble (as indicated by the cortex). Both blades seem to have been originally pointed. The tip of the first blade (Fig. 3: 2) is broken, and the tip of the second (Fig. 3: 1) is truncated (a recent damage?). Therefore, the artefacts could be classified as elongated Levallois points. The dorsal scar pattern of both blades is bidirectional.

The tip of the first blade (Fig. 3: 2) is partly cortical, a missing pointed blade/point is detached from the opposed platform, and a refitted broken
Fig. 2. Nižný Hrabovec. Selected artefacts
Fig. 3. Nižný Hrabovec. Selected artefacts
Fig. 4. Nižný Hrabovec. Selected artefacts (after Kaminská, 2003)
blade was taken from the same platform as the first blade. The second broken blade (Fig. 3: 1) could be partly reconstructed from its scar on the first blade. The pointed shape was obtained by two removals from opposed platforms. This sequence demonstrates bidirectional production of elongated pointed blanks, another characteristic feature of the Bohunician technology.

**DISCUSSION**

Bohunician *chaîne opératoire* from Stránská skála (Škrdla, 2003a) was studied in detail and compared to Boker Tachtit (Škrdla, 2003b). The same method could be used for comparing the Nižný Hrabovec industry with the Bohunician from Stránská skála, as follows:

1. Raw material procurement is similar in both sites and is based on the locally available raw materials. The nodules used in Nižný Hrabovec were smaller than those of Stránská skála.

2. Preparation stage (core shaping) differs significantly. While at Stránská skála a nodule was decorticated and a frontal crest with two opposed platforms was prepared, at Nižný Hrabovec this stage is not documented. Although prepared cores, i.e. with two prepared opposed platforms and frontal crest, were collected, their link to the Levallois technology is not clear. The same can be said about crested blades. Both categories may belong to later technocomplexes (Aurignacian, Gravettian) uncovered at the site.

3. Production stage (blank production) at Nižný Hrabovec is not documented in detail due to the origin of the assemblage in surface collection that also limited amount of refitting. However, bidirectional shaping of the core’s front, and specific preparation (faceting) of the striking platform after each item was removed, and serial production of target blanks (Levallois points) is recognized.

4. The mixed nature of the collection makes the typological study of the Nižný Hrabovec material difficult. There are tools of Levallois technology that can be attributed to Middle and/or Upper Paleolithic. Only a Mousterian point (Fig. 2:18), and a possible truncation on Levallois blanks are firmly related to a Levallois assemblage.

5. Similarly to Stránská skála or Bohunice, the site of Nižný Hrabovec is located at the border between the northern fringe of the lowland and at the edge of the highlands, in a strategic position, which allows for control of the river valley.

**CONCLUSION**

Due to its characteristics of the Levallois industry in Nižný Hrabovec, namely bidirectional knapping and the elongated nature of the blades, we can compare it with the Bohunician cultural entity. This industry is known only from the Brno basin (sites Bohunice and Stránská skála), the Polish site Dzierzyslaw, the Ukrainian site of Kulichivka, and the Bulgarian Temnata cave (Škrdla, 2003a and references therein). However, incorporating Nižný Hrabovec site in this entity is difficult to test because of the redeposited and multicultural nature of the collection. Unfortunately, no raw material transportation was documented, i.e., the specific “Ondava” claystone and menilitic cherts found in the Brno basin are missing, and no specific Stránská skála or Krumlovský les chert types are found in Nižný Hrabovec. Only the presence of Ukrainian andesite indicates a possible contact with Transcarpathian Ukraine. However, the use of Levallois technology was not observed on this raw material. As mentioned above, the presence of prevailing bidirectional dorsal scars, significantly elongated shape of the products, exploitation of thin pebbles from its narrow edge, characteristic bidirectional core residuals, faceted striking platforms, and repeated precise faceting of striking platforms after each item removal, support the above hypothesis.

Another possibility, especially when taking into consideration the presence of Middle Paleolithic tools in the assemblage, is comparing this industry to the Middle Paleolithic industry of the Ukrainian site of Yezupil, layer 3, TL dated to 155,000±11 000 BP (Sitnik, 2000; Kozłowski, 2006). However, Layer 3 of the Yezupil site is stratigraphically attributed to horizon A2 of the Last Interglacial soil (Madeyska, 2002). This site, if its dating is correct, is important for the issue of the emergence of the Bohunician behavioral package (cf. Tostevin, 2003). The assemblage reflects the use of evolved Levallois technology (including bidirectional reduction of elongated blanks) in the Dniester basin up to 100,000 years before the Bohunician. Although there is no direct evidence of the evolution to the Bohunician, it
cannot be excluded that future excavations in the area will reveal assemblages chronologically closer and similar to the Bohunician.

The Levallois flat blade reduction, as opposed to the volumetric Upper Palaeolithic bidirectional method, appears in Piekary II, between layer 7c (TL-dated between 61,000 and 48,000 BP) and layer 7a (TL-dated between 42,000 and 36,000 BP; Valladas et al., 2003; Sitlivy et al., 2004). The presence of the volumetric concept of bidirectional blade reduction, based on cores with alternate levalloisic blade removals, known also outside the Levallois context (e.g. from the Polish site Kraków-Księżca Józefa street dated to about 40,000 BP, cf. Escutenaire et al., 2002) is unknown from other Early Upper Palaeolithic industries, including the Bohunician.

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