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Research on the Upper Palaeolithic in Slovakia in 2001-2006

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In the year 2001 the common project of the Archaeological Institute of the Slovak Academy of Sciences (Ľ. Kaminská), the University of North Carolina at Chapel Hill (S. Tomášková) and the University of Texas at Austin (D. Hudler) has continued researching a Gravettian site at Cejkov in eastern Slovakia, from where five positions with Palaeolithic finds are known. Our research was concentrated on the position Cejkov I–Tokajský vrch.

Cejkov is situated on eastern border of the Zemplínske vrchy hills near obsidian sources. L. Bánesz (1961, 1969, 1996) examined the site in the years 1960-1988. It has been a part of a big concentration of Gravettian/Epigravettian settlement along the lower Ondava flow: Kašov, Hrčeľ, Veľaty, Kysta, Zemplínske Jastrabie (Kaminská & Kozłowski 2002; Kaminská 2004a). Less numerous Gravettian settlements are known on the middle Ondava flow in Nižný Hrabovec and Kladzany (Bánes & Zubko 1992; Kaminská *et al*. 2000; Kaminská 2003).

Only in Cejkov, however, reindeer antler implements were found, together with articles of art: an engraved animal bone, a heart-shaped stone idol and burnt modelling clay (Bánesz 1996). Burnt modelling clay was found also in Kašov, but without any articles made of animal bones. Regarding the number of finds from evidently several settlement phases, the site at Cejkov I seems to be a central Gravettian site in eastern Slovakia. It was just the verification of frequency of the settlement phases and their chronological and stratigraphic position that has been the main goal of the research (Kaminská *et al*. 2002). Absenting dating in majority of Gravettian sites in eastern Slovakia is a problem arising from unfavourable soil conditions, which caused no organic materials were preserved at the sites. This is not true in Cejkov that is the only site situated on lœss. The other problem is that we were missing finds proving the Late Gravettian settlement with shouldered point horizon and that majority of Gravettian site in eastern Slovakia were supposed to be Epigravettian. For comparison, all recently available datings for the Gravettian/Epigravettian in eastern Slovakia are given in the table 1.

In 2001 we dug five excavation units at different parts of Tokajský vrch; datings suggesting the Gravettian settlement have been gained only from the unit 1/2001. We completed with them the settlement picture of Cejkov I from 25-21,5 ka BP (Kaminská & Tomášková 2004; Tomášková *et al*. 2004; Verpoorte 2002) and with a recess up to 29 ka BP.

Oldest data of 29-27 ka BP from Cejkov were obtained from hearth charcoals revealed by L. Bánesz in 1961 (Bánesz & Pieta 1961). Another date for the Early Phase of the Gravettian in eastern Slovakia comes from the Slaninová cave (Kaminská 1993) situated on the frontier with Hungary. As there is a bigger concentration of Gravettian sites dated to the period between 29-26 ka BP in north-eastern Hungary, e.g. Bodrogkeresztúr-Henye (Dobosi 2000), movements of hunting groups along the rivers Hornád and Bodrog to the territory of eastern Slovakia and arising of short-term camps, or hunting camps in caves (Slaninová cave) were possible (Kaminská 2004a).

Continuing contacts southward during the Late Gravettian with rare shouldered points horizon are indicated also by raw-material composition of lithic industry in the lœss horizon in the excavation unit 1/2001, containing artefacts associated with the hearth, dated 25-23 ka BP (Kaminská & Tomášková 2004; Tomášková *et al*. 2004). Proportion of those made of obsidian and limnic quartzite was almost the same. This type of limnic quartzite is not known from Slovak sources, but is known in Hungary, in the Korlat area.

Charcoals from the object 3/1960 dated to 21,5 ka (Verpoorte 2002) proved the younger phase of the shouldered points horizon at Cejkov I. Finds from the object and surface explorations include shouldered points (Bánesz 1961, fig. 268:1; Bánesz 1984a), tanged artefacts (Bánesz & Pieta 1961, obr. 14, 15; Bánesz 1971) and Kostenki-type knives (Bánesz 1984a). In the exploration unit 5/2001 tanged endscrapers and burins were found in the layer under arable soil. In spite of the fact that the soil analysis suggested a clear post-depositional soil movement, we suppose the finds to belong to the mentioned horizon.

Raw-material structure of the industry (limnic quartzites) again indicates contacts with the Hungarian territory first of all. More intensive contacts with the region of Poland occur

Site	Method	Lab. Nr.	Age BP	Material	References
Epigravettian					
Kašov, Upper layer	conv.	Gd-6569	18,600 ± 390	Charcoal	Bánesz 1992
Late Gravettian with shouldered points horizon					
Kašov, Lower layer	?	?	20,700 ± 350	Charcoal	Bánesz 1993
Cejkov I, unit, 3/1960	conv.	Kn 2124/526	19,600 ± 340	Charcoal	Bárta and Bánesz 1981
Cejkov I, unit, 3/1960	conv.	Berlin 1414	19,755 ± 240	Charcoal	Bárta and Bánesz 1981
Cejkov I, unit 1/01,layer 4	AMS	Beta-159856	22,480 ± 120	Charcoal	Kaminská & Tomášková 2004
Cejkov I, unit 1/01, layer 5	AMS	Beta-159851	24,800 ± 110	Charcoal	Kaminská & Tomášková 2004
Cejkov I, unit 1/01, layer 5	AMS	Beta-159852	23,820 ± 40	Charcoal	Kaminská & Tomášková 2004
Cejkov I, unit 1/01, layer 5	AMS	Beta-159853	23,440 ± 120	Charcoal	Kaminská & Tomášková 2004
Cejkov I, unit 1/01, layer 5	AMS	Beta-159854	24,240 ± 120	Charcoal	Kaminská & Tomášková 2004
Cejkov I, unit 1/01, layer 5	AMS	Beta-159855	24,130 ± 130	Charcoal	Kaminská & Tomášková 2004
Cejkov I, unit 6/1960	conv.	GrN-25427	23,460 ± 200	Charcoal	Verpoorte 2002
Early Gravettian					
Cejkov I, unit 6/1961	?	?	27,400 ± 1,400	Charcoal	Bánesz 1993
Cejkov I, unit 6/1961	?	?	28,900 ± 900	Charcoal	Bánesz 1993
Slaninová cave, Háj	conv.	GrN-14832	29,950 ± 270	Bear bone	Kaminská 1991

Table 1 - Dating of the Gravettian/Epigravettian in eastern Slovakia.

by the Last Glacial Maximum, as it is evidenced by finds from the bottom layer at Kašov (Bánesz 1969; Novák 2002). Epigravettian sites in eastern Slovakia are then fully oriented in processing of obsidian (Bánesz *et al*. 1992; Kaminská 2001, Abb. 9).

In the years 2002-2003 a revisory research was carried out in the cave Dzeravá skala near Plavecký Mikuláš in the Lesser Carpathians following the project "Dzeravá skala: Early Upper Palaeolithic in the Middle Danube region" that was financed by L.S.B. Leakey Foundation. The research was realised by the Archaeological Institute of the Slovak Academy of Sciences (Ľ. Kaminská), Archaeological Institute of the Academy of Sciences of Czech Republik (J.A. Svoboda) and the Instytut Archeologii UJ Kraków, Poland (J.K. Kozłowski). Colleagues from several Slovak and foreign scientific institutions (Farkaš *et al*. 2003; Kaminská, Kozlowski & Svoboda 2004a, 2004b) took part in evaluation of the found material.

The Dzeravá skala cave was known in archaeological literature as a finding place with bone points of the Aurignacian Mladeč-type and leafpoints of the Szeletian culture (Hillebrand 1913, 1914; Prošek 1951).

The research carried on in the years 2002-2003 (Kaminská, Kozlowski & Svoboda 2005, 2006) brought following results: layer 1 included archaeological material from the Æneolithic mainly. Layer 2 contained unmarked artefacts (micro-blade fragments, small flakes) that can be dated to the Late Palaeolithic or Mesolithic.

The Gravettian is represented in layers 3, 4, 5, 4a´/5a and dated to 25-31,7 ka BP. Lithic industry (end-scrapers, a burin made on flake fragment with Kostenki retouch, backed micro-blade, micro-blades with straight truncation, atypical borers, retouched blades and micro-blades) can be classified as Pavlovian, taking into account the chronology and the presence of microliths. Together with this industry a mammoth bone point and a bead of a hollow animal bone were found.

The Aurignacian is represented in layers 9 with dating to 34-37 ka BP. Besides of stone artefacts (2 thick end-scrapers, one of them combined with a borer, a pointed blade, 2 fragment of laterally and bilaterally retouched blades, a notched flake) we revealed also a distal end of a flat-section projectile.

The results of the 2002-2003 study confirmed neither the theory of J. Hillebrand that the Aurignacian in the cave of Dzeravá skala appears below the Szeletian (Protosolutrean) nor the one of F. Prošek that the Aurignacian bone points (of the Mladeč type) belong to the Szeletian. It is apparent from the results of the new study that the Aurignacian was documented in the layer 9 that is chronologically younger than the layer 11.

The Early Upper Palaeolithic/Late Middle Palaeolithic was documented in the layer 11. The upper part with an associated scraper is dated to 36,920±470 BP. The middle part of the layer, in context of a leaf-shaped point, is according to AMS dating older than 44,660 years and according to OSL 57,000±4,900 BP. The AMS dating of the lower part of the layer, in context of end-scraper on a broad blade with retouch on the rear end is 47,000±2,300 BP which will be, after the calibration, near to the age of 51,000 BP. This dating corresponds well with the Kůlna cave in Moravia. The layer 7a of this cave, with Neanderthal fossil fragments associated to Micoquian industry (Valoch 1988) was recently dated by ESR to 50±5 ka and 53±6 ka (Rink *et al*. 1996).

In 2003 remains of fossil soil and charcoals were found on a hill slope at a road construction in Kechnec, which were transmitted by solifluction from an original Aurignacian site situated over that was explored by L. Bánesz (1959). We dug a 4,10 m high profile, in which lœss layers were took turns with those of fossil soil, charcoals, animal bones (horse) and stone industry. Aurignacian artefacts – end-scrapers, burins, retouched blades, remains of cores, flakes – were made of limnic quartzite with white-patina, radiolarite, obsidian and menilithic hornstone (Kaminská 2004b). Animal bones did not provide enough collagen for dating. The AMS dating 27,370±210 BP (GrA-24329) (Verpoorte, personal information) comes from charcoals found in secondary position.

Research in the cave of Suchá diera in Spišská Teplica, which is situated on the southern border of Popradská kotlina basin at the upper Spiš region, documented its settlement also in the Late Palaeolithic. Animal bones and stone artefacts were revealed in the layer C near a hearth faced with stones. Dating of animal bones – chamois (*Rupicapra rupicapra*): 11,620±390 BP (Gd-30012), brown bear (*Ursus arctos*): 11,230±280 BP (Gd-18146) corresponds to the Allerød Interstadial. Lithic industry includes radiolarite blade, radiolarite bladelet, dihedral burin, flake and curve backed point made of limnic quartzite. The finds were assigned to the Witow group of the Federmesser culture (Soják & Hunka 2003). Another curve-backed point made of flint comes from a surface collection at Vinné near Michalovce (Hreha & Kaminská 2004).

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