Potočka Zijalka (Slovenia) — upper mountain site of Aurignacian hunters

Vida Pohar¹, Rajko Pavlovec¹, Branka Hlad²

¹ Chair of Geology and Palaeontology, University of Ljubljana, Aškerčeva, 2, 61000 Ljubljana
² Institute of the Slovenian Republic for Conservation of the Natural and Cultural Heritage, Plečnikov trg 2, 61000 Ljubljana

Abstract. The cave Potočka Zijalka (Slovenia) is a geological and cultural site of utmost importance, and should be strictly protected. It contains important remains of the Aurignacian man together with bones of different mammals from the warmest Würm interstadial.

Prehistoric sites, particularly those being some ten-thousand-years old, appeal to numerous amateurs, yet, they, unfortunately, also do tempt various “collectors” and “profiteers” dealing with everything one might still find on these localities. In Slovenia, 40 sites of that kind have been discovered and among them, Potočka Zijalka is regarded as one of the most outstanding upper mountain sites of the Aurignacian hunters.

Along the Slovenian-Austrian border a 2000 m high ridge of the Olševa Mountain, built of Dachstein limestone, stretches over a distance of 10 km in the east-west direction. The Palaeolithic station Potočka Zijalka lies on its southern slope, at 1700 m above sea level (Fig. 1). The cave is 115 m long, 20-40 m wide and, at some places, even 10 m high. Previously to the diggings the cave entrance was 17 m wide and 6.2 m high. Systematic excavations carried out by S. Brodar (1939) showed that the walls in the depth shift apart producing, thus, a much greater size of the cave.

As a subterranean cave Potočka Zijalka has been known for ages. As a Neanderthal man habitation, however, it was discovered by Srečko Brodar in 1928. By the year 1935 he had been systematically searching in its front and back part having explored no more than 1/4 of the cavity space.

In the back part S. Brodar dug as deep as 1.50 m with the exception of the very last wall where, by a 4 m sounding, he reached to the basal collapse rocks (layer 10). The deposits in this section of the cave are rather monotonous, appearing in a pattern of pale-brown to reddish loam alternating with thin insets of sinter. In layers 4-5, he discovered charcoal chips and numerous points indicative of Neanderthal’s presence in these parts of the cave (Brodar, Brodar, 1983, pp. 80-85).

On the other hand, the deposits of the front portion of the cave are much more versatile. At the west wall of the cave the diggings were effectuated 40 m deep in the interior (Fig. 2). Here again, the “basal collapse” (layer 10), S. Brodar met at the depth of 3 m, prevented him from carrying on his excavations. In contrast to the back part of the cave the front part layers 1-
Fig. 1. Map of Slovenia with marked locality

Fig. 2. Potocka zijalka. Profile with marked unearthed surface

10 are composed of limestone rubble with a variable admixture of loam and sinter (Brodar, Brodar 1983, pp. 95-99).

The bedrock bottom of the cave in question was nowhere reached, though. The basis to the excavated deposits is formed by the basal collapse, referred to, as layer 10 (fig. 3). In the course of the rock collapse, the cryoclastic rubble, representing layer 9 is deposited, both layers being sterile from the cultural as well as palaeontologic point of view. According to their stratigraphic position and expressively sharp edges, they were attributed, by Brodar, Brodar (1983, p. 95) to the final stage of the Early Würm. The lens of the fine gravel comprising Miocene molluscs at the boundary of layers 9 and 8, belongs to a warmer (interstadial) phase. Considering the fact that the fine gravel in the cave was not deposited by current water, it is indicative, according to Brodar (1939, p. 6), of the Neanderthal's first visit of the cave. The loamy layer 8, mixed with rubbles, corroborates a warm climate, as well. Among the fauna fossil remains, bone remains of cave bear (*Ursus spelaeus*) predominate. A hearth, bone points and rare quartzite bits yield traces of
Aurignacian hunter's occupation of the cave. In Central Europe he made his appearance in the Würm interstadial (i.e. the Middle Würm).

The following layer 7, comprising the main cultural horizon, consists of sharply edged variously thick rubbles with little loamy admixture. The cultural layer is characterized by a relatively thick stratum of fine rubble mixed with charcoal (16 hearths!), numerous bone and stone inventory. Among the remains of the hunting loot, broken bones of the cave bear prevail. Marmot (Marmota marmota), red deer (Cervus elaphus), chamois (Rupicapra rupicapra), aurochs wisent (Bos seu Bison) and wolf (Canis lupus) belong to a minority group.

Hunters used to make fire with pine tree and Pinus cembra, non-existent nowadays in Slovenia. According to Brodar, Brodar (1983, p. 96) this layer, too, was being deposited in the Middle Würm (WI/II).

The following, younger layer is characterized by a reddish loam, mixed with a medium thick rubble and sinter. The layer abunds in cave bear remains, brown hare (Lepus europaenus), marmot, wolf and fox (Vulpes vulpes) being presented only by sporadic findings. The above mentioned animals do not disagree with a warm climate, yet, the finding of 9 molars belonging to musk ox (Ovibos moschatus), an expressively tundra animal, unknown in the parts lying to the south of the Alps, does surprise. The teeth must have been brought to the cave by the Aurignacian hunters, although the traces of human occupation are rather frugal in this layer — no more than some sporadic charcoal chips and quartzite rare bits having been found (Brodar, Brodar, 1983, p. 96).

The layer 5 includes minor sharp-edged rubbles, 4 hearths of a smaller size and thinner insets of fine gravel — “creek or water sand” as designated by S. Brodar (1939, 5). Bone fragments of cave bear and marmot are here presented in much smaller quantities than in top sections and lower sequences. Beside the bits of ocher, this layer, too, is still rather rich as far as cultural heritage is concerned — a considerable number of bone points yields evidence of an Aurignacian industry.

The following layer 4 is composed of rubbles of diverse thickness, here and there mixed with sinter or brown loam. From the cultural point of view the layer is sterile, comprising, however, numerous broken or entire cave bear bones, as well as minor accumulations of bear skulls.

The youngest Pleistocene sediment figures in layer 3. It is presented by sharp-edged, variously thick rubble, here and there mixed with brown loam and sinter. As to the fauna species, the layer contains only isolated bone fragments of cave bear, wolf, marmot, and ptarmigan.

Fig. 3. Potočka zijalka. Cross profile taken 10 m behind the cave entrance
Fig. 4. Potočka Zijalka. Stone artefacts, bone points, needle prototype
(Lagopus mutus). The presence of char chips, a fragment of bone point and some quartzite items reveal the last visit of Palaeolithic hunters.

The layers 2 and 1 belong to the Holocene, already. They consist of layers of sinter, rubble and humus.

The major portion of Pleistocene sediments (layers 8-3) was, considering the cultural contents (Aurignacian cultural horizons in layers 8, 7, 5 and 3), deposited in the course of the warm phase (WII/III) which was to be followed by the-coldest Würm thrust (WII + III) only much later.

In the Lower Würm (WII, WII/III, WIII) the cave must have been frozen up, that's the reason why the sediments could not have been deposited.

### Cultural assemblage

The total lot of bone points deriving from the front and the back part of the cave amounts to the number 128, many among them being fragmentary and only one with a split base (layer 5). Together with the points, two awls and a prototype of a needle, have been discerned by S. Brodar, as well. About 20% of all the points discovered here are ornamented (Fig. 4).

The major lot of artefacts has been discovered in the main cultural horizon of layer 7, front part of the cave. It belongs to the Aurignacian blades, burins and high endscrapers (carinate and round). Some implements: endscrapers, dorsal surface retouched Mousterian point betray the influence of Mousterian industry (fig. 4).

The great particularity about Potočka Zijalka resides in numerous holes in bones and mandibles of the cave bear, the most famous being the lower mandible. Besides the opening on the lingual side, artificially enlarged in a mandibular canal (foramen mandibulae) it has also three consecutive holes. In Brodar's opinion it presents a whistle (Fig. 5).

Particular attention is drawn to an enormous quantity of fine gravel (about 10 tons) discerned by Brodar (1960) merely in the cultural horizons 8, 7, 5 and 3. Pebbles are well rounded, which implies a long transport. They are of a limestone rock, yet not the Dachstein limestone, that is the rock of the cave. Significant is the fact that the above mentioned gravel contains Miocene sea molluscs, not showing traces of transport. The gravel is mixed with sharp-edged splinters of animal bones, charcoal chips and sharp-edged rubble of the cave rock. This gravel has an uncertain provenance, yet Brodar (1960, p. 123) supports the idea, that it has been brought to the cave by Aurignacian hunters.

### The importance of Potočka Zijalka

1. Due to the great lot of bone points, Potočka Zijalka is considered as one of the richest Aurignacian sites in Europe. In its front and back part S. Brodar unearthed more that 130 bone points, all of them being solid-based with the exception of one split-based.

   Up to the discovery of bone inventory, the French and Hungarian views prevailed, sustaining that split-based points significantly antedate solid-based bones (Brodar, Brodar, 1983, p. 210). The oldest bone points were provided by the layer 8, while the major lot derived from the layer 7. All of them had a solid base. The split-based point was found in a much younger layer 5, which lends support to the idea that the division into the Aurignacian I (split-based points) and the Aurignacian II (solid-based points) does not hold true, at least as far as our territory is concerned. Evidence found in our second upper mountain Aurignacian site, Mokriška jama (Bordar, 1985, p. 80) corroborates this assumption.

2. H. Brenil and D. de Peyrony (Müller-Karpe, 1966, pp. 48-49) were the first to have established, in France, the theory that the Aurignacian industry level was a foreign element in Western Europe, yet neither of them knew where the bearers of this culture had come from.

   Only after the discovery of Potočka Zijalka and absolute datations provided by other Aurignacian sites in Central and Eastern Europe (Smith, 1982, p. 670), it became clear that the age of these sites decreased from east to west. To resume: the Aurignacian hunters must have travelled from east to west.

3. The discovery of Potočka zijalka in 1928 stirred up several polemics. Up to the year 1904, a rather unanimous opinion prevailed among the researchers, i. e. in the Alps area no Palaeolithic findings are to be expected due to the glaciation.

   Striking surprise was caused when Baechler (cf. Brodar, Brodar, 1983, p. 205) discovered, at 1500 m above sea level, the Palaeolithic site Wildkirchli. As the occupation of the cave at this altitude is possible only during a warm phase, it was assigned to the late R/W interglacial. Due to the primitively made tools it was attributed to the Pre-Mousterian industry, though. A bit later, two Swiss upper mountain sites were discovered, as well, namely, Wildenmannlisoch (1628 m a.s.l.) and Drachenloch (2445 m a. s. l.). On the basis of all the quartzite tool assemblage and bone remains of the cave bear, all these sites were attributed to the late stage of (R/W) interglacial. With all these records available, S. Brodar...
discovered, in 1928, 25 bone points in Potočka Zijalka.

By the theory in vigour at the time, Potočka Zijalka should have been, as an upper mountain site classified in the interglacial. Yet the bone points offered evidence in favour of a late Palaeolithic — to be precise, the Aurignacian industry level. In France it used to be assigned to the Würm glacial (H. J. Müller-Karpe, 1966, ??) on the basis of the Aurignacian cultural inventory enriched by the bone remains of the woolly mammoth (*Mammuthus primigenius*) as well as those of the woolly rhinoceros (*Coelodonta antiquitatis*). Eventually, Potočka Zijalka with its altitude of 1700 m did appear as an insoluble enigma.

Subsequently, the pursuits of Soergel (cf. S. and m. Brodar 1983, 164) brought about a division of the Würm glacial into three stadials and two interstadials. According ot this theory in vigour, Brodar (1960, p. 117) classified Potočka Zijalka in the most warm interstadial WI/III, while the West-European Aurignacian was set in the second Würm glacial (WII and WIII, respectively, according to the West-European division of the Würm glacial (F. Bordes, 1968, 158).

Nowadays the conceptions about the course of the Würm glacial are again being modified, Potočka Zijalka and Mokriška jama lying only 200 m lower, with numerous hearths and fossil remains of cave bears demonstrate, on the other hand, that there must have been a forest in the vicinity and, therefore, a climate, at least as warm as it is today. On these grounds, therefore, testing excavations should be carried out in the cave, as soon as possible, and charcoal items assembled for the determination of the absolute age of this site.

As a palaeontologic and archaeologic locality and according to the Slovenian law on natural and cultural heritage, Potočka Zijalka has been proclaimed a cultural monument, it has moreover been proposed a natural monument. However, considering the fact, that unauthorized excavations are being effectuated in the cave, it should be protected, arranged and given the status, similar to the one enjoyed by other Palaeolithic stations all over Europe.

References


