H Hungary

H 1 Miskolc, Avas-hill
H 2 Sümeg-Mogyorósdomb
H 3 Tata
H 4 Korlát-Ravaszlyuktető
H 5 Erdőbénye-Sás patak
H 6 Boldogkövaralja
H 7 Bakonycsernye-Tűzkövesarok
H 8 Szentgal-Tűzköveshegy
H 9 Hárskút-Édesvízmajor
H 10 Dunaszentmiklós-Hosszúvontató
H 11 Lábatlan-Margittető
H 12 Lábatlan-Pisznicető
H 1 MISKOLC-AVAS HILL

Prehistoric mine on the Avas Hill at Miskolc

Katalin Simán

The Avas Hill at Miskolc (Fig. 1) is on the southeastern fringe of the Bükk mountains (48°03′ lat. N, 20°50′ long. E). This hill, together with a few more to the southwest, is mostly of Tertiary volcanic origin contrary to the overwhelmingly calcareous hill range. Geographically, it forms an independent unit, which is connected to the mountains through gradually sloping valleys on the north and west. On the east it slopes steeply to the broad valley of the Szinva streamlet, which is now occupied by the city of Miskolc. To the south it opens to the huge watershed area of the Tisza River and its tributaries. The highest point of the hill is about 220 metres above sea level and 100 m above the valley of the Szinva. Several accounts show that denudation and even landslides were common phenomena in historical periods, especially on the eastern side, until the hillsides were undermined by cellars, and stone buildings blocked the possibility of soil slides.

The prehistoric mine is on the northern edge of the plateau, right above the steep slope, 80 m above the valley. At present, the area is topped by a TV tower.

It was at the end of the last century that the first archaeological finds were reported from surface collections on the Avas Hill. The Bárosonyház finds, and later the pieces from the cemetery on the Avas, directed the attention of archaeologists and geologists to the hill itself. At the beginning of this century, Károly Papp (1907), geologist, took on the task of describing the geology, geohistory and geography of the hill. He mentioned the local silicious rock varieties as possible raw materials for prehistoric stone implements. In 1928, a large-scale reshaping started on the eastern side of the plateau and the soil moving brought "silex artifacts" to the surface.

Excavations were started later that year (Hillebrand 1928). The first cut ("A" - Fig. 2) unearthed a shaft with a workshop in it, although the excavator did not yet realize that it was a mine. Next year (Hillebrand 1929), five more shafts were revealed which already allowed the publication of general notes. Hillebrand, with the help of geologists (G. Strömpl, J. Fekésházy and V. Seemayer) noted that the miners had broken through the uppermost andesite tuff layer and had dug down as deep as 3 to 4 metres. He also noted the existence of surface workshops above the first tuff bank which contained hearths and chipped stone material. He also mentioned scattered late Neolithic sherds.
The excavations were carried on till the mid 1930s with the collaboration of archaeologists and geologists. Charcoal was collected for palaeobotanical analysis and there were also a few faunal and human remains. Hillebrand regarded first of all the stone material. He reasoned that similar large sized implements with rough, superficial elaboration were characteristic of the northern Mesolithic cultures as Teterow and the Campignian. When Hollendonner (1931) gave the results of the charcoal analyses, he found that it fitted into his theory. In 1929, a goat bone was recovered from above one of the shafts, which was identified by M. Kretzoi, student at that time, as *Capra ibex* (Hillebrand 1929: 141).
For 30 years, the mine seemed to have been forgotten. When L. Vértes excavated the mine at Lovas, he reviewed the Hungarian prehistoric mines. He did not, however, venture to date or even to attribute it to any culture. "Insufficient faunistic data and the uncertainty of the finds, owing to pits having been dug subsequently in the area, preclude the possibility of giving an exact determination of the age" he wrote (Mészáros and Vértes 1955:30).

In the second half of the 1970s the author of this paper conducted rescue excavations on the hill and parallely reviewed the stray finds and the excavational materials. The direct vicinity of the mine cannot be excavated and farther off there were no traces of either mining or workshop activity. Actually, there were practically no human traces found. Luckily, however, much of the contemporary documentation (sketches, notes, finds inventory) from the excavations of the mine survived in the archives of the Miskolc Museum. The comparison of the data, drawings and the material led to the conclusion that the mine was opened during the Late Neolithic (Simán 1979).

In 1936 some of the sketches made during the excavations were retraced and rearranged in coloured figures. One of them is the idealized layer series down till the first andesite tuff bank (Fig. 3). It entails the following layers: humus (1), pale
coloured clay (2), dark brown humic clay (3), clay with rock debris (4), yellowish brown, fine grained sandy clay (5), clay-marl (6), sand (7), rusty sandy clay (8), and finally greenish brown marly clay (9) right on top of the andesite tuff (10). Later excavations clarified that the greenish brown marly clay came from the devastation of the tuff and is often intercalated with sandy (7) and rusty (8) patches and thin layers. Consequently, layers 6 to 9 are results of the natural weathering of the tuff with traces of sporadic aeolian depositions. The clay with rock debris (4) is certainly a layer produced by human activity as it can be deduced from other section drawings. The humus layer had already been removed by the time the excavations started.

Fig. 3. H 1 Miskolc-Avas Hill. Idealized layer series (After Megay 1936).
Archaeological finds were found scattered in the dark brown humic clay (3) and, seemingly in original position, in the yellowish brown sandy clay (5). These two layers are usually cross-deposited (e.g., Fig. 4: cut "H"), so they either belong to the same geological period or they were disturbed or moved in the same period. The layer series is drawn only to the depth of the first tuff bank. The excavations revealed, however, that there were two more andesite tuff layers. The first one was between 2 to 4 metres to have been thinner. These two were saturated by the waters of post-volcanic

Fig. 4. H t Miskolc-Avas Hill. Southern sections of cuts “A” and “H” (After Megay 1936). For 1-10 see Fig. 3; a — polished axe; b — charcoal.

from the surface. The second one was another 1 to 2.5 metres deeper, while the third one followed after about half or one metre. The uppermost bank was about half a metre thick, it contained no silicious material. The second and the third ones seem hydrothermal activities and these were the raw-material bearing layers. The filling between the banks was marl and sandy marl.

Thermal spring activity created hydroquartzite over a large area of the hill. As far as it can be said, there were two basic varieties. One, used mostly during the
Palaeolithic, is characteristically yellow, brown, red, blue, sometimes white, opaque and contains many intrusions. The other one, found in the mine, displays a laminated or stratified structure. It is matt; the colour is varied from dirty white to dark brown.

The excavations covered an area of 4500 m². 22 research trenches were opened between 1928 and 1935. The surface sketch of the excavated area (Fig. 2) shows that the mine was not really dense, and probably restricted to a small area. Sketches were made in 1929 by geologists in pencil of some sections. At the same time, notes were made and a portion of the material was inventorized. Sometimes the individual items are labelled or their place of occurrence is indicated in the inventory book. In other cases the artifacts are inventorized without any reference to their origin. Finally, many pieces from the more than 10,000 artifacts were discarded or lost.

Any reconstruction of the character of the mine, the find material or the layer structure can only be made through a comparative analysis of sections, notes, contemporary publications and photos. Still, it remains an intriguing fact that large areas were left unexcavated between the shafts and there might be a slight chance that some time in the future the area can partially be excavated again.

According to the drawings and notes, various techniques were used in the mine. There is at least one gallery ("E" to "G") and perhaps a corridor above it. Another gallery might be supposed from the sketch of cut "H", where the mixed layer with rock debris is indicated to reach under the first bank. Undoubted shafts were unearthed in cuts "A", "D", "H", "K", "M", "N", "P" and "T". Pits or shafts (the documentation does not reveal much) were found in cuts "M", "R" and "W". Since the technical literature speaks about 15 shafts, some vague indications on the surface drawing may denote pits or shafts. Due to the defective documentation and regarding also that several section drawings were reinterpreted 7 years later, only a tentative reconstruction can be provided.

The gallery between shafts "E" and "G", if we accept the section drawing (Fig. 5), had two periods. One gallery was started with a shaft which went under the first tuff bank, then turned south. Curiously, a few metres further on the originally about 1.5 m high gallery narrows to less than a metre and appears in the wall of the cut in the shape of an irregular hole. According to the sketch it is not attached to the shaft in cut "G". On the other hand, the photos and the sections reveal that there was an open corridor running between sections "G" and "E", which broke through the first tuff bank in cut "E" and damaged the western wall of the shaft. The shaft in "G" also reaches just under the first bank. Most probably they belonged to two different periods.

Not much can be said about the gallery in cut "H". According to the drawing it was about 1 m high and reached at least 2 metres towards west. The rest of it was never excavated.
The shafts all reached under the first tuff layer. They broke through the second and many stopped at the third. In shaft “A” it reached somewhat more than half a metre under the first bank. In “E” the first bank was about 2.5 metres deep, the second close to 3 metres deep, the third about 30 cm deeper, the bottom of the shaft at 4.5 metres. In shaft “H” the first bank was 3.5 m deep, the bottom of the shaft at 4.5 m. In shaft “K” the first bank was at the depth of 4 m, the second at five, the bottom at 5.8 m. In shaft “T” the first bank was 2.4 m, the second 5 m, the bottom of the shaft at 6 m. It means that the deepest point of the shafts was about 1 m deeper than the last broken tuff bank. The shafts start 1–1.5 m diameter on the surface and narrow to about 1 metre at the first bank. Large heaps of discarded material, quartzite hammer stones and sporadic charcoal remains indicate their bottom. In cut “A” a working bench was constructed using the discarded material at the bottom of the shaft. The miners turned laminated blocks on edges and wedged them side by side until they filled half of the bottom of the shaft. In front of it, a rock accumulation can be recognized even in the rather poor quality, old photo.

Nothing implies that the shafts were filled up with debris from other shafts. On the contrary, the section drawings suggest a natural, gradual refilling. In shaft “K”, for example (Fig. 6), humous patches alternate with sandy clay and clay. At the same
time, layers (5) and (3) are often cross-deposited on the surface around the shafts which may indicate artificial redeposition of the soil.

In all cases, primary workshop activity was carried out inside the shafts and secondary workshop traces are on the surface around them. In layer 5, about half a metre above the first tuff bank, there were traces of hearths and accumulations of
Fig. 7 H 1 Miskolc-Avas Hill: 1 — Wedge-shaped implement; 2 — Leaf-shaped point (cut B, layer 3); 3–4 — Quartzite hammerstones.
waste material. Probably these were the spots of secondary workshop activity. It is always layer (5) which contained the intact traces of hearths and workshop activity. In layer (3), the finds were mixed from various periods. It might be understood that layer (5) was the original sandy clay deposition and layer (3) was its upper part with a greater humus content. There has never been found anything, however, to suggest any kind of settlement on the hill.

Originally, an estimated 10,000 artifacts were found in the shafts and in the surface accumulations. A few hundred of them have been preserved. They are mostly waste and a few flakes. There were no mining tools found in the shafts. Perhaps a few pieces were used as wedges, at least their shape suggests such an application (Fig. 7:1). The workshop tools are represented by quartzite pebbles, usually hardly worn ones (Fig. 7:3–4).

There were a few antlers and antler fragments found scattered in cut “Z”, most of them in layer (5). To date, two red deer antler fragments can be identified in the Miskolc Museum, one showing traces of use. Several pieces belonged to roe deer and seem to be intact. The goat horn, found in 1929, turned out to belong to Capra hircus and not to C. ibex.

Several sherds are mentioned in the articles. Hillebrand (1928:54) wrote: "Schichte IV: [(3)]...Wichtiger Fund ein grosser, geschliffener, typischer Schubleisten-keil... Ausserdem ein Fragment von einem spätneolithischen Gefäss" (Fig. 8:1). A few years later he added "die Fundstelle überall von neolithischer Keramik und Schubleisten-keile führrendem, Humus bedeckt ist" (Hillebrand 1934–35:26). From these sherds, only two pieces could be found in Miskolc. They form the bottom fragment of a thick-walled pot. The material contains relatively large pebble grains. It is not decorated (Fig. 8:2).

Another interesting find was a skeleton of an adult man (this is not preserved — or cannot be identified). The various skeletal parts were found in a circle with a diameter of two metres with the skull in the centre in cut “Z” close to the antlers, between 1.4 and 2 m deep in a brownish mixed, redepsoited layer. The excavator did not imply burial although all the skeletal parts were present.

In the area where the skeletal parts were found, the soil was mixed. Three metres from it, the undisturbed layer (5) was found at the same depth. The two may suggests that the bones were lying in an artificial pit. We shall never be able to ascertain if this was a burial or not, or even if he was a miner or just a poor homeless wanderer from any pre-, proto- or even historic period.

Charcoal remains were collected from all the levels. The ones from the workshops at the bottom of the shafts were handled separately. According to their analysis (Hollendonner 1931), there was no difference in the vegetation of the various levels. All the samples belonged to species of warm and humid climate and all the species can be found in the present natural vegetation of the area.
Hillebrand reasoned that all the workshop traces came from layers without Neolithic elements and all the shafts were buried by old humus, consequently, the mine must have been dated from before the Neolithic. He added that such artifacts were characteristic of the Teterow and Campignian Cultures. He described a few items as implements, although they were just flakes or even waste. He was misled by the goat horn, which was incorrectly identified at that time. It was only convenient to interpret the anthracothomical results as a vegetation from the warming period of the Mesolithic. It should be acknowledged, however, that this was not his idea, he borrowed it from Menghin (1927:196): “Unsere Funde könnten auch die Annahme Menghins bekräftigen, nach der die Campignienleute...über den Balkan in Europa eingedrungen wären” (Hillebrand 1934–35:26).

To date it seems that the mine was primarily used during the Neolithic, most probably the late Neolithic. The shafts start from the old humus, and the old humus is mixed with the yellowish soil underlying it. The filling of the shafts is also the old humus and mixed layers washed into them. It cannot be stated for certain that all the Neolithic finds and the mine belonged together. On the other hand, there were no Neolithic settlement traces found anywhere on the Avas Hill. The Palaeolithic period can certainly be excluded, since this raw material is missing from the Palaeolithic finds of the hill and from the surrounding sites as well. There are a few counterarguments as well. We have positive data, that the “flint” of the Avas Hill was used during the
Middle Ages. A flintlock gun workshop operated in the town, and several gun flints were found on the surface. Some old people also told us that the material was used in small glass works at the turn of the century. Even if we accept that the mine was used during the Neolithic, the finds are too few and not characteristic to think of cultural grouping. Regrettably the same raw material never occurred, to our knowledge, outside the area of the town of Miskolc.

It is equally difficult to define any social structure, or share of work. Hillebrand wrote (1929:139): "Es scheint sich also um eine grosse Reihe von Werkstätten zu handeln, wo überall nur ein Meister arbeitete".

The small sizes of the accumulation on the surface and the equally small measurements of the shafts (1 × 1 m in average) seem to corroborate his statement. It is also a possibility that there were more people working, one down, another outside. The fact that the shafts were not filled in by the debris of other shafts may be interpreted in several ways. One interpretation may suggest that only one shaft was opened at a time and it filled up by the time the other was opened. Another possibility is that the shafts were opened at the same time and a group of miners worked here for a shorter period. Judging from the quantity of the waste and the measurements of the shafts, it seems probable that only a small quantity of raw material was taken away. Certainly, the raw material was not important enough to trade and the source not rich enough to use it extensively. The total lack of mining tools suggests that the miners thought the same, they abandoned the mine and removed all the useful items.

REFERENCES


