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A GRAVETTIAN SITE WITH MAMMOTH-BONE DWELLING IN MILOVICE (SOUTHERN MORAVIA)

ABSTRACT — *In Milovice the Upper Palaeolithic station with several occupational levels is being excavated. According to radiocarbon dates ($25\,220 \pm 280$ BP) and stratigraphic position the older Gravettian layer falls into the younger part of the interpleniglacial. The macrofauna is represented mainly by mammoth, horse and reindeer. The closest analogies for the chipped industry can be found in the Gravettian in the Danube valley in Austria and in Provence. On the other hand, the mammoth-bone dwelling has numerous counterparts only on the Central Russian Plain. The younger date ($22\,100 \pm 1\,100$ BP) comes from the marginal area with sparsely scattered bones and tools. It represents one of the latest traces of the Moravian Gravettian settlement.*

KEY WORDS: *Milovice — Dwelling — Mammoth-bone accumulations — Gravette-points.*



FIGURE 1. Accumulation of mammoth bones in section A. Photo L. Pichová.

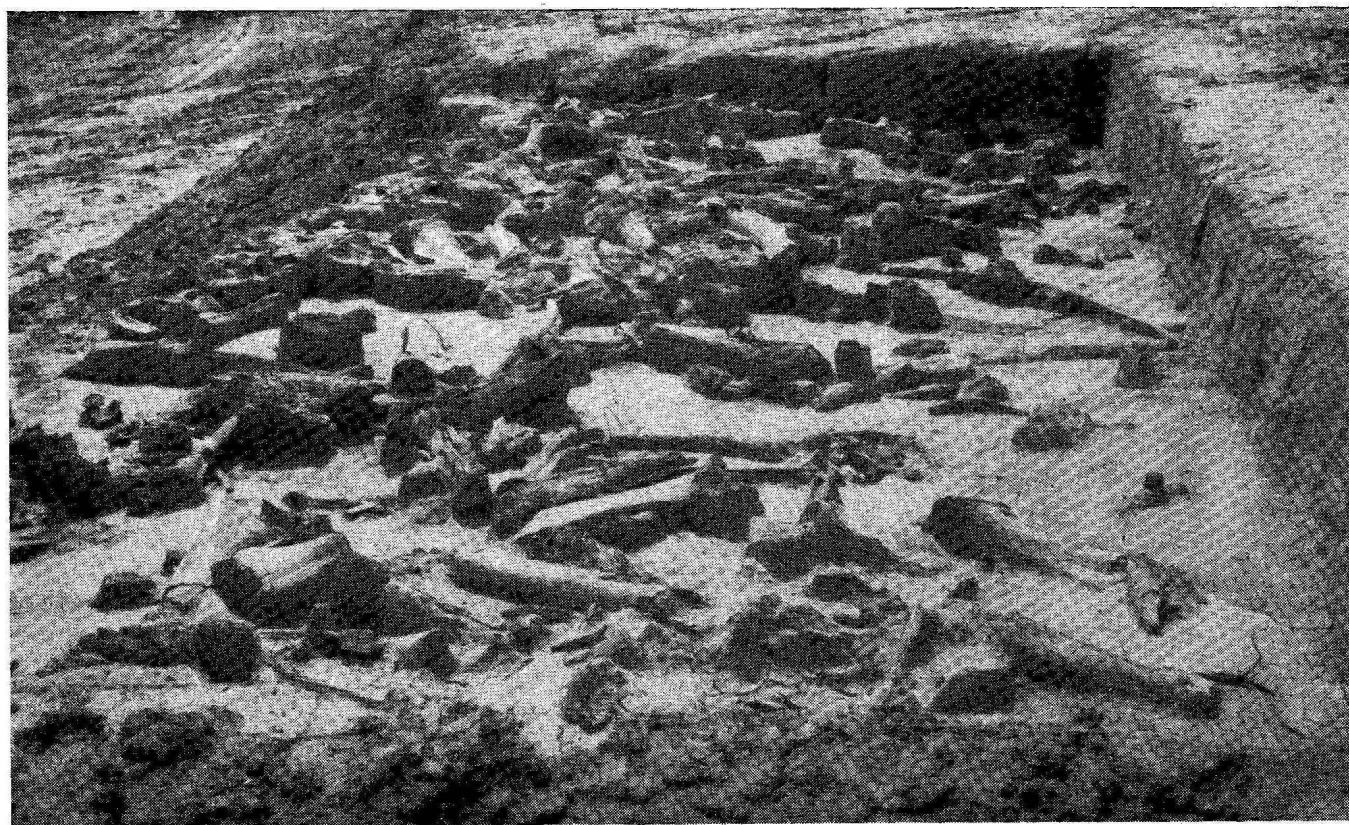


FIGURE 2. Mammoth-bone accumulation in section K. Photo M. Oliva.

The modern construction of a huge earth dam required the opening of a new clay pit south of the village of Milovice, about 6 km from the well-known Pavlovian sites at Dolní Věstonice and Pavlov. The exploitation of loam started in the spring 1986 and mammoth bones and ash lines soon appeared in the walls of the pit. Following information by B. Klíma an archaeological research of the site was launched by the Anthropos Institute of the Moravian Museum. During the first research season in 1986 a large dump of mammoth bones was discovered (Sections A + B), together with a marginal area of a settlement (Sections C — F), with sporadic finds of bones and artifacts. In 1987 we excavated a further mammoth-bone accumulation (K) and a rich cultural layer in section G.

POSITION AND STRATIGRAPHY

The locality is situated 800 m SSW of Milovice at the altitude of 240 m above the sea level on a low ridge gently sloping to the east and opening into a semi-closed valley without any water today. Two kilometers north-east lies the fluvial plain of the Dyje River. The ridge is formed by Tertiary sands and gravels and is covered with Quaternary deposits, at places several metres thick. The deposition of sediments have been disturbed by the slope erosion. The sediments in section G have the following profile:



FIGURE 3. Sandstone plates in section G of the cultural layer. Photo M. Oliva.

1. upper loess (1—2 m, sporadic finds of chipped industry and bones)
2. light-brown loam (15—30 cm). The exact sedimentation will be explained after the micromorphological analysis by L. Smolíková and P. Sláma
3. loess — loam with ash lines (Gravettian — main cultural layer)
4. brown loam with dispersed charcoals (1 m)
5. Tertiary sands and silts.

In sections A — D, F, K — L on the northern slope there are scattered mammoth bones with sparse

stone industry in the loess — loam with gley horizons on the base of upper loess. The substrate is formed by dark-brown loam with numerous charcoals and Aurignacian industry.

Radiocarbon measurements of the Gravettian layers are:

Section G, main cultural layer:

GrN — 14824: 25 220 ± 280 BP

ISGS — 1690: 22 900 ± 490 BP

section D, fireplace:

GrN — 14825: 22 100 ± 1100 BP

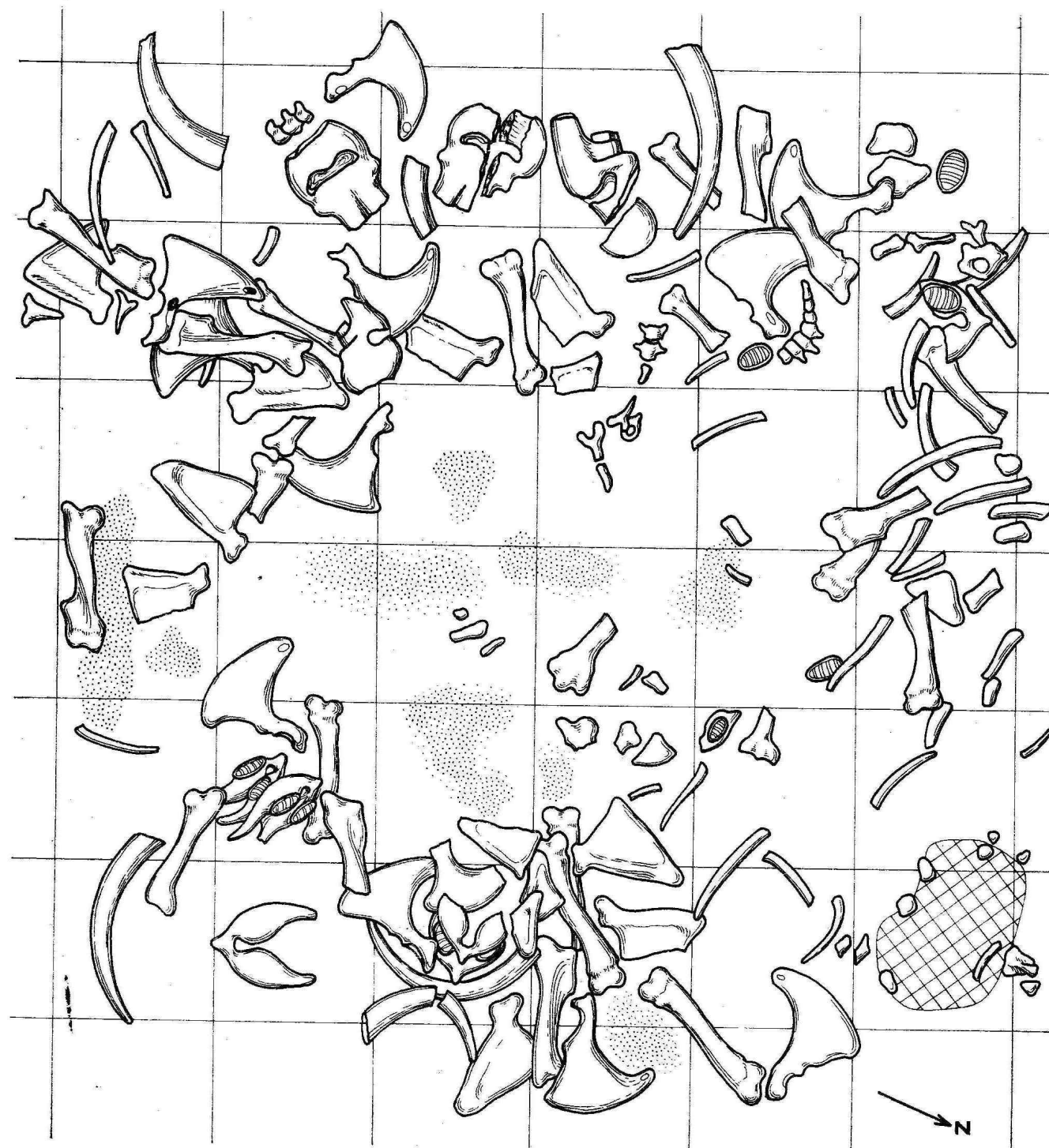


FIGURE 4. Milovice. Mammoth-bone dwelling. (The orientation of fragmented mammoth skulls in the western part is random).

(I am very indebted to Professor W. G. Mook for the series of dates from Groningen; the other was obtained from Professor O. Soffer, University of Illinois).

The Gravettian layer in section A yielded a very cold *Columella* association of molluscs, typical of the culminating phase of the last Pleniglacial (*Arianta arbustorum*, *Succinea oblonga*, *Columella columella*, *Vertigo pygmaea*, *Cochlicopa lubrica*, *Nesovitrea hammonis*, *Trichia hispida*, *Pupilla muscorum*, *P. alpicola*, *P. loessica*, *P. triplicata*, etc.; for the determination of these species I am indebted to J. Kovanda).

The palaeobotanic analysis of charcoals from the cultural layer in G done by E. Opravil has confirmed the presence of *Abies alba* (dominant species, mostly coming from large sized branches), *Pinus sylvestris* and *Fraxinus*.

SITE STRUCTURE

Two accumulations of mammoth bones have been uncovered on the lower third of the slope. They contain skeletal remains of several dozen

predominantly juvenile individuals. It seems that a third accumulation of mammoth bones may be located some 80 m more to the south-east. Bones of other animals (horse, wolf, reindeer, etc.) are very sparse. The very low concentration of artifacts (less than 1/m²), and their character (unretouched blades, flakes, occasionally also burins, end scrapers and backed bladelets made of flint and heavy-duty tools made of quartz and limestone) suggests that these areas represent a reject-zone outside the living area proper (Figs. 1, 2).

Some 40 m further west and 4 m higher up the slope in sections C—F there is a sporadic concentration of bones and artifacts, apparently from marginal areas of the site. As documented by the stratigraphic position there seems to be a relation with the bone Accumulations. The older dates come from section G. The settlement zone proper (G) is on the highest point of the ridge, which here turns into a horizontal plateau. Some 100 m further to the west it gently climbs again up to the altitude of 320 m above the sea level. Only in this area (G) the cultural layer has an ashy hue and it is 5–10 cm thick. Among the hunted game here horse and reindeer prevailed, but there was also wolf, lion, hare and small rodents (preliminary determination by L. Seitzl).



FIGURE 5. Foundations of the hut. Photo L. Píčová.



FIGURE 6. Mammoth hip-bone with artificially made hole. Photo L. Píčová.

FOUNDATIONS OF A PALAEOLITHIC HUT

On the southern margin of site G a mammoth bone structure of striking shape was discovered. It forms roughly a circle with a diameter of 4–5 m interrupted on the northern side. (Figs. 4, 5.) In front of this break we found a hearth with a 15 cm thick ash layer. The black layer lies in a shallow depression, its bottom and top bordered by reddish fired loess. In the hearth there were burned pieces of flint and small bone fragments.

The selection and the distribution of bones here differs from that in the mammoth bone accumulations in the lower part of the site. First of all there are far more numerous scapulae (14) and hip bones (13) lying in horizontal or sloping position. The circle of flat bones is outlined and interspersed with long bones (7 femora, 9 humeri and 8 other long bones). Among the bones used as construction elements there were 7 mandibles (most of them located on the eastern side), and at least 4 mammoth skulls, preserved in fragments on the western side of the structure (this is only a preliminary list

of bones, the smaller ones and fragments have not been classified yet).

We suppose that the pelvises and scapulae placed at regular intervals strengthened the foundations of the hut, as did also a hip bone with an artificial hole (Fig. 6) found on the south-western margin of the hut. Similar pieces were noted by Pidoplichko (1976) at Mezirich and by K. Valoch (in press) at Předmostí. These bones served as construction elements holding the structure of the hut in muddy terrain. The femora and humeri placed radially outside the structure evidently served to weigh down the roof. The maximum thickness of the construction remains is about 50 cm. We failed to find other details such as upright bones, postholes, large stones, pits, dug in-floor, etc. Inside the hut we found ash spots with irregular shapes, but they did not come from a definite hearth. Lithic artifacts appeared rather sporadically, about 5–10 pcs/sq.m.

The hut discovered in 1988 in Milovice is a smaller version of Kozłowski's Type No. 6 (1986, 127) or can be classed as Model IIa — the stronger surface hut — according to K. Sklenář (1976, 257–264). It is a typical variant with mammoth

bones as the main construction element for the foundation, as known from the Russian Plain. In central Europe we know only two structures of this type, partly displaced by soil flow at Cracow's Spadzista Street B (Kozłowski et al. 1974), and a semicircular bone concentration around a large hearth in Pavlov (Klíma 1954). The pit with a diameter of less than 2 m in the same locality (Klíma 1977) does not belong to this group, since it is not surrounded by bones, but filled with them.

The geographic spread of mammoth-bone huts is probably linked to periglacial steppe environment, where the shortage of natural rock shelters, large stones and wooden building materials was replaced by an excess of bones of large game. Such solid-surface dwellings are typical of the long-term living sites of semi-sedentary hunters (Sklenář 1976, 257–260).

LITHIC INDUSTRIES FROM G-SECTION

Most lithics were concentrated over an area of about 20 sq.m. some 5–10 m north of the entrance

to the hut. The area was presumably used for the manufacture and repair of tools. These activities were perhaps realized around small fires, as indicated by the close links between the appearance of artifacts and the ashy layers, and by the absence of permanent hearths. The local production of tools is documented by the presence of numerous chips and small flakes. However, cores and cortical flakes of "workshop character" are almost completely absent. Among the raw materials in this zone radiolarite from the Carpathian Mountains in the borderland between Moravia and Slovakia prevails, followed by flint and local hornstones. The density of the chipped industry here achieves hundreds of pcs/m², while the percentage of retouched tools amounts to about 10 %.

The latter are characterized by an absolute predominance of backed tools, mainly gravettes, microgravettes, "fléchettes", and backed bladelets. Their characteristic features are the thick retouched edge and ventral retouch on the extremities. Noteworthy also are the shouldered points, triangles, bladelets or points "à gibbosité" and transitional forms between gravettes and perforators. Other types are rare and include retouched and pointed

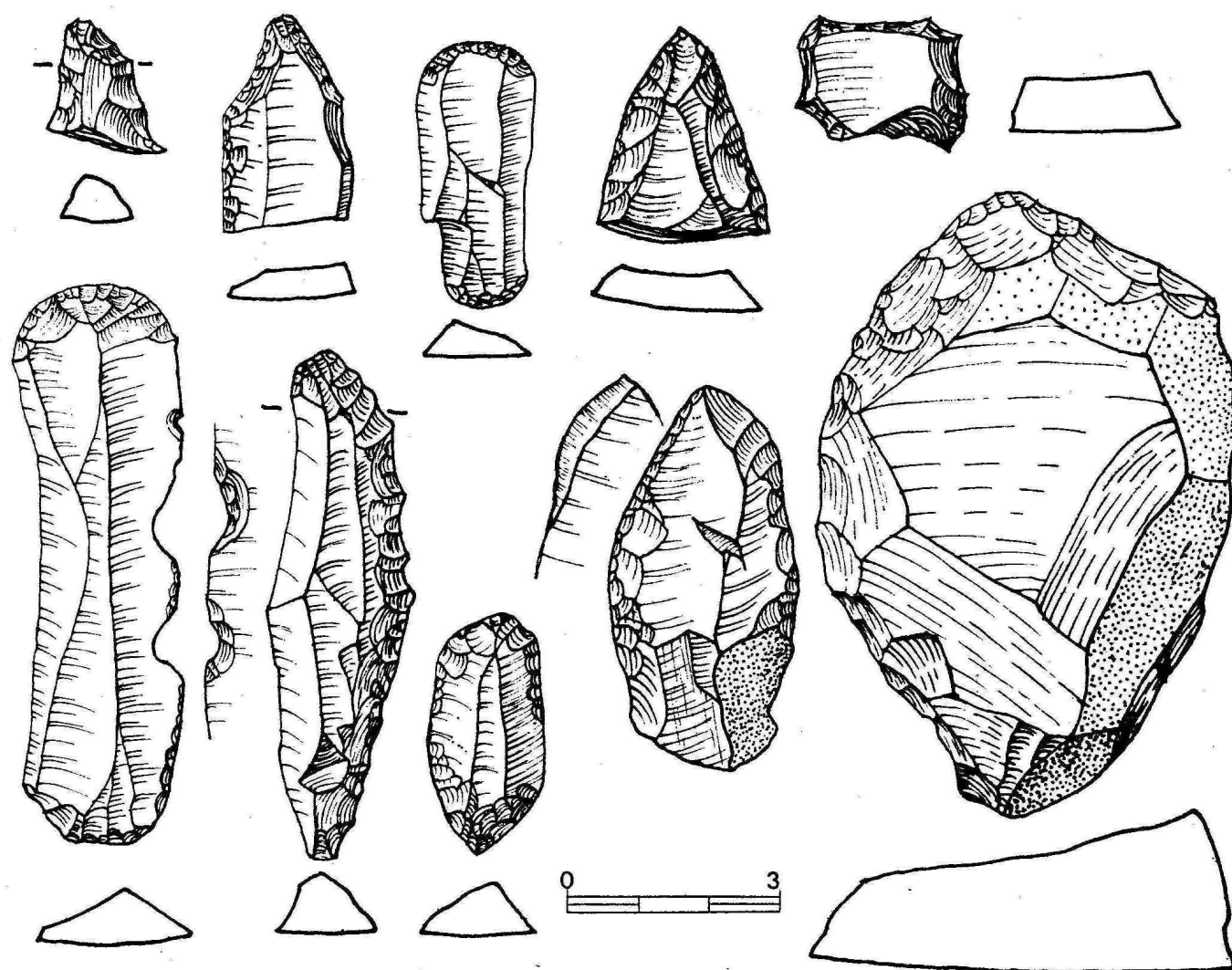


FIGURE 7. Chipped industry from section G, heavy-duty scraper from section K. Drawing M. Oliva, T. Berková.

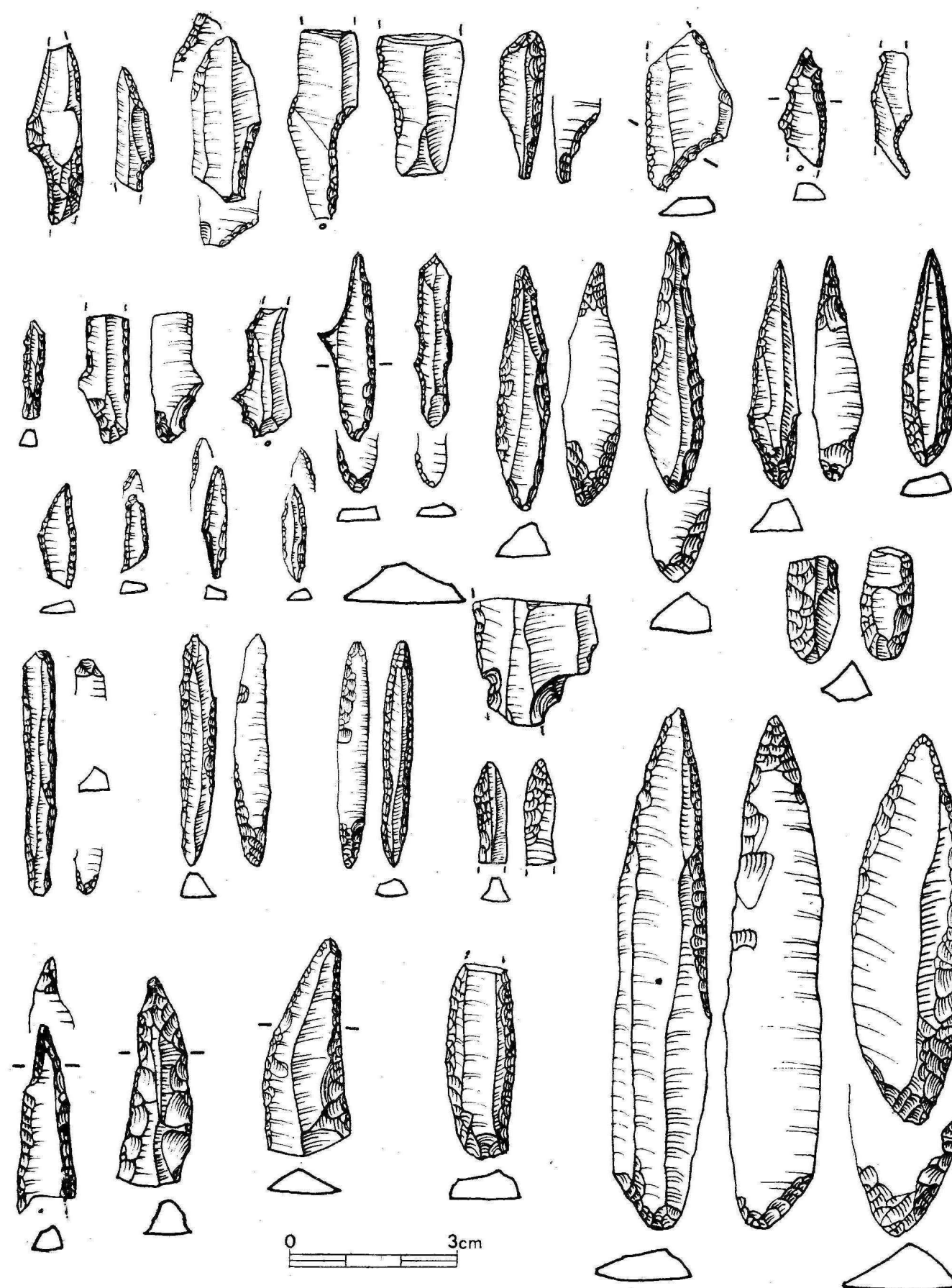


FIGURE 8. Milovice G, main cultural layer: retouched points, blades and microliths. Drawing M. Oliva, T. Berková.

blades, end scrapers (often rather thick), burins (rare and inexpressive specimens), side scrapers and splintered pieces. The so-called Kostienki knives are completely absent. On the other hand, heavy-duty tools made of local limestone, mudstone and quartz (choppers, big flakes and cores) are well represented. Local hornstones which were prevalent in the Aurignacian inventory were used only rarely, perhaps because of the small size of the nodules.

With the exception of a few splintered diaphyses no bone industry was found. Ornaments were represented only by perforated fossil molluscs, sometimes ornamented with regular notches.

CULTURAL ATTRIBUTION

The data on hand make the exact cultural classification of the above-described inventory rather difficult. The Pavlovian, as known from the surrounding settlements, is epitomized by a rich bone industry, varied pieces of art and a different structure of the chipped industry. If we consider the studied assemblage as Pavlovian, we would extend this category so broadly, that this classification as a separate Gravettian-group would be meaningless.

Aggsbach in Lower Austria is chronologically and typologically the closest to Milovice. There, however, the thick gravette points are not so pronounced as at Milovice. Inventories from Willendorf II/9 and Cracow-Spadzista B are typologically similar also. There, however, the share of burins is much higher and the presence of shouldered points is also more marked. The most characteristic features of the chipped industry from Milovice are the specific backed instruments, which form roughly three-fourths of all retouched types. Some of their characteristic traits are very close to the pieces from late Périgordian and Arenian from south-eastern France (Grotte de la Bouverie, Baume Périgaud, Grotte Rainaude, etc. Onoradini 1982, Tables 74—75, 99, 122, 131...). There too, end scrapers often prevail over burins, although the latter are still very characteristic.

CONCLUSIONS

In Milovice the Upper Palaeolithic site with several occupational levels is being excavated.

Radiocarbon dates and stratigraphic position indicate that the older Gravettian layer falls into the younger part of the interpleniglacial. The macro-fauna is represented mainly by mammoth, horse and reindeer. It should be remembered, however, that the mammoth bones, abundant only in hut foundation, represent also collected building materials. The closest analogies to the chipped industry can be found in the Gravettian in the Danube valley in Austria and in Provence. Chronologically this occupation dates slightly latter than the culmination of the Pavlovian at Dolní Věstonice and Pavlov, but its character is slightly different.

The younger date comes from the marginal area with sparsely scattered bones and tools. It represent one of the latest traces of Gravettian settlements in Moravia.

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