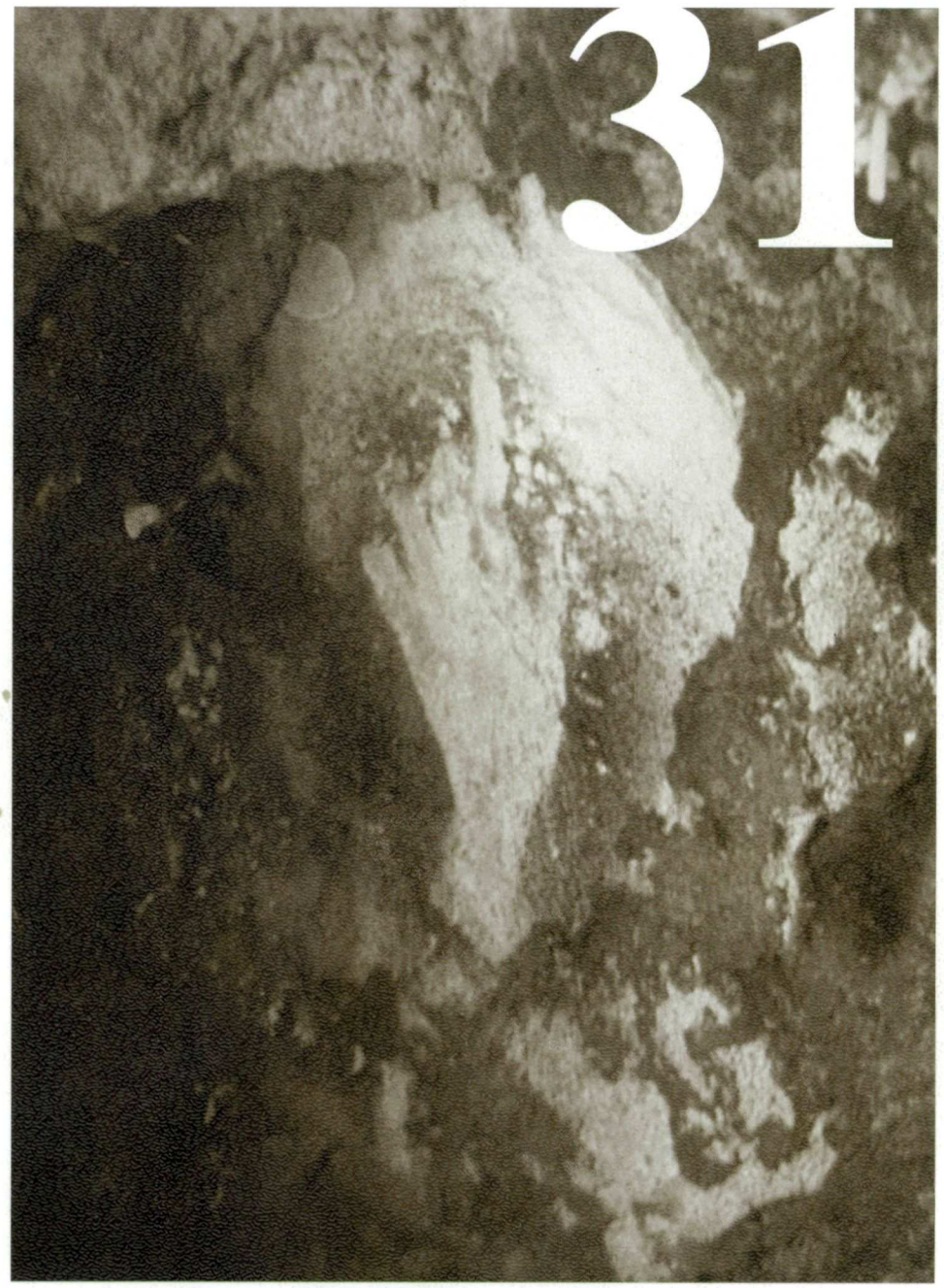
ANALECTA PRAEHISTORICA LEIDENSIA



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HUNTERS OF THE GOLDEN AGE

THE MID UPPER PALAEOLITHIC OF EURASIA 30,000 – 20,000 BP

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This volume is dedicated to the memory of Joachim Hahn

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Viola Dobosi

17 Interior parts of the Carpathian Basin between 30,000 and 20,000 bp

An ecological reconstruction of the MUP period in the Carpathian basin was recently complemented by a number of new scientific results from geomorphology, malacology, vertebrate palaeontology, palynology, radiocarbon dating and anthracology. In the history of the Hungarian Upper Palaeolithic, the MUP refers to the older blade industry of the Gravettian complex/Pavlovian. This period is represented by 11 sites, some of which are large permanent settlements with a varied lithic inventory, some are temporary hunting camps or workshops, located on or near the raw material sources with a specialised tool kit. Their cultural relations are mainly determined by the geomorphological features of the region. There is a typologically confirmed connection leading towards the northwest, the gravettian core areas, probably to the north of the Danube. Western connections are demonstrated by the presence of rock crystal from Alpine sources. We have no information on the use of southern routes. To the east and the north, the chain of mountains separated the population of the interior parts of the basin from cultural centres east of the Carpathians.

1. Introduction

The absolute chronological frames embrace an unevenly documented but eventful period within the Hungarian Upper Palaeolithic. Archaeological interaction, i.e. parallel features between the EUP – MUP and the MUP – LUP, as well as the palaeo-ecological rhythm, only partly overlap these chronological frames. The artificial frames of the period 30-20 kyr bp therefore include a possibly still existing Aurignacian II (EUP), as well as the beginning of the LUP (Ságvárian) within the study area.The absolute chronological data, complemented by sedimentological arguments, mainly seem to support the observation that the settlement history of the Hungarian Upper Palaeolithic is characterised by a certain discontinuity, closely related to ecological phenomena.

Upper Palaeolithic groups appeared in significant numbers in the interior parts of the Carpathian Basin during the interstadials of the last third of the Würm glaciation. Geological studies, sediment analyses, the investigation of the malacofauna, palaeobotanical remains and the vertebrate macrofossils, as well as radiocarbon dating of archaeological sites and loess sequences, confirm this statement. The speed of the infiltration of a culture within a major population unit or the duration of the active periods of the settlements cannot be ascertained with acceptable accuracy as yet, as the absolute chronological dates give only a coarse indication of the history of events.

As this volume focuses on the period 30-20 kyr, most of the aurignacian evidence is of little relevance for this paper, from both a chronological and an archaeological point of view. Our ^{14}C dates indicate, however, the presence of the Aurignacian II as late as 30 kyr bp (GrN 1935 30,710 ± 600 bp;Vértes and de Vries 1959: 195), and identified for the first time in the upper cultural horizon of the Istállóskõ cave by László Vértes (Olschevien). Absolute chronological dates of *c.* 31 kyr, with rather generous margins of error, indicate that the aurignacian II industry with polished bone points (though not split-based ones) was contemporary with the first settlement wave of gravettian people in Hungary at the lower margin of the given time span.

Analysis of the archaeological material of the early gravettian technocomplex revealed some archaic features in the technological and typological character which could be attributed to aurignacoid influences. However, this interaction conflicts with our current ideas on the aurignacian culture: proceeding from the Near East to the Far West, from the Levantian coast to the Atlantic coast, and stopping for a geologically short while in the Bükk caves in the north Hungarian Mid-Mountains. They came there in direct competition with the contemporary szeletian population – this contemporaneity is stratigraphically proven – so the Aurignacian was a short but enigmatic episode in the history of the Hungarian Upper Palaeolithic. It is less probable that the technical innovations appearing in the earlier Gravettian would come from these short-time 'guests'.

The last third of the Würm period, having three phases in the Carpathian Basin, is associated with the gravettian cultures *sensu lato*. On the basis of chronology and techno-typological features, this large cultural entity can be subdivided into three smaller ones, each with a local facies. This also means that with almost identical ecological conditions, similar ways of life and similar key finds (Gravette points), the sites can be assigned to three cultural phyla and represent two different technological traditions. The two chronological horizons of the leptolithic/blade tradition are:

- older blade industries, suggested terminology: Pavlovian/Gravettian (Bodrogkeresztur, Megyaszó, Hont, Püspökhatvan)
- younger blade industries, suggested terminology: Epigravettian (Danube bend, Jazygia).

A special industry, the Ságvárian, with a preferential use of pebbles as raw material is partly contemporary with the younger blade phylum. The term Ságvárian was suggested for Hungarian sites (Ságvár, Madaras, Mogyorósbánya). This phylum also represents the transition between the MUP and the LUP, and its most completely documented site, Mogyorósbánya, has a ^{14}C date of 19,930 ± 300 bp (Deb 1169; Dobosi and Hertelendi 1993: 141).

The absolute chronological position of the Ságvárian practically coincides with the date of the cold maximum of the Würm glaciation for the west of the Carpathians. The various phases of the Late Glacial climatic history in the Carpathian Basin and its relation to other regions in Europe cannot be reconstructed with the necessary accuracy. It seems that the climatic oscillations during the middle of the Würm III followed each other quite fast, and in spite of their short duration, they were characteristic enough to cause significant changes, for example in the malacofauna. In Western and Central Europe, the cold maximum of the Würm glaciation occurred around 20 kyr, between the Tursac and Laugerie interstadials, but in the Carpathian Basin it occurred one phase later. István Vörös calculated an average July temperature on the basis of Würm cave sediment fauna lists. The coldest phase of the Late Würm, with an average July temperature of 12.6° C was ascertained for the period between the Laugerie and Lascaux interstadials. This phase is contemporary with the formation of the one metre thick loess separating the two cultural layers of the Ságváre pebble gravettian site (Dobosi and Vörös 1987: 58). There are data indicating that by the end of the Ice Age there is another cold peak with an almost equally cold maximum in the Carpathian Basin.

On the other hand, the open air settlements of the older blade industries (Pavlovian/Gravettian), that is, the first wave of the Gravettian, are known only from the beginning of this period, the Würm 2/3 interstadial. The archaeological material recovered from the Late Glacial sediments of the caves can partly be allocated to the open air settlements as special temporary shelters with special, asymmetrical or specialised assemblages. The rest is composed of small insignificant assemblages, no more than 'background noise', and too small for an adequate archaeological cultural classification.

2. Geology

The most varied and thoroughly studied loess profile is situated in the Mende brickyards. The period at stake here is represented in this section by 10 metres of sediment. Sedimentological studies of the section were performed, using various methods, complemented by ^{14}C dates and TL dates in more recent times (Pécsi 1993: 228). While the latter method yielded contradictory data for earlier periods of the Pleistocene, the differences of the two dating methods, however, are within reasonable margins of error for the last third of the Würm period.

The sequence of the loess profile of the Mende brickyards is as follows:

- Würm 2/3 interstadial: double soil horizon:
- Mende Upper II: developed soil, steppe forest with groves, with charcoal remains, dated at 40 kyr
- intermittent loess (calculated data)
- Mende Upper I: steppe soil, cold steppe taiga, grove-forests, dated at 29,800 ± 600 bp (Mo 422) (Both soils are of *chernozem* type)
- Würm 3 stadial: sandy and typical loess alternating with formation and filling of 'dells' (small valleys).

The *c.* 8 m thick loess and loess-like sediments of the Würm 3 are dissected by two soil levels:

- h2: loessy humus, arctic embryonal soil, dated at 20,520 ± 290 bp (Hv 2591) and 21,740 ± 320 bp (Hv 4189)
- h1: loessy humus, embryonal soil, grove-forest, dated at 16,750 ± 400 bp (Hv 1655)

The Würm sediment sequence is overlain by sandy loess.

In the Middle Danube basin, seemingly less stratified loess slope sediments were formed than west of our area. The formation of double soil horizons is a special feature of the Würmian sedimentation in our region, and for the study period they can be observed in the Mende Upper 1-2 forest steppe soils and the Late Würm embryonal soil h1 and 2 levels (Pécsi 1993: 225).

On the basis of the collation of sedimentological, faunal and archaeological data, the author suggested the use of the term Ságvárian period for the time span 20 to 16 kyr bp (Dobosi and Vörös 1987, tab. 8), a period which corresponds to the h1 and h2 embryonal soil layers (i.e. two short interstadial phases) and the generally one metre thick loess separating them. At the same time, this is the period of the Ságvárian pebble-gravettian culture.

3. Ecology

3.1 Fauna

3.1.1 Malacofauna

As a result of the investigation of loess profiles, the terrestrial molluscan fauna of the Carpathian Basin is well known and parallels other data on climatic history. The malacofauna of the relevant period is as follows (Sümegi-Krolopp 1995: 136-137):

- Würm 2/3 interstadial: species preferring a mild climate dominate. A typical species of the *Catinella arenaria* subzone is *Granaria frumentum*.

- By the end of the soil formation/interstadial we suddenly find species indicating extreme dry conditions, such as *Pupilla triplicata*.
- These are followed by cold resistant mezophylous species: the subzone *Vallonia tenuilabris* indicates for the period between 25-22 kyr definitely cold continental steppe conditions.
- Around 22-20 kyr, a relatively milder and wetter climatic phase can be hypothesised, with a resistant mesophylous malacofauna, identified by Sümegi and Krolopp at the level of the hl embryonal soil.
- The Würm cold maximum is characterised by the fauna of the *Columella columella* zone.

3.1.2 Vertebrate fauna

We have no data on rodents and amphibian-reptilian fauna for open air sites. Avifauna is known only from the younger settlements (*Lagopus* eggshell fragments). The large mammalian fauna is less responsive to climatic changes and is thus less suitable for an outline of the climatic history.

For open air sites, the list of hunted animals consists of 11 different species: hare, fox, lion, wild boar, mammoth, woolly rhinoceros, horse, elk, reindeer, red deer, and bison.

As the palaeolithic settlements seem to be concentrated around the Würm 2/3 interstadial, this faunal list comprising both forestal and steppe elements can be considered typical for this interstadial. The palaeontological equivalent of the period is the Istállóskõ faunal phase, found in greatest variety in the aurignacian II layers of the Istállóskõ cave. The archaeological material of this unit still belongs to the EUP, and thus falls outside our scope here. The fauna, however, is independent of the cultural classification of human communities living in the same environment. We can therefore complete the faunal list of the open air (gravettian) settlements with the following species: *Bos*, *Capra* and *Rupicapra* among the herbivores, and *Canis*, *Crocuta*, *Felis* and *Lynx* among the carnivores (Vörös 1982: 46, 1984: 19).

The general trend observable in the changes of the fauna indicates that the number of pachydermata (rhinoceros, mammoth) gradually decreases, while that of the steppe herd animals (horse, reindeer) increases.

At least two species of *Equus* were recognised in the fauna, *E. germanicus* and a smaller horse, noted as *Equus* II. So far, this species was regarded as an index fossil for the period ending with the Early Würm (Dobosi *et al.* 1988: 34).

3.2 Flora

3.2.1 Charcoal remains

Anthracology, i.e. the study of charred plant remains, used to play a major role in Hungarian palaeolithic research. In the last three decades, however, this important discipline has not been continued. Since the publications of J. Stieber, there have been no further studies of this type of material. Recently, however, a young specialist at Debrecen University has started some activities in this field, but the results of these studies have been published only partially, and the research was partly performed on material younger than 20 kyr.

Stieber's results were published in 1967. He reconstructed the Würmian vegetation within the framework of the Milankovic-Bacsák chronological system, which has been updated several times since.

From the upper cultural horizon of the Istállóskõ cave, charcoal remains of *Ulmus*, *Sorbus*, *Quercus*, *Pinus* and *Picea* were identified (Stieber 1967: tab. I). This flora composition indicates an interstadial mixed deciduous forest, with some pine. As mentioned above in the palaeontological record, this period corresponds to the Würm 2/3 interstadial. Data concerning the second half of the 30-20 kyr period, the stadial, are missing.

On the basis of the charcoal finds from the Epipalaeolithic sites, it seems certain that during the Late Würm there always was some arboreal vegetation in the central parts of the Carpathian Basin, at least in the form of riparian gallery forests.

3.2.2 Pollen

The interpretation of palynological data is also problematical. The borehole studies of the Alföld (Great Hungarian Plains) resulted only in an overall picture of the Late Würm, without a detailed species list. In the sediments of the open air settlements of the Gravettian/Pavlovian, there is little chance for pollen to survive. The general scarcity of pollen extends over the Würm 2/3 interstadial as well. Apart from the species-rich NAP component (Chenopodiaceae, Gramineae, *Polygonum*), we have some deciduous remains (only *Alnus* and *Corylus*), and from conifers the usual *Picea* and *Pinus*. With the gradual deterioration of the climate, the increase in aridity, and the fall in the average temperature, the flora became even more meagre (Járai-Komlódi 1966: tab. I). The palynological evaluation of the Mende brickyards profile is unfortunately not very informative: lots of *Artemisia*, and a few arboreal species preferring a warmer climate, as well as Gramineae (Pécsi 1993: fig. 52).

4. Archaeology

The Pavlovian phylum of the gravettian entity in Hungary is known from 11 sites: Bodrogkeresztur (Vértes 1966), Korlát (Simán 1995), Hidasnémeti (Simán 1989), Megyaszó (Dobosi and Simán 1996), Sajószentpéter (Ringer 1993), Mátraháza (Biró 1984), Verseg (Dobosi 1991), Püspökhatvan (Csongrádi-Balogh and Dobosi 1995), Romhány (Simán 1993), Hont/Parassa (Gábori 1957), and Nadap (Dobosi *et al.* 1988). The sites are mentioned here in a more or less east-west

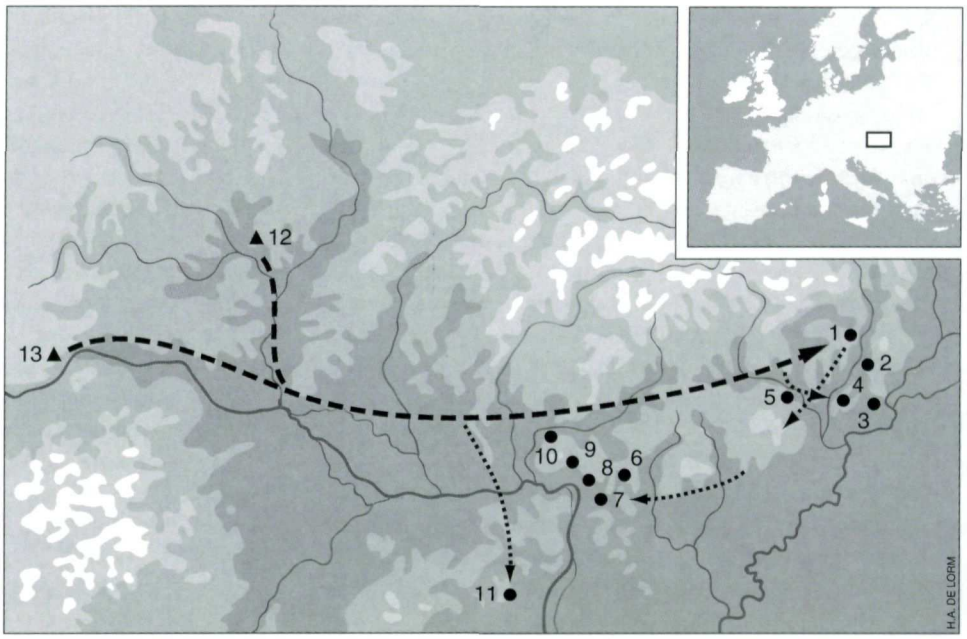

Fig. 1. Sites mentioned in the text: 1. Hidasnémeti; 2. Korlát; 3. Bodrogkeresztur; 4. Megyaszó; 5. Sajószentpéter; 6. Mátraháza; 7. Verseg; 8. Püspökhatvan; 9. Romhány; 10. Hont; 11. Nadap; 12. Dolní Věstonice; 13. Willendorf. dashed line: main route; dotted line: auxiliary route.

direction. The quantity and quality of information on these sites is unfortunately very uneven.

Some of the sites were authenticated by excavations (Bodrogkeresztur, Korlát, Hidasnémeti, Megyaszó, Verseg, Püspökhatvan, and Nadap), though we can never speak of the complete recovery of an undisturbed settlement. Some sites are known only from stray surface finds (Romhány), some are in reworked sediments (Mátraháza), and there are some where excavation is currently in progress (Hont/Parassa). Finally, there are some sites where the scientific elaboration (geomorphological position) is advanced, but the archaeological information is limited to the description of just a few artefacts (for instance, Sajószentpéter).

As for settlement function, we can distinguish temporary hunting camps (Hidasnémeti, Verseg, Nadap), longer term settlements (Bodrogkeresztur, Megyaszó), and workshop sites on raw material occurrences (Korlát, Mátraháza, Püspökhatvan).

The function of the settlement, the selection of the location (topography) and the set of tools (proportions or asymmetry of the type list) is interrelated, and the discovery of evident connections can offer a chance for prospecting and identifying new sites and classifying surface materials.

4.1 Topography

The sites are located in the northern part of Hungary in a mid-mountain environment. This phenomenon is not surprising for the workshop settlements, as the selection of the location (in all known cases so far) is connected to hydrothermal silices. Among the Alföld sites, none belongs to this chronological horizon. The term 'mid-mountain environment', however, is misleading to some extent.

These settlements are located in the generally not very high Hungarian Mid-Mountain range (average peaks at 7-800 m, highest peak at 1010 m) at lower elevations, thus the absolute height of the sites corresponds mainly to the hill category. These hills, at the same time, are connected to the mountain ranges, thus the characteristic way of life is certainly a mountainous type of existence and the surface relief forms also indicate mountains rather than hills.

In the selection of the location of settlements, the primary function of the settlement was decisive, but in the case of some sites, the topographical position was favoured for several reasons. Most suitable for living were obviously settlements for permanent residence, though in Hungary so-called residential settlements, such as Willendorf, Pavlov, etc. near the border region of the Carpathian Basin, are still missing. On the basis of the horizontal extent and the size and quality of the finds, Bodrogkeresztur and Megyaszó can be assigned to the category of permanent settlements, though these settlements were disturbed by modern activities. Both settlement areas were chosen with a good strategic sense, in a protected, central place with an excellent view and various natural resources. Bodrogkeresztur is located on a protruding plateau of the hilly region adjoining the southern part of the Tokaj Mountains, which are very rich in raw materials. The Henye hill, on which the site lies, is protected from the north by the Tokaj-Presov mountain range, from the southeast by the Kopasz-hegy ('Bald Mountain') of Tokaj, and from the southwest by the outer row of hills.

The immediate environment is rather diverse, and consists of a mid-mountain type of environment (Tokaj Mountains), a marshy one (Bodrog and Tisza floodplain region, Takta plains), as well as of lowland biotope (starting at 1-2 km south of the site). The variety of resources is also reflected in the fauna of the settlement.

Megyaszó is separated by the ridges of the Southern Tokaj from Bodrogkeresztur, some 20-22 km as the crow flies. It lies on a hilltop separated from the surroundings by steep valleys. The situation is very similar to Bodrogkeresztur, but on a smaller scale. The local hydrothermal raw material source is only a few hundred metres from the settlement; however, this type of raw material was not very popular on the site. Good quality Tokaj sources, at the same time, are less then 10 km away in the Tokaj region. The site is protected (from the Lowlands, and from the northwesterly winds. The 'Bald Mountain' is substituted here by the Nagyrépás), and located at a meeting point of different ecological niches (Tisza river substituted by the Hernád, Bodrog river by the Gilip, and even the margin of the Alföld is near, beyond one row of hills). Likewise, the site overlooks the wide north-south corridor leading towards the Alföld along the southeastern corner of the mountains.

Sajószentpéter (Á. Ringer pers. comm.) probably belongs to the category of permanent settlements, but has so far not been published.

As for Hont, the topography of these sites in the area is suitable for permanent settlements and temporary hunting camps. The study of the chain of settlements can offer much new information on function, contemporaneity and settlement structure.

Some sites were classified as temporary hunting camps on the basis of the scarcity of finds and the small extent of settlement features rather than the type spectrum or the extremely rich fauna. The selection of the location was, most probably, directed by strictly utilitarian notions. In the case of the two sites defined as hunting camps, the common factors are the marginal position facing the plains and the proximity of fresh water.

Nadap and Verseg with their variable and relatively rich palaeontological material and, for Nadap, the basically long-distance raw materials in the lithic industry, correspond to the category delineated by K. Simán as "temporary camp, in sharp contrast to the environment" (Simán 1983: 65).

On the basis of some typical artefacts, the site of Romhány was classified chronologically in the same category. At first sight, the site seems to be an ideal hunting camp; however, the interpretation should be checked by excavations.

The topography of the workshop sites seems evident. In the case of Püspökhatvan and Korlát, the raw material was formed as a result of hydrothermal processes following Miocene volcanic activity. The resulting silices can be observed in thick banks even today, and are still used (e.g., around Boldogkõváralja and Korlát the blocks of hydroquartzite are used for making terraces against erosion in the vineyards). In the case of Mátraháza, the primary source is not known. At Hidasnémeti, the workshop function is not very clear, but on the basis of the typological composition, it was published as a workshop (Simán 1983: 64). With respect to all workshop sites, however, we must admit that we have no information as yet on the contemporary permanent (?) settlements where the artefacts prepared in the known workshop sites were transported to and used. The Püspökhatvan/Cserhát hydroquartzite may occur in the Alföld palaeolithic sites, but these settlements are chronologically one phase younger, i.e. of Epipalaeolithic age.

4.2 Raw material acquisition

The raw materials present in the gravettian sites are fairly varied. Tracing the raw materials of known geological sources, we can observe that the bulk of the MUP sites was using local or regional raw materials. These two categories are understood as defined in the 'Lithotheca catalogue' (Biró and Dobosi 1991: 8), with 'local' referring to rocks at a day's walking distance from a site, and 'regional' used as a flexible term to indicate material available at distances intermediate between 'local' and 'long distance'.

The ratio of certain raw materials can vary considerably from site to site, but some dominant raw materials can be found in nearly all sites.

Due to favourable geological factors, the territory of Hungary abounds in postvolcanic, hydrothermal and sedimentary silices (Biró 1988). In the palaeolithic period, the resources are complemented with raw materials from within and outside the Carpathian arch, serving practically all dimensional and qualitative needs. Raw materials generally known and used throughout the Upper Palaeolithic were:

- obsidian: occurring at several places within the Tokaj-Presov Mountains in the form of nodules. In the study period (the MUP), the largest transport distance is recorded at Hont (surface find), 170-180 km west of the sources. The importance of this material is demonstrated by the fact that it was also found at Püspökhatvan, a workshop site with local raw material utilisation well exceeding 95%, 150 km from the obsidian sources.
- 'Szeletian' felsitic porphyry: the characteristic, easily identifiable laminar ash-grey raw material typical of the szeletian culture. Its geological occurrence is well known in the eastern parts of the Bükk Mountains. Among the settlements studied, this material was identified at Megyaszó and Bodrogkeresztur, 30-40 km from the source area.

- Hydrothermal silices: in the study period, we have information about two raw material exploitation/workshop sites, both on hydrothermal banks of silices: Korlát and Püspökhatvan. The importance of local raw materials at these sites exceeds 90%. Their distribution at other contemporary sites is difficult to follow, as most of the sites of the period are located in the northern part of the country, which is fairly rich in local hydrothermal raw materials. Mátraháza was located on a local secondary raw material accumulation as an *ad hoc* workshop; the distribution of the raw material processed here (opal) is unknown.
- Radiolarite: primary occurrences are known from the Mesozoic sequences of the Transdanubian Mid-Mountain range and the Mesozoic of the north Hungarian Mid-Mountains. Radiolarite pebbles can also be collected from Palaeozoic radiolarites, e.g., in the stream beds on the southern slopes of the Bükk Mountains. Colour variations and radiolaria content can serve as identification characteristics. Due to the variety of sources, Carpathian radiolarites (from the Vág/Vah and Hernád/Hornad valleys) play an important role as well. Carpathian (Vah valley) radiolarite was found in large quantities at the Transdanubian horse hunters camp of Nadap, which is remarkable as radiolarite sources were present close to this site. Yet radiolarite was imported over a distance of 180 km as the crow flies.
- Erratic flint: according to generally accepted opinion, this term stands for silex nodules and pebbles transported by ice. The nearest occurrence is in the Riss moraines around the Moravian Gate, the upper reaches of the Odra river. As erratic flint can come from any region covered by the terrestrial ice sheet, in normal archaeological practice it is mostly recognised by the erratic cortex and blueish-white, intensive patina. At the Hungarian archaeological sites of the period, this raw material was identified in major quantities at Nadap, Bodrogkeresztur and Megyaszó (at Nadap, comprising almost 70% of the artefacts).

There are, however, certain problems with aspects of these raw material studies.

Among the hydroquartzites, for instance, we have some macroscopically similar types with similar texture and patina. Furthermore, no objective (scientific) methods have been used to prove the erratic character of the material. With regard to the Hungarian material, the 'erratic flint' items were classified macroscopically only. At Nadap, if the raw material is really erratic flint, we have to suppose a very fast moving community because of the high ratio of distant raw materials, denoting regular supply or fresh infiltration, supported by another argument as well, i.e. the newcomers did not have information on local resources.

Apart from the main raw materials, on all of the sites yet unidentified raw materials were also found, mainly in the form of *ad hoc* artefacts.

4.3 Technological innovation

The MUP industries arrived in our region, according to our current information, from outside the Carpathian Basin, in completely developed form. Its oldest wave could still have met the rearguards of the aurignacian people. The term 'Aurignaco-Gravettien' or aurignacoid type working denotes at most contemporaneity or formal reminiscences, probably without any real connections. The analogy relates in the first place to the steep endscrapers and the stepwise retouched blades, occurring in place of the classic aurignacian types (altogether missing from the Hungarian aurignacian sites as well).

From the Hungarian sites of the study period, only four assemblages yielded material suitable for statistical analysis (Table 1): Bodrogkeresztur (767 tools), Megyaszó (560 tools), Hidasnémeti (112 tools), and Nadap (68 tools). (Korlát, Püspökhatvan and Mátraháza are workshop assemblages with very specific and asymmetrical type lists, Sajószentpéter has not yet been published, Hont is under publication, at Verseg altogether 5 burins could be fitted into a traditional type list, and Romhány is awaiting authentication).

The Hungarian sites do not conform to the groups suggested by M. Otte (1990), who outlined a model of Central European gravettian development on the basis of his revision of the material from Willendorf. At the time when he compiled his work, he could only base himself on a fraction of the material published by Vértes from Bodrogkeresztur and he had no information on the results of the new (1994) excavations. Table 1 was created on the basis of the complete material. The site can be put into Otte's 'Stade I' only on chronological grounds.

In my opinion, 'Stade II', i.e., "lames retouchées" are not enough as "éléments caractéristiques". As this type occurs frequently in Hungarian sites and is fairly general with the reservations mentioned by Otte ("les lames, plus larges et plus massives"), this facies suits the material better. The classic shouldered blade point is known only from two instances at Hidasnémeti, and even these are far from the Kostenki type (Simán 1989, fig. 9). On the basis of these, the material could be fitted into Otte's 'Stade III, facies A' (Otte 1990: 220-221).

In J. Svoboda's opinion (Svoboda 1991), the most characteristic feature of pavlovian industries is the dominance of burins and microliths. The ratio of burins can be twice that of endscrapers. Among the Hungarian sites, only Nadap agrees with this feature, together with a high ratio of backed microblades. This settlement is nearest in any

Table 1. The distribution of tool types important for cultural classification (the ratio of types is given in percentages).

	SONNEVILLE-BORDES - PERROT TYPES						
	1 - 15	27 - 44	46 - 47	48 - 49	56 - 57	58 - 59	84 - 90
Bodrogkeresztur	26	28	6	3	-	1	3
Megyaszó	24	21	4	1	1	9	-
Hidasnémeti	10	17	-	4	2	2	7
Nadap	7	37	-	14	-	9	32

sense – raw material, technology, artefact finish – to the Moravian settlements.

We have to point out that in the MUP settlements, a high ratio of 'relict' types can be found. At Hidasnémeti 4% and at Bodrogkeresztur 6% of the scrapers are of Middle Palaeolithic character; at the latter site there were also 3% chopper-chopping tools and pebble tools of Lower Palaeolithic character.

As regards the function of the settlement and the type spectrum, the strongest relation was found at Nadap, where horses were successfully hunted, corresponding to the high ratio of hunting tools (almost 90% of the prey was horse, 37 individuals), thus the settlement could be justly classified as a hunting camp.

Hidasnémeti is interpreted by Simán partly as a hunting camp, but the preservation conditions were unfavourable there and the fauna is missing (Simán 1989: 18).

The type spectrum of both Bodrogkeresztur and Megyaszó is balanced, typical of a habitation site.

5. Discussion

The inhabitants of the Hungarian MUP sites populated the marginal zones of the mountains running parallel to the Carpathian (north, east, southeast) and Alpine (west) arch. The intramountainous basin was open towards the northwest, towards the gravettian habitation area and towards the upper reaches of the Danube and adjacent Morava river valley (Djindjian 1994: 17). The Carpathian and Alpine passes must have been passable in the interstadials. The route running to the southeast of the pavlovian base territory can reach as far as the eastern margin of the interior parts of the Carpathian Basin along hilly regions, without crossing large rivers. In the west, Alpine connections are indicated by comparable environmental conditions, abundance of raw material and the sporadic occurrence of rock crystal in the Hungarian material.

We have no data on the land use of the southwestern zone, the Croatian shore and towards the Apenninian peninsula. In the south, the potential route in the Danube valley (Iron Gorge?) is so far not known. In some phases of the Palaeolithic, contacts may have been established via the southeast (Drobniewicz *et al.* 1992: 418-419).

To the southeast and east, the high arch of the Carpathian range isolated the study area, partly from unfavourable climatic effects but also from direct cultural influences. The cultural centre along the Dniestr river seemingly did not influence the development of the interior parts of the basin. We probably have to consider occasional *ad hoc* crossings via the Carpathian passes and expeditions for raw materials (Volhynian flint/obsidian, repespectively). This direction, however, could not serve for frequent and regular contacts for large groups of people. The large faunal migrations and related movements of the human population took place outside – north and maybe south of – the Carpathian arch, in spite of occasional efforts of communities along the rivers to hunt or acquire raw material.

Accepting the idea of a Central European origin of the gravettian complex, our data seem to suggest that the interior parts of the Carpathian Basin very early on became the home of groups originating from the gravettian/pavlovian core areas. During the MUP period, the potential surplus population of the Moravian territories was able to find similar living conditions as far as the easternmost margin of the Alföld.

The geomorphological conditions of the area offered suitable conditions for habitation. Tools suitable for working various materials, large settlements and exotic objects denoting lasting habitations, support the image indicated by tool type distribution: recognising the advantages of variable natural affordances and their utilisation, the people of the MUP formed lasting settlements in the marginal zone of the Tokaj-Presov Mountain, and in general, in the northern parts of Hungary. This area had a special intermediary position between the western (Pavlov-Willendorf) and eastern (Dniestr-Prut) cultural centres. In a band of *c.* 200 km in length, there are 11 sites known so far. The quality and quantity of the material denotes a most successful period in the Hungarian Upper Palaeolithic.

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