MESOLITHIC HUNTER-GATHERERS IN THE NORTHWESTERN PART OF THE GREAT HUNGARIAN PLAIN

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To Nándor Kalicz on his 75th birthday

Abstract

The study offers an overview of the complex investigations conducted as part of the Jászság project in the central part of the Carpathian Basin. The results of these investigations have yielded important new information concerning the Late Pleistocene and Early Holocene prehistory of this area, but have also enabled a better understanding of the processes affecting a wider region. In addition to a description of the Northern Hungarian Plain Mesolithic Industry, the study also discusses other key issues, such as the cultural foundation of the Mesolithic in the Carpathian Basin and the cultural development in the Early and Middle Holocene, as well as the possible contacts between the Late Mesolithic and Early Neolithic.

Introduction

The end of the Pleistocene brought major changes to the Carpathian Basin. Both the environment and the lifestyle of the hunter-gatherer groups were transformed. In consequence of the global warming at the end of the Pleistocene, the temperature reached the present level and deciduous forests gradually replaced the earlier taiga forests (Járai-Komlódi 1987, 2000; Kertész & Sümegi 1999; Sümegi 1996, 1999; Sümegi & Kertész 1998, 2001; Sümegi *et al.* 2002; Willis *et al.* 1995; 1997, 1998). Parallel to the changes in the environment, the animal population also changed: new species appeared to replace the extinct animals and the species that had migrated to other regions (Vörös 1987, 2000). The new environment led to a crisis among the hunter-gatherer groups: the Epigravettian communities were faced with a difficult choice. Some chose to follow the reindeer herds to Northern Europe from where the ice sheet had gradually retreated. Others decided to stay, adapting to the new environment and becoming hunters of aurochs, bison and red deer instead of reindeer, mammoth and cave bear.

Many details of this apparently simple process, described above, remained obscure in the Carpathian Basin until quite recently. An overview of the state of Mesolithic research in this region shows the following picture. In contrast to the relatively intensively researched peripheral regions (Slovakia: Bárta 1965, 1972, 1973, 1980b; Carpathian foreland: Matskevoî 1987: 85–89, 1991, 2001; Iron Gates: Boroneanț 1980; Radovanović 1996; Srejović 1969), the Jászság is the single area in the central part of the Carpathian Basin that has been systematically investigated (Figs. 1–2). A number of explanations have been proposed for the earlier, apparent lack of archaeological evidence for settlement. According to one explanation, based on the finds from the fringes of the Carpathian Basin and on the evidence from neighbouring territories, there was a cultural change at the end of the Pleistocene, involving the decline of the local Epigravettian tradition and the appearance and development of the Mediterranean Tardigravettian/Epitardigravettian (J. K. Kozłowski 1973: 319). Another was the theory of a 'Mesolithic hiatus' which, quoting the lack of finds from the central areas of the Carpathian Basin, claimed that there was an ethnic vacuum between the Epipalaeolithic and the Körös–Starčevo farming communities of the Early Neolithic (Gábori 1980: 70–71, 1981: 106, 1984: 115, 1985: 356; Gáboriné 1980: 249–251; Somogyi 1970: 310–315; Szathmáry 1988, 1991: 293–295). Yet a third model posited the exact opposite, namely that the advance of the Early Neolithic Körös–Starčevo culture was blocked by a sizeable

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Mesolithic population in this area, explaining why this culture did not spread northward (Kalicz & Makkay 1972: 77–78, 1974: 7–8, 1977: 18–19; Makkay 1982: 22).

The Mesolithic settlements in the Jászság area have convincingly refuted the theory of a "Mesolithic hiatus". At the same time, the following issues still need to be explored:

– In what areas did the prehistoric investigations in the Jászság area contribute to a better understanding of the processes mentioned above?
– Did the Mesolithic communities in the Jászság area play a role in halting the Körös–Starčevo advance?
– Should we assume a continuity or discontinuity at the close of the Pleistocene?
– How can we reconstruct the cultural processes in the Carpathian Basin in the light of the evidence from the Jászság?

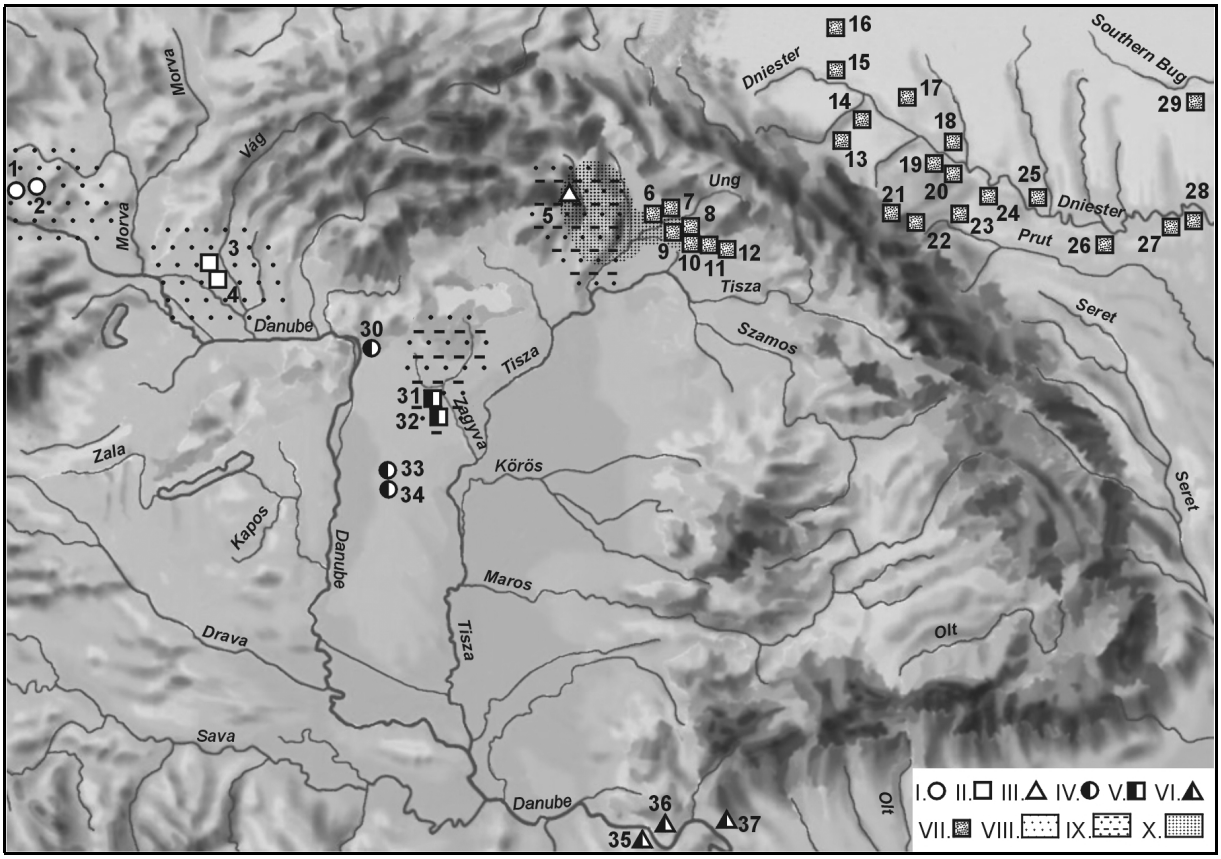


Fig. 1. The Carpathian Basin and the neighbouring territories in the Early Mesolithic with the major sites (end of the 9th millennium–end of the 7th millennium BC).

I. Beuronian; II. Sauveterrian; III. Tisza Valley Mesolithic; IV. Late Epigravettian;
V. Northern Hungarian Plain Mesolithic Industry (NHPM Industry); VI. Djerdap group;
VII. Nezvisko–Oselevka culture; VIII. Western Technocomplex;
IX. Late Epigravettian tradition with elements of the Western Technocomplex;
X. obsidian road.

1. Kamegg; 2. Limberg-Mühlberg; 3. Mostová; 4. Tomášikovo; 5. Barca I; 6. Nevitskoe I;
7. Kamenitsa III; 8. Kamenitsa V; 9. Glubokoe I; 10. Lavki I; 11. Mukatsevo VIII;
12. Konoplevtsy II; 13. Morsin I; 14. Zidatsov I; 15. Rubanovka I; 16. Mavkovitsi I;
17. Voronov I; 18. Marinopol IV; 19. Zatise V; 20. Gannusovka I; 21. Manyava I;
22. Delyatin VIb; 23. Dobrotov II; 24. Nezvisko IX; 25. Krymno III; 26. Oselevka I;
27. Ataki VI; 28. Molodovo I; 29. Markovka I; 30. Sződliget/Vác 31/9; 31. Jásztelek I;
32. Jászberény I; 33. Kunpeszér-Felsőpeszéri út-Homokbánya; 34. Kunadacs-Köztemető;
35. Padina A; 36. Cuina Turcului II; 37. Schela Cladovei.

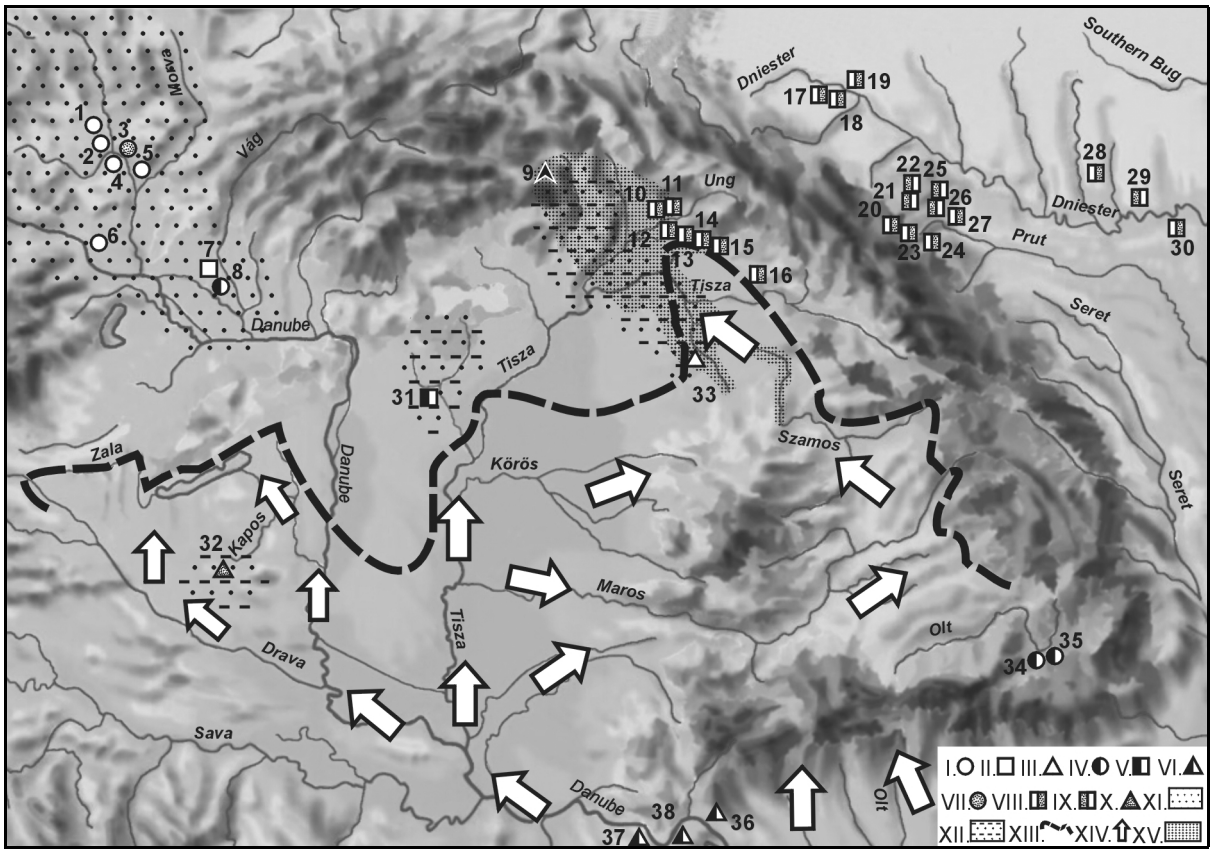


Fig. 2. The Carpathian Basin and the neighbouring territories in the Late Mesolithic with the major sites (c. 6th millennium BC).

I. Beuronian; II. Sauveterrian; III. Tisza Valley Mesolithic; IV. Latest Epigravettian; V. Northern Hungarian Plain Mesolithic Industry (NHPM Industry); VI. Djerdap group; VII. Šakvice-type assemblage; VIII. Kamenitsa–Barane culture; IX. Vorotsev–Starunya culture; X. Transdanubian Mesolithic Industry; XI. Western Technocomplex; XII. Latest Epigravettian tradition with elements of the Western Technocomplex; XIII. Central European–Balkanic agroecological barrier (CEB AEB); XIV. infiltration of Early Neolithic communities 6500–5500 cal BC; XV. obsidian road.

1. Smolín; 2. Přibice; 3. Šakvice; 4. Dolní Věstonice; 5. Mikulčice; 6. Wien-Bisamberg; 7. Sered I; 8. Dolná Streda; 9. Ružín-Medvedia Cave; 10. Guta II; 11. Kamenitsa I; 12. Uzhorod I; 13. Barvinok I; 14. Srednee III; 15. Niznyaya Solotvina I; 16. Dibrovka I; 17. Radelitsi I; 18. Radelitsi II; 19. Verin V; 20. Delyatin IX; 21. Starunya I; 22. Starunya VI; 23. Delyatin IV; 24. Zaretse II; 25. Verhniî Maîdan III; 26. Verhniî Maîdan I; 27. Lantsin I; 28. Negin I; 29. Vrublevtsy I; 30. Zatise IX; 31. Jásztelek I; 32. Kaposhomok; 33. Ciumeşti II; 34. Gîlma; 35. Cremenea; 36. Ostrovul Banului; 37. Lepenski Vir; 38. Hajdučka Vodenica.

It must be emphasized that the research project in the Jászság is restricted to a rather small area of Hungary and that our knowledge of other areas during the same period is rather sketchy. It is our hope that the work done in the Jászság area will lead to a systematic research project of the Hungarian Mesolithic. Suffice it here to quote Poland as a comparison where, as a result of intensive research, a total of some 3500 Mesolithic sites have been identified to date (S. K. Kozłowski 2001: 262). The systematic research in the Jászság was the first Mesolithic project in Hungary; earlier, authentic finds were almost entirely lacking. One of the most important objectives of the Jászság Mesolithic project was to increase both the quality and the quantity of the archaeological assemblages. In addition to extensive field surveys, we also conducted excavations on two sites, Jászberény I and Jásztelek I; in the spring and summer of 2002 we also surveyed the Tarnaörs area and conducted a small trial excavation to clarify the layer sequence. As a result of these investigations we now have a

fairly accurate picture of the campsites, the material culture, the habitations and the lifeways of the Mesolithic hunter groups, as well as of their cultural contacts and their one-time natural environment (Kertész 1991, 1993, 1994a, 1996a, 2001; Kertész *et al.* 1994). In the following I shall offer an overview of the results of the complex research begun in this micro-region about a decade ago, together with a description of the Northern Hungarian Plain Mesolithic Industry (NHPM Industry), divided into several chronological phases on the basis of the Jászság sites.

The Northern Hungarian Plain Mesolithic Industry

The global warming at the end of the Pleistocene completely transformed the environment in the Great Hungarian Plain. The pine woods retreated from the river valleys and were replaced by deciduous forests of oak (*Quercus*), elm (*Ulmus*), ash (*Fraxinus*), poplar (*Populus*) and willow (*Salix*), the ancestors of the gallery woods appearing in the early Holocene, some of which survived up to the present day. The composition of the fauna also changed. The mosaic patterning of the Holocene ecological system characterizing the entire Great Hungarian Plain, as well as its smaller regions evolved by around 11,000–10,000 BP, together with a rich and varied food pyramid. The relatively dry steppe and forested steppe regions were interrupted by the long, forested valleys of the rivers carrying the precipitation of the Carpathians to the plainland (Kertész 2001: 38–39; Kertész *et al*. 1994; Sümegi 1996; Sümegi & Kertész 1998, 2001).

This ecosystem was apparently attractive to the Mesolithic groups in the Jászság, an area lying on the northwestern fringes of the Great Hungarian Plain by the southern piedmont of the Mátra Mountains. Similarly to the Epigravettian hunters of the Late Pleistocene, these Mesolithic groups realized that the green corridors in the river valleys and in the tectonic subsidences provided excellent conditions for settlement. According to archaeological evidence, they exploited the rich flora and fauna, as well as the proximity of water when choosing their campsites. In addition to a number of similarities, a range of differences can also be distinguished between the settlement strategy of the Late Pleistocene Epigravettian and the NHPM Industry. Although both groups took advantage of the regional and micro-level mosaic patterning of the floodplains, they exploited different habitats of the river valleys. The Epigravettian hunters usually established their camps farther from the river, on the sand dunes of the aeolian loess-covered, Pleistocene alluvial fans and on the island-like, Late Pleistocene sand dunes, as well as levees covered with alluvial or, more rarely, aeolian loess, rising above the floodplain. In contrast, the NHPM groups usually settled on the Late Pleistocene–Early Holocene floodplain, directly by the one-time rivers (Kertész 1996a: 8–13, Figs. 4–7).

The surface and the vegetation of the Jászság was in essence a mosaic of areas with differing ecological conditions owing to its peripheral location. These regions offered different modes of exploitation (Fig. 3). The valleys of the Zagyva, the Tarna and their tributaries in the subsidence basin forming the centre of the micro-region, were no doubt highly attractive environments in the Mesolithic. The rivers flowing from the Mátra Mts. converged in the lower-lying area and created a labyrinth of cut-off channels and oxbows with a unique marshland, characterized by lush vegetation even in the dry summer months. The waters abounded in fish, molluscs and waterfowl, the gallery woods and the alluvial meadows in herbivore mammals and fur animals. The smaller ridges rising above this marshland area and the protected niches of the river bends provided attractive camping sites for the Mesolithic hunter-gatherers (Kertész 1996a: 13, 2001: 39; Kertész *et al*. 1994: 16–17). The Mesolithic sites identified at Pásztó-Mária tanya (Simán 1993: 248, Fig. 1. 7) and on the outskirts of Tarnaörs suggest that sites from this period can be sought not only in environments resembling the one in the Jászság, but also near the open flint sources in the Northern Mountain Range and in the river valleys running north to south on the alluvial fan connecting these two regions.

The considerations affecting the choice of the campsites' locations are also confirmed by the pollen samples from the one-time channel of

the Paleo-Zagyva at Jánoshida-Meggyesi erdő (Kertész *et al.* 1994: 17–18, Figs. 5–6). The pollen analyses indicate that the hunters' camps were established in an environment of extensive gallery woods of oak (*Quercus*), elm (*Ulmus*), willow (*Salix*) and maple (*Tilia*). The shrub level of these gallery woods was dominated by hazel (*Corylus*). The water regime became unstable in summer owing to low precipitation. The ground water table sank in the vegetational periods, providing optimal conditions for human settlement and excellent circumstances for creating seasonal campsites in summer (Fig. 4).

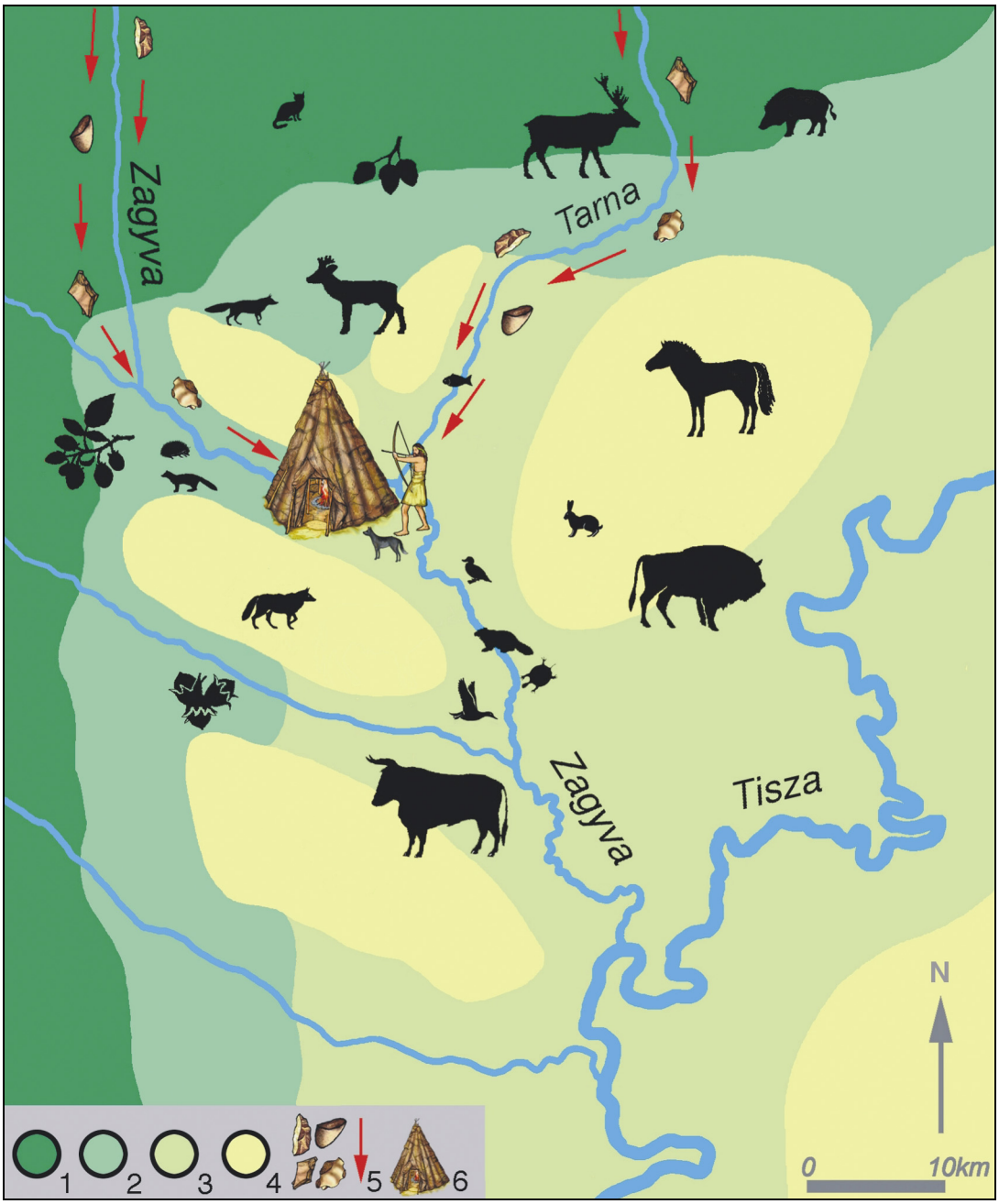


Fig. 3. The reconstructed mosaic patterning of the environment in the Jászság during the Early and Middle Holocene.

1. closed woodland > 120 m; 2. piedmont, open woodland, 100–120 m; 3. gallery woods (green corridors) < 100 m; 4. steppe–forested steppe; 5. reconstructed acquisition route of the flints and other lithics from the Mátra Mountains used by Mesolithic hunter-gatherers; 6. campsites.

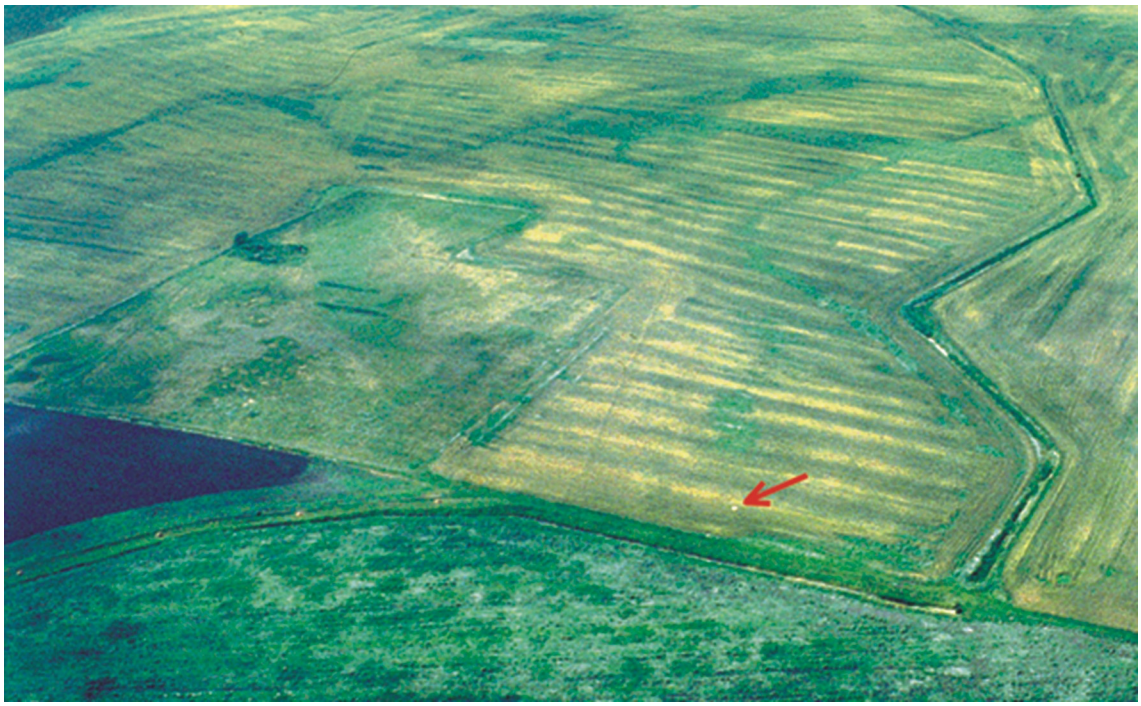
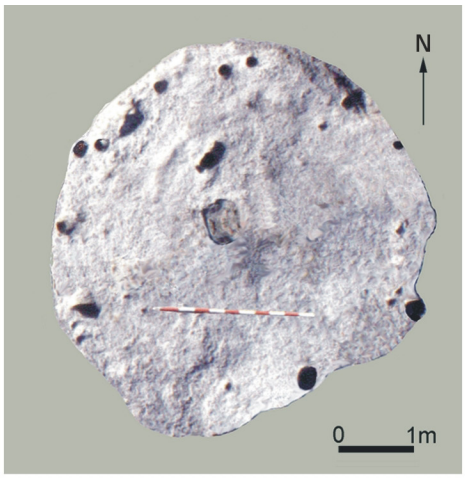
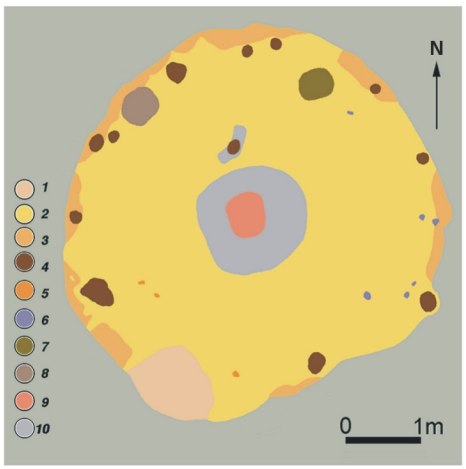


Fig. 4. Aerial photo of the environment of the Jásztelek I site by the Palaeo-Zagyva (photo by Károly Kozma).





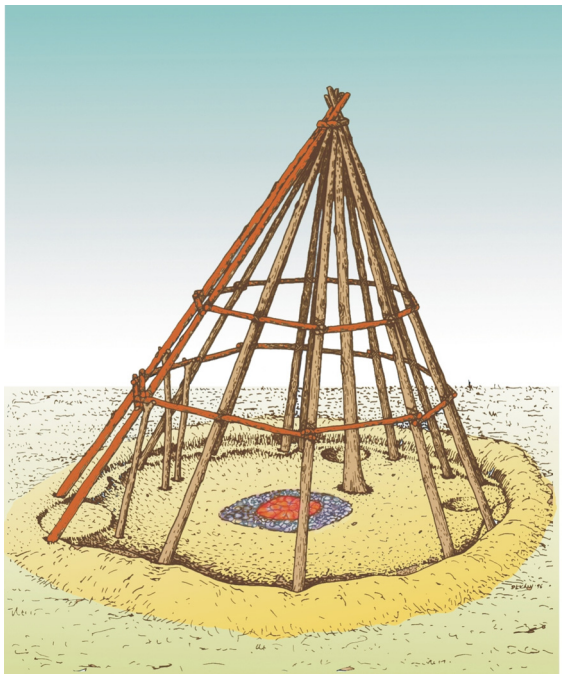


Fig. 6. Reconstruction of the structure of the Mesolithic hut (Jásztelek I).

Fig. 5. The hunter's hut unearthed at Jásztelek I (excavation photo and groundplan).

1. entrance; 2. floor; 3. bench; 4. posthole; 5. posthole at the entrance; 6. posthole of a bed or storage place; 7. shallow depression; 8. food storage pit; 9. hearth; 10. ash.

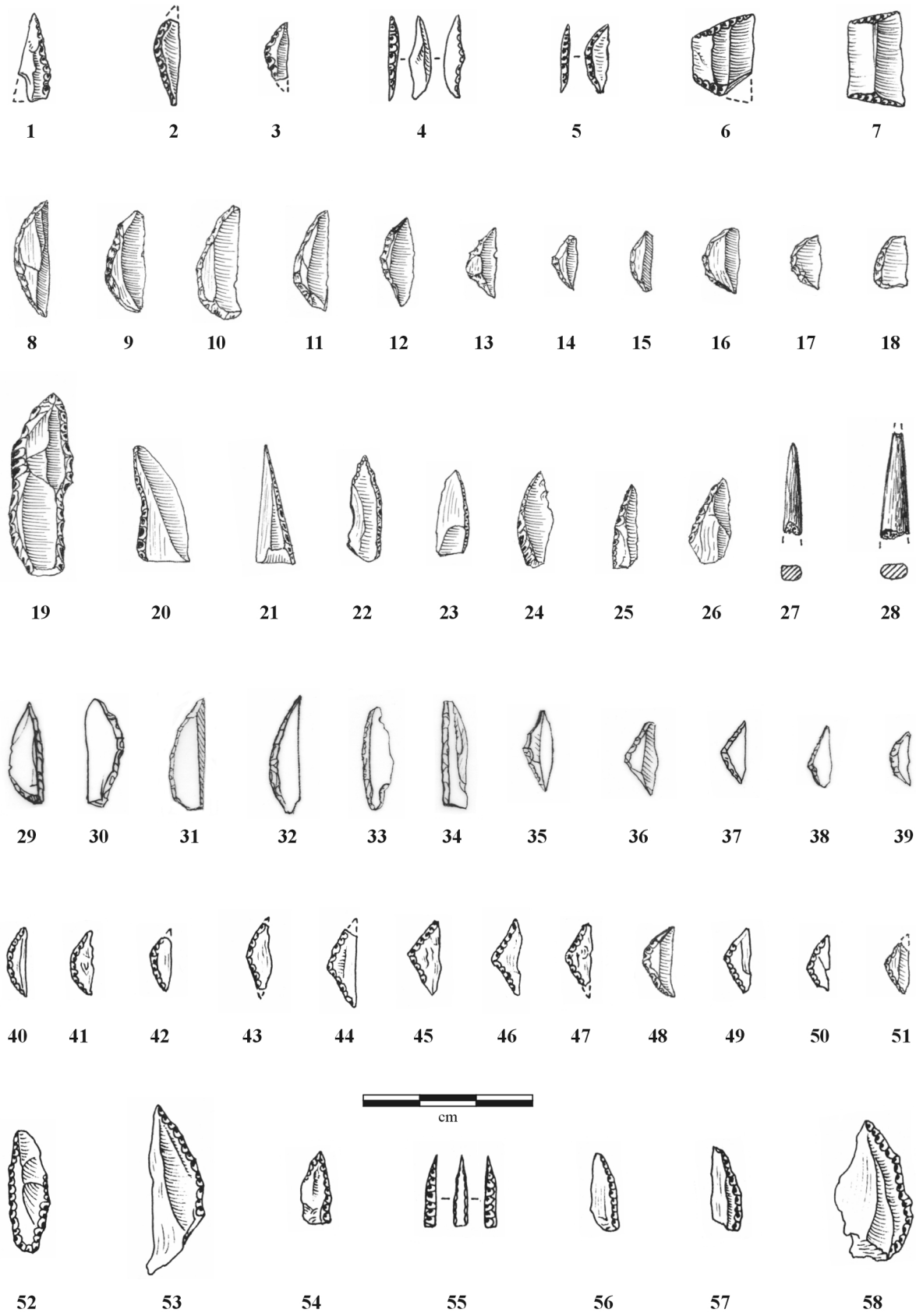


Fig. 7. Geometric microliths and typical points of the Jászberény and Jásztelek phases of the Northern Hungarian Plain Mesolithic Industry (Early and Late Mesolithic). 1–7: Jásztelek I, surface finds; 8–28: Jásztelek I, feature 1; 29–30, 34: Jásztelek I, layer B; 31–33, 35–39: Jászberény I, layer B2; 40–58: Jászberény I, layer C.

These seasonal campsites were indicated by patches with a diametre of 12–17 m. The archaeological finds at the Jászberény I site were recovered from six such patches, while at the Jászberény II site four patches were observed, all lying relatively close to each other (Kertész 1991: 33, 1993: 84, 1996a: 19, Fig. 10; Kertész *et al.* 1994: 18, Fig. 8). Larger settlements with more intensive surface finds are rare. The Jásztelek I site appears to have been a larger settlement since the finds showed a relatively dense surface scatter over a roughly 50 x 40 m large, slightly curved area. The archaeological culture-bearing layer was usually 10–15 cm thick and lay directly beneath the topsoil. The thin occupation levels of these Mesolithic campsites indicate that they had been briefly occupied by smaller groups. The mobile lifeways of these communities called for seasonal changes in their settlement sites.

The finds in the investigated campsites showed find scatters of varying intensity and the different find types often lay in separate clusters, allowing the identification of individual activity areas, such as stone workshops and butchering sites. The excavations of the Jásztelek I site enriched our knowledge of the dwellings of these hunter communities (Fig. 5). The sunken foundation and the remains of the structural elements in feature 1 enabled the reconstruction of an asymmetrical conical hut built around a framework of posts (Fig. 6) – the earliest residential structure from Hungary that could be fully reconstructed (Kertész 1996a: 19–22, 2001: 42–44).

Aside from a few carefully worked bone point fragments (Fig. 7: 27–28), the finds from the settlements are exclusively stone artefacts. The microliths are rather varied, often including small and slender pieces. The points are dominated by backed points, together with the occasional straight and oblique backed types, although arched pieces were the most frequent types (Fig. 7: 1, 21, 24–25, 30–33, 54, 57). Aside from a few truncated bases (Fig. 7: 29, 52), the bases of these points were unretouched. The presence of shouldered and Sauveterrian points (Fig. 7: 19, 55) in these assemblages is noteworthy. The microliths include backed pieces, obliquely truncated backed bladelets and retouched truncations. Among the geometric microliths there are crescents, isosceles and scalenes triangles, as well as trapezes (Fig. 7: 2–18, 34–51). Geometric microliths can be divided into two size groups: the early phase is characterized by smaller types (Fig. 7: 34–51), while larger pieces (Fig. 7: 8–12) appear in the later phase. Short end-scrapers on a flake are the typical elements of the tool-kit. The ratio of end-scrapers on a blade is negligible; these were usually made from short blades. The number of burins and borers is similarly low and they include few typical pieces. The microburin technique was known. Irregular blade blanks were also found. The lithic finds also include semi-finished products and unretouched blades, as well as unworked flakes, debitage and cores, attesting to the local manufacture of these tools.

The examination of the lithic finds for traces of microwear yielded few results owing to patination (Bácskay 2001: 9, Figs. 1–5). In contrast, the petrographic analyses revealed that the dominant raw material was a limnic flint type whose source lies in the southwest Mátra Mountains (mainly in the Szurdokpüspöki area) and from the eroded fluvial deposits of these rocks. The Mesolithic groups of the Jászság procured this raw material from the northern part of the micro-region, from the constantly shifting fluvial deposits and alluvial fans within a 10 km radius and from the outcrops in the Mátra Mountains, lying some 25–50 km away. Expeditions for the acquisition of raw material probably led through the Zagyva and the Tarna valleys, as well as the valleys of the smaller streams in the northern Jászság. Raw materials from more distant areas, such as obsidian from the Tokaj-Prešov Mountains, glassy quartz porphyry from the Bükk and Szentgál radiolarite from Transdanubia occur but sporadically (Kertész 2001: 46; Kertész *et al.* 1994: 22–26, Figs. 2–3; Mateiciucová 2002: 174–175).

The other finds from the settlements indicate that the hunter-gatherer groups fully exploited what the environment had to offer. Hunted animals included species both of the closed/forest and the open/forested steppe, corresponding to the mosaic of different

ecological niches in the Jászság area (Vörös 2000).[1] The bone remains of large herbivores, such as aurochs (*Bos primigenius*), bison (*Bison bonasus*), wild horse (*Equus ferus gmelini*), red deer (*Cervus elaphus*), boar (*Sus scrofa*) and roe deer (*Capreolus capreolus*) testify to efficient hunting with bows and arrows and dogs (*Canis familiaris*), the earliest domesticated animal. The hunting of solitary game (wild horse, stag, boar) and herd animals (aurochs, bison, hind, roe deer) called for different hunting strategies. Beside the above species, the kitchen refuse contained the remains of birds and smaller mammals (e.g. hedgehog, *Erinaceus europaeus*), as well as fur animals, such as hare (*Lepus europaeus*), beaver (*Castor fiber*), weasel (*Putorius putorius*), wild cat (*Felis silvestris*), pine-marten (*Martes martes*), fox (*Vulpes vulpes*) and wolf (*Canis lupus*). The presence of fish, pond tortoise (*Emys orbicularis*), bird eggs, terrestrial and lacustral snails (*Cepaea vindobonensis, Viviparus acerosus, Viviparus contectus*) and shells (*Unio pictorum, Unio crassus*) indicate that the diet was complemented by fishing and food-gathering (Kertész *et al.* 1994: 26–28). Even though plant remains have not been found, it seems likely that various mushrooms, roots, tubers, acorn, cornel, water-chestnut, raspberry, strawberry and especially hazel (*Corylus*), thriving in the gallery woods, all figured in the diet of these Mesolithic groups.

The Late Mesolithic also marked the first conscious human manipulation of the environment. Outstanding among these were the efforts to create a mosaic of forest environments in order to encourage the growth and spread of hazel (*Corylus*), the perhaps most important plant in the diet of these hunter-gatherer communities. This activity indicates that by the Late Mesolithic the hunter-gatherer groups in the Carpathian Basin had become open to adopt elements of a food-producing economy as a result of their experiences in the active manipulation of their environment. This is confirmed by the cyclic decrease of elm (*Ulmus*) and ash (*Fraxinus*) pollen in the Late Mesolithic, the selective gathering of their foliage and their use as fodder. The analysis of the pollen samples from Kelemér-Nagy-Mohos, Tiszapolgár-Selypes-ér and Szeged-Batida-ér indicated human manipulation of a similar type. Combined with archaeological evidence (Kertész 1994a), the pollen data and the spread of snail species preferring a more open vegetation in closed woodland environments suggest that the Neolithic food-producing economy was preceded by a pre-Neolithic phase in this region (Kertész 2001: 49; Kertész & Sümegi 1999: 79–80; Sümegi 1999; Sümegi *et al.* 2002: 172).

In addition to the general traits of the NHPM Industry outlined on the basis of the Jászság finds, this industry is characterized by individual typological features, such as Sauveterrian elements beside the local Epigravettian tradition (Kertész 1996a: 25). The best analogies to the NHPM Industry can be quoted from the northern areas of the Carpathian Basin, such as the lithic assemblages from Sered I in Western Slovakia (Bárta 1957), Barca I in Eastern Slovakia (Prošek 1959) and Ciumeşti II in Northwestern Romania (Păunescu 1964).

On the testimony of the excavations and the surface finds from the Jászberény I and Jásztelek I sites, the NHPM Industry can be divided into two major chronological phases: the Early Mesolithic Jászberény phase can be assigned to the Boreal, while the Late Mesolithic Jásztelek phase to the Early Atlantic. Three subphases can be distinguished within the Jászberény phase on the basis of the excavations: (1) Jászberény I, layer C, (2) Jászberény I, layer B2 and Jásztelek I, layer B, (3) Jásztelek I, feature 1. The Jásztelek phase, dated to the Early Atlantic, was distinguished on the basis of the finds from the Jásztelek I site, although it still needs stratigraphic confirmation (Kertész 1994a, 1996a: 23–24). Subphases 1–2 of the Jászberény phase are characterized by small geometric microliths (Fig. 7: 34–51); a marked change can only be demonstrated from subphase 3, with the appearance of larger pieces among the lithic finds recovered from feature 1 of the Jásztelek I site (Fig. 7: 8–12). In addition to regular blades, trapezes (Fig. 7:

[1] The macrovertebrate remains will be analyzed by Dr. István Vörös of the Hungarian National Museum. I would like to thank him here for this preliminary information.

6–7) also make their appearance in the Jásztelek phase (Kertész 1994a). The radiocarbon dates assign layer C of the Jászberény I site to the later Boreal and the onset of the Atlantic. The radiocarbon date for the *Cepaea vindobonensis* shells dominating the kitchen refuse from Jászberény I was determined at 8030 ± 250 BP (Deb-1666; $\delta^{13}C_{PDB}$ – 7.61), while the samples from the sediment carbonate of the matrix of the Mesolithic culture-bearing layer yielded dates of 7350 ± 80 BP (Deb-2466; $\delta^{13}C_{PDB}$ – 10.09) and 7154 ± 62 BP (Deb-3155; $\delta^{13}C_{PDB}$ – 10.35) (Kertész *et al.* 1994: 28).

A profound change can be noted in the material culture of the Late Mesolithic throughout Europe in the period directly preceding the Neolithic. This change is reflected in the remarkable uniformity of the archaeological finds. A number of technological innovations, such as retouched truncation, notched implements and trapezes can be noted in the lithic finds that appear in all areas of the continent (S. K. Kozłowski 1987). The changes in the lithic assemblages point toward the Neolithic. The finds from the Jásztelek I site, representing the late phase of the NHPM Industry, show a number of features that can be fitted into this pan-European process (Kertész 1994a). The archaeological and palaeo-ecological evidence indicates that the same processes can be documented in Hungary during this phase of the Mesolithic as in other part of the continent.

In contrast to the Late Pleistocene cultural and economic development in Europe, a Neolithic production economy based on crop cultivation and animal husbandry evolved in the Near East and Anatolia during these early millennia. Farming economy, Neolithic lifestyle and technology (pottery, weaving and spinning, polished stone implements) spread to the Balkans and to the Carpathian Basin as a result of cultural and ethnic impulses from these primary civilizational regions. The northern boundary of the Early Neolithic Körös–Starčevo culture, part of the earliest Balkanic farming civilization, lay in the centre of the Carpathian Basin around 8000–7000 BP (6500–5500 cal BC; Hertelendi *et al.* 1998). The hunter-gatherer communities in the northern part of the Carpathian Basin (including the NHPM Industry in the Jászság) thus became the neighbours of the Early Neolithic farming communities in the south, providing the possibility of direct interaction between them.

Discussion

It has already been mentioned above that according to one theory, the northward advance of the Körös–Starčevo culture was halted by an assumed Mesolithic population. In recent articles János Makkay reviewed the available evidence in support of this theory, including the Mesolithic sites identified in the Jászság area (Makkay 1996: 40–42, 1998: 475, note 815, 2001). The model proposed by Pál Sümegi and myself (Kertész & Sümegi 1999: 81–85, 2001: 236–239; Sümegi & Kertész 1998, 2001: 412–414; Sümegi *et al.* 2002: 175–176) gave a differing explanation, citing ecological reasons for the northern Körös–Starčevo boundary. We found that the climate, the rock-bed and the soil conditions, as well as the mosaic patterning of the environment outlined a boundary that limited the northward expansion of the culture. We labelled this boundary, determining the northern distribution of Balkanic neolithization, the Central European–Balkanic agroecological barrier (CEB AEB; Figs. 2, 8).

The CEB AEB influenced the neolithization of the northern regions of the Carpathian Basin. There was no doubt an intensive flow of information between the Early Neolithic and Mesolithic communities, each characterized by a different population, as well as differing subsistence strategies, technologies and social organization. As a result, the Carpathian Basin Neolithic adaptation zone evolved along the CEB AEB in the central and northern parts of the Great Hungarian Plain and Transdanubia, as well as in the foothills of the Northern Mountain Range (Kertész & Sümegi 1999: 81–85, 2001: 236–239; Sümegi & Kertész 2001). A two-way cultural and environmental adaptation occurred in this zone, resulting in the spread of neolithization north of the CEB AEB:

– the predominantly hunter-gatherer Mesolithic groups in the substitutional phase adopted cultural, economic and technological innovations from the Körös–

Starčevo communities living south of the CEB AEB;
– the Körös–Starčevo culture adapted to the new environment in the Carpathian Basin during its life-span of roughly 1000 years.

The Körös–Starčevo culture was unable to colonize the areas north of the CEB AEB since these did not provide a suitable environment for a Balkanic farming economy. The hunter-gatherer communities in the area thus gained time for the adoption of the Neolithic technical and economic innovations without being culturally, economically or demographically/ethnically assimilated by the Early Neolithic communities. The Mesolithic groups living south of the CEB AEB were absorbed by the Körös–Starčevo population and by the Balkanic type neolithization process without a trace, except in a few niches, such as the Danube Gorges, where there was the possibility of isolation.

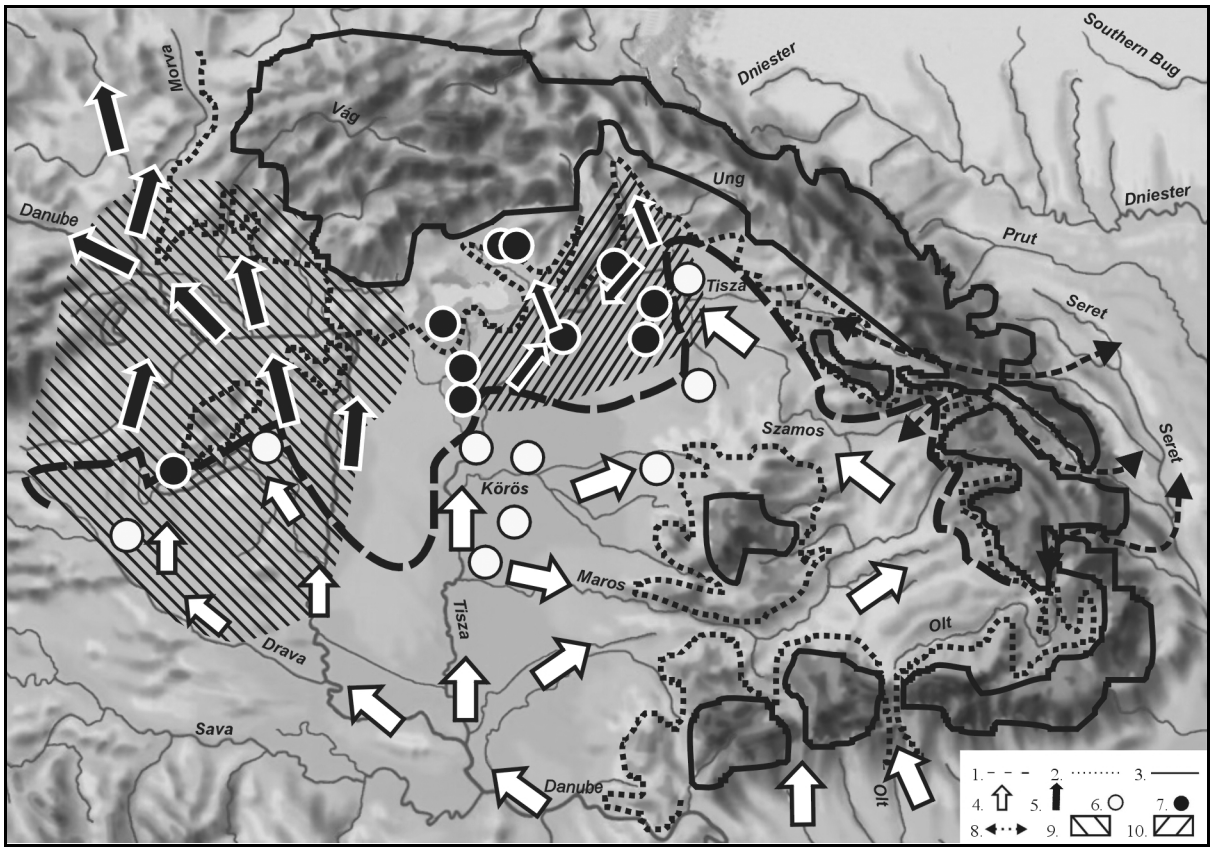


Fig. 8. The neolithization process in the Carpathian Basin (modified after Kertész & Sümegi 2001: 236, Fig. 3; Sümegi & Kertész 2001: 411, Fig. 5).

1. Central European–Balkanic agroecological barrier (CEB AEB);
2. Carpathian piedmont agroecological barrier; 3. Carpathian uplands agroecological barrier;
4. infiltration of Early Neolithic communities 6500–5500 cal BC;
5. Middle Neolithic diffusion 5500–5000 cal BC;
6. Early Neolithic human impact (soil erosion, vegetation change) 6500–5500 cal BC;
7. Middle Neolithic human impact (soil erosion, vegetation change) 5500–5000 cal BC;
8. assumed infiltration of Early Neolithic communities without settlement 6500–5500 cal BC;
9. earliest Central European (Transdanubian) Linear Pottery;
10. earliest Alföld Linear Pottery (Szatmár II).

The CEB AEB thus played a major role in the emergence of the Linear Pottery culture (the Alföld Linear Pottery and the Central European Linear Pottery) north of the barrier. The Linear Pottery was the result of adaptation to local conditions and differed markedly from the Körös–Starčevo culture whose cultural and economic origins lay in the Balkans. The archaeological record indicates that the following system of cultural interaction can be

assumed in the central areas of the Carpathian Basin: in view of their geographic location, as well as exploitation of the geological sources of obsidian and/or their conspicuously intensive use of obsidian (obsidian road), the Tisza Valley Mesolithic (Barca I, Ciumeşti II and probably Hugyaj/Érpatak) and perhaps the Kamenitsa–Barane culture (Figs. 1–2) can be linked to the earliest Alföld Linear Pottery (Szatmár II) (Fig. 8), while the surface finds from the Jásztelek I site show a typological affinity with the earliest Central European (Transdanubian) Linear Pottery (Kertész 1996a: 26), represented by the Budapest-Aranyhegyi út site (Biró 1991: 45, Figs. 3–4).

Another issue that needs to be explored is the question of continuity or discontinuity at the close of the Pleistocene in the Carpathian Basin and of the reconstruction of the cultural processes in the Mesolithic.

The archaeological evidence indicates that several cultural zones influenced the development of the Carpathian Basin in the Mesolithic. The investigation of this period was begun some thirty years ago by Janusz Krzysztof Kozłowski and Stefan Karol Kozłowski, who formulated a number of important questions and tried to answer these. They also determined the most important research objectives and outlined a coherent cultural framework for the period. Their activity represented an important milestone since they not only convincingly challenged a number of earlier theories, but also outlined the first broad cultural and chronological system of the Carpathian Basin and the neighbouring Central European territories. One of their main interests was the clarification of the cultural foundation of the Mesolithic in the Carpathian Basin during the Late Pleistocene, the issue of continuity and discontinuity, and the determination of the origins of the Central European Neolithic cultures. They also studied the cultural/stylistic zones and intercultural processes that influenced this region from the Late Pleistocene to the Early and Middle Holocene, and they can also be credited with the classification of individual sites. Their activity is marked by a series of publications, often written in cooperation with other scholars (Kaczanowska & Kozłowski 1987, 1994; J. K. Kozłowski 1973, 1982, 1983, 1989; S. K. Kozłowski 1973, 1975, 1976, 1980a, 1980b, 1984a, 1984b, 1985, 1987; Kozłowski & Kozłowski 1978, 1979, 1983, 1986; Montet-White & Kozłowski 1983).

One reflection of the complexity of this issue is the re-evaluation of a number of Mesolithic sites in the light of various new research projects. Professors Janusz Krzysztof Kozłowski and Stefan Karol Kozłowski until recently were consistent in claiming that from the Late Pleistocene on, the dominant cultural impacts to the greater part of the Carpathian Basin came from the south. In their interpretation the Late Pleistocene saw a break in the earlier cultural tradition: the local Epigravettian development came to an end in the Alleröd by the latest and the Tardigravettian of the Italian Final Palaeolithic gradually colonized the greater part of the Carpathian Basin through the northern part of the Balkans. They defined the Ostroměř group, distinguished on the basis of Transdanubian, Slovakian, Moravian and Bohemian sites, as a special unit of the Balkanic Tardigravettian of the Late Pleistocene, and they also determined the four phases of the Tardigravettian/Epitardigravettian: (1) Cuina Turcului, lower layer, Băile Herculane; (2) Cuina Turcului, upper layer, Hajdukovo, Bačka Palanka, Sződliget, Szolnok/Tószeg-Áldozóhalom; (3) Gîlma, Cremenea, Pécs/Kaposhomok, Dolná Streda; (4) Hurbanovo, Ciumeşti II. In addition to the spread and subsequent development of the Mediterranean Tardigravettian/Epitardigravettian, the presence of lithic industries of the northern Italian and Istrian Sauveterrian can also be demonstrated in Western Slovakia (Sered I, Mostová, Tomášikovo). The lithics from Šakvice in Southern Moravia included Helwan type crescents of the Natufian, indicating cultural impacts from more southerly regions, such as the Levant. Yet a third cultural influence was represented by the artefacts of the Beuronian, part of the Western Technocomplex, that were identified among others at Smolín, Přibice, the Kůlna Cave (layer 3) in Moravia and at Barca I in Eastern Slovakia.

The research of the Late Pleistocene and the Early and Middle Holocene in the Carpathian Basin gained a new impetus in the past decade.

The Epipalaeolithic and Mesolithic assemblages from the Jászság, lying in the central area of this region, have enabled a better understanding of this period. The archaeological and palaeo-environmental evidence indicates that the cultural development of the region took a different course than as earlier believed. In contrast to Janusz Krzysztof Kozłowski and Stefan Karol Kozłowski's opinion, the presence and the survival of a local Epigravettian tradition could be demonstrated in the northern parts of the Carpathian Basin during the Late Pleistocene. It also became clear that the Balkanic Tardigravettian industries were distributed to a more limited extent than earlier believed and could only be demonstrated in the southern parts of this region, while northwestern and western cultural impacts were much stronger than earlier assumed and played an important, rather than a subordinate role. The Carpathian Basin was the setting for the interaction between major culture zones; as a result of these interactions there evolved regional variants and smaller groups along these cultural and ecologic interfaces (Kertész 1996a: 25).

The following cultural mosaic can be outlined in the Carpathian Basin during the Early and Late Mesolithic (Figs. 1–2): the presence of the Djerdap group can be demonstrated in the southern part of the region, while typical artefacts of the Beuronian and Sauveterrian, part of the Western Technocomplex, in the northwestern areas of the Carpathian Basin (Austria, Moravia and Western Slovakia). At the same time, the influence of the Western Technocomplex can be demonstrated in the local Epigravettian industries (Kertész 1996a: 25). The NHPM Industry, showing a blend of the local Epigravettian tradition and Sauveterrian elements, was determined on the basis of the lithic assemblages from the Jászság. The Tisza Valley Mesolithic, distinguished by Juraj Bárta on the basis of Eastern Slovakian and Northwestern Romanian sites (Barca I, Ciumeşti II; Bárta 1972: 72–73, 1973: 69, 1980a: 129, 1980b: 295) can also be regarded as a regional group of the local Epigravettian and the Western Technocomplex. The new interpretation concerning the Carpathian Basin (Kertész 1996a: 25) was accepted by Marcel Otte and Pierre Noiret in their overview of the Mesolithic in this region and in their analysis of the neolithization of Central Europe (Otte 2001; Otte & Noiret 2001). This general picture can be further refined for the Late Mesolithic (Fig. 2) in view of the Helwan type crescents found at Šakvice and the presence of the Kukrekian (?) at Ružín-Medvedia Cave in Eastern Slovakia and perhaps of the Janisławician Industry at the Kamenitsa I site in the Carpathian foreland (Bárta 1985, 1990; S. K. Kozłowski 2001: 267; Matskevoî 1991, 2001).

It must also be borne in mind that this reconstruction is rather sketchy since the number of currently known Mesolithic sites in the Carpathian Basin, especially in the central areas, is very low. The lack of Mesolithic research projects in Transdanubia, the Northern Mountain Range and the southern part of the Great Hungarian Plain makes any picture rather incidental. Cultural boundaries can only be more precisely drawn on the basis of the evidence gathered during more intensive field surveys and excavations. We may nonetheless note that in addition to the independent occurrence of the local Epigravettian, the discovery of new Sauveterrian and Beuronian sites can also be expected in the northern part of the Carpathian Basin. Independent Sauveterrian and Beuronian sites are most likely in western Slovakia and Transdanubia. The presence of the NHPM Industry and the Tisza Valley Mesolithic in the central and northern part of the Carpathian Basin indicates that similar regional groups reflecting the influence of both local Epigravettian traditions and the Western Technocomplex can also be expected.

In a more recent study, Stefan Karol Kozłowski modified his earlier views and derived the Mesolithic development in the Carpathian Basin not from the northern Italian Tardigravettian, but rather emphasized the conservation and continuity of the local Epi-Gravettian of the final Pleistocene (S. K. Kozłowski 2001: 261, 263–264, 268–269) and assigned the sites earlier determined as Mediterranean type Tardigravettian/Epitardigravettian to the Late/Latest Epigravettian. Stefan Karol Kozłowski noted that "the Epi-Gravettian phenomenon is so diversified that it should be treated as a higher-order unit, i.e., a technocomplex" (S. K. Kozłowski 2001: 268). He

distinguished four cultural/chronological variants: the typical Late/Latest Epi-Gravettian, the Lepenski Vir culture, the Šakvice type assemblages and he also redefined the Barca I Industry – in contrast to his earlier opinion, he no longer considered it part of the Beuronian, but labelled it a separate type, the so-called Barca type. He assigned the Jászság sites to this type (S. K. Kozłowski 2001: 268–269).

In his description of the environment in the Carpathian Basin, Stefan Karol Kozłowski (2001: 262) claimed that the Pannonian Lowland differed from the Northern European Lowland, the Bohemian Basin and Moravia on several counts, noting that the two regions were separated by several mountain barriers: the Western Carpathians and the Beskidy Mountains in the north, the White Carpathians in the northwest, the Eastern Carpathians in the east, the Dinaric Alps in the south, and the Alps in the west. He noted that the "flat and poorly irrigated area" was covered by forested steppe and that in the Atlantic it was populated by aurochs, red deer, wild boar and roe deer, and went on to say that further to the east, in the forest environment of Transylvania, the dominant species was red deer, similarly to the forests of the North European Lowland. It is evident from the above that in spite of the region's varied palaeoecology and terrain, Stefan Karol Kozłowski regarded the Carpathian Basin as a homogenous area (Fig. 9).

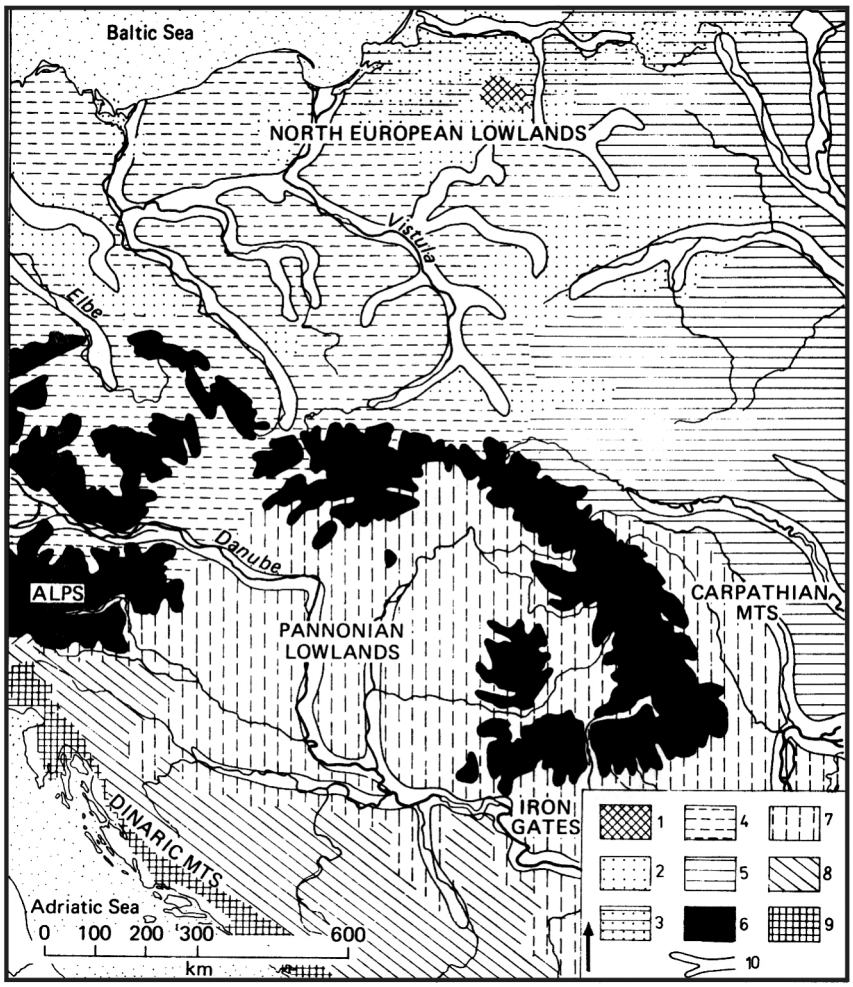


Fig. 9. Principal vegetation zones in the first half of the Atlantic period of Central Europe (after Kozłowski & Kozłowski 1986: 97, Fig. 1).

1. taiga; 2. mixed coniferous forest; 3. mixed deciduous forest;
4. deciduous forest of the maritime type; 5. continental-type deciduous forest;
6. mountain vegetation; 7. steppe-forest; 8. oak forest in the mountains;
9. Mediterranean-type deciduous forest; 10. river valley woods.

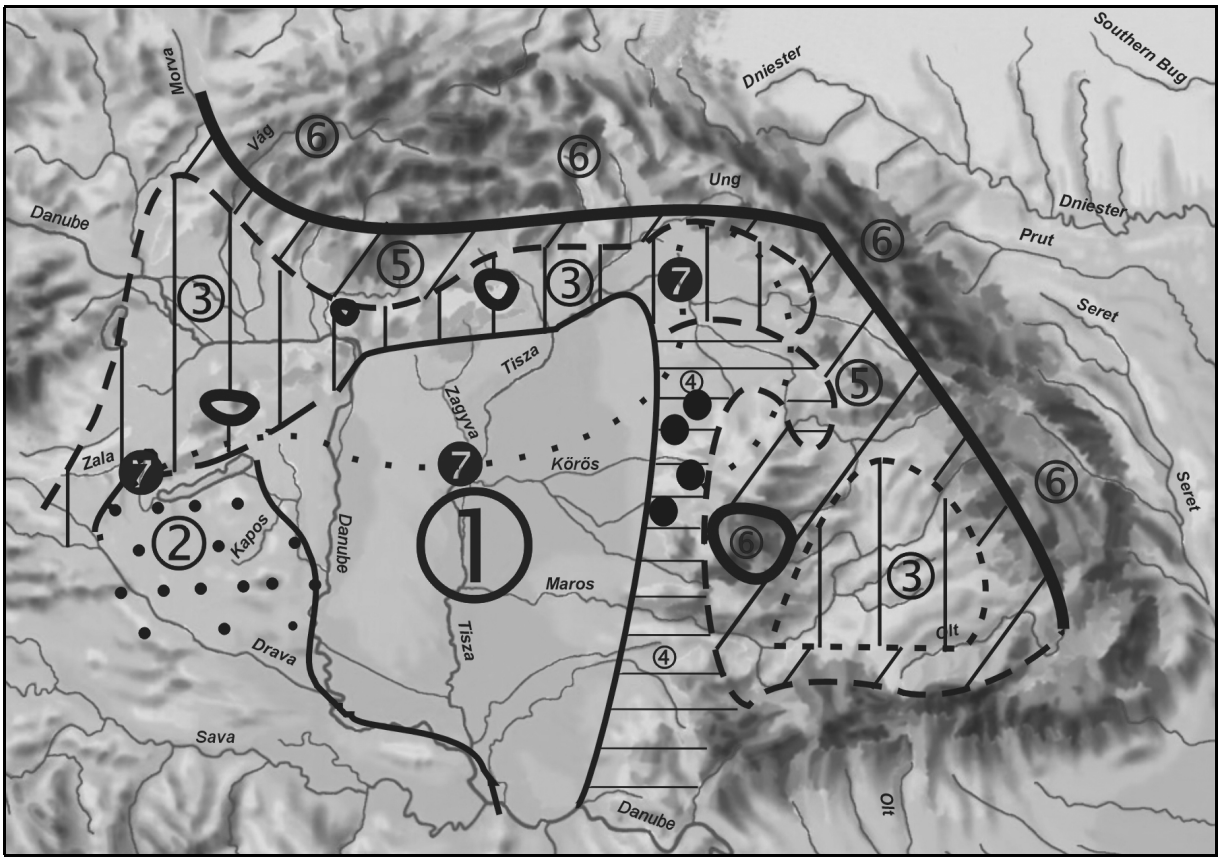


Fig. 10. Early Holocene vegetation zones of the Carpathaian Basin (after Kertész & Sümegi 1999: 69, Fig. 4; Sümegi & Kertész 2001: 408, Fig. 2).

1. Pannonian forest steppe; 2. Submediterranean oak forest;
3. Central European and Submediterranean mixed oak forest;
4. Balkanic oak forest; 5. Central European oak; 6. beech and needle leaved forest;
7. northern limit of Tilia tomentosa *distribution.*

Recent environmental reconstructions have clearly demonstrated that the Carpathian Basin was characterized by a strong environmental mosaic patterning on the macro, meso- and micro-level (Kertész & Sümegi 1999, 2001; Sümegi & Kertész 1998, 2001; Sümegi *et al.* 2002; Sümegi 1996). On the macro-level, this mosaic patterning was created by the interface of major climatic zones: the impact of the continental decreasing from east to west, the oceanic from west to east, the sub-Mediterranean from south to north and the sub-Carpathian–Carpathian climate that developed in the mountainous region. This climatic mosaic patterning is reflected in the vegetation (Fig. 10). The mosaic pattern of climatic zones and vegetation belts resulted in a mosaic of soil types that was further enhanced by the strong diversity of the bed-rock. It seems to me that the cultural mosaic of the Mesolithic in the Carpathian Basin can, to a large extent, be explained by the mosaic patterning of the environment. This mosaic patterning can be noted both in the major cultural zones and in the smaller groups. In addition to this environmental mosaic patterning, a number of other factors can also be cited for explaining the unique development of the region, one of these being the diversity in the use of raw materials.

Stefan Karol Kozłowski's claim that the Carpathian Basin was "poorly irrigated" can by all means be rejected. As a matter of fact, until the large-scale river regulations and draining operations of the 19th century the exact opposite was true: the permanently and temporarily water covered areas in the Great Hungarian Plain made up about one-third of the region, amounting to 35,000 km^2 (Sümegi & Kertész 2001: 410).

Important evidence for the northern contacts of the communities living in the Carpathian Basin during the Late Pleistocene has been recently brought to light (Ringer 2001: 101; Ringer & Lengyel 2001). A population related to the Magdalenian culture lived in the Bükk Mts. during the Late Glacial. Their open settlements (e.g. at Miskolc-Rózsás-hegy) and cave dwellings in the karst caves of the Bükk Mountains (Petényi Cave, Répáshuta-Pongor-lyuk) have both been found. The lithics from the Miskolc-Rózsás-hegy site include a special borer, the so-called *zinken*, and several tanged artefacts, suggesting contact with the Late Palaeolithic cultures of Northern Europe. The lithic tools were made from a wide range of raw materials, including Jurassic flint from Wolowice, northern erratic flint and Northern European flint, as well as other non-local rocks. It is therefore possible that the community occupying the Miskolc-Rózsás-hegy site maintained some sort of contact with the Magdalenian communities in Southern Poland, the implication being that the Carpathian Range did not necessarily act as the barrier between the Epigravettian and Magdalenian.

In the following I shall briefly reflect on a critique (Dobosi 1999: 312–314) concerning one of the basic components of the NHPM Industry, namely the local Epigravettian tradition. It seems to me that Viola T. Dobosi misunderstood and misinterpreted the model of the major cultural tendencies and development in the Carpathian Basin from the Late Pleistocene to the Early and Middle Holocene as outlined in my study (Kertész 1996a). In contrast to her interpretation (Dobosi 1999: 313), I have never claimed that the Early Holocene Epigravettian in the micro-region evolved directly from the Late Pleistocene Epigravettian in the Jászság (Jászfelsőszentgyörgy-Szúnyogos, Jászfelsőszentgyörgy-Székes-dűlő, Jászberény-Nevada tanya). This process can be localized to a much larger region than the Jászság area, namely the northern part of the Carpathian Basin, while the archaeological assemblages in this category span the period from the Upper Palaeolithic and the Epipalaeolithic to the Mesolithic industries in the region. The continuity of the local Epigravettian tradition from the Late Pleistocene to the Early and Middle Holocene in the northern part of the Carpathian Basin was set in this context, as were the finds from the Jászság: "Gravettian industries developed in the late Upper Palaeolithic in the northern part of the Carpathian Basin… The cultural development in the region was basically rooted in the local Epigravettian that was culturally influenced from the west and northwest… The Jászság Mesolithic in the northwestern part of the Alföld (including the as yet only partly defined early Mesolithic phase) represents the regional variant of an industry that continued local Epigravettian traditions" (Kertész 1996a: 25).

The local Epigravettian tradition in the NHPM Industry has not been seriously challenged by prehistorians familiar with the Late Pleistocene and Early and Middle Holocene industries of the Carpathian Basin. Janusz Krzysztof Kozłowski and Stefan Karol Kozłowski drew the same conclusion when determining the cultural position of the Jászság finds since they both emphasized the existence of a local Epigravettian tradition. The single difference of opinion between them was that Janusz Krzysztof Kozłowski emphasized the influence of the Western Technocomplex (Sauveterrian) (J. K. Kozłowski 2001: 257), Stefan Karol Kozłowski interpreted the Jászság finds as belonging to the Late/Latest Epi-Gravettian Barca type assemblages (S. K. Kozłowski 2001: 269).

Finally, I would like to comment on a recent article by Katalin T. Biró (Biró 2002). Table 1 of her article lists the currently known certain and uncertain Mesolithic sites of Hungary, as well as the ones that have been assigned to another period, based on the information contained in a series of articles (Vértes 1965; Dobosi 1975; Gábori 1984; Kertész 1996a). The sites are divided into three categories ("mentioned as mesolithic; with doubt; with certainty in summaries"). Beside each site in this table we find the name of the prehistorian who assigned the site to the Mesolithic and, in some cases, of the prehistorian who challenged its dating to this period. The table is extremely misleading since it incorporates data from different types of articles and studies. The studies by László Vértes and Viola T. Dobosi were written with a view to completeness, listing the then known Mesolithic sites in Hungary, to-

gether with the sites that were possibly Mesolithic. In contrast, Miklós Gábori's two-page article was written after the rejection of the so-called "Grobgerätiges Mesolithikum"; moreover, his article does not contain a list of all the then known Mesolithic sites (and he also omitted the uncertain ones). My own study focused on the Mesolithic of the Great Hungarian Plain in the light of the evidence from the Jászság and I did not include a full gazetteer of Mesolithic sites since I only quoted the ones (mainly from Slovakia and Romania) whose finds included good analogies to the Jászság lithics. It is therefore obvious that only László Vértes' and Viola T. Dobosi's studies represent the same genre, the other two being different in nature, and thus their comparison is rather senseless, like comparing apples to pears.

Table 1 also reveals that László Vértes and Viola T. Dobosi agreed in their evaluation of the so-called "Grobgerätiges Mesolithikum". Viola T. Dobosi maintained her original opinion (Dobosi 1981: 11, note 11) in spite of the arguments to the contrary set down in Katalin Simán's thesis (Simán 1978) since she did not find Janusz Krzysztof Kozłowski's reasoning challenging the "Grobgerätiges Mesolithikum" convincing enough (J. K. Kozłowski 1973: 325–326).

Katalin T. Biró's list of sites is rather arbitrary on several other counts as well. While the sites of the "Grobgerätiges Mesolithikum" in Northeastern Hungary were included almost without exception, a few authentic Mesolithic ones were omitted from the list. For example, only two of the Jászság sites are included under the heading Jászberény and Jásztelek. As a matter of fact, three Mesolithic sites have been published from the Jászberény area: Jászberény I, II and IV (Kertész 1991, 1993, 1996a; 1996b). The table also contains a number of other misunderstandings, inaccuracies and mistakes, a few of which are listed below.

- In the case of Bakonytamási, the designation "claimed" and the reference is missing (Gallus 1942: 22–24, Pl. III. 12–26, Pl. IV. 1–8).
- Katalin T. Biró was mistaken in including the Demjén-Hegyeskőbérc site in the table. It is evident from the original publication of the finds (Dobosi 1976: Figs. 4–17) that this site cannot be regarded as Mesolithic. According to Viola T. Dobosi, the excavator of the site, Demjén-Hegyeskőbérc was settled by a community living in the Neolithic whose lithic finds preserved Late Ice Age and perhaps even earlier, East Gravettian Arka-type traditions. Although hunting no longer played an important role in the subsistence of this community, neither was farming dominant. The occupants of the site maintained intensive contacts with other, genuinely Neolithic communities, from whom they acquired their polished stone implements and pottery (Dobosi 1976: 39). It must be noted here that both Nándor Kalicz (Kalicz 1980: 98–99) and János Makkay (Makkay 1982: 46) rejected Viola T. Dobosi's interpretation of this site.
- According to the table, the Győr-Kisszentpálpuszta site appears among the Mesolithic sites in Viola T. Dobosi's study (Dobosi 1975); as a matter of fact, the site is not mentioned in her study.
- In my opinion the fact that Viola T. Dobosi does not mention the Hugyaj/Érpatak and Tószeg-Áldozóhalom sites in her cited study (Dobosi 1975) does not offer grounds for far-reaching conclusions since she included both sites in her gazetteer of Mesolithic sites in an earlier article (Dobosi 1972: 42–43, Karte 1) and she also redrew and republished Jenő Hillebrand's drawings (Hillebrand 1925; Dobosi 1972: Abb. 1. 23–32). It seems to me that the omission of the Hugyaj/Érpatak and Tószeg-Áldozóhalom sites from Viola T. Dobosi's cited study does not imply that these sites are not Mesolithic, but simply that she forgot to list them.
- Jásztelek: the quoted reference is inaccurate since the Jásztelek site (Jásztelek I) was published not in 1993 (Kertész 1993), but in 1994 (Kertész 1994a).
- In the case of the Korlát-Ravaszlyuktető site the table does not mention that in Viola T. Dobosi's cited study (Dobosi 1975: 68, Fig. 6) the site is defined as Mesolithic.
- Mencshely: the table fails to mention that the Mesolithic nature of this site has been rejected (Kertész 1991: 41).

– Pásztó-Mária tanya: the site was published by Katalin Simán (Simán 1993: 248, Fig. 1. 7, Fig. 2. 6–7) and not by the present author, as mistakenly stated in the table.
– Répáshuta-Rejteki kőfülke: the reference in the "claimed" column is mistaken and should read Vértes 1965 instead of Vértes 1961.
– Répáshuta-Rejteki kőfülke: my study (Kertész 1994b) does not appear in the "disclaimed" column.
– Románd, Románd-Templomföld, Románd-Pusztatóhely (Ödenteich): the reference is missing (Gallus 1942: 24–25, Pl. IV. 9–23, Pl. V. 1).
– Szekszárd-Palánk: the name and the reference (Gábori 1984) in the "claimed" column is mistaken since the site was published by László Vértes (the correct reference being Vértes 1962).
– Székesfehérvár-Merítőpuszta: in addition to János Nemeskéri's study (Nemeskéri 1948), at least one of Arnold Marosi's articles should also have been quoted (Marosi 1935; 1936a; 1936b) since he can be credited with the first publication of the site.
– Vöröstó: my study (Kertész 1991: 41) was omitted from the "disclaimed" column.

Instead of listing the sites of the so-called "Grobgerätiges Mesolithikum" in Northeastern Hungary, it would perhaps have been more justified to mention the following uncertain sites: Békésszentandrás-Harcsáspuszta (Biró 1984: 28, T. 2, Fig. 17. 2; Dobosi 1975: 71; Makkay 1989: 20), the Győr area (Gallus 1942: 26–28, Pl. V. 9–21, Pl. VI. 1–11, 13–29, Pl. VII. 3), Szalkszentmárton-Dunavecse (Korek & Nagy 1994: 47–49; Trogmayer 1972), Szelevény-Partok (Gábori 1956: 180, note 11; Kalicz 1955: 35, 1957: 16), Szil-Perlaki-halom (Szathmáry 1988: 52, Fig. 3. 6–18), Tarpa-Márki tanya (Dobosi 1983; Szathmáry 1977, 1978: 5–6, 1988: 50) and Tarpa-Kishegy-Szipa-part (Szathmáry 1988: 50, Fig. 3. 1–5). Although Katalin T. Biró's table lists a number of sites, such as Mencshely and Vöröstó, whose assignment to the Mesolithic has been rejected, she fails to mention sites, such as Csorna (Horusitzky 1926), Mindszent-Bene utca (Korek & Nagy 1994), Nagyléta and Hajdúbagos (Makkay 1957: 26; Sőregi 1936: 53; Szathmáry 1978) that have similarly been dated to another period.

In sum we may say that the table compiled by Katalin T. Biró is a rather superficial and eclectic amalgam of fact and fiction. It is also unclear to what purpose the northeastern Hungarian group of the "Grobgerätiges Mesolithikum" and the Mesolithic sites were incorporated into the same table. Neither is it clear why the Transdanubian group (Vékony 1971: 19–20, 22) of this complex was left out, together with the Hont type leaf-point industry (Gábori 1958: 60–61, 1960: 73, 1964: 70–72), if the sites of the northeastern Hungarian group of the complex were included. The problem of the "Grobgerätiges Mesolithikum" and its relation to the Mesolithic has been resolved at least twenty years ago, following the pioneering work of Janusz Krzysztof Kozłowski (J. K. Kozłowski 1973: 325–326) and, later, the studies written by Árpád Ringer, Katalin Simán and others (Kordos & Ringer 1991; Ringer 1982, 1983, 1990: 108, 1993, 2000, 2001: 76–79; Ringer & Adams 2000; Ringer *et al.* 1995; Simán 1978, 1979, 1984, 1986, 1991; Simán & Csorba 1993; Svoboda & Simán 1989: 299–310). This complex was set in a new perspective and its sites were deleted from among the Mesolithic ones. The exclusion of the Transdanubian group of the "Grobgerätiges Mesolithikum" and of the Hont type leaf-point industry from the group of Mesolithic sites was first suggested by the present author (Kertész 1993: note 11). It is therefore unclear why the sites of the Northeastern Hungarian group of this complex were included in a list of Hungarian Mesolithic sites compiled in 2002. Katalin T. Biró's table suggests that the Hungarian Mesolithic is fraught with uncertainties, although this is not the case; this period has not been systematically researched and thus the number of authentic sites is rather low.

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