

2. Notes on the Mesolithic in South-eastern Europe

In contrast to Central Europe, two different terminologies are used in the Aegean for the cultural trajectory from the end of the last Ice Age to the beginning of the Neolithic. The term Epi-Palaeolithic is used for western Anatolia, as is generally the case for the eastern Mediterranean. This is based on the notion that the early Holocene environment did not change dramatically in the same way as in Europe (where there is a clear turning point with the reforestation of the Ice Age tundra landscapes). In contrast, the hunting strategies of the people in the Mediterranean region (where the sea level had risen systematically, but the natural area remained largely unchanged) did not have to be readjusted. In this respect, it seems logical to assume that the Palaeolithic tradition continued into the Holocene. This idea was terminologically characterised by the term Epi-Palaeolithic. In addition, the geometrical microliths usually associated with the Mesolithic are not key artefacts for the Aegean (REINGRUBER 2008, 11–12). For large parts of Greece, however, the term Mesolithic is in use (PERLÈS 2001, 20–37). Compared to other regions in Europe, the time before the arrival of the first farmers and stockbreeders in the Aegean has been well researched here. Precisely because the question of the origins of the Neolithic was of particular importance for Greece, the Mesolithic settlement of the Aegean increasingly became the focus of research.

What then remained was the academic challenge of shedding light upon the period between the definitive end of the Palaeolithic and the beginning of the neolithisation in the Balkans. Solutions to this problem may well be found by means of a closer analysis of the natural sphere, inasmuch as the environment in South-eastern Europe did not change to the same degree as in Central, Western, and Northern

Europe and the region of the Alps (VAPTSAROV 1973, 125). It would seem rather that the climatic events connected with continental glaciation were only tangible within the Balkans and Carpathians in weakened form, this spelling a far less radical alteration of the natural environment there and the possibility for communities to retain their traditional modes of life for the most part. In the north of Europe, by means of contrast, the transformation of the natural world also becomes visible in the artefacts. Vital here is the metamorphosis from Palaeolithic big game hunting in open spaces to specialised forest hunting in the Mesolithic. It would thus seem that the prospects are poor for detecting a Mesolithic within the archaeological record of the Balkans as no deforestation and reforestation in the wake of the Ice Age is visible in the region, and thus no transformation thereby in lifestyle. By means of contrast, a crucial phenomenon in the wake of the continental glaciation in this region was the widespread windborne scattering of loess (FOTAKIEWA, MINKOV 1966. – MINKOV 1968). In particular, the depositions of these sediments on the lower Danube and in the Carpathian Basin are so massive that it seems all but inconceivable that the settlement of large swathes of land would have been possible during the active process of windborne deposition (at the very least). A periodic retreat of the population from these regions during periods of loess deposition would be plausible, which, in turn, would justify lacunae in the archaeological record. Concurrently, earlier finds cannot be easily discovered in this region due to this widespread surface sedimentation. It is on these grounds that the Palaeolithic sites in the Balkan-Carpathian region are entirely situated either in caves or in the deep recesses of river valleys devoid of loess. Generally speaking, the Mesolithic in South-eastern

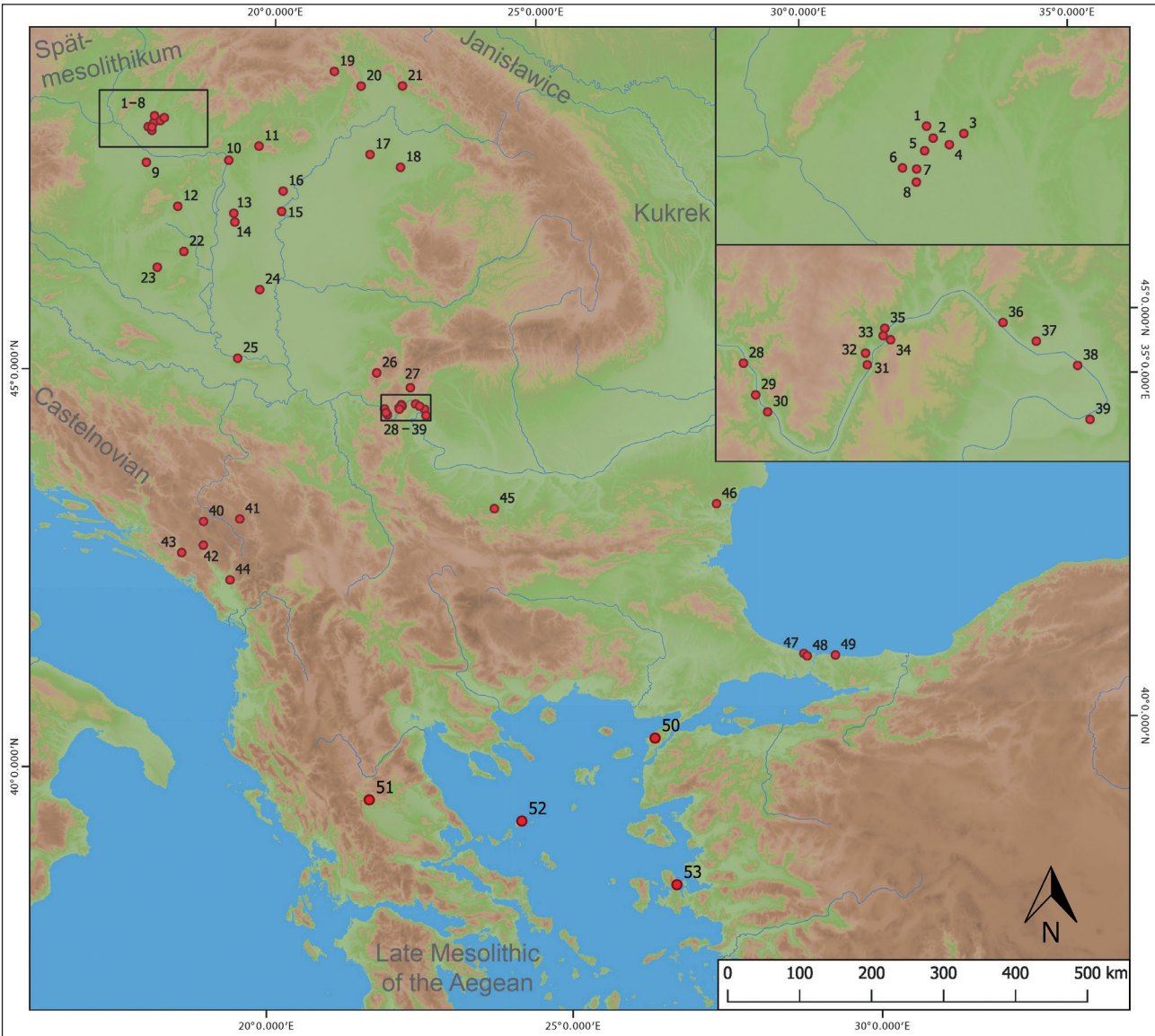


Fig. 1: Map of Mesolithic and Epi-Palaeolithic sites mentioned in the text. – 1. Sered’ I. – 2. Dolná Streda. – 3. Sládečkovce. – 4. Šoporňa-Štrkovec. – 5. Velká Mača. – 6. Čierna Voda. – 7. Mostová. – 8. Tomášikovo. – 9. Győr. – 10. Sződliged. – 11. Pásztó-Mária tanya. – 12. Sárrét bog. – 13. Kunpeszér-Felsőpeszéri út-Homokbánya. – 14. Kundacs-Köztemető. – 15. Tószeg-Áldozó-halom. – 16. Jászság area. – 17. Huguja/Érpatak. – 18. Ciumești II. – 19. Medvedia Cave. – 20. Barca I. – 21. Kam’anyzia I. – 22. Regöly 2. – 23. Kaposhomok. – 24. Hajdukovo. – 25. Bačka Palanka. – 26. Hořu Cave. – 27. Hořilor Cave. – 28. Padina. – 29. Lepenski Vir. – 30. Vlasac. – 31. Cuina Turcului. – 32. Veterani Terasă. – 33. Răzvrata. – 34. Hajdučka Vodenica. – 35. Icoana. – 36. Ostrovul Banului. – 37. Schela Cladovei. – 38. Ajmana. – 39. Ostrovul Corbului. – 40. Odmuť. – 41. Medena Stijena. – 42. Vrbička Cave. – 43. Crvena Stijena. – 44. Vruća Cave. – 45. Ohoden. – 46. Pobiti Kamani. – 47. Ağaçlı. – 48. Gümüşdere. – 49. Domalı. – 50. Üçdutlar. – 51. Theopetra. – 52. Youra, Cyclops Cave. – 53. Kayadibi (R. Krauß, B. Dutilleux).

Europe has been comparatively poorly studied, and the more intensive studies are concentrated on selected areas, besides the Danube Gorges mainly in the eastern Carpathian Basin (Fig. 1).

Should the manner in which the Neolithic was able to establish itself in this area be studied, then not only is the dynamic of the neolithisation process vital to this, but also

the issue of the pre-Neolithic occupation (KRAUSS 2016a). It is only in this manner that a credible hypothesis or model might be developed as to how the transition from mobile hunter-gatherers to agricultural and sedentary communities occurred. In addition to the environmental factors mentioned above, various other aspects might have contributed to the scarce evidence of this particular period. A low density or

high mobility on the part of the Mesolithic population might be assumed, this having then resulted in only transitory sites. That Mesolithic sites are located in unstable geomorphologic situations or in a position where they have been destroyed by modern agricultural activities has also been taken into account (EICHMANN, KERTÉSZ, MARTON 2010, 211). Furthermore, it is also self-evident that a period with potentially poor find material is far more difficult to investigate than epochs yielding a rich material culture. Accordingly, there is no specific terminology for the South-eastern European Mesolithic. Of use here for orientation is the terminology developed within Central Europe – this covering the climatic stages from Pre-Boreal to the early Atlantic period or, in absolute dates, the timespan between 9700 and 5500 calBC. It is divided into Early Mesolithic with the two technocomplexes of the Beuronian and the Sauveterrian from 9700–7000 calBC, and the Late Mesolithic or Tardenoisian from 7000–5500 calBC respectively (KOZŁOWSKI S. 2001, 261–262. – KIND 2009. – EICHMANN, KERTÉSZ, MARTON 2010, 213). This is followed by the so-called *Endmesolithikum* which is regarded as being already contemporaneous with the appearance of the first Early Neolithic groups in Central Europe, namely La Houguette in the west and Linearbandkeramik (LBK) in the east respectively (GRONENBORN 1997, 132–139).

2.1. The Northern Aegean and Marmara Region

For the Mesolithic of the northern Aegean, the Theopetra Cave is of key significance for the history of research. Systematic excavations have taken place there since 1987 (KYPARISSI-APOSTOLIKA 2000). The stratigraphy of the cultural layers in the cave was important because there are layers from the Mesolithic and the Neolithic that are documented. However, only the lowest, Palaeolithic layers were undisturbed; those from the Holocene had been heavily damaged or ransacked by seismic activities and looters (REINGRUBER 2008, 46). The oldest settlement even goes back to the Middle Palaeolithic. Compared to the older and more recent periods, the Mesolithic in Theopetra is less well explored.⁴ To make matters worse, apparently only very few stone artefacts from this time horizon were found in the cave. It was not only traces of settlement that could be detected there; the cave had apparently also served as a burial place. The grave of a young woman

was also found within the layers of the Upper Mesolithic. A dense sequence of ¹⁴C data could be obtained from the various layers. According to this, there seems to have been an interruption between the latest Mesolithic and the beginning of the Neolithic settlement (REINGRUBER 2008, 48–50). The animal and plant remains from the cave have been well researched (TSARTSIDOU et al. 2015), and some of the Neolithic pottery has also been published. The lithic inventory of the Mesolithic period, on the other hand, has hardly been discussed (REINGRUBER 2008, 50–51).

The so-called Cyclops Cave on the small, now uninhabited island of Youra in the northern Sporades is of great importance for the Mesolithic of the northern Aegean. This site also evidences settlement up to the Neolithic period. However, there are also large gaps in the sequence of the ¹⁴C data between the Early and Late Mesolithic, on the one hand, and the Neolithic settlement, on the other (REINGRUBER 2008, 40–41. – SAMPSON 2008, 208–210). An extensive range of waste and food refuse has been found within this cave. Noteworthy among the Mesolithic finds are some mortars, grinders, objects with jagged edges that could have been used for sawing, and arrow shaft smoothers made of rock (Figs. 2–4). Finds of numerous bipoints and fishhooks made from bones point to an increased use of marine resources (Fig. 5). In the refuse, this is also reflected by large quantities of mussel shells, snails, fish bones, and bones of sea birds (KARALI 2011. – MYLONA 2011. – POWELL 2011. – TRANTALIDOU 2011); however, goats and pig were also eaten. Adamantios Sampson even assumes that these animals were kept in pens in the front area of the cave (SAMPSON 2008, 199–200), which would represent a remarkable aspect of early human-animal relationships even before the beginning of sedentarism in the region. Finds of some human skeletal remains seem to belong to the earlier periods of the Mesolithic (SAMPSON 2008, 214–216). The range of flint tools found is impressive, and offers the best insight into the Mesolithic technology of the entire Aegean (Figs. 6–8). Both local siliceous stones (164 specimens or 91.62%) and obsidian (15 specimens or 8.38%) were used as raw materials (KACZANOWSKA, KOZŁOWSKI 2008). Because of the geographical proximity, it can be assumed that the obsidian comes from the island of Melos. The artefact spectrum consists of 112 flakes (62.57%), 13 blades (7.26%), 7 chips (3.91%), 2 chunks (1.12%), and 45 tools (25.14%). The latter consist of several types of scrapers on flakes and blades, splintered pieces, burins, and retouched tools. A few microliths such as crescents, trapezes, and simple backed blades are found among the obsidian tools (KACZANOWSKA, KOZŁOWSKI 2008), which can be considered exceptions within the range of Mesolithic finds of the Aegean.

4. Catherine Perlès does not consider the information from the excavations to be useful because the layers are severely disturbed. This is demonstrated by recent studies, the results of which, however, have not been published (PERLÈS 2001, 46, fn. 17).

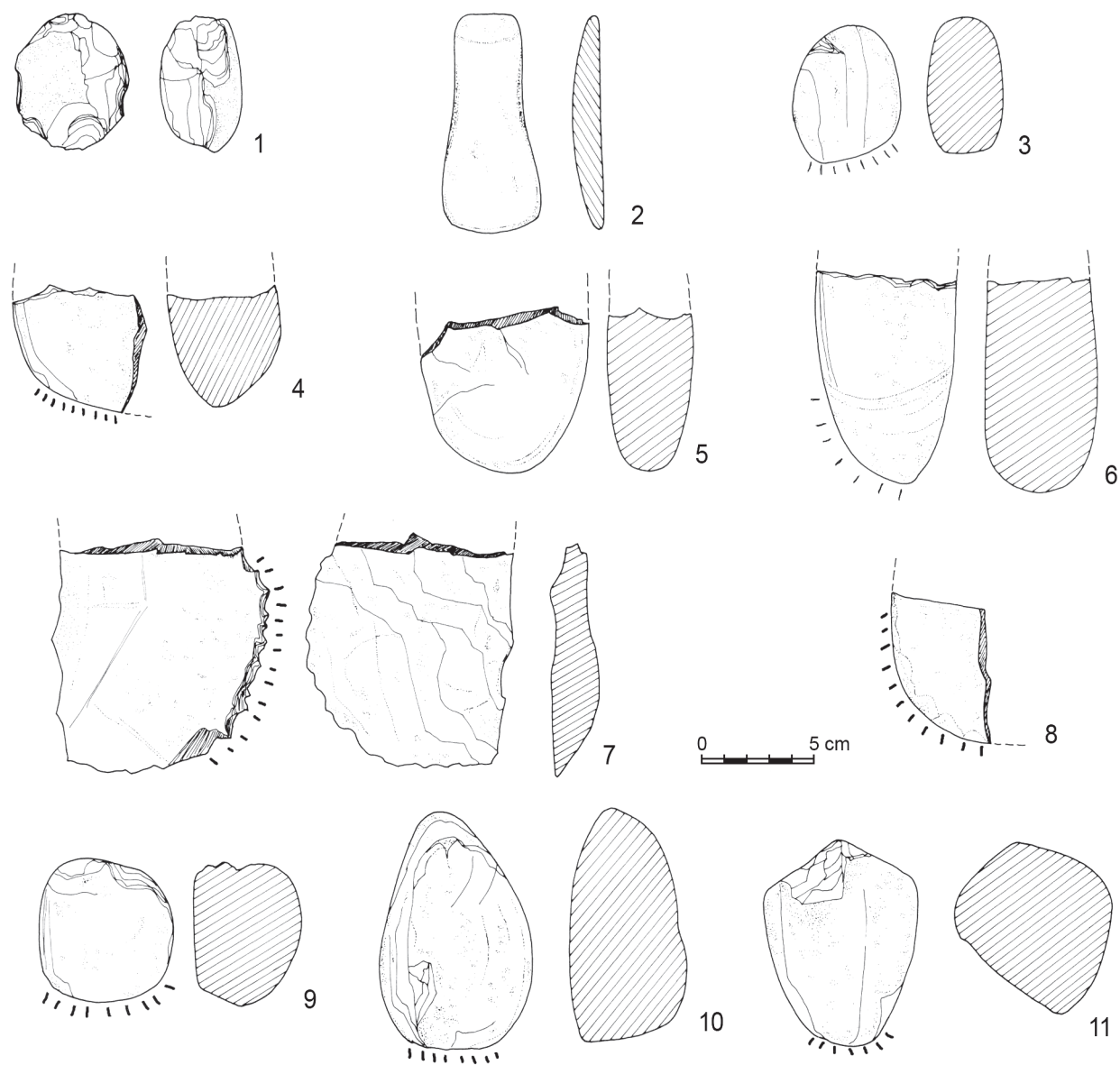


Fig. 2: Youra, Cyclops Cave. Mesolithic stone tools from rock (after SAMPSON 2008, fig. 7/1–2).

On the eastern side of the Aegean, a team of researchers from the Ege University, Izmir, has carried out an extensive survey on the Karaburun Peninsula in recent years (ÇILINGIROĞLU et al. 2020). At Kocaman and Kayadibi, lithic artefacts typologically regarded as pre-Neolithic were recorded. The raw material used comes mainly from local sources, and is of middling quality. It is dominated by white chert with dark intrusions, grey-brown flint, and yellow-brown siliceous rock with opaque limestone intercalations. While the finds from Kocaman are classified as late Pleistocene (and thus as Epi-Palaeolithic), most of the finds from Kayadibi can be interpreted as Mesolithic. However, a sickle blade

was also found in the material (Fig. 10/14), which is considered to be post-Mesolithic. Technological information is provided by single-platform blade and discoidal flake cores in the material (Fig. 9/1–6). Blades seem to be rare. However, bipolar splintered pieces produced mostly on flakes are more common. The tools consist of end-scrapers, side-scrapers, retouched flakes and denticulated-notched tools (Figs. 9/7–11; 10). Most tools are produced on flakes. There is only one retouched blade.

Between 1973 and 1980, the region where the Bosphorus meets the Black Sea yielded find inventories collected within an area of sand dunes which might be thought from

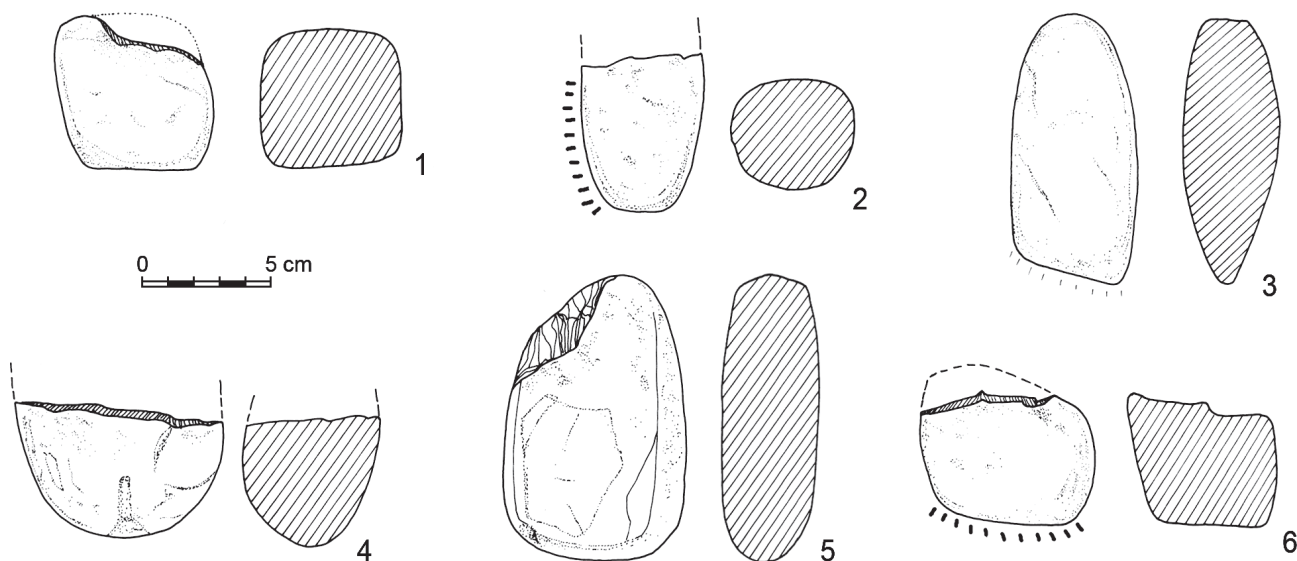


Fig. 3: Youra, Cyclops Cave. Mesolithic stone tools from rock (after SAMPSON 2008, fig. 7/4).

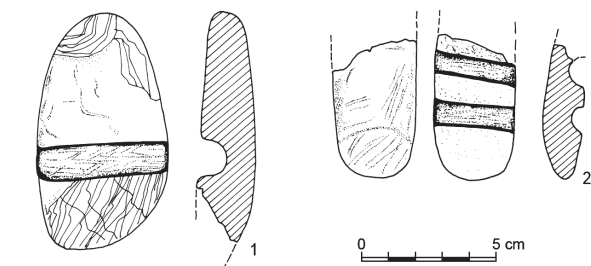


Fig. 4: Youra, Cyclops Cave. Mesolithic shaft straightener made from stone (after SAMPSON 2008, fig. 7/4).

their characteristics to be of pre-Neolithic date (GATSOV, ÖZDOĞAN 1994). Three sites are particularly emphasised: Ağaçlı, which was uncovered in 1980 by means of an open-cast lignite mine; Domalı, unearthed by means of the excavation of a gravel quarry and the construction of a summer resort; and Gümüşdere, a site also discovered during the construction of a hotel complex. All three sites must now be regarded as destroyed. Considering the history of the Black Sea’s development, it is to be inferred that the entire original shoreline of the western coast lies submerged well away from the present shoreline; thus, the aforementioned sites would have been situated much further inland than it would seem today. The inventory of the blanks of each of the three sites is dominated by unidirectionally exploited cores (Figs. 11–12). This exploitation was evidently realised by means of punch technology. The intended tools consisted of scrapers, among these thumbnail scrapers and laterally truncated blades (Figs. 13–15). It is difficult to characterise these surface finds. Since the collection does not contain any

obvious Mesolithic types, it could also be significantly older, for example Final Palaeolithic.

From the other, western end of the Marmara Sea, a further tool inventory from Üçdutlar on the Gallipoli Peninsula has been known about for some years (Fig. 16). The microlithic scrapers and bladed tools are a similar character to the material from the south-western edge of the Black Sea. The question as to how much earlier than the beginning of the neolithisation in this region this stone tool inventory dates is presently obscure. To presume a later date solely on the strength of the microlithic size of the tools seems far too premature. It is only by means of excavation of productive find contexts that the cultural historical value of this tool inventory from surface collection might be appropriately gauged.

A noticeable feature of the Mesolithic in the northern Aegean is the absence of or infinitesimal number of microliths. Compared to the neighbouring regions to the north, it is interesting to see that microlithic forms such as trapezes, triangles, and lunets did not appear here until the Neolithic. Of course, it should be noted here that the Aegean Early Neolithic overlaps chronologically with the Late Mesolithic in the Balkans. Nonetheless, it is noteworthy that microlithic artefacts increasingly occur in the Aegean up to the Late Neolithic, for example in the Late Neolithic material of the Cyclops Cave (SAMPSON 2008, figs. 8.8–8.11). This means that, unlike in Central Europe, the Mesolithic in the Aegean or in the Balkans is not determined by the occurrence of microliths. In the Aegean, they remain in use throughout the entire Neolithic, and probably even beyond (GUROVA 2017).

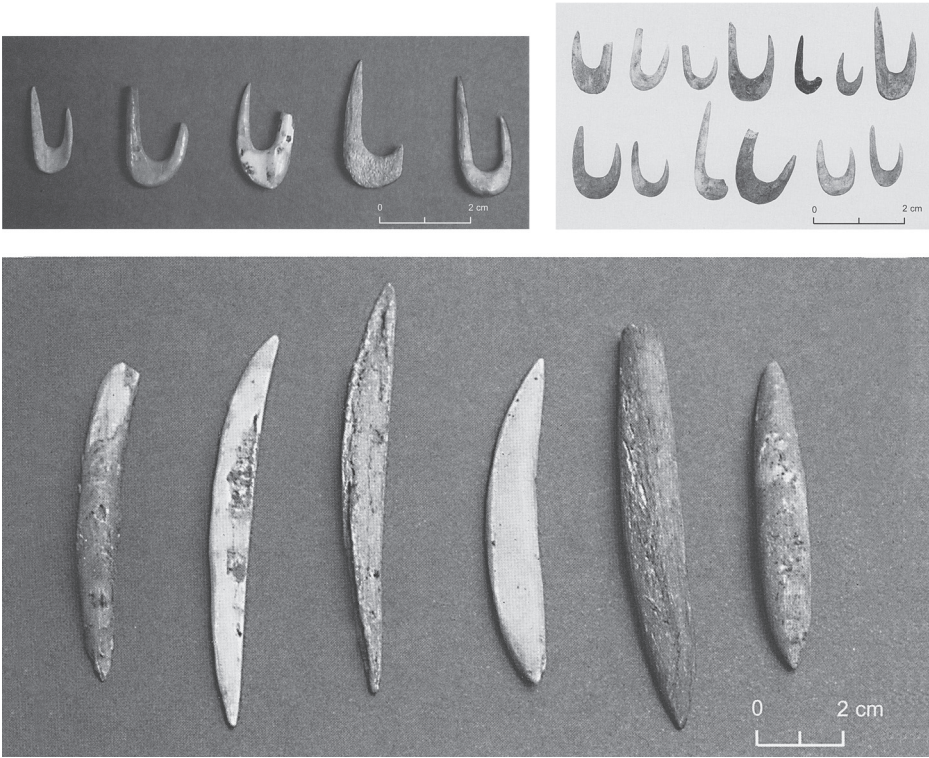


Fig. 5: Youra, Cyclops Cave. Mesolithic fishhooks and bipoints made of bone (after SAMPSON 2008, pl. 12/1).

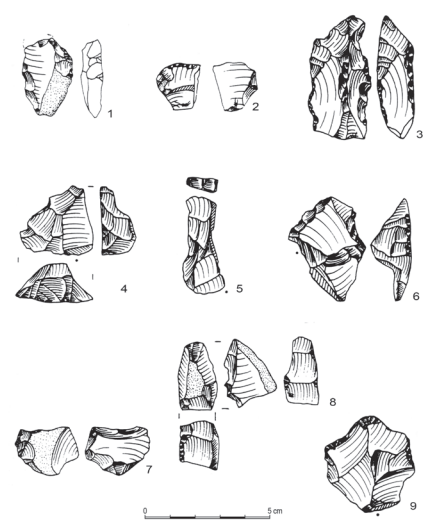


Fig. 6: Youra, Cyclops Cave. Mesolithic chipped stone artefacts (after SAMPSON 2008, fig. 8/1).

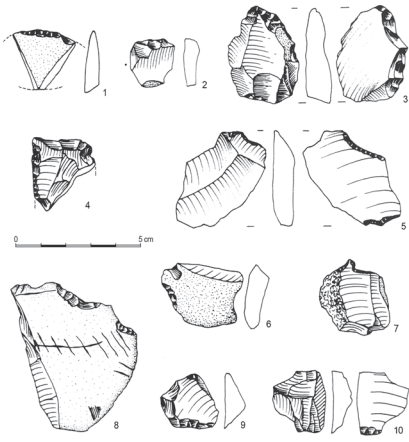


Fig. 7: Youra, Cyclops Cave. Mesolithic chipped stone artefacts (after SAMPSON 2008, fig. 8/2).

2.2. The Danube Gorges

Well researched by comparison is the pre-Neolithic settlement along the Danube Gorges (‘Iron Gates’) where, in the course of construction of two dams in the section of the river between the Carpathian Basin and the lowlands of the Lower Danube in the 1960s, numerous find sites were discovered and studied. The sites of Vlasac, Padina, and Hajdučka

Vodenica on the Serbian bank of the Danube are relevant initially to the Late Mesolithic period immediately prior to the Early Neolithic. Excluding some burials of the Early Mesolithic originating from the period between the second half of the 10th millennium and roughly 7300 calBC, settlement only began at the celebrated site of Lepenski Vir after 6200 calBC, and thus in an age in which the Neolithic had already widely

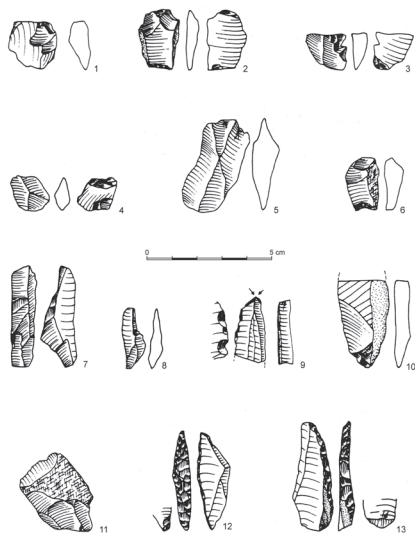


Fig. 8: Youra, Cyclops Cave. Mesolithic chipped stone artefacts (after SAMPSON 2008, fig. 8/3).

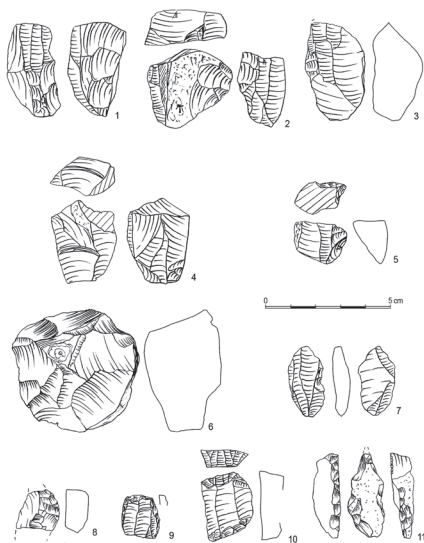


Fig. 9: Kayadibi, Karaburun Peninsula. Flint artefacts (after ÇILINGIROĞLU et al. 2020, fig. 10). – 1–6. Cores. – 7. Splintered piece. – 8–10. End-scrapers. – 11. Perforator.

spread within the zone beyond the Danube Gorges (BORIĆ 2016, 16–33). To this period also belongs Ajmana lying further downstream. The sites of Icoana, Ostrovul Corbului, Ostrovul Banului, Schela Cladovei, Veterani Cave, Veterani Terasă, and Răzvrată on the Romanian bank of the river further evidence find layers with Late Mesolithic settlement. As in the case of Lepenski Vir, the settlement in Cuina Turcului first begins with the spread of the Neolithic into the region, as there is no evidence of continuity from the older,

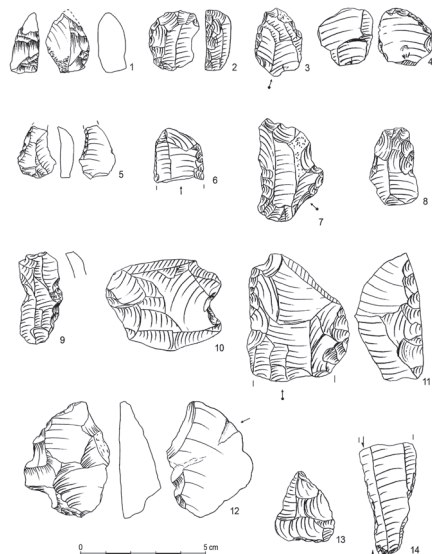


Fig. 10: Kayadibi, Karaburun Peninsula. Retouched tools (after ÇILINGIROĞLU et al. 2020, fig. 11). – 1–2. Backed pieces. – 3–5. Retouched flakes. – 6. Retouched blade. – 7–10. Denticulated-notched tools. – 11–13. Side-scrapers. – 14. Sickle blade.

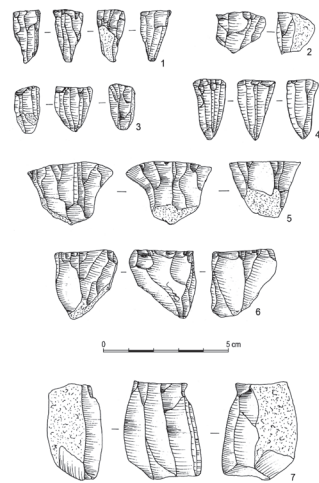


Fig. 11: Ağacli. Single-platform cores (after GATSOV, ÖZDOĞAN 1994, fig. 1).

Epi-Palaeolithic settlement. At Schela Cladovei, settlement ends with the beginning of the Neolithic in the region (BORONEANȚ 2011, 121–137. – BONSALL, BORONEANȚ 2016).

The new dating of the sites at the Danube Gorges permits the connection of the fishing settlements at the exit of the Danube from the Carpathian-Balkan mountain chain to the Early Neolithic sites of the region (BORIĆ 2002. – BORIĆ 2011). It is the specific natural environment within the narrow canyon of the Danube where it breaks through the

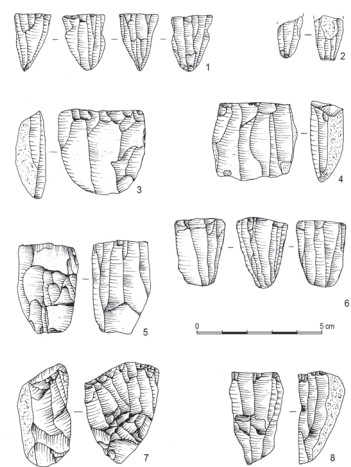


Fig. 12: Ağaçlı. Single-platform cores (after GATSOV, ÖZDOĞAN 1994, fig. 2).

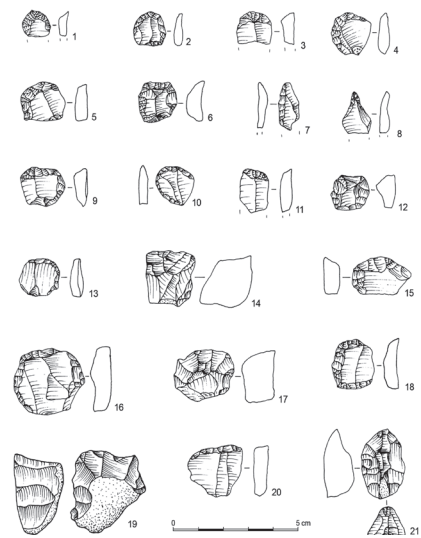


Fig. 13: End-scrapers and perforators from Ağaçlı, Domalı and Gümüşdere (after GATSOV, ÖZDOĞAN 1994, fig. 3).

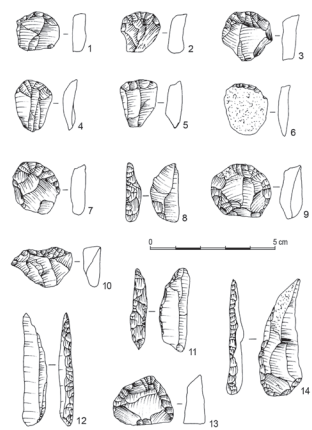


Fig. 14: Ağaçlı. End-scrapers and backed blades (after GATSOV, ÖZDOĞAN 1994, fig. 4).

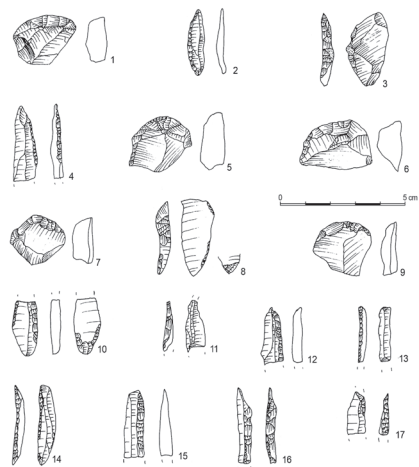


Fig. 15: Ağaçlı. End-scrapers and backed blades (after GATSOV, ÖZDOĞAN 1994, fig. 5).

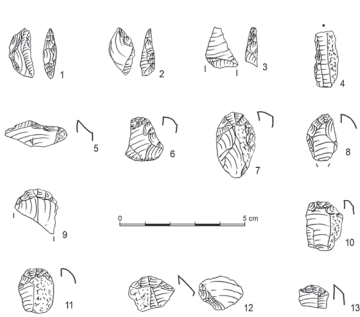


Fig. 16: Üçdutlar. Microlithic stone tools (after KOZŁOWSKI 2016, fig. 15).

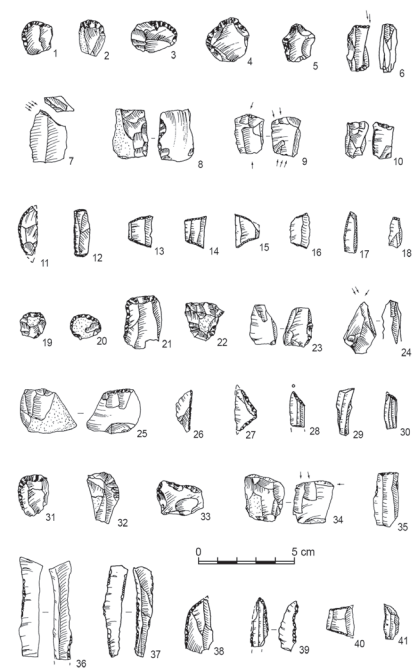


Fig. 17: Padina A1–A2. Mesolithic stone tools (after RADOVANOVIĆ 1996, fig. 5/5).



Fig. 18: Vlasac I-III. Mesolithic stone tools (after RADOVANOVIĆ 1996, fig. 5/12).

mountains which predisposed the population there towards fishing and other aquatic resources. The practice of agriculture is next to impossible in this landscape and the preconditions for husbandry can only be fulfilled along those stretches of the banks of the Danube where the narrow valley broadens out somewhat. Not only are the Mesolithic sites at the Danube Gorges the only certain attestation for pre-Neolithic settlement of the Balkan interior, but also these Mesolithic means of subsistence endured into the Neolithic period due to these environmental conditions. On account of this ‘survival’ of the Mesolithic within this landscape, the chronological links to the Neolithic also went unnoticed for a long time (cf. RADOVANOVIĆ 1996). In addition to typical geometric microliths, these Mesolithic find sites from the settlements at the Danube Gorges, such as Padina A and Vlasac I-III (BORIĆ 2011, 168–175) which are certain to be dated prior to 6200 calBC, display a stone tool inventory of scrapers, retouched chips, drills, graters, and retouched blades (Figs. 17–18). Similar forms have been published from the Romanian river bank such as from Veterani Cave and, in turn, from Ostrovul Banului, Cuina Turcului, Icoana, Răzvrata, and Schela Cladovei (Figs. 19–20). As will be seen, however, this does not only pertain to forms solely confined to the Mesolithic, but also to comparable types occurring within the well-studied inventory of the Early Neolithic.

A striking element of the Mesolithic in the Danube Gorges is the trapezoidal plans of the dwellings which may possibly be seen as solid realisations of preceding tent or hut constructions (SREJOVIĆ 1973, 50–108. – RADOVANOVIĆ 1996, 60–159. – BORIĆ 2011, fig. 14).

The site of Vlasac presents a unique funerary ritual. Next to inhumations of supine bodies were partially cremated

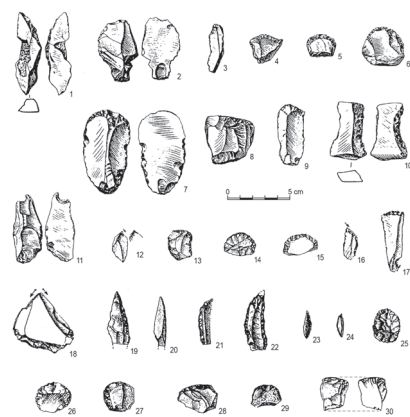


Fig. 19: Early Mesolithic stone tools from Veterani Cave (1–12), Ostrovul Banului (13–17) and Cuina Turcului (18–30) (after BORONEANȚ 2011, fig. 66).



Fig. 20: Late Mesolithic stone tools from Ostrovul Banului IIIB (1–3), Icoana (4–10, 25, 27), Răzvrata (11–15) and Schela Cladovei (16–24, 26) (after BORONEANȚ 2011, fig. 67).

bodies, from which it might be reconstructed that the bodies were first exposed to fire following interment (BORIĆ, FRENCH, DIMITRIJEVIĆ 2008). Grave goods were rare, restricted to miniscule decorative elements belonging to the clothing of the deceased, among these most prominently snail shells (*Cyclopea neritea* and *Columbella rustica*) and fish teeth from cypriniforms (*Cyprinidae*) (CRISTIANI, BORIĆ 2012. – BORIĆ et al. 2014). The burials of a wife and a child (H2 and H297) from the Middle Mesolithic from Vlasac provided the basis for the reconstruction of the clothing of the two buried people (CRISTIANI, BORIĆ 2012).



Fig. 21: Vlasac. Reconstruction of a garment worn by a woman and a child based on the Late Mesolithic burials H2 and H297 (after CRISTIANI, BORIĆ 2016, fig. 13).

The fish teeth and snail shells are reconstructed as sewn-on sequins on the clothing of women and children (Fig. 21). This interpretation is supported by ethnographic analogies from today’s hunter-gatherers in the Arctic (CRISTIANI, ŽIVALJEVIĆ, BORIĆ 2014).

Particularly at Lepenski Vir and Padina, closer observation of the situation of the finds and (not least) recent ¹⁴C datings offer an entirely new interpretation of the context and its position within cultural history. Indeed, Dragoslav Srejović had already noticed Starčevo pottery in the putatively still purely Mesolithic Level I of Lepenski Vir, although he interpreted this as disturbance from the overlying Neolithic levels (SREJOVIĆ 1969, 153–154. – SREJOVIĆ 1971, 5). Nevertheless, following the discovery of Starčevo pottery in the houses of the settlement at Padina (JOVANOVIĆ 1987), the thesis of a pre-Neolithic chronological positioning of the installations was rendered ever more questionable. Consequently, Dušan Borić established the Early Neolithic context of the finds of Lepenski Vir I and Padina which are dated to the period between 6200 and 5400 BCE according to calibrated ¹⁴C dates (BORIĆ 2002).

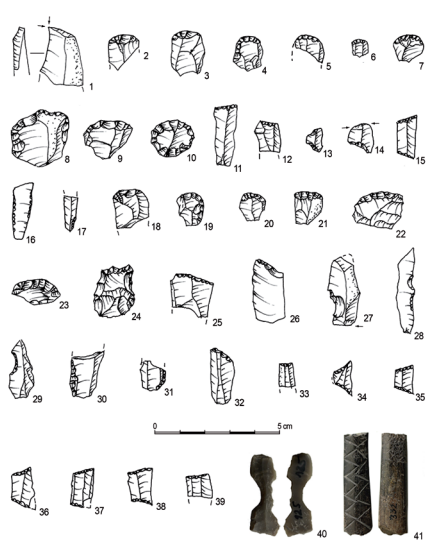


Fig. 22: Odmut. Mesolithic stone tools from Mesolithic layers XD (1–17) and Ib (18–39) (after CRISTIANI, BORIĆ 2016, fig. 6).

2.3. Montenegro

Significant traces of settlement in the period prior to the arrival of the Neolithic outside of the zone of the Danube Gorges are provided by some sites in Montenegro. The five sites presently known either lie beneath cliff overhangs (i.e. rock shelters: Crvena Stijena, Medena Stijena, and Odmut) or within caves (Vruća Cave and Vrbička Cave). Among these, the cave site of Odmut, some 3 km north of the city of Plužine, is of particular significance. Between 1972 and 1974, five sectors with a total area of 65 m² were excavated at the site under the direction of Čedomir Marković (CRISTIANI, BORIĆ 2016). The debris, up to 4 m wide in places, evidences a settlement history extending from the Early Mesolithic to the Bronze Age. The site’s stratigraphy is instructive on account of a continuous settlement from the mid-7th to mid-6th millennium, spanning the period from the Late Mesolithic to the onset of the Early Neolithic. The lithic spectrum of tools within the Mesolithic cultural levels is dominated by thumbnail scrapers, trapezoids, and notched blades (Fig. 22). The transformation in the economy of the settlement is clearly apparent in the spectra of animal bones (CRISTIANI, BORIĆ 2016, tab. 2). While only butchering waste from game may be found within the Mesolithic cultural layers, domesticates such as sheep/goat, some cattle, and a few pigs also appear within the Neolithic strata. The most striking finds from Odmut Cave are harpoon barbs fashioned on site overwhelmingly from the ends of red deer antlers (Fig. 23). Interestingly, these finds of harpoons were not restricted solely to the Mesolithic layers, but could also be found in the Neolithic deposits (BORIĆ et al. 2019); therefore, this specialised fishing with harpoons had retained its importance even after the introduction of agriculture. Bone



Fig. 23: Odmuť. Barbed points found from different Mesolithic and Early Neolithic layers (after BORIĆ et al. 2019, fig. 4).



Fig. 24: Vruća Cave. Barbed points (after BORIĆ et al. 2019, fig. 7).



Fig. 25: Ohoden. Rounded pit with antlers of three red deer from the Mesolithic layer exhibited in the Museum of Vratsa (Museum Vratsa).

harpoons have also been found in the Vruća Cave (Fig. 24). Thus, it seems to be a general phenomenon of the Mesolithic and Early Neolithic in Montenegro. The great distance of the sites from the sea and, indeed, from any large rivers permits the drawing of two conclusions: the basis for the production of antler harpoons was initially access to sufficient red deer antlers, as a result of which coastal regions did not primarily enter the equation. The antler tips were either collected from shed antlers or came from hunted animals. Regardless, they were ‘freshly’ worked on site. From Odmuť and Vruća, the harpoons could also be traded in distant regions without red deer populations but with a heightened demand for fishing equipment. It remains, nevertheless, possible that the majority of these harpoons found at these two places were employed in catching fish within the small mountain streams of the region surrounding the sites.

2.4. Lower Danube

The site of Ohoden-Valoga, 20 km north-east of Vratsa in northern Bulgaria has been studied since 2002 by the local regional museum under the direction of Georgi Ganetsovski (GANETSOVSKI 2009). There is evidence of an Early Neolithic settlement with a total area estimated by the excavator to encompass 1.2 ha. Additionally, two inhumations have been detected so far within this settlement space. The find material is ascribed to two different settlement phases (I and II respectively) which belong to a developed stage of the Early Neolithic in the Balkans. This chronological position is confirmed by ^{14}C dates which show that the site was

inhabited in the 57th century BCE. In some places, traces of an earlier settlement were also encountered. The clearest find comparable to those of the Mesolithic on structural grounds is a rounded pit with the antlers of three red deer deposited within (Fig. 25). These are not shed antlers but rather antlers of slain deer. It is possible that the crania of the animals were consciously finished in a way that they could be used as attachments for masks, as is known from various other Mesolithic contexts in the North German Lowlands (Bedburg-Königshoven, Hohen Viecheln, Plau, and Berlin-Biesdorf) and from England (Star Carr) (STREET, WILD 2015). The ensemble was transported to the Vratsa Museum in an intact block and has not yet been entirely articulated. A total of three radiocarbon dates could be extracted from two of the three deer skulls. The joint calibration of all of the data indicates the 67th century BCE as having been the period in which the animals had lived (see Chapter 10). This find is presently the only clear evidence from the period of the Mesolithic from the region of the Lower Danube. Recurrently notable, however, are individual microlithic artefacts unearthed beneath the Early Neolithic level during excavations. Fascinating in this context is also the observation by the excavator of two humus bands beneath the Early Neolithic settlement layer considered to be floor levels excavated following flooding events.⁵ Among

5. Personal communication from Georgi Ganetsovski.

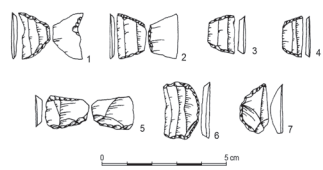


Fig. 26: Ohoden. Microlithic trapezes and triangles (after GUROVA 2017, fig. 2).

the currently published stone tools belonging to the Early Neolithic cultural levels, a few geometric microliths, most noticeably trapezoids, are striking (Fig. 26), as has been noted by Maria Gurova. These may be redeposited Mesolithic tools. Nevertheless, geometric microliths may be attested time and again in find contexts from the region even well into the Chalcolithic (GUROVA 2017).

2.5. Western Black Sea Coast

For a long time, the stone artefacts gathered as a find collection from the site of Pobiti Kamani in eastern Bulgaria served as the only evidence for any Mesolithic settlement along the western coast of the Black Sea. Also known under the older Turkish name of ‘Dikili Tash’, the site lies some 18 km west of Varna, its name referring to the ‘protruding stones’ which form a large group of naturally-shaped limestone pillars emerging from the sandy hollows left and right of the highway from Varna to Sofia. The history of the geological development of the imposing rock pillars is not without some uncertainty, although it is generally agreed that these are formations from the Earth’s earlier history well prior to the beginnings of human settlement (DINEV, MISHEV 1980). The flint tools were collected from the area of the stone pillars by Ara Margos in the 1950s (Figs. 27–28). The entire find ensemble encompasses at least 11,000 artefacts, among these some 1300 cores, 900 blades, and 9000 flakes (GATSOV 1989, 471), rendering this collection one of the most comprehensive of its type within South-eastern Europe.

Nikolay Dzhambazov and Ara Margos (DZHAMBAZOV, MARGOS 1960) initially assumed a Palaeolithic or Mesolithic date for the artefacts. They reported a total of nine different sites within the area between the villages of Banovo and Pripek up to the northern shores of the lakes of Beloslav and Varna. These are more precisely the sites of Banovo, Slanchevo I–III, the ‘central group’ of Pobiti Kamani, Strashimirovo, Beloslav I–II, and Harmankaya respectively.

In 1982, some inventories from the lattermost stage of the Palaeolithic in the North Pontic steppe were published by Vladimir Nikiforovich Stanko (STANKO 1982) which permitted a reconsideration of the chronological placement of the finds from Pobiti Kamani. Ivan Gatsov published a

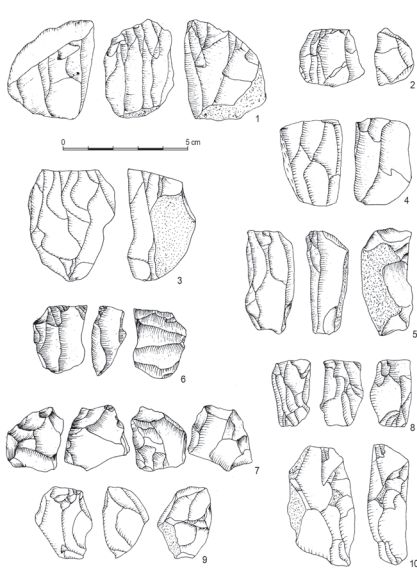


Fig. 27: Area of the Pobiti Kamani. Silex cores (after GATSOV 1989, fig. 1).

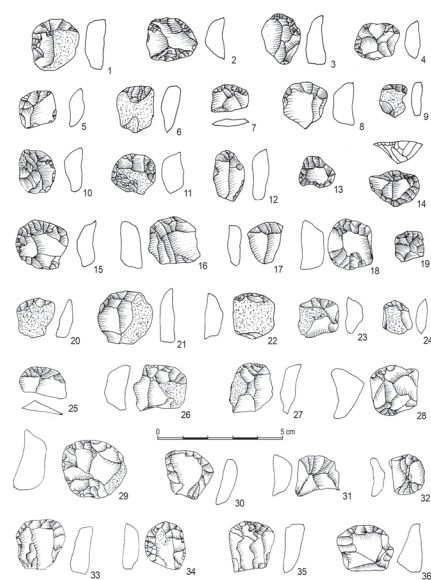


Fig. 28: Area of the Pobiti Kamani. End-scrapers (after GATSOV 1989, fig. 2).

larger selection of the artefacts, and outlined arguments for dating these to the early Holocene. Initially, he studied the different types of cores from the Pobiti Kamani, for which he could present parallels in the finds from Vlasac (GATSOV 1984). Particular attention might additionally be accorded to the diverse microlithic tools, stated to be 428 in number. From these, Gatsov published even more cores and scrapers which he also compared, in turn, with finds from Vlasac and Cuina Turcului (GATSOV 1989, 474). On account of the

general morphology of the artefacts and, most prominently, also the lack of further finds, the chronological placement of the site has not since been brought into question.

Apart from the new finds from Ohoden, the artefacts from Pobiti Kamani would be the only evidence for finds from the period between the Epigravettian and the Neolithic in the Eastern Balkan region, which was well attested on the lower course of the Danube, as found in the caves of Bacho Kiro (KOZŁOWSKI 1982, pls. XV–XVI. – SIRAKOVA, IVANOVA 1994) and Temnata (KOZŁOWSKI, GINTER, LAVILLE 1992). As the artefacts found at Pobiti Kamani appear on their part to adhere to earlier traditions, the somewhat unfortunate designation of Epi-Tardigravettian has been voiced in connection with the site. Not least on account of the linguistic imbalance of this term, the expression Epi-Palaeolithic is today generally employed (GATSOV 1989, 474). This designation borrowed from the Near East not only assumes an uninterrupted tradition in forms from the Palaeolithic into the periods after the Pleistocene but also clearly separates this chronological segment from the following Neolithic. Although this term suggests a marked caesura with the Neolithic, Gatsov remarkably was also able to demonstrate parallels with the stone tools from the Middle to Late Neolithic sites at Usoe and Kachitsa (GATSOV 1989, 474).

Renewed investigation of the site, together with former Berlin students Markus Brückner, Alexander Möser, and Jens Weschenfelder in March 2006 then yielded pottery fragments for the first time (KRAUSS 2007, figs. 3–4), which are doubtless prehistoric in ascription and, perhaps with some due caution, might be understood as Neolithic. Although the dating of the ceramic fragments cannot be further narrowed down on account of their poor state of preservation, the discovery of prehistoric pottery is in and of itself of some significance, inasmuch as it locates the stone artefacts also collected at this site within a new context.

Should the typological connection between the stone artefacts of the Pobiti Kamani and the sites at the Danube Gorges be considered, as has already been concluded by Gatsov (GATSOV 1984, 149. – GATSOV 1989), then a post-Mesolithic era might also be assumed. Accordingly, the finds from Pobiti Kamani hardly serve as an unequivocal attestation for Mesolithic settlement.

2.6. Southern Carpathian Basin

Sedimentation by loess particularly affects the find situation in the shallow zone in the interior of the Carpathian Basin, although, in this case (even more confoundingly) the rivers meander through the loess horizons, unable to cut deeply enough to impact the limestone bedrock. A good attestation

for this is the complete absence of stones in the river sediment (KRAUSS 2016a). Beyond the narrow zone of the Danube Gorges, the uncovering of finds from the Younger Dryas through the Preboreal all the way to the Boreal accordingly remains primarily a methodological problem.

Insufficient research on the Mesolithic in the southern Carpathian Basin has repeatedly been highlighted (STARNINI 2001, 396. – EICHMANN, KERTÉSZ, MARTON 2010, 215–216). In respect to the landscape, there is no good reason to believe that Mesolithic hunter-gatherer groups would have avoided the floodplains, rich in fish and shellfish, of the Danube and Tisza rivers with their biodiverse gallery forests (BÁNFFY 2004, 21). This landscape offers more than enough attractive resources for communities with a livelihood based upon fishing and hunting. The question resultantly arises as to how the almost complete absence of Mesolithic sites in the southern Carpathian Basin might be explained.

The state of research on the Mesolithic in Banat has been well summarised by Adina Boroneanţ (BORONEANȚ 2011); from this work, it is clear that Mesolithic sites are exclusively situated in the southern Banat, a region which is part of the Danube Gorges region and nowadays administratively belongs solely to the Romanian Banat. The only two sites not located in the gorges themselves are situated just a few kilometres north of the Danube Gorges, namely Hoțu Cave, next to Steierdorf (Anina), and Băile Herculane-Hoților Cave. A few chipped artefacts were reported from Hoțu Cave, including a backed microlithic point. Due to the small number of finds, hardly any correlation beyond that of chronology could be made. Two samples of charcoal from a hearth in the cave yielded a date in the middle of the 7th millennium BCE (BORONEANȚ 2011, 106–107). The inventory of the Hoților Cave consisted almost exclusively of microliths (96%) made from local lithic raw material (Figs. 29–30). End-scrapers, burins, geometric segments, backed bladelets, and Azilian points are mentioned as characteristic shapes (BORONEANȚ 2011, 118). One single radiocarbon date from the Mesolithic layer of the cave's stratigraphy points to an equally early date: with a range of 11,559–11,215 calBC, the date still fits into the range of the Epi-Palaeolithic of the Danube Gorges (BORIĆ 2011, 191. – BORONEANȚ 2011, 118). The Mesolithic sequence is unknown throughout the northern portion of the Banat, either because of the conditions of preservation or as a result of the state of research.

The situation in the western adjacent Bačka is only slightly better. Bogdan Brukner has reported geometric microliths in a Tardenoisian tradition from Hajdukovo (Fig. 31), an ephemeral site close to Subotica. A second site which yielded trapezoid and crescent-shaped microliths is situated on the sandy coast of the Danube at Bačka Palanka,

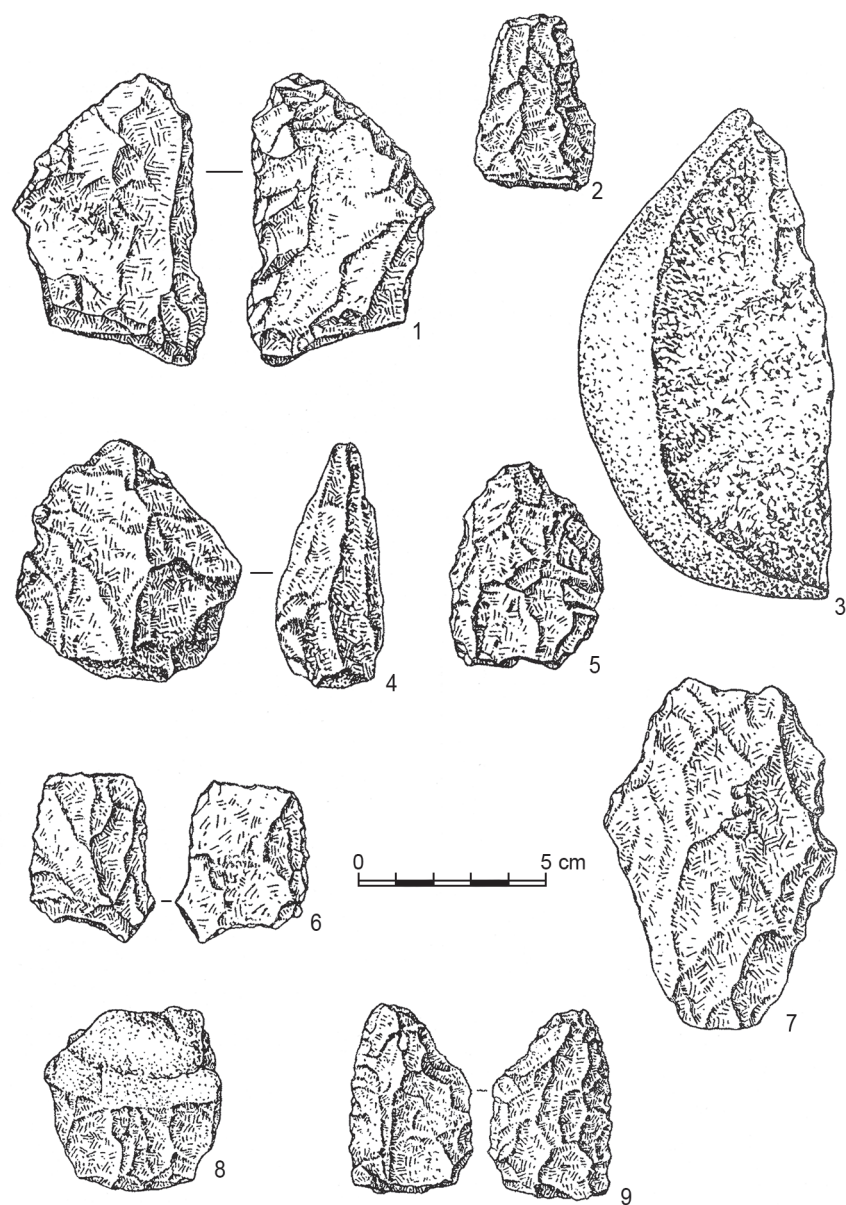


Fig. 29: Băile Herculane-Hoților Cave. Silex artefacts (after BORONEANȚ 2011, fig. 12).

west of Novi Sad (BRUKNER 1974, 23). In both cases, these are old finds occurring only very sporadically. The question of the supply of raw materials is of some importance because both sites are located in areas of the Bačka without any significant deposits of flint stones. Thus, considering that the geomorphological base is an important factor for the preservation of Mesolithic sites, this then seems to be the most important reason why no Mesolithic sites have been discovered in the loess plains of Banat and Bačka. The few known sites in the Bačka are located exclusively on the banks of the alluvial plains of the rivers, and the sites in Banat are situated in the hilly parts of the southern Carpathians.

2.7. Western Carpathian Basin

The state of research is much better for the Mesolithic in the Hungarian parts of the Carpathian Basin and the Slovakian territories adjacent to the north (EICHMANN, KERTÉSZ, MARTON 2010). A total of eight Mesolithic find collections is reported from the area of Győr which can no longer be assigned to any specific site (EICHMANN, KERTÉSZ, MARTON 2010, 216). Most of the materials had been collected by Benedictine monks in the late 19th century, and were later assigned to the Magdalenian or Tardenoisian. Nevertheless, on account of their uncertain provenance, these finds were considered to offer only ambiguous evidence for the

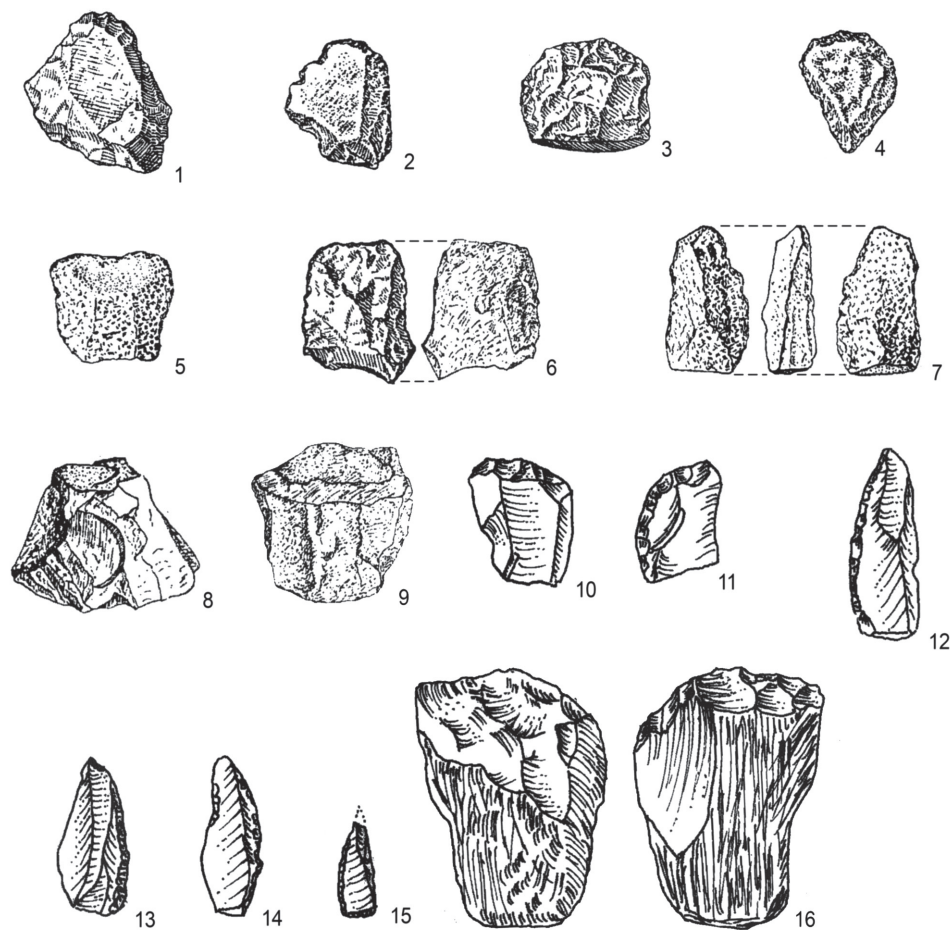


Fig. 30: Băile Herculane-Hoților Cave. Silex artefacts (after BORONEANȚ 2011, fig. 13; various scales).

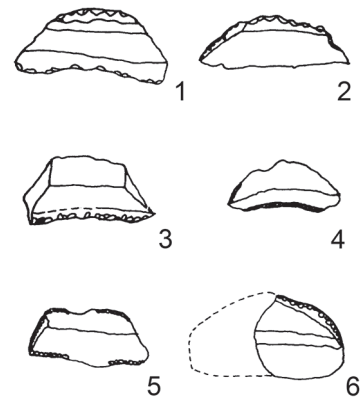


Fig. 31: Hajdukovo. Trapezes and crescents (after BRUKNER 1974, fig. V/1; without scale).

Mesolithic in the vicinity of Győr (EICHMANN, KERTÉSZ, MARTON 2010, 217).

Possibly Mesolithic are two barbed bone harpoons uncovered in the Sárrét bog, a former Early Holocene lake,

during peat-cutting activities in a Csór-Merítőpuszta field and next to the village of Nádasdladány (EICHMANN, KERTÉSZ, MARTON 2010, 217).

A private collection of flint artefacts was reported from a sand dune on the floodplain of the Kapos River at Kaposhomok which could be assigned conceivably to the late Early and Late Mesolithic by means of comparison with assemblages from southern Germany (EICHMANN, KERTÉSZ, MARTON 2010, 217–219). The material consists of regular blades, notched blades, truncated blades, abruptly backed blades, thumbnail scrapers, borers, exhausted cores and geometric microliths such as triangles and trapezes (EICHMANN, KERTÉSZ, MARTON 2010, 217). Interestingly, a large proportion of the raw material already consists of Transdanubian radiolarite, probably from the Szentgál mine, which was extensively exploited later in the Early Neolithic. Most likely, the Mesolithic groups had not only possessed access to this source, but perhaps also controlled the outstanding deposits (BÁNYFY 2008, 153). There is evidence that Szentgál radiolarite had already been brought further north into

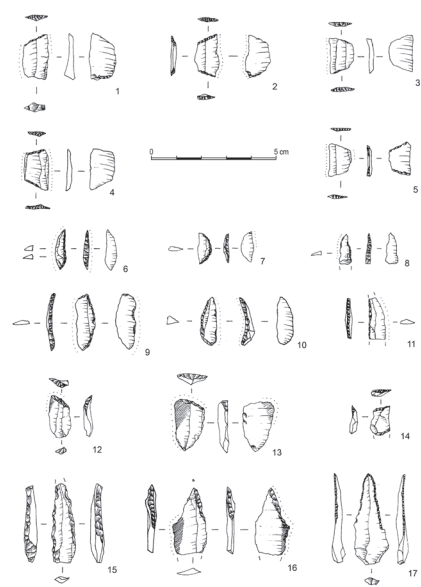


Fig. 32: Regöly 2. Microlithic stone tools (after EICHMANN, KERTÉSZ, MARTON 2010, fig. 3).

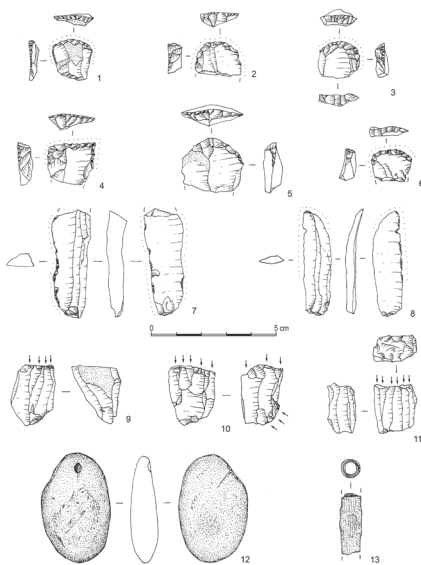


Fig. 33: Regöly 2. Mesolithic stone tools, silex cores, a partially drilled gravel, and a dentalium shell (after EICHMANN, KERTÉSZ, MARTON 2010, fig. 4).

southern Moravia during the Mesolithic (MATEICIUCOVÁ 2003, fig. 12).

The site of Regöly 2 in Transdanubia has been systematically investigated in recent years. Although no radiocarbon dates are available, the finds can typologically be assigned to the Late Mesolithic (EICHMANN, KERTÉSZ, MARTON 2010, 223–227). The lithic inventory consists of exhausted single- and multi-platform cores, blades with dorsal scars, regular blades in many sizes, short, narrow blades, scrapers, perforators, and geometric microliths with trapezes and abruptly

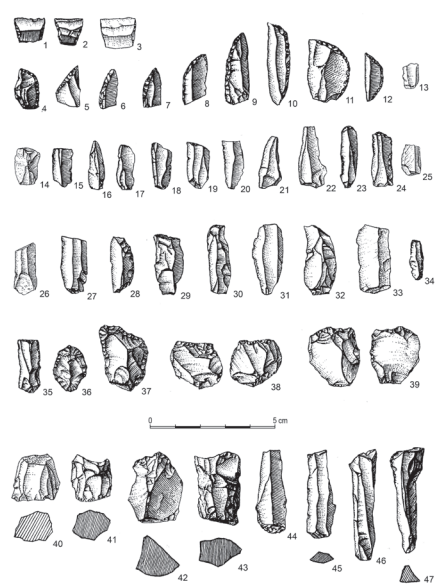


Fig. 34: Dolná Streda. Microlithic stone tools and cores (after BÁRTA 1972, fig. 9).

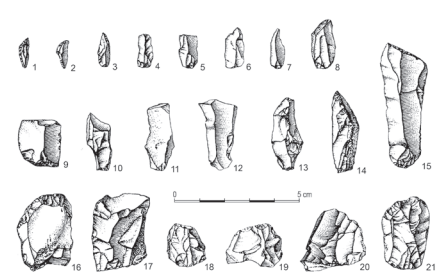


Fig. 35: Mostová. Microlithic stone tools (after BÁRTA 1972, fig. 10).

backed blades (Figs. 32–33). As sources for the radiolarite predominantly used, two deposits, one in the Bakony Mountains and the other in the eastern Mecsek Mountains, could be identified (EICHMANN, KERTÉSZ, MARTON 2010, 226). Hydroquartzite and/or limnoquartzite are rarely present in the raw material, and two pieces are made of obsidian. Very little was reported until now regarding the structure of the settlement. Nevertheless, the ongoing excavations will certainly soon deliver more information about the appearance of the dwellings of a Mesolithic site and how life was organised beyond the production of stone artefacts.

Substantial Mesolithic material comes from the long-term excavations at Sered’ I, Mačianske vršky in western Slovakia (BÁRTA 1972, 57–69). This site is located on a sand dune above the northern bank of the Danube. As a result of the analysis of malakofaunal remains, some charcoal and pollen from the sediments demonstrate that the environment in Mesolithic times had the character of a forest-steppe. Oak, pine, willow, maple, birch, hazel, and rosaceae could

be detected (BÁRTA 1972, 63). The chipped stone inventory has been described extensively by Juraj Bárta, and was compared with the Late Tardenoisian and the *Spätmesolithikum* in southern Germany (BÁRTA 1972, 63). Unfortunately, due to later processes of soil formation, settlement structures could not be detected at Sered' I. Nevertheless, a great deal is known about the economy of the settlement. Based on the animal bones discovered, the hunting of red deer, roe deer, wild boar, bison, aurochs, donkey, horse, and hare could be identified. Moreover, the snail *Helix pomatia* played a role in the diet (BÁRTA 1972, 64).

The finds from Sered' I provided the opportunity for further investigations of the dunes in the vicinity of Bratislava by Slovakian colleagues. Subsequently, the sites of Dolná Streda, Velká Mača, Šoporňa-Štrkovec, Sládečkovce, Mostová, Čierna Voda, and Tomášikovo were catalogued. From these, an acceptable assortment of cores, regular blades, scrapers, small points with side retouching, and a few microlithic trapezes from Dolná Streda (Fig. 34) and Mostová (Fig. 35) were presented.

The transition to the Neolithic in Transdanubia is of particular interest because this part of the Carpathian Basin is regarded as the cradle of the Earliest LBK. However, it seems as if the Neolithic in Transdanubia could have evolved on a new basis, or at least not on the foundations of the Mesolithic tradition, since most researchers prefer to stress the breaks in the cultural development (STARNINI 2001, 401–402. – Bánffy 2004, 21–25). Yet, here again, the poor state of research on the Mesolithic settlements in comparison to those of the Neolithic must be taken into account.

2.8. Eastern Carpathian Basin

The Great Hungarian Plain or Alföld forms a natural unit with the inner-Carpathian areas of neighbouring countries, such as eastern Slovakia, Carpatho-Ukraine, and north-western Romania. As a result of the excavation of Miklós Gábori at the site of Sződliged next to Vác and the intense survey of Róbert Kertész in the Jászság area, the Mesolithic in the Alföld can be regarded as comparably well researched as well. At Sződliged, close to the Danube Bend, two sites only 200 m away from each other were reported, excavated by Gábori in the years 1954 and 1967. A re-investigation of the finds by William Eichmann, Róbert Kertész, and Tibor Marton concluded that parts of the site date to the late Early or Late Mesolithic (EICHMANN, KERTÉSZ, MARTON 2010, 219–221). The raw material is dominated by low quality hydroquartzites and limno-quartzites from local river cobbles. The inventory consists of lithic debris, many wedges (*pièces esquillées* or bipolar cores), regular blades, many utilised flakes, abruptly

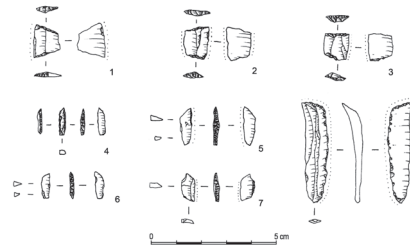


Fig. 36: Sződliged. Microlithic stone tools and a blade with traces of use (after EICHMANN, KERTÉSZ, MARTON 2010, fig. 2).

backed pieces, segments, a possible microburin, and trapezes (Fig. 36). Some of the structures were interpreted as hearth platforms comparable to the oval hearths at the Late Mesolithic sites in the region of the Danube Gorges, in particular from Vlasac II and III (EICHMANN, KERTÉSZ, MARTON 2010, 221). A small rectangular structure with rounded corners, measuring 2.4 m by 2.2 m, outlined by means of stones was interpreted as a dwelling (KERTÉSZ 1996, 22). Accordingly, there must have been a permanently inhabited settlement at Sződliged, at least briefly. The researchers also highlight other structural similarities between Sződliged and the sites in the region of the Danube Gorges such as the position of the site in the valley of the Danube, and specific aspects of the lithic technology such as blade production by pressure technique and the predominance of bipolar cores (EICHMANN, KERTÉSZ, MARTON 2010, 221).

The Jászság Basin, a vast floodplain between the upper Tisza River and the bend of the Danube in the northern Alföld, was extensively surveyed by Kertész and his colleagues (KERTÉSZ 1996). Upper Palaeolithic and Epi-Palaeolithic sites could be recorded on a Pleistocene alluvial fan on a Würmian formation which slightly rises above its surroundings. Two Mesolithic sites, Jászberény I and Jásztelek I, were found in the lower zone of the Holocene alluvial plain (KERTÉSZ 1996, 13). Both sites consist of 10–15-cm-thick cultural layers in a scatter from 12 to 17 m in diameter. One feature, dug into the ground at a depth of up to 50 cm at Jásztelek I, was interpreted as a tent or hut-like dwelling (Figs. 37–38). The round structure has a diameter of 5 m and displays postholes along the edge and a hearth platform in the very centre. A comparable dwelling structure attributed to the Late Palaeolithic Świdry culture was uncovered in Mucharz, in the district of Wadowice, southern Poland (VALDE-NOWAK 2010, fig. 5). The reconstruction in Mucharz is slightly different as this structure is reconstructed with a central post in the middle instead of a fireplace.

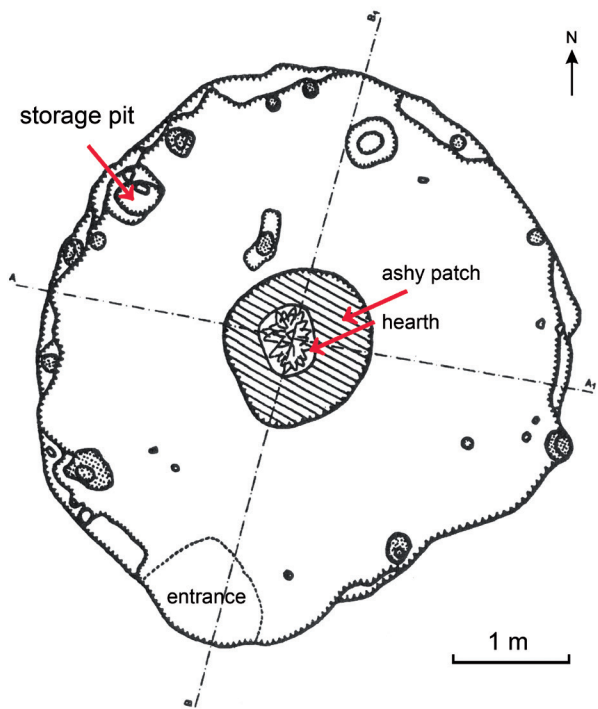


Fig. 37: Jásztelek I. Feature of a Mesolithic dwelling (after KERTÉSZ 1996, fig. 12).

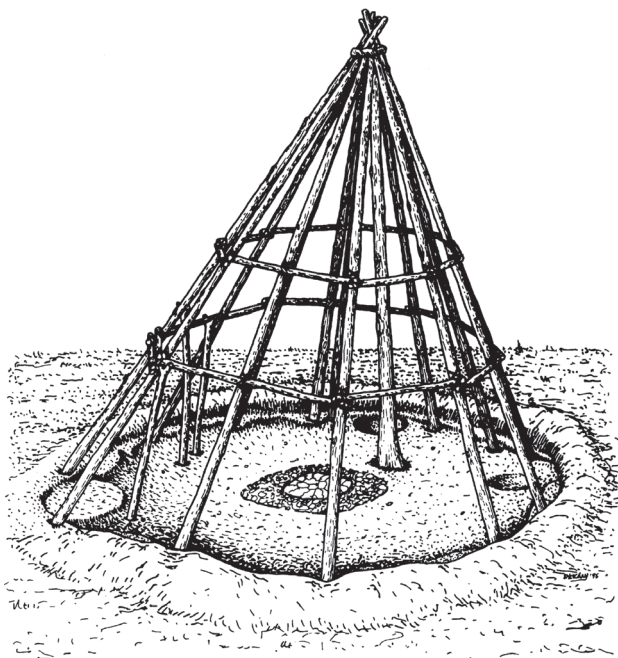


Fig. 38: Jásztelek I. Reconstruction of a Mesolithic hut according to the feature in Fig. 37 (after KERTÉSZ 1996, fig. 13).

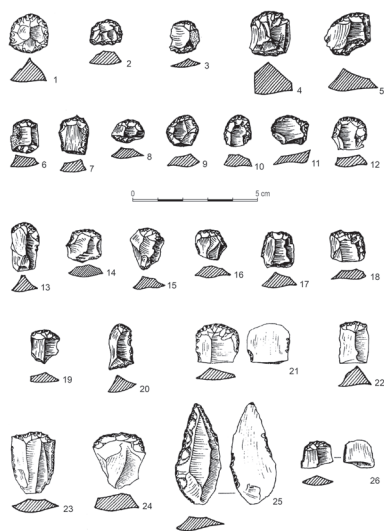


Fig. 39: Jásztelek I. Mesolithic stone scrapers and a point (after KERTÉSZ 1996, pl. 4).

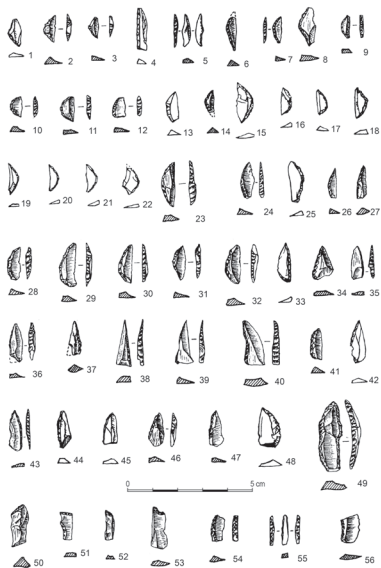


Fig. 40: Jásztelek I. Microlithic triangles, lunets and backed fragments (after KERTÉSZ 1996, pls. 5–6).

The raw material of the lithic inventory of the Jászság sites is dominated by hydroquartzites and limnoquartzites from the nearby Mátra Mountains, while siliceous rocks such as obsidian from more distant areas played a subordinate role (KERTÉSZ 1996, 19). Kertész has emphasised the unique typological character of the Mesolithic industry

from these sites, which comes mainly from Jásztelek I (Figs. 39–41) and Jászberény IV (Fig. 42). The inventory consists mainly of microlithic points, triangles, trapezes, and thumbnail scrapers. The maintenance conditions generally seem to be quite good because some bone implements have also been preserved.

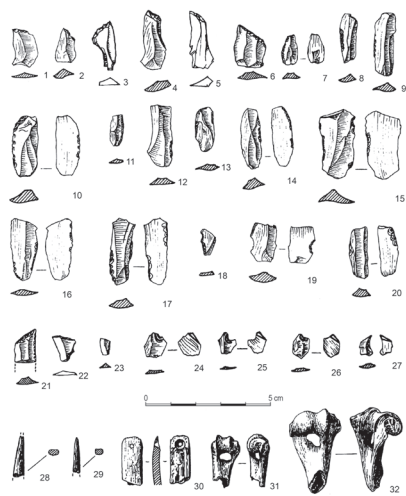


Fig. 41: Jásztelek I. Microlithic blades, blade fragments, microburins and bone implements (after KERTÉSZ 1996, pls. 6–8).

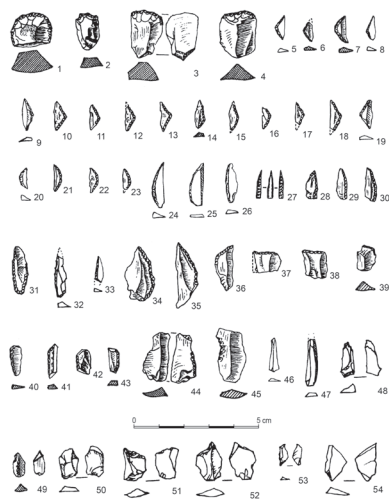


Fig. 42: Jászberény IV. Microlithic stone tools (after KERTÉSZ 1996, pls. 4–8).



Fig. 43: Ciumești. Microlithic stone tools (after PĂUNESCU 1964, fig. 4).

The bones from the slaughter remains demonstrate a predominance of aurochs and wild horse among the hunted animals with red deer, roe deer, and wild pig, and rarely pond tortoise and birds also present (KERTÉSZ 1996, 23). A pollen sample taken from the Meggyes-erdő allows the reconstruction of the landscape around the Mesolithic campsite. Extensive gallery forests along the river channels were dominated by oak, elm, willow, lime, and hazel bushes. The higher-lying areas display characteristic steppe and forest-steppe vegetation (KERTÉSZ 1996, 15).

Besides these two major sites, five more Mesolithic findspots from the Alföld have been mentioned in the literature: Kundacs-Köztemető and Kunpeszér-Felsőpeszéri út-Homokbánya on the sandy dunes of the left-hand floodplain of the Danube; Huguaj/Érpatak, also in a sandy area in the northern Tisza region; Pásztó-Mária tanya on the southern fringes of the northern Carpathian belt; and Tószeg-Áldozó-halom on the middle reaches of the Tisza, close to Szolnok (KERTÉSZ 1996, 16–18).

To this should be added Ciumești II in Sathmar county in north-western Romania. The site is also situated on a dune and yielded a small collection (Fig. 43) consisting of a core, one burin, a few regular blades and scrapers, and also several microlithic trapezes and triangles (PĂUNESCU 1964). Quartzite and unspecified types of silex, as well as obsidian, were used as raw materials.

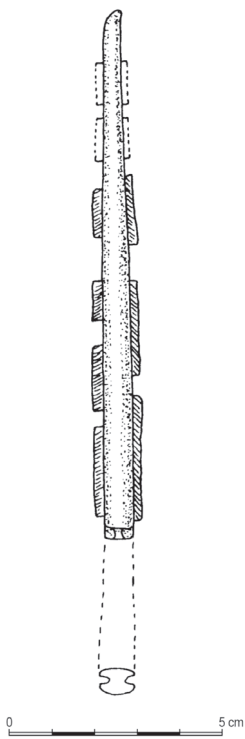


Fig. 44: Medvedia Cave. Mesolithic bone point with inserted microlithic stone blades (after BARTA 1989, fig. 5).

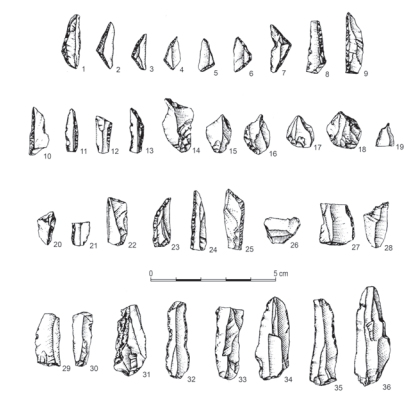


Fig. 45: Barca I. Microlithic stone tools (after BARTA 1972, fig. 10).

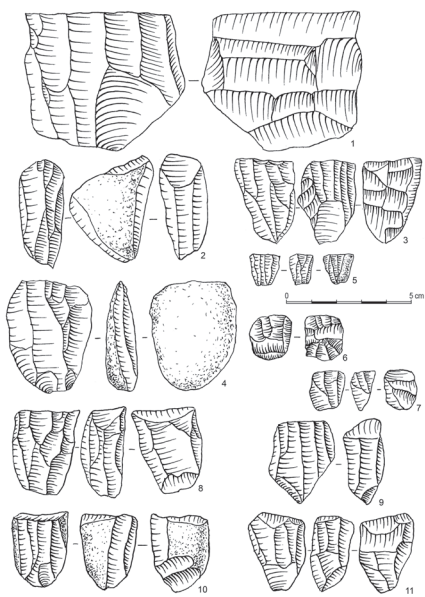


Fig. 46: Kam'janyzia I. Mesolithic blade cores (after MATSKEVYJ 2001, fig. 6).

A special find was made in 1980 at Medvedia Cave near Ružin in eastern Slovakia. An obsidian flake and a long bone point with two opposed grooves were found among the bones of two brown bears (*Ursus arctos*) (BARTA 1989, 458). In the grooves, seven small inserted blades of limno-quartzite were still preserved (Fig. 44). The find context indicates that the composite weapon was used to kill at least one of the bears.

In terms of raw material, the site of Barca I in the Slovakian portion of the upper Tisza Valley is remarkable because of its exclusive use of obsidian. Particularly noteworthy among the material are backed blades and microlithic triangles (Fig. 45).

From the Carpatho-Ukraine, Leonid Matskevyy has mentioned several Mesolithic sites (MATSKEVYJ 2001).

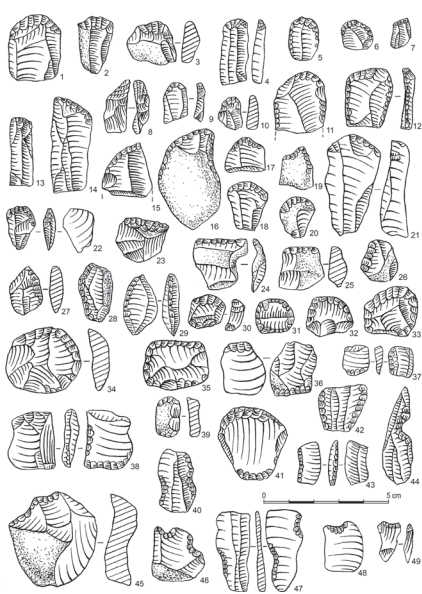


Fig. 47: Kam'janyzia I. Mesolithic stone tools (after MATSKEVYJ 2001, fig. 7).



Fig. 48: Kam'janyzia I. Mesolithic blade cores (after MATSKEVYJ 2001, fig. 8).

Of the numerous stone artefacts presented, the collection from Kam'janyzia I only seems to demonstrate characteristic elements of the Late Mesolithic (Figs. 46–48). The inventory consists of exhausted single- and multi-platform cores, side- and end-scrapers, regular blades, burins, points with retouched edges, and a few microliths, predominantly trapezes. The site is situated in the foothills of the Carpathians, in the valley of the Uzh River.

2.9. The South-eastern European Mesolithic in Relation to its Neighbouring Areas

The so-called *Spätmesolithikum* in southern Germany, a facies of the Mesolithic, which extends into the north-western neighbouring areas of the Carpathian Basin such as Bohemia, Moravia, and Lower Austria is comparatively well investigated. Its beginnings remain controversial, but may be placed in the period of the incipient Atlantic period, between 7000 and 6500 calBC. Characteristic finds are particularly trapezes and regular blades with faceted platform remnants (GRONENBORN 1997, 129). The continuation of Mesolithic stone chipping techniques into the 6th millennium BCE was considered by some researchers as an indication of an autochthonous development of the Earliest LBK in Central Europe (TILLMANN 1993. – KIND 1998). However, this hypothesis was later contested (e.g. GRONENBORN 1994. – ZIMMERMANN 2010).

To the south-west of the Balkans, the Castelnovian variant of the Mesolithic was initially described as a south-eastern variant of the French Tardenoisian (DE FONTON 1967). The Mesolithic inventories are characterised by trapezes, notched blades, subconical cores, and microburins. A series of radiocarbon dates indicates a beginning also parallel with the Atlantic period (BIAGI 2001, 71), and recently the chronological framework for the Castelnovian was presented as being 6600–5600 calBC (PERRIN, BINDER 2014, 274). Its distribution extends from northern Italy eastwards at least as far as the Slovenian Karst (PERRIN, BINDER 2014, fig. 1). In terms of the transmission of stone chipping techniques from the Castelnovian into the subsequent Neolithic, the breaks have been emphasised over the continuities (BIAGI 2001, 77–81), even if, at least in Italy, the lithic assemblages of the Early Neolithic Impressed Ware show only a few differences to those assigned to the Castelnovian (PERRIN, BINDER 2014, 277).

The Mesolithic period is still poorly investigated to the east of the Carpathians. Matskevych has defined several cultures for the Ukrainian territory (MATSKEVYCH 2001), but they remain doubtful, in view of their stratigraphic uncertainty and the heterogeneous character of the material (DOLUKHANOV 2008, 290). Stefan Kozłowski classifies the Late Mesolithic material from Transcarpathian Ukraine as belonging to the Janisławice culture (KOZŁOWSKI S. 2001, 267). For the adjacent North Pontic steppe zone, two cultural areas could be distinguished. In the southern area, there is the Grebeniki variant which is surrounded by the Kukrek culture. Both expressions of the Mesolithic in the steppe demonstrate significant territorial overlaps. The chronological framework of the Mesolithic features east of the Carpathians is not very well defined (DOLUKHANOV 2008, 289–290),

but the appearance of the Bug-Dniester culture as the oldest manifestation of Neolithic in the region renders at the very least a terminus ante quem of around 6000 calBC. North of the Carpathian Basin, the Janisławice culture must be mentioned. Its chronological frame is given roughly from the 7th to the 4th millennium BCE (KOZŁOWSKI, KOZŁOWSKI 1979, 105). The stone industry is characterised by a high number of side- and end-scrapers, microliths and rarely burins, truncations and the typical Janisławice points (KOZŁOWSKI S. 1975, 74–75). A rich deposit of silex with a characteristic chocolate colour in the upper Vistula Basin seems to have been of major importance as a source of raw material for the Janisławice culture (BEDNARZ 2001).

An analysis of accelerator mass spectrometry (AMS) data from the Shan-Koba rock shelter excavated in Soviet times shows that the Late Palaeolithic/Mesolithic sequence on the Crimean Peninsula is not ‘continuous’ as suggested in the older literature. The gap observed in the Mesolithic chronology was recently able to be filled with radiometric results obtained from other sites in the North Pontic area such as Laspi 7 and Mirnoe (BIAGI 2016). With regard to the question of the continuity of Mesolithic technologies into the Neolithic, Dima Kiosak sees a clear separation between the Neolithic groups of South-eastern (Criş) and Central European (LBK) origin on the one hand and the riverine communities of the Bug-Dniester culture on the other. The first two came from outside to the territory of western Ukraine, while the Bug-Dniester culture is clearly rooted in the Recent Mesolithic of the region, namely the Grebeniki and Kukrek variant of lithic industries (KIOSAK 2016).

In summary, the Mesolithic in the Balkans (although comparatively poorly studied) is a time with great innovation potential due to the high mobility of the population. Compared to the Neolithic, however, the population density is probably very low.⁶ Due to the low level of research, it is still largely unclear how long Mesolithic communities in South-eastern Europe could survive parallel to the Neolithic ones. In the following chapters, we will see how the networks that existed from the Mesolithic period were at least selectively used for the expansion of the Neolithic.

6. A model calculation made for the Mesolithic in southern Germany assumes an average population density of 0.0023 people per square kilometre (RICHTER 2007). For comparison, there are 0.026 inhabitants per square kilometre in Greenland today. The population density in Central Europe in the 7th millennium BCE was probably ten times lower than in the circum-Arctic areas today.