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ON SITE SETTLEMENT ACTIVITIES: THE EXAMPLE OF THE EPIGRAVETTIAN SITE OF BRNO-ŠTÝŘICE III (CZECH REPUBLIC)

ABSTRACT: The open-air site of Brno-Štýřice III (Vídeňská or Koněvova St.) has yielded abundant evidence of Late Glacial (LGT) Palaeolithic occupation assigned, on the basis of techno-typological studies and ^{14}C dating, to the Epigravettian. During excavations, an archaeological layer with concentrations of chipped stone industry, animal bones and hearths was uncovered. Although one type of raw material is predominant, the spectrum of raw materials used for knapping was much wider than previously considered. The composition of the raw material indicates contacts between the site and surrounding sources in Moravia. This paper deals with the spatial distributions of artefacts according to their techno-morphological study and types of raw materials used for knapping. The reconstruction of on-site activities is based on modelling a single accumulation of finds. The selected concentration, with an area of 100 m^2, was spatially well defined, with the excavations revealing both its centre and periphery with a gradual fade-out of finds. Besides numerous lithic artefacts the site also contained fragments of animal bones, teeth, and some heavy-duty pieces. The homogeneity of the concentration area was demonstrated by the presence of all technological stages of the core reduction sequence of both primary and reutilised tools, and by several more complex refits of chipped artefacts. Although we cannot observe any anthropic impact on animal bones due to the poor preservation of their surfaces, the use-wear marks are evident on lithic tools – particularly burins and burin spalls. The numerous refits of short sequences among lithic artefacts indicate on-site activity which can be associated, according to the use-wear marks identified, with the processing of animal carcasses. This way we can characterise not only the single selected accumulation of finds analysed, but the broader Štýřice III settlement in general.

KEY WORDS: Epigravettian – Raw material – Refits – Spatial distribution – Settlement activities

INTRODUCTION

The site of Brno-Štýřice, then referred to as Koněvova Street, was introduced into the literature by Karel Valoch, who conducted small-scale rescue excavations there in 1972 (Valoch 1975). The chipped stone industry obtained was described by him as Epigravettian because it did not include any characteristic tool types that would have

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made it possible to class it as Magdalenian. The assemblage was dated later (Valoch 1996, Verpoorte 2004) and even though the dates were somewhat younger than expected for an Epigravettian assemblage this fact did not give sufficient reason to class the finds with some other cultural unit, although certain doubts persisted (Valoch pers. comm. 2012). The name of the locality reverted in 1990 to its original name of Vídeňská Street, and large-scale rescue excavations were carried out there during 2009, 2011–2014. They revealed the extent of settlement, defined a new site and yielded a large amount of lithics and osteological material which have gradually been analysed and evaluated (Nerudová, Neruda 2014, Nerudová *et al.* 2012). However, description and categorisation of the lithic industry from Brno-Štýřice III remained unchanged despite a considerable increase in the quantity of archaeological material.

The Epigravettian has been defined as a cultural derivative from the Gravettian, characterised by a significant number of backed points. It occurred approximately 22–20 ky BP in the Mediterranean area and in Central and Eastern Europe where it split into many local facies. Such fissioning explains why Epigravettian industries are chronologically linked with the relatively long time span between 22–10 ky BP (Montoya 2004, Palma di Cesnola 2001). The infrequent stratified localities in Moravia (Štýřice III, Stránská skála IV, Kamenná), Slovakia (Cejkov, Kašov) or Lower Austria (Grubgraben) are located stratigraphically within the uppermost level of the Upper Weichselian (Nerudová *et al.* 2012), which is chronologically associated with the MIS 2 period, also referred to as the Late Glacial Termination (LGT) (Markova *et al.* 2013). During its existence, the Epigravettian overlapped with the newly emergent Magdalenian and even though a superposition of both traditions is known from the site of Sowin 7, direct interactions between them most probably did not occur (Küssner 2010, Wiśniewski *et al.* 2012).

GEOGRAPHICAL OVERVIEW AND STRATIGRAPHY OF THE SITE

Brno-Štýřice III is located in the south-western part of Brno (*Figure 1B*), about 300 m to the south of the current bank of the Svratka River (*Figure 1D*). Here at an elevation of 210 m above sea level (10 m above the river) there is a step in the terrain which on the west side rises up into a low but steep cliff of Lower Devonian conglomerates referred to as Červený kopec Hill, with maximum height of 311 m above sea level.

The Quaternary cover is formed by an accumulation of eolian (loesses) and colluvial sediments deposited on a terrace consisting of clay fluvial gravels and sandy gravels of Quaternary age, which were detected at a depth of 202–204 m above sea level. A geological probe showed that the sequence of Pleistocene sediments at the locality is not divided by any distinct fossil soils. Towards the superposed layers, the sequence of loesses and loessy sediments is covered by an orange silty sediment C (a weakly developed soil followed by a Holocene brown soil). Within the whole area under investigation, Holocene soil inclusive of the A and B horizons is only preserved in the higher parts (i.e. at the W and SW edge of the excavated surface); in the central part of the slope only a relic of the B-horizon is preserved. In the NE and E part of the investigated area (i.e. in the lowest parts) the B-horizon is not preserved at all and here the A-horizon rests directly upon the Pleistocene sediments.

Palaeolithic artefacts were found in the lower part of the Upper Weichselian loess cover, which formed here a 25 cm (approx.) thick layer of orange-brown silty sediment. This layer was almost continuous over the whole of the investigated surface where it followed the inclination of terrain, which was quite steep in some places. There was a relatively sharp border between the sediment and the subsoil. Evidence of Palaeolithic occupation (e.g. the upper part of a mammoth jawbone) also sporadically intruded into the base of the superposed chernozem horizon A.

CHARACTER OF THE SITE

The excavated area was divided into two main isolated concentrations of *in situ* finds: the first one, preliminarily referred to as the Štýřice IIIa site is without an absolute date (Nerudová *et al.* 2012); the second – main site – is Štýřice III site (*Figure 1D*). The ongoing rescue excavations have revealed that the occupation layer continued in the northern and western direction (*Figure 2*). Whereas Palaeolithic finds clearly faded out in a western direction, their number rose towards the north where they formed some concentrations (*Figure 3*). In this area there was also evidence of later prehistoric settlement (settlement features and early medieval row graves, Romanesque rotunda) and more recent intrusions (house cellars, water piping, etc.). All these post-Palaeolithic intrusions disturbed the shallowly deposited layer with Palaeolithic artefacts and bones, which was completely destroyed in some places. Elsewhere, on the

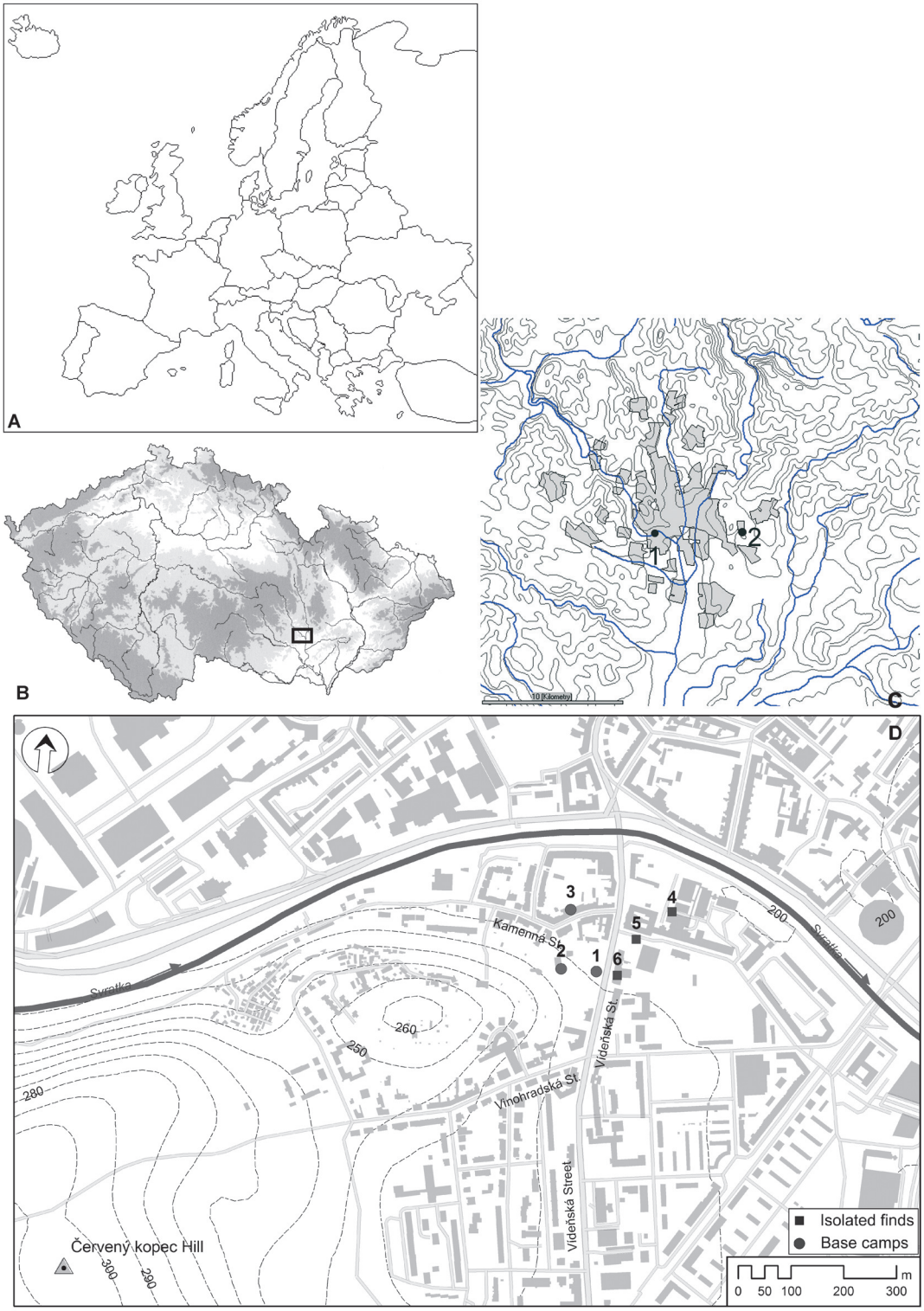

FIGURE 1. A, B, position of the site and C, detail view (1, Brno-Štýřice; 2, Stránská skála IV). D, Brno-Štýřice microregion (1, Štýřice III; 2, Štýřice IIIa; 3, Kamenná St.; 4, area of hospital; 5, Polní St.; 6, Vídeňská St. House No. 15). Digitalisation by Z. Nerudová.

FIGURE 2. Brno-Štýřice III – the overview plan of excavations, campaigns 2009, 2011–2014, and probes made by K. Valoch in 1972. Digitalisation by P. Neruda.

other hand, the Palaeolithic finds were included in the secondary backfill of later features. The possible spread of settlement towards the east is no longer identifiable because a road and a sidewalk pass through this area. Thus, even though the area under investigation is relatively large, we are able to reconstruct only a small part of the settlement. We shall also probably not be able to identify the northern edge of the site, which is hidden below houses.

DATING

As noted above, the industry from Brno-Štýřice III was classified as Epigravettian (Valoch 1975), but the first radiocarbon date was somewhat younger than its previously known span (Valoch 1996). Further dating by A. Verpoorte in 2001, yielded a date very similar to the previous one (Verpoorte 2004, for more detail see discusion in Nerudová, Neruda 2014). The most recent dating was done on samples taken during the excavations in 2009 and 2011. Only a single date from a mammoth molar was obtained because of the low collagen content of the other samples:

OxA-26961: 15,625 ± 75 BP; 18,780 ± 90 cal BP (excavation 2009; tooth, *Mammuthus primigenius*).

Dating other samples from the 2012 excavation was also only partly successful. From a total of four samples two dates were obtained:

OxA-28298: 15,215 ± 70 BP (excavation 2012; tooth, *Mammuthus primigenius*);

OxA-28114: 14,870 ± 90 BP (excavation 2012; charred bone, *Mammuthus primigenius?*).

Mammoth bones represented the only material found at the site from which it was possible to at least partly obtain any dates. Three complete mammoth mandibles were recovered during different excavation seasons from localities within the site, and in every case samples for dating were taken from teeth or from the compact bone of the mandible. Even though impacts or cut marks could not be observed on the bones due to post-depositional processes, they were found in close proximity to the stone artefacts and within the same archaeological layer. Tools were also found in the sediment within the mandibles. We consider this close contextual association to be strong presumptive evidence for the contemporaneity of the lithic industry and mammoth bones and, considering the homogeneity of the dates, it is very possible that the site's occupants only gathered the remains of mammoth carcasses. It is, however, interesting that the dates, which derive from different localities within the extensive excavated area, can be divided into two groups which may represent two distinct episodes of human activity at the site.

MATERIAL AND METHODS

Detailed analysis of the assemblage was focused on a concentration of finds (labelled A1), which did not derive from the neighbourhood of any later (prehistoric) features that intruded into the Pleistocene horizon, and which we can therefore justifiably suppose represents the intact remains of a Palaeolithic settlement. The finds come from four adjacent squares (Nos. 41, 42, 46, and 47). Each square was 5×5 m, so the entire area measured 100 m^2 (*Figure 3*). Since A1 represents only a small part of the whole area under investigation, the artefacts found form a single real concentration including its limits, marked by a fading-out of items.

A total of 397 objects were found within area A1, including chipped stone artefacts, animal bones and teeth (*Table 1*, *Figure 4*). No hearth was found, and there was no evidence of terrain modification. All finds were surveyed in three coordinates, an approach which allowed subsequent analysis using GIS applications. For these analyses, the finds from A1 were distinguished on the basis of raw material and simple technological analysis (flake, blade, core, hammer); in the case of retouched tools the type was briefly described (*Table 1*). These characteristics were used in an attribute table of the GIS application so that it was possible to visualise the relations between raw materials, tools, and debitage. In the next phase, artefacts from A1 were sorted by raw materials into two main groups: those knapped from the Olomučany-type chert and the others made of Cretaceous chert (spongolite). Their refitting took place and at the same time the homogeneity of the A1 concentration was tested. The refits were entered into a general plan and their complexity within the artefact accumulation tested.

The evidence for human impacts on animal bones was also investigated. Given the poor preservation of bones due to depositional conditions, signs for human modification have been examined indirectly, with the help of use-wear marks on lithic tools. We assumed that the large number of burins and burin spalls closely associated with animal bones at the site indicated the processing of meat/bones/skins of hunted animals and that this activity should be identifiable on tools. An advantage is that the Olomučany-type chert is not patinated; the artefacts give a "fresh impression" and

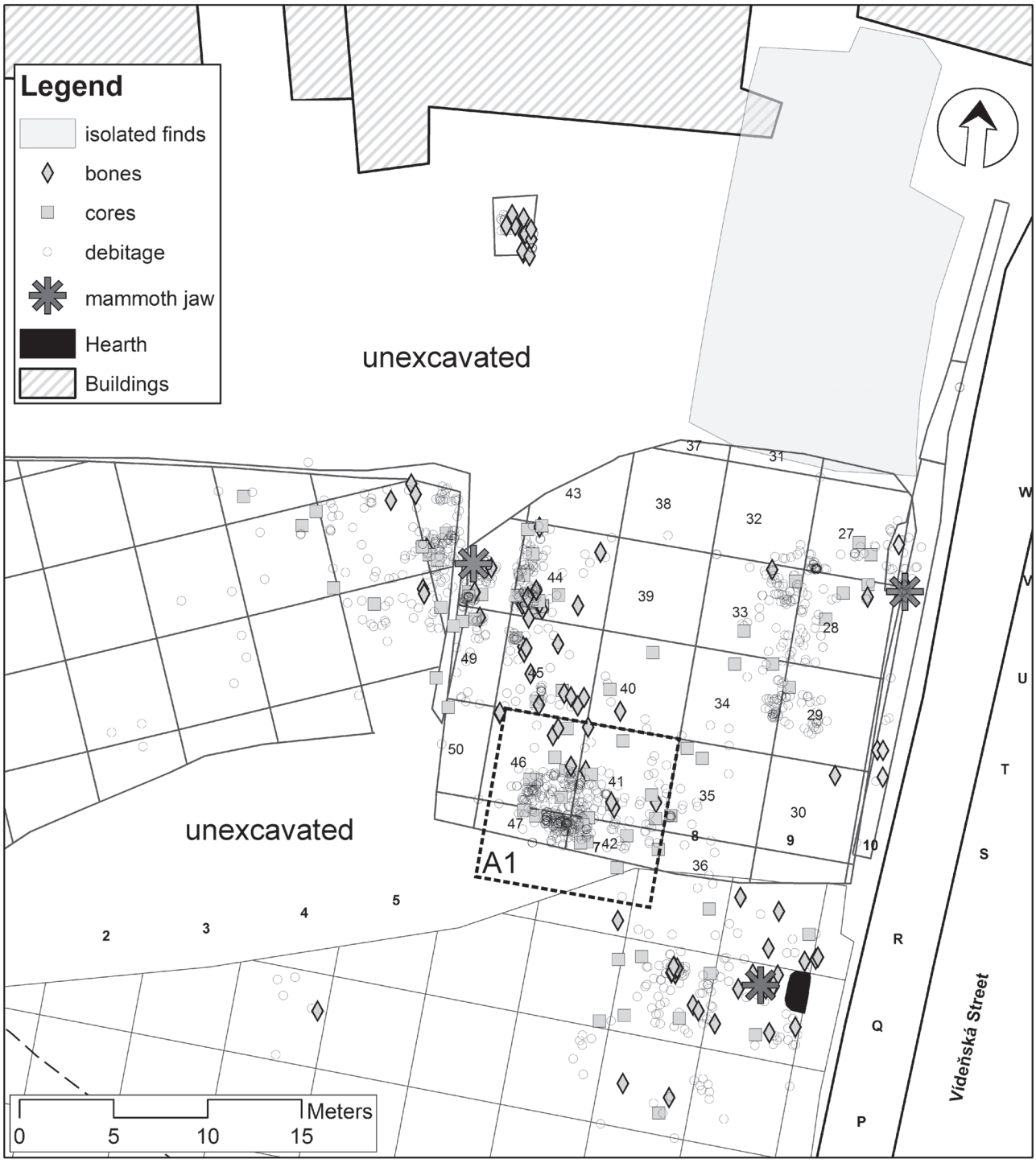

FIGURE 3. Brno-Štýřice III – the detail of excavated surface in 2012/2013 with the position of the accumulation A1. The grey colour shows the place with very intensive prehistoric settlement (settlement features and early medieval row graves, Romanesque rotunda) and recent intrusions (house cellars, water piping, etc.). The shallowly deposited Palaeolithic layer with artefacts and bones was destroyed by these post-Palaeolithic intrusions. Digitalisation by P. Neruda.

possible wear marks should thus not be destroyed or wiped out by post-depositional processes. The author is not a specialist in use-wear analysis and is relatively inexperienced in distinguishing use-wear marks. She therefore focused on possible detection of use-wear on the edges of burin spalls using a stereoscopic magnifier. Particular types of use-wear marks will be further analysed by an experienced specialist.

CHARACTER OF INDUSTRY FROM AREA A1

The lithic industry has been made from a varied range of raw materials, which indicate contacts all over Moravia. The main focus has been on the area of the Moravian Karst, since the dominant raw material here is the Olomučany-type chert (52.0%) which is followed by Cretaceous chert (spongolite 19.6%). These raw materials were not prepared prior to being introduced on-site, as is indicated by various decortication debitage. At the same time, however, different trends in their utilisation can be observed, which probably reflect their quality. The Olomučany-type chert has preferably been used for preparation and exploitation of cores. The specimens found represent single-platform cores with parallel blade scars. The final products were used to fabricate tools, here most often burins. In the industry, however, we can observe an absence of most of the final blanks, which were probably carried away from the area under investigation and used elsewhere. Preparation of spongolite cores directly on site is indicated by only a single piece found; this specimen, moreover, is a flat flake core. In contrast preparation debitage was found, including relatively numerous cortical blades but only isolated final products or tools. The cortex preserved on several artefacts and the character of raw material indicates that spongolite has been obtained from both primary sources (laminar layering of matrix, original cortex, cubic shape of fragments) and probably from river gravels (rounded pebbles, smoothed cortex). The other determined raw material types (*Table 1*) are significant for illustrating the activity and contacts in the landscape, yet their frequencies are very low and they were only rarely used to make retouched tools.

Typical traits of the lithic industry (made from the Olomučany-type chert) are represented by considerably reduced cores (6.2%) mostly indicating a unidirectional reduction strategy. Striking platforms on these cores were

TABLE 1. Accumulation A1 – the main composition of lithic industry upon the raw material. Undet, Undetermined; Local, e.g. diorit originated from Červený kopec Hill; Chert, Krumlovský les-type chert; Olom, Olomučany-type chert; Sgs, erratic flint; Spongol, Cretaceous chert (spongolite); Radiol, radiolarite; Porcel, fine-grained material; Trou-Zdi, Troubky-Zdislavice-type chert (?).

	Undet	Animal	Burnt	Local	Chert	Olom	Sgs	Spongol	Radiol	Porcel	Trou-Zdi	Total
Material / product												
Blade	3		2		10	68	3	24	1	6	6	123
Flake	8		5		8	96	12	42	7	4	14	196
Core					2	7	1	10	1		3	24
Hammer				5								5
Material / tool												
Point			1									1
Retouched blade			1									1
Scraper			1			1						2
Use-wear			2			2			2			6
Burin			1			12	1		1			15
Burin spall						13						13
Endscraper						1						1
Others												
Bone		8										8
Tooth		2										2
Total	11	10	13	5	20	200	17	76	12	10	23	397

prepared by simple detachment of a tablet, without any further trimming. Several cores exhibit flat preparation on their backs. Their reduction, however, was not initiated by detachment of a crested blade; these steps were made afterwards. However, from a technological point of view, the crested blades preserved have to be classified as lateral sides of a core. The number of preserved decortication blanks and final flakes prevail (50.6%) over blades without cortex (31.7%) which are often fragmented. The assemblage comprises a relatively large number of non-cortical blades; they do not represent any outstanding specimens but rather a negative selection of fragmentary and badly done or unsuitable pieces; presumably the well-made pieces were taken away from the site.

SPATIAL DISTRIBUTION OF FINDS WITHIN AREA A1

The spatial distribution of all artefacts shows a concentration of finds on the southern border of the excavation area, which is approximately round in shape, with a loose central part. The artefacts are then freely dispersed from this locus in eastern and northern directions, whereas to the south and west of the concentration they fade out relatively quickly (*Figure 4*). With regard to raw materials we can observe some tendencies: the Olomučany-type chert is evenly distributed over the whole concentration area A1, with the highest frequency of occurrence on its southern border. Cretaceous chert (spongolite) shows a seemingly opposite orientation with dominant occurrence along the northern and eastern border of the central accumulation. The distribution of radiolarite is centred in a single main sector (*Figure 5*). The spatial distribution of osteological

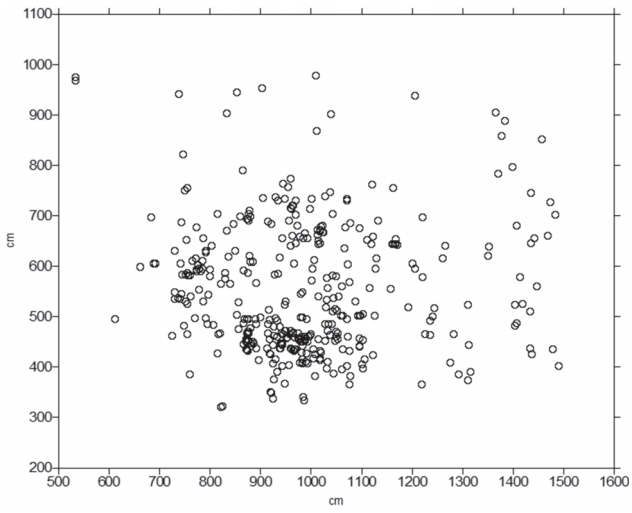

FIGURE 4. All archaeological finds analysed in accumulation A1. Digitalisation by Z. Nerudová.

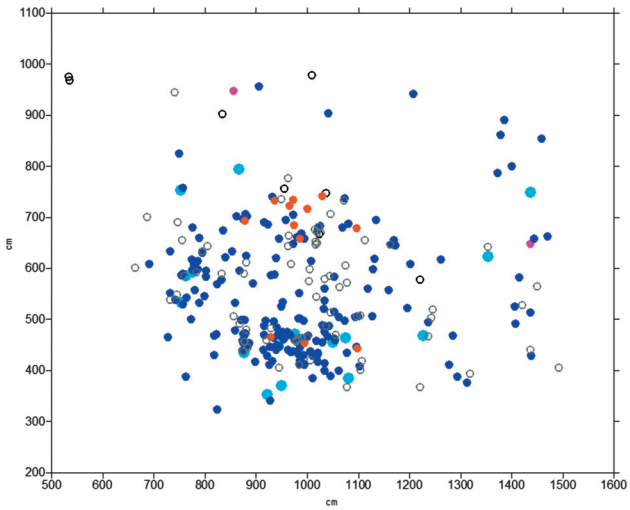

FIGURE 5. Spatial distribution of artefact in accumulation A1 upon the type of raw material. Grey circle, spongolite (Cretaceous chert); dark blue circle, Olomučany-type chert; brown circle, radiolarite; light blue, erratic flint; black circle, bone; violet circle, animal tooth. Digitalisation by Z. Nerudová.

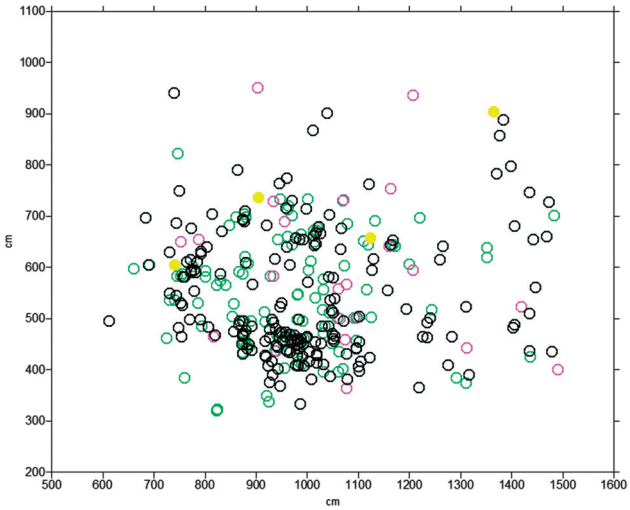

FIGURE 6. Spatial distribution of artefact in accumulation A1 upon the main technological groups. Green circle, blade; violet circle, core; black circle, flake; yellow circle, hammer (?). Digitalisation by Z. Nerudová.

material and retouched tools in relation to the above raw materials is interesting in this context. It appears that radiolarite and animal bones mostly occur together within the concentration (cf. *Figures 5*, *7*) whilst at the same time osteological material, appears to be set aside at the periphery, beyond the centre of A1.

At the southern border of A1 then an accumulation of burins and burin spalls can be observed in the context of the predominance of the Olomučany-type chert noted above (*Figures 5, 7*). Even though we cannot identify any spatial relation between blades, flakes, and cores, we can see that the hammers found are clearly spread outside the main centre of the area (*Figure 6*). In this context, it is noteworthy that these artefacts do not include any hammerstones, retouchers or abraders *sensu stricto*. Rather, there are secondarily rounded pebbles of local raw material (granodiorite of the Brno Massif, locally outcropping to the surface of the Červený kopec Hill, below which the site is placed), which were obtained from the nearby Svitava River. Their surface is quite crumbly and possible traces of their being used as hammers are very indistinct. They are classed among heavy-duty industry due to their origin from the find-bearing layer where they occur in the same context with the other lithic and bone industry. This means that they must have been brought to the site (even though from a distance of only 200–300 m) because granodiorite does not occur in the form of natural pebbles.

An overall conclusion from the spatial analysis is that the area under review was in general use for the processing of lithic raw materials, not only in the case of the dominant raw material – the Olomučany-type chert – but also for spongolite and erratic flint. However, a restricted location with radiolarites and osteological material stands out. The information on the real spatial distribution of animal bones is considerably distorted owing to the poor depositional conditions at the site, so that only the most resistant bones and a few teeth were preserved and even these finds are very fragmentary. In the GIS images they are therefore recorded only as points.

REFITTINGS

The homogeneity of the finds from area A1 was tested by refits of individual artefacts (see below). The most successful were those made with Olomučany-type

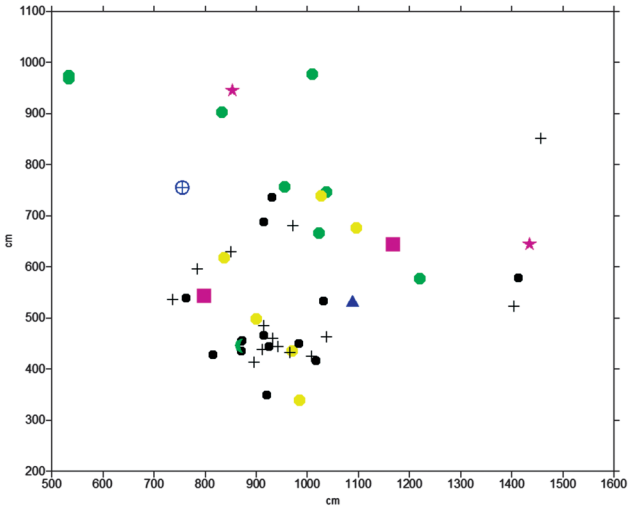

FIGURE 7. Spatial distribution of artefact in accumulation A1 upon the tools and animal remains. Green circle, bone; yellow circle, macroscopic use-wear; cross, burin; black circle, burin spall; violet star, animal tooth; violet square, scraper; triangle, point; green crescent, retouched blade; circle with cross, endscraper. Digitalisation by Z. Nerudová.

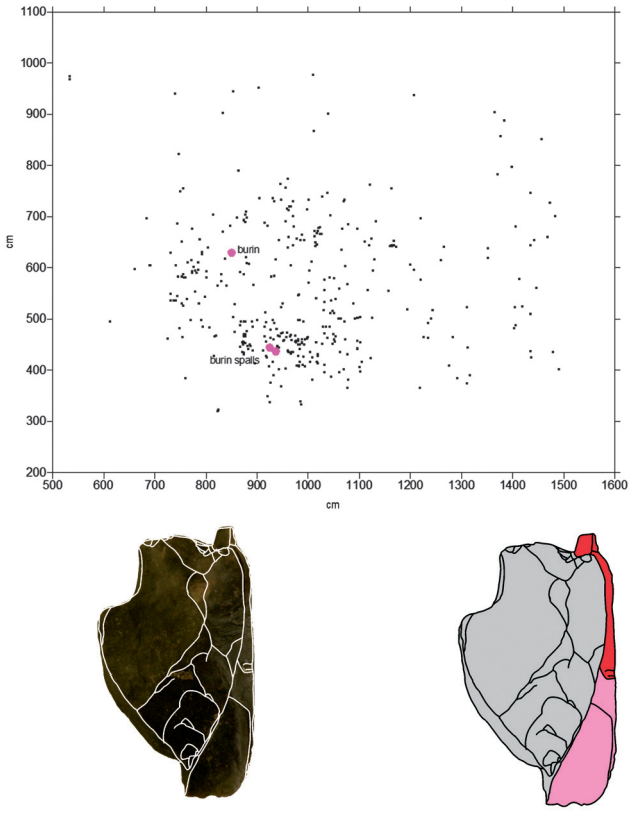

FIGURE 8. Accumulation A1 – refitting of a burin. Above, position of pieces; below, the visualisation. Digitalisation by Z. Nerudová.

chert, followed by spongolite and erratic flint. It was not possible to refit any of the radiolarites found. Most of the refits are represented by simple fractures of broken blades or flakes respectively. On the other hand, some more complex refits were also accomplished, which further complete several earlier, already published refittings (Nerudová *et al.* 2012).

R1: broken burin (2 pcs), Olomučany-type chert (OL)
R2: burin spall (2 pcs) with burin, OL (*Figure 8*)
R3: broken burin (2 pcs), OL
R4: sequence of two flakes, spongolite (SP)
R5: sequence of two flakes from the lateral side of a core, (SP)
R6: sequence of two preparation flakes, Troubky-Zdislavice-type chert (?)
R7: core and frost flake, OL
R8: core, flake rejuvenated striking platform, blade and outrepassé, OL (*Figure 9*)
R9: core, flake, OL
R10: sequence of two flakes, (SP)
R11: sequence of two broken blades, Troubky-Zdislavice-type chert (?)
R12: blade and preparation flake, OL
R13: sequence of two preparation flakes with lateral cortex, charred
R14: sequence of two cortical flakes, OL
R15: core and a blade fragment, Troubky-Zdislavice-type chert (?)

The most complex refit within the analysed concentration A1 is R8. The refitted sequence gives evidence of the subsequent knapping procedure. A rejuvenation blade was intended to be detached from the opposite side of the core with the aim of eliminating former technological faults in the reduction procedure. The blow, however, was unsuccessful and resulted in a hinged blade (*Figure 9*: grey). It was followed by a flake rejuvenated striking platform (*Figure 9*: violet) which should have been followed by another rejuvenation blade. The last blade, however, removed a considerable part of the original knapping surface of

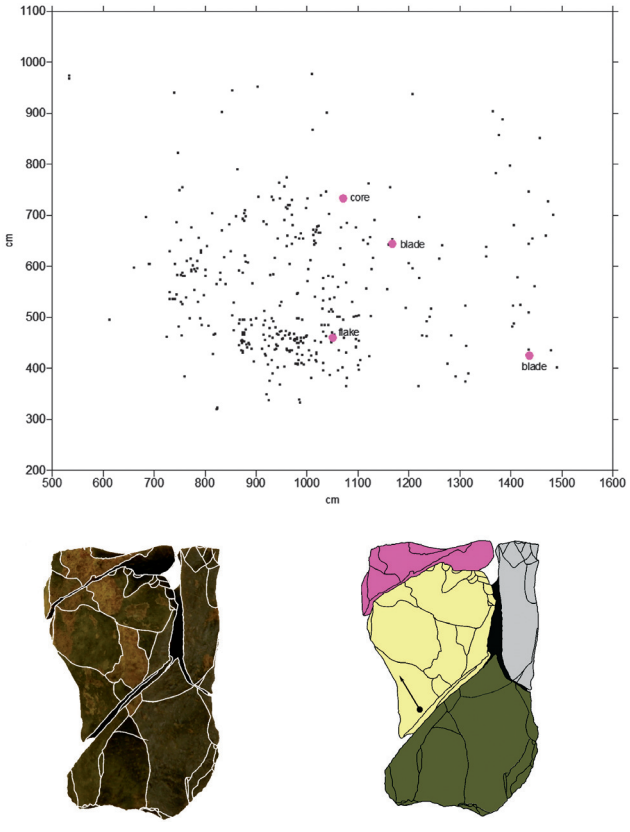

FIGURE 9. Accumulation A1 – refitting of a core. Above, position of pieces; below, the visualisation. Digitalisation by Z. Nerudová.

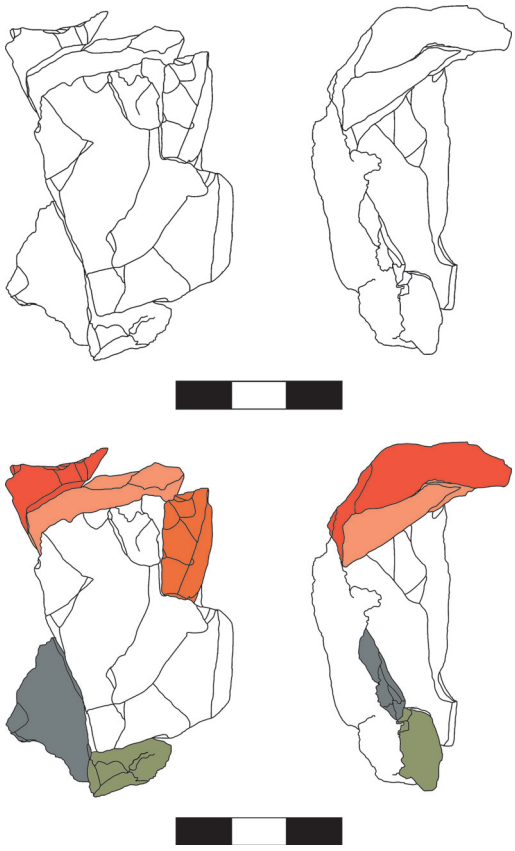

FIGURE 10. The neighbouring accumulation in the square 35. The visualisation of the refitted core. Digitalisation by Z. Nerudová.

the core (so-called *outrepassé*) so that from the original mass of the core only a torso remained preserved (*Figure 9*: yellow). Nevertheless, an attempt at further reduction is still visible after this event (*Figure 9*, marked with an arrow). Another core, which is as good as analogous regarding the technology, was refitted from a unique concentration in the adjacent square (No. 35) (*Figure 3*) – which included both tiny splinters (size 1–2 mm) and flakes of varied dimensions. Blades were much less frequent and fragments of cores and raw material also occurred. All this material was found within a very small area of approximately 20×20×20 cm, as if it represented knapping remains accumulated in a delimited terrain depression (which, however, was not identified by the excavation stratigraphy). Following laboratory treatment it was determined that this particular accumulation comprised a total of 3117 objects, almost exclusively made of Olomučany-type chert. Despite the large number of artefacts it was subsequently possible to refit only a residue of a reduced single-platform core with a sequence of two flakes from a rejuvenated striking platform (*Figure 10*: light and dark orange), after which a short hinged blade was detached (*Figure 10*: brown). At the distal end of the core are still attached two flat cortical preparation flakes (*Figure 10*: grey and green).

SUMMARY AND CONCLUSIONS

Calibration of radiocarbon dates from Brno-Štýřice III and from the nearby excavation by P. Škrdla in the area of the hospital opposite the site makes it possible to date the settlement at the locality to before 18,000 cal BP (Nerudová, Neruda 2014). This fact, together with the scientific analyses, enables us to locate the settlement at Brno-Štýřice within the LGT (MIS 2) period. Based on analysis of the chipped stone industry, the finds have been associated with the Epigravettian complex, given the lack of any diagnostic traits that would class the industry as Magdalenian.

With regard to the terminal phase of the Last Glacial period it had been supposed that after the end of the Gravettian complex about 20 thousand years ago, a discontinuity occurred which did not end until the arrival of Magdalenian groups about 14 thousand years ago. The reduced evidence of settlement during LGT was supposed to have been caused by a worsening of climatic conditions (for a discussion on this topic see Nerudová, Neruda in prep.). Excavations, however, show that settlements which fall within this chronological context are located stratigraphically in the uppermost level of the Upper Weichselian loess cover, often secondarily affected by the formation of Holocene soils. Moreover, in the case of Brno-Štýřice, a part of the site was disturbed by later prehistoric and early medieval settlements.

The localities in the Štýřice district of Brno, can be considered a complex of sites falling within the same chronological period. Thanks to landscape morphology and archaeological activities conducted in this region in the past few years we know the spatial extent and thickness of the loess sediments and the related Upper Palaeolithic settlement sites. Among them are Štýřice III (originally Koněvova or Vídeňská Street) (*Figure 1D*: point 1), a smaller site of Štýřice IIIa (*Figure 1D*: point 2), Kamenná Street showing similar radiocarbon dates (Nerudová 2010) (*Figure 1D*: point 3), an excavation by P. Škrdla in the area of the Brothers of Mercy Hospital (*Figure 1D*: point 4), isolated finds from the opposite Polní Street (*Figure 1D*: point 5), and finds discovered during construction of a building on the opposite side of the street (*Figure 1D*: point 6). All the above exhibited the same stratigraphy. The lithic industry from the richest site of Brno-Štýřice III has now been analysed, evaluated, and published.

Finds from an undisturbed representative area of the site show that it represents a specific processing activity. Based on the refits performed it seems likely that each accumulation of artefacts represents a particular activity, and it is not possible to interconnect the artefact clusters from various areas. The predominance of mammoth hard animal tissues is a noteworthy feature of the osteological assemblage from Brno-Štýřice III site. This animal is documented also in other European LGT sites, such as Stránská skála IV in Moravia (Svoboda 1991), Stadice in NW Bohemia (Vencl, Oliva 2012), Grubgraben in Austria (Neugebauer-Maresch *et al.* 2008) or Mezhirich in Ukraine (Marquer *et al.* 2012), but the proportion of mammoth remains to other animals varies. The variability may reflect different hunting strategies and local conditions in different regions or both. In this context, the absence of mammoths from sites in Poland between 24.1–18.3 ky cal BP (Nadachowski *et al.* 2011) should be noted.

Although settlement activities were described in detail only within the limited space of the selected area A1, we can reasonably extrapolate their characteristics, on the basis of the material analyses performed, to the entire area under investigation. The site is defined by its stratigraphic and chronological position, the dominant occurrence of a particular type of fauna, the emphasis on raw materials originating from the Moravian Karst

(Olomučany-type chert, spongolite), and the character of the chipped stone industry which is dominated by single-platform blade cores. The industry itself, however, does not comprise any adequate final blades and the category of tools is dominated by burins reutilised several times. The excavations yielded three mammoth mandibles of differing ages (Nerudová *et al.* 2012). An extensive hearth was also found, containing not only charcoal pieces but also numerous fragments of charred mammoth bones (Nerudová, Neruda 2014). The extent of the area over which the finds were discovered, argues against the site being the remains of a single settlement but, especially in view of the radiocarbon dates obtained, most probably represents a strategic location in the neighbourhood of a large watercourse, that was repeatedly settled and where the carcasses of hunted animals were processed. The settlement at Stránská skála IV, where horse hunting is evidenced (Svoboda 1991), can be regarded as a similar site within the Brno Basin.

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