

1. INTRODUCTION

1.1. A short introduction to the subject

In 1865, a young adherent of Darwin's theories and researcher into prehistoric cultures named John Lubbock (1834–1913) published his book *Pre-historic Times, as Illustrated by Ancient Remains, and the Manners and Customs of Modern Savages*, which gained great popularity in European and American scientific circles. A year later an edition in French appeared in Paris, and in 1876 a Russian edition was published in Moscow. Lubbock's book drew the world's attention to the beginning of a new science – prehistory, or rather prehistoric archaeology, which in the second half of the 19th century was regarded as one of the disciplines of anthropology, then defined more widely (Lubbock 1865; cf. also Niederle 1893). Fate ordained that the year in which Lubbock's work appeared would also see the death of the important Danish researcher of antiquities at the National Museum in Copenhagen, Christian J. Thomsen (1788–1865), creator of the *Three Age System* that divided all of prehistory into three linked parts: the Stone, Bronze and Iron Ages. Although Thomsen published the classic explanation of this system only in 1836, it had been used in practice earlier (Gräslund 1981; 1987, 17–30; Sklenář 1983, 88–90; Schnapp 1996, 299–303). Lubbock, taking into account the advances made in the science of the most ancient past of man, proposed that Thomsen's Stone Age be divided into the *Palaeolithic* and the *Neolithic*. The Neolithic was also termed the Late Stone Age or the Polished Stone Age: "...a period characterised by beautiful weapons and instruments made of flint and other kinds of stone; in which, however, we find no trace of the knowledge of any metal, excepting gold" (Lubbock 1865, 2–3). The main criterion employed by Lubbock for the division of the Stone Age into the Palaeolithic and Neolithic was the technological difference apparent in the manufacture of stone tools, including chipped tools. Three years after Lubbock's work appeared, the father of modern

geology, Charles Lyell (1788–1868), presented the division of the Stone Age into the Palaeolithic and Neolithic in the ninth volume of his famous *Elements of Geology*. As a consequence, these terms became accepted in the scientific world and gained the status of independent epochs; they were later to be joined by a third, the Middle Stone Age or *Mesolithic*.

Lubbock divided the Palaeolithic from the Neolithic on the basis of technological criteria linked primarily to techniques of stone tool production. Soon after, thanks to the development of cultural anthropology, further criteria were added. This was due to the works of Lewis H. Morgan (1818–1881) and Edward Burnett Tylor (1832–1917), the most important proponents of evolutionism in cultural anthropology (Tylor 1871; 1881; Morgan 1877). The Neolithic began to be associated with the discovery of domesticated plants and animals, even though these attributes were not at first regarded as critical (e.g. Dawkins 1880, 247, 290). Only in the opening decades of the 20th century did the emphasis shift to the essential significance of the rise of farming for the birth of civilisation. It therefore became important to divide non-productive – food-gathering – economies from the following stage of productive – food-producing – economies, as defined in the then well-known works of William J. Perry (1887–1949), an adherent of British diffusionism (Perry 1923, 2–3, 5–9). In the same year, 1923 M. C. Burkitt (1890–1971), Professor of Prehistory at Cambridge University, defined the major characteristic elements of the Neolithic as the beginning of farming, the domestication of animals, pottery and, like Lubbock before him, the appearance of stone worked by polishing (Burkitt 1923, 17). Perry's and Burkitt's conception was taken up and popularised in the outstanding works of one of the pre-eminent prehistorians of the 20th century, V. Gordon Childe (1892–1957; Childe 1925; 1929; 1936; 1942).

Since that time, the beginning of the Neolithic has been linked to the uptake of agriculture and animal husbandry. Great importance has also been attached to ceramics, which in the 20th century became one of the basic criteria for distinguishing archaeological cultures.

An archaeological culture is a taxonomic category that appeared in archaeology in the early 20th century (Trigger 1978, 75–114; 1989, 161–173; Meinander 1981; Lech 2000b). New, economic, criteria for defining the Neolithic were being promoted at the same time. The definition of cultures concentrated primarily on ceramics, which provided better opportunities for the spatio-chronological classification of investigated material. The considerably greater heterogeneity of archaeological material in the Neolithic, in comparison to the Palaeolithic or the Mesolithic, meant that for decades little attention was paid to the chipped artefacts found within settlement areas. Only exceptionally were discussions devoted to the chipped industry, and these concentrated only on the categories of chipped artefacts, generally in the context of criteria that enabled archaeological cultures to be differentiated. Among these was an essay by the Polish archaeologist Leon Kozłowski, Professor of Prehistory at the University of Lvov, who in 1923 wrote:

*“Na pojęcie ‘kultury’ w znaczeniu archeologicznym złożyć się musi całość pozostawionych nam przez człowieka dokumentów. Nie tylko więc ceramika i narzędzia gładzone, **lecz i drobny przemysł krzemienny musi być rozważony.**”*

“The term ‘culture’ in the archaeological sense must include all the evidence that Man has left us – not only ceramics and smoothed tools, but **also the fine chipped stone industry must be considered.**” (Translated by I. Mateiciucová & A. Millar)

L. Kozłowski 1923, 63

In Moravia and Lower Austria, the investigation of the Neolithic has not yet included the devotion of suitable attention to the “**fine chipped stone industry**”, despite the fact that the study of chipped artefacts in various countries, e.g. Poland, Germany, Holland and in recent years the Czech Republic and Hungary, achieved remarkable results that have significantly enriched our knowledge of this period. It is for this reason that such a task has been undertaken here. Given my own orientation, developed in an earlier thesis (Mateiciucová 1992), and the accessibility of assemblages of chipped stone artefacts from archaeological research into the Linear Pottery culture (LBK) in Moravia and Lower Austria, this work con-

centrates on the characteristics of the chipped stone industry of the Linear Pottery culture. The emphasis is on problems associated with the beginnings of the Neolithic in Moravia and Lower Austria, here considered from a wider central European perspective.

1.2. Aims

Chipped stone artefacts form an important, and sometimes numerous, category within the modest source material available to the archaeologist interested in the early agricultural societies settled in Europe 6000–7000 years ago. The common term “chipped (stone) industry” comprises the remains of tools and weapons, and the waste from their production. This study is devoted to the first agricultural societies to appear in Moravia and Lower Austria, known in archaeology under the term Linear Pottery culture (LBK). Enquiry into the LBK within the framework of the Neolithic began at the end of the 19th century, when F. Klopffleisch (1831–1898) differentiated two Neolithic ceramic groups, described as “banded ceramics” (linear) and “corded ware”. In his doctoral thesis, his student Alfred Götze (1865–1948) wrote of the *Kultur der Bandkeramik* and the *Kultur der Thüringer Schnurkeramik*. In his 1893 book *Lidstvo v době předhistorické* (“Humanity in prehistoric times”), Lubor Niederle then built on the work of Götze and that of Lubbock mentioned in the introduction (Götze 1891; Niederle 1893, 194–296; Meinander 1981, 107; Sklenář 1983, 120; Lech 2000b, 158–160). Neolithic chipped stone industry, however, was not a major concern for long. The study of this particular source material in what was then Czechoslovakia began in earnest with the diploma thesis by Slavomil Vencl, arising out of seminars by Prof. Jan Filip and published in 1960 in the *Sborník Národního Musea v Praze* (Vencl 1960, 1–2).

Since Vencl’s pioneering work, which summarised and analysed all of the information then available on Neolithic chipped and polished stone industries in central Europe with an emphasis on the former Czechoslovakia (cf. also Vencl 1971), no sustained attention has been paid to the Neolithic chipped industry in Moravia. In Lower Austria, too, until recently no-one was taking a detailed interest in studying the chipped stone industry. While a range of minor works exist, these are in the main concerned with the material from just a single site, or from part of a region. These small-scale studies do not for the most part consider the distribution of raw materials and artefact production technologies, although these are essential for comparisons with other sites and areas within the original distribution of the LBK.

The first ray of light in terms of such aims in Lower Austria and Germany was provided by the work of D. Gronenborn (1997; cf. also 1999). Within the framework of the “*Ausgrabungen zum Beginn des Neolithikums in Mitteleuropa*” project (1983–1993, J. Lüning), Gronenborn studied the chipped stone industry from early Linear Pottery sites in the Burgenland, Lower Austria and Germany (Gronenborn 1997). On this basis, he then developed a hypothesis on the Neolithisation of central Europe by means of the establishment of pioneer settlements.

Generally, the aim of this study is to produce an exhaustive description of the chipped stone industry of the first farming societies in Moravia and Lower Austria and to draw attention to the ways in which a study of this particular archaeological resource can enrich our knowledge of the beginnings of the Neolithic in these areas, as well as in central Europe as a whole. The main subject of interest in this study is the chipped industry of the first archaeological culture defined as an early agricultural society, i.e. the LBK.

Given the long-running discussion as to the relationship between archaeological cultures and actual prehistoric events (Tabaczyński 1971; cf. Hodder 1986; Tabaczyński ed. 2000), the title of this work emphasises the fact that the subject here is the chipped industry of early agricultural societies. I have also sought to bring to the fore my own interest in the social aspects of the investigated phenomena, which is greater than usual in the similarly-oriented Czech, Moravian and Austrian literature. The title also indicates the emphasis on the beginnings of the Neolithic as a historical process, significant for the future of Europe, a theme already addressed in the work by Gronenborn cited above. For this reason, I feel that it is scientifically justified to return to several of the problems and questions arising out of Gronenborn’s work, attempting to respond to them in the light of knowledge obtained from source material newly investigated for this study.

To be able to consider the beginnings of the Neolithic on the basis of the chipped industry, the characteristics of the latter in the LBK culture of Moravia and Lower Austria must first be determined, a precondition not met so far. This is possible through the realisation of several minor aims that are purely archaeological in nature. These aims are:

- 1) To evaluate the existing state of research into the chipped industry of the LBK culture in Moravia and Lower Austria;
- 2) To show the differences between the stone raw materials used in the production of tools and to indi-

cate their provenance. Further, to outline the distribution mechanisms of chipped stone artefacts in Moravia and Lower Austria in the course of the LBK culture and to compare them with other regions during the same chronological horizon;

- 3) To record the changes in the morphology of chipped artefacts in the course of the LBK culture (i.e. changes in the technology of production and changes in tool types) and to compare these with other regions during the same chronological horizon.

A further aim is to consider several questions relating to the economic and social lives of LBK societies by trying to address the following questions:

- 1) In what ways did farming societies obtain the stone raw material that they required?
- 2) What causes lie behind the distribution of chipped stone artefacts (social or economic needs)? Can the distribution of chipped artefacts enlighten us as to some aspects of the workings of society?

The aim of this study is not to provide a complete analysis of all of the extant assemblages from Moravia and Lower Austria, as

- a) the majority of these assemblages cannot be precisely dated, or the small number of artefacts does not allow for a more detailed analysis, so that they cannot serve the study’s stated aims;
- b) physical access to these assemblages is virtually impossible;
- c) some of these assemblages are currently being studied by other researchers.

This study seeks not merely to provide a descriptive synthesis of LBK chipped industry in Moravia and Lower Austria. It also recommends that modern archaeological excavations be oriented amongst other things towards the systematic recovery of this archaeological resource, and that publications arising out of such excavations also include a methodical investigation of the chipped stone artefacts. Such investigations must fulfil the following basic criteria:

- 1) They must give the total number of chipped stone artefacts in the assemblage, and the numbers of chipped artefacts in the individual morphological categories;
- 2) They must give the proportion of particular types of raw material in the assemblage as a whole, as well as in particular basic categories, especially the category of ‘tools’;

- 3) They must accompany the text with professional drawings of characteristic examples of the assemblage studied.

This study could not employ the refitting method, as the chipped stone assemblages considered came either from rescue excavations – which often investigated only part of a site or sometimes even of a feature – or from extensive excavations, resulting in a very large number of artefacts, so that the amount of time required would be excessive. Similarly, the investigation of use wear traces on artefacts (trasology), which in some cases would be valuable, also had to be set aside due to the overall complexity of the method.

1.3. Chronological and spatial framework of the study

Chronological framework

Chronologically, this study concerns the period during which the LBK existed, i.e. from roughly the middle of the 6th millennium BC to the beginning of the 5th millennium BC (5700–4900 BC). This period may also be extended to cover the time span from the beginning of the Atlantic, i.e. from the early 7th millennium BC, to virtually the end of the Neolithic (in the sense of the periodisation used in Bohemia, Moravia and Slovakia), that is, to the end of the 5th millennium BC. The beginning of the Atlantic is universally linked to the beginning of the Late Mesolithic (Taute 1973/74).

The Neolithic age is, in the sense of the Bohemian, Moravian, Slovakian and Hungarian periodisation, divided into three stages (Pavúk & Šiška 1971; Pleiner *et al.* 1978, 174–212; Podborský *et al.* 1993, 72–73; Preuß 1998, 5–9)

- 1) the Early Neolithic
- 2) the Middle Neolithic
- 3) the Late Neolithic

A different classification, similar to the periodisation used in Poland¹ and in western Europe, is used in Austria. In this system, the Eneolithic is included within the Neolithic, i.e. the Neolithic is understood as the period from the beginning of the LBK to the end of the Corded Ware and Bell Beaker cultures (Wiślański 1979, Ryc.2; Kmiecinski ed. 1989, 138; Leneis, Neugebauer-Maresch & Ruttikay 1995, 10; Stadler 1995).

¹ J. K. Kozłowski uses the periodisation valid in south-eastern parts of Europe, i.e. regards the Eneolithic as a separate age (Kaczanowski & Kozłowski 1998).

This study employs the periodisation developed for Moravia. The various stages of the Neolithic are associated with the following archaeological cultures (Podborský *et al.* 1993, 73):

- 1) Early Neolithic – LBK
- 2) Middle Neolithic – Šárka phase of the LBK, Želiezovce group, early Stroke-Ornamented Ware (Stichbandkeramik), Bükk culture
- 3) Late Neolithic – late Stroke-Ornamented Ware, early Lengyel cultures in Moravia and Lower Austria (Austrian/Moravian Painted Ware I, Mährisch-Ostösterreichische Gruppe der Bemalten Keramik I, MOG I)

The geography of Moravia and Lower Austria

The territory of Moravia (**map 1**) is framed by the co-ordinates longitude 15°09' to the west, longitude 18°33' to the east, latitude 50°15' to the north and latitude 48° 37' to the south. Moravia thus lies almost at the very centre of Europe, and forms the eastern half of the Czech Republic. It covers an area of 22,222 km².

To the north of Moravia lie Czech Silesia (including its Opava and Těšín parts) and Poland. To the east and south-east it borders Slovakia, and to the south Lower Austria. The main watercourse in Moravia is the river Morava, which runs from north to south before flowing into the Danube. The southern part of Moravia comprises plains and gentle downlands, which concentrate along the rivers Morava and Dyje (Thaya). The fertile valleys are part of the band of the Carpathian Foredeep, which also includes the lower part of the Viennese Basin. The valleys of Lower Moravia continue into the Austria-Marchfeld (the Moravian Field) and the Leitha mountains. Other depressions include the Dyje/Svratka valley, which continues into Austria as the Weinviertel Hügelland. The band of the Carpathian Foredeep stretches across Moravia to the north-east, dividing the mountains of the Bohemian Massif from the Carpathians. The western and north-western parts of Moravia comprise downlands, uplands and the Czech Highlands, in particular the Czech-Moravian Highlands, the Brno Highlands and the Jeseníky (Germ. Altvatergebirge). The Outer Carpathian mountains are situated in south-eastern and eastern Moravia (Demek & Novák *et al.* 1992, 11–16; Král 2001, 128, 170, 172).

Lower Austria is a federal province in the north-east of Austria (**map 1**). To the north it is bordered by the Czech Republic, to the east by Slovakia, to the south-east by Burgenland, to the south by Styria (Steiermark) and to the west by Upper Austria. Lower Austria is delimited by the co-ordinates longitude 14°27' to the west, longitude 17°03' to the east, latitude 49° to the north and latitude 47°25' to the south; it covers an area of 19,172 km².



Map 1. Moravia and Lower Austria.

The northern part of the eastern Alps extends into Austria (the Styrian/Lower Austrian Limestone Alps, the Vienna Woods), as does their central part (the Bucklige Welt, the Leitha mountains). Between the Alps and the Danube are the downs of the Alpine foothills. The north-eastern part of Lower Austria includes part of the Bohemian Massif.

Lower Austria is divided into four quarters: Waldviertel, Mostviertel, Industrieviertel, and Weinviertel. The most important river in Lower Austria is the Danube, which flows through it from west to east (*Niederösterreich* 1999).

Neolithic settlement concentrated mainly in the area of Weinviertel, in the eastern part of Waldviertel, in the north and east of the Vienna Woods, continuing into Burgenland, and in the north of Mostviertel (Lenneis, Neugebauer-Maresch & Ruttkay 1995, Abb.1, Abb.6, Abb.18, Abb.22).

Weinviertel lies north of the Danube, and is the most north-easterly part of Lower Austria. To the north it borders south-western Moravia, and to the east south-western Slovakia. It is part of the band of the Carpathian Foredeep that divides the Bohemian Massif from the Carpathians. Weinviertel comprises fertile loess downlands reaching maximum altitudes of 492 m a.O. D. (Leiser Berge) and 425m a. O. D. (Galgenberg).

Waldviertel also lies north of the Danube, and is the most north-westerly part of Lower Austria. To the north it borders south-west Moravia and southern Bohemia, and to the east Weinviertel. Geologically it is part of the Bohemian Massif, which here is made up primarily of granite, granodiorites and metamorphic rocks. The Waldviertel plateau (Thaya-Hochland) is a continuation of the Czech-Moravian Highlands into Austria, and lies at an altitude of around 400–700 m a.O. D., in the west attaining heights around 1000 m a.O. D. (to a maximum of 1073m a.O. D.).

The Vienna Woods (Wienerwald) is located at the border between the Mostviertel and the Industrieviertel, two of the four quarters of Lower Austria, and reaches far into the city of Vienna. It covers an area of around 1250 km². Its south-western and central parts are occupied by rocky, broken limestone terrain, a north-easterly extension of the Alps. To the north, the region is bordered by the Danube. The south-eastern and eastern parts comprise the downlands and lowlands of the Viennese Basin (*Niederösterreich* 1999; Král 2001, 128, 170, 172).

1.4. Sources analysed and used for comparison

The basic source material comprises assemblages of LBK chipped stone artefacts from Moravia and Lower Austria (**table 1**). The most important criterion for inclusion was their more precise dating (LBK phases I-III). For this reason, the main focus is on material from recent archaeological excavations documented in a modern fashion. For these contemporary excavations relative, and sometimes absolute, dates are generally available, and it is also possible to rely on the results for other finds categories (ceramics, architecture). Where these sites had not yet been chronologically evaluated, or where investigations are still ongoing, only a representative, datable sample from the assemblage has been studied here.

Where possible, the sites were chosen to evenly represent the whole of the study area (Moravia and Lower Austria) and the chipped industry assemblages were selected to represent all of the major phases of the LBK in each region. For areas where no material was available, complementary information from the literature was drawn upon. If for a particular region the chipped industry had previously been studied, and the classification system used was comparable to that developed here, the material was incorporated into the analysis.

Since this study was intended to be the first synthesis of Linear Pottery chipped industry since the work of Slavomil Vencl (1960; 1971), I have felt it important to consider the material from earlier archaeological excavations as well. There has been a concentration in particular on sites that are or have been regarded as crucial for an understanding of the period – those at Žopy, Vedrovice and Mohelnice. Hitherto, the chipped stone artefacts from these sites, and often other material, have been evaluated only partially, or await full study. It is indeed the partial studies on the chipped industry from these sites that have so far been essentially the only source of information on LBK chipped industry in Moravia (Pavelčík 1955; J. K. Kozłowski 1958; 1970; 1971a; Tichý 1962; Vencl 1960; 1971; Lech 1981; 1982/1983; 1983a; 1987).

For the site of Žopy, sufficient basic information appropriate for our purposes here, exists on the features and their dating (Pavelčík 1955; Tichý 1960; 1962, 268, 287; 289; Dohnal 1964).

The chipped stone from large settlements, and the entire chipped stone assemblage from the cemetery at Vedrovice “Široká u lesa”, formed the subject of my diploma thesis (1992; 1998; 2002a; 2000c). Here, the chipped industry was evaluated as a whole, i.e. was not divided into individual chronological phases. Since the remaining archaeological material from the settlement still awaits processing, a more detailed site chronology is still not possible. Thus far, there is only a rough dating framework for both the settlement and the cemetery (Podborský *et al.* 1993, 78). For this reason, and in view of the physical inaccessibility of the material, the chipped industry from the settlement was excluded from this study, and only the existing data were re-investigated and re-analysed. By contrast, the modest collection from the cemetery at Vedrovice was included *in toto*.

The chipped industry from the settlement at Mohelnice, occupied throughout the existence of the LBK and also later in prehistory, also proved problematic. Because the majority of features contains mixed archaeological material from several LBK phases or intrusions from other prehistoric cultures, the chipped industry from this settlement is treated only peripherally here. A complete evaluation of the Mohelnice chipped lithics will only be possible after the material from the site has been completely processed.

On sites yielding a low number of artefacts, only certain aspects have been evaluated (raw materials, technology, certain tool types).

In addition to the LBK chipped stone material from Moravia and Lower Austria, assemblages or partial assemblages from sites in Hungary, Lower Silesia, Little Poland, Hessen and the Rhineland were also considered for comparative purposes, if analysed according to the same criteria (**table 2**).

In order to consider questions relating to the beginnings of the Neolithic in central Europe, I al-

Site	District	Country	Dating (after Tichý)	Type of site	No. of chipped artefacts studied	Degree of processing
Asparn-Schletz	Mistelbach	L.Austria	LBK phase I	settlement	3	detailed-whole
Brno-Ivanovice	Brno	Moravia	LBK phase Ia	settlement	50	detailed-whole
Brunn IIb “Wolfholz”	Mödling	L.Austria	LBK phase Ia	settlement	2554	detailed-part + raw mater.-whole
Brunn IIa “Wolfholz”	Mödling	L.Austria	LBK phase Ia	settlement	2575	detailed-part + raw mater.-whole
Brunn II “Wolfholz”	Mödling	L.Austria	LBK phase I	settlement burial	11	detailed-whole
Brunn IV “Wolfholz”	Mödling	L.Austria	LBK phase I	settlement	31	detailed-part
Kladníky “Záhumenky”	Přerov	Moravia	LBK phase I	settlement	125	detailed-whole
Rosenburg I	Horn	L.Austria	LBK phase Ib	settlement	55	detailed-whole
Vedrovice “Za dvorem”	Znojmo	Moravia	LBK phase Ia	settlement	255	detailed-whole
Žopy I “cihelna”	Kroměříž	Moravia	LBK phase Ia	settlement	76	detailed-whole
Brno-Nový Liskovec “Pod Kamen. vrchem”	Brno	Moravia	LBK phase I/II	settlement	98	detailed-whole
Brunn I “Wolfholz”	Mödling	L.Austria	LBK phase I/II	settlement	105	detailed-part + raw mater.-whole
Mold I	Horn	L.Austria	LBK phase I/II	settlement	78	detailed-whole
Kleinhadersdorf “Marchleiten”	Poysdorf	L.Austria	LBK phase I/II+II	cemetery	24	detailed-whole?
Vedrovice “Široká u lesa”	Znojmo	Moravia	LBK phase I/II+II	cemetery	67	detailed-whole
Vedrovice “Široká u lesa”	Znojmo	Moravia	LBK phase I/II+II	settlement	3633	detailed-part
Hlušovice “Za kovárnou”	Olomouc	Moravia	LBK phase II ?	settlement ?	7	detailed-whole?
Loučany	Olomouc	Moravia	LBK phase II ?	settlement ?	2	detailed-whole?
Moravská Hůzová	Olomouc	Moravia	LBK phase II ?	settlement ?	4	detailed-whole?
Nové Bránice “V končinách”	Brno-country	Moravia	LBK phase II ?	settlement ?	498	detailed-whole
Přáslavice-Kocourovec “Na širokém”	Olomouc	Moravia	LBK phase II	settlement	280	detailed-whole
Slatinky “U dubů”	Olomouc	Moravia	LBK phase II ?	settlement ?	9	detailed-whole?
Těšetice-Kyjovice “Sutny”	Znojmo	Moravia	LBK phase II	settlement	83	detailed-part
Žopy II “cihelna”	Kroměříž	Moravia	LBK phase II	settlement	18	detailed-whole
Kuřim	Brno-country	Moravia	LBK phase II+III	settlement	2418	detailed-whole
Asparn-Schletz	Mistelbach	L.Austria	LBK phase II+III	settlement	407	detailed-part
Dub nad Moravou	Přerov	Moravia	LBK phase III	settlement ?	7	detailed-whole?
Kvasice “Nový dvůr”	Kroměříž	Moravia	LBK phase III	settlement ?	3	detailed-whole?

Table 1. List of sites in Moravia and Lower Austria from which the chipped stone artefacts were studied.

so studied chipped stone artefacts from Mesolithic sites in Moravia, Lower Austria, Hungary, southern Germany and Switzerland (Škrdla, Mateiciucová & Přichystal 1997; Mateiciucová 2001a). This work concentrated mainly on the technology of producing pre-forms and the provenance of the stone raw materials.

Furthermore, I had the opportunity to process or study chipped stone assemblages from sites dating to the Körös and Starčevo cultures in Hungary (Mateiciucová 2007).

In order to judge the LBK chipped stone industry within the framework of the Neolithic, and in order to highlight differences and similarities with other Neolithic cultures, several chipped stone assemblages from the Stroke-Ornamented Ware and early Lengyel cultures in Moravia and Lower Austria (Austrian/Moravian Painted Ware I) were also considered (Kazdová, Peška & Mateiciucová 1999).

Site	Country	Dating	No. of chipped artefacts studied	Degree of processing
Smolín	Moravia	Early Mesolithic		superficial
Přibice	Moravia	Early Mesolithic		superficial
Mikulčice	Moravia	Early Mesolithic ? and Late Mesolithic		detailed-part
Šakvice	Moravia	Late Mesolithic	35	detailed-whole
Dolní Věstonice "Písky"	Moravia	Late Mesolithic ?	335	detailed-part
Horn-Mühlfeld	L.Austria	Early Mesolithic and Late Mesolithic ?	75	superficial
Limberg-Mühlberg	L.Austria	Early Mesolithic	14	superficial
Kamegg	L.Austria	Early Mesolithic	81	superficial
Burgschleinitz	L.Austria	Late Mesolithic ?	20	superficial
Wien-Bisamberg	L.Austria	Late Mesolithic ?		superficial
Jászberény I, layer C	Hungary	Early Mesolithic	20	detailed-part
Jászberény I, layer B2	Hungary	Early/Late Mesolithic	4	detailed-part
Jásztelek I, layer B	Hungary	Early/Late Mesolithic	50	detailed-part
Jásztelek I, feature I	Hungary	Early/Late Mesolithic	95	detailed-part
Jásztelek I, layer A	Hungary	Late Mesolithic ?	19	detailed-part
Jászberény II	Hungary	Late Mesolithic ?	25	detailed-part
Jászberény III	Hungary	Late Mesolithic		superficial-raw material
Forgensee 2	Bavaria	Late Mesolithic		superficial
Röschenz-Tschäpperfels	Switzerland	Final Mesolithic	44	superficial-blades
Birmatten-Basisgrotte H1, H2	Switzerland	Final Mesolithic	32	superficial-blades
Liesberg-Mühle VI	Switzerland	Final Mesolithic	14	superficial-blades
Méhtelek-Nádas, feature 1-3/a	Hungary	Körös culture	76	superficial-blades
Ecsegfalva 23	Hungary	Körös culture	463	detailed-whole
Gellénháza-Városrét	Hungary	Starčevo culture		superficial
Szentgyörgyvölgy-Pityerdomb	Hungary	LBK phase I	93	detailed-part
Ostheim-Mühlweide	Hessen	LBK phase I	52	detailed-part
Kazmierza Mała	L.Poland	LBK phase I	456	detailed-part
Frimmersdorf 122	Rhineland	LBK phase Flomborn	26	detailed-whole
Erkelenz-Kückhoven	Rhineland	LBK phase II+III	112	detailed-part
Weisweiler 110	Rhineland	LBK phase III	295	detailed-part
Strachów, site 2a	L.Silesia	LBK phase II/III+III	68	detailed-part
Cholina "Horní farské"	Moravia	StBK phase III	9	detailed-whole ?
Olomouc-Slavonín "Horní lán"	Moravia	StBK phase III	49	detailed-whole
Olomouc-Slavonín "Horní lán"	Moravia	StBK phase IV	340	detailed-whole
Určice "Záhumení"	Moravia	StBK phase IV	134	detailed-whole
Určice "Sedliska"	Moravia	StBK phase III	67	superficial
Brno-Modřice	Moravia	StBK phase III	18	detailed-part
Křížanovice u Vyškova	Moravia	StBK phase II+III	39	detailed-part
Náměšť na Hané "Valník"	Moravia	StBK phase III+IV	59	detailed-whole ?
Vedrovice "Za dvorem"	Moravia	A/MPW phase Ia	20	detailed-part
Běhařovice	Moravia	A/MPW phase Ia	5	detailed-part
Eggendorf am Walde	L. Austria	A/MPW phase Ia	74	superficial
Kamegg	L. Austria	A/MPW phase Ia	50	superficial

Table 2. Assemblages of Mesolithic and Neolithic chipped stone artefacts used for comparison with the LBK assemblages from Moravia and Lower Austria.

Key to tables:

If the column “degree of processing” shows:

1) *detailed-whole*: the whole collection of chipped stone artefacts was processed according to the classification system (see chapter 10.2.2.);

2) *detailed-part*: only part of the chipped stone assemblage (numbers indicated alongside) was processed according to the classification system. In some cases these were sites where archaeological excavations had not been completed at the time of study;

3) *superficial*: only certain aspects of the chipped stone assemblage were studied (raw materials, technology of blanks production, certain tool types).