

# Dimensions of Grinding Stones Between Anatolia and Central Europe

Ivan Pavlů

**Zusammenfassung** – Schlussfolgerungen, die sich aus einer Kombination von unterschiedlichen Arten der Daten zusammensetzen, liefern ein detailliertes Bild der neolithischen Lebensweisen des 6.-5. Jahrtausends v. Chr. Das Neolithikum in Anatolien beginnt im 8. Jahrtausend mit akeramischen Siedlungen im südlichen und südöstlichen Bereich des anatolischen Plateaus. Durch die Übernahme der agrarischen Lebensweise fand eine Entwicklung zu einem keramischen Neolithikum statt. Das zentraleuropäische Neolithikum ist als zeitgleich mit frühen chalkolithischen Siedlungen dieser Regionen zu parallelisieren. Daten aus kulturell unterschiedlichen Regionen liefern die Möglichkeit eines asynchronen Vergleichs der Größen und Formen von Mahl- und Schleifsteinen innerhalb einer Region, sowie einen synchronen Vergleich dieser Strukturen in verschiedenen Regionen. Mahl- und Schleifsteine, die aus zwei Bestandteilen bestehen, waren zur Zeit ihrer Nutzung ein universal verwendbares Werkzeug, das sich, bezogen auf die Form und Funktion, im Prinzip seit dem Jungpaläolithikum nicht verändert hat und auch noch heute von lokalen Gruppen in verschiedenen Regionen der Welt genutzt wird. Die einzelnen Gesellschaften haben die Geräte in einer spezifischen Art und Weise zugerichtet, die sich aus der Morphologie – definiert durch die Dimensionen inklusive des Gewichts – der Geräte ergibt. Die Läufer zeigen im Verhältnis zu den Unterliegern normalerweise gleichmäßige Formen, so dass Änderungen der Strukturen auf kulturelle und chronologische Charakteristiken hinweisen. Mahlsteine, die sich aus zwei Bestandteilen zusammensetzen, neigen im allgemeinen zu schmalen Dimensionen bei einer gleichzeitigen Aufrechterhaltung der effektiv nutzbaren Mahloberfläche. Dieser Trend ist in Anatolien vom akeramischen Neolithikum bis zum Chalkolithikum nachzuweisen, während in Europa eine Weiterentwicklung geographisch von Ost nach West aufzutreten scheint.

**Schlüsselwörter** – Anatolien – zentraleuropäisches Neolithikum – Mahl- und Schleifsteine

**Abstract** – Conclusions drawn from a combination of different types of data will provide a more detailed picture of Neolithic subsistence strategies in the 6th-5th millennium B.C. Anatolian Neolithic begins in the 8th millenium with Aceramic settlements in the southern and southeastern part of the Anatolian Plateau. It was developing into Ceramic Neolithic by adopting the farming activities. The Central European Neolithic is synchronous with the early Chalcolithic sites in these areas. Data from culturally diverse areas provide a possibility of asynchronous comparison of the size and shape of grinding stones in one region and also synchronous comparison of such structures in various regions. The two-piece grinding stones were in their times a universal implement as regards their shape and function, which in principle has not changed since the Late Paleolithic cultures up to the recent local groups in various parts of the world. Individual societies were shaping these implements in a specific manner, which resulted in their morphology defined by their basic dimensions that also include their weight. The upper grinding stones are usually of more regular-shape relative to lower stones so that changes in their structure are characteristic from the viewpoint of culture and chronology. Two-piece grinding stones in general tend to be smaller at simultaneous maintenance of effective milling surface. This trend in Anatolia is continues from Aceramics up to the early Chalcolith, while in Europe appears to be geographic advancing from the east to the west.

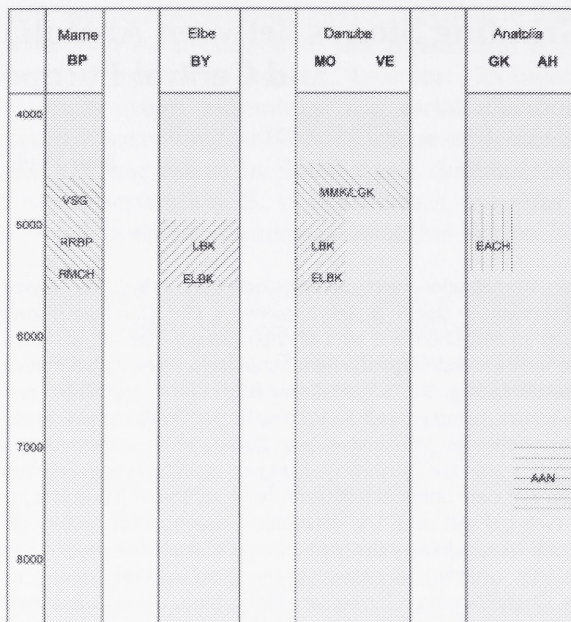
**Keywords** – Anatolian – Central European Neolithic – grinding stones

## Introduction

Grinding stones have long been considered to be food preparation implements, specifically for cereal grain processing. However, recent research has redefined them as multi-functional tools, which were also used to grind various inorganic materials, for example, hematite in burial contexts (FARKAŠ 2000, 83-84). As a result, grinding stones serve as records of paleoenvironmental situation, and can be studied even from past excavations when less attention was paid to retrieving this kind of information. Conclusions drawn from a combination of different types of data will provide a more detailed picture of Neolithic

subsistence strategies in the 6th-5th millennium B.C. Direct evidence gained from analysis of the grinding stone surface is considered superior to the more general data acquired from pollen analysis and anthracology.

Anatolian Neolithic begins in the 8th millennium with Aceramic settlements in the southern and southeastern part of the Anatolian Plateau. It was developing into Ceramic Neolithic by adopting the farming activities. The Central European Neolithic is synchronous with the early Chalcolithic sites in these areas. Undoubtedly, the influence of the Anatolian Neolithic can be seen even in the Central Europe (THISSEN 2000). Previously and with little archeological evidence,



**Fig. 1** Chronology of culture-geographic groups (in B.C. cal). abbreviations:

Localities: BP - Bassin Parisien, BY - Bylany, MO - Mohelnice, VE - Vedrovice, GK - Güvercinkayası, AH - Aşikli Huyuk, Complexes: RMCH - Rubané moyen champenois, RRBP - Rubané récent de Bassin Parisien, VSG - Villeneuve-Saint-Germain, ELBK - Early Linear Pottery Culture, LBK - Linear Pottery Culture, MMK/LGK - Moravian Painted Pottery / Lengyel Culture, EACH - Early Anatolian Chalcolithic, AAN - Anatolian Aceramic Neolithic).

it was believed that the cradle of Neolithic civilization lay in Anatolia, from where it spread further into the central and western parts of the continent. The following two to three generations of archeologists confirmed that the role of Anatolia in the foundation of Neolithic European culture has been more complex than formerly anticipated, and still incomplete in spite of some provocative indications. Genetic evidence from central European populations has shown strong post-Paleolithic local roots on the one hand (PRICE 2000, 303) and a limited influence of both the Anatolian aceramic and Ceramic Neolithic populations on the other hand (for example, SUMMERS 2001). Regardless of some supportive artifacts, the overall genetic evidence does not correspond with the original idea of Anatolia as the source of a large wave of migrant colonists thought to have settled most of the Central Europe.

## Comparative databases

Data from culturally diverse areas provide a possibility of asynchronous comparison of the size and shape of grinding stones in one region and also synchronous comparison of such structures in various regions. The two-pieces grinding stones were in their times a universal implement as regards their shape and function, which in principle has not changed since the Late Paleolithic cultures up to the recent local groups in various parts of the world. Individual societies were shaping these implements in a specific manner, which resulted in their morphology defined by their basic dimensions that also include their weight (WRIGHT 1992). Specific variability recorded in these tools was obviously influenced by locally different rocks used for their production. Regardless of numerous studies dealing with this specific issue (HERSH 1981, HOLE ET AL. 1969, RUNNELS 1981; 1985) in the Near East and the Balkans, only a limited number of comparative data are available. Another problem arises from unambiguous classification of the upper and lower grinding stones that are to be treated separately as individual artifacts. As an exception may serve the latest comprehensive study by Hamon (2006) that provides a lot of fundamental information that can be used for further comparative studies.

The essence of the matter and data to be compared are studies of a Neolithic settlement at Bylany (Czech Republic), which provide information on artifactual structure of the culture characteristic of Linear Pottery Culture in Bohemia. This data set can be correlated with composition of similar sets from western areas of this culture occurrence that appear to be more or less synchronous. So far some limited data are available from the Moravian region (Czech Republic) from the localities of Mohelnice and Vedrovice (PAVLŮ 2006 b; 2007). The former locality includes tools that can be distinguished with difficulty so that they are to be generally considered to belong to the Linear and also Moravian painted ceramics. Small set of artifacts from Vedrovice comes from Late Neolithic furrow so that it can be classed among cultures characteristic of Moravian painted ceramics. Two collections from geographically and culturally remote region of Neolithic Anatolia give a chance to study certain asynchronous shift of the whole set of two-pieces grinding stones (PAVLŮ 2005; 2006a) between the Aceramic Neolithic (Aşikli Huyuk) and the Early Chalcolithic (Güvercinkayası) (PAVLŮ/ŘÍDKÝ/

**Fig. 2** Lower and upper stones from Bylany and RRBP, comparison of their length and width.



WAWRUSHKA/GÜLÇUR 2007). The used data do not allow as yet establishing the stability of artifactual structures within smaller areas and in the frame of defined time period.

### Size and shape of two-piece grinding stones

All the studies undertaken so far show that the size of grinding stones defined by their length and width are the major indicator of their morphology. Besides that the forms derived from their profiles or plans indicate rather their stylistic variability, which can be seen within individual spatio-temporal groups. To what extent is this variability also functional is a matter of more detailed analysis that has not been undertaken as yet. The only exception is a study from the western area of Rubané récent du Bassin parisien (RRBP) where correlation between the shapes of working surfaces of grinding stones and the used rock material was established (HAMON 2006).

The basic collection of the Bylany grinding stones can be characterized as being composed of rather rare finds of both the lower and upper grinding stones (PAVLŮ 1991; KVĚTINA/PAVLŮ 2007). The structure (length and width) of both grinding stones is markedly different as anticipated with the exception of small lower grinding stones from the feature 665 and similar lower grinding stone from feature 323. Both implements are made of mica schist, which is not suitable to preserve the wears. The revision of micro-wear

showed not very distinct relics of fine grooves that may class them among the lower grinding stones. The comparison with the RRBP culture suggests that the lower grinding stones from this area are in general smaller as their dimensions are overlapping the upper grinding stones from Bylany. The RRBP upper grinding stones are markedly different from this early Linear Pottery Culture (LBK) (fig. 1).

### Lower grinding stones

The lower grinding stones from Güvercinkayası (GK) were made in general of volcanic rocks brought in from nearby outcrops (PAVLŮ/ŘÍDKÝ/WAWRUSHKA/GÜLÇUR 2007, 18). Their relatively varied mineral composition is similar to that of the upper grinding stones. Numerous fragments of basaltic lava are difficult to determine precisely but due to their massive texture they are believed to come from the lower grinding stones. It is important to point out that grinding stones are not made of local bedrock (in situ) consisting of rhyodacite on which the settlement is located. It has not been established either if the bedrock was used as natural ground for grinding. The stones are relatively large, of various shapes and morphology, forming occasionally irregular quadrangles. As for the lower grinding stones, the shapes of initial fragments of rocks were used and only roughly shaped. The majority of them are ground to form thin bowl-shaped tools, particularly as

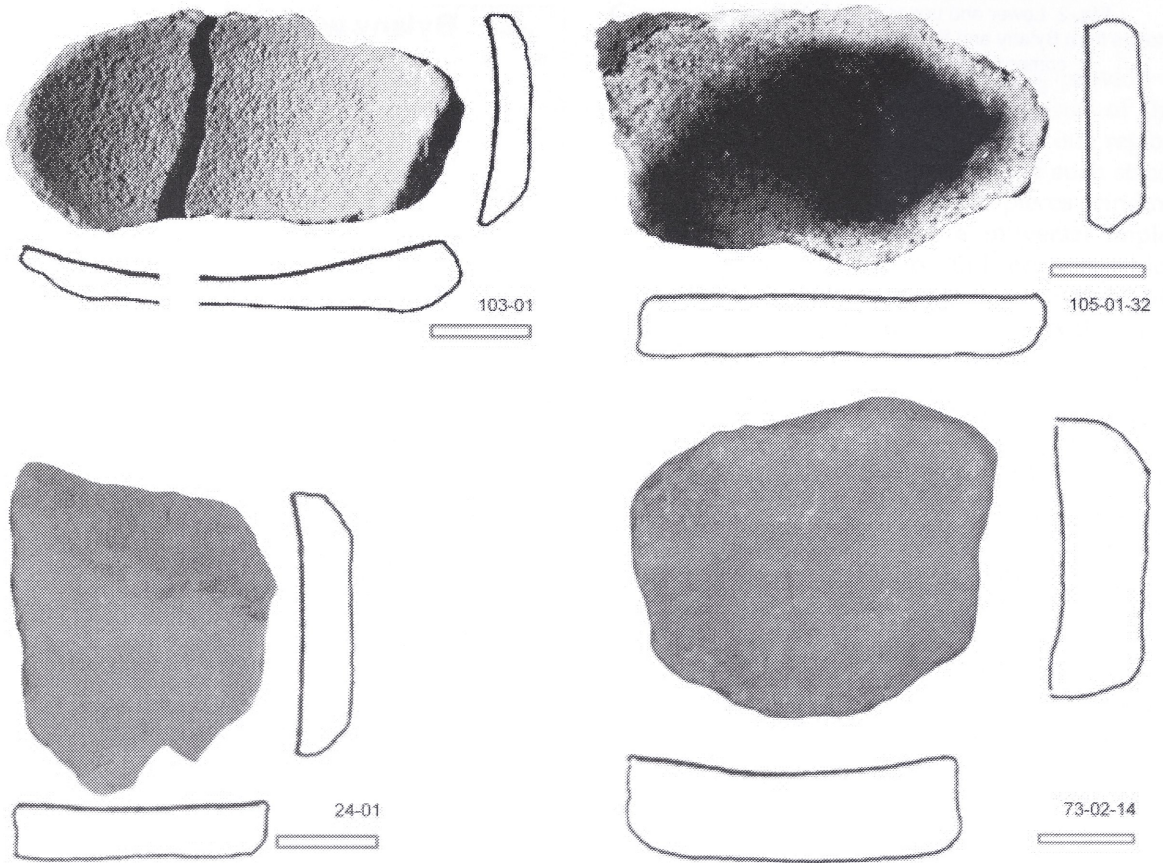


Fig. 3 Lower stones from Güvercinkayası (scale equal 10 cm).

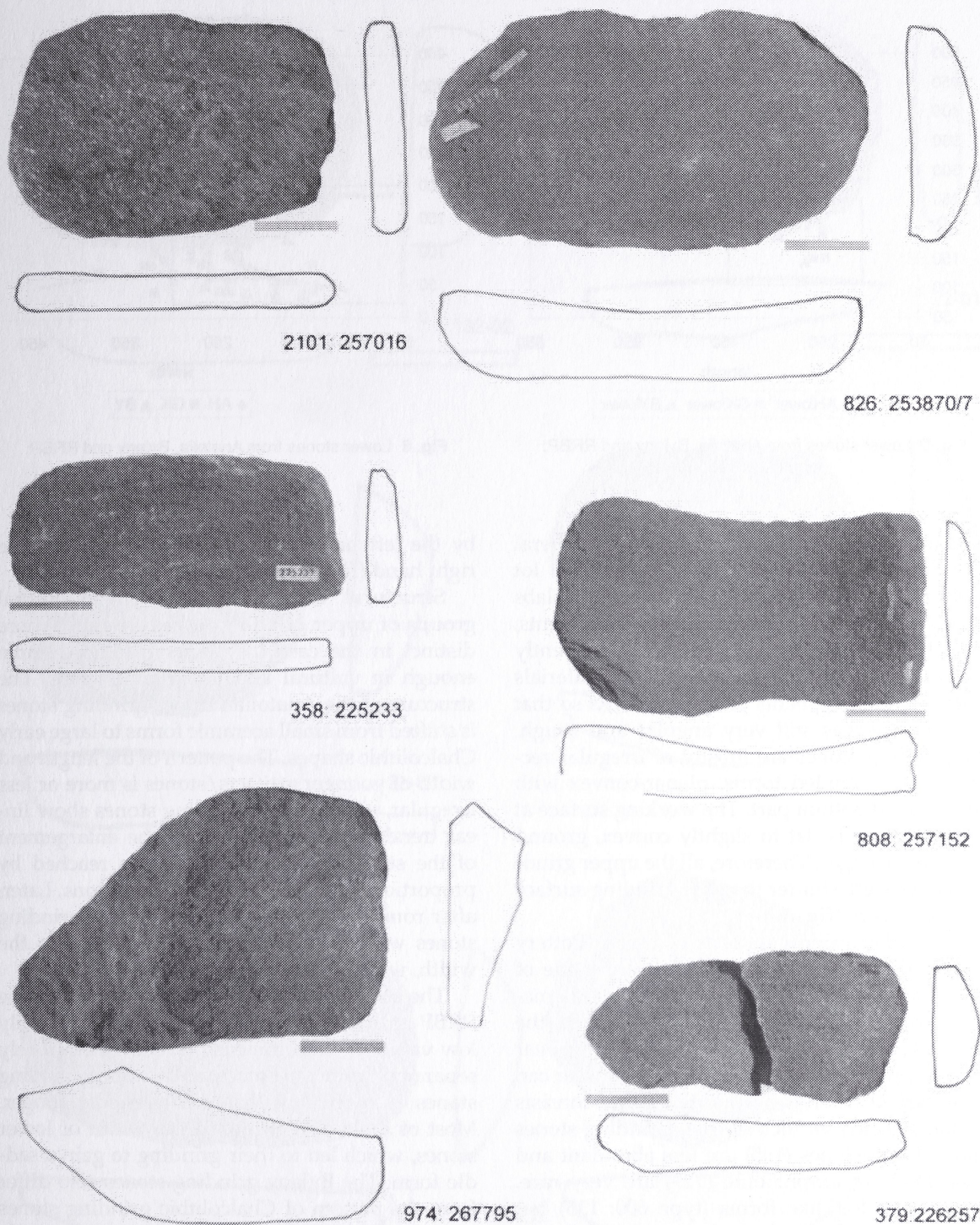
concerns the grinding stones from grinding slabs. Their bottom parts were always roughly shaped to produce flat forms (fig. 2).

The lower grinding stones from the Bylany locality exhibit mostly regular quadrangular forms that were made by rough chipping to obtain the desired shape. The majority of grinding stones are made of migmatized mica schists that are easier to shape than those made of basaltic lava from Anatolia. They are not very ground and their working surface is rather bulgy due to the use of longer lower grinding stones. They differ from one another by varying form of side walls, which at some artifacts are deliberately beveled in order the upper stone surface to overlap the lower one, which facilitated the ground materials to concentrate on a certain support plate (fig. 3).

The length-width pattern of lower grinding stones derived from the four studied groups of data is partly overlapping but with distinct shifts. The oldest and culturally aceramic tools from Aşikli Huyuk exhibit long and broad forms. The younger and more advanced structure from Güvercinkayası is linearly shifted into smaller values of the length as well as width. More

remote group of lower grinding stones from Bylany is shifted in similar way but more to the lower values of the width. The implements from the western RRBP are in general linearly shifted towards the lowest values of both dimensions. The whole of the structure shows a gentle trend in diminution of forms both chronologically and geographically (fig. 4).

The length-width pattern of lower grinding stones of the above-mentioned groups exhibits very similar shifts. The shifts at less variable width are more pronounced in values of the height. The general trend is heading to lower forms in younger groups that are more remote from Anatolia. The western RRBP region shows, besides the above-mentioned pattern, a trend of shortening width of the artifacts. Due to linear shift of the length and width and diminution of the width a general reduction of grinding surface of lower stones including their lesser massiveness can be seen. Consequently, their efficiency in grinding of various materials was reduced but on the other hand their better carrying within changes in settlements increased (fig. 5).



**Fig. 4** Lower stones from Bylany (scale equal 10 cm).

### Upper grinding stones

The upper grinding stones from the early Chalcolithic settlement of Güvercinkayaşı, which is in absolute ages synchronous with linear ceramics, but economically and socially different, are

made of local volcanic rocks of which the basaltic lava is mostly used (132-year 2002). It is a rock of black-gray color shades with largely vesicular structure. To lesser extent are the grinding stones made of other volcanites (rhyolite, ignimbrite, gabbro, andesite) or fine- to medium-grained

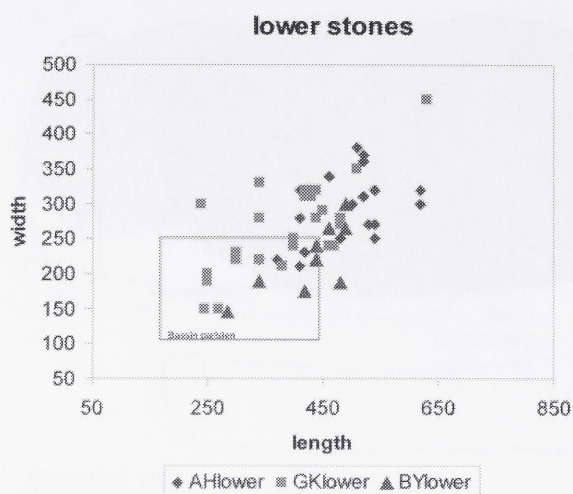


Fig. 5 Lower stones from Anatolia, Bylany and RRPB: length and width.

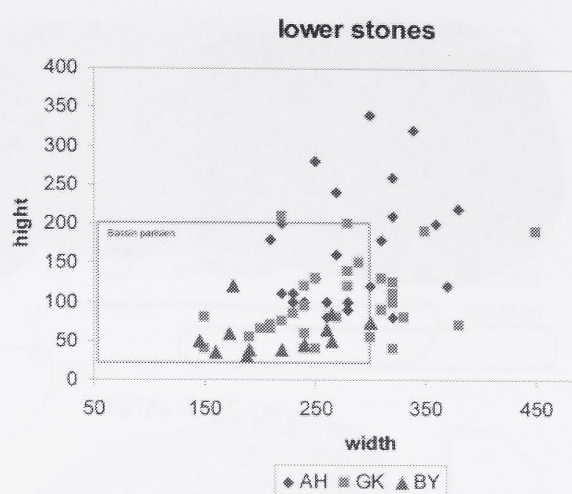


Fig. 6 Lower stones from Anatolia, Bylany and RRPB: width and high.

sandstone (14-01). Volcanic rocks are in general very hard so that their shaping deserved a lot of effort. Therefore, natural forms of large slabs or pebbles found in the environs of settlements, possibly in alluvial deposits, were frequently used and favored. The majority of raw materials contain sharp fragments of various rocks so that their surface was still very angular and rough. The grinding stones are mostly of irregular rectangular to rounded forms, planar-convex with well-shaped bottom part. The working surface at a cross-section is flat to slightly convex, ground down to the edges. Therefore, all the upper grinding stones were shorter than the grinding surface of lower stones (fig. 6).

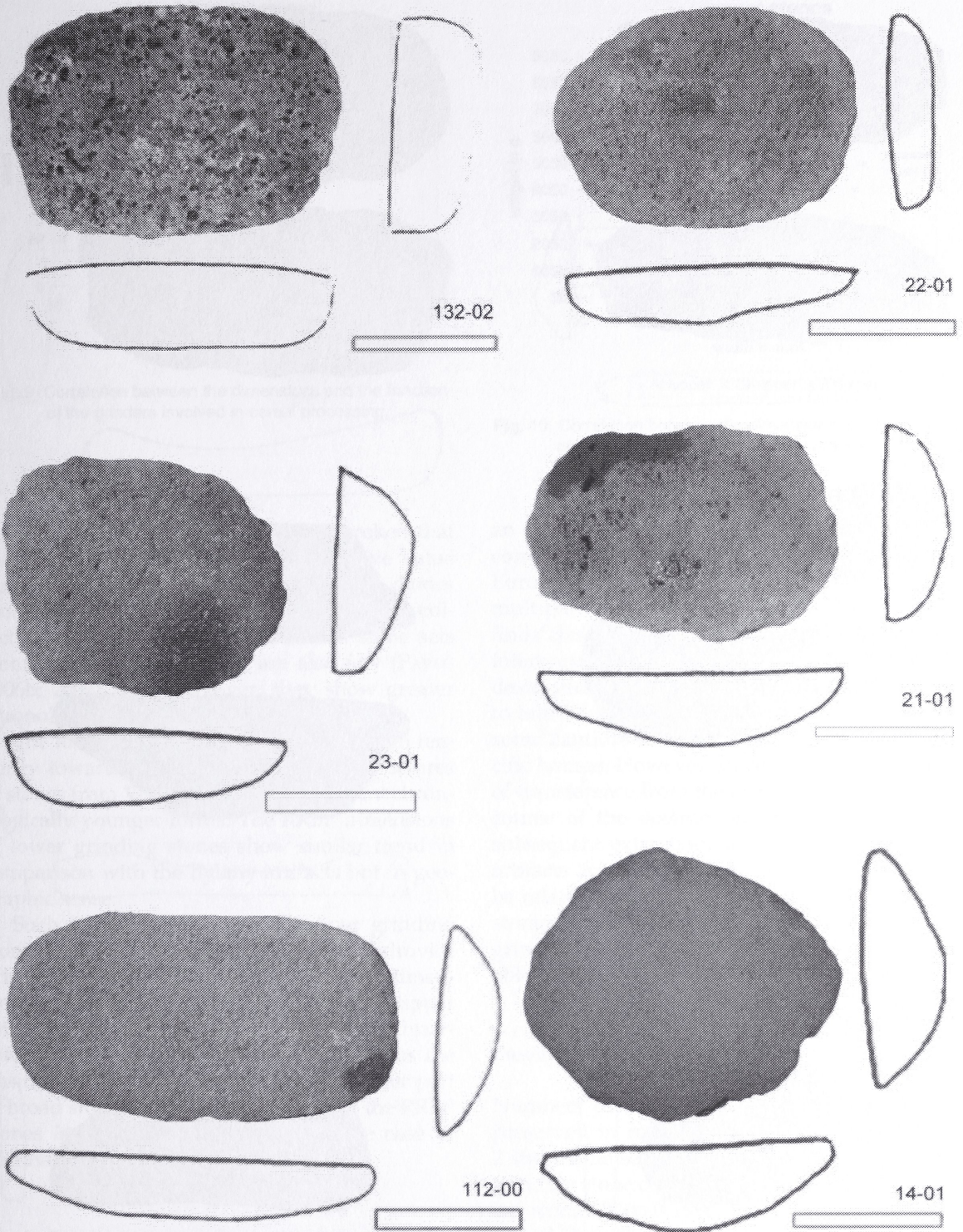
The upper grinding stones of Linear Pottery Culture (LBK) from Bylany are mostly made of local chiefly mica schists (407, 974) and migmatized gneisses (feature number 462, 1213) the surface of which is easily weathered so the wear traces are difficult to be preserved. Such wear can be preserved when the working surface consists of quartz bands in mica schists. Grinding stones made of sandstones (135) are less abundant and those made of amphibolite (129) are very rare. They are of loaf-like forms (type 600; 135) but mostly exhibit flat rectangular or rarely shaped forms (129). The upper stones exceed often the width of lower stones so that their central part is more ground than the edges (500). Short edges are characteristic, they are either rounded (407, 135) or canted at one and/or both sides (974). The beveling is distinct at the left hand side forming a certain handle which argues for ergonomic holding of the stone which seems to have been hold

by the left hand and moved by force with the right hand (fig. 7).

Structural differences between individual groups of upper grinding stones are much more distinct in the case of groups that are remote enough in cultural and geographic sense. The structure of the Anatolian upper grinding stones is shifted from small aceramic forms to large early Chalcolithic shapes. The pattern of the length and width of younger artifacts/stones is more or less irregular, while earlier grinding stones show linear trend, which indicates that the enlargement of the surface in earlier times was reached by proportional extension of both dimensions. Later, after roughly two millennia, the upper grinding stones were shaped with great variation in the width, whereas the length varied only slightly.

The structure of upper grinding stones of the RRPB group varies only within considerably low values of both dimensions being completely separated from the structure of upper grinding stones from Bylany that are markedly longer. Most of them also exceeded the width of lower stones, which led to their grinding to gain a saddle form. The Bylany grinding stones also differ from the pattern of Chalcolithic grinding stones by their narrower width (fig. 8).

The weight is another specific feature of upper grinding stones, which have to be sufficiently heavy in order to ensure their efficiency but at the same time the weight must not exceed certain limit which when exceeded would make the work with them difficult. The structure of Aceramic and early Chalcolithic forms is obviously different as concerns the combination of



**Fig. 7** Upper stones Güvercinkayası (scale equal 10 cm).

weight and width. Artifacts of the RRB group are lighter and overlap with both groups from Anatolia (fig. 9 & 10).

#### **Comparison with other background**

Comparison of the whole of structures has been undertaken on rather small collections of grind-

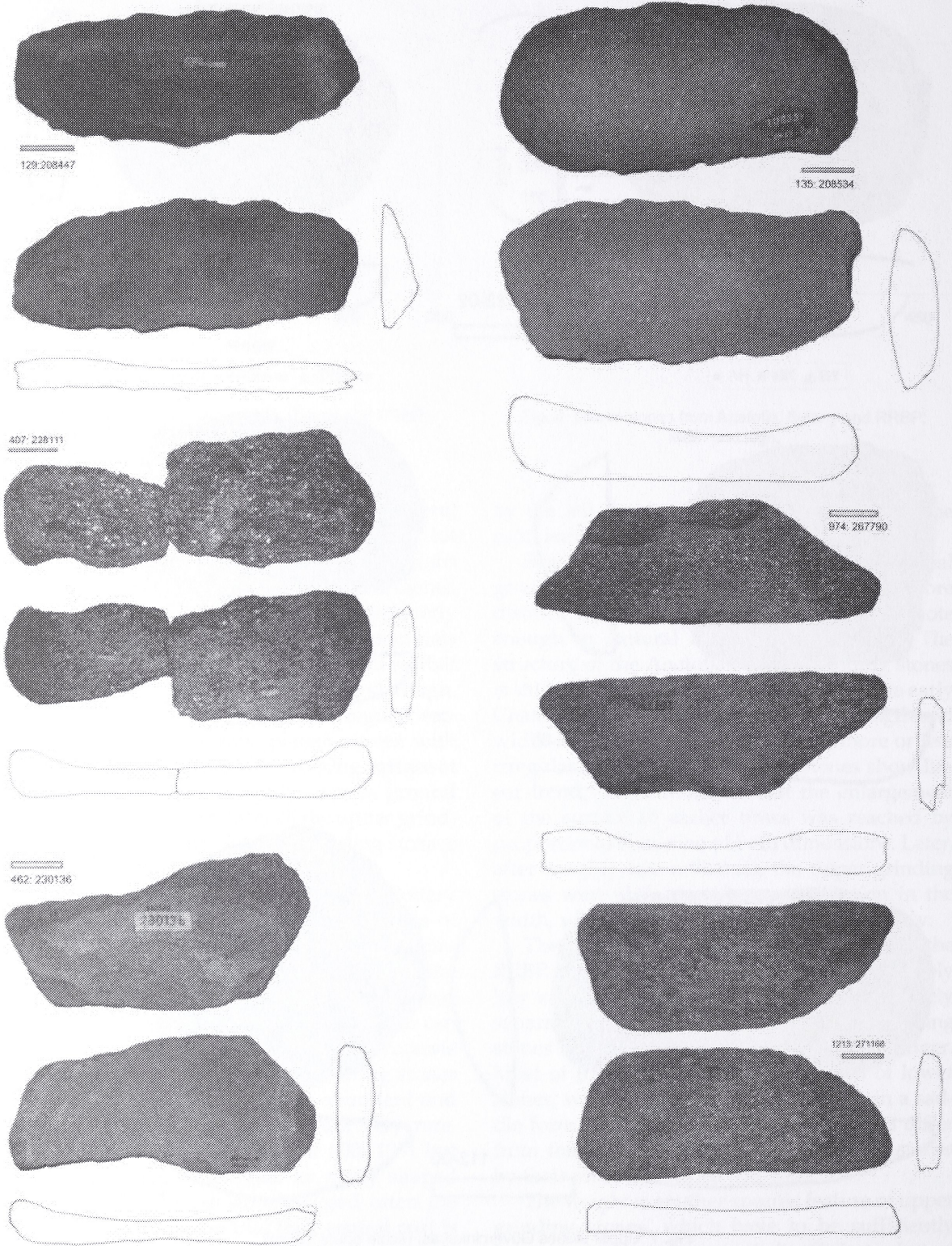


Fig. 8 Upper stones from Bylany (scale equal 10 cm).



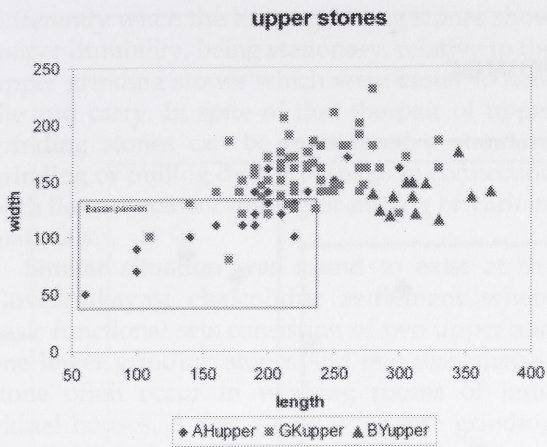


Fig. 9 Correlation between the dimensions and the function of the grinders involved in cereal processing.

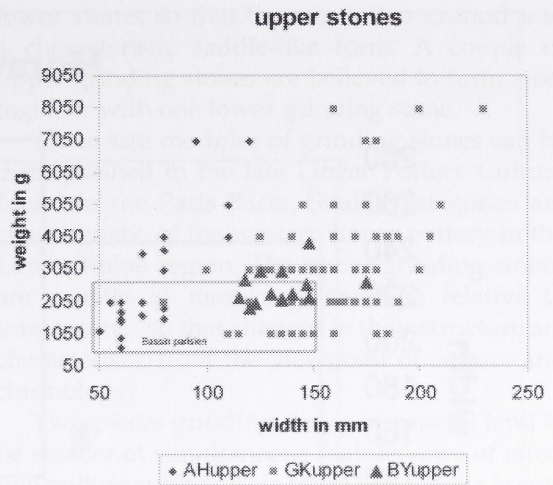


Fig. 10 Correlation between the dimensions and the function of the grinders involved in cereal processing.

ing stones which were preserved unbroken that may negatively influence the informative value derived from statistical treatment of the stones studied. Therefore, we tried to compare the collections from Bylany and RRPB with stone sets from Moravian region that are also few (PAVLŮ 2006b; 2007), and moreover, they show greater chronological span.

The lower grinding stones exhibit certain tendency towards shorter and narrower structures of stones from Vedrovice, which represent chronologically younger forms. The RRPB dimensions of lower grinding stones show similar trend in comparison with the Bylany artifacts but in geographic sense.

Such a trend in the case of upper grinding stones is less pronounced since the Vedrovice grinding stones are in the middle of the dimensions of the Mohelnice artifacts. The RRPB upper grinding stones lie clearly in the lower and narrower part of the Moravian stones, whereas the position of the Bylany stones is in narrower part of broad stones. Analogous tripartite of the RRPB stones is difficult to be proved in the case of Moravian finds (fig. 10 & 11).

**Contexts**

Finds of grinding stones at prehistoric Anatolian sites are characterized by contexts related to the excavated architecture. Both collections and individual artifacts are often found in situations, which can be functionally interpreted as independent of their typology. This presents

an advantage of Near Eastern archaeology over comparable situations in the Balkans or Central Europe where similar relations disappeared with multiple transference of refuse. Nevertheless, finds classified as “in situ” need to be carefully interpreted elsewhere. Finds on house floors of destroyed houses can be more confidently related to individual rooms than surface finds, and with some caution, may also be connected with specific houses. However, since there is a possibility of transference from the original context over the course of the destruction process, or even the subsequent extraction, we have separated these artifacts from other floor finds. The latter can be related to different room facilities e.g., ovens, storage vessels, work platforms etc. Above all, grinding stones comprise functionally interpretable sets of artifacts.

**Functional sets of grinding stones**

Numbers of upper and lower grinding stones preserved in refuse at houses of the Miskovice 2 short time settlement indicate that each lower grinding stone corresponded to two upper grinding stones (PAVLŮ 1998) that is difficult to prove unambiguously at the Bylany settlement, which appears to be more complex. Here, fragments of two upper grinding stones made of sandstone of varying quality occur together, one of them always consisting of coarser and the other one of finer rock. This number on average corresponds to one lower stone. Each part of two-piece grinding stones was found to have been preserved

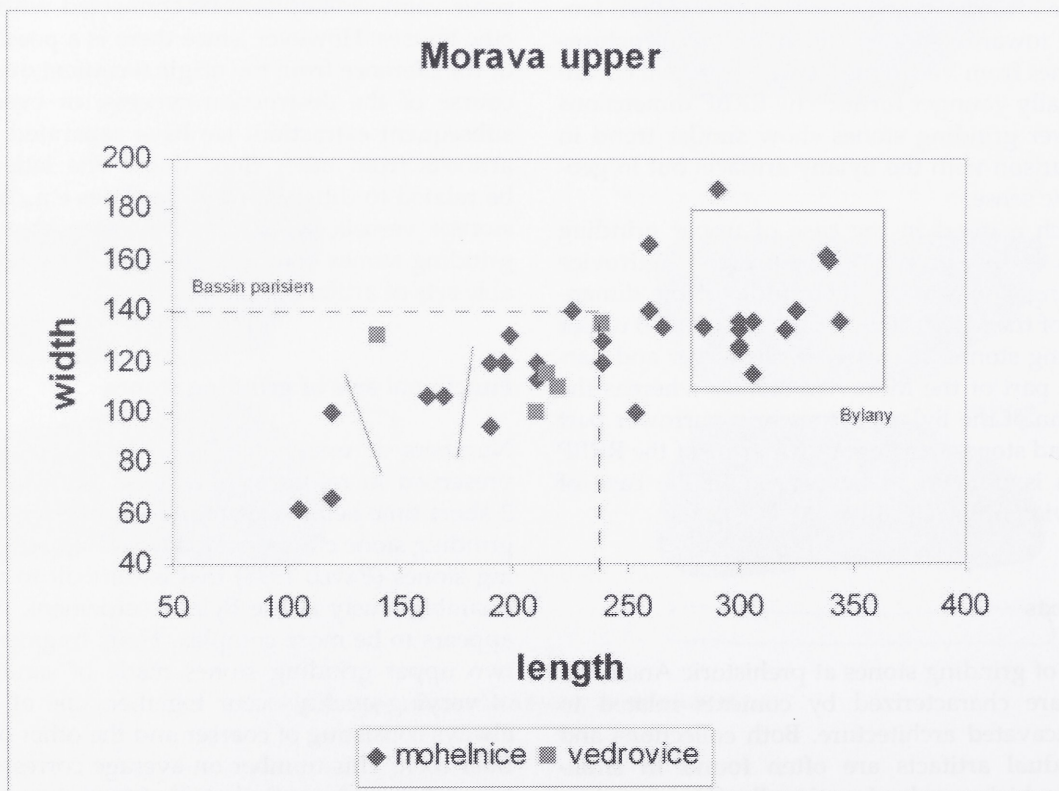
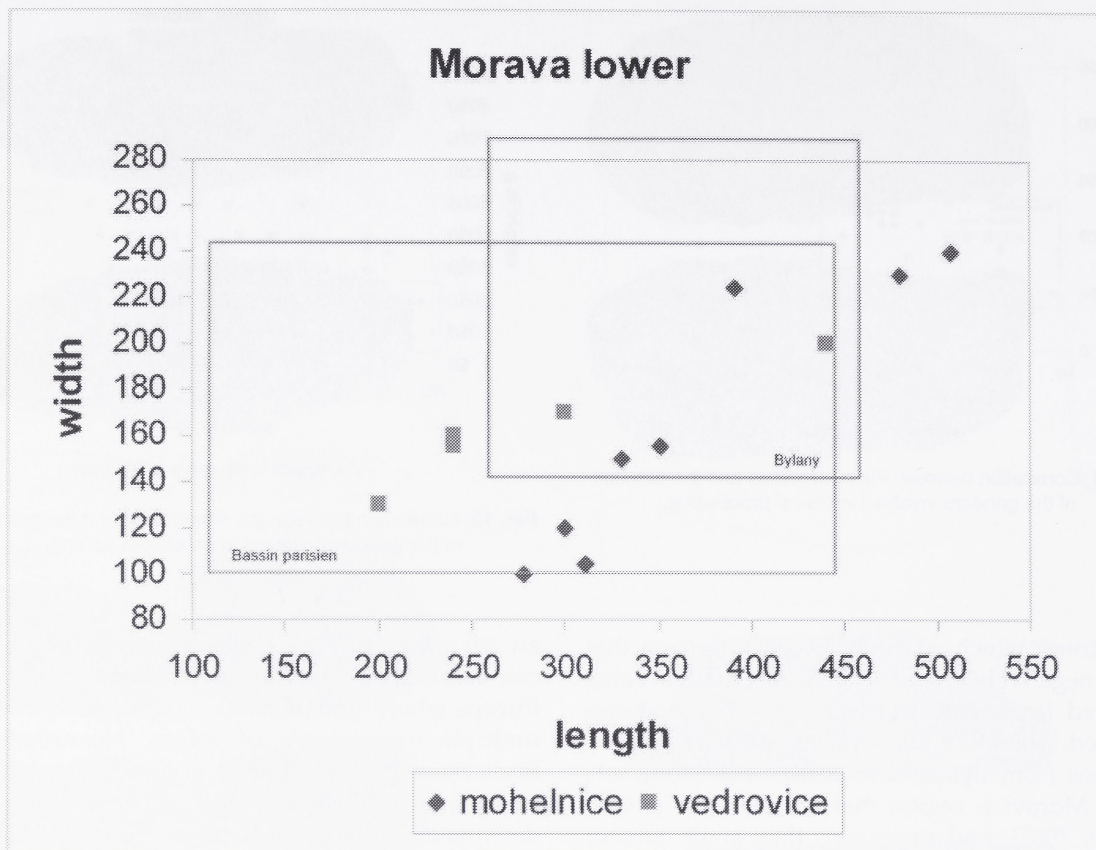


Fig. 11 Length and width of stones from Moravia and Bylany and Bassin Parisien: a - lower stones, b - upper stones.

differently when the lower grinding stones show longer durability, being stationary, relative to the upper grinding stones which were easier to handle and carry. In spite of that the pair of upper grinding stones can be considered a standard grinding or milling device perhaps in connection with finer or coarser milling or milling of various materials.

Similar situation was found to exist at the Güvercinkayası chalcolithic settlement where basic functional sets consisting of two upper and one lower grinding stones and one dish-shaped stone often occur in working rooms of individual houses. A few single two-piece grinding stones might have occurred near storage bin or an oven. Rooms with such facilities are common in the settlement and can be considered usual living rooms where food for one or more families was prepared. Nevertheless, rooms with a couple of grinding stones situated on a kind of elevated muddy grinding plate with unspecified number of upper grinding stones were also found. Moreover, rooms with greater number of large grinding stones or other tools made of stones also exist but are extremely rare. These rooms might have served for processing of materials for many people or large families.

## Conclusions

Two-pieces grinding stones of aceramic Anatolian Neolithic are linked with pre-Neolithic collections from the Upper Mesopotamia as far as their structure, morphology and composition are concerned. Large lower grinding stones and mortars with dimples prevail in these collections. The upper grinding stones are in general much shorter than the width of lower grinding stones. Working sets of grinding stones and small mortars for domestic use, grinding tables and even rare places with large number of grinding stones can be identified at an Early Chalcolithic settlement. The length of upper grinding stones does not exceed the width of lower stones.

Mortars with dimples gradually disappear and were found only exceptionally in Neolithic collections, which appear to be the major evolutionary trend in the Near East that corresponds with changes in processed materials including those in preparation of new kinds of food in which milling of grain begins to prevail (WRIGHT 1993). However, grinding of meat cannot be excluded either. Grinding stones in Linear Pottery Culture ceramics are usually longer than the width of

lower stones so that they are often ground into a characteristic saddle-like form. A couple of upper grinding stones are believed to form a set together with one lower grinding stone.

Three size modules of grinding stones can be distinguished in the late Linear Pottery Culture found in the Paris Basin. Similar categories are characteristic of the western linear pottery in the Lower Rhine region. The upper grinding stones are usually of more regular-shape relative to lower stones so that changes in their structure are characteristic from the viewpoint of culture and chronology.

Two-pieces grinding stones in general tend to be smaller at simultaneous maintenance of effective milling surface. This trend in Anatolia is continues from Aceramic up to the early Chalcolithic (BAYSAL/WRIGHT 2005), while in Europe appears to be geographic advancing from the east to the west.

## Acknowledgements

I am thankful to Prof. Dr. S. Gülçur for her kind support and encouragement that enabled me to work on her excavations at Güvercinkayası which is done under the Research Fund of Istanbul University. The study has been supported by a grant IAA 020503 of the Grant Agency of the Academy of Sciences.

Translated by J. Hak.

## References

- BAYSAL, A./WRIGHT, K. I. (2005): Cooking, Crafts and Curation: Ground-stone Artefacts from Çatalhöyük. In: I. HODDER (ED.), *Changing materialities at Çatalhöyük: reports from the 1995-99 seasons*. BIAA Monogr. 39. Ankara 2005, 307-324.
- FARKAŠ, Z. (2000): Kamenné drviace podložky v hrobech ludu s LNK (Steinerne Reibplatten in den Gräbern des Volkes mit Linienbandkeramik). *Acta historica et museologica Universitatis Silesianae Opaviensis* 5, 2000, 82-88.
- HAMON, C. (2006): *Broyage et abrasion au Néolithique ancien: Caractérisation technique et fonctionnelle des outillages en grès du Bassin Parisien*. BAR Internat. Ser. 1551. Oxford 2006.
- HERSH, T. L. (1981): *Grinding Stones and Food Processing Techniques of the Neolithic Societies of Turkey and Greece: Statistical, Experimental and Ethnographic Approaches to Archaeological Problem Solving*. (Manuscript 1981).

- HOLE, F./FLANNERY, K./NEELY, J. (1969): Prehistory and human ecology of the Deh Luran plain. *Memoires of the Museum of Anthropology University of Michigan* 1. Ann Arbor 1969.
- KVĚTINA, P./PAVLŮ, I. (2007): Neolitické sídliště v Bylanech – základní databáze (Neolithic settlement at Bylany-essential database). ARÚP. Praha 2007.
- PAVLŮ, I. (1991): Ground stone artefacts. In: PAVLŮ, I./RULF, J. *Stone Industry from the Neolithic Site of Bylany*. *Pam. Arch.* 82, 1991, 277-365.
- PAVLŮ, I. (1998): Linear Pottery Settlement Area at Miskovice 2 Site (Distr. Kutná Hora). In: PAVLŮ, I. (ED.), *Bylany Varia* 1. Praha 1998, 53-82.
- PAVLŮ, I. (2005): Grinding stones from Aşıklı (unpubl. Manuscript 2005).
- PAVLŮ, I. (2006a): Grinding stones from the Neolithic site of Musular (unpubl. Manuscript 2006).
- PAVLŮ, I. (2006b): Two-piece grinding stones in western gate of a circular enclosure at Vedrovice (Znojmo district) (unpubl. Manuscript 2006).
- PAVLŮ, I. 2007: Two-piece grinding stones from a Neolithic settlement at Mohelnice (unpubl. Manuscript 2007).
- PAVLŮ, I./ŘÍDKÝ, J./WAWRUSCHKA, C./GÜLÇUR, S. (2007): Grinding stones and Handstones from the Chalcolithic site of Güvercinkayası (1996-2004). *Anatolia Antiqua* 15, 2007, 17-48.
- PRICE, T. D. (2000): Lessons in the Transition to Agriculture. In: T. D. PRICE (ED.), *Europe's First Farmers*. Cambridge 2000, 301-318.
- RUNNELS, C. N. (1981): A Diachronic Study and Economic Analysis of Millstones from the Argolid, Greece (Manuscript of Doctor Thesis, Indiana Univ.).
- RUNNELS, C. (1985): Trade and the Demand for Millstones in Southern Greece in the Neolithic and the Early Bronze Age. In: A. KNAPP/T. BERNARD-STECH (EDS.), *Prehistoric Production and Exchange. The Aegean and Eastern Mediterranean*. Los Angeles 1985, 30-43.
- SUMMERS, G. D. (2001): Concerning the identification, location and distribution of the Neolithic and Chalcolithic settlements in Central Anatolia. Abstracts of the CANeW International table ronde. Istanbul: The Central Anatolian Neolithic e-Workshop 2001.
- THISSEN, L. C. (2000): Early Village Communities in Anatolia and the Balkans, 6500-5500 cal BC. *Studies in chronology and cultural contact*. (Manuscript of Habilitation, Univ. Leiden 2000).
- WRIGHT, K. I. (1992): A classification system for ground stone tools from prehistoric Levant. *Paléorient* 18/2, 1992, 53-79.
- WRIGHT, K. I. (1993): Early Holocene Ground Stone Assemblages in the Levant. *Levant* 25, 1993, 93-111.

*Ivan Pavlů*

*Institute of Archaeology of the CAS, Prague, v.v.i.,  
ipavlu@arup.cas.cz*