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The use of stone raw materials in the Neolithic and Eneolithic: the workshop areas of the Upper Jizera Basin : [summary]

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THE USE OF STONE RAW MATERIALS IN THE NEOLITHIC AND ENEOLITHIC

The workshop areas of the Upper Jizera Basin.

1. Introduction

Over the course of the whole five years that the author has devoted to the subject of the stone industries of the Neolithic and Eneolithic periods in the Upper Jizera Basin, it has been possible to process some 10,000 artefacts from the assemblages from the region (Davidová et al. 2004; Prostředník.- Šída 2002; 2003; 2004; Prostředník, Šída – Kyselý 2002; Prostředník et al. in press; Řídský – Šída 2004; Šída 1999; 2001a; 2001b; 2001c; 2001d; 2003; 2004a; 2004b; 2004c; 2004d; in press 1; in press 2; in press 3; Šída et al. 2004; Šrein et al. 2002). While this number may seem large, it is in fact the bare minimum needed to obtain at least a partially complete picture of the use of stone and stone raw materials here. In actuality this picture is still fragmentary, as for some periods a sufficiently representative collection does not exist, some important research could not be evaluated, some periods are by contrast over-represented, which seems not to reflect the state of excavation but the actual realities. Despite all these problems the author has attempted to produce a comprehensive overview of the production and use of stone tools in the later and terminal Stone Ages.

2. Turnov-Maškovy zahrady (Mašek Gardens)

The collection from Turnov-Maškovy zahrady is not among the largest assemblages of stone industry from the Czech Neolithic. Its 575 pieces (not including undated artefacts) place it among the typical settlement assemblages from Bohemia.

2.1. The early phase of the Linear Pottery culture

A total of 163 artefacts can be dated to the early Linear Pottery period. Three areas of occurrence have been identified on the basis of a study of the artefact scatter. Area 1 yielded a total of 66 artefacts (40.5% of the total assemblage), area 2 37 artefacts (22.7%) and area 3 54 artefacts (33.1%). A detailed typological summary is provided in Table 6.3, and an overview of the scatters in Table 6.8.

Overall, it may be said that the individual areas display very similar structures of material content, and thus activities. With the exception of certain indications of a separation of the production of chipped industry (area 3 contains more artefacts associated with this and fewer documenting other activities – there is a greater occurrence of grattoirs in area 1), there is no direct evidence for the presence of zones specialising in particular activities. Area 1 yielded 13 pieces of industry linked to work at the settlement (19.7%), area 2 9 pieces (24.3%) and area 3 just 5 pieces (9.3%), while the other artefacts were linked to the production

of chipped industry (except blades, which might themselves have served as tools). The separation off of the chipped industry production may be linked to the unpleasant effect of its waste, which is just as sharp as the artefacts made and which could cause very nasty injuries.

2.2. The middle phase of the Linear Pottery culture

A total of 53 artefacts could be classified as coming from the middle Linear Pottery period. This industry accumulated in settlement pits, two post holes and a clay pit, and forms two separate areas. Area 1 yielded a total of 19 artefacts (35.8% of the assemblage and area 2 23 artefacts (43.4% of the assemblage). A detailed typological overview is provided in Table 7.3, and an overview of the scatters in Table 7.8.

Both areas show just the same characteristics in terms of artefact presence, and thus the activities associated with these. In area 1 there were a total of 6 pieces of industry linked to general work at the settlement (31.6% of the industry in the area) and area 2 contained 7 such artefacts (30.4%), while the other artefacts were linked to the production of chipped industry (except blades, which might themselves have served as tools). In addition to occasional stone industry production other settlement activities were also expressed here.

2.3. Linear Pottery culture

Taking this assemblage as a whole, it can be divided into two groups by the number of pieces of industry. In the first and most numerous, the industry comes from a total of 11 feature. The total number of pieces from each does not exceed 5, and is often only 1. The second group, by contrast, contains just one feature, which however contained 32 pieces of stone industry. An overview of the dating is provided in Table 9.1 – but it seems appropriate to assess the content of feature 753 separately.

2.4. Feature 753

The whole of feature 753 yielded a total of 32 pieces of stone industry (Table 9.7). On the basis of this analysis the feature may be characterised as an area with special feature. It displays a higher proportion of tools than of evidence for their production. The identification of its function is also important; during excavation, the feature was classed as a semi-sunken hut. The author assumes that the early phase LBK ceramics entered the feature as intrusions, and that the feature itself can be dated to the middle phase. The two areas that could be separated out in the preceding chapter (both showing the same characteristics and found in the en-

trance areas of longhouses) are thus joined by a third, which lies within the semi-sunken hut and which shows a different structure of activities, more oriented towards other work, the production of chipped stone industry being somewhat subsidiary.

2.5. The Stroke-ornamented Ware culture

After the hiatus which existed at the site from the late phase of the Linear Pottery culture to the end of the early phase of the Stroke-ornamented Ware culture, settlement appears again during the later phase of the latter, and can be dated approximately to StK phase IV. This period is expressed through the greatest number of pieces of stone industry of all (222) – of which 139 pieces (62.6%) come from a single feature, no. 1002.

The scatter of the industry classifiable to the later phase of the Stroke-ornamented Ware culture differs from that of the preceding periods. More pronounced accumulations appear in only three features. There is a complete lack of accumulations that might separate out particular areas. It will surely come as no surprise to know that two of these features are semi-sunken huts (one in superposition over a clay extraction pit); the function of the third is uncertain, but it has been interpreted as a silo. These features and their environs were designated by the excavators areas 1–3 (numbered from the west and north). Area 1 yielded a total of 34 artefacts (15.3% of the collection), area 2 40 artefacts (18%) and area 3 139 artefacts (62.6%). A detailed typological overview is provided in *Table 12.3*, and an overview of the scatters in *Table 12.8*.

In area 2 (feature 1244) it was mainly production waste that had accumulated (77.5%). Given the identification of this feature's function as that of a silo, it may be interpreted in two ways. One is that this is a pit that, after the termination of its initial function, served as a midden; this may also be linked to the higher proportion of charred industry here. The second possibility is that this feature is analogous to feature 164 from Mšeno, i.e. is a grave within a silo. This would be supported by the essential agreement of the characteristics of the stone industries (they display a marked similarity in terms of the types represented and degrees of charring).

The other two areas show similar compositions (working tools without blades here forming 30–36% of the content, including blades 44–50%). These figures are reminiscent of the situation in feature 753 (early to middle phase of the Linear Pottery culture), and the functional determinations are also similar (semi-sunken huts). These were likely features that served as workplaces, with chipped industry being produced here as a complement, and to a lesser degree. The actual workshops that specialised in the production of chipped stone industry were elsewhere (either outside the settlement or elsewhere within in). The remains of such a workshop were investigated in 1988 not far from Ohrazenice (*Šída 2001a, b; 2004b*). Workshop relicts similar in extent to those from Maškovy zahrady have also been investigated at a number of other sites (Loděnice – *Benková 2001; Zápotocká 2001; Horkey – Lička et al. 1999*). A feature from Lobeč (*Spurný 1951; Sklenář 1982, 200–201*) is evidently a relict from the same production sphere as Ohrazenice.

2.6. Neolithic

The majority of the features assigned to the Neolithic generally contain a minimum of stone industry finds. The only exception is feature 1367, which can moreover be classed to a particular culture with a certain degree of likelihood.

2.7. Feature 1367

Feature 1367 yielded a total of 66 pieces of stone industry (*Table 14.4*). General work at the settlement is represented by 13.6% of

the artefacts (9 pieces), rising with the inclusion of the blades to 28.8% (19 pieces). In the areas belonging to the early phase of the Linear Pottery culture this figure (excluding blades) ranges from 9.3 to 24.3%, whilst in areas of the middle phase it is constant at around 31%. The structure of the industry in the investigated assemblage corresponds well to similar assemblages from the early phase of the Linear Pottery culture, matching the estimated age of the collection well.

We have before us a collection from a little differentiated area, which from several independent indicators may be assigned to the early phase of the Linear Pottery culture. All kinds of work took place in the area, from the production of stone industry (the evidence for which is predominant) to the other common tasks that were undertaken in the settlement at this time.

3. Turnov – Ohrazenice

The collection from Turnov-Ohrazenice shows a marked preponderance of workshop elements (*Tables 12.20–24*). The production of chipped industry was rather a complementary activity to a polished industry production line (tools for working on the final treatment of polished industry), but it is likely that special chipped artefacts were made here (probably sickles, but perhaps other items as well). The high proportion of fragments with silicite nodule cortex indicates the transport of cores that had not been entirely cleaned of their cortexes, as also attested by the distribution of cortex sizes among the flakes. The silicites came at least in part from glaciogenic and glaciofluvial sediments, but a large part must come directly from natural outcroppings. The raw material for the production of the polished industry came from Jizera terrace material.

On part of the site at Turnov-Ohrazenice the remains were found of a total of 8 features. In two cases these were extensive clay pits (feature 1 hiding within it a far more complex development), whilst the other features may be described as typical settlement pits. The development of feature 1 is the most complex. It most probably started life as a normal clay pit, into the centre of which a rectangular feature was later dug, measuring 2x3m and with a protruberance to the east that may be interpreted as an entrance. This feature was sunken by around 1m in comparison to the surrounding terrain.

On the basis of their content (a conspicuously greater quantity of ceramics, notable concentrations of production waste and manufacturing tools), this rectangular hollow with entrance area to the east may be interpreted as a site of stone industry manufacturing. On the basis of the occurrence of a pronounced quantity of charred industry, and above all the large quantity of thermofracts (warming stones – both accumulating mainly in the southern part of the sunken feature south of the entrance area and presumed entrance – segment C) we may also presume that this workshop was closed. It was a sunken hut measuring roughly 3x2m with entrance to the east, dated stage IV of the Stroke-Ornamented Ware culture. This interpretation is also supported by the marked occurrence of daub in feature 1.

More closely unidentified activities linked to production also took place in sectors F and G of feature 8. Whether this was merely the deposition of waste stemming from manufacture, or manufacture actually took place here, cannot be ascertained; the former seems more likely however.

Overall, it may be said that there is a very striking concentration of pieces that fit together within the area of a feature presumed to have been closed – a production site (*fig. 35*). The character of those does not refute the hypothesis, but rather supports it.

4. Mšeno

Two assemblages of different ages were assessed at Mšeno. The

first comes from feature 164, and is dated to the early phase of the Stroke Ornamented Ware culture, while the second comes from the later phase of the same culture (tables 11.2, 12.13).

The earlier phase of the Stroke Ornamented Ware culture is as yet not understood in detail in the Upper Jizera region. Thanks to the kindness of Dr. M. Lička the author was able to assess an assemblage of this age from feature 164 at Mšeno – which in terms of its content is highly unusual. This was a common storage pit, into which however the inhumation burials of several individuals were made. The stone industry deposited with them is thus in the nature of funerary gift. As shown below, it well reflects the structure of the usual settlement material. The total of 86 pieces classes this as a medium-sized collection. It is however extremely valuable, as all of the artefacts are grave gifts, meaning that they all entered the feature at the same time. It seems that already worn tools and production waste were placed in the grave. The tool pre-forms placed in the grave were however for the most part damaged through firing (so that they could no longer be used?). The author presumes that this fact is associated with the rite. It is interesting that the whole collection well reflects the structure of the stone industry at a settlement. This collection is exceptional for the Bohemian Neolithic, as such richly outfitted graves are few.

The industry of the later phase of the Stroke Ornamented Ware culture was no different to the general framework that one might expect.

5. Jistebsko

The work of the Šrein husband and wife team culminated in 2001 with the discovery of the undisturbed remains of extraction at a site of suitable raw material occurrence. In the spring of the following year, the presumption of a Neolithic age for the surviving relicts was confirmed with the aid of surface artefact collection, along with microboring and archaeological trenching. In 2002 and 2003 trench 1 yielded 1700 artefacts. A similar quantity was then recovered in the 2004 season from trenches 2 to 5. All together, these collections form an assemblage of some 4000 Neolithic artefacts, thus far the largest from any of the studied localities. Systematic survey of the surroundings continued in 2004; May saw the discovery of extraction field II, and July of the extraction field III. The surface between the individual areas has been damaged by the transformation into medieval fields, but artefacts can also be found here. In the Jistebsko cadastre, the surviving extraction relicts, together with the artefact scatters over the area disturbed in the Middle Ages, form an extended band that logically continues into the neighbouring cadastre of Maršovice.

The predominant component is waste from the manufacture of polished tool pre-forms (amorphous fragments, flakes, pre-forms; tab. 10.2.-3.). To a lesser extent, manufacturing also appear here (various types of hammerstone, as do stone mining tools. The spatial scatter of the industry will be demonstrated in a projection onto the western profile. The artefacts accumulate at the surface (to the greatest extent in the surface parts of the central heap) and at the base of the extraction pits, immediately at the workface. These concentrations are most visible when the artefact density is considered. The scatters of all the artefact types are similar (where numbers are sufficient to make it possible to draw conclusions). The only artefact type to fall outside this framework is the hammerstone. This reaches a maximum in the surface parts of the central pile, as is the case with flakes and other artefacts; by contrast, however, it is almost entirely absent from the base of the extraction pit and the workface. This differentiation in the scatter cannot be explained simply. It is probably a consequence of the siting of the manufacturing area above the workface, as a result of which flakes produced during manufacture came into close proximity of the extraction pit. The hammerstones used were then likely deposited elsewhere (they may have stayed above

in the manufacturing area, which no investigations have yet been conducted). A definitive answer will be possible only after further excavations. The suitability of the excavation strategy adopted, however, has been shown; were every artefact not measured in precisely, this difference would not have been revealed.

Radiocarbon dating was conducted at the VERA-Laboratorium (Vienna Environmental Research Accelerator Laboratory) in Vienna (O. Univ.-Prof. Dr. Walter Kutschera; for assistance in retrieving the data we are indebted to Ao. Univ. Prof. Mag. Dr. Eva Wild and Mag. Dr. Peter Steier). A sample from layer 5 (no. 571, immediately below the surface) was dated VERA-2982 325±30 BP. After calibration, this value yielded an interval of 1480–1650 AD (with 95.4% probability).

A second sample (no. 1717, from the base of the extraction pit) was dated VERA-2981 6120±35 BP. After calibration, this value yielded intervals of 5210–5160 BC (14% probability), 5150–4920 BC (79% probability) and 4880–4850 BC (with 2.4% probability).

6. Early phase of the Linear Pottery culture, Moravian painted pottery culture and the end of the Neolithic

For this period there is a lack of extensive stone industry assemblages in the region (this is partly merely a question of carrying out major surveys, such as Dneboh – Hrada, although it is also partly down to the fact that the assemblages are missing).

The early phase of the Linear Pottery culture is significantly represented at the highland locality of Dneboh – Hrada (house with a floor level, oven, tell stratigraphy). The survey by Dr. Pleslová, however, remained unpublished at the finds reporting stage. For the requirements of this work the entire assemblage cannot be dealt with due to time restraints (the collaboration of other experts is required to identify the pottery). Other finds from this period mostly come from collections. For this work only a smaller stone industry assemblage from Hrada, deposited with the museum in Turnov, has been used.

In the region of Turnov at the locality of Karlovice – Čertova ruka artifacts have been found that clearly belong to the culture with Moravian painted pottery. Unfortunately a survey was carried out before the Second World War, so the documentation of assemblages of finds does not allow any differentiation of the ages of the industries and, moreover, the abri Novákova pec was intensively settled throughout the whole of antiquity, so the assemblages themselves were contaminated in prehistory.

The situation is likewise bleak for the end of the neolithic, where we have finds proving the presence of several different cultural groups (Samborzec culture group and others), although assemblages of the stone industry are unfortunately small or do not occur at all. There are no known old eneolithic assemblages from the Upper Jizera river region at all (Šída 2004a).

7. Old and middle phase of the eneolithic and the issue of “Kozákov Workshops”

In the first half of the 20th century several cave localities in the region of Proskálí, Hruboskala and Klokočské skaly were investigated by amateurs. The numerous finds from the chipped stone industry were published by J. Filip as late neolithic stone-working workshops from below Kozákov (Filip 1947). The dating was based on the small inspection probes made by F. Prošek, who, particularly in Babí pec, found a relict of an undisturbed situation when he unearthed a semi-finished axe beneath a layer of sand with chipped stone tools. It is interesting that during the Second World War Jan Filip had put the age of the industry as mesolithic, but this dating was later repudiated by F. Prošek and J. Skutil.

On the basis of this typological analysis we can state that the majority of the chipped stone industry dates back to the mesoli-

thic, with only a minimal intermixture of the later postmesolithic (the ratio is something like 50 to 100 ku 1). Mesolithic strata was evident in the eneolithic and later disturbed, so the upper layers became mixed up (bioturbation itself is able to move artifacts to relatively great depths, which is further aided by the activities of mankind) (Šída 2004a).

Re-dating of what was until then the largest eneolithic collection of the stone industry in Bohemia completely changed the situation. Suddenly there is a lack of material. The only late eneolithic locality that has been properly investigated in the region is Dneboh – Hrada. Here, of course, we come up against the problem of the manufacturing, which is missing. In the region as a whole there is not one collection of either the old eneolithic or of the middle phase of the eneolithic that could be assessed. The only option is to resort to assemblages from other regions, but there is no abundance of these either. To give at least a rough idea of the situation I will list a small collection of the Funneled beaker culture from Plaňany. No industry has been assessed for the middle phase of the eneolithic.

8. Early eneolithic

Klamorna is the only highland locality of the early eneolithic Pojizeří that has been surveyed. Unfortunately the survey carried out by Dr. Šolle has not yet been processed so we can only work with a limited collection of 53 pieces from the industry. In the literature the locality is attributed to the řivnáč culture. Unfortunately, however, this is not wholly correct, as checks on the pottery housed in the National Museum have shown that typical řivnáč shapes do not occur here, in fact the predominant finds can be assigned to the Culture with spherical amphoraes. Thus it seems that Klamorna could be one of just a few culturally pure localities of this northern culture. In order to fully illustrate the range of the industry I am also including an assessment of the other stone industries from the řivnáč fortified site in Býlany – Denmark.

9. Corded pottery culture – late eneolithic

The stone industry collection is unfortunately limited to the availability of artifacts in museum collections. Sadly some have been lost, whilst it has not been possible to physically study others for a variety of reasons. Therefore the assemblage studied is not complete and we can expect that other pieces will be added in the future, although these cannot alter the conclusions already drawn (tab. 18.1.).

The overall abundance of the raw materials used does not deter from the situation at the end of the eneolithic, where there was a total breakdown of the rules for using raw materials and the worst rocks were used (diorites and sandstone).

10. Transport of raw materials and primary production – evidence provided by artifacts

We can see how raw materials were transported and handled as a reflection of the complexity of the social and cultural ties of society. There is a certain difference as to whether a community used subsistence materials in the immediate vicinity or whether it developed a system for acquiring new materials from remote places (from either subsistence or bartering). All the assemblages from all the periods in Turnov – Maškové zahrady are mostly made up of remote raw materials. We must now focus on how they were transported there.

There are basically three ways in which they could have been transported – by transporting entire pieces of raw material, transporting the cores, and transporting the laminae. It is important to be aware that probably none of these methods actually prevailed, and a combination was likely to have been used. Therefore the

following ideas may refer to the main trends, yet there will always be deviations and exceptions. For illustration we will use the main assemblages from Turnov – Maškové zahrady and Ohrazenice (mainly due to the fact that they are so representative). The eneolithic period cannot be characterised in this way.

The first indicator of production using bulks of raw material (in this case made of silicite, which has a clearly distinguishable outer crust) is the ratio between the artifacts manufactured from raw materials with a crust and materials without one (it shows degree of raw material preparation; products with a crust are predominant in the first phase of the preparation of the core). The ratio in the collections we studied (Turnov – Maškové zahrady and Turnov – Ohrazenice) fluctuates between 1.9:1 and 3.8:1. Thus we may assume that the material was transported to the settlement in the form of cores or laminae. Primary preparation clearly (for energy reasons) took place at the site where the materials were found. It seems that the reduction in the ratio corresponds to the increased number of cores in the assemblage and thus with the increased proportion of workshop elements it contains (the only exception in the StK assemblage in Turnov, where the reduction in the ratio is not so marked). The lower core numbers also indicates that the laminae were brought in from elsewhere.

What is interesting is the ratio between the individual laminae fragments. The fact that they are erratic implies that they were brought in from a different place. It is peculiar that all the ratios actually indicate that the laminae were transported into the system, including cases where a complex was wholly devoted to manufacturing. It seems that the type C fragments are undersized in the assemblages (probably due to the fact that they were so hard to tell apart). Therefore they should be omitted from our considerations. If we try to summarise the above according to the individual periods, we can speculate that for the older phase of the linear pottery culture, fragments of type B laminae were transported and a small proportion of laminae made from cores were produced at the settlement itself. Whether the main workshops were outside of the survey site at the settlement or somewhere completely different is unknown. Production existed at the settlement during the middle phase of the linear pottery culture (the reduced proportion of laminae in the assemblage is peculiar). Laminae fragments, however, show that type B fragments were transported. Conflicts arise here due to the sizes of the assemblages, which are pushing the limits of cogency. In the case of site 753 (middle phase of the linear pottery culture), where laminae were produced at the settlement to a limited extent, the proportion of laminae implies that AB fragments were transported. In the case of settlements that were home to the Stroked pottery culture there is evidence of production at the settlement (reduced proportion of artifacts without crusts and a higher proportion of cores). Considering what was said above about type C fragments, we cannot reliably decide what the reduced numbers of these fragments in this assemblage mean. We can see it as proof that type AB laminae fragments were transported to the settlement from elsewhere. There might be other reasons for the low proportion (poor determinability, small sizes). We know that laminae were produced at the settlement and it is likely that these were supplemented by laminae that were brought in from other places (from peripheral manufacturing complexes, specialised manufacturing region outside the settlement?). We cannot decide whether the laminae were transported whole or in fragments. In the case of site 1367 (older phase of the linear pottery culture) we have absolutely no proof of production (cores), so the scarcely balanced ratio between the laminae fragments can be considered as proof that the laminae were transported.

The situation in Ohrazenice is peculiar. The unbalanced proportion of laminae fragments implies that they were transported. This, however, is contradicted by the high proportion of cores. The answer to this problem seems to lie in the fact that workshops

were specialised in producing polished stone; the chipped stone production industry would then have served as subsistence production to cater to the needs of the workshop (tools for making axe handles – the picture would have been similar to that in the StK settlement). Whether entire laminae were then transported away from the area cannot be determined, although it seems that there was at least supplementary production of reworked laminae for the manufacture or repair of sickles (for an overview, see *tab. 20.3.*).

It therefore seems that the raw materials in all periods were at least in the form of cores when they reached the settlement (the fact that they were worked at the settlement is proven partly by residues found and partly by the amorphous shards and flakes resulting from the quarrying work). For all periods, however, we must surmise that laminae were transported from elsewhere, either as whole laminae, or in fragments. We have proof that the cores were transported in finds from the Přepeře 4 locality.

11. Complexes – development of organised work

Developments in the neolithic move towards a greater differentiation of space and the work that is carried out within it (these developments can be illustrated using the surveys performed in Turnov – Maškové zahrady and Turnov – Ohrazenice; for the eneolithic period we do not have the appropriate assemblages). While the complexes of the older phase of the linear pottery culture do not greatly vary from one another (relatively low proportion of debris from other work, complexes housed within a long building – in front of it, but not in the entrance area; in one case the complex also contains sunken huts). What is interesting is the difference between the two parts of complex 1 – in a sunken hut and the adjacent pit (feature 1190) there is a greater accumulation of relicts from the chipped stone production industry, while in the surrounding area in front of the building there is a greater accumulation of remnants from work activities. This fact could imply a certain differentiation in the settlement, when the chipped stone production industry was first separated and transferred to the sunken hut. In the middle phase of the linear pottery culture dissimilarities start to appear. In contrast to the older phase, the percentage of debris from other activities increases. The working complex situated in the sunken hut shows the highest proportion of debris from other activities. In the period of the Stroked pottery culture the only complexes that occur are those located in sunken huts and a new type of complex appears in a silo, a fact which we are unable to clearly interpret. It could partly have been a dumping site for debris, or could have been used for graves. There is now a major differentiation between the sunken huts of this period. From the purely manufacturing site in Turnov – Ohrazenice (11.2 % of debris from other activities, which here, however, could be related to stone industry production) to the sunken hut from Turnov – Maškovy zahrady, which, in contrast, contains 36 % of debris created as a result of other activities. On the other hand, the silo features a similar proportion of debris to that found in the manufacturing site in Turnov – Ohrazenice.

We are facing the developments of how space was dealt with, which arose from the early neolithic settlement that featured very little (or no) differentiation; the basic unit of which was the long buildings that the majority of the activities at the settlement were associated with (work and a place to live). Right from the start, specific areas were segregated; originally these worked in

parallel with the areas associated with the long buildings. In the early neolithic all work complexes became completely bound to these specific sites – sunken huts. All evidence indicates that from this point the long buildings were used exclusively for residential purposes. The matter of the existence and function of sunken huts in the neolithic period has not been conclusively dealt with and should be the subject of further discussion. The first attempts have been made (*Čížmář 1998*), but this will need to be built on in the future with new assessments of material.

12. Neolithic workshops

As the result of a detailed study we have been able to set aside several types of workshop which are seen to have developed over time. Unfortunately we do not currently have enough knowledge of the situation in the eneolithic and in some parts of the neolithic, so the following classification cannot yet be generalised to cover the whole of the neolithic and eneolithic period.

1. **Primary workshop manufacturing area** – this is bound to the source of the raw material (Jistebsko – LBK and old STK); we can assume that a large proportion of these workshop areas are in an area of morainal sediments (processing silicites)
2. **Secondary non-specialised workshop area at the settlement** (responsible for catering to the general needs of the settlement – LBK-STK),
3. **Workshop within the settlement** – segregation of the chipped stone production industry (and other forms of work) into a specific area (sunken huts – appearing in the early neolithic? – the partial transfer of work to the sunken huts is apparent from the beginning of the LBK)
4. **Specialised workshop or workshop region used principally for the chipped and polished stone production industry** (this is characterised by the “huge” amount of workshop debris). Segregated to the edge of or outside the settlement. Appears in the early phase of STK.

13. Conclusion

Analysis of the stone industry allows us to monitor how the chipped stone industry developed within the settlement and how the raw materials were quarried, worked and transported. It is possible to differentiate work complexes within the settlement and then compare these with other cultures. The discovery of the prehistoric quarrying and manufacturing site in the cadaster of the municipality of Jistebsko has proved to be very important in helping us to understand how the raw materials were quarried and handled.

Despite the fact that these are still only the initial results and many problems still need to be resolved, analysis of the stone industry provides us with a number of interesting conclusions. We can pose many questions that were previously impossible and find the answers to them. This should be the aim of every analysis of the stone industry; if we are to learn more we cannot limit ourselves to a simple description of small collections which, in the end, only inform us that the chipped or other stone industry existed at the locality. It is necessary to start to focus on large assemblages; this is the only way for us to make progress in terms of our knowledge and understanding.