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The Vertical Structure of Neolithic Finds in the Fills of Archaeological Features

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ABSTRACT

This article examines the distribution of Neolithic finds in the fillings of features with different functions (settlement pits, rondel ditches, enclosure) in the Bylany 4 microarea, Kutná Hora district, Czech Republic. We investigate the nature of their extinction or the emergence of fills. The vertical structure of archaeological finds (pottery and non-pottery) deposited in the sediments of various features was monitored in terms of five attributes. Based on the different structures of the fills of archaeological features, it is evident that the structure of the horizontal or vertical distribution of findings in their fills can yield information about the creation of the finding assemblages. It also reflects the dynamics of the development of anthropogenic activities in the vicinity of the features. In terms of methodology, the work follows up on the general theory of formative processes, while their natural and cultural transformations are discussed at a more detailed level of specific forms. It is necessary to consistently distinguish between the behaviour of clay sediments and the actual artefacts stored therein. It is further necessary to individually evaluate the specific natural conditions of deposition at a specific site as well as the variable cultural roles of individual features.

1. Excavation Bylany 1990–1993

The Neolithic site in Bylany (Kutná Hora district) was systematically surveyed between 1953 and 1967 to the southeast of today's village and afterwards the history of the settlement was gradually supplemented with information concerning other microareas (Bylany 1–5) within this cadastre (Figure 1). Located in the western part was the Neolithic microarea designated as Bylany 4; in accordance with its surface surveys and sondages, its range and cultural content were determined as belonging to the period of Linear Pottery culture (LBK) and Stroked Pottery culture (SBK). Already the first probe from 1965, which was conducted roughly in a southeast-northwest direction through the central part of this microarea, uncovered two ditches with a tapering (V) profile (Zápotocká, 1983). These features were

reminiscent of other rather well-known (but at that time still quite rare) circular enclosures with ditches from the period of the Stroked Pottery and Lengyel culture in the area of the Danube, in Germany, Slovakia and in Moravia (Lies, 1963; Podborský, 1988; 1999; Tichý, 1966; Točík, Lichardus, 1966; Wagner, 1928). While a survey of these central European rondel zones had a certain impetus already in the 1970s, it was not properly introduced until two decades later (Trnka, 1991). The research strategy in Bylany prioritised the completion of excavations in the Bylany 1 microarea. The survey of the Bylany 4 rondel microarea therefore took place only in the form of a geophysical prospection that identified the central double rondel 4/1 (features 1728 and 1745) in its entirety (Faltysová, Marek, 1983). Only later, in association with research implemented in the early 1990s, the plan of rondel 4/1 was supplemented with a large concentric ditch enclosure (feature 1830). Also discovered were three additional later circular ditches (rondel 4/2) that

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Figure 1. Settlement microareas in the cadastral area Bylany, near Kutná Hora; those marked red are the areas investigated within the Bylany 4 microarea.

were interfering with this large enclosure in its southern part (Figure 2). The entire course of both rondels determined geophysically (Mayer, 1995; Křivánek, 2015) pointed to a close spatial relationship between these two bodies, as on Site I in Kolín (Šumberová, ed., 2012; Řídký *et al.*, 2014; 2019).

Large-scale excavation of the ditches in Bylany did not take place until 1990–1993. The goal of the grant project was to explore rondel 4/1 and its chronological and cultural relationship with the local settlement and the birutal cemetery of the Stroked Pottery culture in Miskovice. The research focused on several key areas of the rondel site¹ and was supervised by several experts². The results of the project were subsequently published, with each of the co-authors separately addressing the issue of the functional interpretation of the rondel (Pavlu, Rulř, Zápotočká, 1995, pp.97–98). Interpretation of the rondel phenomenon still

remains a discussed issue, most recently summed up by J. Řídký (2011; 2019) and H. Stäuble (2012). Regarding this, however, there is also scepticism on principle from some of the researchers (Trnka, 1991, p.318). The actual publication of the rondel in Bylany focused on issues arising from the research project, such as clarifying the construction of the rondel and its relation to the surrounding settlement and burial ground. Set aside for then was the publication of settlement features outside of the rondel and also a more detailed description of the fillings of ditches, their chronology, and other contexts of the rondel. Some partial questions were tackled by other studies, such as the placement of specific finds of grinding tools at the entrance to rondel 4/1 (Pavlu, 1990), or suggestions for new directions of interpretation (Květina, 2010; Květina, Končelová, 2013a; 2013b). The information obtained by the current research in Bylany 4 microarea has not been exhausted. A number of questions related to the three distinct areas (not only spatially but also functionally), encourages the search for answers to the importance of this area during the Late Neolithic (according to Czech periodization).

¹ The individual excavated areas in the Bylany 4 microarea are identified in the following manner:

1991 – excavation in the southern entrance of Rondel 4/1,
1992a – excavation in the western part of the large enclosure (feature 1830),
1992b – excavation in the western entrance of Rondel 4/1,
1993 – excavation at the northern edge of the microarea.

² I. Pavlu, (+) J. Rulř and M. Zápotočká cooperated in 1991 and 1992a areas. The research in 1992b and 1993 areas was led by (+) M. Midgley together with students from the University of Edinburgh. In 1991, the probe excavation in the B-J/6 sectors was carried out by A. Reinhardt (senior student of University in Saarbrücken).

2. Determination of the Horizontal and the Vertical Position

In the early 1990s, field excavation methodology was complemented by a consistent inventory of findings in

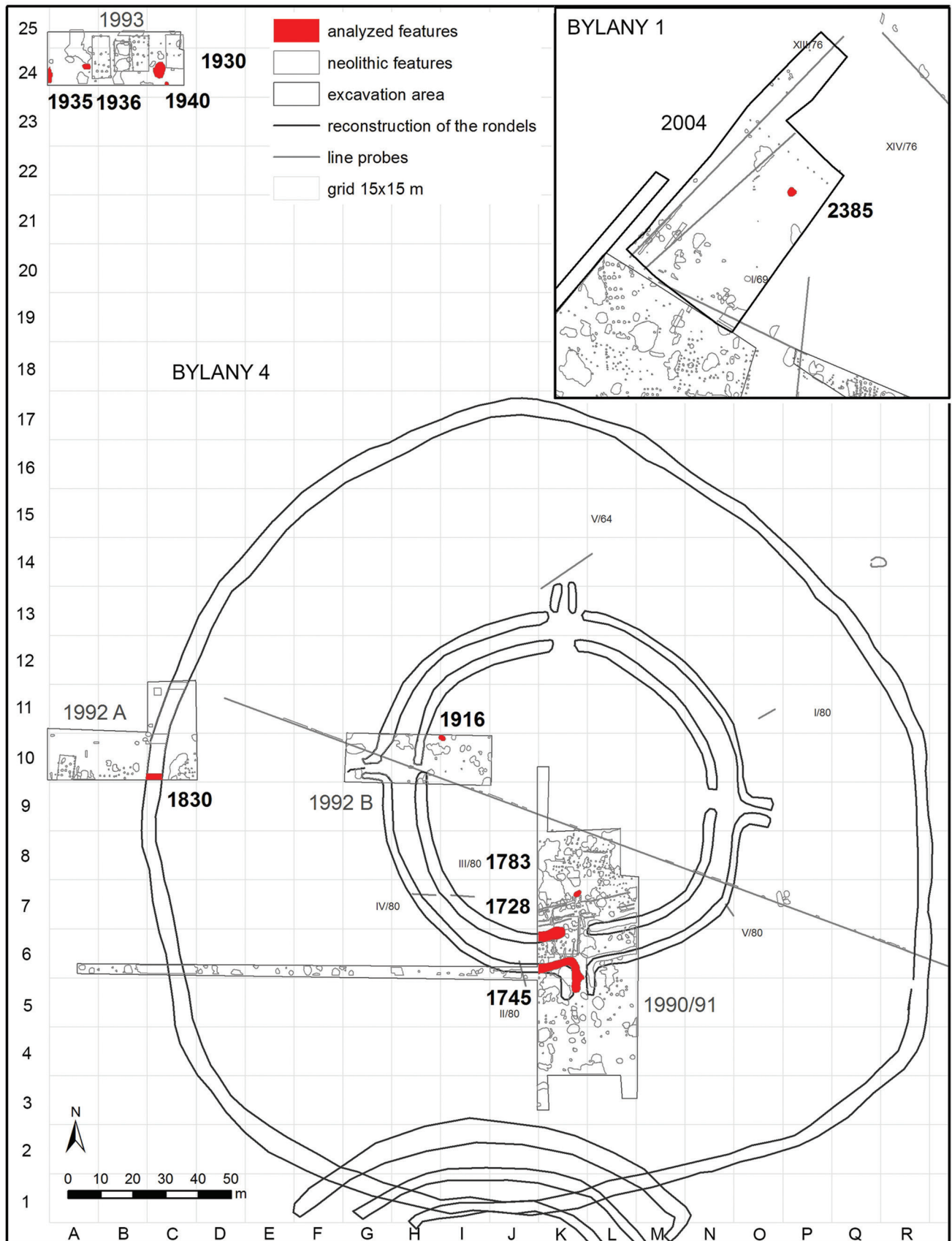


Figure 2. Microareas Bylany 4 and 1: marked in red are the features that are analysed in this text.

spatial coordinates over the standard of earlier excavations in Bylany. The microarea Bylany 4 was divided³ into 15×15 m square sectors (Figure 2), within which excavations were carried-out using an even more detailed square network of 1×1 m. Findings were recorded in these smaller quadrants and were numbered separately within the detailed Cartesian coordinates (x, y) of each sector, from its origin at the southwest corner. The findings from the features were identified both, by the sector and the quadrant, or by an even more detailed specification of the coordinates from the defined beginning. For example, part of the findings from the sediments of the large-scale enclosure (feature 1830) on area 1992a is identified as: C10 (sector) and x = 02/y = 09 (quadrants).

The third (vertical) coordinate was based on continuous levelling of the area surveyed. In 1991, the absolute height of the point selected near the feature under investigation was derived from the altitude of the basic point of the sectoral network (314.25 m above sea level). Using this information, the depth of excavated sediments and finds located in them was measured and marked on a scale of, for example, +/-10 cm. This relative depth, which is individual for each feature examined, was recorded as the third dimension of the findings⁴.

The methodology described enables one to work with finding assemblages, arranged as they are in accordance with the quadrants of investigated sediments of size 100×100×10 cm. Later attempts to record three coordinates immediately for each individual find during the research of Neolithic features proved to be very impractical (Květina, 2005, p.12), especially in terms of time consumption. On a different occasion, during the research in Bylany, a method of exploration of Neolithic sediments in more detailed mechanical blocks of 30×30×10 cm was tested, based on which, for example, pottery fragments in Neolithic pits can be spatially identified in a sufficient manner and the way in which the pits were infilled can be monitored (Květina, Končelová, 2011, p.59). Yet this method of excavation can be implemented only selectively, and it does not readily enable its broader application during conventional rescue excavations. The chosen method of research in the Bylany 4 microarea, using a detailed record of findings in a square network, has proved to be particularly useful for large-scale features, enabling a more accurate localisation of individual findings within them. In this manner, finding assemblages can be subsequently broken down in accordance with the individual parts of features.

³ The network was set up as a detailed projection of the basic map structure in the area of the Czech Republic. The starting point for the Bylany 4 microarea has S-JTSK Krovak (East/North) coordinates X=-687 625 a Y=-1 067 000 (Pavlů, Rulff and Zápotocká, 1995, Figure 2).

⁴ In the Bylany database (Květina and Pavlů, 2007), this auxiliary marking is referred to as the mechanical layer. In addition, in some cases, the term natural layer was introduced, which denoted naturally-stratified sediments in the profiles and it was coded as 001, 002, etc. All information about the depth of deposition of the findings in this work is translated into dimensions in absolute values, i.e. to metres above sea level (MASL).

3. Chronology and Interpretation of Features

The existing chronology of the settlement in Bylany is based on the evaluation of quantitative shares of the technique for producing the linear decoration in finding assemblages of pottery, which originate from building pits adjacent to Neolithic longhouses. Based on the number of vessel units⁵ (not just fragments) in the building pit, their characteristics and chronological evaluation were assessed. To identify the entire space-time development of the settlement, a higher finding unit, comprising a ground plan of a longhouse and adjacent building pits, referred to as house complex, was established (Soudský, 1966, p.33; Soudský, Pavlů, 1972, p.318).

The distribution of finds in the fills of settlement features in the Bylany site has been addressed in a work that mainly monitored the mechanism of the filling of the features (Květina, Končelová, 2011, p.64). This detailed analysis of the filling of one feature showed that pottery fragments were concentrated in the direction of the natural filling of the open pit. This type of infill process followed the natural slope in which the feature was recessed. Already during the latest synthesis of the Bylany chronology (Pavlů, Rulff, Zápotocká, 1986), and in subsequent works (Pavlů, 2000; 2010; 2014), we hypothesised that finding assemblages that originate from features with the same history of function and formative processes would be disturbed by interfering factors on a mutually comparable, yet unknown scale. For this reason we worked only with building pits during the creation of the settlement chronology, on the proviso that other assemblages, for example, from clay-pits, silos, ovens, etc., would have behaved differently.

The interest in similar assemblage analyses has recently focused on fillings of the rondel ditches, which are probably characterised by the specific conditions of formation and function, and also of formative and post-deposition processes (Lisá *et al.*, 2013; Řídký *et al.*, 2014). Some formal characteristics of finding assemblages, such as weight, density and size of the fragments in their horizontal and vertical distribution, and also refits across the entire vertical section were observed. An important contribution to this study was represented by the results of radiocarbon data, which were systematically arranged in the vertical sequence of fill. A significantly-reversed time stratigraphy was observed in one of the ditches (feature 3) in Kolín Site I, which indicated the specifics of the formative processes associated with rondels (Řídký *et al.*, 2014, pp.593–594). As a result, three different hypotheses were formulated: 1) the individual remains found in the filling can demonstrate the activities associated with the function of the rondel, 2) the findings taken from the ditch fill are not related to the ditch function time, and 3) different chronological and functional horizons can be observed in the vertical and horizontal parts of the ditches. Stratigraphy of the fill cannot be understood

⁵ Considered as a vessel unit are all fragments from one vessel within one feature.

as intact geological strata, but as a reflection of both cultural and natural processes in the vicinity of the feature. Although the actual sediment has been deposited gradually, it is not possible to automatically derive a chronological sequence of archaeological content from it, but only a sequence of its depositing. Based on the different structures of the fills of archaeological features, we infer that the structure of the horizontal or vertical distribution of findings in their fills can, when respecting all the circumstances, yield information about the creation of finding assemblages and that it also reflects the dynamics of the development of anthropogenic activities in their vicinity, although during a period when the feature had already lost its primary function. There is, however, an entirely opposite view: “...attempts to explain the mechanisms of the infilling of settlement pits by monitoring the changes of cultural content in the mechanical layers of their fillings seem rather as an expression of a methodical quandary...” (Vencl, 2001, p.606). Such an approach would totally exclude the work with settlement assemblages and it would mean resignation to the identification of settlement sites that are generally examined in this way (for more, see Kuna, Němcová *et al.*, 2012).

Based on past experience, we have attempted to monitor the distribution of vessel units and non-pottery finds in the fills of sunken features that we have divided in accordance with different types of their forms and functions. These are mainly the settlement pits and part of the rondel ditches that have been excavated so far in Bylany 4 on section S, and in one case in Bylany 1 microarea in the B2004 plot (Figure 2). In most cases, it was possible to qualitatively separate pottery of the early LBK (code 21), classic LBK (code 22) and Stroked Pottery culture (code 26) in the fills of the selected features. If this was not possible, we identified the findings generally as Neolithic (code 20). Non-pottery artefacts were also considered in the categories of stone industry and daub. Here we assume that, due to its significantly greater weight, the presence of the stone industry is not affected to such an extent by runoff, but it rather indicates intentional deposition. The sources are based on the completion of the Bylany database for the large-scale excavation from 1990–1993 and from the 2004 rescue excavation⁶.

4. Methodology of analysis of archaeological assemblages

Features were selected from the rondel area in Section S (Bylany 4) and one detailed excavated feature from the area B2004 (Bylany 1). Selection criteria consisted of their mutual functional differences and the sufficient presence of

archaeological material in their fillings (*cf.* Rulft, 1991; 1993; Stäuble, 1997); thus were chosen settlement pits, rondel ditches and an enclosure. From the beginning we asked ourselves whether the vertical structure of the deposition of pottery sherds and non-pottery finds is identical in all the features and their sediments and which conditions may have affected them. The aim was an attempt to interpret the nature of the extinction or emergence of fills. The assumption was that the way the backfill was created and the distribution of finds in it could indicate what had happened in the specific area at the conclusion of the function of individual features.

The vertical structure of the archaeological finds deposited in the sediments of various sunken features was monitored in terms of five attributes. The first was the absolute number of culturally-differentiated vessel units⁷, the second one the size of fragments⁸ and the third the index of fragmentation⁹. In addition, the distribution of non-pottery findings, those of the stone industry and daub separately as four and five, was also monitored¹⁰. All these attributes were enumerated separately for each layer.

In the first step, using line graphs, we assessed the findings in accordance with the aggregate values of the selected features (mean values and percentages) in the layer. To explain the saturation of the layers we used a linear line graph, illustrating the course of the variation of the character values (y-axis, in Figures 4–6 and 10–12) arranged in accordance with the absolute depths of the artificial horizons (x-axis). The curves clearly show the trends of these characters and can be easily compared. As an alternative to the observation of the monitored values, we used a linear cumulative graph, the rising curve of which, in its direction from the lowest level, better expresses the development trends that can show a sharp increase, slight stagnation or smooth increase in a selected character. Both variants of displaying the variable values of the monitored characters provide possible approaches to the interpretation of these data sets (Figures 4–6, 10–12).

Another method of grasping the observed attributes was use of the statistical options of a box-plot graph (Tukey, 1977). Thus, in a second step, we monitored the extent of the horizontal parts of the sediments using box-plot graphs. These indicate the main values of the size (weight) of elements in each set – layer: median (Q0.5), quartile Q0.25 and quartile Q0.75. In addition to the definition of quartile span using a box, the range of the lowest and highest values (1.5 times the IQR – *Inter-Quartile Range*) is expressed by whiskers and outliers exceeding these limits displayed by

⁶ The 1953–1967 research findings database contains ca. 90,000 records, while a portion of 1990–1993 has expanded this database by another 30,000 records. The 2004 rescue excavation has added more than one thousand records to the database. Pottery represents about 70–80% of records in the database. In this work, we work with selected pottery assemblages. A complete publication of all S-section features is being prepared.

⁷ % of LBK (SBK) – the index shows in which proportion of units the specific pottery is vertically distributed in a given profile.

⁸ Mean of weight – the index shows at what average size (presented by weight) the pottery units are distributed in each layer.

⁹ Frg of pottery unit – specifies the average number of fragments per unit in a specific layer (Pavlů 2010, p.24).

¹⁰ % of DAUB. % of STONE – the index shows in which proportion of the weight the stone industry and daub (separately) are vertically distributed in the layers of the entire profile.

individual points. The sets were compared in accordance with statistics given by the size of the elements in separate sets of four categories of artefacts: linear pottery, stroked pottery, stone industry and daub. We consider the weight to be a good estimate of the size of the elements in terms of their deposition history; for pottery, they are units, *i.e.* all fragments from one vessel, while for other findings it is the weight of individual pieces. This statistical approach to data (Figures 7–8, 13–15) was tested on two settlement features (1783, 1930, Figure 7–8) and on selected parts of ditches (1728, 1745 and 1830, Figure 13–15). We use box-plots for the detailed characterisation of the entire file at each level, while line graphs are used for the overall characterisation of average character values. Line graphs better reflect the overall average trend, while box-plot graphs encompass all characteristics of the statistical distribution.

The vertical sequence of the observed formative properties of the artefacts corresponds to the time sequence of filling the sunken features. In this sense, the stratigraphy of the sediment itself is preserved. On the other hand, the stratigraphy of the cultural properties of artefacts, such as their dating, is not guaranteed. Previous results of stratified radiocarbon samples have shown that the content of sediments can be stored irregularly, or even in reverse order, in terms of time (Řídký *et al.*, 2014).

5. The Vertical Structure of finds in Settlement Features

Seven settlement features were analysed (Figures 2, 3). The selection criteria consisted both in the quantitative representation of pottery content and in its nature, *i.e.* features purely with LBK pottery (1916, 1930, 1935, 1936), purely SBK pottery (2385) and with mixed content (1940, 1783), which, however, could still be dated precisely on the basis of deposition and pottery ratio. We chose feature No. 2385 from the Bylany 1 site because the SBK settlement features from the Bylany 4 site contain a large number of intrusions (*cf.* Pavlů, Rulff, Zápotocká, 1995, Table 23) and if they are purely SBK, they do not bear a sufficient amount of pottery in their filling.

5.1 Linear Pottery Culture

5.1.1 Feature 1783

The silo excavated in Section S (Bylany 4) in the K7 sector was investigated in 1991 (Pavlů, Rulff, Zápotocká, 1995, Figure 6). The filling contained an almost identical representation of vessel units with linear decoration (LBK III–IV) and those with stroked-ornamented decoration (SBK IVa1) (Pavlů, Rulff and Zápotocká, 1995, pp.73 and 78, Figures 45–46; *cf.* also Květina, 2005). It is an irregular oval pit with a cylindrical profile and a narrow mouth in its upper part with a depth of ca. 1.05 m. The sediment of the filling is in the lower broadened part formed by a thick black layer alternately covered with brown and one black layer of clay that does not cover the profile in its entire width. In the upper

narrowed part, there are two layers of grey-black and brown-black clay with a roughly equal thickness (Figure 3). The silo is located at the southern entrance to the rondel 4/1 in the area of the inner trench. In accordance with the horizontal stratigraphy it is non-contemporaneous with the rondel and it is classified in the pre-rondel horizon that is concurrent with the earlier phase of the Miskovice burial ground (Pavlů, Rulff, Zápotocká, 1995, p.48).

Pottery (233 units) was analysed in the separated assemblages of LBK and SBK, and also one assemblage of culturally-indistinguished fragments of non-decorated (NO) Neolithic pottery (Figure 4, 7). The majority of LBK units were concentrated in the middle of the sediment, but the heaviest fragments were at the bottom of the filling (Figure 4). The greatest number of SBK units accumulated in the upper part of the feature's filling, while larger and heavier units were in the bottom part. The maximum fragmentation values for culturally-differentiated fragments can refer to the origin of the respective part of the fill at that particular chronological horizon. Likewise, their above-average values can lead to the assumption of one-off and time-distant events in regard to the emergence of fill horizons. Non-decorated fragments are irregularly distributed throughout the entire vertical sediment (Figure 7). It is apparent that only culturally-divided sets of data are relevant for the capturing of certain trends in the filling of the feature. Regardless of the cultural classification, in terms of the silo filling, it can be generalised that larger and heavier units accumulate just above the bottom.

5.1.2 Feature 1916

A smaller oval pit with a longer axis of ca. 2.0 m is located in Section S (Bylany 4) in its northern part, at the intersection of Sectors H10 and I10. It was partly explored in 1992 by a probe that uncovered its profile with a sloping bottom and a depth of up to 0.60 m. Although it is in the inner space of the 4/1 rondel, it precedes its emergence. Dated to the later stage of LBK (III), there are no longhouse groundplans in its vicinity. At the bottom, it was filled with a thinner layer of black clay with loess and then with a homogeneous dark grey-black clay (Figure 3). The pit was isolated within the examined area.

The investigated filling contained 13 LBK units. The amount of pottery in the loess layers above the bottom was minimal and it increased towards the surface in a dark homogeneous layer (Figure 5). In terms of the average weight of the fragments, the larger pieces are found in the lower part of the homogeneous filling and then in its upper part. The upward trend of all the observed attributes, together with the homogeneous filling, enables the interpretation of the filling of the pit as an intentional event from the LBK period that is certainly not related to the construction of the 4/1 rondel.

5.1.3 Feature 1930

A larger oval pit with a longer axis of 5.20 m located in the western part of the C24 sector was investigated in 1993. Its walls slope approximately in the middle of the ground plan to

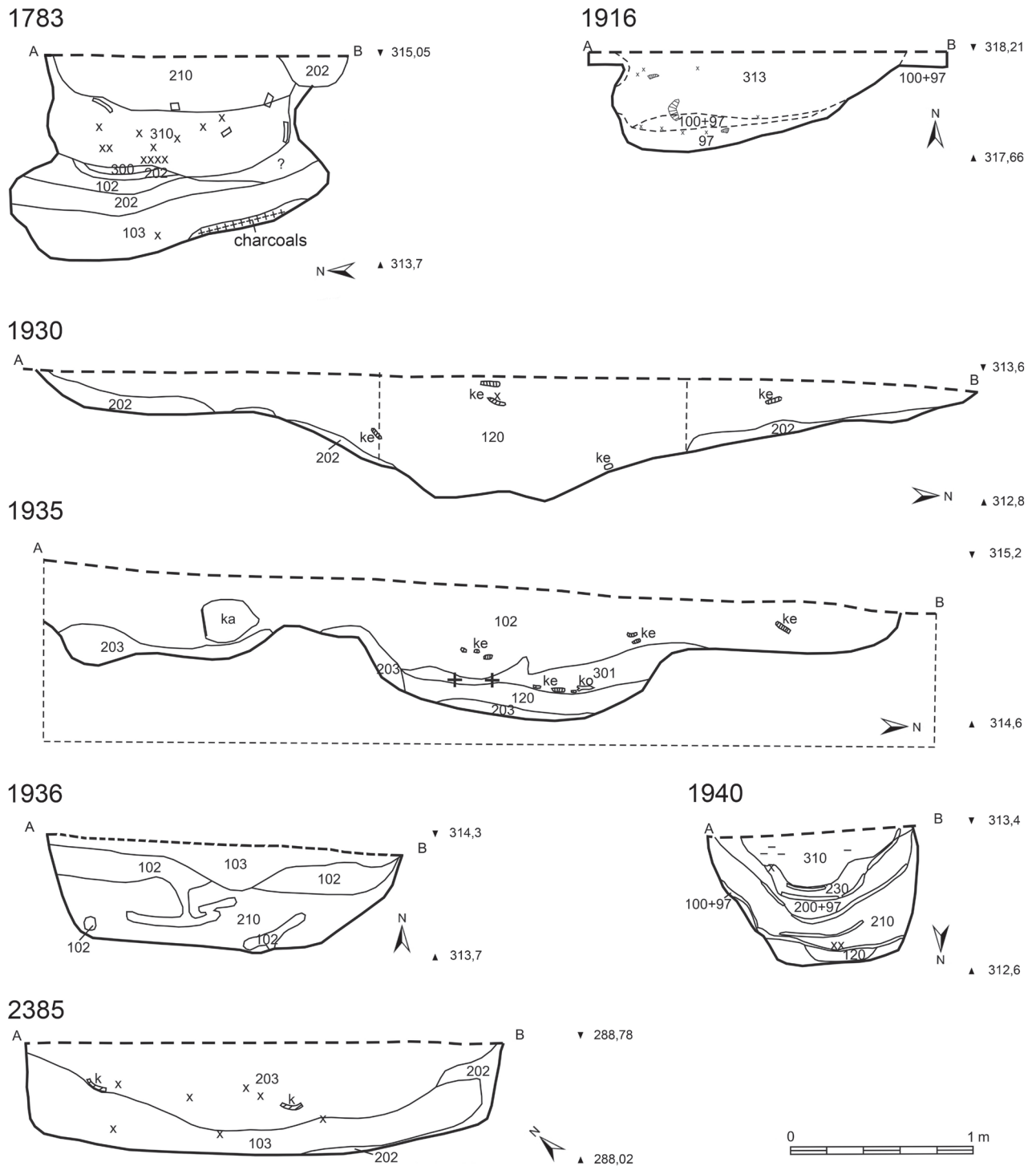


Figure 3. Profiles of settlement features; numbers indicate the filling type (100 – black, 102 – medium black, 103 – dark black, 120 – black-brown, 200 – brown, 202 – medium brown, 203 – dark brown, 210 – brown-black, 230 – brown-grey, 300 – grey, 301 – light-grey, 310 – grey-black, 313 – dark grey-black, 97 – loess).

0.60 m. It is part of a settlement with at least three explored longhouses, while spatially it can be classified with house No. 1921. It is dated to the classical stage of LBK (IIa). It was filled with homogeneous black-brown clay (Figure 3).

It was located southeast of longhouse 1921 but outside its house complex. Therefore, we consider it isolated.

Altogether 62 localised LBK individual pieces were recovered from the investigated pit sediment. The number



Figure 4. Line graph and cumulative graph representing selected attributes of the settlement feature No. 1783. x-axis values indicate absolute altitude.



Figure 5. Line graph and cumulative graph representing selected attributes of the settlement features Nos. 1916, 1930, 1935 and 1936. x-axis values indicate absolute altitude.

of fragments was lowest at the bottom, slightly increasing in the middle part and prevailing in the upper part of the filling (Figure 5). The curve of the pottery weight is totally opposite. This contradictory trend in the various types of artefacts is well illustrated by the graphs of the two methods used (Figures 5, 8). It would mean that these more massive specimens could be related to the concluding period of the

use of the feature and that a homogeneous fill containing refits in one layer could indicate a faster and intentional way of infilling.

5.1.4 Feature 1935

A 4.80m-long part of the building pits excavated at the western border of Sector A24 was investigated in 1993. It



Figure 6. Line graph and cumulative graph representing selected attributes of the settlement features Nos. 1940 and 2385. x-axis values indicate absolute altitude.

is dated to the classical stage of LBK (IIa) and apparently belongs to the uncovered complex of a longhouse. It consists of three depressions of 0.5 m, 0.7 m and 0.3 m (from the south), which were uncovered roughly to their halfway points. The middle depression had an oblique recessed layer of black-brown clay at the bottom. The upper parts of all three depressions were filled with homogeneous black clay to a maximum depth of 0.5 m (Figure 3). These building pits could belong to an uncovered longhouse, which can be projected further west of the area under investigation.

The examined part of the building pits provided 73 LBK units and 1 fragment dated to the Neolithic period. The number of pottery units in the layers varies significantly, with their maximum in the upper part of the filling (Figure 5). The average weight of pottery findings in the vertical structure also fluctuates, but more markedly than their number. The maximum average weight of units is concentrated in the bottom-most, stratified part of the sediment. This means that the minima and the maxima of the two followed attributes have the opposite trend. A higher fragmentation value is observed at the bottom of the fill, which probably points to an intentional event. The stone industry curve reaches its maximum in the middle of the fill. Different peaks of the monitored attributes are indicative of several deposition events reflecting the activities in the vicinity of the longhouse.

5.1.5 Feature 1936

Part of an irregular circular pit with a diameter of ca. 2 m is located in the eastern part of Sector A24, south of building pits 1924. It belongs to the complex of longhouse No. 1922 and it is dated to the classical stage of LBK (IIc). It was examined by the probe in 1993. It had an irregular bottom with a depth of ca. 0.6 m. In its lower part, it was filled with dark brown-black clay. In its upper part, it was covered with

black clay, with a submerged thin layer of even darker black clay on top of it (Figure 3). The pit is located on the west side of longhouse 1922 and can belong to its house complex.

In sum, 33 units of classic LBK and 1 fragment of early LBK were acquired from the explored part of this feature. The number of vessel units rises slightly from the bottom to the surface of the feature (Figure 5). The minimum average pottery weight was found at the bottom and in the layer just beneath the surface. This fluctuation in the average weights apparently corresponds to multi-stratification of the sediment. The presence of heavier pieces of pottery and of the larger parts of the stone industry assemblage in the lower half of the fill enables an understanding of its emergence as intentional. Similarly understood can be the presence of refits in the upper part of the sediment, *i.e.* as another intentional deposition.

5.2 Stroked Pottery Culture

5.2.1 Feature 1940

Part of the settlement feature was investigated in 1993 at the southern edge of the area in Sector C24. It points to the settlement continuity of the area, dated to the later stage of SBK (IV), for which, however, there are no groundplans of the longhouses of this period. The uncovered part is 1.12 m wide, its second perpendicular axis is longer and indicates an irregular oval shape, apparently of a silo. Other formal signs also indicate a storage pit: one of the walls is nearly perpendicular to the bottom, while the other runs straight to an almost flat bottom. The filling of the feature is considerably stratified, brownish (brown-black of varying intensity) in the lower part and grey (grey, brownish and grey-black) in the upper part. The individual layers are interlaced with distinctive layers of charcoals (Figure 3).

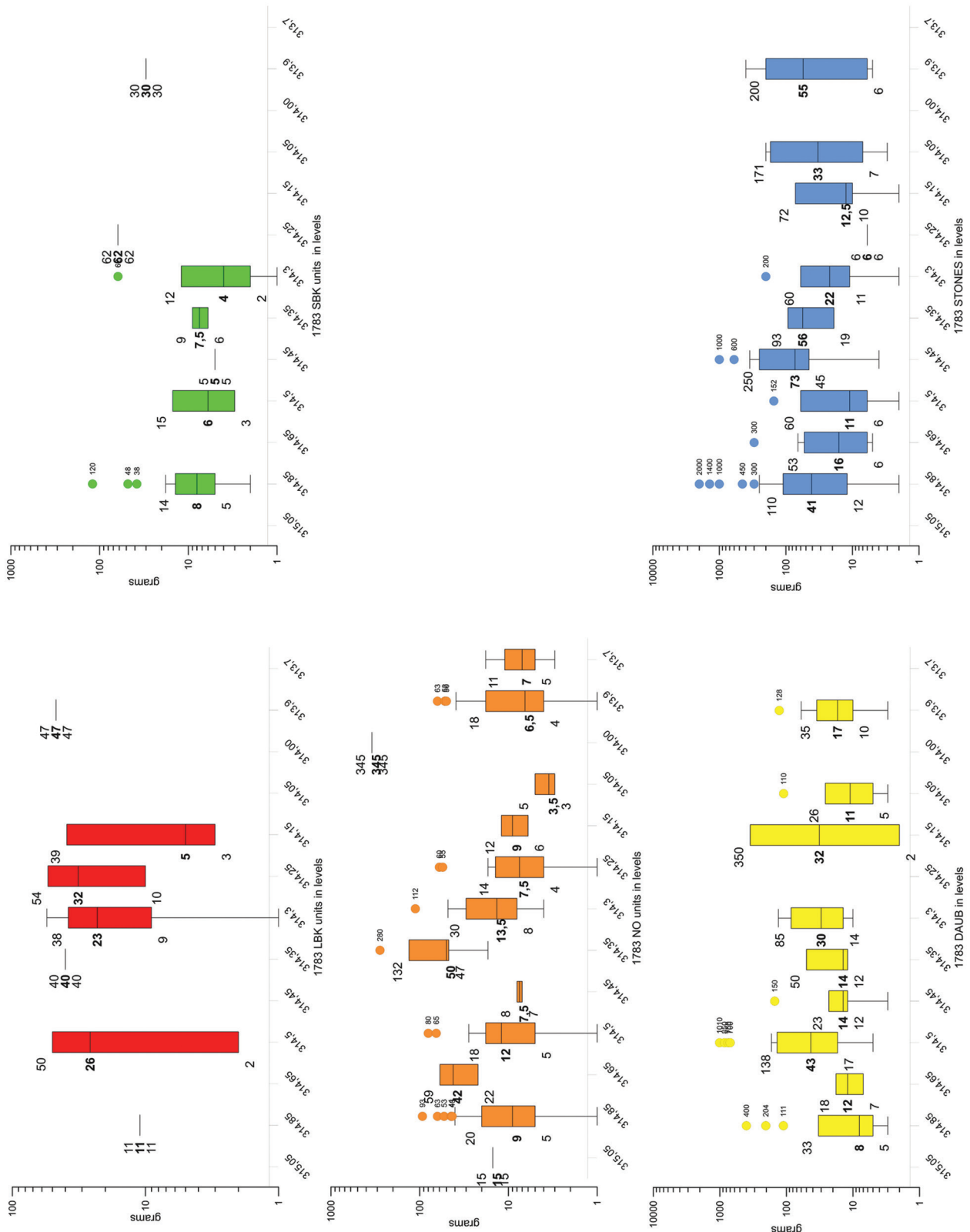


Figure 7. Boxplots for the settlement feature No. 1783.

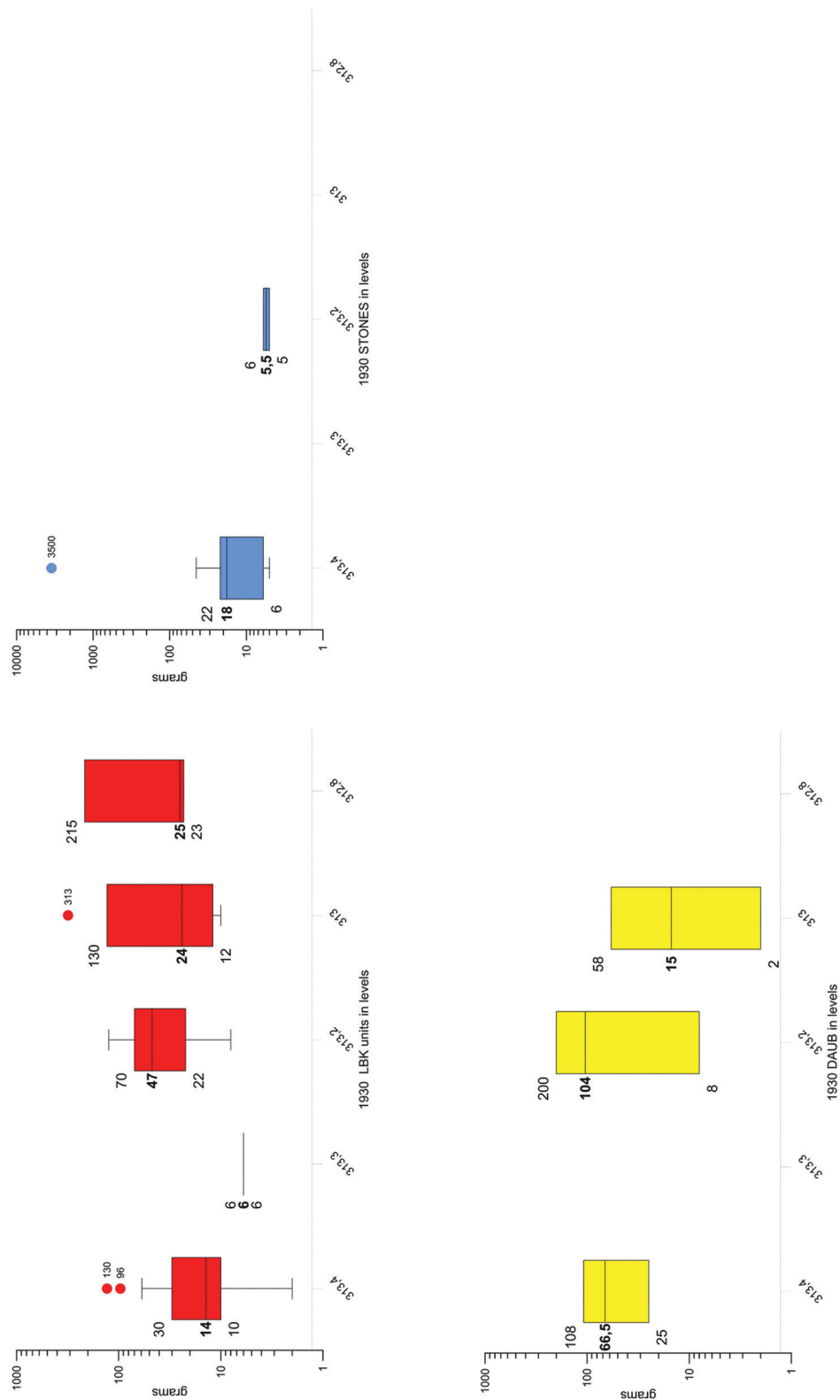


Figure 8. Boxplots for the settlement feature No. 1930.

A total of 49 units with a 1:2 ratio in favour of SBK pottery were acquired from the explored part of the feature. SBK pottery clearly prevails just above the bottom and its representation upwards decreases (Figure 6). The curve of the pottery weight and percentage representation of LBK pottery has a different course than that of SBK. There are minimum LBK findings (19%) at the bottom with two following peaks: one smaller in the middle part of the filling (25%) and the other, significant, in the upper layer (44%). In terms of the average weight of the sherds in individual layers, the heaviest SBK pieces occur just at the bottom and then their weight decreases steadily. The average weight of LBK fragments fluctuates, with the heaviest pieces in the upper layer. This different trajectory of the monitored value curves reflects the different distribution of finds in layers apparently related to events such as a refuse-disposal mechanism in the area of the settlement. The predominance of SBK pottery above the bottom probably refers to the time of the extinction of the pit, while the predominance of older LBK pottery, together with non-pottery findings in the higher parts of the fill, refers to another deposition event.

5.2.2 Feature 2385

An irregular circular pit with a diameter of 2.70 m was uncovered during the 2004 research work in Sector KL8 within the expansion of Area B in the Bylany 1 microarea. The settlement pit is dated to the late stage of SBK (V) and is not chronologically unique (*cf.* Zápotocká 1975–1976). It had almost vertical walls and a slightly concave bottom (Figure 3). It was filled with two layers of sediment, *i.e.* dark black earth at the bottom and brown clay in its upper part. It belongs to isolated features within the area surveyed.

Altogether 368 units of Late Neolithic non-decorated pottery (SBK) was acquired from its filling, which have already been published with regard to the formative processes of the sediment studied (Kvěťina and Končelová, 2011). The number of SBK fragments fluctuates, with its minimum at the bottom of the feature and the maximum roughly in the middle part of the filling (Figure 6). The average pottery weight in the layers also fluctuates, reaching the minimum in the middle part of the filling and the maximum above the bottom. The results of the observed attributes correspond well with the previously-proposed hypothesis of an intentional deposition cone defined by the location of refits (Kvěťina and Končelová, 2011, Figures 9–10, p.64).

6. The Vertical Structure of finds in Rondel Ditches and in Outer Enclosure

The features with different functions are Ditches 1728 and 1745 of Rondel 4/1 and its Outer Enclosure 1830 (Figures 2 and 9) that are dated to the late stage of SBK, specifically to sub-stage IVa2 (more in Pavlů, Rulff and Zápotocká, 1995, p.121). Ditches 1728 and 1745 are considered to be contemporary and are also chronologically associated with the cremation graves of the Miskovice necropolis.

Even though the outer enclosure No. 1830 is dated to the same sub-stage, the pottery from its infill is considered to be somewhat younger than in the case of ditches 1728 and 1745 (Pavlů, Rulff and Zápotocká, 1995, pp.40–44). A considerable number of LBK pottery intrusions in the fill of ditches of Rondel 4/1 and of outer enclosure (Pavlů, Rulff and Zápotocká, 1995, pp.39–44) were up to 1.5 times the number of SBKs. This fact led us to ask several questions. How is pottery refuse represented in the individual layers of ditches? Does the distribution of pottery refuse show any differences in terms of the chronological classification of this pottery? Does the vertical structure of pottery in the ditches differ in any way from the settlement features?

For each ditch, one cross-sectional profile was selected at the research site in the vicinity of the southern entrance (Figure 2). In this way, each section included several adjacent 1x1 m quadrants in Sector K6. The selection of quadrants was implemented to enable mutual comparison of the entire profile sections and representative tracking of the distribution of pottery finds in their fills. Each layer (either mechanical or natural) was converted to absolute height (asl) in accordance with the levelling point in the field. In each such layer that was indicated by the altitude, the same selected attributes as with the settlement features were observed.

6.1 The Distribution of LBK Pottery in Ditches

6.1.1 Inner Ditch 1728

The inner ditch of Rondel 4/1 was uncovered in the area of the southern and western entrances in the years 1990–1992 by several probes in Sectors K6, L6, L7 and H10. The tip of its profile reached a depth of up to 2.1 m. The bottom part of the filling is considerably stratified, while the middle and the upper parts form more homogeneous layers (Figure 9). In this case, the vertical distribution of pottery was investigated in four 1-m quadrants (01/12, 02/12, 01/13, 02/13) at a distance of 8 m from the south entrance.

LBK pottery is completely missing in the bottom 0.40 m of the tip filling, *i.e.* up to 313.5 m asl. It increases markedly in the middle part of the ditch filling and sharply decreases at the interface of the middle and upper parts, *i.e.* at a level of about 314.75 m asl. This fluctuating tendency is evident on the cumulative graph (Figure 10). The curve that expresses the average pottery weight in the layer has a more balanced course, which is well documented by the median and second- and third-quartile values (Figure 13). Significantly heavier LBK units are present only in the upper part of the filling. In terms of the increasing proportion of pottery and non-pottery findings, the middle part of the fill is the richest, which is well illustrated by the cumulative graph curve (Figure 10). There is also a higher fragmentation index.

6.1.2 Outer Ditch 1745

The outer ditch of Rondel 4/1 was explored in the area of the southern and western entrances by several probes in Sectors K5, K6, L5, L6 and G10. The tip of the profile of this ditch reached a depth of 1.8 m. The bottom part of the ditch is also

considerably stratified, while the middle and upper parts are created by thicker layers (Figure 9). The vertical distribution of pottery was also investigated in four 1-m quadrants (01/02, 01/03, 02/02, 02/03) at a distance of 12 m from the south entrance.

The bottom part of the second ditch, up to 313.15 m asl, is also free of any LBK findings. The course of the curve that expresses the LBK representation in the layers is relatively constant in comparison to this course in Inner Ditch 1728 (Figure 11). Also, the course of the average pottery weight curve is relatively even

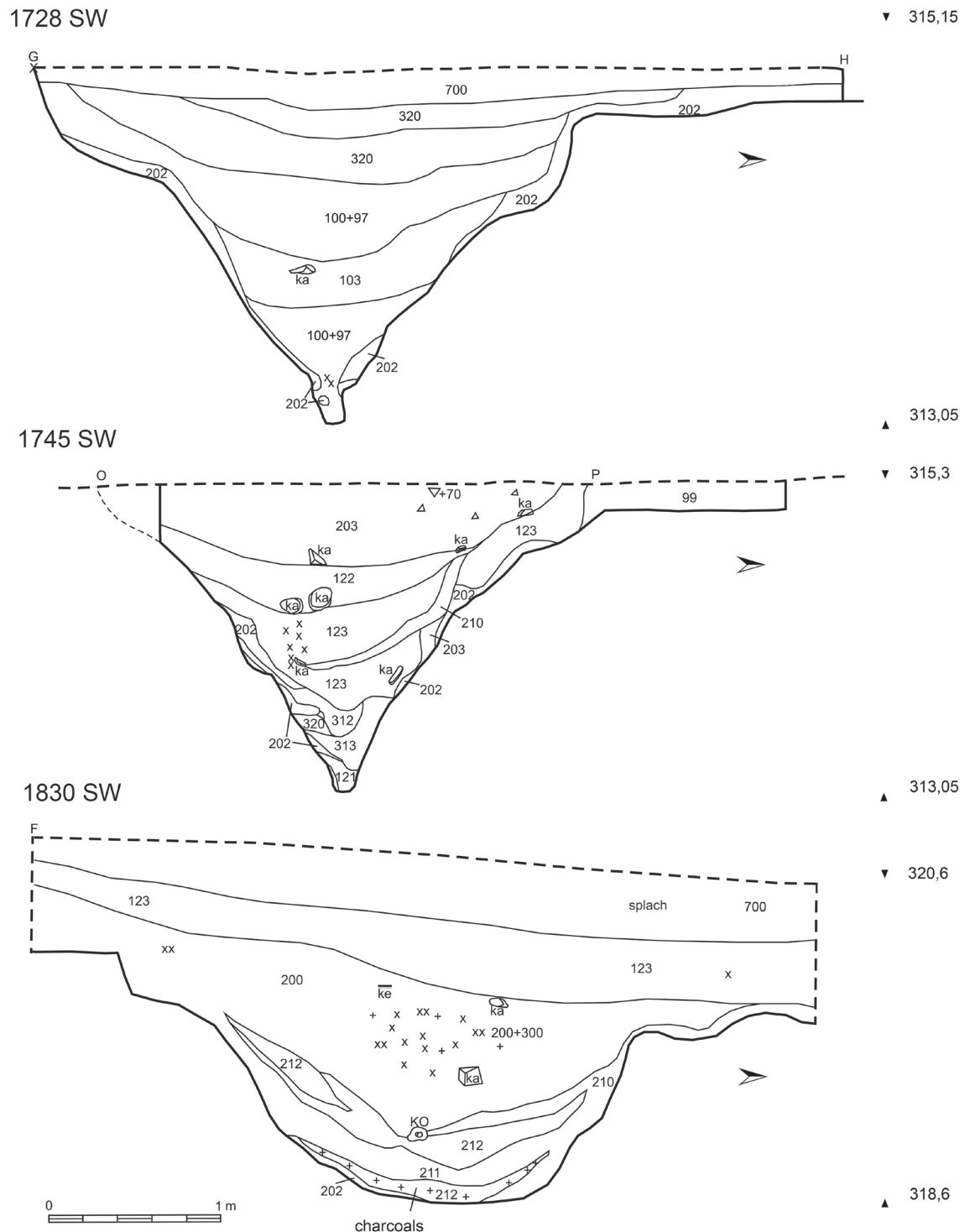


Figure 9. Profiles of the 4/1 rondel ditches (1728 and 1745) and of the outer enclosure (1830); the numbers indicate the type of the filling (103 – dark black, 121 – light-black-brown, 122 – medium-black-brown, 123 – dark-black-brown, 200 – brown, 202 – medium brown, 203 – dark brown, 210 – brown-black, 211 – light-brown-black, 212 – medium-brown-black, 303 – dark grey, 312 – medium-grey-black, 313 – dark-grey-black, 321 – light-grey-brown, 322 – medium-grey-brown, 700 – white).

and the box-plot graph provides a similar result (Figure 14). The peak of the amount of pottery in the upper layer, and also higher fragmentation indexes of LBK pottery, suggest an intentional deposition event in this part of the fill.

6.1.3 Outer Enclosure 1830

The later enclosure that surrounds the earlier Rondel 4/1 at a distance of ca. 70 m has a different depth of ca. 1.7 m and a trough-shaped profile (Figure 9). Two quadrants (01/01, 01/02) were selected in Sector C10 to examine the distribution of pottery in its fill.

The distribution of LBK pottery again indicates its absence in the lower significantly-stratified filling (Figure 12). The maximum amount is present in the middle homogeneous part of the filling and then the percentage of LBK pottery decreases. In terms of the weight median, the LBK set appears constant (Figure 15). The curves that show average pottery weights, index of fragmentation and non-

pottery findings have a very similar trend, which indicates a significant deposition event forming the middle of the filling.

6.2 The Distribution of SBK Pottery in Ditches

6.2.1 Inner Ditch 1728

SBK findings are missing at the bottom tip of the ditch, up to 0.40 m from its bottom, as is the case for LBK (Figure 10). A significant increase in the presence of SBK in the middle part of the ditch has then an upward tendency. The heavier SBK units are found at the interface of the lower and middle parts of the filling and then again at the interface of the middle and upper parts. Compared to LBK, the index of fragmentation of SBK pottery is higher in its lower parts.

6.2.2 Outer Ditch 1745

SBK findings are missing at the bottom tip of the ditch, up to 0.70 m from its bottom, *i.e.* up to 313.75 m asl (Figure 11).

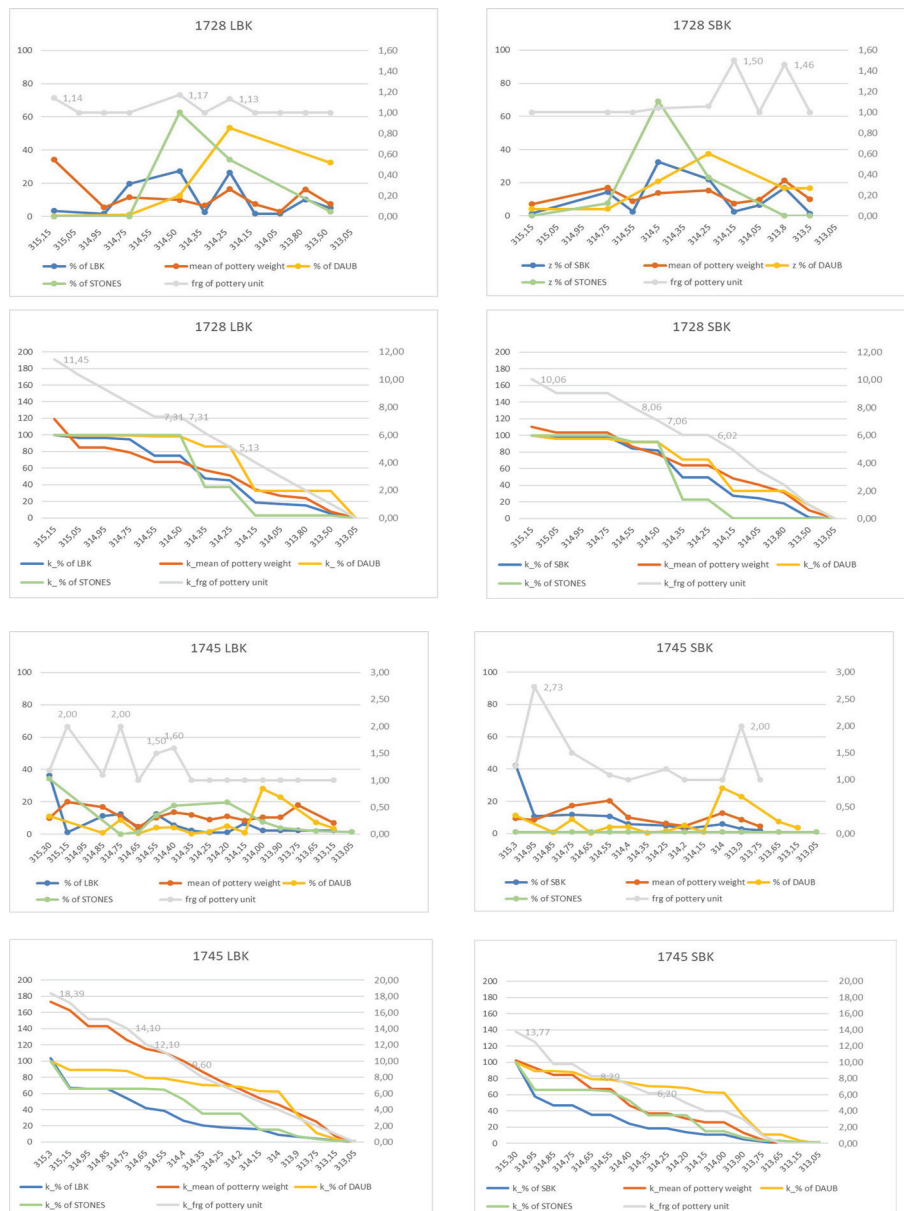
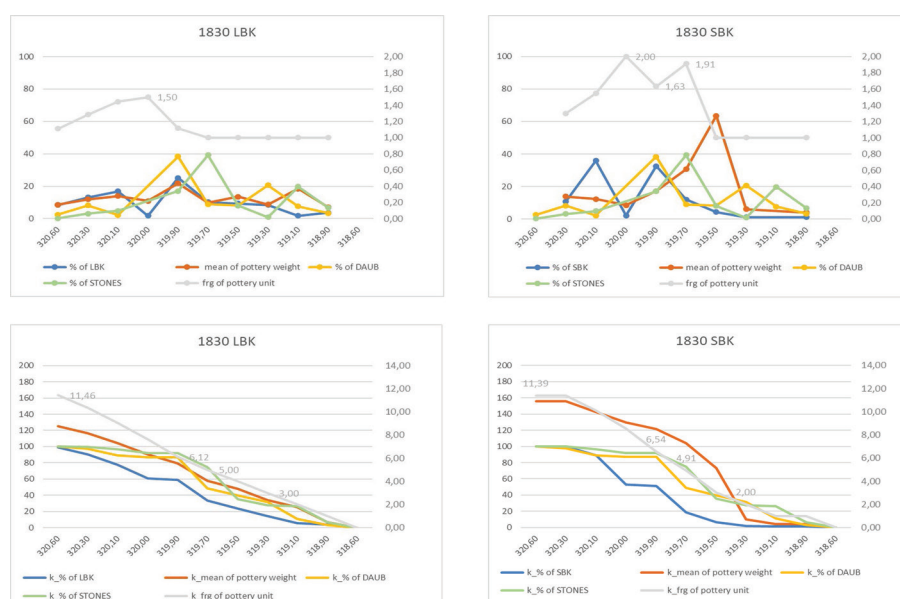


Figure 10. Line graph and cumulative graph representing selected attributes of the rondel ditch No. 1728.

Figure 11. Line graph and cumulative graph representing selected attributes of the rondel ditch No. 1745.

Figure 12. Line graph and cumulative graph representing selected attributes of the enclosure No. 1830.



The curve of the numerical representation of SBK pottery increases steadily and reaches its maximum in the upper part of the filling. The course of the curve that shows the average pottery weight has two mild peaks at the interfaces of the layers, *i.e.* the lower and middle, and the middle and upper ones. At the bottom, as with the inner ditch, there is a higher fragmentation index. In terms of weight medians, the set of SBK pottery in sediments fluctuates more than the LBK (Figure 14).

6.2.3 Outer Enclosure 1830

In terms of the distribution of SBK pottery finds, External Enclosure 1830 with its concave bottom totally differs from the V-profile Ditches 1728 and 1745 (Figure 9). The structure of the findings in the enclosure fill shows a rather similar trend as for the settlement features, meaning that the larger and heavier fragments are at the bottom half and smaller pieces towards the surface.

7. Comparison of the results of Neolithic finds Distribution in Functionally Differing Features

The analysis of the structure represented by the pottery material in the fills of selected sections of the two V-profile ditches (1728 and 1745) and of the outer enclosure (1830) shows a different distribution of pottery to that of the two Neolithic cultural units. For the settlement features and settlement enclosure, the larger units accumulate at the bottom of the filling while smaller fragments appear more upwards. This would indicate a connection between the heavier units and the period of extinction of individual features and the immediate settlement activity in their surroundings. Smaller and broken pieces in the upper part of the filling are probably the result of a larger chronological hiatus during the infilling of the features. An intrusion of LBK units comes as a result of previous settlement activities, where pottery refuse remained

on the surface of the settlement and did not end up in the filling of the features until the SBK period. This fact could be evidenced by the lower average weight of LBK units and also by its lower weight medians.

Looking at the range of selected files statistically in accordance with the values of the median and two quartiles, it is apparent that the median values vary considerably with the stone artefacts and daub. In contrast, in the pottery files they are more balanced, with the exception of ditch 1745, where they also fluctuate more. The range of sets in accordance with the quartiles varies more or less in all the compared sediments and layers, and there is no uniform model for them. However, layers within each feature separately seem to show some similarities.

There is a certain decreasing tendency in the range for non-pottery elements from the bottom of the feature in ditch No. 1728 (Figure 13). Pottery is also more evenly distributed in accordance with the medians and quartiles. For LBK pottery, there are typical outliers in several layers of the entire profile, while for SBK pottery these outliers are more likely to appear only in the lower layers. The sediment excavated from ditch No. 1745 (Figure 14) can be characterised by the large fluctuations in medians, and also by a large statistical range in all horizons and in all categories of artefacts observed. Compared to the sediments from the rondel ditch, the 1830 large enclosure sediments are different in all categories (Figure 15). LBK pottery has relatively balanced medians, but also outliers in a number of horizons. SBK pottery shows a declining level in the middle of the filling and is almost absent in the lower and upper parts. Some characteristics can be explained hypothetically by the consequences of different sediment-deposition mechanisms. The increased range in weights of artefacts in some parts of the profile is attributed to a more intensive sediment deposition after a certain break, both in intentional and non-intentional ways. The occurrence of outliers is more a consequence of intentional filling.

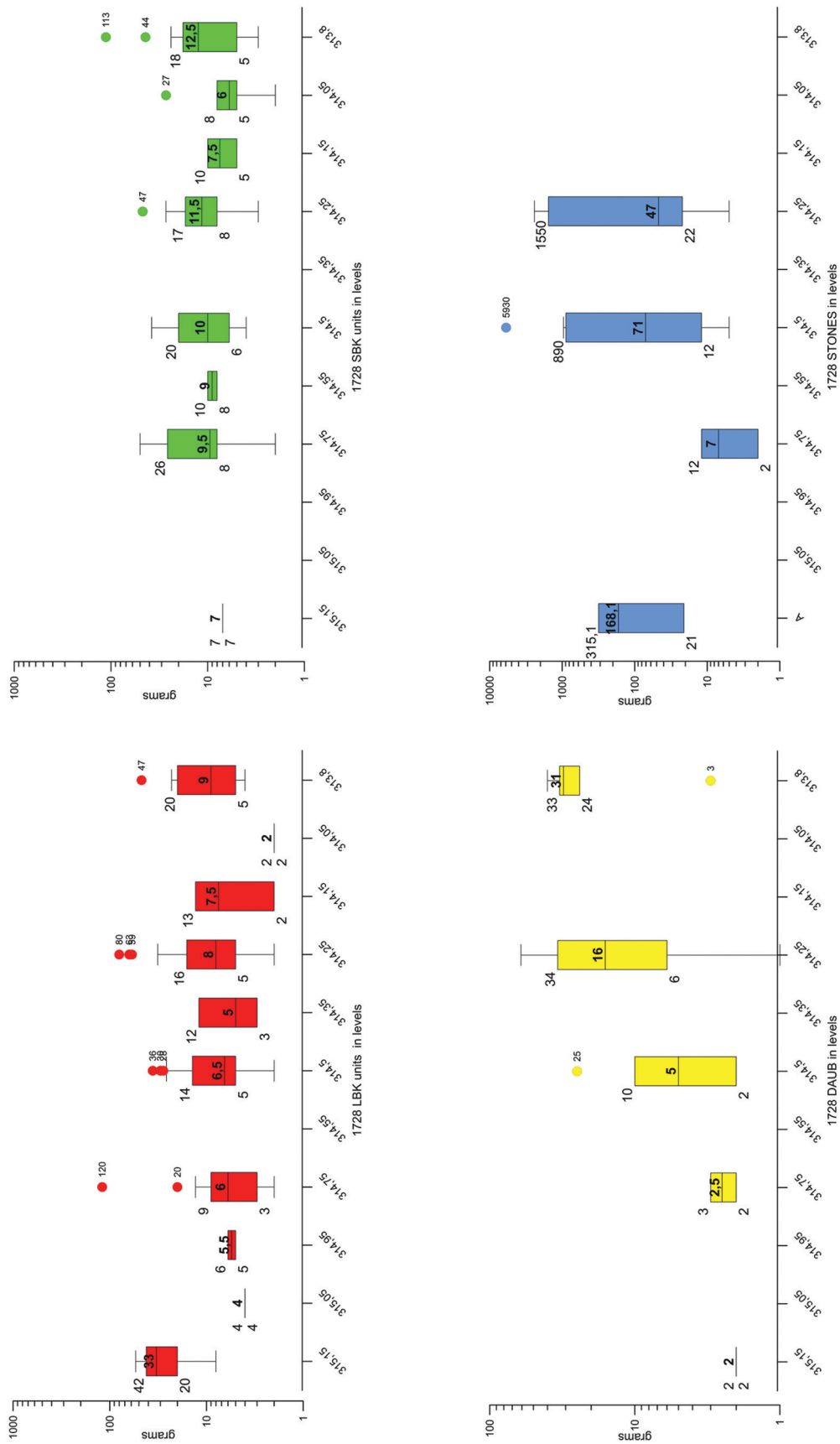


Figure 13. Boxplots for the rondel ditch No. 1728.

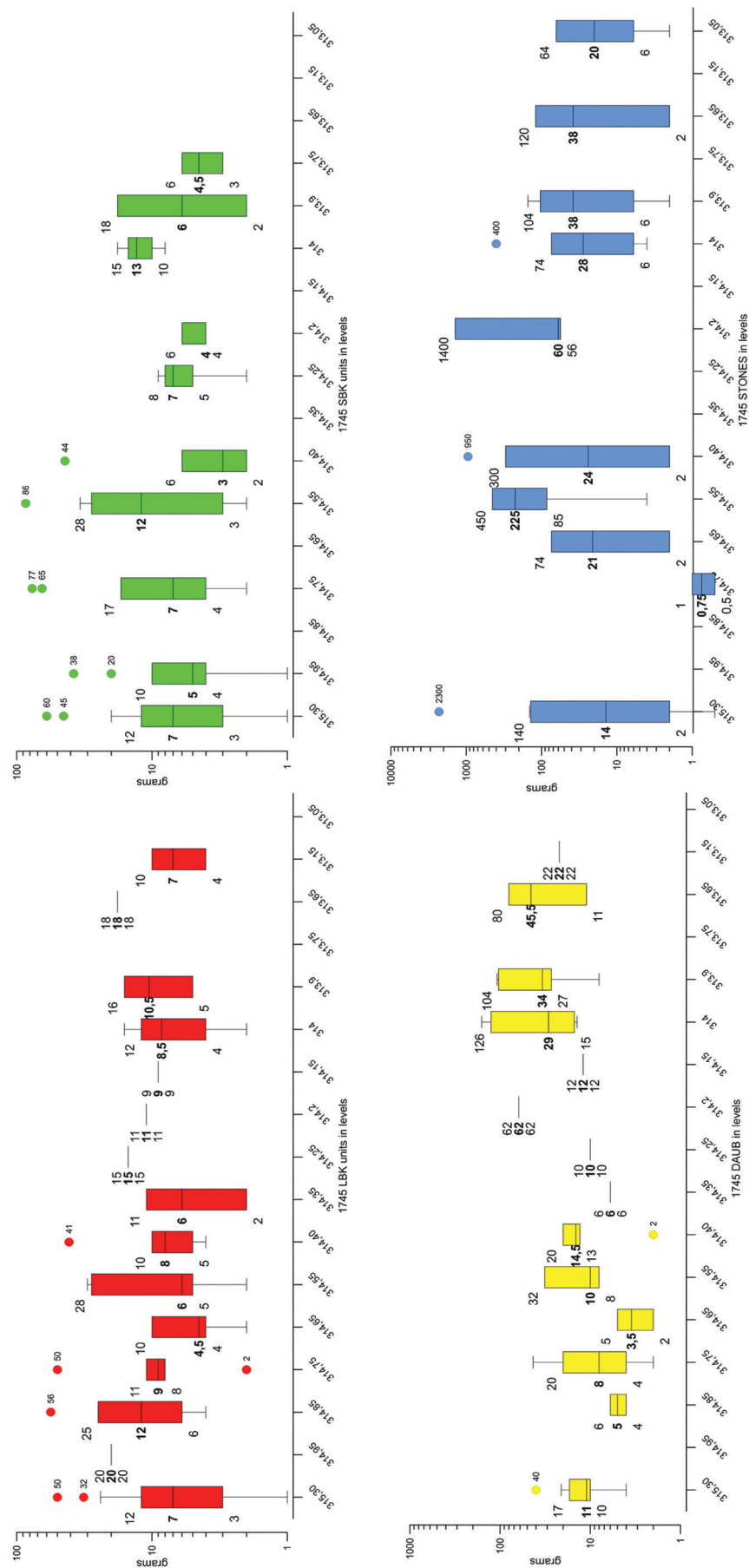


Figure 14. Boxplots for the rondel ditch No. 1745.

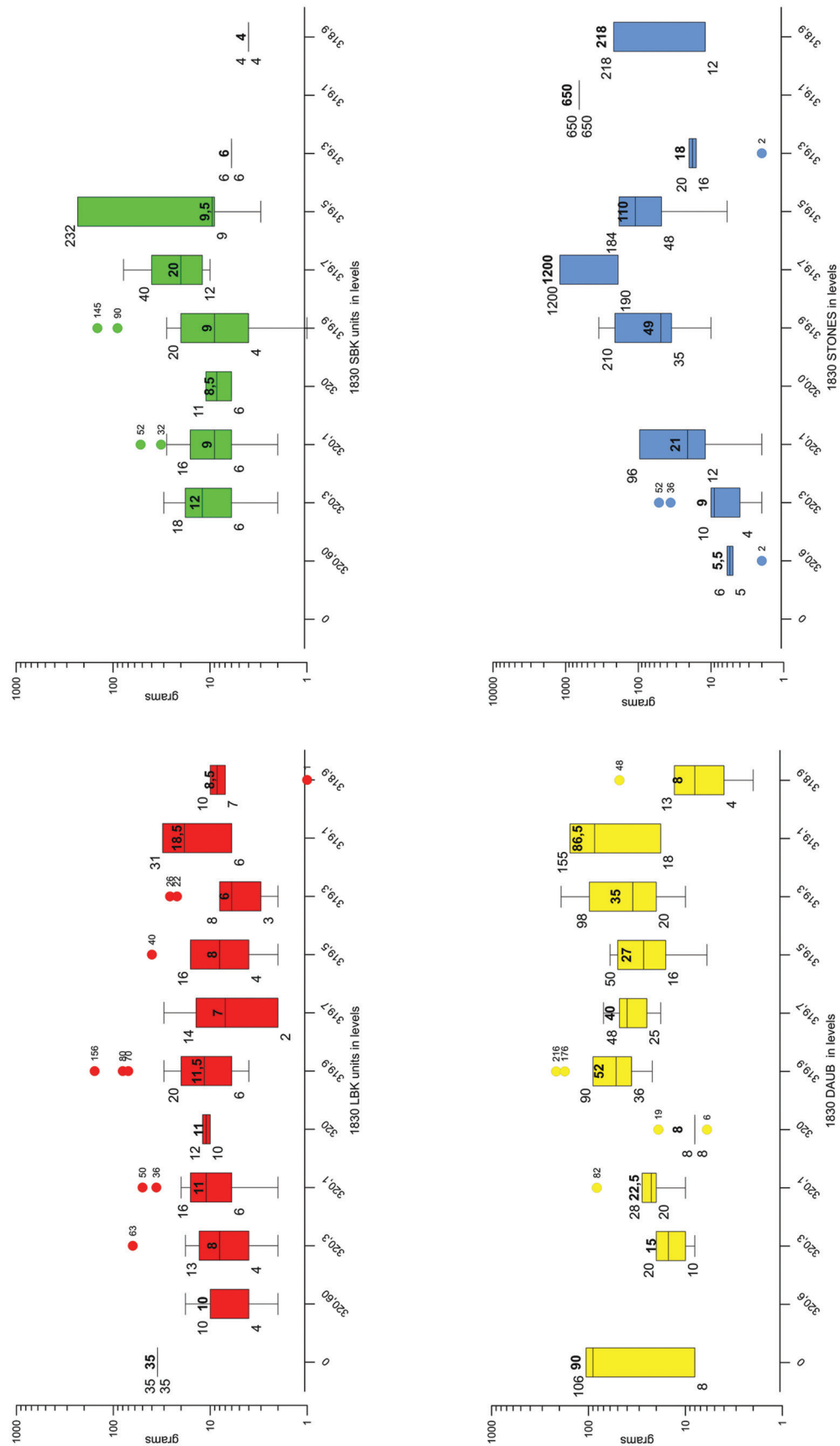


Figure 15. Boxplots for the enclosure No. 1830.

A consistent trend in the distribution of the findings from the ditches and outer enclosure in Bylany is the absence of pottery in the stratified bottom part of the filling. This apparently points to its fast infilling, as in the settlement in Kolín and Vchynice (Řídký *et al.*, 2014; Válek, 2016). Otherwise, the representation of LBK and SBK pottery in the ditch and enclosure fills behaves rather differently. The representation of LBK units in the ditches slightly fluctuates both numerically and in terms of weight and it probably reflects the unknown treatment of older refuse in the SBK settlement. Significant peaks of the curves of both values are evident in the upper parts of the ditches, which may suggest intentional levelling. The curves of observed SBK values are more balanced, at least for ditches. They are slightly increasing in the middle part, which could correspond to the documented settlement SBK activities after the ditch disappearance. This would also correspond to a significant representation of larger and heavier pieces of pottery in the lower part of the outer enclosure, which is hitherto been understood to be contemporary with the settlement outside Rondel 4/1.

8. Interpretation of Model Situations of Neolithic finds in fills

We intentionally do not use the term closed finds in the classical sense of a one-off event as understood by S. Vencl (2001) in a study that rehabilitates this term. The involution horizon of settlement features and ditches does not seem to be an event occurring at one point, but we assume that it reflects behaviour in a certain “limited” time and space. This means that the filling of the feature can indicate the time horizon along with the events in the vicinity of features under investigation and that the dynamics and the mode of the infilling are reflected in the distribution of the findings in the filling, the character and the number of fragments in individual layers. Given some opinions that finding assemblages from settlements are useless in terms of the determination of the chronology because they only bring values of “... a pseudo-quantitative series of indicators...” (Vencl, 2001, p.606), our approach was based on the maximum effort to reduce the negative influence of the basic input factors and on the consistent criticism of sources. It means that the analysis of the structure of pottery and non-pottery findings in these settlement assemblages was directed with the same effort to utilise the information value of these findings despite all critical remarks (as *e.g.* Kuna, Němcová *et al.*, 2012, p.172). To this end, we explored the distribution of the different findings and their characters in detail in each of the particular levels. Interfering factors that influence the nature of archaeological sources are represented by different circumstances during the infilling of features, such as the influence of post-deposition processes, the impact of activities carried out in the settlement during the deposition of sediments, the variability of natural processes, and the quality of archaeological research and its

processing (Vencl, 2001, p.599). This study on the history and the current use of the term ‘closed finds’ summarises, in great detail, all the theoretical circumstances related to this issue. However, these theoretical factors and circumstances cannot be determined in advance for a specific archaeological situation and therefore their impact cannot be eliminated. It is only after the analysis of the composition of the finding assemblages and their characteristics that presumed factors can sometimes be hypothetically identified and considered. The author of the study thereby very extensively justifies his critical attitude to the current empirical work with settlement findings (Vencl, 2001), without regard to any other solutions. While we are aware of these theoretical obstacles, we still consider the results of the empirical analysis of settlement assemblages, at least for the Neolithic period, to be acceptable, especially in terms of chronology (*e.g.* Pavlů, 1977; Pavlů, Rulft, Zápotocká, 1986). Although the archaeological content, both in the filling of the ditch and in the settlement pits, is understood to have the lowest predictive value (Vencl, 2001, p.608), numerous analyses of settlement material (*e.g.* Pavlů, 2000; 2010; 2014; Květina, Končelová, 2011; 2013a; 2013b; Končelová, 2013; Kuna, Němcová *et al.*, 2012) show that their results can stand up to the results of others.

Previous attempts have been made to systematise the fillings of features on Neolithic settlements in Roztoky (Kuna, 1991, p.39) and in Bylany (Rulft, 1997; Pavlů, 2010); there were also attempts made to interpret them in the sense of a rapid one-time infilling or a natural slow infilling by run-offs and various layers of refuse. Differences in the number of finds in features with homogeneous filling, and in those that are stratified have not yet been confirmed. We are convinced that our results justify the analysis of the vertical deposition of finds in the filling of individual features. However, it is necessary to consistently distinguish between the behaviour of the clay sediments and the actual artefacts stored therein. It is necessary to evaluate individually the specific natural conditions of deposition on a specific site and the variable cultural role of individual features.

So far we have investigated only a relatively small sample of the fillings of sunken features in Bylany. These included seven settlement pits, two rondel ditches and one outer enclosure. Four of the settlement features belonged to the Linear Pottery Culture (1916, 1930, 1935, 1936), one to the Stroked Pottery Culture (2385), and two were features with a mixed content (1940, 1783). Ditches 1728 and 1745 and the outer enclosure belong to the late stage SBK and constitute a functional counterpart to the features with a settlement nature.

The cases that have been examined so far suggest various models of the vertical structure of distribution of Neolithic pottery in pit sediments (Figures 4–8). The first model is characterised by the variations in both the number and average pottery weight in the layers, by the maximum values in the middle of the filling, or in its bottom part, and by the decrease in the values towards the surface of the features (1916, 1930, 1935). The curves of the two observed values

are not entirely parallel or are, in some cases, opposite or slightly shifted. These values in the case of the second model also fluctuate, but are significantly higher at the bottom of the features or in their lower parts (features 1936, 2385). The first model was more frequent in our sample of pits than the second one.

Silo 1783 contained roughly the same proportion of LBK and SBK. The results for chronologically-older pottery show a vertical structure of distribution that significantly fluctuates with a maximum representation in the middle of the filling and with the heaviest units at the bottom. The fluctuation of values would correspond to the first case. At the same time, the course of both criteria does not show much overlap. The Stroked pottery shows an elevated average weight in the bottom of the filling, a sharp drop in the middle part and a steep rise towards the upper part of the filling. This could partially correspond to the second case. As with the Linear pottery, there is a little concurrence of both criteria. We consider this case as a specific model in regard to those features with a significantly mixed content, which is characterised by a significant difference in the behaviour of the percentage of pottery and its average weight in individual layers. The behaviour of two pottery assemblages in Feature 1940 also differs. The Linear admixture in the section varies both in numerical and size terms and the content of Stroked pottery greatly increases towards the bottom. The curve of non-pottery findings has the opposite trend.

The first case (features 1916, 1930, 1935) is explained as inorganic infilling of abandoned features. The formation of their fillings is understood as the gradual and natural accumulation of layers of clay with the settlement refuse from the surrounding area, which, however, does not have to be fully evident in the section. The feature profiles comprise thicker layers or a homogeneous bottom layer that is sometimes formed by thinner layers. Individual horizons could be formed indefinitely and with breaks.

The second case is considered to be the result of the intentional infilling of the pits (feature 1936, 2385). Larger fragments from refuse corresponding to the original function of the pit thereby reached the bottommost layers. Their profiles are made up from more structured fills, but these layering differences cannot be further specified.

Features with a culturally-mixed content manifest either a completely different distribution pattern of chronologically-different fragments in their profiles (1940), or a very irregular and rather contradictory distribution of chronologically-different fragments (1783). This applies both to the numeric representation in the layers and to the second monitored characteristic of the average fragment weight. In such cases, these are features with a distinctly inhomogeneous and highly stratified filling.

If we compare the distribution of finds in the settlement pits and ditches, we observe an opposite trend. At the bottom in the fill of SBK settlement features (1940, 2385) there are larger fragments and their size decreases upwards, which would indicate their long-term opening within the settlement. The findings are usually missing in the lower parts of ditch

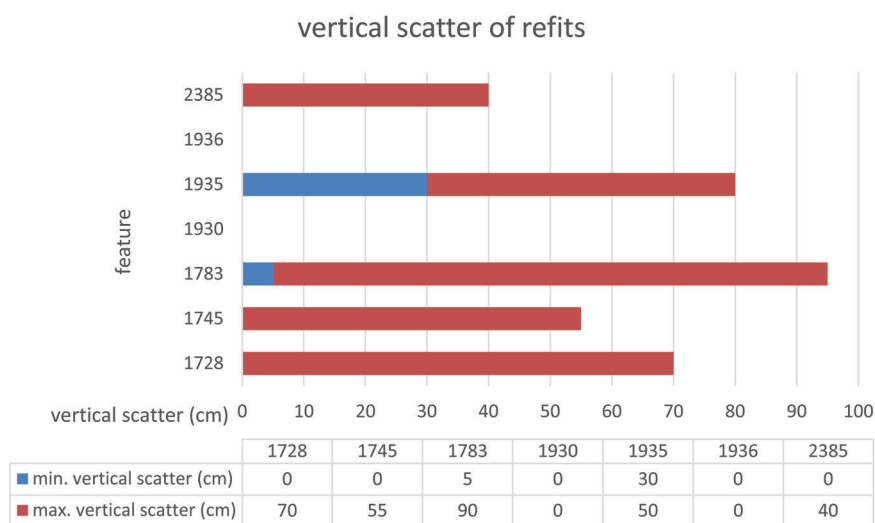
infillings in the case of Bylany, and the same is true in the Kolín and Vchynice sites (Řídký *et al.*, 2014, p.590).

9. Mapping of Pottery Refits

The recognition of potsherd refits plays an essential role in monitoring the distribution of finds in the filling of features. It is their distribution in the filling of features that is an important indicator of how the feature has been filled. Refits are seen as a set of fragments from one vessel. In the traditional archaeological concept, they are seen as directly rejoinable ceramic fragments; however, in a broader semantic sense, they can be seen as fragments that are not physically rejoinable but exhibit the same formal and technological characteristics (more in Bollong, 1994). As already mentioned, the precise spatial surveying of individual fragments is a relatively laborious method, but these attempts can bring interesting results from the perspective of deposition processes (*e.g.* Květina, Končelová, 2011; Kuna, Němcová *et al.*, 2012). Thus, a more accessible method of determining how features have been filled is by identifying refits and assessing their distribution in the fill layers. We can assume that a large number of fragments from one vessel in the filling of a feature will represent the result of a specific deposition event that took place in a short time interval and that the distribution of refits, whether in one layer or across them, reflects the way the feature has been filled.

In the features studied in this work, the refits usually consisted of non-rejoinable parts, *i.e.* those which can only be macroscopically assigned to one vessel. There are usually 2–3 pieces (1936, 1745), rarely up to 5 pieces from one vessel (1930, 1935, 1728). The exception is represented by two features (1783 and 2385) that only sporadically contain refits consisting of more than three dozens of fragments (Table 1). There are usually 2–5 cases of refits in the monitored features, while the higher number of refits comes from the settlement features (1783 and 2385) and from the inner ditch (1728). On the other hand, there are also cases where no refit has been found. As in the case of smaller settlement features (1916 and 1940), where the probability of the identification of refits is high, while the technical identification of refits is more difficult for very large sets, for example, for the external enclosure (1830). We assume that differences in the occurrence or absence of refits cannot be random and must reflect different deposition events. The noticeably higher number of refits and their parts in feature No. 1783 points to an intentional deposition event that indicates an intense pre-rondel settlement in the interior of the later 4/1 rondel and is also likely to be affected by the direction of the slope (W-E). The larger number of refits in inner ditch No. 1728 and, on the other hand, the lower number of refits in outer ditch No. 1745, would then point to the contemporary existence of both bodies, or their time sequence in the outward direction, with most of the inner surface findings ending up in the inner ditch due to the terrain of the slope. At the same time, this fact points to the impossibility of the occurrence of a rampart

Figure 16. Vertical span mean spatial distance of parts of the refits in feature (minimal or maximal). “0” mean that the parts of the refit are in the same layer.



in the interior space. This would prevent such deposition.

An important indicator is the spatial distribution of refits (Figure 16). If they are present in one layer, it indicates a one-time event in a horizontal infilling (both intentional and unintentional). However, if their vertical span is larger, it can be concluded that the infilling has a convex shape (intentional) or that parts of one vessel were present in the space around the specific feature for a longer time and reached the fill within different time-separated events (unintentional). Both variants, *i.e.* within one layer and across them, were observed in our features (Table 1). A specific example is the detailed localisation of the finds in feature 2385, which enabled the tracing of the exact position of refits in the fill (Květina and Končelová, 2011, Figures 9 and 10). It turned out that in one case the position of refits created an imaginary cone. The situation was interpreted as a deposition of refuse, the individual fragments of the vessel being dispersed on the “sides” of the “cone” and thus indicating intentional and one-way anthropogenic activity. Another feature (1930) with a homogeneous filling and a larger number of refits indicates a more rapid infilling of the

feature in the form of an intentional one-time event in the space of longhouses Nos. 1921 and 1943. Another case is the stratified character of the fill and the lower number of refits or their absence in features Nos. 1916 and 1940, which may suggest a longer natural infilling of the feature. In these examples – 1930, 1936, 1940 – in the less exposed area of the settlement (area 1993), it is necessary to emphasise the diversity of the fillings and the representation of refits. The assumption of a different way of infilling the feature and the type of its filling corresponds well with the chronology of the specific features in this area. It would mean that 1930 (LBK IIa) was filled rapidly (homogeneous filling, refits), so as not to interfere in the further utilised space, and the younger feature No. 1940 (SBK IV) was filled naturally and more slowly as a result of a settlement disappearance (stratified filling, absence of refits). In addition to feature No. 2385, a large vertical span of refits was also recorded in features 1783 and 1728 (Figure 16). In the first case (1783), 4 refits are documented, including a larger number of pieces (8–36), that extend across the filling of the feature and lead to the presumption of a deliberate disposal of refuse. The absence of

Table 1. Number of refits (Σ) of the selected features. “N of refit” mean the number of parts of one refit (min. and max.) in feature and vertical scatter of refits (min. and max.) show the spatial distance of part of one refit in feature (“0” mean that the parts of the refit are in the same layer).

Feature	Function	Period	Σ refits	Min. N of refit	Max. N of refit	Min. vertical scatter	Mmax. vertical scatter
1783	silo	LBK III–IV	8	2	36	5	90
1916	pit	LBK III	0	0	0	0	0
1930	pit	LBK IIa	5	2	4	0	0
1935	building pit	LBK IIa	4	2	4	30	50
1936	pit	LBK IIc	2	2	2	0	0
1940	pit	SBK IV	0	0	0	0	0
2385	silo?	SBK V	27	2	33	0	40
1728	inner ditch	SBK IVa2	13	2	5	0	70
1745	outer ditch	SBK IVa2	5	2	2	0	55
1830	enclosure	SBK IVa2	0	0	0	0	0

LBK refits, which otherwise slightly prevails as a component in this feature (Pavlů, Rulff, Zápotocká, 1995, Table 22), would rather point to the association of the feature with the SBK period. At the same time, there would be a clear manifestation of intentional deposition of refuse at the period of use of the feature or just after it. A distinctive LBK component would constitute just an earlier intrusion. In the second case, *i.e.* with inner ditch No. 1728, refits occur in the middle part of the filling. This would suggest that the emergence of this middle part was faster – as well as its lower parts, which, however, lack a more significant representation of finds.

10. Conclusion

The detailed representation of the vertical structure of the findings in the fillings of the sunken features provides an opportunity to observe the variability of the distribution of individual findings, such as pottery and other artefacts. The content of mechanical horizontal layers can be compared with the actual sediment deposition that has been documented during the research. It is obvious that this is primarily an artificial stratigraphic structure that emerged as a result of a combination of cultural and natural processes that contributed to the creation of the pit fills. The layering of fills, along with the fluctuations in the number and size of the finding units, in this case pottery and non-pottery, show different events in the vicinity of the features under investigation – and the heterogeneity of the finding assemblages that were obtained during the research. Therefore, the characteristic layering of findings in features should be carefully considered when evaluating and interpreting the finding assemblages from different perspectives. For example, larger finding assemblages could be broken down into chronologically-more-consistent components and then evaluated separately.

The hypothetical models presented here are not definitive. The pilot assemblage of archaeological features from Bylany documents the fact that the finding assemblages should be further tested in terms of the dynamics of their infilling. Its significance would be a more accurate view of the composition of the finding assemblages – specifically from the perspective of chronology. Taking into account the distribution of findings and their properties in the filling of features could – in terms of chronological statistics – form a different approach to the grasping of information from finding assemblages and to the creation of their settlement chronology.

Acknowledgements

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