

Deposition analysis and the hidden life of Bronze Age houses

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ABSTRACT

This paper deals with the application of deposition analysis to an unusual type of features in the Late Bronze Age settlements in Central Europe. These are long narrow trenches (referred to as 'long pits' in this text) with characteristic standard form and alignment, as well as find contents, including high amounts of secondary-burned pottery fragments. In the context of prehistoric research, these features represent a relatively new phenomenon that has attracted attention in the last two decades due to new excavations in Bohemia and Bavaria. Based on the finds from Březnice (Czechia), the authors conclude that the long pits were connected with the closing rituals following the abandonment and burial of dwellings. Although no houses were directly documented on this site, their presence must be assumed, and their cultural biography can be reconstructed from the depositional characteristics of the accompanying finds. In order to fully understand the processes of deposition, the authors find it useful to focus not only on human agency but also on the relationships between the things themselves. This way, houses are understood as the central element of a hybrid actor-network. Their role may have been strengthened by their ontological status of living beings.

1. Introduction

The Bronze Age settlements in Central Europe sometimes contain features, the contents of which do not conform to the standard. These are mainly characterized by exceptional concentrations of pottery fragments and traces of their peculiar treatment before deposition, especially by strong fire. Such cases may be illustrated, e.g., by some Late Bronze Age (hereinafter LBA) settlement pits in Switzerland (*Keramikgruben*: [Joray et al., 2020](#); feasting pits: [Hauser, 2019](#)), the *Brand-schuttgruben* of the Urnfield period in Lusatia ([Bönisch, 2005](#)), or the 'trenchlike features' with a wealth of finds in Bohemia ([Chvojka et al., 2019](#)) and Bavaria (recently summarised by [Zuber, 2021](#) as *langschnale Gruben*). While it is possible that, originally, all these examples did not have exactly the same function and life histories, their creation must have had something in common on the general level. They share the treat of an unusual accumulation of everyday items, which are otherwise

spread in the settlement refuse, and deposition of them in a culturally specific – and structured – way. Even though the information on similar finds has not yet been systematically studied, it seems that they mostly come from the period between 1300 and 1000 BCE (BrD–HaA).

Similar finds can contribute to a new perspective on everyday life in prehistoric settlements, but also on rituals that were inseparably connected with it. For their explanation, however, we have to identify and interpret specific events and micro-processes in the life of artefacts and settlement features and to reconstruct their inner dynamics. Current prehistoric archaeology studies such topics as the 'biographies' of things ([Gerritsen, 1999, 2003](#)), refuse disposal behaviour ([Dietrich, 2016](#)) or archaeological taphonomy ([Sommer, 1991](#); [Stäuble, 1997](#); [Wolfram, 2014](#)). Applying these approaches, archaeology tries to return the finds their individual temporal depth, dynamics and relationship to specific human behaviour (or of other actors), which are aspects that often remain hidden or insufficiently explored in the traditional typological

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and chronological research.

The so-called long pits¹ in settlements of the Late and Final Bronze Ages in Bohemia and Bavaria belong to the aforementioned find category. These are noticeably long narrow features with rich find contents, mentioned in specialist literature since the 1980s (Schmotz, 1988; Nadler and Pfauth, 1993; Metlička, 2004), but not systematically studied until recently. A new impetus for the study of them came from the excavation in Březnice (Tábor District, South Bohemia; 2005–9; Fig. 1), where a large number of them were found. The processing of the finds from this site and the explanation of the long pits became the subject of a research project (2018–20), the results of which (Chvojka et al., 2021) serve as the basic source of information for this contribution.² The finds from Březnice have demonstrated that the Late/Final Bronze Age long pits do not represent a mere curiosity, but a relatively frequent phenomenon, the character of which deserves a thorough explanation. Our current article focuses on one of the specific approaches to the given features, the deposition analysis of pottery fragments from their backfills, attempts to explain them in terms of human behaviour and generalizes the results in the relevant areas of archaeological theory. In our opinion, the problem of long pits cannot be completely solved using common existing theoretical models of the relationship between people and artefacts, but it is necessary to look at the issue in a broader context of things as actors in the hybrid actor-networks.

2. Background: 'long pits' in the settlements of the Late and Final Bronze Ages

Features of the mentioned type and age are remarkable already by their geographic distribution, which does not correspond to the traditional understanding of regional cultural entities. In fact, they occur in South and West Bohemia and in the neighbouring parts of Eastern Bavaria (one find also in Austria: Fig. 1), i.e., in the territory of different, even though cognate groups of the Urnfield cultural complex geographically divided by the Šumava Mountains (i.e., the North-Eastern-Bavaria group and the Knovíz-Milavče culture; Chvojka, 2011, 90). Neither in Bohemia nor in Bavaria, did they occur on the whole territory of the given archaeological cultures (we do not know, e.g., any case in Central or North-Western Bohemia, although the largest excavations of Knovíz settlements were carried out right there). The long pits therefore represent a markedly regional and, at the same time, an inter-regional phenomenon.

Today, we know of about 60 long pits in 14 sites in Bavaria (Zuber, 2021) and of 34 long pits from 15 sites in SW Bohemia. The site of Březnice contributes significantly to the number of the Bohemian finds with 15 unearthened long pits and tens of others detected in magnetometer surveys (Fig. 2; Kuna et al., 2021ab; pits recorded only in the latter way are not included in the above-mentioned sum of the Bohemian finds). The occurrence of the long pits is restricted to the BrD–HaB period, although later examples have been exceptionally reported from Bavaria (Kas, 2006, 80–2).

Březnice is currently the largest known settlement of the LBA in SW Bohemia; it covers a surface of about 10–12 ha (Kuna et al., 2021a). All prehistoric finds on the site come from a single chronological phase

¹ ¹ In Central European archaeology, we are still lacking an established designation of these features. Until now, we have come across 'streifenförmige Befunde' (Metlička, 2004), 'trench-like features' (Chvojka et al., 2019a) or 'langschmale Gruben' (Zuber, 2021). In some of our other works (Chvojka et al., 2021) we tried to introduce the general term of 'trench' ('žlab' in Czech), which we preferred in English to 'ditch', 'gully' or 'trough'. In this work, we finally turned to the even more general term 'long pit' on the advice of editors. However, we still consider both terms that we use in different places (i.e., 'trench' and 'long pit') to be preliminary.

² ² The project was supported by the Czech Science Foundation (GAČR), No. 18-10747S.

(HaA2, 11th century BCE). The Březnice long pits display all traits that are typical for the given type of feature: they are longish narrow features (with a breadth of usually 0.8–1 m and a length of 3–7 m), their depth is usually around 50 cm, and they are uniformly aligned along the north–south axis (Fig. 3). With minor exceptions, the long pits did not show any traces of inner constructions. A characteristic feature of all these long pits is their contents: they mostly yielded large amounts of pottery (together with other clay artefacts, daub, stones etc.), which went through a strong fire before being deposited in the pits (Fig. 4; Table 5).

The previous research has brought several suggestions on how to interpret the long pits and their specific contents. Leaving aside a considered connection with pottery production (based on the large amounts of secondary-burned pottery) and cooking or drying of agricultural produce (traces of fire), two models appear as the most frequent options: long pits as (i) foundations of looms and (ii) pits for votive (burnt) offerings. The first model is based on the frequent finds of loom weights (Schmotz, 1988; cf. Zuber, 2010; 2021), the second on the traces of strong fire on the finds and indications of symbolic behaviour (e.g., alignment along with the cardinal points; Nadler and Pfauth, 1992; Vencl, 2016).

In this contribution, we take a different path. Based on the deposition attributes of the finds, we try to reconstruct past human behaviour and its motivations at the time when artefacts were moving from their functional (systemic) state to the archaeological context. We call this approach deposition analysis; its basic principles and results are detailed in the following chapter.

3. Material and methods: Deposition analysis of the archaeological context

3.1. Deposition analysis in archaeology

By deposition analysis we understand the evaluation of the archaeological context from the perspective of its physical development or deposition. The key to understanding this process is the deposition attributes of artefacts and ecofacts, i.e., their properties that carry any information on the processes and events under which they left their place in the living culture and changed into archaeological finds. Here, we focus primarily on pottery, but we also take into account other sources of information. Anyway, pottery is the most frequent find type in the pit features, and its properties (e.g., the degree of fragmentation, abrasion, secondary burning etc.) can, to a great extent, illustrate the process of the formation of a given archaeological context as a whole.

Contrary to the natural sciences, we understand deposition as related to the original cultural system – this term, however, cannot be reduced to human activity only. Deposition, therefore, does not have to be only a short moment (as, e.g., breaking or losing a tool at work), but a longer process with a speed corresponding to the character of the relevant actors (e.g., the cultural layer moving gradually into an abandoned settlement pit). Deposition can be of a complex nature and can take place in more phases: the discarded artefacts and ecofacts can survive in the deposition context for a long time, being subject to redeposition, recycling or even reintegration into the living culture (cf. Eggers, 1959; Ascher, 1968; DeBoer, 1983; Needham and Spence, 1997). From this point of view, deposition seems to be a somewhat more complex topic than described in the well-known works of behavioural archaeology (Schiffer, 1972, 1976, 1987). It has been shown that its Schiffer's concepts, despite being very inspiring, cannot be directly applied to the prevailing find assemblages from European prehistoric settlements (Kuna, 2015). On the other hand, however, the evaluation of the archaeological remains in terms of basic discard (behavioural) categories can be highly useful since it can narrow down the wide range complex amount of possible interpretations and exclude those that are incompatible with the basic deposition character of the context.

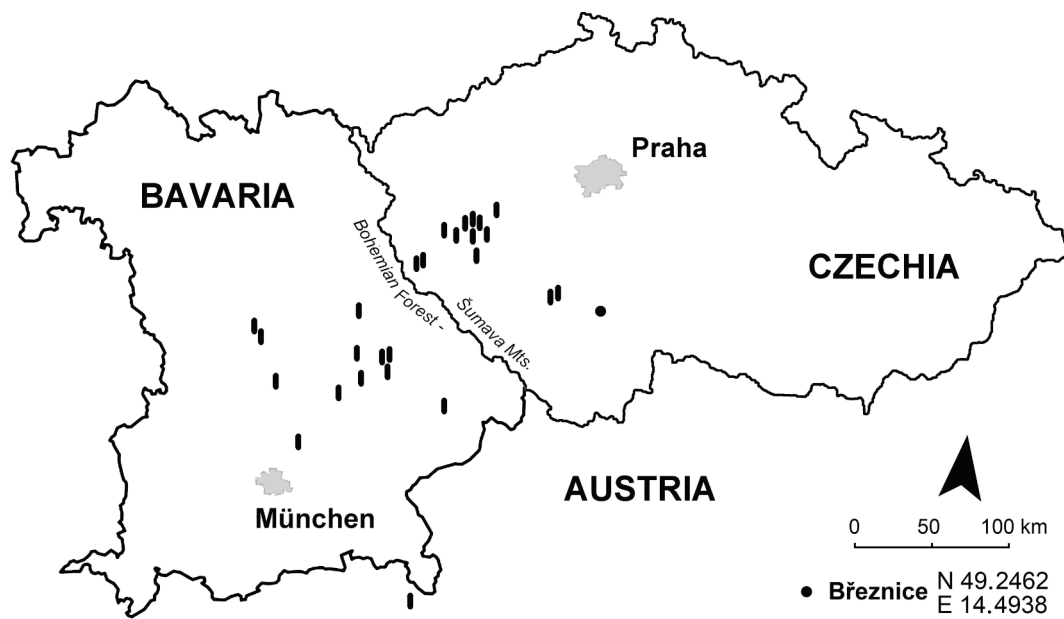


Fig. 1. Schematic map of Czechia and Bavaria showing the distribution of the Late to Final Bronze Ages ‘long pits’; the circular mark shows the site of Březnice (Tábor Dist.), its geographical coordinates are marked below. All figures were processed by M. Kuna (if not stated otherwise).

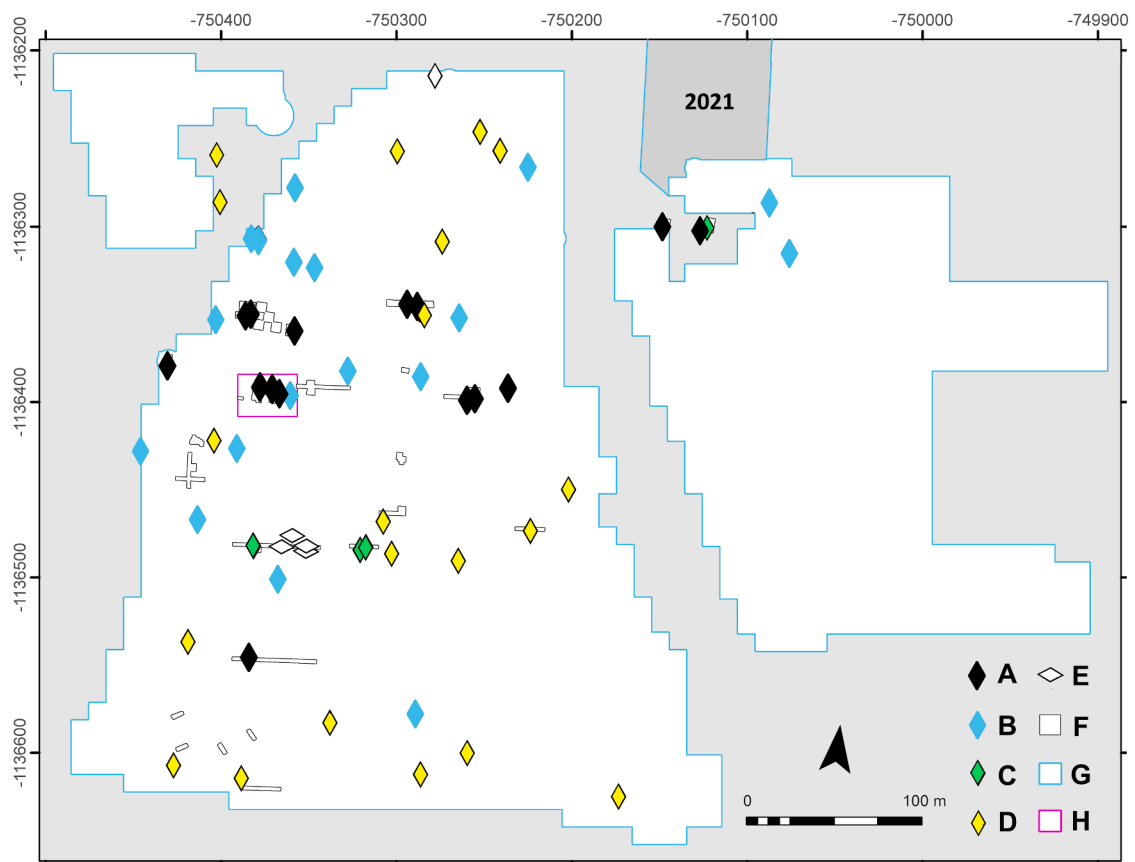


Fig. 2. Březnice, schematic plan of the LBA settlement within the frame of the magnetometer survey (R. Krivánek 2018–20; cf. Krivánek, 2021) with indicated long pits. A: Excavated long pits (2005–9 and 2019); B: long pits detected by magnetometer survey, ‘reliable’ cases; C: features similar to long pits, sampled by test pitting but uncertain due to the lack of finds; D: anomalies in the magnetometer survey resembling long pits, but not entirely certain; E: long magnetometer anomalies with an alignment other than north–south; F: excavation trenches; G: area covered by the magnetometer survey; H: area displayed in Fig. 8. Grey: area outside the magnetometer survey; dark grey with ‘2021’: area of the most recent magnetometer survey in 2021, not considered here.

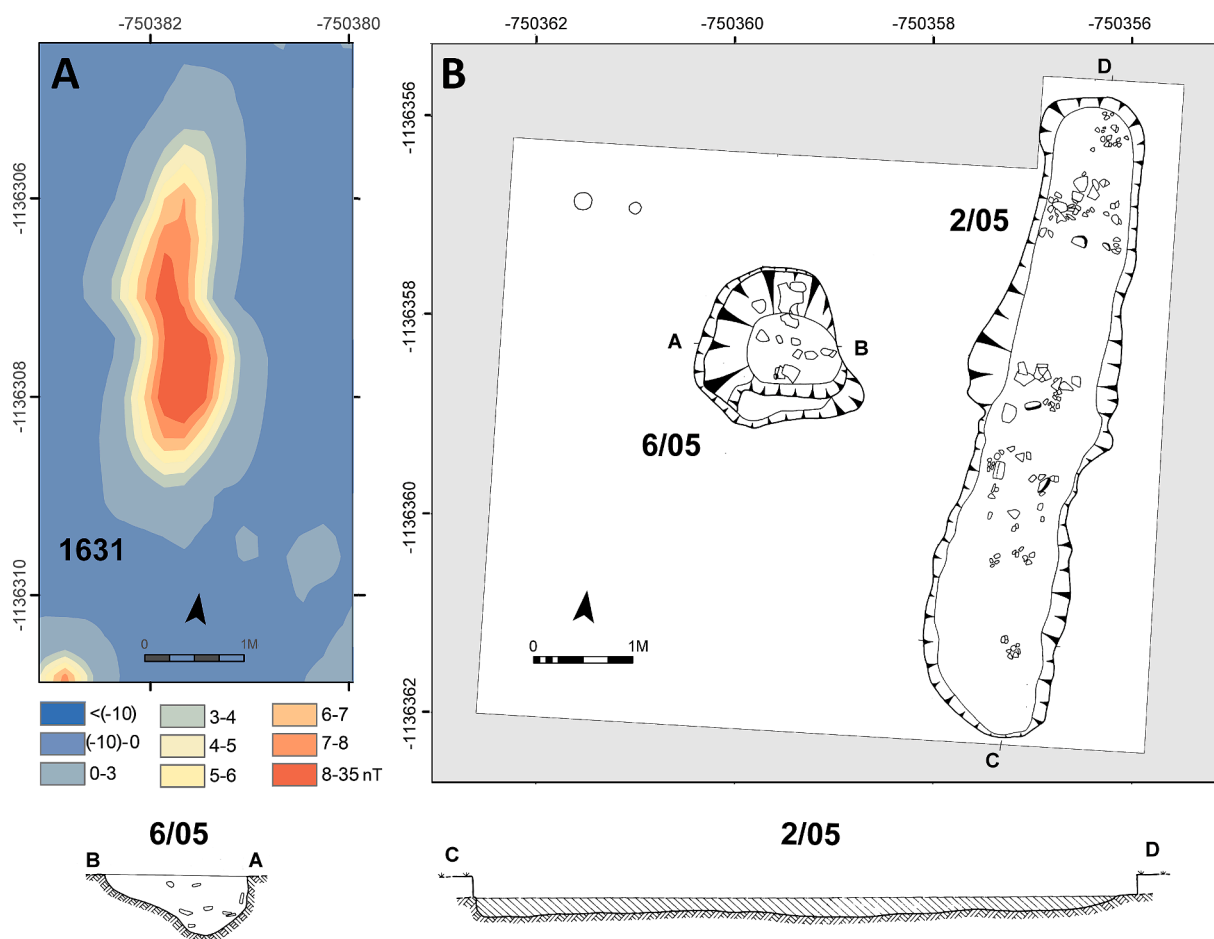


Fig. 3. Breznice, typical long pits of the LBA. A: Long pit found by magnetometer survey (anomaly No. 1631); B: excavated long pit (feature 2/05); next to it, feature 6/05 interpreted as storage pit, originally with a sunken vessel. Grey: unexcavated area.



Fig. 4. Long pits in the LBA site of Breznice. A: Long pit 1/09 before excavation; B: long pits 5/07 (left) and 1/07; C: detail of the backfill of long pit 47/19; D: backfill of long pit 5/19. Photos by O. Chvojka.

3.2. Data description

The basic material for the deposition analysis in Breznice comes from 55 excavated sunken features with 15 typical long pits among them. Further features were classified as kilns (features with a burnt surface or fill), sunken storage vessels, a clay pit, unspecified pits etc. Although the main subject of the study were the long pits and their contents, other features were important for comparative reasons and for information

drawn from spatial relationships between features of different kinds. For the needs of the deposition analysis, we have described over 30,000 pottery fragments in detail (ca 522 kg), almost 500 loom weights and their fragments (123 kg) and almost 10,000 daub fragments (ca 130 kg).

The pottery was processed in two parts with different levels of detail, but so that the relevant characteristics of the assemblages from individual features or their parts could be uniformly obtained within the whole set. Generally, the pottery was divided according to vessel

individuals, each of which was described by the number of fragments, the pottery class (fine, medium and coarse ware), wall thickness, degree of secondary burning, abrasion, presence of morphological parts, and typological elements. The largest dimension of each fragment was also measured.

3.3. Synthesis of deposition properties

From the obtained data, the deposition analysis revealed a range of characteristics, which can be used in identifying the deposition processes. One of them was, e.g., the *density of pottery fragments* based on the number of fragments/individuals and the volume of the excavated parts of the features. In each find assemblage, we have also studied the *frequency of the pottery classes* (fine, medium and coarse ware), categories of *secondary burning* (three degrees) and *abrasion* (likewise three degrees). The frequency and density of daub fragments and loom weights were calculated, as well as the number (density) of *daub fragments with white coating* – fragments of the plaster of house walls.

Another task was to determine the *fragmentation index* (IF) of the pottery fragments, which was calculated using the earlier described formula ($IF = 5.88 * m / w^{1.7}$), where *m* is the mass of the fragment and *w* the vessel wall thickness (for a more detailed explanation see Kuna, 2015). The advantage of this formula is its independence from the original properties (size) of the vessels: it allows for a comparison of the fragments of a small cup with the fragments of a large storage jar. The *density of pottery grit* (fragments of 5–15 mm, sorted out from the heavy fraction of floated samples) was also recorded.

Interesting data have been obtained from joining pottery fragments, e.g., the average *number of fragments per vessel individual*, the horizontal and vertical *spread of the fragments from the same vessel* in the backfill of one feature etc.

3.4. Supplementary data

Hypotheses derived from the deposition analysis of pottery were confronted with the results of specialized analyses of ecofacts and samples. These represent valuable external evidence able to provide either a support or exclusion for our suggestions concerning the identified depositional patterns. Such evidence was obtained, e.g., from the classification and density of *plant macroremains*, *phosphate analysis*, *micromorphological sections* of the soil layers, *anthracological analysis*, *protein analysis* and/or the *analysis of magnetic remanence* of pottery fragments (cf. Chvojka et al., 2021).

4. Results

The features of Breznice, especially the long pits, are characterized by a high density of pottery fragments in the backfills. In more than half of the long pits, the density exceeds the value of 1,000 fragments/m³. In general, higher densities of pottery are typical for the LBA settlements in Bohemia; but even in this context, the values for the Breznice site are extraordinary (Table 1). Very high amounts of pottery are typical for other Bohemian long pits too (Pokorná et al., 2017; Metlička, 2004), but at the same time, the quantity of pottery is not their inseparable or exclusive property: even in Breznice, some long pits show a lower density of pottery, while other types of features may exceptionally have a density comparable to the richest long pits.

The fragmentation analysis shows that the pottery from Breznice can neither (with some exceptions) be considered secondary refuse (i.e., discarded directly into the features) nor any other type of intentional deposit. This conclusion is based on (a) the low number of fragments per vessel individual (on the average, below 1.5 fragments per individual); (b) the distribution of fragment sizes comparable to other prehistoric settlements (Table 2); (c) on average very small preserved parts of vessels (of 98.2% vessels less than 5% is preserved: Table 3), (d) the dispersal of joining fragments in various sectors and layers of the

Table 1

Density of pottery fragments in settlement features from various prehistoric periods in Bohemia. The data was obtained from a sample of 401 features in 29 sites. The data show relatively small differences, which could be an indication of similar ways of pottery use and discard in different periods. The lowest value (line 10) is usually explained by the presence of containers of organic material; the highest value (LBA) may perhaps be partly caused by ritual treatment of pottery mentioned in chapter 6. The extremely high values from Breznice, however, point to further explanations: the location of the long pits close to the provisional discard and secondary refuse areas (cf. difference between long pits and other types of settlement pits in Table 6). All tables have been processed by M. Kuna.

Period	Calendar years / dating	No. of sites	No. of features	Density MEAN	Density MAX
1 – Linear Pottery c.	5500–4900 BCE	1	10	68	277
2 – Stroke Pottery c.	4900–4400 BCE	1	39	69	251
3 – Funnel Beaker c.	3800–3400 BCE	3	32	118	690
4 – Middle Bronze Age	1600–1300 BCE	2	15	169	660
5 – Late Bronze Age	1300–1000 BCE	3	45	252	946
6 – Final Bronze Age	1000–800 BCE	2	38	152	576
7 – Hallstatt D – La Tène A	800–400 BCE	5	42	134	623
8 – La Tène (B-D)	400–30 BCE	8	108	68	321
9 – Roman Period	30 BCE – 400 CE	2	3	160	178
10 – Prague-Korchak c.	570–680 CE	1	45	11	90
11 – Early Medieval 2	680–800 CE	1	24	85	357
Breznice long pits	LBA		16	1,662	3,296
Breznice other pits	LBA		12	637	2,335

Table 2

Distribution of pottery fragments according to index of fragmentation (IF), overall comparison between the sites of Breznice and Roztoky (Final Bronze Age). For the Roztoky data see Kuna et al., 2012.

Site	Σ pottery fragments	Σ fragments IF <= 1	Share among fragments with IF > 1 (%)				
			IF = 1–2	IF = 2–4	IF = 4–8	IF = 8–16	IF > 16
Breznice	13,309	9,407 (70.7%)	42.8	31.8	17.4	6.3	1.7
Roztoky	19,132	14,664 (76.6%)	43.1	31.3	16.7	6.7	2.2

features (Fig. 5) and (e) the still low volume of pottery compared to the total volume of the backfill, which means assuming the presence of other material in the deposit, such as soil, daub, kitchen waste etc. (Table 6). We believe, therefore, that most of the pottery fragments must have been originally stored in another place (provisional discard area) and arrived in the long pits only due to redeposition, already strongly fragmented, dispersed and mixed together with other materials. We called this type of deposit tertiary refuse (Kuna, 2015).

However, the number of vessel individuals in the pottery assemblages is so high that it cannot represent the equipment of single households in a time section – discarded, e.g., during a catastrophic event or a ritual. The number of individuals identified in individual features reaches the hundreds or thousands (depending, of course, on whether we consider the face values obtained from joining fragments or

Table 3

Number of vessel individuals in selected features in Březnice (long pits and clay pit) and their distribution according to their state of preservation (proportion of the vessel body preserved). The last column shows the minimum number of individuals according to distinctive rim fragments. The pottery analysis was carried out by A. Němcová.

Feature	Σ identified vessel individuals	Σ preserved <5%	Σ preserved 5–25%	Σ preserved 25–60%	Σ preserved 60–80%	Σ preserved > 80%	Σ vessels with individual rims
long pit 1/05	2,305	2,213	88	4			118
long pit 2/05	1,278	1,265	11			2	68
long pit 1/07	3,313	3,282	21	6	2	2	189
long pit 5/07	1,074	1,060	13	1			86
'clay pit' 5/05	2,317	2,286	24	3	2	2	295

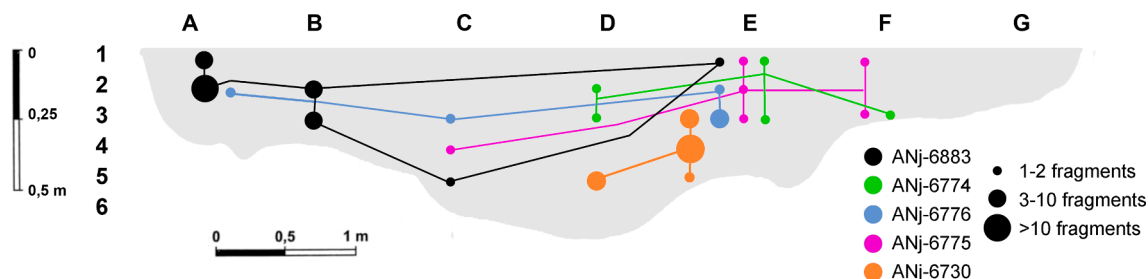


Fig. 5. Březnice, longitudinal section of the long pit 1/07 showing the spread of the fragments of several vessel individuals.

numbers of safely recognized vessel individuals, e.g., by rims: Table 3). Anyway, the high number of vessel individuals (in both cases) is another indication of a long-term accumulation of refuse before depositing it into the settlement features.

The pottery assemblage from Březnice is characterized by a high share of course ware, especially in the long pits themselves; the same has been observed in the long pits on other sites in SW Bohemia. In other types of contexts, particularly in other parts of Bohemia, the composition of various pottery wares is more balanced (Table 4; Kuna et al., 2012). We see the most likely explanation for this ‘coarse-ware bias’ in the possibility that the contents of long pits reflect some specific types of activities (provisional discarding) carried out in specific parts of settlements (close to houses, see below). The composition of the resulting pottery assemblages may, therefore, differ from the overall average values in the LBA or other prehistoric settlements.

Another characteristic feature of the pottery from Březnice is its strong secondary burning (Fig. 6A; Table 5). On average, more than half of the fragments show traces of secondary burning, about a tenth is burned in such a way that even the original vessel shape was deformed. As confirmed by the technological analysis of several samples, the secondary fire produced temperatures between 1,000 and 1,200° C, which correspond to a house fire or a controlled event rather than an accidental fire in the open air (Kloužková, 2021). Secondary burned finds (mainly

Table 4

Representation of the main pottery classes according to feature types in Březnice and Roztoky (Final Bronze Age, cf. Kuna et al., 2012).

Site/ category	Σ features	Σ vessel individuals	Σ coarse ware	Σ medium ware	Σ fine ware	% coarse ware
Březnice – long pits	17	18,268	12,102	4,382	1,784	66.2
Březnice – ‘clay pit’	1	2,317	1,013	645	659	43.7
Březnice – (other) pits	19	3,806	1,550	1,420	836	40.7
Roztoky	36	16,664	4,850	7,436	4,378	29.1

pottery) are frequent in long pits also on other sites in SW Bohemia (Pokorná et al., 2017; Metlička, 2004). In Bavaria, there are at least 15 cases (of a total of 70), where the contents were described as fire debris (Brandschutt), in another 20 cases, a fire cannot be excluded (Zuber, 2021).

The study of pottery abrasion also yielded important conclusions. Abraded breaks show that the pottery was broken outside the features where they were found and fragments must have stayed in the primary dump for a certain time (sometimes, even fragments with abraded breaks can be joined: Fig. 6B). Surprisingly, the assemblages with more burned fragments show also higher amounts of strongly abraded pottery, which is the case of the long pits (Table 5). The fact that the pottery was already fragmented when it was burned (which is confirmed by magnetic remanence measurements: Majer and Chvojka, 2013) also witnesses its previous storage in another refuse area (outside the long pits).

This view is also supported by the quantity of pottery grit (fragments of 5–15 mm), which was identified in the heavy fraction of the floated soil samples. Its density is typically quite high, sometimes exceeding the mass of the pottery fragments collected manually during the excavation. It is important that the density of grit does not correlate with the density of other pottery, so it is very probable that the grit is not a product of the final deposition as such: it rather reflects the processes (manipulation, trampling) in a dump where pottery was kept before it was moved to the sunken features (the density of pottery varies between 1 and 90 g/dm³, the density of grit, calculated from 16 flotation samples, between 1 and 25 g/dm³; cf. Chvojka et al., 2021, Table 8.13).

Contrary to pottery, the amount of daub from the house walls can be seen as disproportionally small (the average in Březnice is 21 kg of pottery per 1 m³, but only less than 6 kg of daub; Table 6). Doubtlessly, the house walls in Březnice were plastered with daub, and, as demonstrated by estimations in other sites (cf. Haller and Gentizon Haller, 2012), each house must have used up to tons of daub. The relatively small amounts of daub in prehistoric settlements are generally explained by the fact that daub – if unburned – can disappear without any traces. In the context of the Březnice site, however, the situation is more complicated, as we assume that the ruins of the houses were regularly burned and their remains should therefore contain lots of daub; this actually happens occasionally in individual features in other Bronze Age sites

Table 5

Březnice, representation of secondary-burned pottery and the degree of abrasion of the fragments according to feature category; three degrees of secondary burning (none, medium and heavy) and three stages of abrasion (none, medium and strong) were distinguished. The share of secondary-burned pottery is indicated in two ways: overall share of the medium- and heavy-burned individuals (A) and the mean of the values for individual features (B).

Feature category	Σ features	Σ vessel individuals	% secondary-burned fragments - A	% secondary-burned fragments - B	% strong abrasion	% no abrasion
long pits	17	18,268	65.37	51.2	21.1	33.7
(other) pits	19	3,806	8.12	11.3	5.5	51.1
'clay pit'	1	2,317	2.46	2.5	2.7	56.0

Table 6

Březnice, density of pottery fragments, daub and loom weights according to the main feature categories.

Feature category	Σ features	Σ volume (m3)	density of pottery (fragments/m3)	mass density of pottery (kg/m3)	mass density of daub (kg/m3)	density of plastered daub (fragments/m3)	density of loom weights (large pieces/m3)
long pits	15	17.3	1160.5	20.8	5.6	8.3	4.7
(other) pits	19	5.9	645.1	9.4	1.0	0.0	0.0
'clay pit'	1	2.2	1,199.5	17.7	5.7	16.7	1.4

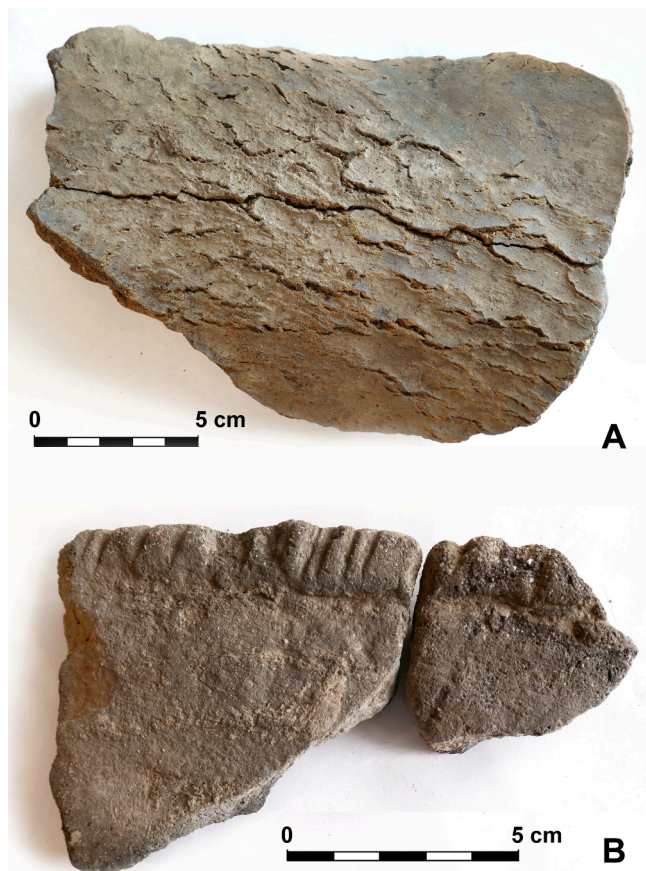


Fig. 6. Březnice. A: Secondary-burned pottery fragment with surface cracked in the heat (long pit 1/05: A26652). B: Two joining fragments with highly abraded breaks (long pit 5/07: A31343 and A31358).

(Pleinerová and Hrala, 1988; Kuna et al., 2012).

On the whole, the pottery from the Březnice long pits is interpreted as redeposited (tertiary) refuse, which was accumulated in a refuse area (dump) for a longer period of time prior to the final deposition. The refuse in the dump was continuously exposed to manipulation, relocation and mechanic destruction and, in the end, to a strong fire. However, no direct traces of fire can be observed in the long pits themselves.

A small group of pottery vessels goes beyond this overall character of the finds. Among the almost 30,000 pottery fragments, there is a set (37 altogether) of larger vessel parts or complete individuals. They belong

exclusively to the fine-ware class and they never show traces of secondary burning. They were found in various positions in the backfill of the long pits (both in the upper parts and at the bottom), often in groups of a few individuals. Considering the depositional differences of these pottery pieces, we may consider them as intentional deposits although, for the most part, they are only large fragments, not whole, functional artefacts. In the case of these finds, we probably may talk of a 'structured deposition' in the narrow sense of the word, i.e., intentionally deposited items in addition (and contrast) to otherwise predominant tertiary refuse.

5. Discussion

5.1. From the perspective of the things

The form of the long pits and their contents display a clear, recurrent pattern, not only within the site of Březnice, but also elsewhere in SW Bohemia and Bavaria. In Březnice, we can see also regularities in the spatial arrangement of the long pits within the site. Striking are, e.g., pairs or fours of long pits, which are accompanied by groups of other features and may be interpreted – however tentatively – as remains of the original settlement units, the homestead clusters (Figs. 2, 8; Kuna et al., 2021a).

In general, long pits touch on a number of unanswered questions and contradictions, and various authors often state that their interpretation is not yet possible (Chvojka et al., 2019a; Zuber, 2021). If the long pits had a practical function, why are they lacking any traces of the original activities? If these were ritual facilities, why were they filled with ordinary settlement dump? If their content is composed of the debris of accidental fire, why was the fire repeated in many parts of the settlement and on other sites? If the whole settlement burned down at once, why would someone deal with the debris according to a coherent scheme? Did the items found in the long pits form a purposeful set, or did they come together accidentally?

We assume that the lack of convincing answers comes to some extent from the way the questions are asked as such. According to modern (post-war) archaeology, all products of human activities should have had a purpose, and, from this perspective, the whole archaeological context has to be seen as a set of purposeful objects (artefacts or ecofacts: Neustupný, 1998, 2018), of course, modified by various (trans)formation processes. The purposeful relationship between people and artefacts is a well-founded concept, but – to our mind – it is too narrow. Attention is paid to artefacts (things) only because they exist in relation to people and their needs. As contemporary archaeology shows, this approach is reductive and creates an asymmetry between the living and non-living worlds, because it always places humans at the centre as the active movers or actors. This view is rooted in the very core of modern thinking

(Harris and Cipolla, 2017) and seems to correspond to our everyday experience. But is this not sometimes more of an obstacle to understanding what we want to explain?

Things can be understood not only as passive executors of the purpose assigned by man, but also as independent actors in the interactions with people and with each other (Witmore, 2007, 2014; Shanks, 2008; Olsen, 2012; Olsen and Witmore, 2015; Jarvis, 2019 and others). People produce more and more things and become more and more entangled with them, but they are not able to govern their world in its entirety (Hodder, 2012, 2016). Things can act beyond their originally acquired purpose (i.e., beyond the frame of being created and temporarily used as artefacts), affect humans and mutually each other, and form together networks of relations, in which they can play the role of independent actors. A computer mouse causes inflammation of the human wrist, people are endangered by a collapsing house, and tons of microplastic in the oceans damage the earth's environment. Even in these cases, things were originally human creations (artefacts) but are now acting in different ways than people originally intended. In short, things are able to create networks, where people do not always play the dominant role, and even if they do not have the ability of a motivated agency, they can influence and structure human practice.

5.2. The invisible actor

The Bronze Age long pits did not exist in isolation and they were not formed only by the humans. In the above sense, there was another actor, whose agency can better explain the observed archaeological context than the human intentions. This was the dwelling/house, i.e. an important artefact (thing) created by man, but at the same time, a material object, which by its material and immaterial essence acted back on people and continuously influenced many non-human elements of the surrounding world. Putting the house in the centre, we can model a network of relations explaining even those data patterns that previously seemed unclear and purposeless.

The site of Březnice most probably was a usual agricultural settlement of its time. Apart from a larger number of long pits (and even this can be partly explained by the specific strategy of excavation), the site does not differ from other contemporary settlements: it yielded lots of pottery, daub or loom weights, as well as carbonized crops and weeds witnessing agricultural production. The presence of houses, although we cannot see them in Březnice and other SW Bohemian sites, is a necessary assumption and even their type was probably quite similar to known examples in other regions of the given cultural area (oblong above-ground structures, 5–8 m wide, with walls of wooden posts, wattle and daub: Říhový, 1982; Beneš, 1995; Bláhová-Sklenářová, 2012; Zuber, 2021).

A connection between the long pits and houses has been suggested by one of the results of the deposition analysis. Analysing the contents of individual sunken features by the principal component analysis, the strongest correlation was found between the elements making up a 'package' of variables associated with the house: density of plastered daub, number of loom weights, total density of pottery fragments, percentage of coarse ware and a ratio of secondarily burned pottery fragments (Table 7). Even more significant may be the fact that the highest factor scores of this component belong to the long pits: therefore, we can rightly assume that the houses stood nearby exactly these features.

In Březnice, there is another observation, which may indicate a connection between long pits and houses. There are five features, which we interpret as sunken storage vessels, which, with most probability, could have been originally situated inside the houses (or under a roofed structure). In four of these cases, these vessels occurred at a similar distance around 2.5 m westwards of the long pits (Fig. 8), which may indicate their location roughly in the middle of the houses. Sunken vessels are known from other LBA sites in Bohemia, although their relation to houses has not been directly attested (the main reason is that the original surfaces of the settlements have mostly disappeared by

Table 7

Březnice, results of the Principal Component Analysis for the contents of the large settlement features (>0.1 m³; N = 42). Parameters: Statistica package; factors rotated by Varimax normalized; cumulative variability explained – 60.1 %. The definition of the number of large pieces of loom weights and the mass of their small fragments as separate variables is justified by the fact that both types of items could have entered the feature backfills separately, independently of each other. While larger pieces may have represented intentional deposition of artefacts, small fragments were apparently part of the tertiary refuse.

Variable	Component 1	Component 2	Component 3
density of pottery fragments (pcs/m ³)	0.58	−0.28	0.16
average no. of fragments per 1 vessel	0.05	−0.37	0.41
share of coarse ware (%)	0.72	0.23	−0.18
share of burned pottery sherds (%)	0.62	0.67	0.01
share of unabraded pottery individuals	−0.07	−0.87	−0.07
share of strong abraded pottery individuals (%)	0.04	0.90	0.15
no. of loom weights (pcs)	0.70	0.08	−0.04
weight of small loom weight fragments (g)	0.74	−0.12	0.37
density of daub (g/m ³)	0.12	0.40	0.77
density of daub with white paint (pcs/m ³)	0.53	0.16	0.07
share of burned daub (%)	0.01	0.04	0.80

erosion; Bouzek et al., 1966; Horst, 1985; Pleinerová – Hrala 1988; Sklenář et al., 1993; Vařeka, 2003; Smejtek, 2011).

However, some Bavarian sites offer a direct proof of the relationship between the long pits and houses: in these sites, the long pits are often found within the house ground plans, mainly in their north-eastern corner or by their eastern wall (Fig. 7; Geck and Seliger, 1991; Zuber, 2021), sometimes, however, outside the houses (Borkner, 2008).

A connection with the houses is also indicated by the prevailing north-south alignment of the long pits, which corresponds to the alignment of the known house structures in Bavarian settlements. From various prehistoric periods, we know that the house alignments were not accidental, and the symbolism of the cardinal points played a role. It is often believed (Vencl 2015; Chvojka et al., 2019a) that the long pits themselves followed similar principles, but there is no reason they should: they could have simply respected the alignment of the houses. By the way, Březnice offers an example of a long pit aligned to the east-west (feature 3/07), contradicting a supposed independent cosmological explanation, but fully corresponding to the arrangement of a supposed house (its shorter side).

If there was a house belonging to each long pit, several tens of houses should be assumed in Březnice (Figs. 2, 8; Kuna et al., 2021a). All of these houses, of course, could not have existed simultaneously, which is indicated both by the analysis of the economic capacities of the settlement (community) area (Šálková, 2021), by the probable lifetime of houses (roughly one human generation) in relation to the whole settlement (100–150 years) and also by the horizontal stratigraphy of the possible house ground plans. The long pits are distributed individually or in groups of two to four. While we may understand long pits in a mutual distance of 2–6 m as asynchronous (given their horizontal stratigraphy), pairs in a mutual distance of around 10 m may indicate houses standing next to each other. Distances of both categories are repeatedly present at the site (Figs. 2, 8).

Direct attestations of the (practical) function of the long pits in houses are still missing. Theoretically, we could look for two different types of indications: inner constructions in the long pits and movable artefacts *in situ*. In Březnice, to the first case belongs a pair of post holes in one of the long pits, potentially corresponding to the size of a loom (cf. Stahlhofen, 1978; Kuna et al., 2012, 135); it is, however, a singular (and

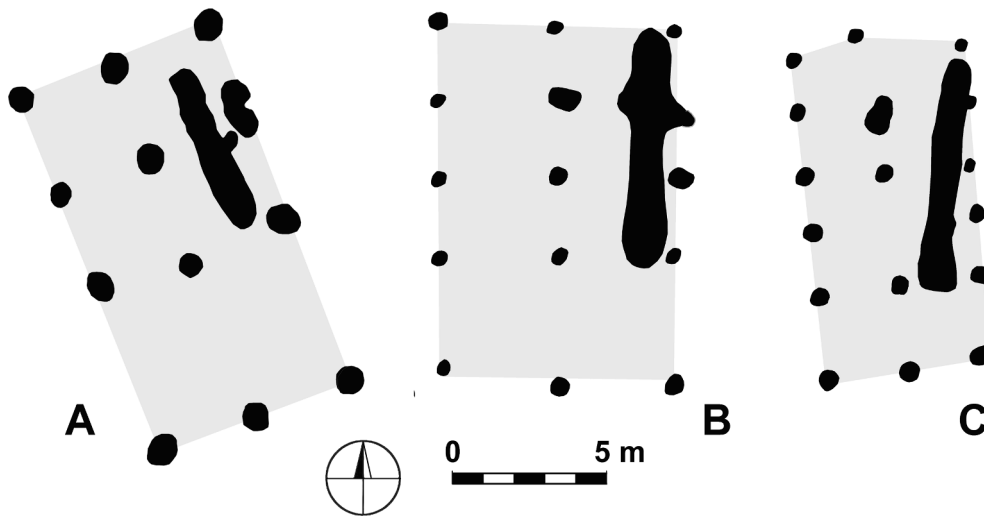


Fig. 7. Selected ground plans of houses with long pits in the LBA settlements in Eastern Bavaria; A: Zuchering-Süd, house No. 25; B: Straubing-Öberau West 1, feature 3430; C: Straubing-Öberau West 6, feature 3270. After Zuber, 2021.

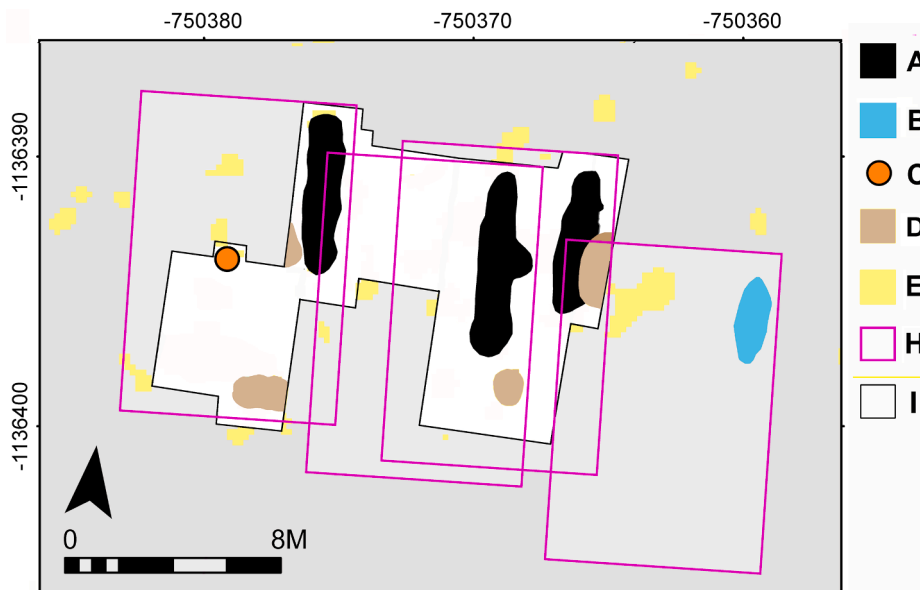


Fig. 8. Breznice, part of the general plan of the settlement. A: Excavated long pits (from the left: 6/07, 1/07 and 5/07); B: long pit detected by magnetometer survey (No. 2983); C: sunken storage vessel (feature 2/07); D: other excavated features; E: anomalies (probably sunken features) in the magnetometer survey; H: potential (hypothetical) ground plans of houses; I: excavation trench. Grey: unexplored area.

not very clear in itself) example. Loom weights are often found in the backfill of the long pits in Breznice, but in no case, they can be considered finds *in situ*. On the other hand, intentional depositions of loom weights occur in contemporary settlements in various other types of features, e.g., in storage pits (Pleinerová, 2003; Ernée, 2008; Smejtek, 2011), so it is on the whole rather not probable that they were connected with the original function of the features.

Summing up this information, we do not deny that looms may have been present in the houses, but without a direct (functional) connection with the long pits. Hypothetically, the long pits could have been in their place (or another place in the house) dug only later, after the destruction of the houses (for more arguments see below). There could have been an analogous (but inverse!) relation between the house and the long pit as in the case of the houses and the ‘construction pits’ in the Linear Pottery culture. The lateral (construction) pits also belonged to the house and followed its walls (from the outside, not the inside), but they may have not been contemporary with it, as they were probably filled at the

beginning of its existence (Stäuble, 2013, 238).

5.3. The hidden biography of the house

People and things form networks that may include not only synchronic elements but also those overlapping partially in time or not at all. Things undergo specific life cycles, which can be described as their ‘cultural biographies’ (Kopytoff, 1986; Gerritsen, 1999). The biography of a thing does not end with the loss of its function as artefact. Even after that, things persist, they become waste, raw materials or just physical obstacles to the movement of people and other things in the areas of activity. In all these cases, things stay elements of actor-networks existing at the interface between a living culture and the archaeological context. The archaeological context, which is gradually formed by the processes of deposition, may then represent a compressed, synoptic record of a long and complicated process that took place in the deposition context and preceded the final deposition.

In our interpretative attempt, there are three non-human actors, the agencies of which have largely contributed to the formation of the archaeological context: the house, the refuse (dump) and the long pit. The central actor and initiator was the house; the two other actors were closely linked to the main phases of the house's biography: its construction, maintenance and use, abandonment, burial and termination. Our current goal is now to recognize these phases in the archaeological record and to reconstruct the dynamics of the actor-network so that we can understand its final product – the long pits in the Bronze Age settlements. An attempt at such a reconstruction is presented in the following paragraphs and summarized in Figs. 9–10.

5.3.1. Use and maintenance of the house

The (assumed long) use of houses can be generally recognized mainly by various forms of accumulation of things and their material properties. In one of the features in Březnice, we find, e.g., three storage jars 'inserted into each other' (Chvojka et al., 2021). However, this is practically impossible and instead of a vessel hoard, we encounter here a situation of gradual renewal or replacement of a sunken storage jar: not the result of a single event but a process that may have lasted for several years.

Another indication of a longer process are multiple layers of plaster on daub from the house walls. In Březnice, a maximum of three layers is attested (Mensík, 2021), other Bronze Age sites have yielded up to eleven layers (Haller – Gentizon Haller, 2012, 115). White coating on daub is attested in many other LBA sites (Hrala, 1973); however, there has not been any systematic research on this phenomenon yet.

The most marked expression of the duration and the use of a house is, of course, the accumulation of pottery and (other) refuse. In Březnice, we do not exactly know, where the refuse areas (dumps) were situated; however, we think, they should have been somewhere close to the houses. In this view, the house could have operated as the actor determining the place of further activities – areas where pottery waste and/or fragments intended for further use were deposited. A refuse area of this sort, designed for storing fragments of coarse pottery for further use (provisional discard, cf. Deal, 1985), may have existed along one of the long sides of the house (Fig. 9:2), though this is only a speculation.

Anyway, recycling of coarse pottery fragments is well conceivable for a number of purposes, among others, for example, as temper in pottery production, which is otherwise documented in the LBA (Kuna et al., 2012). It is, however, also possible that various kinds of waste mixed up in the refuse areas because, e.g., many samples from the surface of artefacts and the soil from the long pits provide evidence of boiled-meat proteins (Pavelka, 2021) and indicate domestic activities such as cooking. Destructive manipulations with the dump are evidenced by the high density of crushed pottery grit that may have increased with the duration of the homestead.

5.3.2. Abandoning the house

Prehistoric houses seem to have been abandoned relatively often and renewed in other places, near or in larger distances. Opinions on the average lifetime of a prehistoric house and the frequency of renovations differ. For the LBA, the situation seems particularly unclear since find contexts with preserved houses are extremely rare in Bohemia. The estimated lifetime of a house is therefore based rather on general models than on empirical data and mostly equalled the time span of one generation (20–25 years; Pleinerová – Hrala 1988; Kuna, 2017).

Renovations of houses in the Bronze Age were mostly connected with spatial relocations of the homesteads, either within a single habitation area or at larger distances. A similar settlement system has been suggested for the Bronze Age in various parts of Europe, e.g., in the Netherlands, where the term *wandering farmsteads* was coined (Gerritsen, 1999, 2003), or in Germany (Willroth, 2001; Bönisch, 2005). Dispersed, relatively short-living homesteads are indicated also in Bohemia (Beneš, 1995; Bláhová-Sklenářová, 2012; Kuna, 2017), although they do not represent the only possible model (there is also evidence of large and long-lasting settlements, mainly in the LBA: Smejtek, 2011; Dreslerová and Demján, 2019).

The abandonment of a house could have been a controlled process with certain cultural rules. It seems that, at first, parts of the houses that could have been used in the construction of a new house were removed (Fig. 9:3). One of the indications for this is the relatively small amount of daub, which in the case of Březnice cannot be explained by natural decay. The preserved daub is well burned, but its relatively small

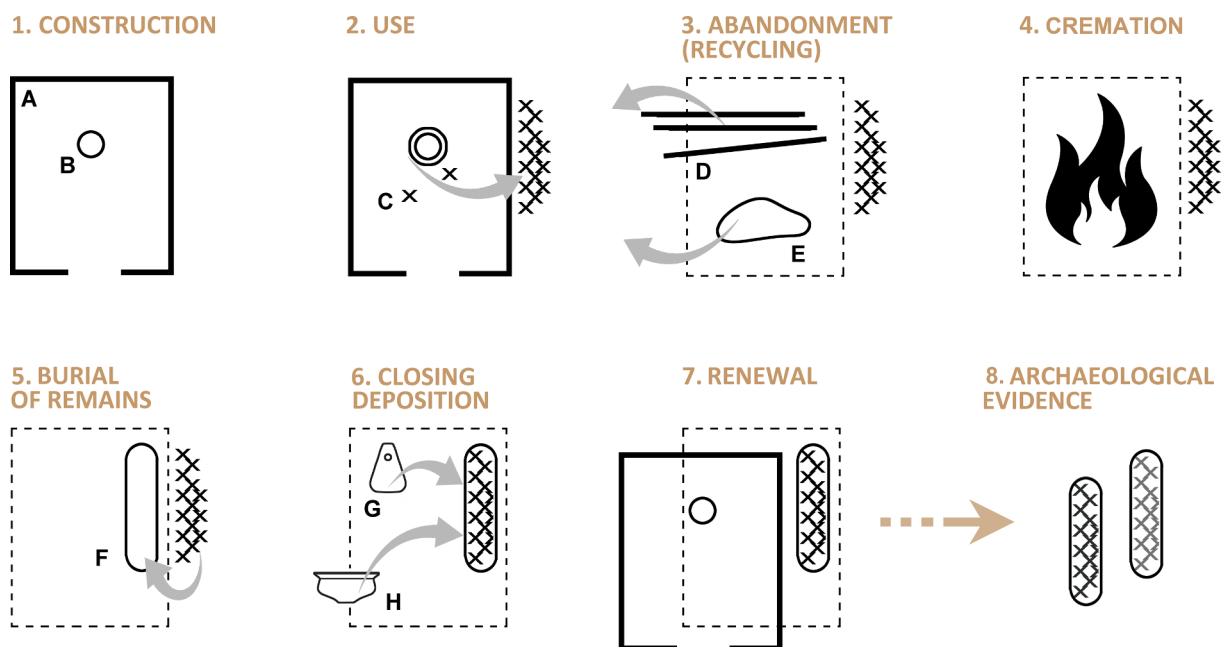


Fig. 9. Březnice, scheme of the typical house biography. 1: Construction – assumed house area; 2: use and maintenance; 3: abandonment and removing of recyclable parts; 4: fire/cremation; 5: digging the long pit and deposition of burned discard (refuse); 6: deposition of other items as closing deposits; 7: building a new house; 8: archaeological context after two building phases. A: House; B: sunken vessel; C: discarded pottery (refuse); D: construction timber; E: daub; F: long pit; G: loom weights; H: fine pottery (whole vessels and/or their larger fragments, unburned).

ARCHAEOLOGICAL EVIDENCE	MAIN ACTORS			
	HOUSE	REFUSE	LONG PIT	
occurrence of typical settlement artefacts and ecofacts	construction & shape			
indications of home production (loom weights)				
daub with imprints of the wall construction and plaster				
sunken storage jars				
renewal of storage vessels	use & maintenance			
layered plaster on daub				
high density of pottery fragments	(long-term) use	accumulation of provisional discard and secondary refuse		
predominance of coarse ware		faster degradation of fine ware		
		selective dumping around the house		
high fragmentation of pottery		waste management and trampling		
dispersal of joining fragments				
low average number of fragments per individual				
high fragmentation of pottery				
non-random relationship between the long pits, coarse ware, secondary-burned pottery, plastered daub and loom weights (Principal Component Analysis)		assembling elements of house origin		
proteins in samples (boiled meat)	mixing of waste			
relative lack of daub	abandonment (recycling)	reduction (recycling) of discard		
lack of coniferous charcoal in the long pits				
distribution of features with burned contents across the whole site	cremation	intentional burning of houses		
secondary burning of pottery in the refuse area (dump)				
high temperature of secondary burning of pottery				
magnetic remanence in pottery fragments		fragments (not the whole vessels) in the secondary fire		
no traces of fire on the walls and bottom of the long pits	burial		(later) digging a long pit	
micromorphological analysis of the long-pit backfills			redeposition of refuse area (dump)	fast filling during one event
no stratigraphy in long pits				
deposition of unburned fine pottery (whole vessels or large fragments)	(ritual) closing	additional closing deposits		
regularity of spatial relationships between (consecutive) long pits	physical & spiritual renewal	mixing of waste from various settlement phases		

Fig. 10. Summary of arguments concerning the biography of the houses in Březnice.

amounts suggest that the majority of daub from the house walls was removed prior to the fire. One of the possible reasons for this could have been the recycling of clay for other buildings. This is an option that archaeology often considers, even though there is little clear evidence.

There is no doubt that the LBA houses were well plastered, and, although in particular contexts, daub could have been preserved in high amounts and large pieces (Vařeka, 2003; Ernée, 2008; Smejtek, 2011; Kuna et al., 2012). Daub for further use may have been stored as clay balls, the

frequent occurrence of which was pointed out by I. Pleinerová (2003). It may be no accident that there are find contexts where the balls (obviously burned by accident) occur together with secondary-burned pottery, loom weights etc. (Pleinerová, 2003, 147). In Březnice, clay balls have been found as well (Menšík 2021).

A similar procedure could have been applied to other materials. With a high degree of speculation, we can point to the fact that among the charcoals from the long pits in Březnice, there is very little fir, which is attested as construction timber in the nearby LBA settlement of Hvoždany (Novák, 2011, 327) and which in Březnice occurs in several post holes (Novák, 2021). We therefore cannot exclude that similarly to daub the wooden posts or beams of the abandoned building were recycled.

5.3.3. Cremation

Sunken features (long pits and other features) with traces of fire in their contents cover almost the whole of the Březnice site, which can be deduced both from the excavated examples and the magnetometer survey (Figs. 2–3). The spatial arrangement of this record was interpreted as the gradual development of the settlement, accompanied by the relocation of houses and the deliberate burning of their predecessors (Kuna et al., 2021a). Theoretically, we could understand the overall distribution of burned features as an accidental fire of the whole settlement. This would, however, presuppose that all features existed contemporaneously and were destroyed in the course of one event, possibly a hostile act. In this case, it would, however, be difficult to explain the structured character of the deposition, which followed the fire and is indicated by most of the long pits all over the site. The same sequence of events is attested even in those of them that can hardly be contemporary. The model of a single catastrophic fire of the whole settlement, therefore, seems very unlikely, and instead, we consider a continuous (and thus intentional and potentially ritual) burning of individual houses and/or their remains (Fig. 9:4).

Bönisch (2005) collected the evidence of burned homesteads in the Lusatian culture in Saxony and Lusatia. The so-called *Brandschuttgruben*, which occur in the settlements of this region in HaA/HaB relatively often, contain (similarly to the finds from Březnice) large amounts of secondarily burned pottery, daub, loom weights and other finds, but also, e.g., unburned and undestroyed pieces of fine pottery (as in Březnice). The burned sites mostly represent one-phase settlements, and their burning was connected with their relocation to another place. Bönisch takes these finds as intentional activity, not accidental fires; Thér and Prostředník (2011) arrived at a similar conclusion in the LBA settlement in Turnov (NE Bohemia).

In Březnice, the intentional nature of fires is also indicated by the intensity of secondary burning of pottery and other materials. The temperature of the secondary burning was relatively high (1,000–1,200 °C; cf. Kloužková, 2021). The fires occurred outside the sunken features and the pottery was already in a fragmentary state (Majer – Chvojka 2013).

Intentional burning of houses is mentioned in the context of various prehistoric periods and parts of Europe (Stevanović and Tringham, 1997; Apel et al., 1997; Chapman, 1999; Stevanović, 2002; Tringham, 2013; criticism of the model: Lichter, 2016). Explanations for this behaviour (*domicide* or *domithanasia*) are looked for in the field of ritual, symbolic and social behaviour, although we would surely find some practical reasons as well (e.g., hygiene). In respect to the patterned character of this phenomenon in Březnice, we have to assume that the given behaviour was ritualized. We are of the opinion, and we will return to this conclusion later, that such behaviour can be considered a type of burial rite (in this specific case, as its first phase), not unlike cremation of the dead human bodies (by the way, the LBA is characterized by the overall spread of cremation).

5.3.4. Burial and the closure of the place

Insisting that the Březnice long pits were connected with houses, we

have to solve another striking paradox resulting from the stratigraphy and morphological character of their backfills. The long pits were always filled in one step and consist of only one backfill layer (cf. both field observations and the micromorphological analysis: Strouhalová, 2021). Various physical measurements show that the finds in the backfills of the long pits were evidently burnt elsewhere than in the pits themselves (Majer – Chvojka 2013; Majer, 2021),³ whereby the walls and the bottom of the long pits do not bear – according to the field observations – any traces of fire (Chvojka et al., 2019, 334). Majer, 2021). This, however, seems illogical. If the long pits were inside a house at the time of the fire, they would have preserved some direct proofs of fire and would have been filled up with accidental debris. If the long pits were located outside the houses (outside the roofing and out of the fire), soil layers would have developed in their backfills due to rainwater, erosion etc. In our view, there is only one way to explain the special nature of the long pit backfills: the long pits were actually dug later, only after the houses and/or their remains were burned. In that case, the burned pottery refuse was the last remnant of an abandoned house, and its deposition in a ritual manner could have been part of the cultural biography of the dwelling. Burned pottery fragments were swept into the long pits just like the remains of a funeral pyre. Pottery waste may have had its own symbolic meaning (Dietrich, 2016),⁴ but its material and symbolic connection with the house seems quite probable in this case.

The long pits were aligned to the (long) walls of the houses in a standard position in their ground plans (judging by the Bavarian examples), which could reflect the heap of broken pottery next to the (eastern) house wall. In this model, the house as an actor influenced the position and the form of the dump and this then reciprocally the form and location of the long pit in the house, which no longer existed at the time the long pit was dug.

The spatial arrangement of long pits could also have other links to the ground plan of the house, which could have even been understood as a metaphor for the living body (Carsten and Hugh-Jones, 1995; Brück, 2021). At the same time, the explanation of long pits as a kind of 'house burials' may work even in cases, where the above mentioned spatial rules were broken: from the Bavarian sites, e.g., we know of a long pit on the outer side or in front of a house, and in Březnice there is one 'typical' long pit with east–west alignment.

Individual additional artefacts could have been deposited on this occasion as well, likewise with ritual intent (Fig. 10:6); these activities may form the last (or supplementary) part of the ritual. Specifically, these were groups of loom weights (perhaps intentionally broken) and fine pottery vessels, which differed from the rest of other deposited material, as they were larger pieces or whole artefacts and they were not secondarily burned. However, only a few of them were actually whole vessels (larger vessel parts predominated), and even the whole individuals were often apparently used and damaged. The contrast between the practical aspects of this behaviour and its assumed ritual meaning is surprising, but it may seem contradictory only from our modern point of view. Because most of these objects were found in the upper layers of the long pits, many more such cases may have been ploughed away or eroded.

The structured deposition of loom weights in the long pits (Chvojka et al., 2019b; Menšík 2021) is indeed striking, but it appears in various forms in many other sites and in other types of features as well (Ernée, 2008; Smejtek, 2011). E.g., in Roztoky, the occurrence of loom weights was associated exclusively with sunken houses or workshops and their

³ ³ This conclusion is based on the measurement of the magnetic declination of selected pottery fragments, which eliminated the possibility of their secondary burning *in situ*. The values of the magnetic susceptibility of the backfill layers also indicate something similar - more or less randomly distributed values corresponding to a redeposited material.

⁴ ⁴ For concentrated waste heaps of the Late Bronze Age in Transylvania the author even uses the term 'holy garbage dump'.

specific parts: small elongated pits(!) in their bottom. However, even there it does not seem likely that the loom weights were found *in situ* (Kuna et al., 2012); rather, they were deposited with a ritual intention only during the abandonment process. We do not know if the loom weights (or looms?) in any way represented the essence of the house or its inhabitants or activities, but, in principle, it should be possible to answer similar questions in the future.

In summary, we understand the long pits and their unusual contents as part of the final phase of burying the house. The whole ritual may be divided into three parts or phases: (i) ‘cremation’, (ii) digging a long pit (‘grave’) and depositing the remains of a house (burned refuse dump), and (iii) depositing of additional artefacts, similar to the deposition of the ‘grave goods’. If we do not want to use the term ‘burial’ in connection with houses, we can also talk of ‘closing rituals’ and/or closing deposits. In an earlier work (Kuna, 2005, 127–8), we have already pointed out that indications of such behaviour are often found in pre-historic contexts, and we consider the Breznice long pits belonging to this category of deposits to be very probable. Rituals of this type are not unknown in various other societies: in the native cultures in Central America, e.g., this behavioural model is being referred to quite often (*termination deposits*; Stanton et al., 2008; Newman, 2018).

6. Conclusions: non-human actors or living houses?

We understand the digging and backfilling of the LBA long pits as a ritual act performed in connection with the abandonment and burying of the houses. We do not prefer this possibility just because we have not found another – practical or technical – interpretation. For us, the main reason for this explanation is the reconstruction of the events and processes that are identifiable in the deposition data and which in our model logically led to the final ritual act as – to a certain degree – ‘predictable’ human behaviour. Although the main actor in this network – the house – is not visible in our record, we can legitimately assume its presence and importance. We do not, of course, deny the role of humans in the given actor-network, but we understand them as mediators rather than the initiators.

In no way do we associate the long pits and the corresponding ritual acts with a cult, i.e., a ritualized communication with sacred objects or entities. We do not see anything in the Breznice features, which would directly reflect cult or religion⁵, although undoubtedly every ritual behaviour reflects some overall ideas about the world and touches on transcendental issues.

In general, ritual is a form of symbolic behaviour characterized by a high degree of formality, repetition and conventionality, the goal of which is to construct and confirm a certain understanding of reality and society (Bowie, 2008; Šafránek, 2011; Thomas, 2012; McNiven, 2013). Prehistoric archaeology often looks for traces of ritual behaviour in the so-called structured deposition, i.e., the intentional deposition of artefacts or their fragments according to non-random patterns with symbolic connotations (Richards and Thomas, 1984; Hill, 1995; Chapman, 2000). Current research, however, also stresses the fact that similar structures can appear by unintentional human action, as a result of unconscious, albeit culturally determined forms of practice (*habitus* in terms of Bourdieu, 1977; Růžička and Vašát, 2011; cf. Garrow, 2012; Thomas, 2012; Brudenell and Cooper, 2020).

The archaeological context in Breznice is indisputably highly structured, but it is not easy to prove the real intentionality of its individual elements. Patterning can be seen in the repeated burning of the houses, in the digging of an unusual type of pits and in the deposition of settlement discard in them. In reality, however, the form of the long pits and their contents may not be as peculiar as it seems at first glance if we

⁵ This opinion was held, for example, by Vencl (2016). An explanation of this type is commonly given for the so-called *Brandopferplätze* from the Bronze Age and earlier periods in the Alpine region (Oberrauch, 2019).

exempt the formation of this context (assemblage) out of the exclusive responsibility of people as creators and entrust non-human actors with the leading role.

In our model, the house itself determined the position and the form of the refuse area developing by the accumulation of secondary refuse and/or provisional discard by its eastern wall (Fig. 9:2). The longer the house existed, the more discard accumulated; the length of life of the house is therefore responsible for the varying amount of pottery fragments in the dump and the backfill of the features. As soon as the house was abandoned (and the decision to do so may have had both practical and social reasons), elements that could have been recycled (daub and construction timber) were removed (Fig. 9:3). The remains of the house were then set on fire (Fig. 9:4), while the source of the fire were either the remains of the timber or some additional wood such as oak branches (the necessity to add combustibles in similar cases is mentioned, e.g., by Stevanović, 2002). After burning the house, only the burned pottery dump remained on the site, which was, according to the cultural norms, to be buried during the closing ritual. The simplest way was to dig a long pit of corresponding size and shape in the immediate vicinity of the dump, at the place of the former house. The burned pottery fragments and other items from the dump were then deposited in this feature (long pit; Fig. 9:5), and a few other objects, such as fine pottery vessels and loom weights, were added as a sort of ‘grave goods’ or ‘closing deposits’ (Fig. 9:6).

Only then, after the place was appropriately closed, a new house could have been erected (Fig. 9:7). The contents of a newly created refuse area could have mixed up with the remains of the previous dump: such a situation is indicated, e.g., by similar spectra of carbonized seeds in the neighbouring long pits and by the dispersal of radiocarbon dates from their backfills. During the following post-depositional transformations, especially ploughing and soil erosion, the upper layers of the features and the original surface of the site disappeared, so all that was left in the archaeological context is represented just by the lowest parts of the long pits themselves (Fig. 9:8).

In our mind, the model of ritual abandonment, destruction and renewal of houses fits well in the context of other findings and hypotheses on the LBA settlement behaviour. It seems that life in this period generally included various activities resulting in a relatively large discard/abandonment of artefacts/features. It is in the LBA, e.g., that large concentrations of settlement features (in fact, the largest in Bohemian prehistory) appear, characterized by high numbers of sunken features, mostly storage pits (e.g., Bouzek et al., 1966; Smejtek, 2011). In our view, it is not necessary to see them as evidence of demographic growth or changes in economic strategies, but perhaps only as an intensification of annual rituals connected with the agricultural cycle: the effect of ‘large settlements’ could arise, e.g., by digging a new storage pit for each household every year, which was neither necessary nor practised in other periods. Likewise, the density of the pottery waste in the LBA is the largest in the whole of prehistory (Table 1), which can, regardless of other explanations, also mean that the pottery equipment of the household was, mainly for ritual reasons, renewed more often (cf. the annual replacement of pottery in the rural environment of Guatemala: Newman, 2018). Furthermore, some finds in the LBA settlements are interpreted as the remains of collective feasting, at the end of which all pottery was separated and deposited (Hauser, 2019). In LBA Transylvania, the waste from feasting may have been of a sacred character (‘holy garbage’) and was deposited in separate heaps (‘ash-mounds’: Dietrich, 2016, cf. the ‘ceremonial trash’ in Walker, 1995). The symbolic meaning of waste and its accumulation is attested also by some LBA settlements in southern England (‘middens sites’) characterized by the presence of ‘refuse-rich deposits’ (Needham – Spence 1997). The ‘zołniki’ (ash mounds) of the Noua-Sabatinovka culture (LBA between the Carpathian Arch and the Dnieper) are formally somewhat different from the finds in Central Europe (larger concentrations of ash, unburnt materials, etc.), but may resemble them by spatial patterning of find concentrations (individual homesteads?) and indications of

recurring (ritual) management of settlement waste and/or house remains (Sava, 2005).

The common denominator of these activities may have been the emphasis on the rites of passage by the LBA communities. Rites of passage are typically bound to the basic milestones in the life of human beings, such as birth, entrance into maturity, marriage and death (van Gennep, 1997). We have applied this model to the life of a thing (house) since we assume that the people in the Bronze Age did not always make a strict difference between humans and things, or at least they did not perceive it as strong as we do it today. The boundary between humans and things is culturally determined: just as in some societies, humans may become things (e.g., slaves in antiquity), in other societies, things are perceived as living beings (Kopytoff, 1986). We know from many anthropological investigations that the archaic cultures describe the world of inanimate objects in exactly the latter way (Horton, 1962; Bowie, 2008). Modern thinking, however, tends to distrust these descriptions or to see another, more veritable level of reality behind them (Paleček, 2017). However, we have to ask if this is a productive approach to the understanding of these societies and whether it would not be better, as some authors put it, stop asking 'why people in the past (erroneously) believed that people turn into jaguars and illness is linked to witchcraft, but rather, what kind of world it was, in which humans turned into a jaguar, witches were able to cause illnesses and stones were speaking' (Harris and Cipolla 2017, 182, quoted loosely). This shift (the 'ontological turn') brings the opportunity to think of the past world not as another view of (our) known reality, but as another reality.

The concept of things, specifically houses, as living entities is now recognized also by other authors (Molloy et al., 2014; Eriksen, 2016; Brück, 2021). In the ontology of the inhabitants of the Breznice site, houses could have been living beings, not only their representations. It was therefore logical to treat them appropriately, which in this context meant arranging a funeral for them in a similar sense as people received. The ontological status of living beings undoubtedly strengthened the role of houses within the actor-networks of which they were part. Within such networks, the house could have operated not only as material item but also as an immaterial entity after being abandoned, recycled and destroyed. From this point of view, we can also justify why the house (or any other thing) can neither be reduced to a material object nor to the purpose it was assigned by people (practical function, social meaning and symbolic significance: Neustupný, 1998). There is always something more to a thing, by which it influences people and why it was handled a certain way; that is what we tried, on a particular example, to reconstruct here.

We would like to emphasize that all details of our model are based on data and the inferences drawn from it (see list in Fig. 10). The proposed solution compiles various partial observations in the archaeological records. At the first sight, some of these observations seemed ambiguous or contradicting, but when combined into a coherent model, they appeared logically interconnected. Of course, we do not rule out that the available data could be compiled and interpreted in another way. To make such progress possible, we here refer to the broader publication of the finds (Chvojka et al., 2021) and the supplementary data that we make available on shared repositories (Kuna, 2022).

English translation by Tomáš Mařík and Martin Kuna.

CRedit authorship contribution statement

Martin Kuna: Conceptualization, Methodology, Investigation, Project administration. **Andrea Němcová:** Formal analysis, Validation. **Tereza Šálková:** Resources, Data curation. **Petr Menšík:** Resources, Data curation. **Ondřej Chvojka:** Resources, Data curation, Project administration.

Declaration of Competing Interest

The authors declare that they have no known competing financial

interests or personal relationships that could have appeared to influence the work reported in this paper.

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