

AN ATTEMPT AT RECONSTRUCTING THE HOUSES OF BARBARIANS FROM THE ROMAN IMPERIAL PERIOD AT GARADNA, BASED ON THE ANALYSIS OF DAUB FINDS

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The Garadna-Kovács tanya site was discovered 23 years ago. However, it only returned to the spotlight in 2018, when work on the "C" construction phase of the M30 motorway started. Beyond the excavation of the entire settlement, more than 114 thousand daub fragments (fired clay plaster remains) have been discovered over the past few years, all of which I have covered in my analysis. A main goal of analysing these finds has been to get a clearer picture of the building structures at this Roman Imperial-period settlement with the help of the impressions on the fragments, mostly by describing the walls and the roof structures.

Keywords: Roman Imperial Period, building structure, daub finds, Hernád Valley

RESEARCH HISTORY OF THE SITE

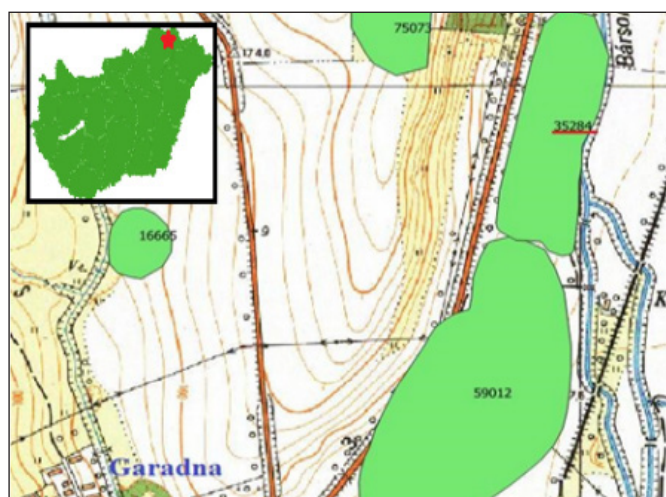


Fig. 1. The position of the site on a map of Hungary

of the 2nd century AD to the last third of the 4th century AD (B2/C1 – C3/D1 periods; Soós 2019a; 2019b). The same year, in November 96 archaeological features (remains of hearths, semi-sunken buildings, postholes) were recorded, 88 of which dated back to the Roman Imperial Period (CSENGERI & PUSZTAI 2008, 89).

Full-scale excavation started in 2018, in relation to the construction of the M30 motorway. It was led by Krisztián Tóth and Ákos Csörgő led On behalf of the Hungarian National Museum's Archaeological Heritage Protection Directorate. The recovered finds have not yet been processed.

The Garadna-Kovács tanya site is located in North-eastern Hungary, more precisely in the valley of the River Hernád in Borsod-Abaúj-Zemplén County, on a river terrace on the banks of the Bársonyos stream (CSENGERI & PUSZTAI 2008, 89). The archaeologists of the Ottó Herman Museum discovered the site in 1999 during a field survey. Excavations began in 2002, under the direction of Tamás Pusztai and Piroska Csengeri. In May 2003, it was confirmed that the 346 identified stratigraphic units belonged to a Roman Imperial-period Germanic settlement that was inhabited from the second half

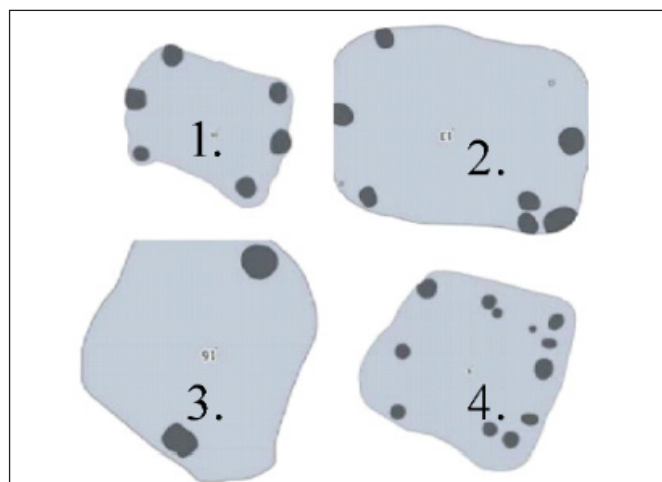


Fig. 2. The building types reconstructed by Eszter Soós, with the positions of the postholes. Number 4 shows the category of building(s) with multiple posts (Soós 2015, 208–211)

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After removing the humus layer, a layer heavily admixed with daub fragments appeared. Under that, we have found the postholes of an above-ground building with an area of approximately 8 x 4 metres. The excavation ended on 10 September 2020, and a major result was the probable identification of the Germanic settlement's northeastern border fortified by a ditch. Besides, we have unearthed semi-sunken houses, timber-framed buildings, and storage pits.

In her doctoral dissertation, Eszter Soós discussed the previously excavated buildings of the settlement and analysed the finds yielded by the 2002–2003 excavations. She has identified altogether 26, square or slightly rectangular semi-sunken houses at the site. The area of the houses varies between 8 and 34 m², but it is 12–20 m² on average. The floor is even, plain or sometimes hard-trampled. According to her research, the buildings had vertical walls, covered with clay. Inner ovens were rare, the ones typically placed in a corner. The number of postholes varies between one and six. Based on the arrangement of the postholes, Eszter Soós distinguished several types of structures (Fig. 2). In her opinion there were various post structure designs, rather than one based on a fixed form and structure (Soós 2015, 206–207; 2019a, 2019b).

THE RESULTS OF DAUB ANALYSIS

This paper discusses the results of an analysis of the daub finds recovered from Garadna-Kovács tanya between 2018 and 2020.

Bettina Bittner's analysis of the daub finds from the Late Neolithic site of Polgár-Csőszhalom served as the starting point for the identification and analysis of the daub fragments with impressions (BITTNER 2016). She classified the various wooden elements that left the negative impressions on the daub fragments based on their size (wicker, twig and branch impressions), and noted that the amount of tempering agents added to the clay depended on which structural element was it used for, thus linking the different parts of the building to the daub (BITTNER 2016, 34–36).

The daub finds also helped Zsuzsanna Hajnal in reconstructing the buildings excavated at the Avar-period settlement of Kölked. Her observations have provided useful information on comparing the different types of daub (HAJNAL 2009). In 2017, Tibor Sztankovánszki carried out another analysis of the daub fragments from a Sarmatian settlement at Makó-Igási járandó, also dating back to the Roman Imperial Period (SZTANKOVÁNSZKI 2017, 103–120). The results of the analysis of the finds from Garadna-Kovács-tanya, presented in this paper, extend all our previous knowledge.

METHODOLOGY

We started the work in July 2020 by sorting out the daub finds. Of the more than 114 thousand fragments, we only kept the ones with some kind of impression (3150 pcs). We documented both the fragments to be discarded and the retained ones with photos, and recorded the data on size and weight and the proportion of tempering components. After collecting all data, I attempted to determine a connection between the informative daub fragments and the structural elements of buildings (Fig. 3).

	A	B	C	D	E	F	G	H	I	
1	Strat. Egység	Leőhely	Méret (cm)	Súly (g)	Szín	Darab	Megtartás	Leírás	Fotó	megj
					téglszín halványtéglszín barnás árnyalat szürke					
2	szorvány	Garadna-Kovács tanya	1x1-12x12,5	4150		39	jó	többnyire lenyomat nélk p	x	0 megtart
3	130A	Garadna-Kovács tanya	4x4-6x12	2175	téglszín	39	jó	többnyire lenyomat nélk p	x	
4	130B	Garadna-Kovács tanya	1x1-6x7	950	téglszín	30	jó	lenyomat nélk paticsok	x	0 megtart
5	130C	Garadna-Kovács tanya	2,5x3-6,5x10	1595	téglszín	28	jó	lenyomat nélk p	x	
6	130C	Garadna-Kovács tanya	3x3,5-6,5x9,5	840	téglszín	8	jó	lenyomat nélk p	x	
7	130D	Garadna-Kovács tanya	2,5x3-8x13	2405	téglszín	31	jó	lenyomat nélk p	x	
8	131	Garadna-Kovács tanya	2x3-10x16,5	4595	téglszín	17	jó	hasított fa és gallylenyomatos nagy paticsok	x	

Fig. 3. Excel sheet with recorded data

RESULTS

The *daub fragments with split timber impressions* may relate to *slats and planks in the walls*. The slat and plank impressions on the related daub finds run in different directions and intersect in diverse ways. Therefore, I categorized the daub fragments with such impressions into five groups. Due to a space limit, only group 1 and 3 are discussed in detail in this paper. Over the entire site, most fragments collected belong to group 1. These display a vertical and a horizontal or several vertical and one horizontal intersecting slat/plank impressions (Fig 4). Many similar daub fragments with negative impressions of split timber (and with square-shaped impressions) were found at Makó-Igási járandó, indicating that the buildings on that settlement were probably also timber-framed (SZTANKOVÁNSZKI 2017, 107–108).

Of the fragments with split timber impressions, those with both split and semi-circular impressions

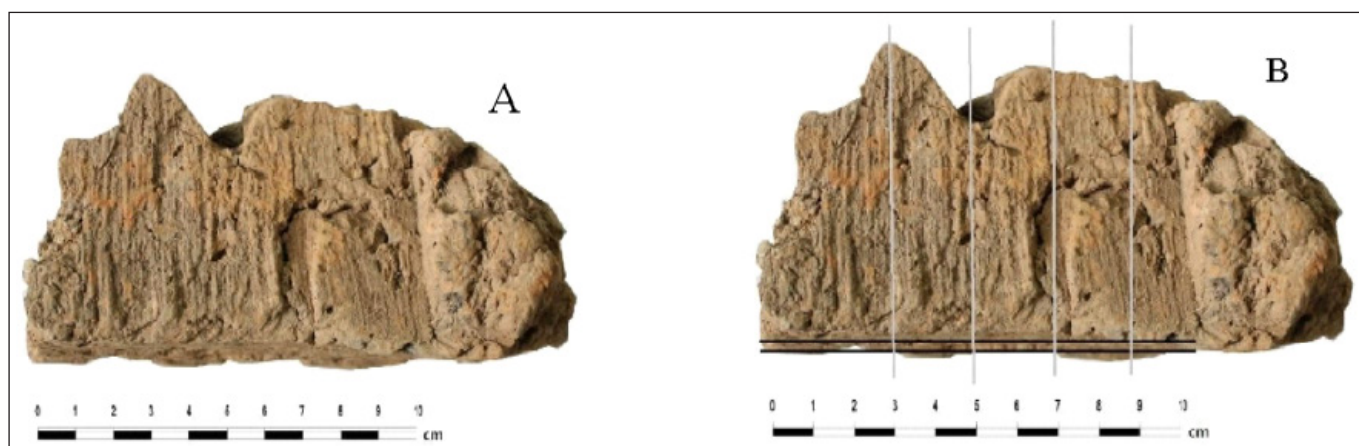


Fig. 4. Daub fragments with intersecting slat or plank impressions. In picture B, grey lines indicate vertical, while black lines horizontal impressions.

are also important (group 3). The twigs and branches that left the circular impressions were either used to secure the slats and planks, or the slats and planks made up the main structure of a possible wattle wall with the thinner wooden elements woven around them (Fig. 5). Within this category, more than 40 pieces preserved not only the various impressions mentioned above, but also the surface of the exterior wall.

Thicker branches and logs were also used in the wall structures. I set the size limits of branches between



Fig. 5. Daub fragment with a split and a semi-circular timber impression. Black lines indicate split slat or plank impression, while underneath, light brown ellipses (B) mark the impressions of the twigs that were probably used for fastening

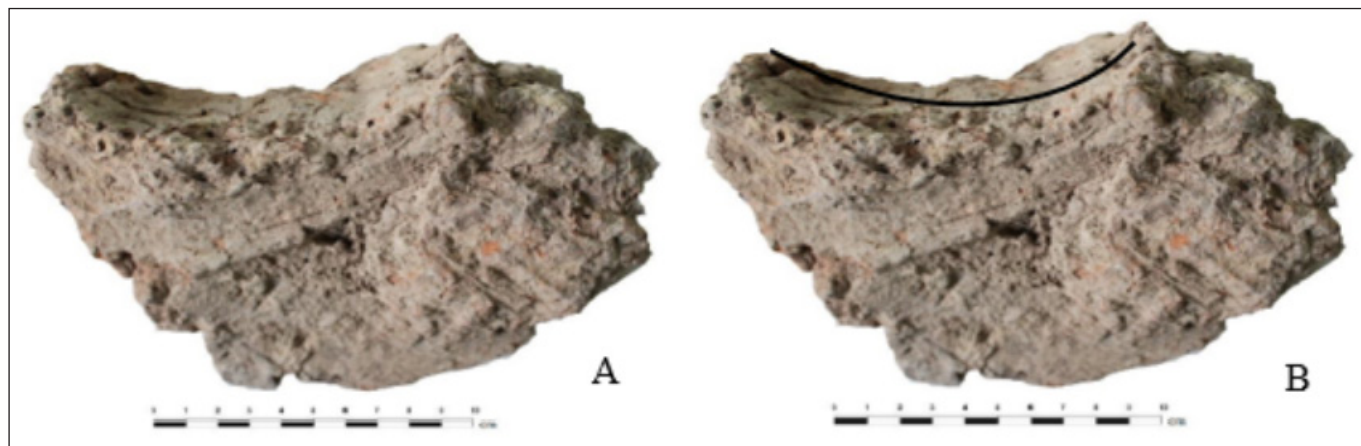


Fig. 6. Daub fragment with log impression, marked by a black arc on picture B

3 and 5 cm (the daub finds from Makó reflect the same size range: SZTANKOVÁNSZKI 2017, 108), while the negative impressions with a diameter larger than 5 cm indicate logs (Fig. 6). We found log impressions on considerably less, only 11 daub fragments, meaning that planks and splats were probably used much more often than logs for the walls. Another explanation for the few log impressions may be that the logs were not plastered.

Most of the daub fragments found at the site preserved the *semi-circular impressions* of wooden components of *wattle walls*. The plaited wattles have been covered with daub on both sides, similarly to the Avar buildings at Kölked (HAJNAL 2009, 109). We have discovered fragments indicating that the wattle walls had been covered with clay in the case of nearly all buildings. This means that this particular architectural solution was widely used in the entire settlement. The daub finds reveal which wooden component types were used together. I created groups based on the different combinations: fragments with the impression of branch with branch (1), twig with twig (2), branch with twig (3), twig with wicker (4), branch with wicker (5), wicker with wicker (6) and even all three wooden component types together (7; Fig. 7). The average distance between the wooden elements was 1.2 cm based on the analysis of 940 daub finds from wattle-and-daub walls, meaning that the houses in this settlement had a dense structure. The wickers and twigs had a diameter of 0.2/0.3-2.5 cm on average. This data nearly matches the standard diameter of the wickers used

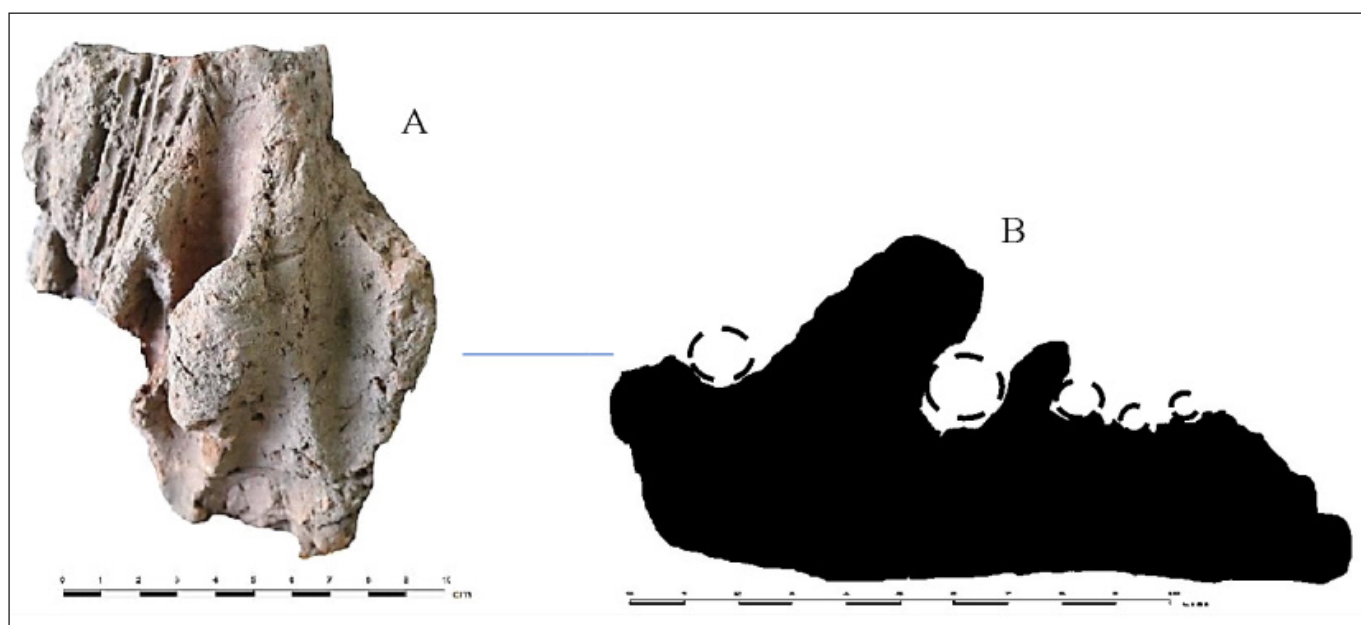


Fig. 7. Daub fragment from a wattle-and-daub wall with impressions of two branches, a twig, and two wickers (marked by black dashed lines in this order)

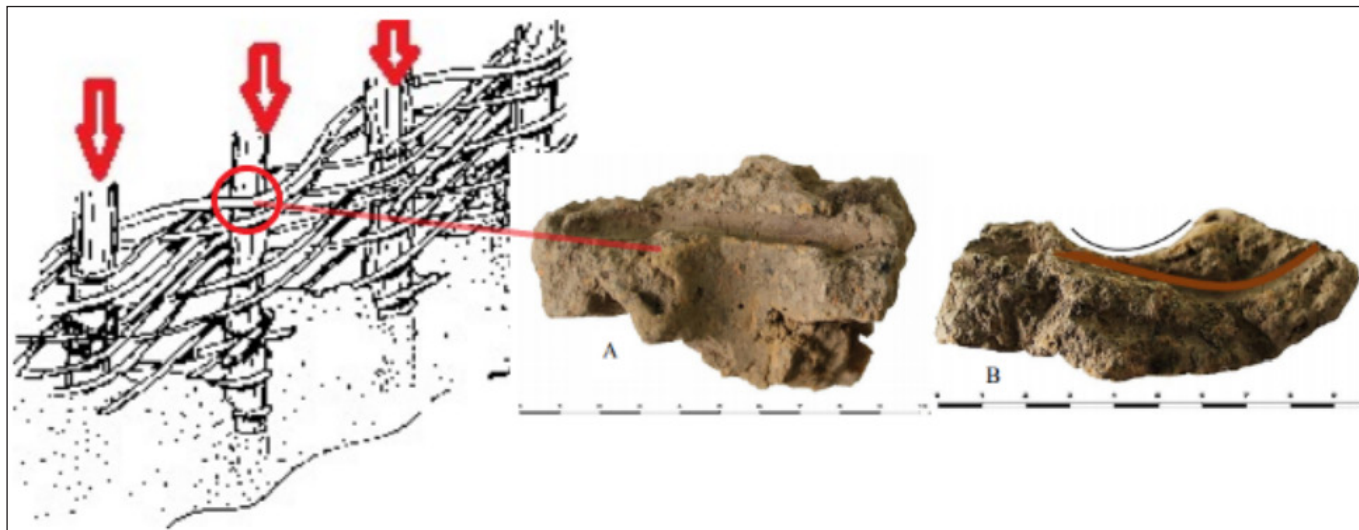


Fig. 8. Reconstruction drawing of thicker stakes forming the basic structure of wattle-and-daub walls and a daub fragment from such a wall with a black arc marking the place of the stake and a thick brown line indicating a woven-around twig

at Makó-Igási járandó (SZTANKOVÁNSZKI 2017, 108). Many fragments preserved impressions of stakes or thicker branches around which plaits were woven (Fig. 8).

While examining the roof structures of the buildings at Garadna-Kovács tanya I found that only a few daub fragments (4 pcs) show the characteristics of a wooden ceiling. The fragments contain the same slat and beam impressions but without traces of a plastered exterior wall surface. Another important detail is that the fired clay pieces of the roof structure were heavily tempered, thus the rest of the building had to support less weight (BITTNER 2016, 34). However, this also suggests that these fragments were more likely to crumble, therefore they cannot be analysed. Another explanation for the lack of wooden ceiling fragments may be that fresh clay has not been applied over the wooden elements of the structure. It is possible that we will learn more about the roof structures with the help of the data on the Germanic settlements to be excavated in the future. If only a few of this type of daub are discovered, it will become increasingly certain that the wooden ceiling was not covered with clay in these houses.

In her doctoral dissertation, Eszter Soós mentions that flat, uncharacteristic, and, in some cases, hard-stamped *floor fragments* were found at the site (Soós 2015, 208). We did not identify floor fragments among the finds of the 2018–2020 excavations. Only a single 4 cm thick clay floor fragment was discovered at Makó-Igási-járandó (SZTANKOVÁNSZKI 2017, 107A). During processing, I expected to come across such daub fragments, made of untempered clay and with one side smoothed. Instead, we found some distinctive pieces with a completely smooth surface, often whitish in colour. As they often had shallow amorphous or round impressions on their uneven surface, I came to the conclusion that they were not part

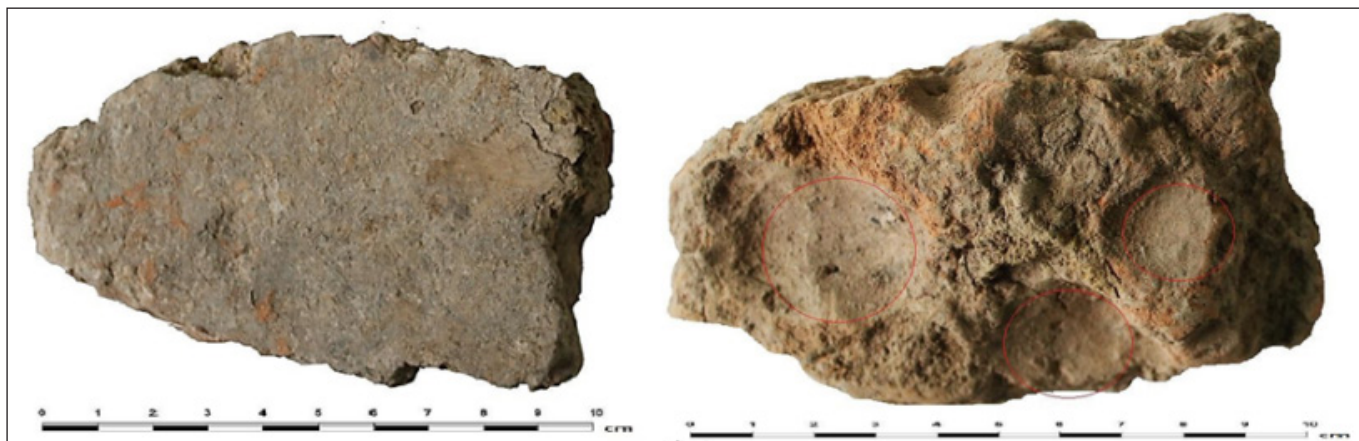


Fig. 9. Smooth-surfaced daub fragments with round impressions on the other, uneven surface (marked with red circles).

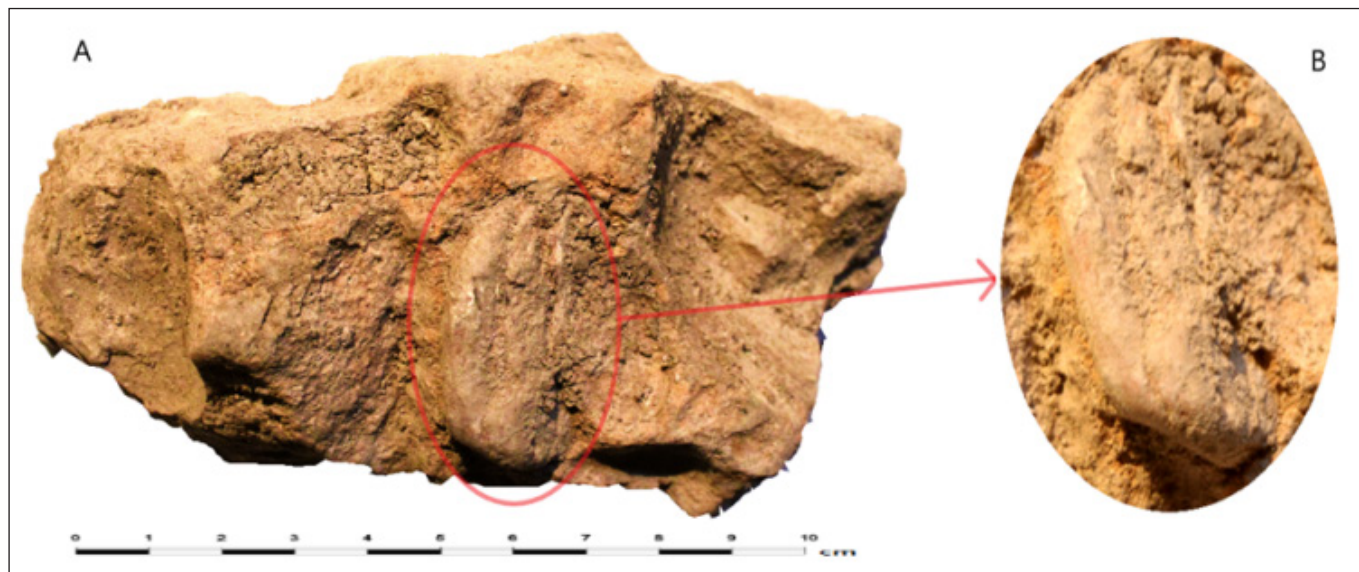


Fig. 10. Embedded pebble that leaves the round impressions

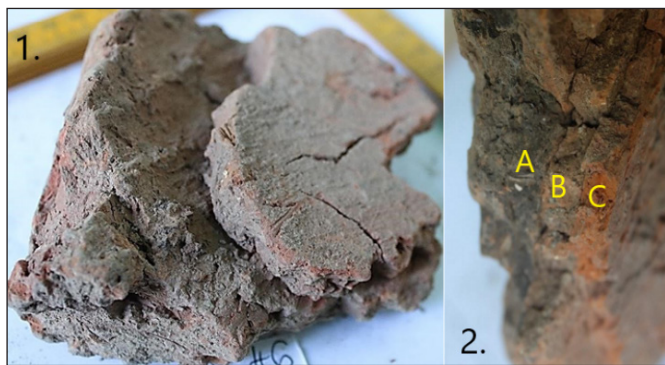


Fig. 11. Layered daub fragments. 1: the newer layer – distinctly standing out – was applied over the shallow impressions/traces of limewash (parallel lines), 2: daub fragment covered with two new layers: “A” marks the main layer (dark grey), “B” the first renewal (brown) and “C” the most recent layer (brick red)

The exterior wall surface on both the fragments from wattle-and-daub walls and the finds with split impressions confirm that another layer of clay was applied on the already solid surface. These are called *layered daub fragments*. We have identified 37 of them. In some cases, fresh clay was applied in a thick layer over the shallow impressions of the exterior walls, partly to cover up the uneven surface (Fig. 11). Another reason for the additional layer may have been to ensure protection against frost and rain, and even to increase the durability of the daubed wall (SZTANKOVÁNSZKI 2017, 109). On the exterior wall surface, we can observe traces of limewash (parallel lines that cause the unevenness; Fig. 11.1). Zsuzsanna Hajnal also noted the distinctive traces of limewash at Kölked, as well as the

of the flooring (Fig. 9). After discovering four daub finds with embedded pebbles, it became clear that the amorphous negative impressions on the fragments were caused by round pebbles (Fig. 10). The phenomenon resembles ovens in the Árpáadian Age, the bases of which were often packed with sherds, animal bones fragments, or pebbles. It is likely that the pebbles put densely in the base of ovens at the Garadna settlement were also for improving their heat retention capability.



Fig. 12. Daub fragment with leaf impression

repeated application of new layers and their different colours (HAJNAL 2009, 111). The newer clay layers are 0.3–0.6 cm thick on average, slightly thicker than the ones (0.1–0.4 cm) observed at the also Roman Imperial-period Makó–Igási-járandó (SZTANKOVÁNSZKI 2017, 108). The reason for the thicker layer(s) at Garadna–Kovács tanya lies most likely in the difference between local climates, as the Hernád Valley is cooler and rainier than the South Hungarian Plain; therefore, the walls needed more protection against the harsher weather conditions in the north.

Although the *daub fragments with leaf impressions* were not part of the house frames, they are still impressive finds. The leaves – although not on purpose – probably found their way into different parts of the structure when the tempered daub was applied. Through their veins and shape, they may carry important archaeobotanical information about the flora of the site and its surroundings (Fig. 12).

INTERPRETATION

The daub fragments containing split timber and semi-circular impressions, as well as pieces from the wattle-and-daub walls with exterior wall surface provided key information for a reconstruction of the building structures at Garadna–Kovács tanya. The fragments suggest that the buildings on the settlements were most likely timber-framed with wattle-and-daub walls, similar to Makó–Igási-járandó (SZTANKOVÁNSZKI 2017, 109–110). As their distance from the wall surface was similar, the two different negative shapes (split and semicircular) were probably part of a single plane in the walls. The impressions of stakes or larger branches were often parallel with the split impressions and they were close to each other. In summary, it starts to become clearer that the different kinds of timber elements were combined in the walls. Based on the daub fragments found at Garadna-Kovács tanya I can reconstruct the wall structures as presented in Fig. 13, except that the vertical wooden elements were probably placed more densely and the square elements were most likely also woven around.

Comparing the results of the analysis with the observations of Eszter Soós and the data from the settlement of Makó–Igási járandó, the buildings of the Roman Imperial-period settlement at Garadna-Kovács tanya were probably square or rectangular semi-sunken houses, occasionally with an oven in one corner.

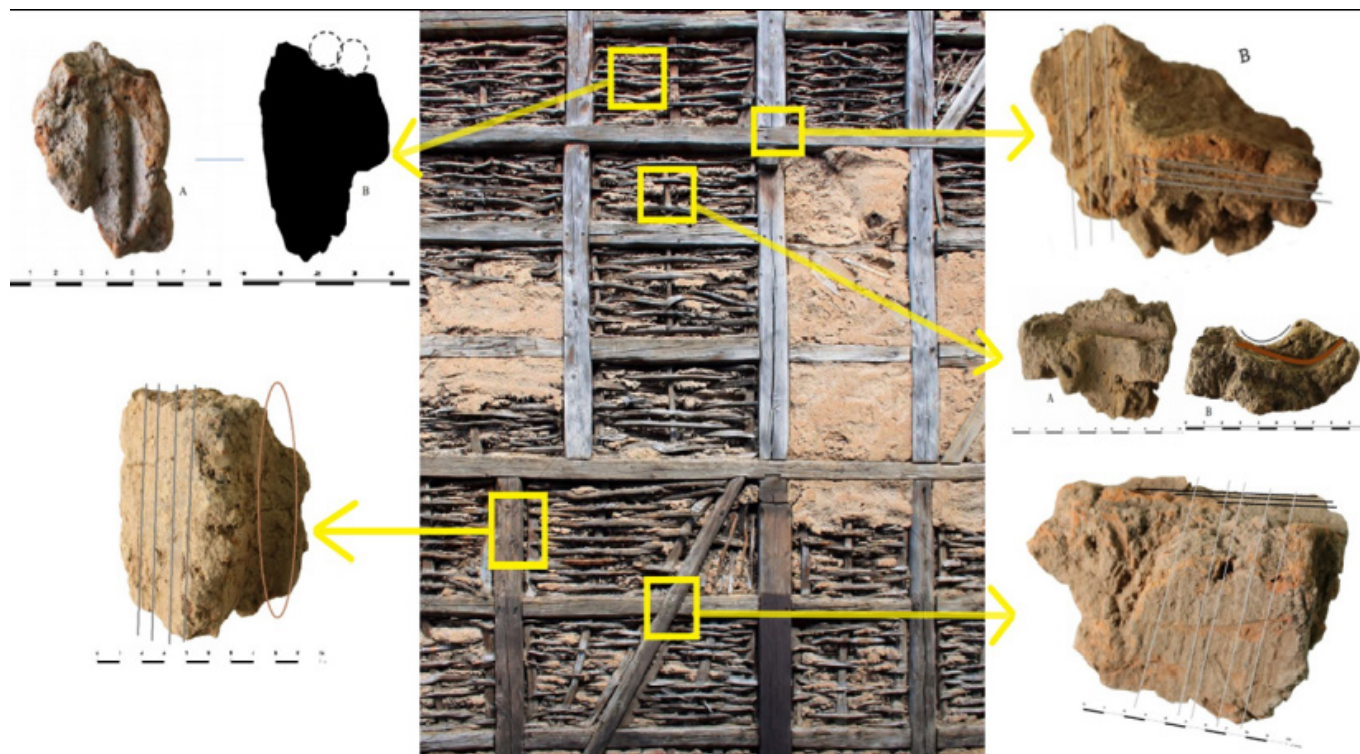


Fig. 13. Reconstruction of a possible wall structure at the site (by the author, based on an image at <https://faustinepau.tumblr.com/post/105557559741/wattle-and-daub-wattle-and-daub-is-one-of-the>)

The houses with multiple posts had 4.7–5.2 m-long sides, which means that they had an area of about 25 m² (Soós 2015, 208–213). The wooden ceilings were most likely not covered with clay. The wattle-and-daub walls were supported by timber frames and plastered with clay on either side. The flooring was even, and, in some cases, hard trampled (Soós 2015, 208–211), although I was unable to confirm this based on the analysed daub fragments. Besides semi-sunken houses, timber-framed surface buildings are also known from the period.

We have yet to process the archaeological finds from the 2018 excavation (that preceded the construction of the motorway). The settlement part excavated back in 2015 and presented in several publications (Soós 2015; 2019a; 2019b) and the one unearthed in 2018 most likely belong together, thus the dating assigned to the former (second half of the 2nd – second third of the 4th century AD) may be correct in the case of the latter as well. However, the various houses, and groups of buildings an analysis of the daub finds from which is presented in this study cannot be dated precisely at this point as the processing of their record has not been completed yet. Therefore, in this paper, I could not analyse the different house types of the settlement and the related daub remains from a chronological point of view.

The basis of this article was a TDK (Scientific Student's Association Conference) paper in which I briefly discussed the connection between the spatial distribution of the daub finds and the ground plan of the excavation. However, a spatial analysis could be the subject of another publication in the future.

ACKNOWLEDGEMENTS

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