Archaeological Fieldwork in Estonia 2024. Tallinn: Muinsuskaitseamet 2025, 121–140
DOI: 10.15157/ave.vi.26165

Purtse Tarakallas hill fort in North-East Estonia: archaeological excavations validating the results of geophysical studies

Kristo Siig[1], Ragnar Saage[2], Sander Nuut[2], Andres Tvauri[2], Lembi Lõugas[3, 4], Carmen Cuenca-Garcia[5, 6] and Krzysztof Kiersnowski[6]

[1] *Tallinna Ülikool, humanitaarteaduste instituut, ajaloo, arheoloogia ja kunstiajaloo keskus* (Tallinn University, School of Humanities, Institute of History, Archaeology and Art History), Narva mnt 25, 10120 Tallinn, Estonia; kristosg@tlu.ee

[2] *Tartu Ülikool, ajaloo ja arheoloogia instituut, arheoloogia osakond* (Tartu University, Institute of History and Archaeology, Department of Archaeology), Jakobi 2, 51005 Tartu, Estonia

[3] *Tallinna Ülikool, arheoloogia teaduskogu* (Tallinn University, Archaeological Research Collection), Ankru 4a, 11713 Tallinn, Estonia

[4] *Tartu Ülikool, ökoloogia ja maateaduste instituut, zooloogia osakond* (University of Tartu, Institute of Ecology and Earth Sciences, Department of Zoology), J. Liivi 2, 50409 Tartu, Estonia

[5] *Departament de Prehistòria, Arqueologia i Història Antiga, Universitat de València* (University of València, Department of Prehistory, Archaeology and Ancient History), Av. Blasco Ibáñez 28, 46010 València, Spain

[6] Norwegian University of Science and Technology, Department of Archaeology and Cultural History, Erling Skakkes gate 47B, 7491 Trondheim, Norway

INTRODUCTION

Purtse Tarakallas is a hill fort situated in northeastern Estonia, in the historical parish of Lüganuse on the right bank of the River Purtse, ca. 3 km upstream from the Purtse estuary and harbour, 1 km south of the historical manor centre. The site lies in the middle of an ancient settlement area packed with Iron Age monuments, including a settlement site just across the river to the west and burial places 100 m northwest and 600 m to the east (Tõnisson 2008, 230–232).

The hill fort was built on a plateau rising 14 m above the river valley (Fig. 1). On the western side, the hill is naturally protected by the steep slope of the valley, while in the east, smaller ravines (up to 5 m deep) separate the hill from arable lands to the east. For the most part, the ravines are the result of erosion caused by small streams from nearby springs. It is unclear to what extent the flat ground of the plateau and its separation from the surroundings are man-made.

The courtyard extends over an area of 9200 m², making it the second-largest hill fort in Virumaa after Pada I. In addition to steep slopes, the plateau is enclosed on all sides by ramparts. The main rampart on the southeastern side, though now only 1.5 m high, was likely

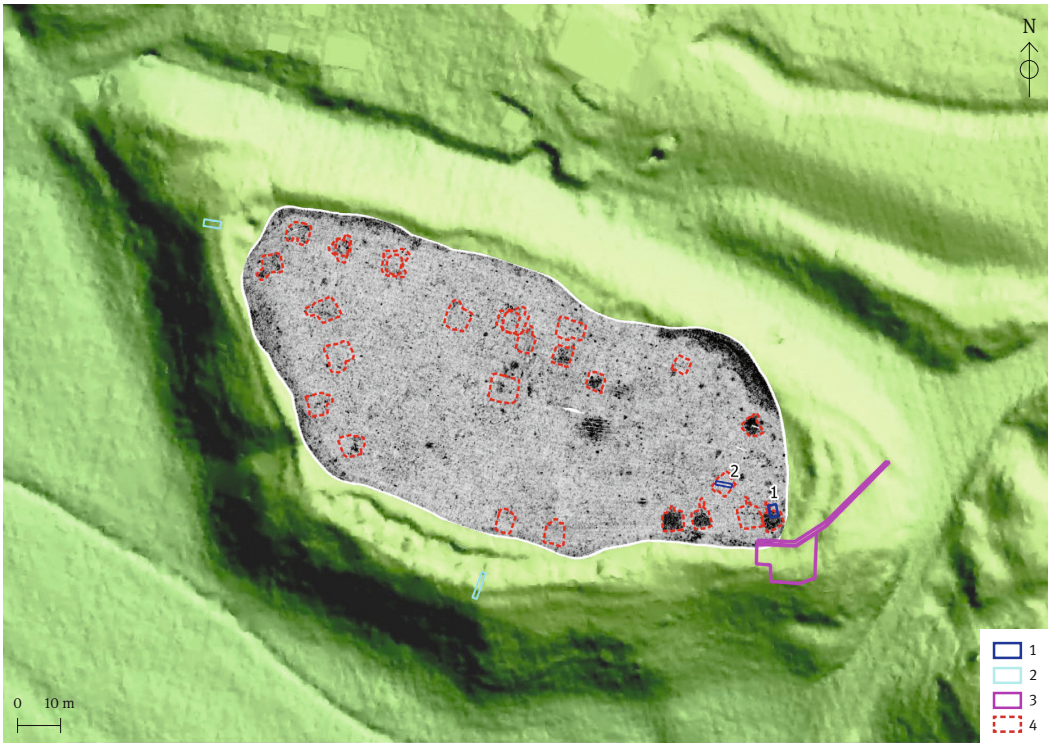

Fig. 1. *Excavations and geophysical studies at Purtse Tarakallas. 1 – Excavations in 2024 (Trenches 1 and 2), 2 – excavations by M. Schmiedehelm in 1952, 3 – excavations by A. Mäesalu & T. Tamla in 1978–1982, 4 – potential buried house-remains according to geophysical survey.*

Jn 1. *Kaevamised ja geofüüsikalised uuringud Purtse Tarakaldal. 1 – 2024. aasta kaevamised (kaevandid 1 ja 2), 2 – M. Schmiedehelmi kaevamised 1952. aastal, 3 – A. Mäesalu ja T. Tamla kaevamised aastatel 1978–1982, 4 – geofüüsikalise uuringu põhjal oletatavad maa-alused hoonejäänused.*

Basemap / Aluskaart: hillshade map by the Estonian Land and Spatial Development Board, overlaid with ground-penetrating radar data at the depth of 60 cm / Maa- ja Ruumiameti reljeefivarjutuskaart, millele on lisatud georadari andmed 60 cm sügavuselt.

higher in the past, as evidenced by its substantial 15-metre-wide base. Documented destruction of the rampart dates from the World War II, when military trenches were dug in it, but stones of the rampart might have been used for construction already earlier. Below the outer side of the main rampart, a barely traceable ditch is visible in the relief. On other sides, the ramparts are narrower and lower, ca. 1 m high and 7 m wide. On the southern side, traces of the destruction of ramparts by the World War II trenches are visible in the terrain.

The first excavations at Tarakallas in 1952 by Marta Schmiedehelm focused on the northwestern and southern ramparts (Fig. 1: 2), revealing two construction stages (AI 4-1-16-4; Kalvi & Schmiedehelm 1948; Schmiedehelm 1952; 1955). A burnt layer below the ramparts was probably a remnant of a wooden palisade. After the fire, the plateau seems to have been enclosed on all sides by a rampart filled with stones and soil, lined with a drystone wall of limestone slabs on the outer sides. Evidence referring to an earlier settlement stage preceding the burned palisade was also found. The second excavations (1978–1982) by Ain Mäesalu and Toomas Tamla focused on the eastern rampart (Fig. 1: 3), uncovering five construction stages with a drystone lining, the earliest dating from the end of 7th till the 9th century. As this

dating corresponds to some finds from Schmiedehelm's burned layer, it was proposed that at first, the fort was enclosed by a stone rampart on the eastern side and a wooden palisade on other sides. At some point, a stone rampart was added to other sides as well. The last stage identified by Mäesalu & Tamla was dated to the middle of the 13th century or even later, i.e. to the post-crusade period (Mäesalu & Tamla 1983).

The field studies of June 2024 (for a summary in Estonian, see Siig & Saage 2024) were motivated by the results of a geophysical survey done with a GPR (ground-penetrating radar) and magnetometer on the site in 2023, suggesting the existence of several buried house-remains across the courtyard (Fig. 1: 4; Cuenca-Garcia *et al*., in prep.). The excavations aimed to target these features and to validate the results of the geophysical survey. Based on the survey data and preliminary coring, two features in the eastern part of the plateau were chosen for excavation (Fig. 1: 1). The feature at Trench 1 was chosen because of a concentration of stones in the ground and darker soil in the core sample, whereas the feature at Trench 2 was selected because globular hammer scale was found there, the feature laid deep and hypothetically represented an earlier settlement stage. Excavations were conducted in one week, assisted by archaeology students, local school students and volunteers. All the soil was sieved on 5 mm mesh. Soil samples were taken from different depths as well as from all features and wet sieved either on site or later to determine archaeobotanical remains.

ARCHAEOLOGICAL FIELDWORK

Trench 1

A 2 × 3 m trench was opened in the place where the geophysical survey had shown the existence of feature 29, a rectangular 4 × 4.5 m anomaly with a 2–2.5 m long protruding patch on the north side (Fig. 1). In profile, the feature had a pit-like shape, extending to a depth of at least 1 m (Fig. 2). The trench targeted the northeastern sector of the feature. The top 30 cm (Unit 1) had been ploughed through and contained a mix of 17th to 19th century glazed pottery along with the earlier 12th to 13th century finds.

Starting from a depth of 30 cm, a fill of irregular stones (mostly limestone, but also granite boulders) was uncovered (Fig. 2: Unit 2). The thickness of the stone filling was 1 m in the southwestern corner of the trench, in the centre of the feature, decreasing towards the north and east edges of the trench. It seems that the fill followed the contour of a pit corresponding to the feature visible on the GPR and magnetometer survey data. The soil between the stones was a dark cultural layer containing finds and animal bones (Fig. 3: 1; Table 1).

The border between the inside and outside of the feature became visible at a depth of 30 cm. The area outside the feature, located in the northeastern corner of the trench and extending towards the south in deeper levels, consisted of orangish sandy soil and lacked rocks and finds, indicating that this was undisturbed soil. Inside this area, two postholes were discovered (Fig. 3: 2, P1, P2) with a diameter of 25–30 cm and extending to a depth of 1.1 and 1.25 m respectively. From one of these postholes (P2), a charred grain of rye (*Secale cereale*) was found.

Below the stone fill, the pit contained a structure of charred log or plank brands and a reddish sandy soil (Fig. 2: Unit 3). In the northwestern corner of the trench, the structure followed the protruding part of the feature visible in the GPR and magnetometer data. This confirmed that we had managed to target the trench so that it halved the protruding structure longitudinally, and we were able to study the eastern half of the structure (Fig. 3: 2, A). The protruding structure, which we interpreted as the pit house entrance, was slightly rising

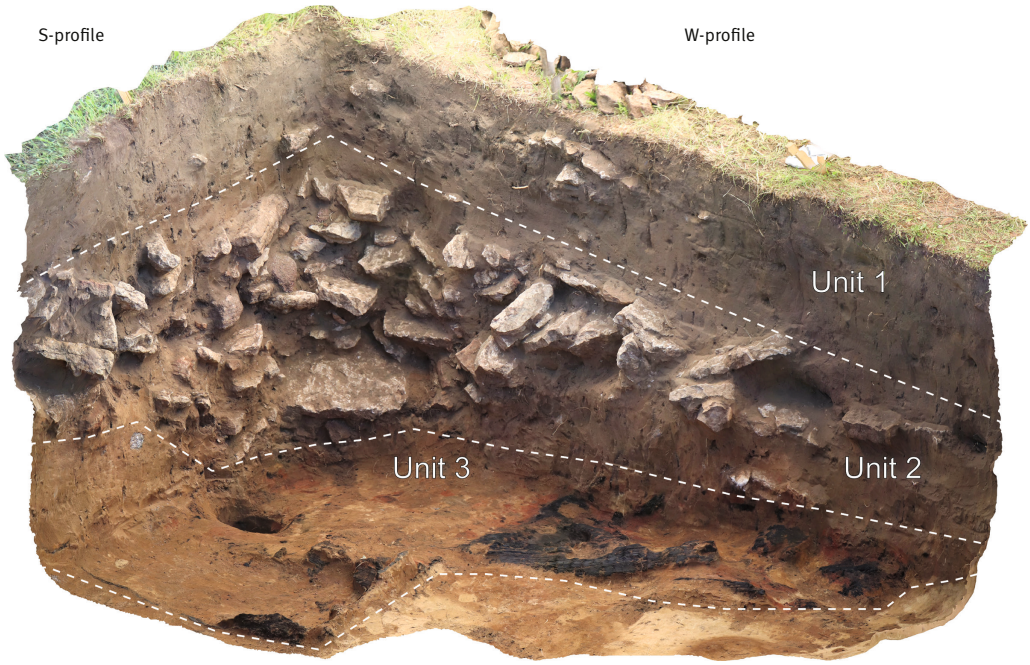

Fig. 2. *3D model of the section excavated in Trench 1 up to a depth of 1.2 m with annotations. Unit 1 – topsoil with finds from the Pre-Viking Age up to the modern day mixed by ploughing, Unit 2 – filling of the pit house (Pre-Viking Age – 13th–14th c.), Unit 3 – cultural layer of the pit house (second half of the 12th c. – first half of the 13th c.).*

Jn 2. *Kaevandi 1 kuni 1,2 m sügavuseni kaevatud läbilõike 3D-mudel koos tähistustega. Üksus 1 – künnikiht, mis sisaldab leide eelviikingiajast kuni tänapäevani, Üksus 2 – maasse süvendatud hoone täide (eelviikingiaeg – 13.–14. saj), Üksus 3 – maasse süvendatud hoone kultuurkiht (12. saj 2. pool – 13. saj 1. pool).*

Photo / Foto: Ragnar Saage

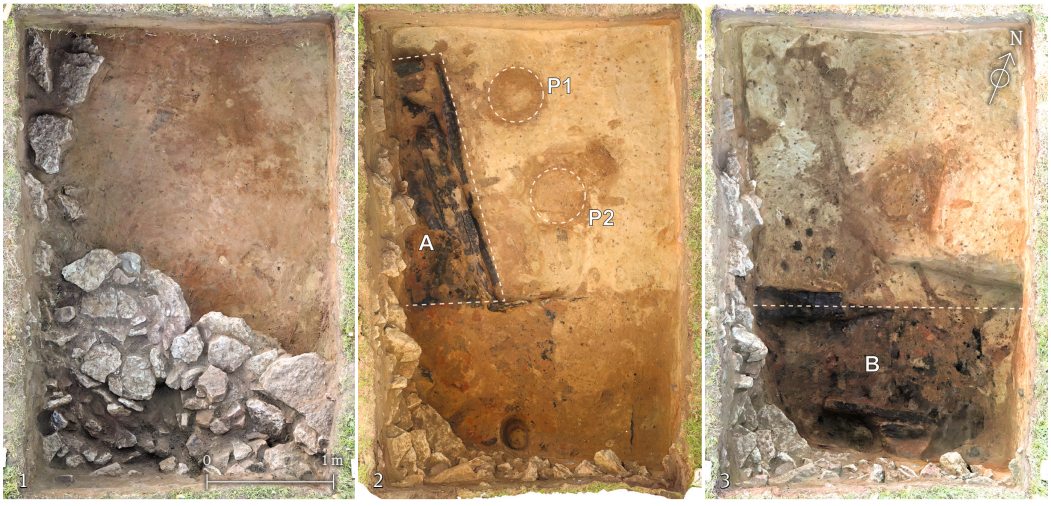

Fig. 3. *Trench 1 at different depths: 1 – at the depth of 0.7 m with the stone filling visible, 2 – at the depth of 1.2 m with the entrance (A), and two post holes (P1, P2), 3 – at the depth of 1.4 m with the remains of the pit house (B).*

Jn 3. *Kaevand 1 eri sügavustel: 1 – kividega täide 0,7 m sügavusel, 2 – sissepääs (A) ja kaks postiauku (P1, P2) 1,2 m sügavusel, 3 – hoone jäänused (B) 1,4 m sügavusel.*

Photo / Foto: Ragnar Saage

Table 1. *Analytical units for the faunal remains from Purtse Tarakallas hill fort*
Tabel 1. *Purtse Tarakaldalt leitud loomaluude analüüsi aluseks olevad ühikud*
Compiled by / koostanud: Sander Nuut

Unit / Üksus	AZ no in ARHIS database / AZ number andmebaasis ARHIS	Archaeological context / Leiukontekst	Time period / Dateering	Finds / Luuleide
1	1–20	Topsoil of Trench 1	Mixed layer	74
2	21–77, 112	Filling of the pit house	Pre-Viking Age – 13th –14th c.	156
3	78–111	Cultural layer of the pit house	2nd half of the 12th c.–1st half of the 13th c.	128
4	113–120	Topsoil of Trench 2	Mixed layer	25
				Total: 383

northwards (Fig. 2). From the soil around the brands, a charred grain of barley (*Hordeum vulgare*) was found.

In the middle of the trench, the entrance was connected to an almost perpendicular charred log, which lined the northern edge of the pit against the sandy natural soil, thus most likely forming the external wall of the feature we interpret as the pit house. To the south of this charred log, it was connected to two brands perpendicular to it and parallel to each other (Fig. 3: 3, B). Radiocarbon analysis from the charred log dated the building of the structure to AD 1156–1264 with 91.5% certainty (Poz-189810; see in more detail below, in subchapter on chronology).

In the southwestern corner the trench reached the original undisturbed ground only at a depth of 1.5 m. On top of the natural soil, a slight charred layer and, in some places, charred planks could be observed, possibly originating from a burned wooden floor. There were plenty of small burrows under the plank remains, which further refer to a solid floor and a possible rodent issue for the inhabitants of the building.

Trench 2

A 4 × 1 m trench (Fig. 4) was opened in the place where the geophysical survey had shown the existence of feature 21, a rectangular 5.5 × 4.2 m anomaly. In profile, the feature was a horizontal 10–15 cm thick layer starting at a depth of 1.1 m. According to the initial hypothesis, the feature was thought to represent an earlier (and thus stratigraphically deeper) settlement phase. The narrow trench was planned to give a cross-section of the feature on an east-west axis.

The topsoil was dark and contained animal bones, fragments of pottery, slag, an iron nail and a small cluster of charred peas (*Pisum sativum*). Radiocarbon analysis from a charred pea indicated that these originate from the 17th to 20th century (Poz-189811, see below). As the hill plateau had been farmed, the finds in the topsoil were not *in situ*, but moved there by ploughing. Starting from the depth of 30 cm, the soil turned orange and sandy, similarly to the northern part of Trench 1, and it no longer contained finds. Below this leached layer, at the depth of 50 cm, the trench reached undisturbed natural ground. The feature visible on the GPR data was found to be of geological origin, a reflection of a denser, iron-rich clayey sand. However, several postholes were found in the trench. These had been dug into the natural sandy soil. The posts themselves had decomposed, but leaching had left clear contours of them in the soil. The majority of finds and all the faunal remains came from the top 30 cm of the trench, and will therefore be discussed as one context (Unit 4).

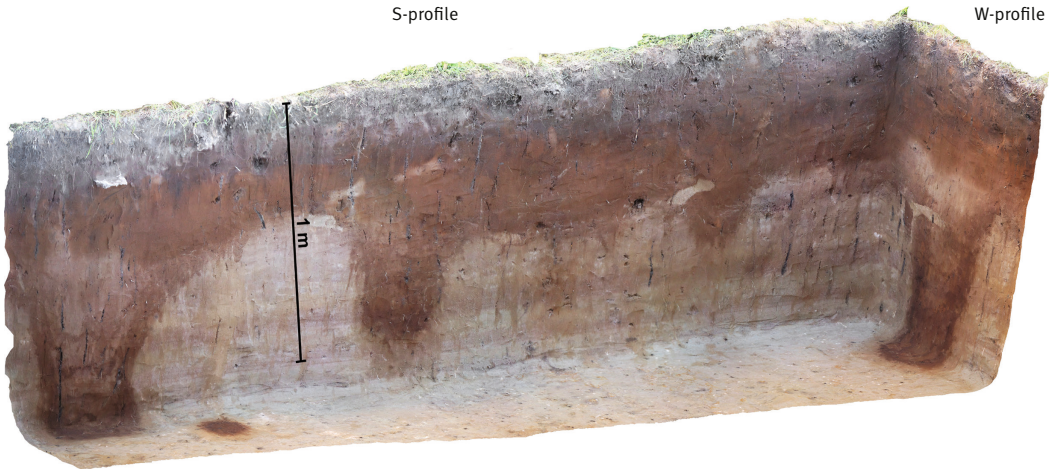

Fig. 4. *Image from the 3D model of Trench 2 at the depth of 1.1 m from the ground.*
Jn 4. *Pilt kaevand 2 3D mudelist maapinnast 1,1 m sügavusel.*
Photo / Foto: Ragnar Saage

Finds

Trench 1 yielded mainly animal bones, with the addition of some fragments of pottery and metal finds. Most of the pottery was found from mixed contexts of Unit 1 and 2. They are fragments of simple hand-made earthenware similar to the ones found during the excavations of 1952 and 1978–1982. Finds from all three excavations fall mainly into two categories. Firstly, the most identifiable are fragments of fine ware vessels with upright rims and smooth surfaces.[1] Good parallels for these can be found elsewhere in North Estonia, for example, among the Viking Age fine ware from the Iru hill fort (see Lang 1985, figs 1–2, plates II–V).

Another distinguishable group among the pottery fragments from the site consists of sherds from hand-made pots with everted rims. Examples from the 2024 excavations were small and indistinct, but larger pieces have been found earlier (see Mäesalu & Tamla 1983, plate XVII: 9). The makers of these vessels imitated Slavic-type wheel-thrown clay pots, but the vessels were made applying the coiling technique and were likely not made using a potter's wheel. This type of pottery has been found at many Final Iron Age (11th–13th century) sites, mainly in North and West Estonia, such as the Soontagana hill fort, the Varbola hill fort, and the Tammiku cemetery (Tvauri 2005, 72–78). A side fragment of a clay vessel (AI 9025: 30), likely belonging to the category of simple wheel-thrown ceramics of Northwest Russian origin, can probably be dated to the 11th century based on the horizontal and wavy lines made by comb-shaped templet decorating its surface (e.g., Tvauri 2005, 35–45; for examples from Virumaa, see Tvauri 2025b).

The most notable find from Unit 1 was a bracelet with chopped ends twisted from three tin bronze wires (Fig. 5), similar to those worn by women buried in the Kukruse cemetery, ca. 20 km from Purtse (Lõhmus *et al.* 2011). According to Priit Ligi, ca. 750 such bracelets or their fragments had been found by 1993, the majority of them originating from Virumaa (Ligi 1993, 69–70). Such bracelets were worn at the end of the 12th century and in the 13th century (Tvauri 2025, 12–13). XRF analysis of the metal finds revealed that the bracelet was

[1] A few of the finds from earlier excavations bear ornaments of horizontally incised lines (AI 4052: 4; AI 5038: 25).

made from tin bronze. However, three more pieces of sheet metal were found (AI 9025: 15, 20, 34), all manufactured from a gunmetal alloy, which indicates recycling of copper alloys. From Unit 2, the most interesting find was a fragment of the bottom of a Rhenish proto-stoneware jug (Fig. 5), which will be discussed separately below.

The only *in situ* finds came from Unit 3, the rest have been moved either by ploughing or the backfilling of the pit house depression. The most notable find from the pit house context (Unit 3) was a large whetstone that had been broken into pieces (Fig. 6). Most fragments were found from the entrance and two pieces from inside the house itself.

A piece of slag originating from Trench 2 was metallographically analysed to characterise the nature of metalworking on the hill fort. The slag piece was small, about 10 g, and irregular. The slag was cut from one end, and the polished cross-section had a rather homogeneous ternary (wüstite-fayalite-glass) structure (Fig. 7). Wüstite was in both dendritic and globular form, which indicates a medium cooling time. It also had quite a lot of pores, both round and irregular. No sand particles were visible, which could mean that the slag originates from a process where the goal was to forge spongy bloomery iron into more compact pieces. No sand is needed during this process, because the iron piece has a lot of slag which acts as a flux. Both flaky and globular hammer scale was found from the trial pit for Trench 2, which means that the smithy was not far away from Trench 2.

Fig. 5. *Fragments of the proto-stoneware and a bracelet.*
Jn 5. *Protokivikeraamika kild ja käevõru katke.*
(AI 9025: 38, 17.)
Photo / Foto: Ragnar Saage

Fig. 6. *A whetstone put back together from five pieces.*
Jn 6. *Viiest tükist kokku pandud luisk.*
(AI 9025: 36, 37, 40, 42, 45.)
Photo / Foto: Ragnar Saage

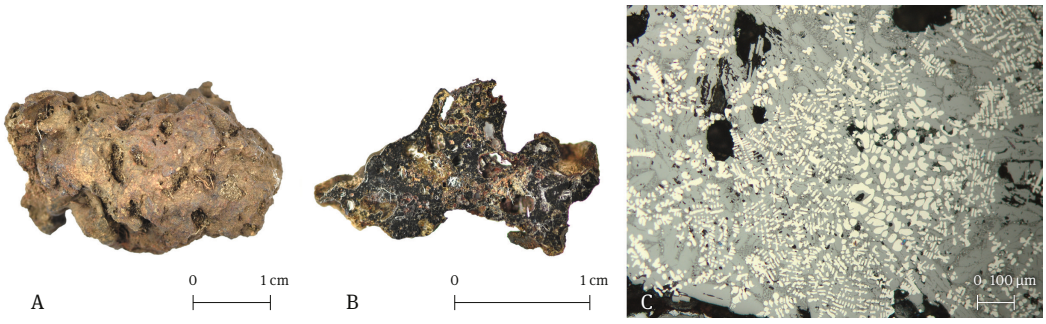

Fig. 7. *A slag piece before cutting (A), its polished cross-section (B), and the microstructure under 100× magnification (C).*
Jn 7. *Šlakitükk enne lõikamist (A), poleeritud ristlõige (B) ja mikrostruktuur 100× suurendusega (C).*
(AI 9025: 49.)
Photo / Foto: Ragnar Saage

FAUNAL REMAINS

In total, 383 faunal remains were excavated in Purtse, including mostly mammals and to a lesser extent birds, fish and one amphibian. Animal remains were analysed in four separate analytical units per the find contexts: topsoil of Trench 1, filling of the pit house, cultural layer of the pit house and the topsoil of Trench 2 (Table 1). Due to the highly fragmentary nature of the material, most of the faunal remains could only be identified to a class level of taxonomical order (e.g 'mammals' or 'vertebrates'). Mammalian and bird remains were analysed and identified by Sander Nuut (TÜ), and fish remains were identified by Lembi Lõugas (TLÜ). Detailed identifications and analyses have been provided in the zooarchaeological report (Nuut & Lõugas 2025).

Unit 1 – Topsoil of Trench 1

74 remains were found from this context, of which 67 were mammals: five were identified as cattle (*Bos taurus*), four as sheep/goat (*Ovis aries/capra hircus*), three as domestic pig (*Sus domesticus*), one as horse (*Equus caballus*), one as hare (*Lepus* sp.) and 53 as indeterminate mammals (Mammalia). There was also an indeterminate bird (Aves) remain, a common roach *(Rutilus rutilus*) bone, one unidentified fish remain (Pisces) and four indeterminate vertebrate (Vertebrata) bone fragments.

Cut marks were identified only on one of the indeterminate mammal bones. Gnawing marks were documented on one cattle and one sheep/goat bone. Nine of the bone fragments were burnt, one of them belonging to a domestic pig. The colour of the burnt bones ranged from black to white, indicating a wide range of burning intensity. Pathological changes were documented on one temporal bone of a domestic pig showing active new bone formation.

Unit 2 – Filling of the pit house

156 remains were found from this context, of which eight were identified as cattle (*Bos taurus*), six as domestic pig (*Sus domesticus*), and three as sheep/goat (*Ovis aries/capra hircus*). There were also two hare (*Lepus* sp.) and two cricetid (Cricetidae) remains. Five of the mammalian remains were of artiodactyls (Artiodactyla), two as ungulates (Ungulata), one as an indeterminate small mammal (Micromammalia) and 96 as indeterminate mammals (Mammalia). Bird remains included domestic chicken (*Gallus gallus domesticus*) and unidentified fragments. 23 fish remains were also recovered from this context: one cod *(Gadus morhua)*, 11 perch (*Perca fluviatilis*) bone fragments, two common roach fragments, one Percidae, one Cyprinidae and two undetermined fish remains. There were also six indeterminate vertebrate (Vertebrata) bone fragments.

Cut marks were identified on 12 bone fragments from both the meatier parts of the body (indicating kitchen and food waste) and from the extremities (butchering waste), which included a domestic pig, a sheep/goat, an artiodactyl, an ungulate, an unidentified bird and seven unidentified mammals. Gnawing marks were documented on hare, domestic chicken, and indeterminate mammal remains. 20 (partially) burnt bones, ranging from black to white, were identified. Pathological changes were documented on a domestic pig and on unidentified mammals displaying new bone formation.

Unit 3 – Cultural layer of the pit house

128 remains were found from this context, of which eight were of domestic pig and six of cattle. Most of the material remained unidentified due to the fragmentation. Birds included

domestic chicken, galliforms and undetermined remains. This unit yielded the most fish remains, 32 in total. There were 18 perch, one roach, two Cyprinidae and six unidentified fish bone fragments. Also, a bone fragment of an amphibian (frog) was found and not associated with human activity.

12 bone fragments from cattle, domestic chicken and unidentified remains exhibited cut marks on the meatier parts of the body, indicating kitchen or food waste. Gnawing marks were documented on cattle, domestic pig and on unidentified mammal remains. 33 (partially) burnt bones, ranging from black to white, were identified.

Unit 4 – Topsoil of the Trench 2

25 remains were found from this context, of which six could be identified as domestic pig. Most of the material remained unidentified. There were also two cod bone fragments. Cut marks were only seen on one artiodactyl bone. Burnt bones were only identified among the mammal remains.

DISCUSSION

The wooden pit house

The charred log brands in Trench 1 probably represent a one-room pit house with timber walls of horizontal logs and possibly a wooden floor. The floor measurements of the building were 4 × 4.5 m. The height of the roof is unknown, but the pit was dug 1 m into the original ground. The absence of other types of materials and ethnographic parallels suggests that the roof was most likely made of wood and other organic materials.

The narrow protruding structure, which slanted towards the house, may have been part of the entryway to the subterranean room. According to GPR and magnetometer data, the entryway was 2–2.5 m long, but its highest part might not have been sufficiently preserved to give any geophysical signals, making it likely that it was actually longer, ca. 3 m. Surprisingly, the entryway was quite narrow, only 70 cm at the external end and widened to 130 cm at the entrance to the subterranean room. Some of the brands in the entryway look as if they have fallen into that position from either the walls or the roof. These are likely remnants of a wooden wall lining the entryway or a roof above it.

Postholes adjacent to the entryway form a line that roughly follows the diagonal edge of the entryway. Our interpretation is that such posts were mirrored on the other side of the entryway as well, and they upheld the roof of the building, which extended over the entryway to shield it from the elements.

Inside the building, a charred layer on the natural ground allows us to speculate that there must have been a wooden floor, although such remains could also originate from burned roof structures that fell onto the floor. Two brands parallel to each other and the eastern external wall (Fig. 3: B) might have served as floor joists.

As we excavated only a quarter of the building (Fig. 8), we were unable to confirm whether there were any heating units, such as a hearth or an oven. Thus, it is difficult to say if the building was meant for residential, storage or some other purpose. A reconstruction was made of the pit house (Fig. 9). Details of the reconstruction will be discussed in an upcoming paper (Siig & Saage 2025).

Although the pit house revealed only a modest number of finds and animal bones, the context of these is quite well dated for a hill fort building. As the house depression was dug into the undisturbed soil, the dating of everything found under the burned remains of the

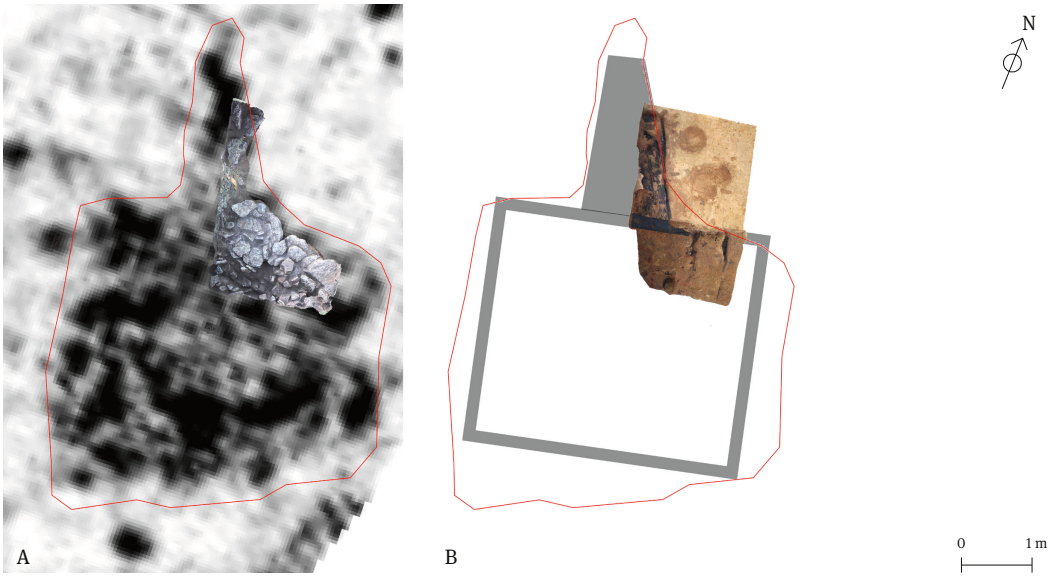

Fig. 8. *GPR data compared with archaeological finds: A – The GPR signal from –0.55 m from ground level and stones from the same depth, B – possible pit house and entrance dimensions.*
Jn 8. *Georadari andmed võrrelduna arheoloogiliste leidudega: A – georadari signaal 0,55 m sügavusel ja samalt kõrguselt leitud kivid, B – hoone ja sissepääsu mõõtmed.*
Image / Pilt: Ragnar Saage

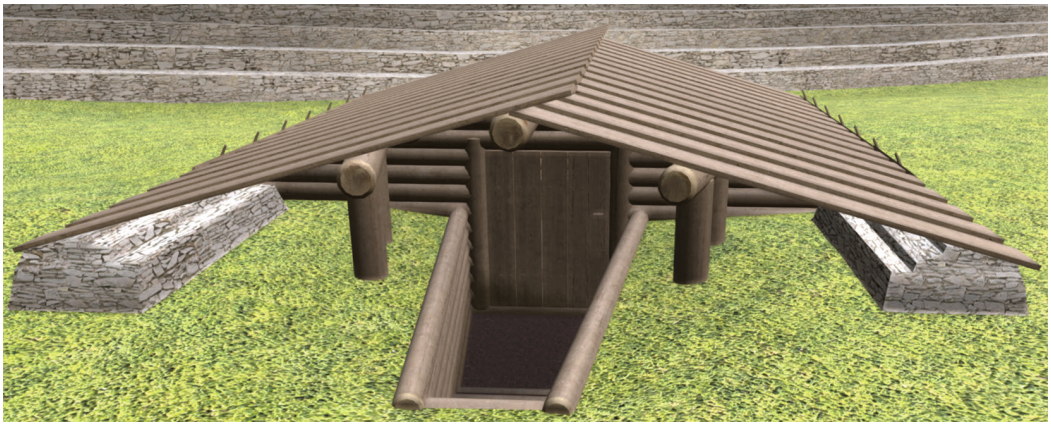

Fig. 9. *3D reconstruction of the pit house discovered in Trench 1 (Unit 3). View from north.*
Jn 9. *Kaevandis 1 (üksus 3) avastatud hoone 3D-rekonstruktsioon. Vaade põhjast.*
Modelling / Modelleerijad: Ave Kodar, Anett Saksing

house (Unit 3) is from the late 12th or early 13th century. In Scandinavia, it has been noted that a pit house was probably like 'single-use packaging', used for a relatively short time as most of their elements rotted in contact with the ground (Herschend 2021).

Building remains of this kind are unique in Estonian archaeology. Pit houses are a relatively common find at Stone Age settlement sites (Khrustaleva *et al.* 2020), but instances from later periods are extremely scarce. From the Iron Age, the Migration Period mortuary house

at Lepna on the island of Saaremaa is the only known example, but it was a burial site, not a mundane building within a settlement (Mägi 2004). A functionally and temporally closer parallel could be seen in medieval pit houses discovered in Angerja, Uderna, and Lehmja settlement sites in Harjumaa, which are dated to the 13th–15th centuries (Lavi 1997; 2005). There are also mentions of subterranean fishermen's huts in written sources from medieval and Early Modern Estonia (Lavi 1997, 115). However, in Lepna, Angerja, and Lehmja, the subterranean part was lined with a drystone wall. Only one previously discovered subterranean building from Olustvere in Viljandimaa was made of timber logs (*ibid*., 114–115). Another difference is that none of the above mentioned buildings were found in hill forts.

So far, the overwhelming consensus has been that Late Iron Age buildings in Estonia followed a relatively uniform architecture that is seen both in the yard area of hill forts as well as in open settlements (see Lavi 2005; Mäesalu 2020). The current findings do not fit into this notion. As only a handful of Iron Age settlement sites have been thoroughly excavated, geophysical studies have concentrated on other types of sites and excavations at hill forts mostly focus on the rampart rather than the courtyard, and thus the lack of pit houses may result from a modest state of research. This accords with observations that there must have been more architectural diversity that has been overlooked due to inadequate excavation practices and disregard of parallels from other regions, e.g. Scandinavia (Mägi 2023; 2025; Riiel-Mürk 2016).

Pit houses are quite typical in Scandinavian Iron Age and early medieval settlement sites, usually as auxiliary buildings beside longhouses, used as workshops by lower-status people working for a landowner (Fallgren 2008, 69–70; Herschend 2021). Pit houses are found in places linked to communication routes (Herschend 2021), and large concentrations of pit houses with only a few longhouses are interpreted as sites specialised on craft and regional trade (Wilken *et al*. 2015, 190). Pit houses are thought to have been occupied on a seasonal basis and mainly used for crafts such as weaving, beadmaking, bone working or metallurgy (*ibid*.; Dobat 2022). In this light, it is tempting to connect the pit houses at Tarakallas to interpretations that the fort at Purtse was also a significant Viking Age trading place connected to a nearby harbour and that most of the settlement in sites like this is expected to be seasonal (Mägi 2013; 2018, 283–284). In the Eastern Baltic region, settlements featuring many pit-houses dated to the 11th–12th centuries and thought to represent semi-seasonal trading places have been found on the banks and islands of the Daugava River in modern-day Latvia (Mägi 2018, 390–391). Direct connections to the Scandinavians and Viking Age trade are, however, unlikely, because the pit house is dated to the 12th–13th centuries (i.e. post-Viking Age) and architecturally different from the Scandinavian pit houses, which are mostly oval or round in shape and composed of vertical post-structures rather than horizontal logs (Kastholm 2012; cf. Wilken *et al*. 2015, 190; Frandsen 2018, 10–12).

Apart from the sunkenness, the building's dimensions and architecture are actually quite alike to the commonly known Iron Age house remains in Estonia. The horizontal log structure in general connects it more to Eastern European than Scandinavian traditional architecture, where the dominant building type had, since the Bronze Age, been three aisled longhouses with posts supporting roofs and walls made of wattle and daub, earth, turf, stone or other materials (Fallgren 2008, 67). In this light, an interesting passage by 10th century Persian geographer Aḥmad ibn Rustah describing *Saqaliba* (lands of the Slavs) is noteworthy: 'In their country, the cold is so severe that each of them digs a kind of cellar in the ground, to which they attach a wooden gabled roof, resembling a Christian church, and cover the

roof with earth. They move into such cellars with their entire family and, taking wood and stones, light a fire and heat the stones until they are red-hot. When the stones are heated to the highest degree, they pour water over them, which creates steam that heats the dwelling to the point where they even remove their clothes. They stay in such dwellings until spring.'[2] (Novosel'tsev 1965).

While this passage describes the Slavs, it might also give an indication of how the pit house might have been used in Estonia. In any case, parallels to this building type deserve to be explored further.

Stone filling

During the excavations, the first hypothesis was that the stone filling in Trench 1 is the pit house visible on the GPR and magnetometer data, especially since in the upper layers the stones seemed to form a drystone wall separating the dark soil inside the building from the natural ground. However, when digging deeper it became clear that there was no real structure in the stone filling, the stones seemed to have collapsed or been thrown haphazardly into the pit.

The discovery of the burned wooden structures beneath the stone filling raised the possibility that the wooden structures are actually the building and the stones were simply used to fill the pit after the burning event. This would make sense e.g. in the situation where the hill fort was abandoned after the fire and the courtyard was levelled for farming or animal grazing. The stones could have been taken from the rampart, just a few metres away. This interpretation was confirmed by the fact that a bone from the fill was dated to the 7th–9th century AD (Poz-190081, Table 2), which is much earlier than the pit house and coincides with the date of the earliest construction stage of the rampart (Mäesalu & Tamla 1983).

Table 2. *Radiocarbon dates from the Purtse hill fort. Calibrated with computer program OxCal v4.4.4 (Bronk Ramsey 2021), atmospheric data from Reimer* et al. *(2020)*

Tabel 2. *Purtse Tarakalda radiosüsinikudateeringud. Kalibreeritud programmiga OxCal v4.4.4 (Bronk Ramsey 2021), atmosfääriandmed: Reimer* et al. *(2020)*

Compiled by / koostanud: Ragnar Saage

Location / Asukoht	Context / Kontekst	Lab no. / Laborinr	Age ^{14}C (BP) / ^{14}C vanus (BP)	cal AD (95.4%) / kalendriaastad (95,4%)
Trench 1	Pit house wall	Poz-189810	855±30	1053–1075 (4.0%); 1156–1264 (91.5%)
Trench 1	Pit house fill, bone fragment	Poz-190081	1270±30	664–778 (84.8%); 788–827 (10.7%)
Trench 2	Charred pea	Poz-189811	185±30	1653–1696 (20.6%); 1724–1813 (52.0%); 1838–1878 (5.3%); 1915 (17.6%) …
Mäesalu & Tamla 1983	Second fortification phase, building remains	Tln-591	1220±50	674–897 (93.1%); 923–940 (2.3%)
Mäesalu & Tamla 1983	Third fortification phase, building remains	Tln-434	770±50	1161–1297 (95.4%)
Mäesalu & Tamla 1983	Charred wood from a pit	Tln-579	760±50	1167–1299 (93.7%); 1369–1381 (1.7%)
Mäesalu & Tamla 1983	Fourth fortification phase	Tln-433	700±50	1222–1325 (66.9%); 1344–1394 (28.5%)
Mäesalu & Tamla 1983	Fifth fortification phase	Tln-354	680±50	1257–1401 (95.4%)

[2] Translation from Arabic through Russian by Kristo Siig. Cf. Estonian translation in Leimus & Kiudsoo 2004, 39–40.

Other buildings in the courtyard

While no pit houses were discovered in Trench 2, it nevertheless provided important information about buildings in the courtyard. Namely, the discovery of four postholes in Trench 2 and two in Trench 1 not detected with geophysical methods clearly suggests that the ca. 15 probable pit houses visible in the GPR and magnetometer data were not the only built structures in the courtyard. Firstly, there must have been buildings where posts were the main supporting element. Secondly, it is highly likely that there were also above-ground buildings similar to those found at other Iron Age hill forts (e.g. Soontagana, Lõhavere, Rõuge, Varbola, Keava). However, since the latter were made of horizontal logs resting on the ground, usually without foundations, vertical posts or any dug-in structures, they are not expected to return strong geophysical signals, especially as even the faint traces were likely destroyed in the historical period by ploughing. The charred remains of the pit house, on the other hand, were shielded from ploughing and other post-depositional factors by their subterranean location as well as a thick stone filling. The stone filling returned a strong contrast in the GPR data and the charred remains in the magnetometer data, masking any weaker signs of settlement.

Implications of the proto-stoneware find

The most significant find is a fragment of proto-stoneware dated to the first half of the 13th century (until ca. 1250; Russow 2006). Such wares were produced in the vicinity of Cologne and brought to the Eastern Baltic region through the emerging Hanseatic trade networks (*ibid*.). In Estonia, proto-stoneware have so far been found overwhelmingly in 13th-century towns (Russow & Haak 2023, 7), which is unsurprising given that this is where merchants and immigrants from Central Europe concentrated.

Although several hill forts (including Purtse Tarakallas) have been known to have been in use for decades if not more after the early 13th century crusades, the finds from these occupation layers have been distinctly local, suggesting a continuation of the power of old, pre-crusade local elites rather than immigrant crusaders conquering or taking over these forts (Valk 2014).

The fragment of proto-stoneware found from Tarakallas offers a new perspective on this subject, although there are different ways this kind of ware could have ended up in Purtse. First of all, it most likely came with trade. Tarakallas is located just 3 km from the mouth of the Purtse River, one of the most suitable natural landing places on the east-west sea route following the northern coast of Estonia (see Siig *et al*. 2024). It is possible that the local elite family controlling the hill fort integrated into Central European trade networks and culture after Christianization in the 13th century, or perhaps even earlier. Acquiring Rhenish pottery could be a sign of this or even a deliberate cultural marker to signal belongingness to this proto-Hanseatic sphere. The wares could have been imported either through Tallinn or by merchants coming directly to Purtse. In the 13th century, the Hanseatic towns did not yet have a monopoly on foreign trade, and smaller harbours were competing with them. For example, the Chronicle of Livonia mentions how the harbour of the Semigallians was placed under interdict by the pope in 1200 (HCL V: 7), no doubt at the request of competing merchants and the nearby commercial town Riga.

On the other hand, the imported wares could also be a sign of immigrant residents in the fort who acquired the wares to continue their habitual lifestyle. In written sources of the 13th century, there are several instances of immigrants in Virumaa. In autumn 1225, vassals of the

Bishop of Tartu occupied the forts of Virumaa, but were soon ordered to leave by the Papal legate (HCL XXIX: 6–7). As ceramics were not likely taken along for a short military campaign, and the brief stay probably did not give time or reason to acquire tableware, this assumption is unlikely. However, the legate sent some kind of crusaders to Virumaa in the bishop's men's stead (HCL XXIX: 7; XXX: 2) that might have stayed there for several years – in the late 1220s, the vice legate made some people in Virumaa vassals of the church (LUB I, CXLV). The legate's men were tasked with peace-keeping between Rigan and Danish Christians and most likely resided in hill forts. Their stay probably did not extend longer than until 1233, when 100 church vassals of Virumaa (possibly all the vassals of Virumaa as there were not much more than 100 vassals in Virumaa throughout the Middle Ages; see Johansen 1933, 727; Kaljusaar 2023, 44) were killed by the Order of the Brothers of the Sword (Hildebrand 1887, 21 [12]). In the beginning of the 1240s, someone called Ricardus, had some kind of rights over the 23 (or 26) ploughlands in the village of Purdus according to the large Estonian list of the *Liber Census Daniae*. However, he probably did not reside in Purtse, because the ploughlands of Purdus (probably meaning income from it) were unjustly (*iniuste*) held by Thideric de Kyvael, the largest magnate in Virumaa (Johansen 1933, 555, see also p. 52r). In 1277, Engelbertus de Purdis, belonging to the Buxhövden family (LUB III, 453a; Johansen 1933, 843, 896), and in 1287, Lewke de Pordus (LUB I, 513) are mentioned in documents.

These written traces of immigrants in the hill forts of Virumaa in the 13th century make it possible that the stoneware could be connected to an immigrant population. However, this interpretation would also mean that the immigrants, for some reason, decided to live in modest locally-styled buildings and update the fortifications in local style, using drystone. Therefore, it is more likely that the fragment of stoneware should be connected to local elites integrating into Catholic Europe.

Chronology of the hill fort

The earliest ^{14}C dates from the hill fort are from the 7th–9th centuries, originating from a bone found in the stone filling in Trench 1 (Table 2). Quite close dates, most probably from the 7th–9th century, were acquired from charred brands behind the eastern rampart (Fig. 10 and Table 2; Mäesalu & Tamla 1983). This fits roughly with some of the finds, such as a 7th–9th century pin with a smooth triangular hollow and arrowheads from the eastern rampart (Mäesalu & Tamla 1983, plate XVII, 1–5, 7; cf. Mägi 1997, 34, fig. 17; Tvauri 2012, 139) and pieces of hand-made Viking Age ceramics from the northwestern rampart (Schmiedehelm 1955, 176). This has led to the interpretation that the first stage of the eastern rampart is contemporary to the burned layer in the northwestern rampart and probably originates from a wooden palisade.

Interestingly, however, the Viking Age ceramics from the northwestern rampart originated from the topmost layer of stones. Beneath it was the rampart, beneath the rampart a burned layer and underneath it all a hearth. According to Schmiedehelm, some of the pottery fragments are similar to those found in the Roman Iron Age Jäbara *tarand* graves and should be dated to the first half of the 1st millennium (*ibid*.), but our analysis of her finds did not identify any pottery that could be dated to this period. Nevertheless, the stratigraphic situation raises the possibility that there was an earlier phase of settlement, perhaps during the Roman Iron Age or Migration Period.

In any case, the first fortification phase and the first certain settlement phase at Tarakallas took place at the end of the 7th or 8th century. At the eastern rampart, this was followed by

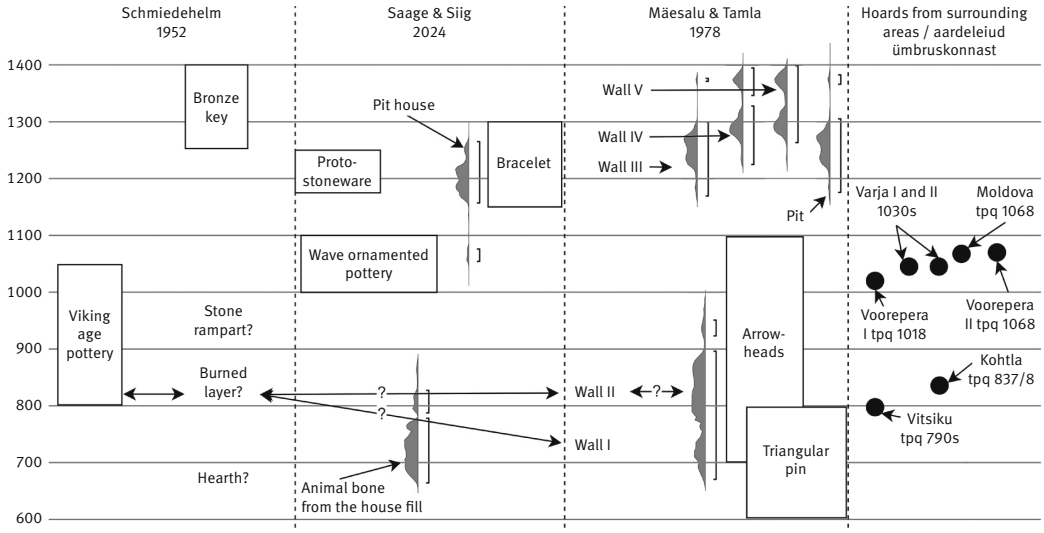

Fig. 10. *Combined chronological data of the Purtse hill fort and nearby hoards.*
Jn 10. *Purtse linnamäe ja selle ümbruskonna aardeleidude dateeringud.*
Drawing / Joonis: Kristo Siig, Ragnar Saage

closing off the gateway and transferring it elsewhere (possibly to the northeastern corner of the hill) and four consecutive phases of rebuilding or reinforcing the rampart by extending it towards the courtyard. Which of these phases coincides with the construction of the northwestern and southern ramparts is unknown. The last phase of construction at the eastern rampart took place not earlier than the middle of the 13th century, but perhaps even in the 14th century. The late date is supported by the discovery of a copper-alloy slide-key of a padlock in the 1952 excavations. Padlocks that could be opened with this key were adopted in the mid-13th century (Luoto 1984).[3]

The finds from the hill fort originate from two periods – from the 7th to 11th century and the 13th century. Radiocarbon dates fall into two temporal groups with a hiatus in the 11th century. However, this does not indicate abandonment. In addition to a fragment of 11th-century pottery, most of the coin hoards known from the hinterland of the hill fort originate from the 11th century (see Fig. 10; Kiudsoo 2015; Kiudsoo & Tamla 2017; Leimus & Kiudsoo 2020; Leimus *et al*. 2022). As this period is characterised by intensive trade along the North Estonian coast (see Kiudsoo 2016), it seems unlikely that the fort was not in use exactly during the heyday of the area. Considering that the outer side of the main rampart did not show traces of falling into disrepair and stayed in place throughout all five construction stages, it seems more probable that the site was in continuous use from at least the pre-Viking Age to the Middle Ages (13th–14th centuries). The lack of radiocarbon dates is probably caused by the simple fact that there were no extensive fires at the hill fort during this period.

The excavated pit house was most likely built in the second half of the 12th or first half of the 13th century. While no datable material was obtained from the other pit houses, their uniform shape and size suggest they also originate from the same time. Judging by the relatively

[3] The key found at Tarakallas is identical to a key discovered in London (Ackermann 2018, 126, fig. 4.26), although unfortunately its dating is unknown.

scarce cultural layer, the pit house was not in use for a very long time. The stone filling of the pit, however, likely originates from the stone wall remains. The lack of late finds among the filling of the pit house suggests it was filled in not long after the abandonment of the hill fort as a fortification, most probably during the 14th century.

In the Viking Age, the hill fort is thought to have been connected to an important harbour site on the maritime trade route along the northern coast of Estonia, as several major coin hoards have been found in the surrounding areas (Kiudsoo 2016, 135–147; Mägi 2018, 283–284). In the 12th and 13th centuries, the east-west land route from Tallinn to Narva that crossed the Purtse River just by the hill fort probably became increasingly important.

At that time, Purtse was also located in one of the most central areas of the ancient district (*kylækund)* of *Askælæ*, next to the second-most populous village in the district. In the *Liber Census Daniae*, Purtse is recorded twice, as *Purdus* (23 or 26 ploughlands) and *Purdis* (6 ploughlands). Based on the analogy of nearby Lüganuse (*Lygenus*) (45) and Roodu (*Rodickæ*) (5), it has been suggested that the smaller (*Purdis*) was an ancient manor separate from the larger village on the other side of the river (Reimaa 2012). This allows us to speculate that the hill fort was part of an estate held by a local elite family, possibly controlling the *Askælæ* district. In the light of dates from the middle of the 13th century or later and the piece of proto-stoneware found, it is possible that this position continued to be held into the Middle Ages (13th to 14th centuries).

The striking similarity of the Purtse archaeological complex to the one in Pada, 17 km to the west, should also be mentioned. Both are large Final Iron Age and early medieval hill forts located in the middle of their corresponding ancient districts (Pada – *kylækund* Maum) as well as at river crossings of the east-west land route. Both also have inhumation cemeteries adjacent to them, unusual for Final Iron Age hill forts in Estonia. The logistical characteristics of the location, along with inhumation cemeteries, could point to early medieval roadside chapels. In the case of Purtse, this is suggested by the place-names 'Kabeliallikas' ('Chapel spring') and Annemägi ('Anne's hill') on the field east of Tarakallas (Põhikaart 2018).

The charred peas from Trench 2 dated to a long period from the 17th to the 20th century. They represent later agricultural use of the site, along with glazed and other domestic pottery from the same time.

CONCLUSION

The fieldwork conducted in 2024 at the Purtse Tarakallas hill fort extended our knowledge about the architecture of buildings in the courtyard as well as the chronology of the site and the trade connections of its inhabitants. The excavations were guided by prior geophysical surveys (GPR and magnetometry), which indicated the presence of buried structures across the courtyard. Geophysical prospection proved valuable as charred remains of a 12th–13th century wooden pit house were uncovered. The context was well-preserved due to later infill. The uncovered building remains were of an uncommon type in Estonian archaeology, challenging previous generalisations about architecture at Iron Age hill forts in Estonia. The discovery of postholes suggests the presence of other buildings not visible in geophysical data. A fragment of Rhenish proto-stoneware, dated to the first half of the 13th century, raises the possibility that local elites using the hill fort in the post-crusade period had started to culturally integrate with the emerging Hanseatic trade networks. The faunal remains show that the main source of meat was from the typical domesticated animals (pig, goat/sheep,

cattle and chicken). This was supplemented by fishing from the nearby Purtse River and the Finnish Gulf. Archaeobotanical remains from soil samples include a seed of barley (*Hordeum vulgare*) and rye (*Secale cereale*). Radiocarbon dating and artefact finds indicate continuous use of the site from the 7th century to at least the second half of the 13th century, if not the 14th century.

ACKNOWLEDGEMENTS

Research for this paper was funded by the Ministry of Education and Research of the Republic of Estonia through grant no. EKKD-TA9 'Fundamental research for iron provenancing in Estonia' and grant TK215 'Estonian Roots: Centre of Excellence for transdisciplinary studies on ethnogenesis and cultural diversity', and by the Estonian Research Council grant no. PRG1931 'Estonia in 1100–1400: native society, traditions and culture in the time of changes'.

The authors would like to thank Mihkel Tammet, Erki Russow, Olga Mesilane, Vallo Reimaa and students and teachers of Kiviõli, Lüganuse, Kohtla-Järve, and Jõhvi schools.

REFERENCES

Ackermann, M. von 2018. Early medieval locks and keys in England and Scandinavia. PhD thesis, University of York.

AI 4-1-16-4. Purtse linnus 1952. Plans of excavations at Purtse Tarakallas by M. Schmiedehelm. *(Excavation documentation in TLÜ AT.)*

Bronk Ramsey, C. 2021. OxCal v.4.4.4 [software]. URL: https://c14.arch.ox.ac.uk/oxcal.html

Cuenca-Garcia *et al*., in prep. Archaeo-geophysical surveys in Estonia. Assessing the potential of ground-penetrating radar and magnetometry at 4 case study.

Dobat, A. S. 2022. Finding Sliesthorp? The Viking Age settlement at Füsing. – Danish Journal of Archaeology, 11, 1–22.

Fallgren, J.-H. 2008. Farm and village in the Viking Age. – The Viking World. Ed. by S. Brink & N. Price. London, 67–82.

Frandsen, L. B. 2018. Henne Kirkeby, a fortified settlement on the west coast of Denmark. – The Fortified Viking Age. 36th Interdisciplinary Viking Symposium in Odense, May 17th, 2017. Ed. by J. Hansen & M. Bruus. Odense, 8–15.

HCL = Henriku Liivimaa kroonika. Transl. by R. Kleis, ed. and commented by E. Tarvel. Tallinn 1982.

Herschend, F. 2021. Socially significant Viking-Age housing. – Vikings Across Boundaries. Ed. by H. L. Aannestad *et al*. Viking-Age Transformations, Vol. II. London–New York, 197–201.

Hildebrand, H. 1887. Livonica, vornämlich aus dem 13. Jahrhundert, im vaticanischen Archiv. Riga.

Johansen, P. 1933. Die Estlandliste des Liber Census Daniae. Kopenhagen–Reval.

Kaljusaar, K. 2023. Virumaa läänimehed 13. sajandi esimesel poolel. – Õpetatud Eesti Seltsi aastaraamat / Annales Litterarum Societatis Esthonicae, 2021, 31–64.

Kalvi, A. & Schmiedehelm, M. 1948. ENSV Tead. Akadeemia Ajaloo Instituudi Arheoloogia Sektori ülesandel toimetatud inspektsiooni tulemused Lüganuse khk. piires (inspektsiooni teostajad A. Kalvi, M. Schmiedehelm, 11–15. V. 1948. a.). (*Manuscript in TLÜ AT.*)

Kastholm, O. T. 2012. Vestervang at Kirke Hyllinge, Zealand: a late Iron Age settlement with rich stray finds. – Danish Journal of Archaeology, 1: 2, 142–164.

Khrustaleva, I., Roog, R., Kholkina, M. & Kriiska, A. 2020. Hunter-gatherer pit-houses in Stone Age Estonia. – Archaeological and Anthropological Sciences, 12, article no. 56.

Kiudsoo, M. 2015. Viking Age votive deposits from Varja, north-east Estonia. – AVE, 2014, 101–106.

Kiudsoo, M. 2016. Viikingiaja aarded Eestist: Idateest, rauast ja hõbedast. Tallinn.

Kiudsoo, M. & Tamla, Ü. 2017. New hoards from Voorepera, Eastern Virumaa. – AVE, 2016, 75–80.

Lang, V. 1985. Iru linnuse peenkeraamika V–X sajandil. – TATÜ, 34: 2, 193–210.

Lavi, A. 1997. Asulakohad 13.–17. sajandi talurahvaehitiste ajaloo allikana. – EJA, 1, 84–144.

Lavi, A. 2005. An addendum to the study of smoke cottages. – EJA, 9: 2, 132–155.

Leimus, I. & Kiudsoo, M. 2004. Koprad ja hõbe. – Tuna, 4, 31–47.

Leimus, I. & Kiudsoo, M. 2020. A new Viking Age hoard from Estonia. – Arheoloģija un etnogrāfija, 31, 62–83.

Leimus, I., Kiudsoo, M. & Saage, R. 2022. A late 8th century hoard of dirhams and hack silver from Vitsiku village in North-East Estonia. – AVE, 2021, 45–58.

Ligi, P. 1993. Vadjapärased kalmed Kirde-Eestis (9.–16. sajand). – Vadjapärased kalmed Eestis 9.–16. sajandil. Ed. by V. Lang. MT, 2. Tallinn, 7–175.

LUB I = Bunge, F. G. von 1853. Liv-, Esth- und Curländisches Urkundenbuch nebst Regesten. Erster Band, 1093–1300. Reval.

LUB III = Bunge, F. G. von 1857. Liv-, Esth- und Curländisches Urkundenbuch nebst Regesten. Dritter Band. 1. Reval.

Lõhmus, M., Jonuks, T. & Malve, M. 2011. Archaeological salvage excavations at Kukruse: a Modern Age road, cremation field and 12th–13th century inhumation cemetery. Preliminary results. – AVE, 2010, 108–114.

Luoto, J. 1984. Liedon Vanhanlinnan mäkilinna. *SMYA*, 87. Helsinki.

Mäesalu, A. 2020. Argielu ja kultuur. – Eesti esiaeg. Ed. by V. Lang. Eesti ajalugu I. Tartu, 421–430.

Mäesalu, A. & Tamla, T. 1983 = Мяесалу А. & Тамла Т. Об оборонительных сооружениях городища Пуртсе.– ТАТÜ, 32: 4, 307–310.

Mägi, M. 1997. Eesti merovingi- ja viikingiaegsed ehtenõelad – võõrapärased ja omad. – EJA, 1, 26–83.

Mägi, M. 2004. The Mortuary House at Lepna on Southern Saaremaa. – AVE, 2003, 45–60.

Mägi, M. 2013. Corporate Power Structures as Indicated in Archaeological Evidence: The Case of Estonia in the Middle Iron Age and Viking Age. – Fennoscandia Archaeologica, XXX, 107–125.

Mägi, M. 2018. In Austrvegr: The Role of the Eastern Baltic in Viking Age Communication across the Baltic Sea. Leiden.

Mägi, M. 2023. Muinasaja lõpu kultuurmaastik ja ehitised. – Eesti kunsti ajalugu 1. 1100–1520. Tallinn, 39–49.

Mägi, M. 2025. Valjala – tugevaim linn Saaremaa muude linnade seas. – Saaremaa Muuseum. Kaheaastaraamat 2023–2024. Kuressaare, 3–33.

Novosel´tsev, A. P. 1965 = Новосельцев, А. П. Восточные источники о восточных славянах и Руси VI – IX вв. – Древнерусское государство и его международное значение, Ed. by В. Т. Пашуто & Л. В. Черепнин. Москва, 355–419.

Nuut, S. & Lõugas, L. 2025. Aruanne Purtse Tarakalda linnamäelt 2024. aastal (AI 9025) kogutud loomaluudest. *(Manuscript in TLÜ AT.)*

Põhikaart 2018. Maa-ameti ajalooliste kaartide rakendus. https://xgis.maaamet.ee/xgis2/page/app/ajalooline *(last visited 30.09.2025.)*

Reimaa, V. 2012. Mõisad ja läänimehed Alutagusel 13.–15. sajandil. – Iisaku Muuseumi toimetised I. Iisaku, 115–123.

Reimer, P., Austin, W., Bard, E., Bayliss, A., Blackwell, P., Bronk Ramsey, C., Butzin, M., Cheng, H., Edwards, R., Friedrich, M., Grootes, P., Guilderson, T., Hajdas, I., Heaton, T., Hogg, A., Hughen, K., Kromer, B., Manning, S., Muscheler, R., Palmer, J., Pearson, C., van der Plicht, J., Reimer, R., Richards, D., Scott, E., Southon, J., Turney, C., Wacker, L., Adolphi, F., Büntgen, U., Capano, M., Fahrni, S., FogtmannSchulz, A., Friedrich, R., Köhler, P., Kudsk, S., Miyake, F., Olsen, J., Reinig, F., Sakamoto, M., Sookdeo, A. & Talamo, S. 2020. The IntCal20 Northern Hemisphere radiocarbon age calibration curve (0–55 cal kBP). – Radiocarbon, 62, 4, 725–757.

Riiel-Mürk, R. 2016. Meie muinashooned – uurimine, interpreteerimine ja rekonstruktsioonid Rõuge, Lõhavere, Varbola, Soontagana ja muinasaja lõpu hoonete näitel. MA thesis (*Manuscript in TLÜ*).

Russow, E. 2006. Importkeraamika Lääne-Eesti linnades 13.–17. sajandil. Tallinn.

Russow, E. & Haak, A. 2023. Of pots and hearths – the material environment of domestic foodways. – Medieval and early modern foodways in Estonia. Tracing the changing food consumption through provenance analysis. Ed. by L. Lõugas & E. Russow. EJA, Supplementary Series, 3, 5–31.

Schmiedehelm, M. 1952. Kloodi ja Purtse 1952. a. kaevamispäevik. *(Manuscript in TLÜ AT.)*

Schmiedehelm, M. 1955 = Шмидехельм, М. Археологические памятники периода разложения родового строя на северо-востоке Эстонии (V век до н.э. - V век н.э.). Таллин.

Siig, K., Kadakas, V. & Saage, R. 2024. Archaeological studies on Purtse Taramägi hill fort, Ida-Virumaa County. – AVE, 2023, 105–116.

Siig, K. & Saage, R. 2025 (in print). 3D rekonstruktsioon Purtse Tarakalda linnusest 13. sajandil. – Tutulus. Eesti arheoloogia ajakiri.

Tvauri, A. 2005. Eesti hilisrauaaja savinõud (11. sajandist 13. sajandi keskpaigani). *MT*, 16. Tartu–Tallinn.

Tvauri, A. 2012. The Migration Period, Pre-Viking Age, and Viking Age in Estonia. *Estonian Archaeology*, 4. Tartu.

Tvauri, A. 2025a. Estonian sheet pendants from the 11th to the 13th century: chronological aspects. – EJA, 29: 1, 3–33.

Tvauri, A. 2025b. Pskov-style earthenware in Estonia from the 11th to the 15th century: types, subtypes and their distribution areas. – EJA, 29: 2, 158–185.

Tõnisson, E. 2008. Eesti muinaslinnad. Ed. and complemented by A. Mäesalu & H. Valk. *MT*, 20. Tartu–Tallinn.

Valk, H. 2014. The fate of Final Iron Age strongholds of Estonia. – Strongholds and Power Centres east of the Baltic Sea in the 11th–13th Centuries. Collection of articles dedicated to Evald Tõnisson. Ed. by H. Valk. MT, 24; ÕESi Toimetised, 37. Tartu, 383–434.

Wilken, D., Wunderlich, T., Majchczack, B., Andersen, J. & Rabbel, W. 2015. Rayleigh-wave Resonance Analysis: a Methodological Test on a Viking Age Pit House. – Archaeological Prospection, 22: 3, 187–206.

PURTSE TARAKALDA LINNAMÄGI KIRDE-EESTIS: GEOFÜÜSIKALISTE UURINGUTE TULEMUSI VALIDEERIVAD ARHEOLOOGILISED VÄLJAKAEVAMISED

Kristo Siig, Ragnar Saage, Sander Nuut, Andres Tvauri, Lembi Lõugas, Carmen Cuenca-Garcia ja Krzysztof Kiersnowski

Purtse Tarakallas asub Kirde-Eestis, Lüganuse kihelkonnas, Purtse jõe paremal kaldal, u 3 km kaugusel jõe suudmest. Linnamägi paikneb looduslikult kaitstud kõrgendikul, mis on eraldatud ümbritsevast alast jõe orunõlva ning väiksemate ojade tekitatud orunditega. Ala on osa laiemast muististe kompleksist, kuhu kuuluvad ka laibakalmistu ja üle jõe paiknev asulakoht. Linnamägi on õueala poolest (u 9200 m²) Virumaa suuruselt teine rauaaegne linnamägi pärast Pada I linnust.

Varasemad arheoloogilised uuringud toimusid 1952. aastal (M. Schmiedehelm) ning 1978–1982 (A. Mäesalu ja T. Tamla). Need tuvastasid mitmeid kindlustusetappe, millest varaseim pärineb vahemikust 7. sajandi lõpust 9. sajandi lõpuni ja hiliseim 13. sajandi keskpaigast või isegi 14. sajandist. 2024. aasta uuringud tõukusid 2023. aastal tehtud geofüüsikalistest uuringutest, millega tuvastati linnamäe õuel mitmed võimalikele hoonetele viitavad anomaaliad.

Kaevandis 1 avastati u 4 × 4,5 m mõõtmetega hoone põlenud jäänused. Hoone oli ehitatud palkidest ja u 1 meetri sügavusele maasse süvendatud. Radiosüsinikudateeringu põhjal langeb hoone ehitusaeg suure tõenäosusega vahemikku 1156–1264 pKr. Kuigi maasse süvendatud hooned on muinasaja lõpu – keskaja algupoole Eestis pigem haruldased ja linnustelt pole neid varem leitud, viitab hoone konstruktsioon – horisontaalsed palkseinad ja võimalik puidust põrand – siiski kohalikele ehitustraditsioonidele. Kuivõrd läbi kaevati vaid veerand hoone pindalast, jäi lahtiseks, kas hoones võis olla küttekolle ning milline võis olla hoone funktsioon. Skandinaavia rauaaegsed maasse süvendatud hooned olid pigem ajutise loomuga abihooned, kus tegeleti käsitööga, näiteks sepa- või tekstiilitööga.

Hoone jäänused olid kaetud segatud kultuurkihti sisaldava kivilasuga, millest leiti 7.–9. sajandist pärinev luu ning 13. sajandi I poole protokivikeraamika katke. Selle kohal oli künnikiht, kus linnuse kasutusaegsed leiud olid segamini uusaegsete leidudega.

Kaevandis 2 osutus oodatud varasema asustusjärgu hoonepõhi hoopis looduslikuks rauarikkamaks ja tihedama pinnasega kihiks. Sellest kõrgemal aga avastati geofüüsikaliste meetoditega tuvastamata jäänud postiauke, mis viitavad täiendavatele hoonetele linnamäe õuel. Lisaks postkonstruktsioonis ning maasse süvendatud hoonetele paiknes linnamäel tõenäoliselt ka maapealseid rõhtpalkhooneid, mille jäljed on maaharimisega eeldatavasti segamini küntud ning mis ei ole seetõttu geofüüsikaliste meetoditega kergesti tuvastatavad.

Leidude hulgas oli loomaluid, keraamikat, metallesemeid ja šlakki. Eriti tähelepanuväärne oli Reini piirkonna protokivikeraamika kild. Sellist keraamikat esineb Eestis eelkõige keskaegsetes linnades, mis viitab võimalikele kaubandussidemetele kujuneva hansaruumiga või kohaliku eliidi kultuurilisele integratsioonile pärast ristiusustamist. Lisaks leiti vasesulamist 12.–13. sajandist pärit kolmest traadist keeratud käevõru ning suur, mitmeks tükiks purunenud luisk.

Rauatöötlemise jäljed, sealhulgas tagilibled ja šlakk, viitavad sepikoja olemasolule linnamäel. Ühe šlakitüki metallograafiline analüüs näitas, et see oli tõenäoliselt tekkinud sepistamisel.

Kaevamistel koguti 393 loomaluuleidu, millest enamik pärinesid imetajatelt, kuid esines ka lindude, kalade ja ühe kahepaikse jäänuseid. Luude seas domineerisid koduloomad nagu veised, sead ja lambad, kuid esines ka metsloomi nagu jänesed, samuti kalu, mis võivad olla püütud kõrvalolevast Purtse jõest. Paljudel esines lõike- ja närimisjälgi, samuti põletusjälgi, mis viitavad toidujäätmetele ja toiduvalmistamisele. Mullaproovide märgsõelumisel leiti maasse süvendatud hoonest üks odra- ja üks rukkitera.

Radiosüsinikudateeringute ja esemeleidude põhjal oli linnamägi kasutusel vähemalt 7. sajandi lõpust kuni 13. sajandi lõpuni või isegi 14. sajandini. Sellesse ajavahemikku jääb kaitse-ehitiste osas vähemalt viis ehitusjärku. Kuigi 11. sajandist radiosüsinikudateeringuid ei ole, viitavad üks sellesse aega dateeritav laineornamendiga keraamikakild, läbi kõikide ehitusjärkude järjepidevalt korras hoitud idapoolse otsavalli välimine kuivmüür ning 11. sajandist pärinevad rohked mündiaarded ümbruskonnas asjaolule, et linnamägi oli kasutusel ka sel ajal ning tühimik süsinikdateeringutes kajastab perioodi, mil linnusel ei toimunud põlenguid.

Uuringud näitavad, et Eestis võis hilisrauaajal olla lisaks seni tuntud maapealsetele rõhtpalkhoonetele ka teistsuguseid hooneid. Samuti viitavad leiud võimalikule kultuurilisele ja kaubanduslikule integratsioonile Kesk-Euroopaga pärast kristianiseerimist. Protokivikeraamika leid viitab sellele, et kohalik eliit võis olla seotud varase hansakaubanduse võrgustikega või vähemalt püüdis end kultuuriliselt positsioneerida osana katoliiklikust Euroopast.

Kokkuvõttes näitavad Purtse Tarakalda 2024. aasta arheoloogilised uuringud, et geofüüsikaliste meetodite kombineerimine sihitud kaevamistega on tulemuslik ja paljulubav metoodika. Avastatud maasse süvendatud hoone on haruldane ja väärtuslik leid, mis avardab meie teadmisi 13. sajandi algupoole Eesti eluolu kohta. Uuring kinnitab, et Purtse linnus ja sellega seonduv arheoloogiline kompleks oli oluline asustus- ja võimukeskus muistses Askælæ kihelkonnas ning sellel oli tõenäoliselt tähtis roll piirkondlikus kaubanduses ja poliitikas.