

Excavations at the settlement site of Sargvere

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INTRODUCTION

The settlement site of Sargvere (Reg. No A28918 in the National Register of Cultural Monuments) is situated in central Estonia in the County of Järvamaa, currently within Paide municipality, historically between the aforementioned town and the borough of Peetri, which was also the parish centre. The settlement site is located south of the manor, which was established in 1722, while the village is first mentioned in 1564 (Ehatamm 1977). The settlement site was found in 2007 during construction work. The following investigations by Andres Tvauri first established the borders of the site, and located a 16th-century smoke cottage, which was excavated (Tvauri 2008). In 2011, a 16th-century silver hoard was also unearthed from the settlement (Tvauri *et al.* 2012).

In 2019, the construction of a pedestrian road running along the Mäeküla–Koeru route necessitated archaeological monitoring, carried out by Peeter Piirits (2020; a brief summary in Russow *et al.* 2020, 15). Unfortunately, much of the *in situ* deposits were already destroyed by road construction. In 2020, the work continued in the northern part of the settlement, directed by Ragnar Saage (2021). The investigated territory (132 \times 3 m) formed a narrow strip with an area of 400 m² (Fig. 1). With the kind permission of Piirits, the article discusses the results of the last two fieldwork seasons.

INVESTIGATIONS IN 2019 AND 2020

The fieldwork conducted by Piirits in 2019 started when the soil from the trench for the pedestrian road had already been removed. Hence, he could only document the various depressions and building remains that were visible in the profile and the bottom of the trench. The finds were gathered from already excavated soil heaps by hand and using a metal detector, but the soil was not sieved (Piirits 2020, 5).

In 2020, the long but narrow investigation area was systematically searched with a metal detector. The search took place before and after the sod layer was removed by an excavator (Saage 2021). The soil was then dug with layers of 20 cm, which were followed with visual search and a scan with the metal detector. Altogether, 21 trial pits (measuring 1×1 m) were

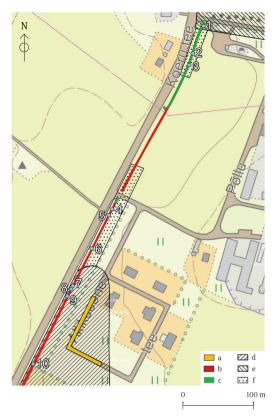


Fig. 1. Investigations at Sargvere: a-2007; b-2019; c-2020. Areas of interest: d-Sargvere settlement site (borders as monument no A28918); e-Sargvere manor park (no 15085); f-previously unknown settlement area. Contexts mentioned in text: 1-Wall foundation; 2-Pit 20; 3-Pit 3, 7-8; 4-Sunken floor structure; 5-House 1; 6-House 2; 7-Pit 1; 8-Pit 2; 9-Hearth 1; 10-House 3.

Jn 1. Sargvere asulakoha uuringud: a – 2007; b – 2019; c – 2020. Arheoloogilist huvi pakkuvad alad: d – Sargvere asulakoht (nr A28918); e – Sargvere mõisa park (nr 15085); f – asulakoha uus teadaolev ala. Tekstis mainitud rajatised: 1 – müüri vundament; 2 – lohk 20; 3 – lohud 3, 7 ja 8; 4 – kivist kelder; 5 – hoone 1; 6 – hoone 2; 7 – lohk 1; 8 – lohk 2; 9 – kolle 1; 10 – hoone 3.

Base map / Aluskaart: Estonian Land Board / Maa-amet; drawing / joonis: Ragnar Saage done in the area, and 12 of these were expanded to larger trenches. The trial pits and the larger trenches were dug by 10 cm thick technical layers and the soil was sieved with a 6×6 mm mesh. The *in situ* finds and bones were recorded with a total station. The wall foundation discovered in trench no 10 was documented using photogrammetry (Agisoft Metashape software).

The two excavations use different names for contexts. The context names for the 2020 excavation remain unchanged, however we renamed contexts (Hearth 1, Pits 1–2 and Houses 1–3) that were not numbered in the 2019 report. Archaeological finds and faunal remains from the 2019 and 2020 excavations are being stored at the University of Tartu (TÜ 2821 and TÜ 2881).

CONSTRUCTION REMAINS

To give an overview of the strip of land excavated during both seasons, we will describe the most noteworthy features starting from the north. The northern part of the settlement seems to be just outside the premises of the Sargvere manor and probably continues to the territory of the manor park. A wall foundation was found 24 metres southwest of the manor garden wall (Fig. 1: 1). It was a dry limestone construction (at least 2.7 m long, about 40 cm wide, and up to 55 cm high), similar to other building remains that have been found from the settlement (Tvauri 2008; Piirits 2020). However, the area around the foundation seems to have been greatly disturbed, which makes it difficult to determine the function of the wall. Excavations did not reveal any other wall foundation parallel to the described one, which is usually the case with house foundations. The sur-

roundings of the foundation contained finds from the 12th to the 17th century like most of the settlement, together with a few animal bones. However, the wall foundation most likely originates from the Early Modern Period. Only 0.5 metres south of the wall, a pit filled with stones was unearthed. The pit was dug all the way to the virgin soil, which was limestone at the depth of 1.24 m from the current ground level. The pit was round with a diameter of 0.9 m. It contained Final Iron Age or medieval (11th – early 14th c) potsherds and a few animal bones.

An oblong depression (**Pit 20**) further south could have belonged to a house with a sunken floor (Fig. 1: 2). The dimensions of the dark patch in the surrounding light soil were 4×2.2 m. The pit contained a few animal specimens and fragments of pottery dating from the second half of the 1st millennium CE. Hence, this was the oldest feature of a permanent settlement at Sargvere.

Several features were found from two trenches (11 and 14), which were dug adjacent to each other (Fig. 1: 3). This area seemed relatively undisturbed by later activities although it has been ploughed. A part of **Pit 3**, with the dimensions of 3.4×1.5 m, was documented in trench 14. This feature, Pit 3, could belong to a building with a sunken floor. 0.5 m south of Pit 3, another pit (**Pit 8**) was unearthed. A large number of dog bones, probably originating from a single burial, was found from Pit 8 and south of it (see below). About 1 m south of Pit 8, two features were documented. Just below the ploughed earth, a layer of stones (Layer 5) covered an area of 2.3×1.3 m. It consisted of a single, uneven layer of limestone. An ox shoe found under Layer 5 implicates it was formed in the medieval period or later. Under the stone layer, a rectangular depression (**Pit 7**), with the dimensions of at least 1.8×1.1 m, marked the location of the corner of another presumed building.

The area south of Põllu street contained the core of the settlement and had a greater abundance of construction remains, even though trenching in this area had taken place without the supervision of archaeologists. A sunken floor structure measuring about 2.5×1.7 m, was preserved up to the height of 0.6 m (Fig. 1: 4; Piirits 2020, 16). The walls were built of limestone and granite that was bound with clay (Fig. 2). Rubble filling the structure contained a lot of charcoal and stone, bricks, mortar, burnt clay chinking, and some animal remains. Glazed pot-like stove tile fragments from the rubble date from the late 17th or 18th century, which mark the destruction of the building.



Fig. 2. The sunken floor structure after clearing out the rubble.

Jn 2. Kivikelder peale rusukihi eemaldamist. Photo / Foto: Peeter Piirits

A layer of burnt stones and charcoal with patches of loam with the dimensions of at least 3.8×1.3 m was interpreted as a floor of a building – **House 1** (Fig. 1: 5; Piirits 2020, 16). Under the building, a pit was discovered containing charcoal, slag, a metal ingot, and faunal specimens, including cat remains (see below). While the pit was most likely dug to bury the cat, finds pointing to a nearby metalworking forge were also deposited there.

Two parallel rows of stones were interpreted as a wall foundation for a log house about 5 m long and not less than 2.3 m wide, sunken at least 46 cm into ground (**House 2**; Fig. 1: 6; Piirits 2020, 15). Animal bones constitute the majority of the finds, unfortunately the few sherds of wheel-made pots do not provide a clear date for the building.

The core of the settlement was spotted with rubbish pits. A large depression (**Pit 1**, measuring 2.5×1.7 m, Piirits 2020, 12–13) with a depth of 0.5 m, contained pottery, slag, charcoal, clay chinking, animal remains, and jewellery (Fig. 1: 7). The ceramic finds date from the 16th or 17th centuries.

Another pit, almost as large (Pit 2, 1.9×1.9 m wide and 0.4 m deep (Piirits 2020, 12)), contained artefacts from the 14th or 15th century (Fig. 1: 8). Among the finds, there were a few animal bones and pot sherds from possibly three individual vessels. Smaller pits were also excavated, some of them hearths. One such, measuring 1.2×0.8 m with the depth of 0.15 m, was interpreted as a hearth (Hearth 1). Another feature further to the south was interpreted as a house (House 3; Fig. 1: 10, Piirits 2020, 9-10). It consisted of a hearth and a separate depression containing an area of 3×3 m with burnt stones and clay, animal bones, brick fragments, and charcoal. The building was at least 6.5 metres long (with unknown width). An earlier feature, a pit with four posts supporting the walls, predates the house, but did not have any finds. Pottery fragments date the house to the 15th–16th centuries.

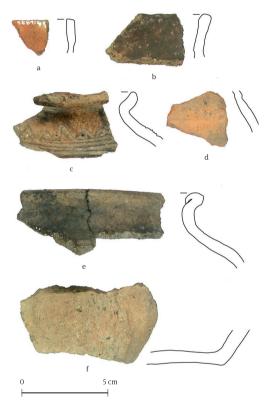


Fig. 3. Pottery from Sargvere. a-b – hand-made, c-f – wheel-made; c - ornamented with a wavy line above straight lines, d - with a group of wavy lines; a-c, e-rim sherds, d-body sherd, f-bottom sherd. **Jn 3.** Keraamikaleide Sargvere asulakohalt. a–b – käsitsikeraamika, c-f - kedrakeraamika; c - laine- ja joonornamendiga, d – laineornamendiga; a–c, e – servad, d – külg, f – põhi.

(TÜ 2887: 49; TÜ 2821: 230, 71, 194, 107, 203.) Figure / Joonis: Arvi Haak, Ragnar Saage

with straight lines, was also present (Fig. 3: d). There were also a few fragments of redware,

FINDS Ceramic finds

The artefacts recovered during the excavations were mostly pottery fragments (n=195) dating from different periods. Among them, several groups could be distinguished. Hand-made pottery (36 sherds, Fig. 3: a, b) was predominantly collected from the northern part of the investigated area: only eight sherds came from the 2019 plot. The fragments were mostly small, and sieving certainly influenced the recovered material. Although a few shoulder fragments could be distinguished, there were no ornamented fragments present. Earlier finds from the site include a fragment decorated with rhombic checker (Tvauri 2008, fig. 6), presumably dating from the Final Iron Age.

Wheel-made pottery (148 sherds, Fig. 3: c-f) were represented by several fragmented vessels, mostly from the southern area, often numerous fragments of the same object were present in one pit. Typologically, Northwest Russian style ware types 3: 2, 3: 3, 4 and 5 according to Tvauri (2000, 104–108) were present, indicating a continued settlement from the 13th until the late 16th century. Some of them were decorated with straight lines, a few also with a single wavy line above the straight ones (e.g. Fig. 3: c). Although there is no strict end date to the existence of such motif (cf. Haak & Kriiska 2006, 97), the majority of the known vessels pre-date the early

15th century. The more widespread motif of a group of wavy lines, presumably combined

including a leg fragment of a tripod pot. Imported wares were represented by just five sherds from the 2020 excavations. All of these are of late 16th–17th-century dating, including a fragment of Frechen stoneware. As the earlier collections from Sargvere also lacked imported wares, these may be connected to the vicinity of the manor site. The same may apply to the pot-like stove tiles from the filling of the sunken floor structure, as there is no evidence of tiled stoves from the villages before the mid-19th century (e.g. Pärdi 2017, 189–190).

Metalworking

Metal detecting was used during both excavations, which means that metal finds are quite well represented compared to the supposed total number of pottery and animal remains. The settlement site had evidence of local production and consumption of tools and ornaments. Slag was found from two features – Pit 1 and the cat burial under House 1, which are more than 100 m apart. Neither smithies or forges were located in the investigation area, but slag confirms the existence of a smithy at the settlement site. Iron finds include iron implements such as an axe, horseshoe fragments, a scythe, and pieces of knives.

Non-ferrous metalworking was practiced at the settlement as well. It is likely that these workshops were also located outside the investigation area as there were no crucible and casting mould fragments among the finds. However, there were metal droplets from casting and ingot fragments. Based on the pXRF analysis, the droplets originate from casting: lead, pewter, copper, and gunmetal (Fig. 4: a–d).¹ There were two small ingots – one of them gunmetal and the other was a copper-lead alloy (Fig. 4: h and i). Other waste had cutting marks on them and can be regarded as scrap metal intended for remelting in a crucible or just pieces left over from the production of other items. These included a piece of a bronze bracelet, copper alloy fragments, a rectangular lead piece, and a cut copper sheet (Fig. 4: e–j).



Fig. 4. Production waste from Sargvere. Droplets from casting, ingots, and metal sheet fragments. **In 4.** Metallitöötlusjäägid Sargvere asulakohalt. Metallitilgad, kangid ja pleki fragmendid. (TÜ 2821: 34, 36, 63, 222, 45, 67, 48, 234, 85; TÜ 2881: 8.) Photo / Foto: Ragnar Saage

 $^{^1}$ Elemental analysis was conducted on the metal finds using a portable X-ray fluorescence analyser (pXRF) Bruker Tracer III-SD. The results were qualitative and the aim was to identify the alloy. The measurements were done with the settings: 40 kV, 10.7 μ A, 40 seconds measurement time and a 305 μ m Al+25 μ m Ti filter.

The metal finds were mostly fragmented ornaments. Surprisingly, a large number of pewter artefacts were recovered from the site (Fig. 5: f–l). These included simple pendants, dress ornaments, and buttons. Rumbler bells were found separately and in one case, with a unique piece of jewellery (Fig. 5: e). It is not clear if this is a pendant on a chain or only a piece of a larger set, but the high tin content discovered with the pXRF indicates that it was probably tinned to give it a silvery shine.



Fig. 5. Ornaments and their fragments from Sargvere. **Jn 5.** Ehted ja nende katked Sargverest. (TÜ 2881: 38, 7; TÜ 2821: 62, 65, 103; TÜ 2881: 21, 17; TÜ 2821: 33, 39, 44, 40, 61.) Photo / Foto: Ragnar Saage

Animal remains

In the excavations of 2019, 356 animal specimens (bones, teeth, and fragments thereof) were gathered and analysed (Piirits 2020, app. 1); in 2020, over 600 specimens were gathered (Saage 2021, table 2). Of these, 227 and 182 specimens are presented here, respectively, with a total of 409 specimens (Fig. 6).² The number and composition of the taxonomic and anatomical distribution is affected by a high level of fragmentation (including recent fragmentation during and after the excavations) and partially by poor preservation, but also by only partial use of the sieve during the excavations.

All analysed specimens come from domestic animals: cattle, sheep/goat (of which one specimen was confirmed as sheep), pig, horse, dog, cat, and chicken. The fragments which were possible to determine only as hoofed animals or mammals (altogether 29% of the specimens), are most likely from the already mentioned domestic species.

Most of the bones come from adult animals; five specimens are from calf, lamb/kid, and piglet; and another five from subadult cattle, pig, horse, and chicken. Some of the bones are typical food waste, including those with cut (n=16; 4%) and gnaw marks (n=33; 8%). Some, on the other hand, do not seem to be associated with butchering. The latter applies to the remains of at least two horses and partial skeletons of a dog and a cat.

² The faunal material presented in the article is that with sufficient contextual information. The animal remains were identified using the anatomical reference collection at the Department of Archaeology, University of Tartu. The specimens were recorded in the ARHIS database following the guidelines by Lõugas (2018). Open access data will be available online in the ARHEST database (https://andmekogud.arheoloogia.ee/#/leiud/arheozooloogia).

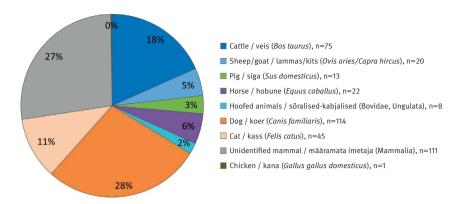


Fig. 6. The analysed animal remains (n=409) from the excavations in Sargvere settlement site in 2019 (TÜ 2821) and 2020 (TÜ 2881).

Jn 6. Sargvere asulakoha kaevamistel 2019. a. (TÜ 2821) ja 2020. a. (TÜ 2881) leitud ja artikli jaoks analüüsitud loomaluud (n=409).

Figure / Joonis: Eve Rannamäe

The horse bones were scattered between the different find contexts and are thus not relatable to any particular burial. But, there are also no cut marks as evidence of butchering. Among the 22 analysed specimens, at least two individuals were distinguished by two fragments of the hip bone, both found from the sunken floor structure and both from seemingly adult individuals. Based on one of the humeri from Pit 1, the withers height of that individual would have been around 128 cm (Vitt 1952), which is comparable to modern-day Estonian native horses (Teinberg *et al.* 1995, 68).

In Pit 8 and south of it (trench 11), there was a concentration of animal bones consisting of 162 specimens. Most of these belonged to the dog (n=113), most probably to a single adult individual. The partial skeleton included fragments mostly from the vertebral column (n=23) and thorax (n=16) together with some fragments from the limbs (n=9) and cranium (n=2). A large proportion of the specimens (n=63) were fragmented to an extent that it was impossible to specify the skeletal element, but based on the bone structure, colour, and freshly fragmented edges, they very likely originate from the same dog. The dog's burial had probably been disturbed by ploughing. A single find of a dog's hip bone was also found from House 3.

The 45 cat bones from the bottom of a pit under House 1 seem to come from a single individual. The remains include elements from the cranium (n=5), vertebral column (n=9), thorax (n=11), and limbs (n=17). For a few small fresh fragments (n=3), skeletal elements were not attributed. Estimably, the individual was a subadult/adult of around 1–2 years old (epiphyses on some of the long bones still fusing; Smith 1969). Two unidentifiable fragments of some larger mammal were found in the same pit.

DISCUSSION AND CONCLUSIONS

The excavations conducted in 2019 and 2020 revealed that there were two settlement centres with farm land between the two. The northern part of the settlement (Fig. 1: northern dotted area) was inhabited sometime during the second half of the 1st millennium CE and is the oldest part of the settlement. The discontinuation at that area of the settlement in the Early Modern times could be linked to the building of the Sargvere manor and its surroundings. In that sense, future excavations at the edge of the manor park are likely to shed some light on

that question. The southern part of the settlement (Fig. 1: southern dotted area) extends further north than it was previously known. The majority of the finds originates from this part of the settlement. It also seems that the southern settlement core is less disturbed by later activities.

The construction remains consist of cut features and sunken floor structures. These included: buildings, wall foundations, pavings, hearths, and waste pits. That means we lack any houses, auxiliary buildings, and other features that were built on the ground and remained within the ploughing depth. Hence the density of buildings and features on the settlement site during its occupation from the 12th to the 17th century could have been much higher. The 3 m width of the investigation area also deteriorates the chances to interpret the structure of the construction remains, compared to large-scale excavations (e.g. Lavi 1997; 2005). Still, the number of preserved features suggests a significant level of preservation of such structures. The existence of at least three sunken floor structures at the site (one excavated in 2007 and two in 2019) should also be noted; these are rather rare in Estonian villages according to earlier research (Lavi 2005, 152).

Although the number of archaeological finds collected from the site was not numerous, several of these were obtained from a certain feature. The ceramic finds quite evenly represent the whole usage period of the site. Although the number of sherds of hand-made vessels collected from the northern part of the site is remarkably larger, this may be also affected by sieving the soil from that area. Regarding other finds, iron artefacts were much less numerous than objects from non-ferrous metals. This could be attributed to iron being mostly used for larger (and harder to lose) objects and tools, while the non-ferrous metal finds were either dress accessories or ornaments (brooches, buckles, pendants etc.).

The metal production waste indicates a variety of production techniques. Both pewter and copper alloys were cast at the site. Lead casting waste might originate from the domestic production of lead bullets, which were also numerous at the site. While no stone moulds were recovered, it is likely that the pewter pendants and buttons were cast using such moulds. The pewter buttons were cast using three-piece moulds, which is a technology that reached Estonia after the 13th century crusade (Saage & Russow 2020). The simpler pendants could already be made in two-piece moulds in the Late Iron Age (Saage & Wärmländer 2018). This tradition continued into the Middle Ages and is quite difficult to date due to the poor preservation of tin ornaments.

Droplets of copper and gunmetal indicate casting somewhere in the settlement. The lack of crucible fragments and vitrified clay means that the workshop was situated further away from the investigated area. Casting was used to produce items with a more complex geometry such as penannular brooches, buckles, and rumbler bells. Simpler ornaments cut from a sheet of copper alloy were also produced locally. The items probably included bracelets, rings, and belts fittings.

The investigations of 2019 and 2020 clarified the settlement area and the location of more intensively used clusters. The added knowledge on non-ferrous metal processing, ceramic usage, and animal husbandry may have wider applicability for establishing medieval and early modern rural lifestyle in Estonia.

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UURINGUD SARGVERE ASULAKOHAL

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Sargvere asulakoht paikneb Järvamaal Peetri kihelkonnas Paide linna ja Peetri küla vahelise tee ääres, Sargvere mõisa pargist lõuna pool, kuigi 2020. a ette võetud uuringud viitavad sellele, et asulakoht võib ulatuda mõisa territooriumile. Asulakohta on praeguseks uuritud neljal korral. Antud artikkel käsitleb 2019. (juhatas P. Piirits) ja 2020. a (R. Saage) kergliiklustee ehitusega läbi asulakoha kaevatud riba, mis andis kitsa, kuid pika läbilõike seni uurimata alast (in 1).

2019. a lõhuti suur osa Sargvere asulakohta läbinud teelõigu alal paiknenud ladestustest enne arheoloogide kohalejõudmist, mistõttu sai P. Piirits dokumenteerida vaid sügavamaid lohke ja konstruktsioone. Kopaga väljatõstetud pinnasest otsiti välja leiud, kuid pinnast ei sõelutud. 2020. a õnnestus asulakohta uurida süstemaatiliselt ja kõikidest šurfidest ja kaevanditest välja võetud pinnas sõeluti läbi. Kuna 2019. a koguti oluliselt rohkem leide kui 2020. a, tuleb tõdeda, et 2019. a arheoloogilise järelevalveta toimunud ehitustöödel hävis väärtuslikum osa uuringualale jäänud kultuurkihist.

Asulakoha kultuurkiht sisaldas mitmeid vundamente, koldekohti, lohkusid ja hoonete põhjasid. Täiesti uued andmed Sargvere asulakoha põhjaosa kohta pärinevad mõisa pargi lähedusest, mida ümb-

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ritsevast kivimüürist 24 m edela suunas tuli välja sideaineta laotud müüri vundament (jn 1: 1). Selle ümber leidus keraamikat hilisrauaajast varauusajani, kuid on tõenäoline, et tegemist on just varauusaegse rajatisega.

Piklik lohk lõuna pool (lohk 20) võiks kuuluda süvendatud põrandaga hoonele, millest leitud keraamika pärineb esimese aastatuhande II poolest pKr (jn 1: 2). See on ühtlasi vanim asustuse märk Sargverest. Sellest lõuna pool sisaldasid mitu lohku (nr 3, 7 ja 8) ohtralt loomaluid, millest suure osa moodustas ilmselt ühe koera laialiküntud matus (jn 1: 3).

Põllu tänavast lõuna poole jääb asulakihi tuumikala, mitmete ehitusjäänuste ja sissekaevetega. Nendest tähelepanuväärseim oli maasse süvendatud ja paekivist laotud nelinurkne ehitis, mida Piirits tõlgendas kivikeldrina (jn 1: 4; jn 2). Keldrist leitud rusu pärineb 17. või 18. sajandist. Lisaks tuli välja mitu hoone põrandana tõlgendatud jäänust. Mitmed avastatud lohud olid täidetud omaaegse prügiga, millest õnnestus koguda peamiselt loomaluid.

Leidudest enamiku moodustavad keraamikakatked. Käsitsikeraamikat esines peaaegu ainult uurimisala põhjaosas, ehkki varasemate, asula lõunaosast kogutud leidude seas on ka üks võreornamendiga katke. Kedrakeraamika puhul on esindatud 13. saj lõpust 17. sajandini esinevad vormid (jn 3), samuti leiti ühe punase kolmjalgnõu jalg ning viis 16. saj lõppu või 17. sajandisse kuuluvat importkeraamika katket. Viimased ning ka paar ahjupoti katket seostuvad ilmselt mõisaalaga.

Metalliotsijat kasutati nii 2019. kui ka 2020. aastal, mistõttu on leidude hulgas küllalt palju rauast, vasesulamitest ja tinast esemeid. Kohalikust rauatööst on järele jäänud šlakki, kuid selle vähesuse tõttu võib arvata, et seda tehti uuritud alast kaugemal. Veidi rohkem on jälgi metallide valamisest, millest on pinnasesse sattunud sulanud metalli tilkasid (jn 4). Samuti on leidude hulgas valmis esemeid, eriti vasesulamist kuljuseid (jn 5). Esindatud on ka madala sulamistemperatuuriga tinast ja pliist esemed: ripatsid, tinulised ja nööbid (jn 5).

Ligi tuhandest leitud loomaluust analüüsiti selle artikli tarbeks 409 (jn 6). Kõik liigini määratud luuleiud pärinevad koduloomadelt nagu veis, lammas/ kits, siga, hobune, koer, kass ja kana. Ligikaudu kolmandik materjalist jäi täpsemalt määramata selle fragmenteerituse tõttu, kuid kuulub suure tõenäosusega eespool nimetatud loomadele. Enamik luid on täiskasvanud isenditelt, mõned üksikud ka noorloomadelt. Kui kariloomade luuleiud on toidujäätmed, siis täiskasvanud koera ja hinnanguliselt 1–2-aastase kassi luujäänused pärinevad mahamaetud loomadest. Vähemalt kahe täiskasvanud hobuse luude puhul (sealhulgas tänapäevase eesti hobuse mõõtu isend) jääb selgusetuks, kas need pärinevad mahamaetud loomadest või on need muud jäätmed.