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Archaeological rescue excavations at an Early Modern burial ground in the area of J. Kunderi and Fr. R. Kreutzwaldi streets, Tallinn

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INTRODUCTION

The burial site, located in the area of J. Kunderi and Fr. R. Kreutzwaldi streets in Tallinn, has undergone a series of earthworks over the years. In the last ten years, archaeological fieldwork has also supplemented the scheduled excavations, shedding light on this cemetery, which is still relatively poorly known. These studies were conducted in connection with the renewal of water[1] and heating pipes[2] at the intersection of J. Kunderi and Fr. R. Kreutzwaldi streets (Fig. 1). Despite numerous previous construction works, two archaeological rescue excavations succeeded in unearthing *in situ* Early Modern burials and collecting commingled human bones and finds from previously disturbed graves. Numerous 20th-century commingled finds

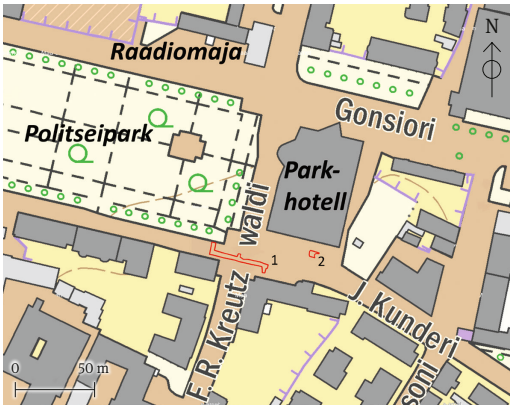

Fig. 1. *The locations of the excavation plots at the intersection of J. Kunderi and Fr. R. Kreutzwaldi streets.*
Jn 1. *Kaevandite asukohad J. Kunderi ja Fr. R. Kreutzwaldi tänavate ristis.*
Drawing / Joonis: Marie Anna Blehner

[1] The archaeological survey was carried out by OÜ Muinasprojekt, the found and partially broken skeletons were cleaned and documented, also commingled human remains and artefacts by MTÜ Arheoloogiakeskus under the supervision of Martin Malve.
[2] The archaeological survey and rescue excavations of the burial ground were led by Martin Malve (MTÜ Arheoloogiakeskus) as a subcontractor of OÜ Arheox.

and animal bones, and even one *in situ* dog skeleton, were also found. This article provides an overview of the research and suggests what type of burial ground it may have been.

PREVIOUS DISCOVERIES AND FIELDWORK

In 1935, a new water line was installed for the Elfriede Lender private gymnasium, situated on the corner of Fr. R. Kreutzwaldi and J. Kunderi streets at Fr. R. Kreutzwaldi 25. The trenches revealed and cut through undisturbed single and mass burials, both with and without coffins. One of the burials included multiple small ceramic vessels and jars. The burials, just a metre from the ground, were thought to belong to the Russian garrison soldiers who besieged Tallinn during the Great Northern War in the early 18th century (Russow & Reppo 2024, TLN1935.05). In 1936, during foundation work for J. Kunderi 14 (now Fr. R. Kreutzwaldi 20), a couple of dozen skeletons were uncovered, oriented east-west at a depth of around 65–100 cm. One of the burials included 16th–17th-century Polish coins, minted under Sigismund III (1592–1599) and pieces of a woolen fabric, potentially a textile pouch, indicating that at least some of the burials predate the Great Northern War period. The bones were reburied to an undisclosed location (Russow & Reppo 2024, TLN1936.07). An early post-medieval penannular brooch found at Politseiaed[3] in 1937 may also be associated with the graveyard (ERM A 453: 10; Russow & Reppo 2024, TLN1937.08).

Human remains were allegedly found during the construction of C. R. Jakobsoni 7 in 2016–2017, but these were not reported to archaeologists (Malve & Reppo 2018, 3). In 2017–2018, twelve burials were excavated on C. R. Jakobsoni 13, one of them with an 18th-century sword (dragoon sabre) placed on the coffin, another with a chained shackle around the left tibia, whilst the commingled remains included a skull presenting a craniotomy (Malve *et al.* 2019, 237–239). A few commingled human bones were also found during the reconstruction of the playground and stadium of the school in 2019 at Fr. R. Kreutzwaldi 25 (Russow & Reppo 2024, TLN2019.27). Even further south, a skull was found 50 cm from the ground in 2022 during the construction of a fence at Tartu Rd 47 (Russow & Reppo 2024, TLN2022.43).

The suburban area close to the large burial ground has been inhabited since the Middle Ages. Plough marks in the natural soil indicate that at least by Fr. R. Kreutzwaldi street, a field was in use here since the 1250s. A cultural layer deposited on the plough soil shows that the area was used until around 1425, after which shifting sands covered the area with a thick layer of sand (Russow & Reppo 2024, TLN2018.30). All of the burials are dug into this sandy dune at a time when the area was likely used as a grassland and farmland (Malve & Reppo 2018, 5). The burial site does not appear on any maps. Some fragments of 17th–19th-century household ceramics, tiles, and clay pipes found from trenches on C. R. Jakobsoni and Fr. R. Kreutzwaldi streets indicate limited later suburban activities, but the area was slowly built up only in the second half of the 19th century (e.g. Russow & Reppo 2024, TLN1962.11, TLN1966.17, TLN2019.27).

THE BURIAL GROUND

A total of 16 completely or partially preserved *in situ* burials were unearthed during this study (Fig. 2: A). Most of the burials were single graves, but one twin and one triple burial were also found. Burials nos 3 and 4 were in separate coffins side by side in the same grave. In the triple grave, the men were buried next to each other, also in separate coffins (Fig. 2: B), which

[3] Politseiaed (Police Garden), now known as Politseipark (Police Park; see Fig. 1) is a public park between Gonsiori, Pronksi, J. Kunderi, and Fr. R. Kreutzwaldi streets. The area was used as a vegetable garden for the military and police from the Czarist period until World War II.

Fig. 2. *A – Burial no. 12 in a trench profile, partially excavated during previous construction works, the skeleton was missing legs and feet. B – A partially preserved triple burial of adult males (nos 14–16).*
Jn 2. *A – Osaliselt eelnevate töödega ära kaevatud matus nr 12 kraavi profiilis, luustikul puudus jalgade osa jalalabadega. B – Osaliselt säilinud täiskasvanud meeste kolmikmatus (nr 14–16).*
Photos / Fotod: Martin Malve

were tightly packed against each other. The skeletons lay in the grave with their heads facing west (210–270°). In twelve burials, it was possible to identify decayed coffin wood or coffin nails (Fig. 3). The majority of the burials discovered were of adults, with only two cases of non-adult graves. In one case, a 14–19-year-old juvenile or young adult was buried, and in another, probably an infant, but only the grave cut survived from the burial, which is why it is difficult to estimate the exact age. An Orthodox cross found in burial no. 8 was the only artefact associated with the burials. No items or grave goods were recovered from other burials, probably due to the fragmentary preservation of the graves.

Fig. 3. *The sides of burial no. 9 had clearly visible traces of decayed sideboards from the coffin.*
Jn 3. *Matus nr 9 külgedel oli hästi jälgitav kirstukülgede kõdupuit.*
Photo / Foto: Martin Malve

HUMAN REMAINS

During osteological analysis, 15 partially or completely preserved skeletons were examined (Table 1).[4] The dead had been buried in sandy soil, which had caused erosion of the outer surface of the bones, and in some places, the skeletal parts were severely decayed. A total of 13 adult skeletons were found, nine of which were males; the rest were adults of undetermined sex. Two skeleton belonged to a juvenile or young adult (nos 5 and 11).

[4] The sex of the burials was determined according to the morphological traits on the pelvis (Phenice 1969) and cranium (Buikstra & Ubelaker 1994, 16–20), the maximum length of the long bones (Garmus & Jankauskas 1993, 6–8), and tarsal bones (Garmus 1996, 26). The age at death was determined according to tooth wear (Brothwell 1981, 72), pubic symphyseal face (Todd 1920; 1921; Brooks & Suchey 1990), auricular surface of the ilium (Lovejoy *et al.* 1985) and age caused changes on the limb joints (Ubelaker 1989, 84–87). The age of subadults was determined by examining the development of bones and epiphyseal fusion (Schaefer *et al.* 2009). Pathological conditions were identified based on Buikstra (2019) and Roberts & Manchester (2012). Stature was calculated according to the formula of Trotter and Gleser (Trotter 1970), using measurements of the humeri and femora.

Table 1. *Osteological age, sex, pathologies and stature of the recorded skeletons from Tallinn J. Kunderi and Fr. R. Kreutzwaldi streets burial ground.*
Tabel 1. *Tallinna J. Kunderi ja Fr. R. Kreutzwaldi tänavate matmispaigalt leitud luustike osteoloogiline vanus, sugu, patoloogiad ja kehakasv.*
Compiled by / Koostanud: Martin Malve

Burial no. / Matuse nr	Sex / Sugu	Age at death / Vanus surmahetkel	Pathologies / Patoloogiad	Stature / Kehakasv (cm)
1	♂	25–35 y / a	**Teeth:** slight dental calculus, *ante mortem* lost teeth.	-
2	?	Adult / Täiskasvanu	Schmorl's nodes on the 4th–5th thoracic vertebrae.	-
3	♂	17–25 y / a	**Teeth:** slight dental calculus. Schmorl's nodes on the thoracic vertebrae.	-
4	?	Adult / Täiskasvanu	Schmorl's nodes on the thoracic and lumbar vertebrae.	-
5	?	14–20 y / a	-	-
6	?	Adult / Täiskasvanu	-	-
7	?	Adult / Täiskasvanu	-	-
8	♂	25–35 y / a	**Teeth:** slight dental calculus. Healed non-specific lesion on the midshaft of the left tibia.	-
9	♂	Adult / Täiskasvanu	Probable cut wound on the lateral part of the left parietal bone (length 29.9 mm).	165.4 ± 3.27
10	♂	25–35 y / a	**Teeth:** slight dental calculus.	-
11	?	14–20 y / a	Active non-specific lesions on the midshaft of the posterior side of the tibiae, abnormal porosity on the anterior part of the vertebral bodies.	-
12	♂	20–30 y / a	**Teeth:** slight dental calculus. Schmorl's nodes on the 3rd–12 thoracic and 1st–4th lumbar vertebrae.	-
13	?	Infant? / Imik?	The bones were completely decayed.	-
14	♂	25–35 y / a	Schmorl's nodes on the thoracic vertebrae.	168.9 ± 3.27
15	♂	20–30 y / a	**Teeth:** slight dental calculus, *ante mortem* lost teeth, right canine of the mandible had not been erupted.	171.6 ± 3.27
16	♂	20–29 y / a	**Teeth:** slight dental calculus, periapical lesions. Schmorl's nodes on the thoracic vertebrae.	163.3 ± 3.27

Dental diseases (dental calculus, caries, periapical lesions) were the predominant pathologies detected on the skeletons. Active non-specific lesions was noted on non-adult or young adult skeleton (no. 11) and healed non-specific lesions on adult male skeleton (no. 8). Among the pathologies related to physical exertion, intervertebral disc herniations on the vertebrae bodies (Schmorl's nodes) occurred. In one case probable peri mortem blade wound was found on the lateral part of the left parietal bone (no. 3). The pathologies found are typical of bone material from Early Modern burial grounds.

HUMAN STABLE ISOTOPE ANALYSIS

Stable carbon, nitrogen and sulfur isotope analyses were conducted on 14 human individuals excavated in 2024 (burials 2–12, 14–16). A rib or metatarsal bone was sampled from all individuals, except on one occasion, where a fragment of a mandibula was used instead.

Samples were prepared in Tallinn University, Estonia, and collagen was analysed for stable isotopes at SUERC, United Kingdom. Sample preparation and analysis followed the methodology outlined in Aguraiuja-Lätti *et al.* (2022). The results are presented in Table 2. All but one of the samples contained well-preserved collagen. Burial no. 14 has quality indicators below the conventionally accepted limits (van Klinken 1999; Nehlich & Richards 2009), and has been excluded from further analysis.

The human burials from J. Kunderi – Fr. R. Kreutzwaldi streets have average values of -19.78±0.28‰ (1SD) for δ^{13}C, 12.11±0.76‰ for δ^{15}N, and 4.61±1.17‰ for δ^{34}S. The results indicate a relatively homogenous, predominantly terrestrial-based diet, which likely comprised both vegetables and grains, and products of domestic livestock. Both carbon and nitrogen isotope ratios are somewhat enriched compared to local terrestrial herbivores (Aguraiuja-Lätti *et al.* 2022), indicating a minor marine component in human diets commonly seen in historical period populations from the Baltic Sea coastline. There is a strong statistically significant positive correlation between J. Kunderi – Fr. R. Kreutzwaldi streets' human δ^{13}C and δ^{15}N values (Pearson's r=0.718, p=0.006). This is typically interpreted as the effect of varying consumption of higher trophic level protein (including fish and omnivore meat), which tend to have more positive carbon and nitrogen values compared to terrestrial plant protein.

The analysed humans show a good overlap in their carbon and nitrogen ratios with those of previously sampled Early Modern Period inhabitants of Tallinn (Fig. 4), including the suburban cemeteries at St Barbara (Aguraiuja-Lätti & Lõugas 2019) and St John's Hospital

Table 2. *Stable isotope ratios (‰) of carbon (δ^{13}C), nitrogen (δ^{15}N), and sulfur (δ^{34}S) analysed from bone collagen of individuals recovered at J. Kunderi and Fr. R. Kreutzwaldi streets burial ground, including corresponding quality indicators for elemental concentrations (%C, %N, %S) and atomic ratios (C/N, C/S, N/S). Burial no. 14 has been excluded due to poor quality indicators and is not included in the calculation of the average values.*

Tabel 2. *Tallinna J. Kunderi ja Fr. R. Kreutzwaldi tänavate matmispaigalt leitud inimluude kollageenist analüüsitud süsiniku (δ^{13}C), lämmastiku (δ^{15}N) ja väävli (δ^{34}S) stabiilsete isotoopide tulemused (‰) koos kvaliteedi indikaatoritega – kaaluprotsendid (%C, %N, %S) ning aatomi suhted (C/N, C/S, N/S). Matuse nr 14 kvaliteedi indikaatorid ei vastanud normidele, mistõttu on see edasisest analüüsist välja jäetud, k.a. statistilise keskmise arvutamisest.*

Compiled by / Koostanud: Ülle Aguraiuja-Lätti

Lab ID / Labori ID	Burial No. / Matus nr	Sampled element / Proovikoht	δ¹³C	δ¹⁵N	δ³⁴S	%C	%N	%S	C/N	C/S	N/S
GUsi22088	2	Rib	-19.65	11.98	5.14	41.6	14.6	0.22	3.3	510	153
GUsi22089	3	Rib	-19.85	12.59	4.06	41.1	14.9	0.20	3.2	543	169
GUsi22090	4	Rib	-19.51	12.73	5.13	42.0	15.1	0.18	3.2	618	191
GUsi22091	5	Metatarsal	-20.50	10.84	5.29	41.4	14.8	0.24	3.3	466	143
GUsi22092	6	Metatarsal	-19.80	12.72	3.49	41.0	14.6	0.24	3.3	450	137
GUsi22087	7	Mandible	-19.85	11.72	4.42	39.6	14.1	0.22	3.3	480	146
GUsi22093	8	Rib	-19.59	12.01	3.64	43.9	15.6	0.25	3.3	469	143
GUsi22094	9	Rib	-19.76	12.70	5.08	40.7	14.4	0.22	3.3	498	151
GUsi22095	10	Rib	-19.95	10.51	4.14	38.8	13.5	0.21	3.4	499	149
GUsi22096	11	Metatarsal	-19.67	12.68	5.01	40.4	14.5	0.21	3.2	522	161
GUsi22097	12	Rib	-19.62	12.41	4.60	41.7	15.0	0.25	3.2	450	139
~~GUsi22098~~	~~14~~	~~Rib~~	~~-21.78~~	~~10.75~~	~~1.69~~	~~16.8~~	~~6.2~~	~~0.24~~	~~3.1~~	~~186~~	~~59~~
GUsi22099	15	Rib	-19.38	12.85	7.46	40.5	14.6	0.23	3.2	480	149
GUsi22100	16	Metatarsal	-20.07	11.67	2.53	43.5	15.0	0.22	3.4	526	155
		Average	**-19.78**	**12.11**	**4.61**	**41.3**	**14.7**	**0.22**	**3.3**	**501**	**153**
		STDEV	0.28	0.76	1.17	1.4	0.5	0.02	0.1	46	15

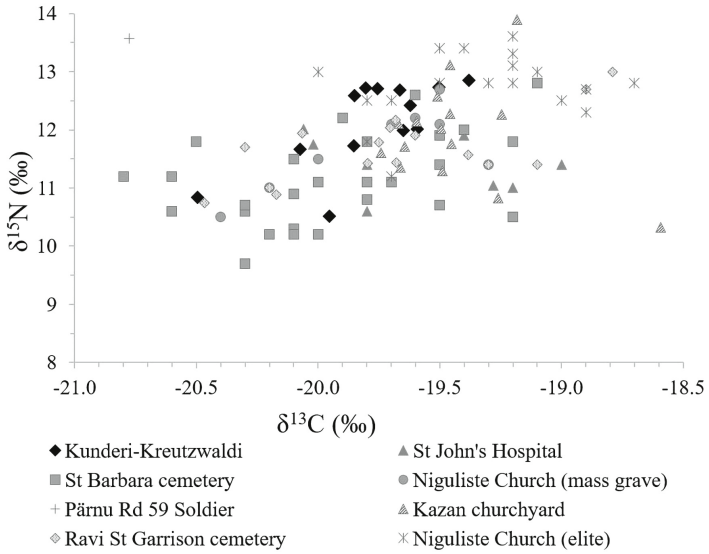

Fig. 4. *Scatterplot of δ¹³C and δ¹⁵N values for J. Kunderi – Fr. R. Kreutzwaldi streets' burial ground humans alongside comparative data from Early Modern period sites in Tallinn: St Barbara cemetery (Aguraiuja-Lätti & Lõugas 2019), St John's Hospital and Pärnu Road 59 plague cemetery (Aguraiuja-Lätti & Malve 2023), Ravi street garrison cemetery (Vilumets & Aguraiuja-Lätti, in prep), Kazan churchyard, Niguliste church and churchyard (unpublished data).*
Jn 4. *Hajuvusdiagramm J. Kunderi – Fr. R. Kreutzwaldi tänavate matmispaiga inimluude δ¹³C ja δ¹⁵N väärtustega. Võrdluseks on võetud andmed varauusaegsetest matusepaikadest Tallinnas: Barbara kalmistu (Aguraiuja-Lätti & Lõugas 2019), Jaani seek ja Pärnu mnt 59 katkukalmistu (Aguraiuja-Lätti & Malve 2023), Ravi tänava garnisoni kalmistu (Vilumets & Aguraiuja-Lätti, valmimisel), Kaasani kirikaed, Niguliste kirik ja kirikaed (avaldamata andmed).*
Graph / Graafik: Ülle Aguraiuja-Lätti

(Aguraiuja-Lätti & Malve 2023), and the mass grave adjacent to Niguliste (St Nicholas) Church (unpublished data). The Russian soldier from the Great Northern War recovered from the Pärnu Road 59 plague cemetery has a very distinct isotope signature that clearly marks him as an outlier (Aguraiuja-Lätti & Malve 2023). The J. Kunderi – Fr. R. Kreutzwaldi streets' burial ground humans partly overlap in their isotope ratios with burials associated with the Orthodox Kazan Church (unpublished data) and the 18th-century garrison cemetery at Ravi street (Vilumets & Aguraiuja-Lätti, In prep), both situated nearby. But δ^{15}N values in the present study are on average slightly higher, more similar to 18th-century high-status burials from inside Niguliste Church (unpublished data). High δ^{15}N values above 12‰ are usually associated with consumption of high trophic level protein, but they can also be elevated by physiological stress (Fuller *et al.* 2005), such as experienced during prolonged illness or malnutrition. Although the remains did not display pathological conditions that could support this interpretation, it cannot be entirely ruled out, considering the poor preservation of the skeletons.

Sulfur isotope ratios reflect the origin of consumed dietary protein. Domestic herbivores from Tallinn have widely variable δ^{34}S values that average around 3.1±3.3‰ (Aguraiuja-Lätti *et al.* 2022), so that local inhabitants consuming these livestock should have δ^{34}S values in a similar range. All J. Kunderi – Fr. R. Kreutzwaldi streets' burial ground humans fall into this average range, except for burial no. 15 with a δ^{34}S value of 7.46‰ (Fig. 5). However, many

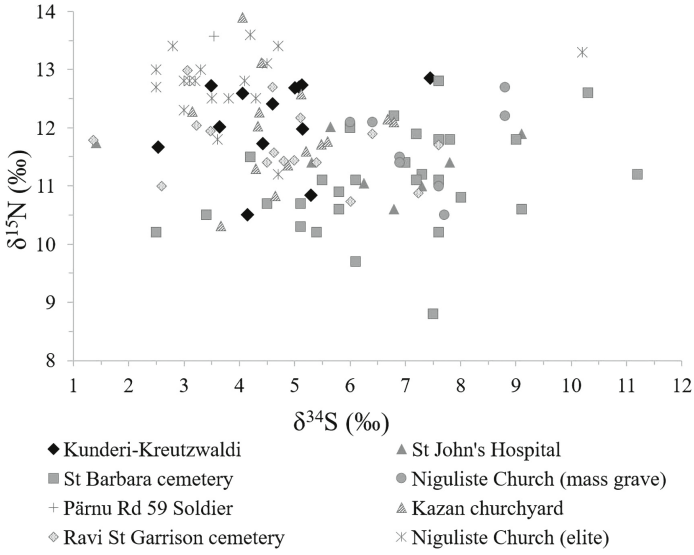

Fig. 5. *Scatterplot of $\delta^{34}S$ and $\delta^{15}N$ values for J. Kunderi – Fr. R. Kreutzwaldi streets' burial ground humans alongside comparative data from Early Modern period sites in Tallinn: St Barbara cemetery (Aguraiuja-Lätti & Lõugas 2019), St John's Hospital and Pärnu Road 59 plague cemetery (Aguraiuja-Lätti & Malve 2023), Ravi street garrison cemetery (Vilumets & Aguraiuja-Lätti, in prep), Kazan churchyard, Niguliste church and churchyard (unpublished data).*

Jn 5. *Hajuvusdiagramm J. Kunderi – Fr. R. Kreutzwaldi tänavate matmispaiga inimluude $\delta^{34}S$ ja $\delta^{15}N$ väärtustega. Võrdluseks on võetud andmed varauusaegsetest matusepaikadest Tallinnas: Barbara kalmistu (Aguraiuja-Lätti & Lõugas 2019), Jaani seek ja Pärnu mnt 59 katkukalmistu (Aguraiuja-Lätti & Malve 2023), Ravi tänava garnisoni kalmistu (Vilumets & Aguraiuja-Lätti, valmimisel), Kaasani kirikaed, Niguliste kirik ja kirikaed (avaldamata andmed).*

Graph / Graafik: Ülle Aguraiuja-Lätti

previously analysed burials from Tallinn also have relatively high $\delta^{34}S$ values, either due to marine influence or an origin in southern Estonia, both of which result in more positive sulfur isotope ratios (Aguraiuja-Lätti & Lõugas 2019; Aguraiuja-Lätti *et al.* 2022; 2025). Marine influence is the most likely explanation for those that also have elevated $\delta^{13}C$ and $\delta^{15}N$ values, and this may be the case for burial no. 15, which has the highest carbon, nitrogen and sulfur isotope ratios among the J. Kunderi – Fr. R. Kreutzwaldi streets' samples.

It is noteworthy that the values of the majority of the individuals from the J. Kunderi – Fr. R. Kreutzwaldi streets' burial ground plot resemble other 18th-century burials from Tallinn, including those from the Kazan churchyard and the Ravi street garrison cemetery, which were located nearby (Fig. 5). Both were predominantly used by Orthodox Russians, though they may have included other ethnicities as well. Their similar isotope ratios may thus suggest a similar ethnic and/or social background for at least some of the J. Kunderi – Fr. R. Kreutzwaldi streets' burials, whereas some others (including burial no. 15) group closer to local commoner burials from St Barbara and St John's hospital. The interpretation is complicated by the fact that sulfur isotope ratios are influenced both by diet and movement; thus, it is difficult to ascertain whether the variation in $\delta^{34}S$ values is due to different (ethnic) groups consuming slightly different diets, or due to some of the analysed individuals originating from a region with a different $\delta^{34}S$ baseline.

FAUNAL REMAINS

Animal remains were recovered from two separate contexts: a dark, organic-rich medieval cultural layer[5] (AZ-1) and an 18th–19th-century substratum of a cobblestone paved layer (AZ-2), from which only a partial dog skeleton was found. In total, 123 faunal remains were collected from the black medieval cultural layer, of which five were identified as cattle (*Bos taurus*) and the other 118 were of indeterminate mammal (Mammalia) bone fragments. Signs of butchery were identified only on one subadult cattle metacarpus bone.

Fig. 6. *A partially preserved Modern Period dog burial.*
Jn 6. *Osaliselt säilinud uusaegne koeramatus.*
Photo / Foto: Martin Malve

In the substratum of a cobblestone-paved layer, a partial dog skeleton was found lying on its right side, buried in a wooden box or a coffin (Fig. 6). Previous earthworks have destroyed the skull and partially also the cervical vertebrae of the dog. The bones were in poor condition because of the sandy soil. In total, 148 dog bones were recovered and identified. The dog was an older adult exemplified by the fused epiphyses and eburnated joints on the limbs and on the lower back. Based on the maximal length of the long bones (Harcourt 1974), the withers height of the animal was around 60 cm.

DISCUSSION AND CONCLUSION

Based on the information collected over the last 90 years, a large number of human remains have been found from an area of around 18,000 m² in the studied section of the J. Kunderi – Fr. R. Kreutzwaldi streets. Taking into account all the previous information, it is likely that numerous burials are still preserved in the street and courtyard areas. The burial ground lacks order, and the graves are sparsely located. In some cases, the graves were grouped together, but in other cases, the distance between them varied from a few metres to tens of metres. Thus, the cemetery does not have a regular layout of graves, which would be typical of a churchyard or suburban cemeteries. The irregular arrangement of the graves, the lack of overburials, and several multiple graves suggest that this is more of a temporary burial site. The finds collected during the fieldwork – predominantly Orthodox cross pendants from burials and commingled Early Modern objects – clearly imply that the burials excavated in 2024 date from the 18th century although earlier works indicate that the site may have been in use already in the late 16th or in the 17th century (Fig. 7). Multiple graves indicate a higher mortality rate, and that the individuals probably died under the same circumstances.

Immediately after Tallinn surrendered to Russian troops in 1710, several Orthodox cemeteries emerged in the suburbs of Tallinn, connected to the arrival of people who came to the town from various territories of the Russian Empire. In a similar area, on sand dunes southwest of the J. Kunderi – Fr. R. Kreutzwaldi streets' burial ground, the Kazan Church with its churchyard, and the garrison cemeteries of the Naval and Army Hospitals were also founded, situated around 0.5 km and 1 km from the site under study here. In ordinary

[5] The medieval layer was excavated in 2018 (Malve & Reppo 2018, 5–6; Ööbik & Selin, in prep). In 2024, a single stoneware fragment (AI 8989: 10) was found from this layer alongside the animal remains.

Fig. 7. *Commingled finds from the disturbed burials discovered during fieldwork: 1 – Orthodox cross pendants, 2 – a buckle.*
Jn 7. *Välitööde käigus avastatud lõhutud matuste juurest saadud irdsed leiud: 1 – õigeusu kaelaristid, 2 – pannal. (AI 8988: 3, 4, 2.)*
Photo / Foto: Martin Malve

suburban cemeteries from the 18th century in Tallinn (e.g. Kazan churchyard), several re-burials have been found during research and the graves have been located closely next to each other (Malve *et al.* 2022). This does not occur in the burial ground in the J. Kunderi and Fr. R. Kreutzwaldi streets. Based on the layout of the graves and the presence of multiple graves, the most similar to the burial ground under investigation here is the plague cemetery in Tallinn from 1710, situated at Pärnu Rd 59 and Tatari 51a, as well as the surrounding plots (Malve & Tvauri 2022). Therefore, an epidemic (e.g. the plague) may also be considered in the case of the J. Kunderi – Fr. R. Kreutzwaldi streets' burial ground. But the cemetery could also be a temporary burial ground for a Russian garrison or a short-lived suburban cemetery.

The available isotopic evidence supports these conclusions due to the similarity between the studied individuals and those of other 18th-century suburban, Orthodox burials in Tallinn. However, there is enough diversity in the isotope data to suggest that not all burials belonged to the same social and/or ethnic group. The unusually high nitrogen isotope ratios of some individuals can be interpreted as evidence for prolonged physiological stress, which could have occurred during turbulent times such as an epidemic or famine.

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ARHEOLOOGILISED PÄÄSTEKAEVAMISED TALLINNAS J. KUNDERI JA FR. R. KREUTZWALDI TN PIIRKONNAS ASUVAL VARAUUSAEGSEL MATMISPAIGAL

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Tallinnas J. Kunderi ja Fr. R. Kreutzwaldi tänavate piirkonnas asuval matmispaigal on läbi aegade toimunud ridamisi mullatöid ja viimasel kümnel aastal ka arheoloogilisi välitöid, mis heidavad valgust sellele siiani üsna tundmatule kalmistule. Käesolevad uuringud toimusid vee- ja keskküttetorustike uuendamise tõttu mainitud tänavate ristil (jn 1). Hoolimata arvukatest varasematest kaevetöödest õnnestus kahe arheoloogilise päästekaevamise käigus välja puhastada varauusaegseid *in situ* matuseid ning koguda varem segi keeratud haudadest pärinevaid inimluid ja leide. Samuti leiti arvukalt uusaegseid leide ja loomaluid ning isegi üks osaliselt *in situ* säilinud koera skelett.

Kokku puhastati välja 16 terviklikult või osaliselt *in situ* säilinud matust (jn 2: A), sealhulgas üks kaksik- ja kolmikmatus. Matused nr 3 ja 4 olid ühes haualohus kõrvuti eraldi kirstudes. Kolmikmatuses olid mehed maetud üksteise kõrvale samuti eraldi puusärkides (jn 2: B), mis olid tihedasti üksteise vastas. Luustikud lebasid haualohus peaga läänekaartesse (210–270°). Kaheteist matuse puhul oli võimalik tuvastada kirstupuidu kõdu (jn 3) või kirstunaelu. Valdavalt avastati täiskasvanute matuseid, vaid kahel juhul oli tegemist alaealiste haudadega. Ühel juhul oli maetud 14–19-aastane nooruk või noor täiskasvanu ja teisel tõenäoliselt imik, kuid matusest oli säilinud vaid haualaik, mistõttu on täpset vanust raske hinnata. Hauapanuseid, nimelt õigeusu kaelarist, leiti vaid ühe matuse juurest (nr 8). Tõenäoliselt oli esemete puudumine teiste matuste juures tingitud haudade katkendlikkusest.

Osteoloogilise analüüsi käigus uuriti 15 osaliselt või terviklikult säilinud skeletti (Tabel 1). Surnud olid maetud liivasesse pinnasesse, mistõttu esines luudel välispinna erosiooni ning kohati olid skeletiosad tugevasti kõdunenud. Kokku leiti 13 täiskasvanute luustikku, kellest üheksa olid mehed ja ülejäänud määramata sooga täiskasvanud.

Luustikel tuvastati valdavalt hambahaigusi (hambakivi, kaaries, periapikaalsed tühimikud). Lisaks tuvastati ühel alaealise või noore täiskasvanu luustikul (nr 11) aktiivseid mittespetsiifilisi haiguskoldeid ja ühel täiskasvanud mehel (nr 8) paranenud mittespetsiifilised haigukolded. Füüsilise koormusega seotud patoloogiatest esines selgroolüli lülivahekettasongasid (Schmorli sõlmed). Võimalikke vägivalla tunnuseid tuvastati vaid ühe täiskasvanu (nr 12) koljul, vasaku kiiruluu külgmises osas, kus oli arvatav surmaaegne lõikehaav. Leitud patoloogiad on omased varauusaegsete kalmistute luuainesele.

Neljateistkümnest luustikust tehti süsiniku ($\delta^{13}C$), lämmastiku ($\delta^{15}N$) ja väävli ($\delta^{34}S$) stabiilsete isotoopide analüüsid (Tabel 2), et lähemalt uurida maetute toitumist ja päritolu. Vaatluse tulemused (keskmised väärtused $\delta^{13}C$ = -19.78±0.28‰, $\delta^{15}N$ = 12.11±0.76‰, $\delta^{34}S$ = 4.61±1.17‰) osutavad valdavalt maismaalisele toidusedelile, kus domineerisid teraviljad ja koduloomade saadused, kuid ei puudunud ka väiksemas koguses merelised road. Tugev korrelatsioon süsiniku ja lämmastiku isotoopväärtuste vahel osutab, et proovistatud indiviidid tarbisid erinevas koguses loomseid valke (sh kala ja omnivooride liha). Tulemused kattuvad hästi Tallinna teiste varauusaegsete matusepaikade omadega, olles kõige sarnasemad Kaasani kirikaeda ja Ravi tn Vene garnisonihospidali kalmistule maetutega (jn 4–5).

Välitöödel koguti loomseid jäänuseid kahest eriaegsest kontekstist. Mustast keskaegsest kihist (AZ-1) leiti kokku 123 loomaluud, millest viis kuulus veisele ja ülejäänud 118 määramata imetajatele. 18.–19. sajandi sillutise alusest kihist (AZ-2) leiti ainult üks osaliselt säilinud koera luustik (jn 6), mis oli esindatud 148 säilmega. Loom oli maetud paremale küljele puust kasti või kirstu. Varasemad pinnasetööd olid hävitanud koera kolju ning esimesed kaelalülid. Koer oli vanem täiskasvanu, millele viitasid kinnitunud luuotsad ja kulunud liigesed. Looma ligikaudne turjakõrgus oli 60 cm.

Viimase 90 aasta jooksul kogutud teabe põhjal on J. Kunderi – Fr. R. Kreutzwaldi tänavate piirkonnast leitud u 18 000 m² suuruselt alalt *in situ* matuseid, irdseid inimluid ja leide varauusajast. Võttes arvesse kogu eelnevat teavet, on tänava- ja hoovialadel veel säilinud arvukalt paigal olevaid matuseid.

Matmispaigal puudub korrapära, hauad paiknevad hõredalt. Mõnel juhul olid hauad gruppidena koos, kuid kohati võis nende vahe olla mõni meeter kuni kümneid meetreid. Surnuid on maetud nii üksikkui ka mitmikhaudades. Haudade ebakorrapärane asetus, ülematmiste puudumine ja mitmikhaudade esinemine viitab pigem ajutisele matmispaigale. Välitöödel matuste juurest ja irdsena kogutud varauusaegsed leiud (valdavalt õigeusu kaelaristid) dateerivad matmispaiga 18. sajandisse (jn 7). Mitmikhauad osutavad suuremale ning sarnastel asjaoludel aset leidnud suremusele.

Vahetult pärast Tallinna vallutamist venelaste poolt 1710. aastal tekkis eeslinna alale mitmeid õigeusu kal-

mistud, mis on seotud linna tulnud uue rahvaga Vene impeeriumi aladelt. J. Kunderi ja Fr. R. Kreutzwaldi tänavate matmispaigaga sarnasesse piirkonda (liivaluidetele) rajati ka 0,5 km edelasse jääv Kaasani kirik koos kirikaiaga ning samas suunas, u 1 km kaugusel, paiknevad ka mere- ja maaväe garnisonihospidali kalmistud. Erinevalt Tallinna eeslinna 18. sajandi tavakalmistutest (nt Kaasani kirikaed), kus leidub ülematmisi ja hauad asuvad tihedalt üksteise kõrval, ei ole sellist olukorda J. Kunderi ja Fr. R. Kreutzwaldi tänavate piirkonna matmispaigas avastatud. Uuritud matmispaigale on kõige sarnasem Tallinna 1710. aasta katkukalmistu Pärnu mnt 59 ja Tatari tn 51a alal. Seega võib ka J. Kunderi ja Fr. R. Kreutzwaldi tänavate piirkonna matmispaiga rajamise põhjusena kõne alla tulla epideemia (nt katk). Teisalt võis kalmistu siiski olla ka Vene garnisoni ajutine matmispaik või lühiajaline eeslinna surnuaed. Seda toetavad ka isotoopanalüüsi tulemused, sest uuritud matused on kõige sarnasemad teiste 18. sajandi Tallinna eeslinna õigeusu kalmistute materjaliga. Ometi on andmestik piisavalt mitmekesine, mis võimaldab väita, et kõik analüüsitud indiviidid ei kuulunud samasse sotsiaalsesse või etnilisse rühma. Mõnede maetute ebatavaliselt kõrgeid lämmastiku isotoobi väärtuseid võib tõlgendada ka kui märki pikaleveninud füsioloogilisest stressist, mida võis põhjustada näiteks näljahäda või epideemia.