



Archaeological surveillance and excavations in Tartu Cathedral Hill

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INTRODUCTION

Archaeological surveillances and small-scale excavations on Tartu Cathedral Hill (Est. *Toomemägi*) in 2017 were carried out from July to August and in October on three different sites – the water drainage ditches of the former Cathedral Church of St Peter and St Paul the apostle (now University of Tartu museum), the water drainage ditch of the Tartu Observatory and the heating pipe trench of Lossi 38a building (Bernotas *et al.* 2018; Fig. 1). The fieldwork was carried out by OÜ Arheox, under the supervision of Rivo Bernotas and Keiti Randoja.

The present Cathedral Hill, where the prehistoric hill fort of Tartu was erected, played an important role in the formation of settlement in Tartu. Around 1000 AD the northern slope of Cathedral Hill was very rich in springs. The existence of fresh water was one of the preconditions for the permanent settlement of the area (Tvauri 2001, 31–32). In approximately the year 1036, Yaroslav Vladimirovich, Grand Prince of Kiev organized a campaign against a Baltic Finnic tribe named the Chuds, defeated them and established the stronghold of Yuryev in Tartu (*ibid.*, 215–223) which existence came to an end in 1061, when it was destroyed by another tribe from current Estonia named the Sossols (*ibid.*, 227–229). The Russians did not re-establish the hill fort after this defeat. Most of the prehistoric cultural layer at the hill fort and the settlement site was deposited during that period (*ibid.*, 248). The new hill fort was established somewhere between the years 1215–1223 during the military conflicts accompanying the Christianisation of South Estonia, at first it was possessed by the Order of the Brethren of the Sword and later by Prince Vyachko and the rebellious Estonians (*ibid.*, 255).



Fig 1. The fieldwork on Cathedral Hill. 1 – Cathedral, 2 – Tartu Observatory, 3 – Lossi 38a plot.

Jn 1. Väilitööd Toomemäel. 1 – toomkirik, 2 – Tartu Tähetorn, 3 – Lossi 38a kinnistu.

Base map / aluskaart: Estonian Land Board / Maa-amet
Additions / täiendused: Rivo Bernotas

After the conquest of Tartu in 1224 by the crusaders coming from various German regions, they began organizing the diocese under the leadership of prince-bishop Hermann. The Bishop's castle on the Cathedral Hill is first mentioned in written sources in 1234. Over the years in the south part of Cathedral Hill, a bailey, situated west from the castle, was built. The castle and the Cathedral Hill belonged to the authority of prince-bishop of Tartu, at the foot of the castle by the mid-13th century an urban merchants' and artisans' settlement developed into a town with its own ruling council (Prints 1967, 14 ff.; see also Altoa 1999, 16).

DRAINAGE DITCHES OF THE CATHEDRAL

Archaeological monitoring around the former Cathedral was carried out due to the reconstruction of the water drainage system of the university museum in the former church. In addition to the renovation of the existing drainage system, an extension that leads the rainwater through pipes downhill towards the River Emajõgi was erected. Altogether 324 metres of pipe trenches were dug around the Cathedral under archaeological (Bernotas *et al.*, in prep.).

During previous research at the western part of the Cathedral Hill a prehistoric cultural layer of 15–20 cm has been documented around the Cathedral and below the post-medieval earthen defence constructions (Tvauri 2001, 45–48 and references for the research history; Haak 2002, 110–112; Malve & Valk 2009, 148–149). This layer has been dated to the 11th century (Tvauri 2001, 248). In other parts of the Cathedral Hill, earlier deposits have preserved only sporadically. Most of the prehistoric and medieval deposits from the Cathedral Hill have been removed to the bastions and other earthen defences constructed in the 17th and 18th centuries, while the erection of the park at the beginning of the 19th century probably also destroyed a part of the prehistoric cultural layer there (Tvauri 2001, 47).

The results of the monitoring confirmed the earlier conclusions: no earlier deposits could be found in the pipe trench running north and east of the higher area in the immediate vicinity of the Cathedral (Fig. 2). On the north side of the Cathedral, on top of the higher area, a foundation wall of the northern porch/chapel¹ of the Cathedral (Fig. 2: 1) was discovered. The porch was actually re-discovered, as it was unearthed already in 1926 during supervision by Otto Freymuth (Freymuth 1927). The foundation of the hallway was laid of large fieldstones bound with lime mortar; on its northwestern corner the foundation of an outer buttress with the diameter of 1.16 m was unearthed.

East of the aforementioned wall of the porch, the drainage ditch was deeper, and a dark grey sand layer, at least 20 cm thick, was unearthed at the absolute height of 64.62 m (Fig. 2: 2). This layer was assumed to be the so-called prehistoric layer (see above). The layer was dug with shovels and scoops and sieved.

Altogether 47 fragments of pottery were found from the prehistoric layer, out of which 36 were wheel-made. Most of those were decorated with horizontal and wavy lines. These are typical finds of northwestern Russian origin, similar fragments have been found in large numbers from the deposits dated to the so-called *Yuryev* period (*ca.* 1036–61) both from the hill fort and the settlement of Tartu (see Tvauri 2001, 98–104). Only six fragments were from hand-made vessels, which probably originate from the settlement adjoining the pre-Viking Age or Viking Age hill fort (i.e. preceding the *Yuryev* period).

On the east side of the church a probable foundation of the wall surrounding the Cathedral was unearthed in three locations (Fig. 2: 3). The foundation of the churchyard wall had a

¹ The porch/chapel has been noted to be completed in the 15th century (Altoa 2018, 87).

thickness of 0.5–0.88 metres and it was laid of fieldstones in dry-stone technique; it had been preserved up to 0.5 m in height. On the southeast side of the Cathedral also a stone pavement next to the churchyard foundation was discovered (Fig. 2: 4), which might have belonged to the medieval road from the Bishop’s Castle to the Cathedral (Heiki Valk, pers. comm.).

Of the structures related to the Cathedral, on the north side also a northern wall of the chapel located on the northeastern corner of the nave (Fig. 2: 5) was found. The diameter of the wall was 109 cm. The wall was built of 30 × 8.5 × 14.5 cm bricks.

During the watching brief several human bones from disturbed burials and six *in situ* skeletons were discovered. Three of them were excavated in the course of the archaeological surveillance (Fig. 2: 6–8) and three were covered with plastic bags and soil and the drainage pipes were placed above them. The sex, age and possible pathologies of the excavated individuals are yet to be determined.

Burial no. 1 was found north of the Cathedral near the above-mentioned chapel. This burial was extraordinary because the individual was not placed inside a grave in a usual supine position characteristic to Christian burial tradition, but on his/her right side in a crouched position, head oriented to the west and face to the south (Fig. 2: 7; Fig. 3).

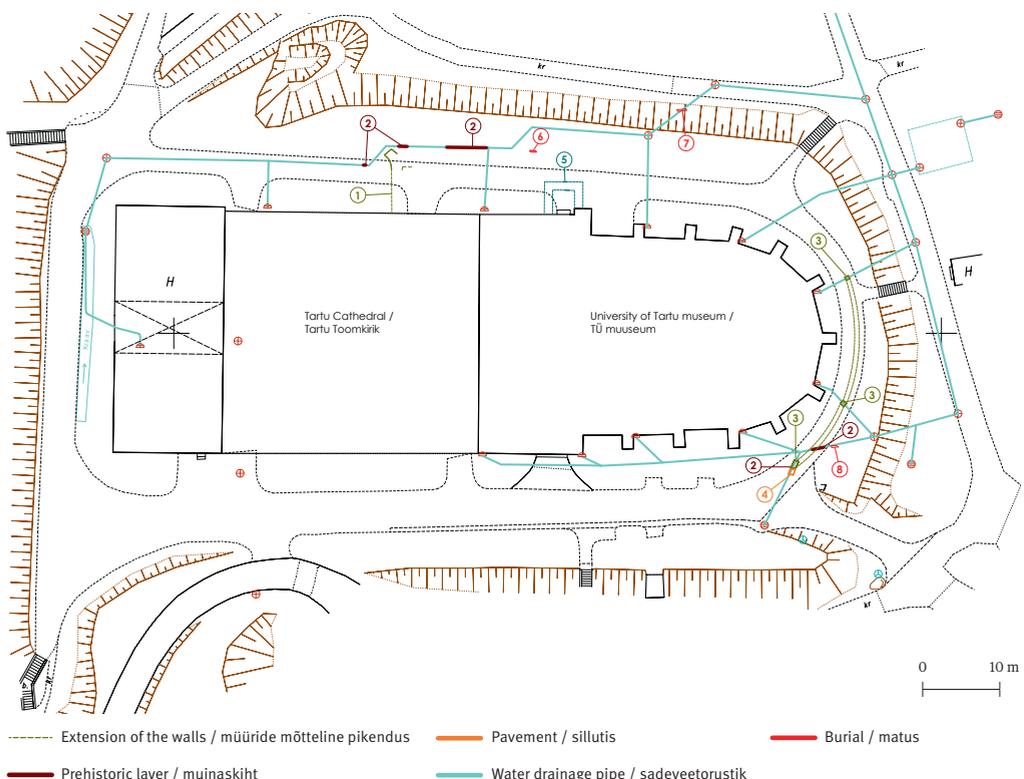


Fig. 2. Location of the trenches around the Cathedral. 1 – northern porch/chapel, 2 – prehistoric layer, 3 – foundation of the churchyard wall, 4 – stone pavement, 5 – foundations of the chapel at the northeastern corner of the nave, 6–8 – burials 1–3 discovered by the Cathedral.

Jn 2. Torustikukaevised toomkiriku ümbruses. 1 – põhjapoolse eeskoja/kabeli jäänused, 2 – muinaskiht, 3 – kirikaia müüri vundament, 4 – munakivisillutis, 5 – pikihoone kirdenurga juures asunud kabeli vundament, 6–8 – matused 1–3.

Drawing / Joonis: Rivo Bernotas



Fig. 3. Burial 1 discovered north of the Cathedral.
Jn 3. Toomkiriku põhjäküljel avastatud matuse 1.
 Photo / Foto: Keiti Randoja



Fig. 4. Double-spiral-headed pin discovered by the Cathedral.
Jn 4. Toomkiriku ümbrusest leitud prillspiraalnõel.
 (TM A-254: 21.)
 Photo / Foto: Andres Tvauri

Burial no. 2 was discovered also north of the Cathedral on the slope northeast of burial no. 1 (Fig. 2: 8). The individual was oriented to the west and placed in a supine position on his/her back. Part of the lower body of the skeleton was missing which was probably removed during landscape renovation works on the Cathedral Hill.

Burial no. 3 was discovered southeast of the Cathedral (Fig. 2: 9). The individual was laid in a supine position with head directed towards the west.

As none of the excavated burials had any accompanying finds, it is problematic to date them. It is common to the Christian tradition to bury people in a plain shroud with no clothing equipment nor grave goods. Thus, it is possible that the burials discovered on the Cathedral Hill might be from the medieval times, yet a later dating cannot be excluded.²

As the excavated soil was searched with metal detector, a number of metal finds was discovered. The oldest of those is a double-spiral-headed pin made of copper alloy. The pin had a fragment of a string, made of wire-rings attached to it (Fig. 4). Similar, around 10 cm pins were used in the Estonian area in the 11th–13th century. These have

also been found in Latvia, on the banks of the Vāina River, from the graves of Livs (Spirģis 2008, fig. 156: 3) and Latgals (Žeiere 2002, fig. 20: 3–7) as well as from the eastern shore of Lake Peipsi, from the barrows of the Viking Age and Late Iron Age (Hvoščinskaya 2004, table CI: 6).

It is also possible that such pins were used to attach the scarf of women's headwear (Selirand 1966). Also, pins of this type have been used to attach the breast chain on the chest of the burial from Pada Cemetery in Virumaa (see Kurisoo 2014, fig. 2). Therefore it cannot be excluded that the chains attached with small spiral-headed pins are breast chains.

Altogether 15 coins were discovered, the oldest of which is an unidentifiable penny from the Bishopric of Tartu, dating from the 1260s until the 1330s.

Also from medieval period are the *scherv* of Henning Scharpenberg, Prince-Bishop of Riga (1424–1448), the penny, minted as a joint mint of Jasper Linde, Bishop of Riga and Wolter von Plettenberg, Master of the Livonian Order (1515–1534) and a penny, minted in the name of Livonian Order in Tallinn, approximately in 1532–1534.

A shilling of the Duchy of Courland, dating from 1575, and a *denga* of Ivan IV of Moscovia (1535–1584) were found. The rest of the nine coins were minted in the 17th century in the

² It has been noted that in the early modern era the ruins of the Cathedral and its vicinity were used as a burial ground for common people (Valk 2018, 120).

name of Swedish rulers. These include both shillings minted in Riga as well as 1/4 and 1/6 öre copper coins from the Säter mint.

The coins have most probably been the grave goods of the burials from the churchyard. The same goes for rings, buttons and buckles. Also 11 bullets, made of lead were discovered, some of which were deformed when shot. Dating of those is not possible, as the find context is missing. However, the hollow cannonball, made of cast iron derives most probably from the siege of 1704 when Russian troops conquered Tartu from the Swedish. Also limestone tombstone fragments and medieval or early modern copper alloy candlestick fragment are worth mentioning. The 11th century pottery fragments were also found from the medieval and early modern-era layers.

DRAINAGE DITCH OF TARTU OBSERVATORY

All previous archaeological source material about the prehistoric hill fort in the eastern part of the current Cathedral Hill originates from two excavation sites at the area. Excavations at the northern part of the hill fort took place from 1956–1958 and in 1960 (Trummal 1964, 23). Rescue excavations were carried out in 1979 and 1980 at the southwest rampart of the hill fort, behind the Observatory (Mäesalu 1980).

In the course of the fieldwork of 2017, firstly a pipe trench was dug, which uncovered the trench investigated in 1956–1958. In the pipe trench, the foundations of the Bishop's castle were re-documented. Secondly, a small excavation pit (2 × 1.55 m) was dug on the untouched ground, just southeast of the trench studied in 1956–58 (Fig. 1). After removing *ca.* 1.3 m of modern-era debris layers, a stone pavement of the courtyard of the medieval Bishop's castle was unearthed. The pavement consisted of stones up to 25 cm in diameter. The pavement was covered with reddish-yellowish sand; between the pavement stones several fragments of medieval wheel-thrown pottery were discovered.

After removing the stones of the pavement, several sandy layers were unearthed which contained little to no finds. The pottery fragments found can be dated to the 11th century.

Interestingly, approximately 1.2 m below the pavement, a layer of burnt stones was discovered (Fig. 5). The stones were laid in one layer, the diameter of the stones was up to 14 cm. The stones had clearly been in fire and underneath them a 6 cm burnt charcoal layer was situated; these might originate from *keris*-stoves. Considering the stratigraphy of the excavation pit, the aforementioned stone layer probably belongs to the *Yuryev* period. Below this layer, a dark brown mixed sand layer continued below the bottom of the excavated trench.



Fig. 5. Stones of the probable *keris*-stove discovered near the Tartu Observatory.

Jn 5. Tartu Tähetorni juures avastatud võimaliku *keris*-ahju kivid.

Photo / Foto: Rivo Bernotas

HEATING PIPE TRENCH OF LOSSI 38A BUILDING

The installation of the heating pipes for the building Lossi Street 38a (Fig. 1), which is situated in the area of the former bailey of the medieval Bishop's castle in the southern part of the Cathedral Hill, were archaeologically monitored.

The walls of the bailey of the Bishop's castle have so far been researched only during a couple of monitoring projects. In 1996, the eastern wall of the half-round White tower, located on the southern wall of the bailey, was discovered, it was constructed of bricks with the dimensions $10 \times 15 \times 30$ cm (Piiirits 1996), i.e. these measurements are typical to the bricks produced during the medieval period. In 1999 also the southern wall of the bailey, made of fieldstone, bricks and limestone was found; while a probable remnant of the 1 m thick *zwinger* wall was unearthed south of it (Jonuks & Tvauri 1999, 5–6). The remnants of the walls of the Cathedral Gate have been mentioned to be unearthed in 1968 (Hermann 1974, 43). In 2011, a watching brief by archaeologist Andres Tvauri at the immediate vicinity of the 2017 site was conducted (see Russow & Oras 2012, 16–17). The fieldwork yielded two parallel brick walls, one of which was directly east of the 2017 site and the other one south of it (Bernotas *et al.* 2018, 8).

In the fieldwork of 2017, also a part of the former southern wall of the bailey, built of bricks, was discovered (Figs 6–7). The foundation of the wall was built of fieldstones with bricks between them. The length of the bailey wall in the trench from east to west was 12.6 m.

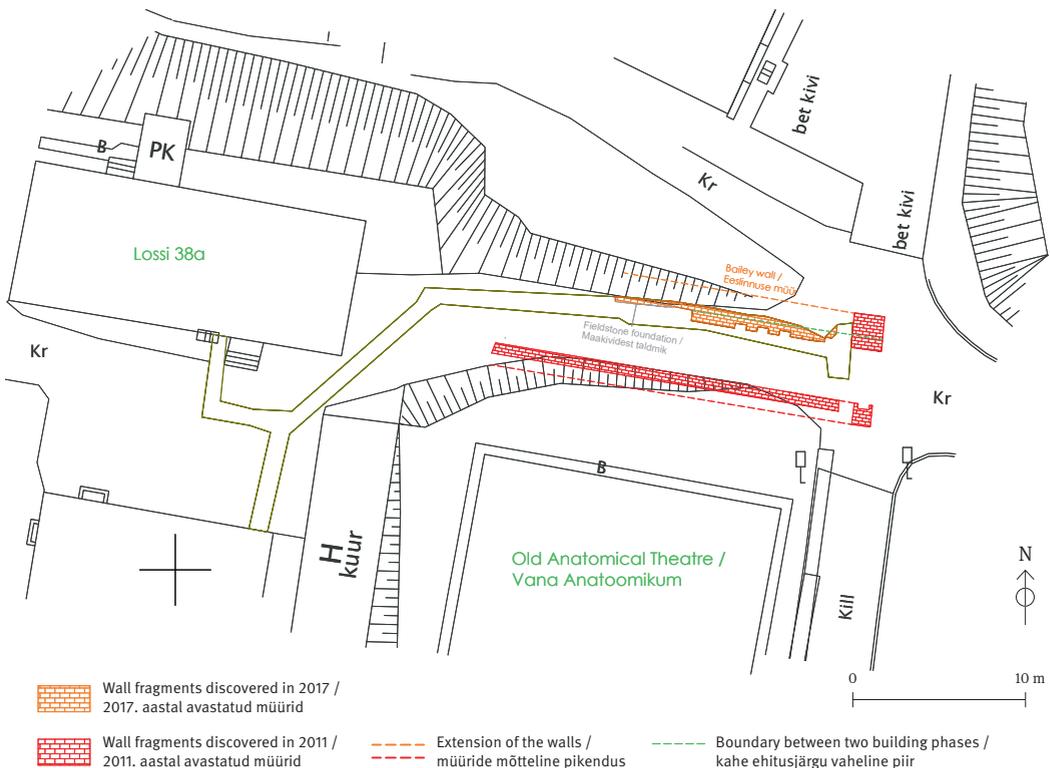


Fig. 6. Location of the wall fragments of the outer bailey of the Bishop's castle discovered at the Lossi 38a plot.

Jn 6. Lossi 38a kinnistul avastatud piiskopilinnuse eeslinnuse müüri fragmentide asendi plaan.

Drawing / Joonis: Rivo Bernotas

The upper bricks of the wall were just 10 cm from the current ground level. The wall had a distinctive lime layer on its outer (southern) side.

The fieldstones used in the foundation were up to 42 cm in diameter. The foundation part was unearthed up to the height of 30 cm, and continued below the trench bottom, the stones were laid in two layers. The aforementioned brick wall on top of the foundation was documented up to 80 cm in height. The bricks used in the wall were measured $8 \times 28 \times 15$ cm. The wall had 65 cm wide niches on its outer side. During fieldwork, there seemed to be two construction phases of the brick wall – the older one was constructed together with the fieldstone foundation, and the younger one was built of $8 \times 28 \times 15$ cm bricks (Bernotas *et al.* 2018, 6 ff.).

It should be noted that the southern wall fragment studied in 2011 had also niches, but on its inner side, and it was laid of early modern-era bricks. Underneath the foundation a brown cultural layer containing medieval finds was visible, which had a slope in its profile. Therefore, it seems probable that the wall fragments with niches discovered in 2011 and 2017 were later additions to the southern wall of the medieval bailey. These could be dated to the 16th century the earliest and be connected to the development of the firearms, in connection of which the town defences were modified (Bernotas *et al.* 2018, 8). From written sources it is known that during the reign of the Muscovites between 1558–1584 the White and Moscow³ towers were built on Cathedral Hill (Vaga 1969, 180–181; Prints 1967, 49 and the references therein). Therefore it cannot be excluded that the wall fragments discovered in 2017 and 2011 were connected to this reconstruction of the castle defences and thus built at the same time (Bernotas *et al.* 2018, 8).

SUMMARY

The fieldwork of 2017 on three different sites – the water drainage ditches of the Tartu University Museum at the former Cathedral, the water drainage ditch of the Tartu Observatory and the heating pipe trench of Lossi 38a building – gave new insights to the research of the Cathedral Hill.

During the monitoring around the Cathedral the wall of the northern porch/chapel of the church, a probable wall of the churchyard, the northern wall of the chapel located at the



Fig. 7. The wall of the outer bailey of Bishop's castle discovered at the Lossi 38a plot.

Jn 7. Lossi 38a kinnistul avastatud piiskopilinnuse eeslinnuse müür.

Photo / Foto: Rivo Bernotas

³ Considering the Moscow tower it is not probable that it was completely built by the Muscovites as the tower was located in such part of the town wall which had probable always been heavily fortified (Prints 1967, 49).

northeastern corner of the nave, a stone pavement belonging to the probable road from the Bishop's castle to the Cathedral and 6 *in situ* burials, of which 3 were excavated, were discovered. Also, a prehistoric cultural layer, containing fragments of the 11th century pottery was found.

The monitoring near the Tartu Observatory revealed the stone pavement of the courtyard of the medieval Bishop's castle, an 11th century cultural layer and probable remains of a *keris*-stove dating from the same period.

During the renovation of the pipelines of the Lossi Street 38a building, a wall of the medieval bailey of the Bishop's castle was found. The wall was built of bricks and had a fieldstone foundation. The bailey wall had niches on its outer side. As a similar fragment of a wall was discovered in 2011, south of the wall unearthed in 2017, these both could be considered later additions to the southern wall of the medieval bailey. These may be dated to the 16th century at the earliest and be connected with the development of the firearms, which led to the modernisation of the town defences. From the written sources, it is known that during the reign of the Muscovites (1558–1582) the White and Moscow towers were built on Cathedral Hill. Therefore, it cannot be excluded that the wall fragments discovered in 2017 and 2011 were built at that time.

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ARHEOLOOGILISED VÄLITÖÖD TARTU TOOMEMÄEL

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Tartu Toomemäel korraldas OÜ Arheox 2017. aastal välitöid kolmes kohas: toomkiriku sadeveekanaliseerimise renoveerimisel (jn 1: 1) ja Lossi tn 38a kaugküttetrassi rajamisel (jn 1: 2) tehti arheoloogilist jälgimist, Tähetorni esise väljaku sadeveekanaliseerimise rajamisel (jn 1: 3) toimus nii arheoloogiline jälgimine kui ka väikesemahulised kaevamised. Uuringud andsid uut teavet Toomemäe varasema ajaloo kohta.

Toomkiriku lähimbruses toimunud uuringutel avastati kiriku põhjapoolse eeskoja/kabeli (jn 2: 1) müür, tõenäoline kirikaia müür (jn 2: 3), pikihoone kirdenurga juures asunud kabeli põhjamüür (jn 2: 5) ning munakivisillutus (jn 2: 4), mis võib olla osa omaaegsest teest piiskopilinnusest toomkirikusse.

Lisaks ehitusjäänustele avastati 6 *in situ* matust, millest 3 (jn 2: 7–9; jn 3) kaevati läbi. Samuti avastati kiriku põhja- ja gaguküljelt vähemalt 20 cm paksune tumehall kultuurkiht (jn 2: 2), mis sisaldas peamiselt 11. sajandi kedrakeraamikat ning kuulub tõenäoliselt muinasaega. Uuringutel leiti ka kuus kildu käsitsikeeramikat, mis võivad tõenäoliselt pärineda viikingiajast või eelviikingiajast ning segatud pinnasest 11.–13. sajandisse dateeritav prillispiraalnõel (jn 4) ning 15 kesk- ja varausaegset münti.

Tähetorni esisel muruväljakul aset leidnud välitöödel paljandus sadeveetrassi ja selle kaevu kaevises 1956.–58. aasta kaevandist kagus erinevatel tasanditel keskaegse Tartu piiskopilinnuse hoovisillutus,

11. sajandi keraamikat sisaldav kultuurkiht ja võimalik kerisahju jäänus (jn 5), mis dateeriti samasse perioodi.

Lossi tn 38a kinnistul kaugküttetrassi kaevamisega kaasnenud arheoloogilisel jälgimisel puhastati välja ja dokumenteeriti lõik keskaegse Tartu piiskoplinnuse eeslinnuse lõunamüüri (jn 6). Müür oli laotud tellistest ning sellel oli maakividest taldmik. Müüri välisküljelt leiti kaarjad nišid.

2011. aastal samas piirkonnas toimunud arheoloogilistel järelevalvetöödel avastati kaks paralleelset tellismüüri, millest lõunapoolne sarnanes 2017. aasta uuringutel leitud nišsidega müüriõiguga, mis oli laotud varauusaegsetest tellistest. Müüri taldmiku kivide

all oli selgelt nähtav tumepruun, keskaegseid leide sisaldanud kultuurkiht, mille profiilis oli äratuntav mäenõlva langus. Seega näib tõenäoline, et 2011. aastal avastatud müürifragment ja 2017. aasta nišsidega müüriosa on keskaegse eeslinnuse müüri juurdeehitused, mille võiks dateerida kõige varasemalt 16. sajandi keskpaika ja seostada tulirelvade arengust tingitud kaitserajatiste modifitseerimisega. Kirjalikest allikatest on teada, et moskoviitide valitsemisajal 1558–1582 ehitati Toomemäel paiknevatest linnamüüri tornidest Valge torn ja Vene *zwinger* praeguse Musumäe lähedal. Seega ei saa välistada, et ka 2017. ja 2011. avastatud müürifragmentide juurdeehitatud osad on valminud just sel perioodil.