Archaeological rescue excavations on Kivi street, Tartu

Jekaterina Lissitsina, Raido Roog and Aivar Kriiska

Tartu Ülikool, ajaloo ja arheoloogia instituut, arheoloogia osakond (University of Tartu, Institute of History and Archaeology, Department of Archaeology), Jakobi 2, 51014 Tartu, Estonia;

OÜ Arheograator, Raekoja plats 11–16, 51004 Tartu, Estonia; aivar.kriiska@ut.ee

INTRODUCTION

Crosswise to the River Emajõgi, Kivi street is located in the Ülejõe district in Tartu in an ancient river valley of the River Emajõgi. Until the 17th – 18th century, there are only a few written notices and maps about the history of the district and the information is difficult to localise (Raid 1996, 25). Still, it is clear that the aforementioned street has developed since the Medieval period and it has been the most important and widest street of the suburb. At least up to the end of the 18th century the street was called Stone Dam (in German *Steindamm* (1547 *Gastorsche Steindamm*)) and after that Kivi (in English *Stone*, in Russian *Kamennaja*) (Raid 1996, table 1; Pullerits 2011, 18–19).

Fig. 1. *Location plan of the archaeological investigation area. 1 – younger cobblestone pavement, 2 – older cobblestone pavement, 3 – wooden drainage systems, 4 – stratum of logs, 5 – building remains, 6 – wooden well, 7 – profile (see Fig. 4).*

Jn 1. *Arheoloogilise uuringuala asukohaskeem. 1 – noorem tänavasillutis, 2 – vanem tänavasillutis, 3 – puitrenn, 4 – puidulasu, 5 – hoonevare, 6 – laudkaev, 7 – profiil (jn 4).*

Data and execution / Andmed ja teostus: Raido Roog, Jekaterina Lissitsina

On Kivi street and in the entire Ülejõe district, archaeological research has been mainly carried out in connection with installation of pipelines (Metsallik & Tvauri 2003, 165–166). The oldest archaeological finds from the crossing of Kivi and Pikk streets have been dated to the Medieval period. The oldest wooden structures in the area have also been radiocarbon dated to the same period (Metsallik & Tvauri 2003, 167, 171). Considering that several bone artefacts from the Stone Age have been found in similar places in Tartu (Indreko 1948, 98, fig. 29), it would not be surprising if future research would unearth finds from the same era in the Ülejõe district.

In connection with the construction of the communication pipelines of the three houses and some of the neighbouring buildings, archaeological research took place on Kivi street and

on the three lots on the south-east side of the street (Kivi 55, 55a, and 57) (Fig. 1). Two street horizons dated to the Early Modern period, parts of foundations of four buildings and several wooden structures, and drainage systems were documented (Lissitsina & Roog 2015). Since the depth of the archaeological excavations was limited to the depth of the building of the pipelines and modern buildings, older traces of human activity were not researched. The investigations still offer new information about the settlement history in the Ülejõe district.

EXCAVATIONS ON THE SITES OF MODERN BUILDINGS AND YARDS

On the lots of Kivi Street 55, 55a, and 57, the excavation sites of the future buildings' foundations and communication pipelines were investigated. On the edge of Kivi street, the granite stone strip foundations of three buildings, and the granite stone and brick foundation and wall of one of the buildings were partially excavated (Fig. 1). Taking the architectural style and stratigraphy into consideration, it can be concluded that these buildings whose structural remains were found, were built in the 19th century and that the south-westernmost building was still in use in the end of the 20th century. Since the depth of the modern buildings (max 1 m) was above the parts of the documented foundations (lower than 1.5 m under construction debris), the structural remains will be preserved below the new buildings.

Two cobblestone pavements that were crosswise with Kivi street were excavated north-east of the street area, in the site of the pipeline between the future buildings of Kivi Street 55 and 57. Thus, the area between these buildings was paved for the length of at least 3 metres starting from the north-west or the street side of the buildings. The first layer of the cobblestone pavement was situated approximately 40 cm below the modern surface and the second layer of pavement was separated from the upper one by a layer of sand, approximately 30 cm thick. The construction time of the lower layer is unclear, but it may date from the second half of the 19th century. Based on the rubbish that was found between the cobblestones, the more recent layer of pavement was still in use during the 20th century.

ARCHAEOLOGICAL MONITORING AND EXCAVATIONS ON KIVI STREET

More comprehensive excavations were conducted on Kivi Street starting from the intersection of the streets Kivi and Pikk and ending in front of the house at Kivi Street 67 (Fig. 1). The depth of the excavations was limited by the depth of the planned pipelines. Underneath the modern pavement, two cobblestone pavements were found (Fig. 2). According to the recollections of the local people, the more recent layer was still in use in the 1950s and was most likely laid at the end of the 19th century.[1] The pavement was made of round igneous and metamorphic cobblestones laid in an orderly way. The average diameter of the stones was about 10 cm. Beneath the pavement there was an about 60 cm thick filling layer comprising of three different layers of sand and a layer of mixed fill soil rich in humus. The mixed fill soil was a cultural layer that, according to its contents, was brought from some other site. It was laid on top of greyish sand (thickness 10–20 cm) and it contained tiny pieces of bricks and plaster and also different finds from the 15th – 19th century, mainly fragments of pottery and remains of leather processing. It is not unlikely that there was another layer of stone pavement that has been removed during laying down a new pavement. This would explain the waviness of the humus layer (Fig. 2).

[1] The same cobblestone pavement is depicted on a photo taken of Kivi street on the turn of the 19th century. Photo available at Tartu City Museum (Pullerits 2011, fig. 6).

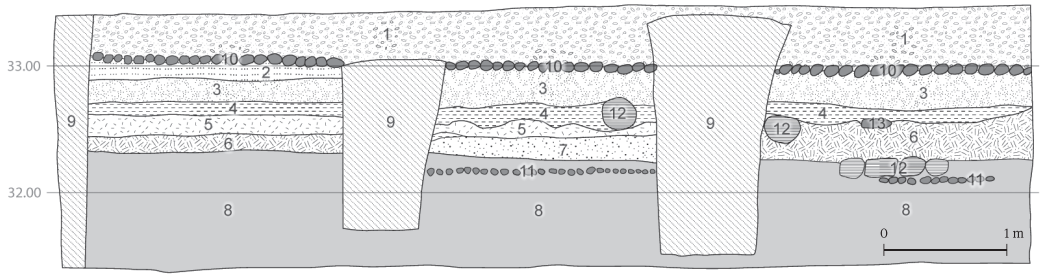

Fig. 2. *Section of the wall of the pipeline installation in front of Kivi Street 40a. 1 – crushed stone, 2 – brown sand, 3 – yellow sand, 4 – red sand, 5 – mixed fill soil rich in humus, 6 – fill of mixed soil and sand, 7 – grayish sand, 8 – 16th – 18th century cultural layer, 9 – filling sand, 10 and 11 – cobblestone pavements, 12 – wood.*

Jn 2. *Osa trassi seinast Kivi tn 40a ees. 1 – killustik, 2 – pruun liiv, 3 – kollane liiv, 4 – punane liiv, 5 – huumuserikas täitepinnas, 6 – mulla- ja liivasegune täide, 7 – hallikas liiv, 8 – 16.–18. sajandi kultuurkiht, 9 – täiteliiv, 10 ja 11 – munakivisillutis, 12 – puit.*

Drawing / Joonis: Jekaterina Lissitsina, Kristel Roog

More than 0.5 m below the pavement described above there was another layer of pavement – the older cobblestone pavement of Kivi street. It comprised of round igneous and metamorphic cobblestones that were laid in an irregular manner on top of the soil rich in humus without sand bedding. The average diameter of the stones was 20 cm. Based on the coins from the 1730s that were found from underneath the pavement and coins from the 1730s–1750s that were found in-between the stones (Fig. 3), the cobblestone pavement was laid during the second half of the 18th century.

Fig. 3. *Coins found during the excavations on Kivi street. 1 – Russian Empire, Jelizaveta Petrovna, 1760, 5 copecks, between the layer of asphalt and the upper cobblestone pavement, 2 – Swedish Empire, Christina, 1636, ¼ öre, between the buildings at Kivi St 57 and 65 on the site of a quondam courtyard, 3 – Russian Empire, Anna Ioannovna, 1737, polushka, cultural layer underneath the oldest cobblestone pavement in front of Kivi St 53, 4 – Russian Empire, Anna Ioannovna, 1735, polushka, cultural layer between the two layers of cobblestone pavements in front of Kivi St 40a, 5 – Russian Empire, Anna Ioannovna, 1731, denga, cultural layer underneath the oldest cobblestone pavement in front of Kivi St 53, 6 – Russian Empire, Jelizaveta Petrovna, 1757, 2 copecks, cultural layer underneath the oldest cobblestone pavement in front of Kivi St 40a.*

Jn 3. *Kivi tänava uuringutel leitud mündid. 1 – Vene keisririik, Jelizaveta Petrovna, 1760, 5 kopikat, asfaldi ja ülemise kivisillutise vahelt, 2 – Rootsi kuningriik, Kristiina, 1636, ¼ ööri, hoonete Kivi t 57 ja 65 vahelt kunagiselt hoovi alalt, 3 – Vene keisririik, Anna Joanovna, 1737, polushka, Kivi t 53 eest tänava vanimast kivisillutisest sügavamal paiknenud kultuurkihist, 4 – Vene keisririik, Anna Joanovna, 1735, polushka, Kivi t 40a eest sillutiste vahelisest täiteks toodud kultuurkihist, 5 – Vene keisririik, Anna Joanovna, 1731, denga, Kivi t 53 eest tänava vanimast kivisillutisest sügavamal paiknenud kultuurkihist, 6 – Vene keisririik, Jelizaveta Petrovna, 1757, 2 kopikat, Kivi t 40a eest tänava vanimast kivisillutisest sügavamal paiknenud kultuurkihist.*

(TM A-220: 115, 788, 180, 39, 181, 86.)

Photos / Fotod: Aivar Kriiska, Kristel Roog

Fig. 4. *Wood from a demolished Medieval building used to cover the street. Presumably laid during the first half of the 18th century.*
Jn 4. *Kivi tänava katteks tõenäoliselt 18. sajandi esimesel poolel laotatud keskaegse hoone lammutuspuit.*
Photo / Foto: Jekaterina Lissitsina

Fig. 5. *Ceramics from the 15th – 18th century from different cultural layers on Kivi street.*
Jn 5. *15.–18. sajandi keraamika erinevatest Kivi tänava kihistustest.*
(TM A-220: 335, 265, 259/b, 240.)
Photos / Fotod: Aivar Kriiska, Kristel Roog

Before the cobblestone pavement was laid, the street had been repaired by placing logs and half logs on top of the humus surface. In front of the house at Kivi Street 57, the stratum of logs was at least 9 m long (Fig. 4); this was the largest fragment of wooden paving in the investigated area. The aforementioned stratum comprised of more than 20 peeled logs each being 30–65 cm in diameter. The end of one of the logs had a joint indent in it. The logs were radiocarbon dated from the 14th to 16th century (614±25 BP, 95.4% likelihood 1296–1400 AD; 400±30 BP, 76.4% likelihood 1436–1522 AD and 19% likelihood 1575–1625).[2] Fragments of ceramics that were found from the cultural layer beneath the structure have been dated to the turn of the 17th century (fragment of a tripod pot, TM A-220: 476); these suggest that the building material of a medieval structure had been reused in the first half of the 18th century.

The layer beneath the described stratum of logs suggested that at least in the excavated area, before Kivi street was paved with stones in the second half of the 18th century, it was a simple soil road, which differentiated as a thick black culture layer rich in humus. The layer consisted of several fragments of ceramic from the 16th – 18th century (undecorated wheel-thrown pottery, whiteware, green-glazed greyware flasks, etc.) (Fig. 5), parts of leather footwear and production waste from leatherworking, and iron items such as shoe fittings (Fig. 6) and knives. In smaller quantities there were also items from other materials including jewellery (brooch, beads) and fragments of kaolin clay pipes. From this layer, construction debris that is usually characteristic to a housed area, such as pieces of bricks, waste from grout or plaster, wooden flakes, etc. was absent.

Smaller strata of logs were also found in other places on the pipeline site on Kivi street (Fig. 1). On the street, there were 1–5 logs laid

[2] SPb-1650 and SPb-1649; calibrated with OxCal v4.2 (Bronk Ramsey 2013); r.5; IntCal13 atmospheric curve (Reimer *et al.* 2013).

Fig. 6. *Shoe fittings from the 16th and 17th century from different cultural layers on Kivi street.*
Jn 6. *16. ja 17. sajandi kontsarauad erinevatest Kivi tänava kihistustest.*
(TM A-220: 177, 682, 483.)
Photos / Fotod: Aivar Kriiska, Kristel Roog

side-by-side, each 40–65 cm in diameter. Some of the logs were unworked (even unpeeled), others were processed (hewn, painted, etc.) and therefore, they had been reused.

Approximately 0.5 m below the 18th century cobblestone pavement and log stratum, sections of wooden drainage systems were found. These were 30–40 cm wide troughs made of 3–4 unpeeled logs placed on top of each other and supported by wooden poles (Fig. 7). The logs were 19–38 cm in diameter and the poles were 25–69 cm in diameter. Upon cleaning the troughs, only one item was discovered – a fragment from a Siegburg stoneware pitcher (TM A-220: 585). That type of pottery was in use in the 14th – 16th century (Russow 2006, 44–45). Since this was the only archaeologically important find, it can be assumed that at least the section where the fragment was discovered dated from the Medieval period. Similar constructions from other sites in Tartu may support this hypothetical dating. Similar troughs in Tartu have been found for example at Riia Street 1 and these have been dated to the 14th – 17th century (Heinloo 2006, 43).

Fig. 7. *Drainage trough, presumably built during the Medieval period.*
Jn 7. *Arvatavasti keskajal rajatud kuivendusrenn.*
Photo / Foto: Jekaterina Lissitsina

SUMMARY AND DISCUSSION

The results of the 2014 research support the hypothesis that Kivi street has developed already during the Medieval period. The probably oldest drainage systems that have been inspected, several archaeological finds from later cultural layers, and a radiocarbon sample from a log used as infilling on the street have all been dated to the same period. During the Medieval and Early

Modern periods, the street, as demonstrated in the section of the 2014 studied part, was an unpaved dirt road with ditches running on both sides. Wooden drainage systems that have been linked to causeways have been found in other places on Kivi street as well (Metsallik & Tvauri 2003, 170).

Kivi street has been depicted already on the city maps from the 17th century (Raid 1996, 25–26; Raid 2015, fig. 11). Then, it probably ran all the way to the steep berm of the River Emajõgi gorge. On a map from the 1730s, houses and surrounding garden plots have been depicted on the side of the street with buildings being mainly on the north-eastern side of the street (*ibid*., fig. 12, 13). In 1755, Kivi street has been described as being boggy, unbearably smelly and full of street holes (Raid 1996, 26).

Substantial changes took place in the second half of the 18th century and most likely after the extensive fires of the 1770s. Based on the coins found during the archaeological excavations, a cobblestone pavement was laid on Kivi street in the second half of the 18th century. The cobblestone pavement has been depicted on Kivi street also on the map from around 1837 (Raid 2015, fig. 56). The north-eastern part of the road north of Pikk street where the 2014 excavations took place, was mainly developed during the 19th century. On a map drawn after 1859, houses have been depicted only on the north-western side of the street and the south-eastern side is shown to have only empty lots. By 1875, houses have been built also on the south-eastern side of the street (Raid 2015, fig. 65, 73). From the 1850s, the lots of Kivi Street 55, 55a, and 57 have been housed and in 1891, a house owner filed for permission to build an outhouse that was designed by buildmaster Otto Schröder (Pullerits 2011, 43). Presumably at the end of the 19th century, the new cobblestone pavement was laid on Kivi street. The street level was noticeably increased by adding sand and humus (the cultural layer) most likely from the neighbouring yards (Fig. 2).

ACKNOWLEDGEMENTS

This article has been written with support from OÜ Arheograator, supported by a base-financed project of the Institute of History and Archaeology of the University of Tartu, 'Visual culture of Estonia as carrier of Baltic and North-European continuity and identity. Long-term and interdisciplinary perspective' and by institutional research project of Estonian Research Council 'Estonia in Circum-Baltic space: archaeology of economic, social, and cultural processes' as well as by the European Union through the Centre of Excellence in Cultural Theory in the University of Tartu. The authors also thank Kristel Roog for preparing illustrations and everyone who participated in the excavations.

REFERENCES

Bronk Ramsey, C. 2013. OxCal (computer program). Version 4.2. http://c14.arch.ox.ac.uk/oxcal/OxCal.html

Heinloo, E. 2006. Tartu lõunapoolne eeslinn kesk- ja varauusajal arheoloogia andmetel. Peaseminaritöö. Tartu. *(Manuscript in TÜ.)*

Indreko, R. 1948. Die mittlere Steinzeit in Estland. Mit einer Übersicht über die Geologie des Kunda-Sees von K. Orviku. *Kungl. Vitterhets Historie och Antikvitets Akademiens Handlingar, 66*. Uppsala.

Lissitsina, K. & Roog, R. 2015. Aruanne arheoloogilisest järelvalvest Kivi tn 55 / 57 / 59 krundile rajatavate hoonete vundamendisüvendite ja kommunikatsioonitrasside kaevamistest mais ja juunis 2014. Tartu. *(Manuscript in TÜ.)*

Pullerits, H. 2011. Tartu Ülejõe linnaosa 19. sajandi teisel poolel. Hoonestus ja elanikkond. – Tartu Linnamuuseumi aastaraamat, 17. Tartu, 37–55.

Raid, N. 1996. Tartu Ülejõe-eeslinna tänavate areng. Kleio. Ajaloo ajakiri, 1, 25–32.

Raid, T. 2015. Tartu ajaloolistel linnaplaanidel 1600–2010. Tallinn.

Reimer, P. J., Bard, E., Bayliss, A., Beck, J. W., Blackwell, P. G., Bronk Ramsey, C., Grootes, P. M., Guilderson, T. P., Haflidason, H., Hajdas, I., Hatté, C., Heaton, T. J., Hoffmann, D. L., Hogg, A. G., Hughen, K. A., Kaiser, K. F., Kromer, B., Manning, S. W., Niu, M., Reimer, R. W., Richards, D. A., Scott, E. M., Southon, J. R., Staff, R. A., Turney, C. S. M. & van der Plicht, J. 2013. IntCal13 and Marine13 radiocarbon age calibration curves 0–50,00 years cal BP. – Radiocarbon, 55: 4, 1869–1887.

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

ARHEOLOOGILISED PÄÄSTEUURINGUD TARTUS KIVI TÄNAVAL

Jekaterina Lissitsina, Raido Roog ja Aivar Kriiska

Seoses kolme maja ehituse ning kommunikatsioonitrasside rajamisega toimusid 2014. aasta maist kuni septembrini arheoloogilised uuringud Kivi tänaval ja kolmel tänava kaguküljel asuval krundil (Kivi 55, 55a ja 57) (jn 1). Välja kaevati kaks uusaegset tänavahorisonti, nelja hoone vundamentide ning mitmete puitkonstruktsioonide ja kuivendussüsteemide osi. Kuivõrd kaevetööde sügavus oli piiratud uusehitiste ja trasside rajamissügavustega, siis ei hõlmanud uuringud kõige varasemaid inimtegevuse jälgi, kuid pakuvad siiski mõnevõrra lisateadmisi Ülejõe asustusajaloo kohta.

Kivi tn 55, 55a ja 57 kruntidel uuriti rajatavate hoonete vundamendisüvendeid ja kommunikatsioonitrasside kaeviseid. Kivi tänava joonel kaevati osaliselt välja kolme elamu maakividest lintvundamendid ning osa ühe hoone maakividest ja tellistest vundamendist ja seinast (jn 1). Arvestades ehitusstiili ja stratigraafiat ei ole need ehitisjäänused ilmselt vanemad kui 19. sajand ning edelapoolsemat elamut kasutati veel 20. sajandi lõpul.

Kivi tn 55 ja 57 uusehitiste vahele rajatud trassikraavist kaevati välja kaks Kivi tänavaga risti paiknenud munakivisillutist, mis osutab, et tänavapoolses osas oli 19. ja 20. sajandil vähemalt 3 m pikkuselt sillutatud ka hoonete vaheline ala. Kivi tn 57 hoovialal paiknes aga soontega puitlaudadest kaev (jn 1).

Kivi tänaval alates Pikk tänava ristmikust kuni Kivi 67 hooneni (jn 1) teostati põhjalikumad väljakaevamised, piiriks siiski trasside rajamissügavus. Tänapäevase asfaltkatte all oli säilinud kaks kivisillutist (jn 1 ja 2). Noorim neist oli kohalike elanike mälestuste järgi kasutusel veel 1950. aastatel ja on rajatud tõenäoliselt 19. sajandi lõpul.

Enam kui poole meetri jagu sügavamal kirjeldatud tänavasillutisest paiknes veel üks kivisillutis – Kivi tänava vanim kivikate. See oli laotud korrapäratult tard- ja moondekivimite munakatest liivapadjata otse huumuserikka pinnase peale. Sillutisest sügavamalt leitud 1730. aastate ja sillutise kivide vahelt leitud 1730.–1750. aastate müntide järgi otsustades (jn 3), rajati see 18. sajandi teisel poolel.

Enne kivisillutist on tänavat parandatud palkide ja poolpalkide asetamisega huumusepinnasele. Suurim, dokumenteeritud osas vähemalt 9 m pikkune, palgilade asetses Kivi 57 hoone ees (jn 4). Kahest palgist tehtud radiosüsiniku analüüsid dateerivad puidu 14.–16. sajandisse. Konstruktsiooni alusest kultuurkihist leitud keraamika killud, millest noorimad pärinevad 17. ja 18. sajandi vahetusest, osutavad siiski, et tegemist on mingi keskaegse ehitise puitmaterjali sekundaarkasutamisega tõenäoliselt 18. sajandi esimesel poolel. Väiksemaid palgilasusid kaevati välja ka mujalt Kivi tänava trassi alalt (jn 1). Need paiknesid risti tänavaga nii vanima kivisillutise kõrgusjoonel kui ka sillutisekivide peal.

Kirjeldatud suure palgilasu alune kiht osutab, et vähemalt uuritud alal oli Kivi tänav enne sillutamist 18. sajandi teisel poolel lihtne pinnasetee, mis eristus kaevamistel paksu huumuserikka musta värvi kultuurkihina. Kiht sisaldas rohkesti 16.–18. sajandist pärinevate savinõude katkeid (jn 5), nahkjalatsite osi ja nahatöötlusjääke, raudesemeid, sh kontsaraudu (jn 6) ja nuge, üksikuid ehteid ja savipiipude fragmente. Kihis ei esinenud aga hoonestatud aladele iseloomulikku ehitusprahti nagu tellisetükid, mördi või krohvijäätmed, puitlaastud jms.

18. sajandi sillutisest ja puidulasust omakorda pea poole meetri jagu sügavamalt tulid välja puidust kuivendussüsteemide osad – vaiadega toestatud 3–4 kaupa ülestikku asetatud koorimata palkide ridadest moodustatud 30–40 cm laiused rennid (jn 7). Rennide puhastamisel saadi selle seest vaid üks ese – Siegburgi kivikeraamilise kannu kild (TM A-220: 585). Selline keraamika oli kasutusel 14.–16. sajandil ja kuna puudusid muud leiud, siis võib oletada, et vähemalt leiuga renniosa on pärit keskajast. Seda vanusemäärangut toetavad ka analoogiliste rennide dateeringud mujalt Tartu linnast.