

Rivo Bernotas

NEW INSIGHTS ON THE CHANGES OF TOWNSCAPE IN 14TH-CENTURY TARTU

In this article I will discuss some of the changes in the townscape of Tartu in the 14th century and analyze how these changes could have been related to the re-planning of the town area. The topics examined in this article cover the medieval waste management, the erection of stone buildings, the existence and purpose of the defences in the riverside part of the town, and the workers behind all the construction activities in Tartu. The present research suggests that the disposal of waste was regulated by the town laws which were valid only within the limits of the town area, enclosed by town wall, and therefore did not apply to the suburbs. In earlier studies, the introduction of brick buildings to Tartu has been dated from the end of the 14th century to the 15th century. Based on new information, the introduction of brick buildings can be traced to the early 14th century. It can be suggested that the town was ready for extensive planning and erection of walls only after the urban community was populous enough to carry these works out as these activities needed a large number of local workers. The recent research shows that in the area of present-day Estonia the development from the first traces of an urban settlement to a fully complete medieval town took approximately 50–100 years. According to the information discussed in the present article this seems to be the case in Tartu as well. The dates presented in this publication support the hypothesis that the erection of the town wall and the re-planning of the town area began in the first half of the 14th century.

Rivo Bernotas, University of Turku, 2 Henrikinkatu St., FI-20014 Turku, Finland; rivobernotas@gmail.com

Introduction

Researchers studying the medieval period of Estonia have rarely had an option to rely solely on written sources and therefore concepts involving the relics and events earlier than the modern historical era must still rely on archaeology. Tartu (*Dorpat*) is not an exception, as the medieval archives have disappeared in the whirlpool of wars and preserved written sources give only sporadic fragments of information from the 15th century onward (Raid 1995, 33). In the current article, I am looking at some of the changes which took place on the townscape of Tartu during the 14th century, and analyzing whether and how these could have been related to the re-planning of the town area.

Tartu is the most excavated town in Estonia (Tvauri 2001, 11) and it has attracted the attention of researchers for over a hundred years. Although over the years several different theories have been published about the settlement history of Tartu, these have been focused primarily on the investigation of the end of the prehistoric era (e.g. Metsallik 1985; 1995; Trummal 1996; Tvauri 2001). In the discussions concerning the period after the German conquest, Tartu is commonly described as an already fully completed medieval town (e.g. Mäesalu 1997; 2004; Vissak 1999; Mäesalu & Vissak 2002). The gathered results of the excavations in the last 20 years of the 20th century have been broadly discussed and the adoption of 3D models and geological radar has been suggested by archaeologist Rünno Vissak (Vissak 1999).

After the German conquest in 1224, Tartu was first mentioned with the name *Castrum de Tarbate* in 1234 and this date is accepted to be the first completion of the bishop's castle. Archaeological excavations revealed that the bishop's stone castle was built on top of the ruins of an ancient fortress (Trummal 1980, 23). It had been assumed that after the conquest of Estonia by the crusaders in 1224, Tartu gradually became a European town, located nearly in the same territory as the old urban settlement. The beginning of the construction of the town wall allegedly began sometime after the Russian raid against Tartu in 1262. It had been assumed that the marketplace (the later town hall square) stayed in its old location, which explains its somewhat unusual place at a distance from the city centre. It has been suggested that in the 13th–14th century, Tartu was still largely a town of wooden buildings with streets of wooden pavement. It had been assumed that in the second half of the 14th – at the beginning of the 15th century people slowly began erecting stone buildings and the wooden pavement was gradually replaced by cobblestone pavement (Mäesalu 1997, 347).

The re-planning of the town area has also been suggested to date to the period after the Russian raid in 1262. As the town had been burnt, it has been assumed that the re-planning process potentially started shortly afterwards. With reference to previous research, the re-planning did not include the several basic elements of Tartu (stronghold, market-place, river harbour, etc.) because these have supposedly been located in exactly the same places through many centuries (Mäesalu & Vissak 2002, 155 ff.).

Previous excavations in the town area indicate that after the German conquest in the 13th century, Tartu was an urban settlement without any stone buildings (e.g. Metsallik 1995, 30 and the excavations referred there). Substantial changes in the townscape followed in the 14th century, after the establishment of the brick manufacturing complex in the southern suburban area of town (Bernotas 2011, 66), the introduction of cesspits, and the construction of buildings made of bricks and stone. In the travelogues from the first half of 15th century, Tartu is already being described as a well fortified town, with beautiful stone buildings (Vahtre 1983). Therefore it might be suggested that the answers to the re-planning of town and its subsequent enclosing with the wall should be searched for in the 14th century in particular.

The waste management

I start the discussion about the waste management of the medieval town and concentrate on the cesspits. The use of cesspits probably spread to the Estonian area from German towns, where the first mention of large wooden boxes in Lübeck date to the 13th century. Simultaneously with paving the streets, the tradition of building wooden cesspits in the courtyards of houses began there. The cesspits looked similar to wells. They were used for thrown-away junk, as well as for latrines (Mührenberg 2002, 19).¹ Earlier cesspits were of wooden construction, from 14th century onwards lining with bricks was also used. The measurements of German cesspits ranged up to 6 metres in diameter, and were occasionally up to 8 metres deep. It has been estimated that such enormous boxes were filled within 30 to 50 years, after which it would be emptied (Gläser 1999, 32). As the cesspits in Tartu were considerably smaller, it has been estimated that they were used at least for 40 years and during this time they were regularly emptied (Bernotas 2008, 26).

According to excavation reports over 40 medieval cesspits have been found in Tartu (Tvauri 2008, 140). Several medieval cesspits have also been documented during archaeological surveillance of the cultural layers, but these have not been studied in detail. Cesspits are amongst the most interesting objects of study from medieval Tartu as they are rich in finds, they possess an enormous scientific value. Although single medieval and modern-age wooden and stone cesspits have been excavated in other places in Estonia², they have been found nowhere in such large numbers as in Tartu (Bernotas 2007, 54). Cesspits in Tartu and material recovered from them have survived remarkably well. The reason for this is that in the medieval location of the town, on the floodplain of River Emajõgi, the soil is wet all year round due to ground water coming from Quaternary deposits. Moisture is a perfect preservative for organics, especially in the lower levels of the cultural layers (Metsallik 1985, 47 ff.).

The large number of different samples of wood has made cesspits attractive for dendrochronological dating. From the Tartu material, four different cesspits have already been dendrochronologically dated (Table 1). From the logs of cesspit

¹ It has also been suggested that the cesspits were used for tanning leather (Metsallik 1995, 31). In the town centre this seems unlikely though, against this theory the fact can be considered that due to the offensive odors coming from tanning, for example the tanners in Lübeck were displaced away from the city to the river Wakenitz (Mührenberg 2002, 19).

² For example, in Tallinn, a limestone cesspit was found in the courtyard of Estonian state puppet and youth theatre at Lai St. 1/Nunne St. 4/Nunne St. 8 (Nurk et al. 2010, 173). A wooden crossbeam cesspit was found at Sulevimägi Street 4/6. According to find material, this cesspit was dated to the 17th century (Kadakas & Nilov 2004, 170). From Pärnu, at Uus Street 9A, a cross-beam cesspit, with a plinth of rubble-stones bound with lime mortar, partly under the staircase was found (Saluäär et al. 2004, 179). The majority of finds from the cesspit date from the second half of the 18th century to the beginning of 19th century. Usage of the cesspit ceased sometime in the middle of the 19th century (Saluäär et al. 2004, 182). A cesspit from 16th century was found near St. John's Church of Viljandi (Valk 2004, 423).

Table 1. Dendrochronologically dated cesspits from Tartu

Cesspit	Location	Dendrochronological date	Find complex date
Cesspit No. 1b	Ülikooli St. 15	1335	Last quarter of the 14th century or beginning of the 15th century
Cesspit No. 5	Ülikooli St. 15	1309	No finds
Cesspit 14G–14F	Ülikooli St. 14	1362	Beginning of the 15th century
Cesspit 1	Lutsu St. 2	1328–1338	Medieval

1b at Ülikooli Street 15, several samples were sawn for dating and all comparisons unambiguously date the last annual ring to the year 1335 (Bernotas 2008, 22, fig. 6). From cesspit No. 5 at the same plot samples were taken from all the four widest cover logs and the result of dating showed that the youngest annual ring was formed in 1309 (Bernotas 2008, 22, fig. 7). The dendrochronological date from cesspit 14G–14F at Ülikooli Street 14 is 1362 (Bernotas 2008, fig. 9). The cesspit from the courtyard of Lutsu Street 2 dates to the period 1328–1338 according to dendrochronology (Kriiska et al. 2011, 24).

Most of the cesspits found in Tartu are dated based on the find material to the period from 14th to 16th centuries, and in a single case, also to the 17th century (Table 2). According to find complex dates, so far only one, cesspit No. 1, found in the excavations at Lossi Street in 1985–1990, has been dated to the end of 13th century (Mäesalu 1990, 452) or to the beginning of the 14th century (Tamm 1988, 97). Based on the fragment of stoneware pottery from Langerwehe (TÜ A 362) (Russow 2006, 55) and the potsherds from the Russian wheel-thrown vessel type 3.3 (TÜ A 371) it can be suggested that although the end of 13th century cannot be completely eliminated, the more likely date seems to be the 14th century. For example in VII quarter the Russian wheel-thrown pottery type 3.3 was found in the cesspits dated to the 14th–15th century (Tvauri 2000, 104 f., fig. 8; Andres Tvauri, pers. comm.). All the other known cesspits in Tartu derive from later periods (Bernotas 2006, 56; see figure 3). Recently, in the excavations in 2010, three cesspits were found in the courtyard of Jakobi Street 2/Lossi Street 3 and these date to the 14th century (Tvauri 2011, 185). Cesspit No. 3 from Ülikooli Street 15 dates to the second half of the 16th or to the 17th century (Tvauri 2008, 139). Cesspit No. 6 from the same plot was dated to the beginning of the 16th century (Tvauri 2008, 147). The youngest known cesspit is from the courtyard of Munga Street 12 and it originates from 17th century (Vissak 2000b).

The distribution area of the cesspits discovered in Tartu (Fig. 1) clearly shows that their usual location is inside the town quarters, in the territory enclosed by the town wall.³ Therefore, it can be assumed that they were located in the

³ Even though there have been only sporadic cesspits found in other towns of Estonia, so far they have all been inside of the town walls, e.g. in Tallinn, Pärnu and Viljandi (see reference 1, page 3).

Table 2. Dates of the find complexes of the cesspits of Tartu. The cesspits in Table 1 are excluded here

Cesspit	Location	Find complex date
Cesspit No. 16	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	Turn of the 13th–14th century (Vissak 1994, 77)
Cesspit No. 7	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	Beginning of 14th century (Vissak 1994, 76)
Cesspit No. 1	Lossi St. 3	14th century ⁴
Cesspit No. 3	Lossi St. 3	14th century (Mäesalu 1990, 452)
Cesspit No. 6	Lossi St. 3	14th century (Mäesalu 1990, 452)
Cesspit No. 4	Lossi St. 3	14th century (Mäesalu 1990, 452)
Lower and middle building phase of cesspit No. 19	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	14th century (Aun 1998, 132)
Cesspit No. 18	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	14th century (Aun 1998, 132)
Cesspits Nos 1–3	Jakobi St. 2 / Lossi St. 3	14th century (Tvauri 2011, 185)
Cesspit No. 5	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	Second half of 14th century (Vissak 1994, 77)
Cesspit 8B–8C	Courtyard of Munga St. 12	Second half of 14th century (Vissak 2000b)
Cesspit No. 2	Lossi St. 3	End of 14th century (Mäesalu 1990, 452)
Cesspit No. 4	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	End of 14th century (Vissak 1994, 77)
Cesspit No. 8	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	Turn of the 14th–15th century (Vissak 1994, 76)
Cesspit 9D–10D	Courtyard of Munga St. 12	End of 14th century – second half of 15th century (Vissak 2000b)
Cesspit No. 20	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	14th–15th century (Aun 1998, 132)
Upper building phase of cesspit No. 19	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	14th–15th century (Aun 1998, 132)
Cesspit No. 1	Plot of Käuütri St. 5	First quarter of 15th century (Aus 1993, 25 ff.; Piirits 1994, 20)
Cesspit No. 14	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	First half of 15th century (Vissak 1994, 77)
Cesspits Nos 9, 10, 15	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	Mid-15th century (Vissak 1994, 76 f.)
Cesspit No. 1	Courtyard of Munga St. 12	15th century (Piirits 1998, 8)
Cesspit No. 5	Lossi St. 3	15th century (Mäesalu 1990, 452)
Cesspit 5C–5D	Courtyard of Munga St. 12	15th century – first half of 16th century (Vissak 2000b)
Cesspit No. 6	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	Second half of 15th century (Vissak 1994, 76 f.)
Cesspit No. 1	Raekoja plats 2 / Ülikooli St. 11 (VII quarter)	Second half of 15th century – beginning of 16th century (Vissak 1994, 77)

⁴ In earlier research the cesspit dates to the end of 13th century or to the beginning of 14th century (Tamm 1988, 97; Mäesalu 1990, 452).

Table 2. *Continued*

Cesspit	Location	Find complex date
Cesspit of the IV building	Plot of K��utri St. 5	Second half of 15th century – beginning of 16th century (Piirots 1994, 20)
Cesspit 4D–4E	Courtyard of Munga St. 12	Second half of 15th century – 16th century (Vissak 2000b)
Cesspit 4B–4C	Courtyard of Munga St. 12	Second half of 15th century – second half of 16th century (Vissak 2000b)
Cesspits	Lai St. 38/40	15th or 16th century (M��esalu 2001, 584; Bernotas 2006, 12) ⁵
Cesspits	Lossi St. 24	15th or 16th century (Trummal 1992, 15)
Cesspit No. 6.	��likooli St. 15	Beginning of 16th century (Tvauri 2008, 147)
Cesspit No. 1	K��utri St. 1	Beginning of 16th century (Tvauri & Bernotas 2007, 168)
Cesspit No. 17	Raekoja plats 2 / ��likooli St. 11 (VII quarter)	16th century (Aun 1998, 132)
Cesspit No. 21	Raekoja plats 2 / ��likooli St. 11 (VII quarter)	16th century (Aun 1998, 132)
Cesspit 5D–5E	Courtyard of Munga St. 12	Second half of 16th century (Vissak 2000b)
Cesspit No. 3	��likooli St. 15	Second half of 16th – first half of 17th century (Tvauri 2008, 139)
Cesspit	Jani St. 8	16th–17th century (Tvauri 2004, 140)
Cesspit 6B–7B	Courtyard of Munga St. 12	17th century (Vissak 2000b)

courtyards of medieval residential houses. Although several large-scale excavations have been conducted in the suburban area south from the town wall of Tartu (e.g. Aun 1995; Vissak 2000a; Vissak & Heinloo 2003; Heinloo 2006; 2007), cesspits have never been discovered in this territory yet. Thus it can be suggested that the disposal of waste was regulated by town laws which were valid only within the limits of the area enclosed by the town wall. Therefore it can also be assumed that these laws did not apply to suburbs. It seems quite evident that the urban re-planning and enclosing of the town area by a wall meant that each household had to set up a specific collection site for excrements and waste. For this purpose, the German settlers built wooden boxes, already known from their own cultural townscape. The obvious question is, when did this process take place in Tartu? Based on the dates of the find-complexes of the vast majority of the cesspits and the dendrochronologically dated cesspits, they appear on the townscape of Tartu clearly in the first half of the 14th century. Thus this date seems to support the hypothesis presented earlier (Bernotas 2011) that the erection of the town wall and the re-planning of the urban area began in the first half of the 14th century.

⁵ One of the cesspits is noted to date to the 14th century (M  esalu 2004, 399, fig. 3).

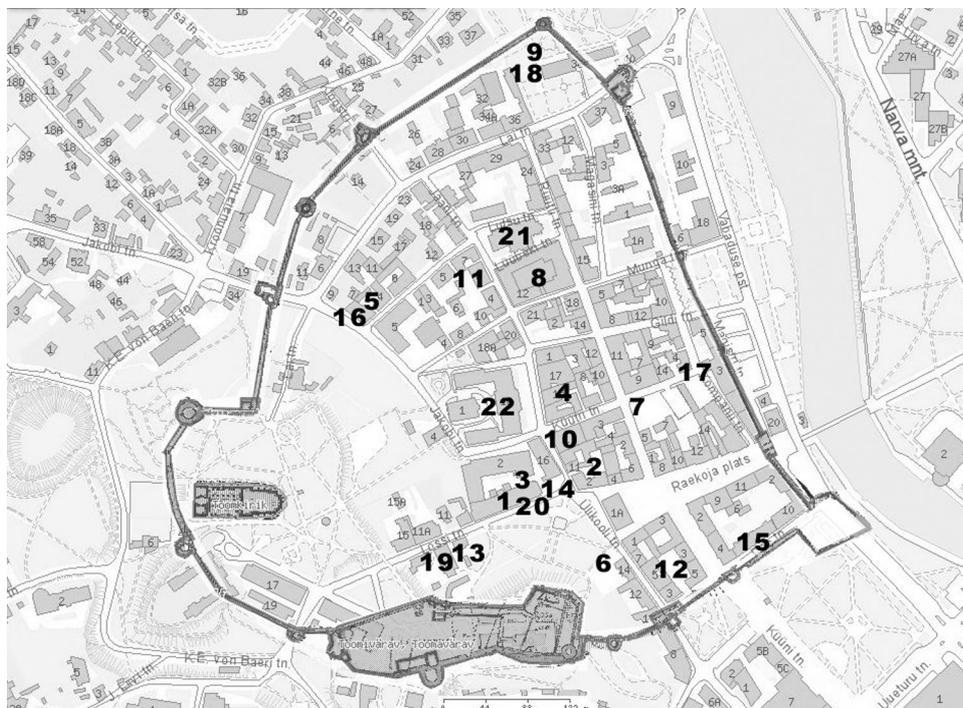


Fig. 1. Map from the Town Government of Tartu. The location of the objects mentioned in the article. Cesspits: 1 Lossi Street 3 (Mäesalu 1990), 2 Raekoja plats 2 / Ülikooli St. 11 (VII Quarter) (Vissak 1994; Aun 1998), 3 Courtyard of Lossi 3 / Jakobi 2 (Tvauri 2011), 4 Ülikooli Street 15 (Bernotas 2008), 5 Lutsu Street 2 (Kriiska et al. 2011), 6 Ülikooli Street 14 (Bernotas 2008), 7 Küütri St. 5 (Aus 1993; Piirits 1994), 8 Courtyard of Munga St. 12 (Piirits 1998; 2000; Vissak 2000b), 9 Lai St. 38/40 (Mäesalu 2004; Bernotas 2006), 10 Küütri Street 1 (Tvauri & Bernotas 2007), 11 Jaani Street 8 (Tvauri 2004), 12 Küüni Street 3/5 (Tvauri 2003), 13 Lossi Street 24 (Trummal 1992), 14 Corner of Lossi-Ülikooli Streets (Metsallik 1995), 15 Poe Street (Tvauri & Bernotas 2007). Medieval stone houses: 16 Lutsu Street 2 (Kriiska et al. 2011), 17 Kompanii Street (Lange 1994), 18 Botanical Gardens (Trummal 1992; Russow et al. 2006), 19 Lossi Street 24 (Trummal 1992), 20 northern side of Lossi Street (Metsallik 1987). Churches: 21 St. John's Church (Läanelaid 2002), 22 St. Mary's Church (Altoa 2009).

Stone buildings

The medieval secular buildings of Tartu have not been extensively researched (Kriiska et al. 2011, 35). On several occasions the remains of the medieval buildings have been found in excavations (Metsallik 1995, 32), but often these remnants have been very fragmentary and have not led to any substantial conclusions about the buildings themselves, let alone contributed to the wider picture. Archaeological investigations at Lutsu Street 2 indicate that in the first half of the 14th century one stone building (number 1 in the excavations) was erected there and in the mid-14th century another stone building (number 2) was built on the same plot (Kriiska et al. 2011, 35; see also Kriiska et al. 2010). The

oldest examples of stone buildings are a one-room brick building in Kompanii Street from the 13th–14th century (Lange 1994) and house remains from Lossi Street. The walls of the last-mentioned brick house were stacked on top of the fieldstone foundation. This building has been dated to the 14th–16th century (Trummal 1992, 8).

Another brick building has been found in the Botanical Gardens as well (Russow et al. 2006, 171). The remnants of a stove and hypocaust⁶ plates were found in the building, suggesting the time of use to be the 14th–16th century (Trummal 1992, 14). The remnants of the stone buildings from the northern side of Lossi Street have also been noted to be medieval (Fig. 2) (Metsallik 1987, figs 1–24; Romeo Metsallik, pers. comm.). The oldest firmly dated stone masonry in Tartu, St. John's Church, was built after the year 1321, when a log foundation layer underneath the church walls was laid (Läänelaid 2002). Similarities with St. John's Church have been discovered in St. Mary's Church of Tartu. Although the exact construction time of St. Mary's Church is not known, the *Stuzbasilika*'s with similar room layout were particularly common in the Baltic Sea region during the 14th century and in Schleswig, Denmark, until the second half of the 15th century (Alttoa 2009, 30). The brick manufacturing complex found in the southern suburban area of Tartu has been dated to the end of 13th – beginning of 14th century (Bernotas 2011, 66). In earlier research, the introduction of brick buildings in Tartu had been dated to the end of the 14th century – 15th century (Metsallik 1995, 31). Based on the discussed information, the introduction of brick buildings can be traced to the early 14th century.



Fig. 2. Interior wall of the medieval stone building in Lossi Street (Metsallik 1987, fig. 2). Photo by Romeo Metsallik.

⁶ Hot-air heater.

Around the same time, similar tendencies in stone architecture took place elsewhere in Europe as well (Fig. 3). For example, in the town of s'Hertogenbosch, the Netherlands, in the early phase of building the use of stone and bricks was, as a rule, limited to public ecclesiastical and military buildings, such as the early 13th century town wall with its gate houses. In accordance with the economic prosperity, the archaeological evidence shows an enormous increase of brick-built housebuilding both inside and outside the first town wall during the period of ca 1275–1350. Together with this phenomenon, the building of the second town wall was started at the end of the 13th century. The second town wall was completed about a century later, enlarging the area within the town walls of s'Hertogenbosch from ca 10 to 115 ha (Janssen 2002, 142).

Town defences

There have been several suggestions about the town wall on the riverside part of Tartu that need to be examined here. The theories such as the missing wall (Altoa 1995, 142) and the filling of the marshy meadow ground are examined first. For comparisons, I have used various towns from Europe which had trade connections with Old Livonia and where similar problems occurred. At the Gildi Street area in Tartu, 4–5 inch thick pinewood logs were laid under the wall as a foundation layer (Stange 1933, 25). From the comparative material, a similar example comes from Conwy, England, where the excavation of Lucy Tower



Fig. 3. Discussed towns on the map of Europe.

revealed that initially the area was covered by fibrous vegetable “matting” which included sticks and reeds; this may have been laid down to provide a reasonably dry surface on which to work. The tower itself was supported on foundations which consisted of both horizontal and vertical timbers as well as large stone slabs and the town wall was built in a similar manner. The town defences of Conwy were built in the 1280s (Kenyon 1990, 197).

The defensibility of the river areas of the walls has been a concern elsewhere as well. For example, the Thames in London needed constant vigilance because crossing the river and entrance into an unprotected city would have been too easy. The gates, if closed, offered their own protection for the citizens and only required the attention of two somnolent guards, but the river required the active patrol of a sergeant and four men. In other words, the only openings within the walls of the city, the gates, required only the most cursory of administration in order to fulfil their protecting role. The river required a far more active guarding, gathering all boats to ensure that there were no late crossings and forcefully blocking trespassers (Rothausser 2009, 261). There are other examples from Europe, for instance similar problems appeared at Cologne. The construction of the new wall on the river side of the Rhine probably started almost in the same way, as was the case with the wall on the land side.⁷ In any case, the river side wall was the lower and the less costly one; even the attached towers were not as high and strong as on the land side. At least initially, Cologne did not have any violent attacks and no persistent worry about safety, so initially strong fortifications were not necessary (Militzer 2005, 90). The situation in Tartu is comparable, where the towers on the river side part of the wall were still the old-fashioned quadrangular type at the end of the Middle Ages and not equally strong if compared with the ones on the southern and northern side. This has provided a basis for the suggestion that the upgrading of the towers was not necessary because of the naturally preventive water barriers on the east side of the town (Prints 1967, 43).

For example in Deventer, the Netherlands, large-scale works to change the topography of the riverside area took place in the 13th century. The low riverbank areas were raised to build a new town wall. A new brick wall was added as a shell to a long stretch of the old royal earth wall. Where the new brick wall was laid around a new town area next to the new harbour, a large market square was built on the place of the old wall (Spitzers 2002, 404). Also for example, in Kiel, Germany, the area between the later city wall and the wooden fortifications were still at lowland in the 13th century, thus not suitable for any settlement or building. In the urban expansion at the beginning of the 14th century, the moats of the wooden fortifications were filled (Albrecht & Feiler 1996, 23; for similar examples, see also Teuber 2002, 276). In some cases, the gradual raising of the ground level in the town interior was caused by the steady accumulation of rubbish and building materials within the town walls (Huml 1990, 276).

⁷ However, one can not say exactly what the wall, the towers and gates looked like at that time, as well-documented plant modifications were the later following centuries (Militzer 2005, 90).

What kind of purpose could such modification works of the described territories fulfil? Quite a few, most likely. In Tallinn, it has been suggested that these modifications were used firstly to “delete” traces of previous ownership; secondly, to remove the unsanitary and contaminated soil; and thirdly, to improve the flow regime of the soil (Mäll 2004, 261). According to the discussed examples, it might be assumed that comparable objectives were the priority in Tartu as well.

The workers

It is quite evident that the urban renewal plan and the construction of the town wall, as extremely labour intensive and expensive projects, could not have taken place only through the activity of the small numbers of immigrants in the period immediately after the conquest. The demographic aspects are also indirectly supported by archaeology. For example, the burials from 13th–14th century at St. John’s Church cemetery indicate that the population was of western (German) origin, but from the first half or from the middle of the 14th century onwards the local-origin anthropological type dominates. This suggests that the local group was the most populous one in the urban population (Kalling 1995, 55 f.). Based on this, it might be suggested that the town was ready for extensive planning and erection of walls only after the urban community was populous enough to carry these works out, because these activities needed a large number of local workers.

The recent research shows (Bernotas 2012) that in the present-day Estonian area, the development from the first traces of an urban settlement to a fully complete medieval town took approximately 50–100 years. According to the information discussed in the present article, this seems to be the case in Tartu as well. This tendency is not common only in Estonia though. For example, as the Hanseatic influence grew in Gotland, this strengthened Visby’s role at the expense of the rest of the island. During the 13th century the city underwent a radical change. A huge renovation project started around the year 1200, when old wooden buildings were replaced with high and lavish buildings of stone. The construction probably lasted without interruption for a period of 75–100 years. Between 1250 and 1288, most likely towards the end of this period, the city walls were also built around the buildings and therefore a serious barrier to trade for farmers was created. In this century, a large number of architectural designers and builders must have been employed in Visby (Westholm 1997, 88).

Conclusions

Based on the discussed information, it might be concluded that the townscape of Tartu underwent several changes in the 14th century. It might be suggested that the disposal of waste was regulated by the town laws which were valid only within the limits of the town area, enclosed by town wall and therefore did not apply to the suburbs. The dates of the find-complexes of the vast majority of

cesspits and dendrochronologically dated cesspits reveal that they appear on the townscape of Tartu clearly in the first half of the 14th century. Thus this date seems to support the hypothesis that the erection of the town wall and the re-planning of the town area began in the first half of the 14th century. The introduction of brick buildings in Tartu has been previously dated from the end of 14th century to the 15th century. Based on the information discussed in the current article, the introduction of brick buildings in Tartu can be traced to the early 14th century. It might be suggested that the town was ready for extensive planning and erection of walls only after the urban community was populous enough to carry these works out, as these activities required a large number of local workers. The recent research shows that in the Estonian area, the development from the first traces of an urban settlement to a fully complete medieval town took approximately 50–100 years. According to the material discussed in the current article this seems to be the case in Tartu as well.

Acknowledgements

I wish to thank my colleagues Liisa Seppänen, Knut Drake and Andres Tvauri for valuable comments in the course of composing this article. I'm also thankful to Jean Price for language corrections. This publication has been completed thanks to funding from CIMO (Centre for International Mobility).

References

- Albrecht, U. & Feiler, A.** 1996. Stadtarchäologie in Kiel: Ausgrabungen nach 1945 in Wort und Bild. Wachholtz Verlag.
- Alttoa, K.** 1995. Tartu keskaegsetest kaitsemüüridest ja peamisest muinasteest. – Tartu arheoloogias ja vanemast ehitusloost. Ed. H. Valk. (Tartu Ülikooli Arheoloogia Kabineti toimetised, 8.) Tartu, 141–150.
- Alttoa, K.** 2009. Die Tartuer Marienkirche und die Frage der Bauschule in Tartu im 14. Jahrhundert. – Baltic Journal of Art History, Autumn 2009, 7–30.
- Aun, M.** 1995. Tartu keskaegse eeslinna kultuurikihist Kүүini tänava arheoloogilise materjali põhjal. – Tartu arheoloogias ja vanemast ehitusloost. Ed. H. Valk. (Tartu Ülikooli Arheoloogia Kabineti toimetised, 8.) Tartu, 91–97.
- Aun, M.** 1998. Tartu vanalinna arheoloogilise uurimise tulemusi (VII kvartali IV kaevandi kesk- ja idaosa põhjal). – EAA, 2, 94–141.
- Aus, T.** 1993. Tartu Rüütli ja Kүүtri tn. nurgakrunt. 1992. a. linnaarheoloogiliste kaevamiste aruanne. Kõide I. Tartu. Manuscript in the National Heritage Board.
- Bernotas, R.** 2006. Tartu Ülikooli tn 15 krundi jäätmekasti nr 1 suletud leiukompleksi analüüs. Peaseminaritöö. Manuscript in the Institute of History and Archaeology of the University of Tartu.
- Bernotas, R.** 2007. 14. sajandi teise poole jäätmekast Tartu Ülikooli 15 õuel. (Tartu Linnamuuseumi aastaraamat, XIII.) Tartu, 54–64.
- Bernotas, R.** 2008. Dendrodates of three medieval latrines of Tartu. – EJA, 12, 16–29.
- Bernotas, R.** 2011. Medieval town wall of Tartu in the light of recent research. – EJA, 15, 56–72.
- Bernotas, R.** 2012. Medieval small towns of Estonia – archaeology and history of urban defense. In print.

- Gläser, M.** 1999. Der Alltag in einer mittelalterlichen Hansestadt. Archäologische Ergebnisse in Lübeck. – *The Medieval Town in the Baltic: Hanseatic History and Archaeology*. Eds R. Vissak & A. Mäesalu. Linnamuseum, Tartu, 19–32.
- Heinloo, E.** 2006. Tartu lõunapoolne eeslinn kesk- ja varausajal arheoloogia andmetel. Peaseminaritöö. Tartu. Manuscript in the Institute of History and Archaeology of the University of Tartu.
- Heinloo, E.** 2007. Keskaegne Tartu Riia-eeslinn ehitusjäänuste põhjal. (Tartu Linnamuseumi aastaraamat.) Tartu, 65–76.
- Huml, V.** 1990. Research in Prague – an historical and archaeological view of the development of Prague from the 9th century to the middle of the 14th century. – *From the Baltic to the Black Sea. Studies in Medieval Archaeology*. Eds D. Austin & L. Alcock. (One World Archaeology, 18.) Academic Division of Unwin Hyman Ltd., 267–284.
- Janssen, H. L.** 2002. Patrician and aristocratic town residences in s'Hertogenbosch c. 1250–c.1550 – the archaeological evidence. – *Medieval Europe Basel 2002: Centre, Region, Periphery. Volume 2: Sections 4 and 5*. Eds G. Helmig, B. Scholkmann & M. Untermann. 3rd International Conference of Medieval and Later Archaeology. Hertingen, 140–148.
- Kadakas, V. & Nilov, H.** 2004. Various investigations in Tallinn and Harjumaa. – *AVE*, 2003. Ed. Ü. Tamla. Muinsuskaitseamet, Tallinn, 160–175.
- Kalling, K.** 1995. Paleantropoloogilisi andmeid Tartu Jaani kiriku kalmistu 13.–14. sajandi matuste kohta. – *Tartu arheoloogias ja vanemast ehitusloost*. Ed. H. Valk. (Tartu Ülikooli Arheoloogia Kabineti toimetised, 8.) Tartu, 47–58.
- Kenyon, J. R.** 1990. Medieval fortifications. – *The Archaeology of Medieval Britain*. Series ed. H. Clarke. Leicester University Press, Leicester, London.
- Kriiska, A., Roog, R. & Altoa, K.** 2010. Mittelalterliche Überreste in der Lutsu-Strasse 2, Tartu. Vorläufige Forschungsergebnisse. – *Baltic Journal of Art History*, Spring 2010, 171–200.
- Kriiska, A., Roog, R., Altoa, K., Allik, A., Läänelaid, A., Bernotas, R. & Malve, M.** 2011. The medieval and modern period building complex at 2 Lutsu Street in Tartu. Results of archaeological, architectural, historical, dendrochronological and osteoarchaeological research. – *The Estonian Historical Journal*, 1 (135), 3–40.
- Läänelaid, A.** 2002. Jaani kiriku algus ja aastarõngad. – *Horisont*, 1, 30–34.
- Lange, K.** 1994. Über die mittelalterlichen Steinbauten an der Kompaniestraße in Tartu. – *TATÜ*, 43: 4, 409–411.
- Mäesalu, A.** 1990. Sechs Holzkonstruktionen in Tartu (Lossi-Strasse). – *TATÜ*, 39: 4, 446–452.
- Mäesalu, A.** 1997. Über den Stand der archäologischen Forschungsarbeit in Dorpat (Tartu). – *Lübeker Kolloquium zur Stadtarchäologie im Hanseraum, I. Stand, Aufgaben und Perspektiven*. Ed. M. Gläser. Schmidt/Römhild, Lübeck, 343–350.
- Mäesalu, A.** 2001. Die Haustypen im hansezeitlichen Tartu (Dorpat). – *Lübeker Kolloquium zur Stadtarchäologie im Hanseraum III: Der Hausbau*. Ed. M. Gläser. Schmidt/Römhild, Lübeck, 581–594.
- Mäesalu, A.** 2004. Über die Infrastruktur der Hansestadt Tartu (Dorpat) vom 13. bis 16. Jh. – *Lübeker Kolloquium zur Stadtarchäologie im Hanseraum, IV: Die Infrastruktur*. Ed. M. Gläser. Schmidt-Römhild, Lübeck, 397–403.
- Mäesalu, A. & Vissak, R.** 2002. On the older topography of Tartu. – *The Medieval Town in the Baltic: Hanseatic History and Archaeology, II*. Eds R. Vissak & A. Mäesalu. Tartu Linnamuseum, Tartu, 145–165.
- Mäll, J.** 2004. Arheoloogilise kultuurikihi spetsiifikast Tallinna vanalinna territooriumil. – *Linnusest ja linnast. Uurimusi Vilma Trummali auks*. Eds A. Haak, E. Russow & A. Tvauri. (MT, 14.) Tallinn, Tartu, 249–268.
- Metsallik, R.** 1985. Tartu vanalinna kultuurikihi stratigraafia. – *Tartu – minevik, tänapäev*. Ed. J. Linnus. Tallinn, 47–63.
- Metsallik, R.** 1987. Arheoloogilised uuringud A. Lätte tänava põhjaküljel 1986. a. kaevandi lääneosas. III kaust. Manuscript in the Town Government of Tartu.
- Metsallik, R.** 1995. Tartu arheoloogilisest uurimisest. – *Tartu arheoloogias ja vanemast ehitusloost*. Ed. H. Valk. (TÜ Arheoloogia Kabineti toimetised, 8.) Tartu, 15–35.

- Militzer, K.** 2005. Die Stadtmauer im Laufe der Zeiten. Das Kölner Beispiel. – Fasciculi Archaeologiae Historicae: Architecture et guerre. Fasciculus XVI–XVII. Ed. T. Poklewski-Koziell. Instytut Archeologii i Etnologii, Łódź, 87–92.
- Mührenberg, D.** 2002. Zum Verhältnis Mensch und Umwelt im mittelalterlichen Lübeck. – The Medieval Town in the Baltic: Hanseatic History and Archaeology, II. Eds R. Vissak & A. Mäesalu. Tartu Linnamuuseum, Tartu, 7–20.
- Nurk, R., Kadakas, V. & Toos, G.** 2010. Investigations in the courtyard of Estonian state puppet and youth theatre. – 2009. AVE, 171–175.
- Piirits, P.** 1994. Tartu Karuplats. 1994. a. arheoloogiliste kaevamiste aruanne. Manuscript in the Institute of History and Archaeology of the University of Tartu.
- Piirits, P.** 1998. Arheoloogilised kaevamised Tartus Hugo Treffneri Gümnaasiumi keldris (veebuar-aprill 1998. a). Manuscript in the Institute of History and Archaeology of the University of Tartu.
- Piirits, P.** 2000. Arheoloogilised kaevamised Tartus H. Treffneri Gümnaasiumi hoovi O-osas. Aruanne arheoloogilistest kaevamistest Tartus H. Treffneri Gümnaasiumi O-osas. Manuscript in the Tartu Town Museum.
- Prints, O.** 1967. Tartu kui kindlus. Manuscript in the National Heritage Board.
- Raid, N.** 1995. Tartu vanimad linnamüüri-sisised tänavad. – Tartu arheoloogiast ja vanemast ehitusloost. Ed. H. Valk. (TÜ Arheoloogia Kabineti toimetised, 8.) Tartu, 129–140.
- Rothauer, B. C. L.** 2009. “A reuer... brighter þen boþe the sunne and mone”: the use of water in the medieval consideration of urban space. – Fundamentals of Medieval and Early Modern Culture: Urban Space in the Middle Ages and the Early Modern Age. Eds A. Classen & M. Sandidge. Walter de Gruyter, Berlin, 245–272.
- Russow, E.** 2006. Importkeraamika Lääne-Eesti linnades 13.–17. sajandil. Tallinna Ülikooli Ajaloo Instituut, Tallinn, 2006.
- Russow, E., Valk, H., Haak, A., Pärn, A. & Mäesalu, A.** 2006. Medieval archaeology of the European context: towns, churches, monasteries and castles. – Archaeological Research in Estonia 1865–2005. Eds V. Lang & M. Laneman. (Estonian Archaeology, 1.) Tartu University Press, 159–192.
- Saluäär, U., Russow, E., Sarv, K. & Kadakas, V.** 2004. Minor investigations in New-Pärnu. – AVE, 2003, 176–191.
- Spitzers, T.** 2002. The transition from early trade-centre to medieval town in Deventer in the light of socio-economic changes 900–1200. – Medieval Europe Basel 2002: Centre, Region, Periphery. Volume 2: Sections 4 and 5. Eds G. Helmig, B. Scholkmann & M. Untermann. 3rd International Conference of Medieval and Later Archaeology. Hertingen, 400–405.
- Stange, N.** 1933. Archäologisch-Topographisches aus Alt-Dorpat. Dorpat.
- Tammet, M.** 1988. Tartu keskaegsete jäätmeaukude karpoloogilise analüüsi tulemusi. – Loodus-teaduslikke meetodeid Eesti arheoloogias. Eds A.-M. Rõuk & J. Selirand. Eesti NSV Teaduste Akadeemia Ajaloo Instituut, Tallinn, 97–102.
- Teuber, S. W.** 2002. Einbeck-Petersilienwasser – Die Bebauungsstrukturen des 13. bis 16. Jahrhunderts. – Medieval Europe Basel 2002: Centre, Region, Periphery. Volume 2: Sections 4 and 5. Eds G. Helmig, B. Scholkmann & M. Untermann. 3rd International Conference of Medieval and Later Archaeology. Hertingen, 276–281.
- Trummal, V.** 1980. Vanimast ajaloo. – Tartu ajalugu. Tartu, 18–26.
- Trummal, V.** 1992. Arheoloogiauringutest Tartus Lossi tänaval. – Stilus, 2. Eds L. Jaanits & V. Lang. Eesti Arheoloogiaselts, Tallinn, 5–28.
- Trummal, V.** 1996. Über die Entstehung und Herausbildung der Stadt Tartu auf der Grundlage archäologischer Untersuchungen. Congressus Primus Historiae Fenno-Ugricae. Ed. K. Julku. (Historia Fenno-Ugrica, I: 2.) Oulu, 531–539.
- Tvauri, A.** 2000. Loode-Vene päritolu slaavi keraamika Eestis 11.–16. sajandil. – EAA, 4: 2, 91–119.
- Tvauri, A.** 2001. Muinas-Tartu. Uurimusi Tartu muinaslinnuse ja asula asustusloost. (MT, 10.) Tartu.
- Tvauri, A.** 2003. Arheoloogilised uuringud Tartus Kütini 3/5. – AVE, 2002, 176–178.

- Tvauri, A.** 2004. Archaeological investigations at the former building of Academia Gustaviana (Jaani Street 8) in Tartu. – AVE, 2003, 137–143.
- Tvauri, A.** 2008. Archaeological investigations in Tartu, Ülikooli Street. – AVE, 2007, 139–152.
- Tvauri, A.** 2011. Archaeological investigations at the courtyard of Jakobi Street 2 / Lossi Street 3, Tartu. – AVE, 2010, 179–186.
- Tvauri, A. & Bernotas, R.** 2007. Archaeological investigations in Tartu and Vorbuse settlement site. – AVE, 2006, 167–181.
- Vahre, S.** 1983. Tartu 15. sajandi reisikirjeldustes. – Tartu ja ülikool. Ed. J. Linnus. Tallinn, 14–26.
- Valk, H.** 2004. Viljandi Jaani kiriku kalmistu. – Linnusest ja linnast. Uurimusi Vilma Trummali auks. Eds A. Haak, E. Russow & A. Tvauri. (MT, 14.) Tallinn, Tartu, 421–450.
- Vissak, R.** 1994. Der Fundstoff Aus Den Holzkästen Des VII. Quarters In Tartu. (TATÜ, 43: 1.) 71–77.
- Vissak, R.** 1999. The condition of archaeological research in Tartu after 20 years of rescue excavations. – The Medieval Town in the Baltic: Hanseatic History and Archaeology. Eds R. Vissak & A. Mäesalu. Tartu Linnamuuseum, Tartu, 33–41.
- Vissak, R.** 2000a. Results of the archaeological investigations at the SE foot of Toomemägi, Tartu. – AVE, 1999, 113–120.
- Vissak, R.** 2000b. Jäätmekastide leiukomplekside kirjeldused ja analüüs. Aruanne arheoloogilistest kaevamistest Tartus H. Treffneri Gümnaasiumi O-osas. Manuscript in the Tartu Town Museum.
- Vissak, R. & Heinloo, E.** 2003. Archaeological investigation of the southern part of the Riia suburb of Tartu in 2001–2002. – AVE, 2002, 153–163.
- Westholm, G.** 1997. Gotland, hansan och de bevarade spåren av en epok. – Gotländskt Arkiv. Meddelanden från Föreningen Gotlands fornvänner. Ed. B. Radhe. Visby, 71–94.

Rivo Bernotas

UUSI TEADMISI TARTU LINNARUUMI ARENGUST 14. SAJANDIL

Resüme

Käesolevas artiklis on vaadeldud mõningaid 14. sajandi Tartu linnaplaanis toimunud muutusi ja analüüsitud, kas ning kuidas võisid need linnaala ümberplaneerimisega seotud olla. Vaatluse all on keskaegne jäätmemajandus, kivihoonete rajamine, küsimus linna jõepoolses osas olnud kaitserajatistest ja kogu ehitustegevuse taga seisnud töölisel. Tartust avastatud keskaegsete jäätmekastide leviku-ala puhul torkab selgelt silma nende paiknemine kvartalisisestel aladel linnamüüri piiratud territooriumil. Seega võib tõenäoliselt pidada, et jäätmekäitlus oli linnamüüri ümbritsetud alal reguleeritud vastavate seadustega, mis ei kehtinud eeslinnade territooriumi kohta. Tuginedes Tartust avastatud jäätmekastide leiukomplekside dateeringutele ja dendrokronoloogilise meetodi abil dateeritud jäätmekastidele, ilmneb, et need ilmusid Tartu linnapilti 14. sajandi I poolel. Tartust on mitmetel kaevamistel avastatud keskaegsete kivihoonete jäänuseid, kuid need on enamasti olnud väga kehvas seisukorras ja seetõttu pole võimaldanud teha põhjalikumaid järeldusi hoonete kohta. Senine vanim täppisteaduslikult dateeritud hoone, Jaani kirik, rajati pärast 1321. aastat. Varasemates uurimustes on kivihoonete rajamise algusaeg Tartus dateeritud 14. sajandi lõpu – 15. sajandiga. Tuginedes

käesolevas artiklis esitatud uurimistulemustele, võib kivihoonete rajamise alguse Tartus dateerida 14. sajandi I poolega. Artiklis on vaadeldud erinevate Euroopast pärit võrdlevate näidete varal Tartu jõepoolse ala müüriga kindlustamise küsimust. Võib oletada, et pinnasetöödel jõeäärsel alal oli mitu eesmärki. Näiteks Tallinna materjalile tuginedes on seal toimunud analoogsete protsesside kohta oletatud, et “kustutati” jäljed varasematest omandisuhetest, kaevati ära nn must pinnas ja parandati pinnase niiskusrežiimi. Analüüsitud näidetele tuginedes tuleb tõenäoliseks pidada sarnaseid eesmärke ka Tartus. On ilmne, et linna ümberplaneerimine ja müüriga ümbritsemine kui töömahukad ning kallid projektid ei saanud toimuda vaid väikesearvulise kolonistide ettevõtmisena vahetult peale Saksa vallutust. Seega tuleb tõenäoliseks pidada, et Tartu oli mahukateks planeerimistöodeks ja ka linnamüüri püstitamiseks valmis alles siis, kui linna kogukond oli nende tööde teostamiseks piisavalt arvukas. Viimased uurimused Eesti ala kohta näitavad, et linnade areng esmastest linnalistest asustustest kuni täielikult väljaarenenud kesk-aegse linnani kestis ligikaudu 50–100 aastat. Näib tõenäoline, et vastavalt käesolevas artiklis arutatud andmetele toimus see sarnaselt ka Tartus. Artiklis esitatud dateeringud toetavad hüpoteesi, mille kohaselt linnamüüri rajamine ja linna ümberplaneerimine algas 14. sajandi I poolel.