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Aivar Kriiska, Mika Lavento and Jüri Peets

NEW AMS DATES OF THE NEOLITHIC AND BRONZE AGE CERAMICS IN ESTONIA: PRELIMINARY RESULTS AND INTERPRETATIONS

The AMS dates of the carbonized organics on eight Neolithic and Bronze Age potsherds found in Estonia are presented and interpreted considering the previous dates of textile-impressed pottery, ceramic typology and textile history. New dates confirmed the earlier supposition that making textile impressions on clay vessels (of the Late Combed Ware and Early Textile Ceramics) started already at the end of the Neolithic, yet the new results dated the appearance of the phenomenon to c. 2700 cal BC, which is approximately 1000 years earlier than hitherto assumed. By the beginning of the Late Bronze Age around 1100 cal BC, the ceramics, often termed Textile Ceramics, had formed on the present-day territory of Estonia.

The textile impressions on the surfaces of the vessels have been made using fabric woven in different techniques. The sherds analysed bear the impressions of textiles made in tabby and repp weave, the latter indicating the use of the loom for weaving the fabric. The impression observable on one of the potsherds presumably originates from fabric produced in needle-netting technique.

On esitatud kaheksa Eesti alalt leitud neoliitilise ja pronksiaegse savinõukillu kõrbekihist tehtud AMS-dateeringud ja tõlgendatud neid tekstiilijäljenditega keraamika senistest dateeringutest, keraamikatüpoloogiast ja tekstiiliajaloost lähtuvalt. Uued dateeringud kinnitavad varasemat oletust, et tekstiilijäljendeid hakati savinõudele (hiline kammkeraamika ja varane tekstiilkeraamika) tegema juba neoliitikumi lõpul, täpsustades selle algusajaks u 2700 aastat eKr, mis on ligi 1000 aastat seni arvatust varem. Noorema pronksiaja alguseks, u 1100 aastat eKr, oli Eesti alal välja kujunenud keraamika, mida nimetatakse sageli tekstiilkeraamikaks.

Tekstiilijäljendid on kantud nõude pinnale erinevates tehnikates valmistatud riidega. Analüüsitud kildudel esineb labases koes ja ripsis tehtud tekstiilide jäljendeid, kusjuures viimased osutavad kangakudumisele kangaspuudel. Ühel killul esinev vajutis pärineb arvatavasti nõeltehnikas tehtud riidest.

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Introduction

Throughout the history of archaeology, ceramic typologies have played an important role in compiling periodizations and chronologies of prehistory. So far the other methods of dating antiquities have not succeeded to replace ceramic typology though several of its aspects have been criticized. In reference to the settlement sites in the Baltic Sea region, ceramic typology is especially relevant to the investigation of the Late Neolithic and younger dwelling sites. These are, in many cases, no longer shore-related as were the settlement sites of previous periods. Due to the Post-glacial compensational land uplift, people rather often abandoned dwelling sites on the shore in order to move according to the regression or transgression of the water.[1] Many of the later settlement sites are, on the other hand, multiperiodical, having been inhabited throughout several prehistoric periods either continuously or discontinuously. Therefore, it is difficult to find any certain context for ceramics as well as for any other finds at these sites, and exact or, at least, more exact results are to be provided by typologies. However, typology as a method is inexact unless the types are related to calendar years obtained by scientific methods.

Nowadays, ceramic typologies have largely been corrected by the accelerator mass spectrometry (AMS) datings of the small amounts of charred organic remains (originating from carbonized food remains) preserved on the surfaces of potsherds, and by the calibration of the obtained dates into calendar years. The burnt organics and the clay vessel have been considered synchronous unless some extraordinary processes occurred in the ground after the deposition of the cultural layer.

In Sweden the AMS datings of the carbonized organics have been performed since the mid-1980s (Segerberg *et al.* 1991, 85), and in Finland since the beginning of the 1990s. Though in most cases merely single samples have been analysed, systematic AMS datings of the burnt organics on the ceramics in order to compile chronologies have been carried out as well, in North Finland for instance (Carpelan 2004). Dates of this kind become more and more numerous also in other regions, including the other parts of Finland (see e.g. Pesonen 1999; Lavento 2001a, b). However, only a few AMS datings have been made in the Baltic countries and Russia, which are very important areas also in reference to the Finnish ceramic types.

Considering the possibility of comparing clay vessels, one has to realize that the age identification of pottery is still based mostly on the general characteristics of the archaeological sites, find contexts of sherds and changes in the form and ornamentation of vessels. Problems also emerge because many typologies have been compiled decades ago. In the meantime, however, large amounts of new

[1] In the Baltic Sea region shoreline displacements were used for chronological distinction of, for example, the Combed Ware in Finland (e.g. Europaeus-Äyräpää 1930; Siiriäinen 1974) and the Pitted Ware in Sweden (shortly presented e.g. in Segerberg *et al*. 1991, 83).

finds have been discovered. Therefore the typologies used in different countries no longer are unambiguously comparable. This is the case also with the Estonian Late Neolithic, Bronze Age and even Early Iron Age ceramics. New finds and contexts have come to contradiction with earlier typologies, necessitating their revision.

Starting-points of the ceramic dating project

The study of the Finnish, Karelian and Estonian textile-impressed ware has revealed that ceramics of the Sarsa-Tomitsa type on the east coast of the Baltic Sea, distinguished and dated to the Bronze Age more than half a century ago by Meinander (1954a, b), needs, in several respects, new specification. One of the diagnostic features of this pottery type, the textile impression, in fact occurs in several Neolithic ceramic groups. In the areas of present-day Estonia and Russia the use of textile-impressed clay vessels continued up to the middle of the Iron Age (Lavento 2001a). According to the existence of textile impression the sherds are considered to be of textile type. This type, therefore, involves several ceramic types regarded as separate groups at the present time (in Estonia Late Combed Ware, Corded Ware, Early Textile Ceramics, Textile Ceramics).

The "origin" of the textile-impressed ware is by no means less interesting: whether it originates from the tradition unambiguously related to some certain date and place, or is it rather a phenomenon independently "invented" in various regions of Europe. From the Finnish point of view, the suggestion of Meinander (1954b) that the ceramics of the Sarsa-Tomitsa type came from the south (from the Estonian area) as well as from the east (from the areas in the middle reaches of the Volga River in Russia), increased the relevance of the Estonian data.

The new datings also provide additional information about the sites where the dated potsherds come from. For half of the sites discussed in the present article, these dates are to be considered as the first dates obtained by scientific methods. Naturally, the dates are also important with reference to the history of textiles.

The main objective of dating the Estonian textile-impressed ware is to lay the foundations to a chronology based on the AMS dates of the textile-imprinted ware found in Estonia. The initial collection dated comprised 12 potsherds found at the oldest and most problematic settlement sites in Estonia. However, some samples taken from the charred organics of the potsherds did not contain enough carbon for dating and therefore we took additional new samples later. If the carbonized organics was not preserved on the textile-impressed sherds, the sample was taken, as an exception, from the ceramics of another type found at the same site. By the time of writing the current article, eight samples had been dated (Table 1) and, although the project has not yet come to an end, the results are interesting and worthy of immediate dissemination.

Table 1. The AMS dates of the carbonized organics collected from the surfaces of the ceramics
Tabel 1. Keraamika pinnalt kogutud kõrbekihi AMS-dateeringud

Site (store No.)	Region	Lab. No.	^{14}C years	Calibrated* age with the probability of 95.4% (cal BC)	Calibrated age with the probability of 68.2% (cal BC)
Loona (AI 4210: 649)	Saaremaa Island	Hela-751	4165 ± 90	2920–2480	2880–2700
Akali (AI 4013: 8521)	East Estonia	Hela-752	4055 ± 40	2860–2470	2840–2490
Kullamägi (AI 4045: 1052)	East Estonia	Hela-754	4140 ± 70	2900–2490	2870–2620
Kullamägi (AI 4045: 1109)	East Estonia	Hela-755	3605 ± 40	2130–1870	2030–1910
Akali (AI 4013: 3061)	East Estonia	Hela-761	4155 ± 65	2900–2570	2880–2630
Assaku Kükita (AI 5030: 1–2)	North Estonia	Hela-837	2765 ± 50	1020–800	960–830
Altküla (AI 4592: 1)	Southwest Estonia	Hela-838	2885 ± 45	1220–920	1190–990
Kõpu IA (AI 6007: 1734)	Hiiumaa Island	Hela-843	5540 ± 55	4500–4260	4450–4340

* Atmospheric data from Reimer *et al.* 2004; OxCal v3.10 Bronk Ramsey (2005); cub r:5 sd:12 prob usp[chron].

Dated ceramics and typologically relevant inferences

Finding places of the dated ceramics

For dating, we selected potsherds from among three different types of ceramics with textile impressions (the Late Combed Ware, Early Textile Ceramics and Textile Ceramics), and from the ceramics that, according to its consistence and surface treatment, was initially classified as the Corded Ware. The last type originates from the settlement site where the sherds of (Early?) Textile Ceramics are represented but provide no burnt particles sufficient for AMS dating. However, we expected to date in this way the find context of textile-impressed ware and find an answer to the question of whether the Estonian so-called Late Corded Ware is contemporaneous with the Early Textile Ceramics.

Half of the dates presented in the current article come from the pottery originating from the settlement sites of Akali and Kullamägi in the boggy mouth areas of the River Emajõgi on the west coast of Lake Peipsi, East Estonia (Fig. 1). In regard to the Early Textile Ceramics, these settlement sites are the most important and abundant in Estonia. On the basis of the finds from these sites, that ceramic type was first distinguished and, by means of horizontal stratigraphy and co-finds there, dated by Lembit Jaanits (Яниτс 1959, 140–149).

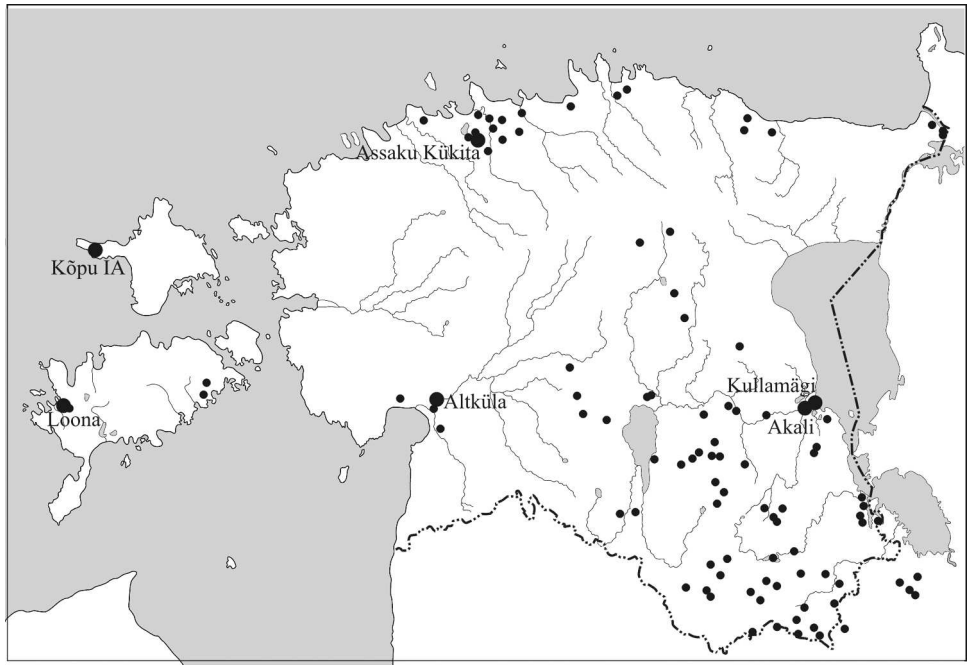

Fig. 1. Finding places of textile-impressed ceramics in Estonia (compiled by Arvis Kiristaja, Aivar Kriiska and Andres Vindi); sites discussed in the article are indicated by names.

Joon 1. Testiilkeraamika leiukohad Eesti alal (koostanud Arvis Kiristaja, Aivar Kriiska ja Andres Vindi); artiklis analüüsitud paigad on toodud nimeliselt.

The potsherds, which, for Estonian archaeologists, represent the Textile Ceramics in the so-to-speak narrower sense, originate from settlement sites whose context and supposed dates seemed to be promising in revealing new information on the "development" of this pottery type in the Late Bronze Age and Pre-Roman Iron Age.

The **Loona** settlement site is situated in the western part of Saaremaa Island. Originally it was located on the shore of a small bay. The site was discovered in 1956 by Aita Kustin and was investigated in 1956 under the supervision of Kustin and in 1959 by Jaanits. The place had been inhabited in the Late Neolithic; the pottery is of the Late Combed Ware type, a small amount of it having textile impressions (Jaanits 1965, 30). The AMS datings of the bones of a seal and a pig date the settlement site of Loona to the average time span of 2900–2600 cal BC[2].

[2] Here and henceforth, all the calibrations are based on the following sources: atmospheric data from Reimer *et al.* (2004); OxCal v3.10 Bronk Ramsey (2005); cub r:5 sd:12 prob usp[chron]. The base dates: 4270 ± 75 (Ua-4824) and 4050 ± 80 (Ua-4825) ^{14}C years.

The **Akali** settlement site lies in East Estonia, on the bank of the River Akali, a tributary of the River Emajõgi. The site was discovered in 1937 by Richard Indreko. Archaeological excavations were carried out there in 1938–1939 by Indreko and in 1949–1952 and 1968 by Jaanits. The cultural layer at the Akali settlement site covers a vast area of approximately 17 000 m^2, which, however, was not wholly in use at the same time. The settlement had been set up in the immediate vicinity of the river. As the level of the phreatic water rose, the place began to turn into a bog, and today the riverside part of the cultural layer is covered by a peat layer more than 2 m thick (Jaanits *et al.* 1982, 60). Therefore, in the course of time the inhabitants moved farther from the river. The oldest traces of life date to the Late Mesolithic but the site was nevertheless inhabited throughout the Neolithic as well as in the Bronze Age and at the beginning of the Iron Age (Jaanits *et al.* 1982, 43, 60). All the pottery types of those times are represented: the ceramics of the Narva type, Typical Combed Ware, Late Combed Ware, Corded Ware, Early Textile Ceramics, Textile Ceramics and other types. The only radiocarbon date (conventional) comes from the fire place where no ceramics was found, and it probably belongs to the Late Mesolithic period, the average of the dates being 5200 cal BC[3].

The **Kullamägi** settlement site is located in East Estonia, on the right bank of the River Emajõgi, about 2 km west of the Akali site, on a sand elevation rising a bit higher than the surface of the surrounding marsh. The site was discovered in 1938 by Indreko. In 1951–1952, archaeological excavations were conducted by Jaanits. The cultural layer covers a vast area of about 10 000 m^2. The place was used as a dwelling site from the Middle Neolithic. The Typical and Late Combed Ware, Early Textile Ceramics and other pottery types have been found there.

The **Assaku Kükita** settlement site is situated near Tallinn in North Estonia. The site was discovered in 1979 by an amateur archaeologist Oskar Raudmets. Two fire places were noted at the site, which was already damaged by land amelioration works, and the approximate area of the cultural layer was ascertained as 20–30 × 50 m (Lõugas 1979). No archaeological excavations have been performed at the site.

The **Altküla** settlement site is situated in Southwest Estonia, on the high bank of the River Pärnu. The small settlement site was discovered in 1972 by Vello Lõugas. A few potsherds, including these of the Textile Ceramics, were collected in the vicinity of a fire place that was destroyed by construction works (Jaanits *et al*. 1982, 176). No archaeological excavations have been carried out there.

The **Kõpu IA** settlement site is situated in the western part of Hiiumaa Island. At the time of its establishment, it was located on the seashore. The site was discovered in 1981 by Lõugas and excavated in 1994, 1998 and 2000 by Aivar Kriiska. The place was inhabited in the Early Neolithic (ceramics of the Narva type) and in the Late Neolithic (the Corded Ware and textile-impressed ware, the

[3] The base date: 6255 ± 100 (TA-103) ^{14}C years.

specified type of the latter is not identifiable because of too small sizes of the sherds – Kriiska 2001). The radiocarbon dates (conventional) of charcoal collected in the hearths indicate only the early habitation phase, that is, 4500–4200 cal BC[4].

Characteristics of the ceramics and obtained dates

1. AI 4210: 649 Loona settlement site (Fig. 2).

Inclusions of the modelling paste: Shell debris and vegetable mixture (on the surfaces[5] and fractures, long impressions of fibres are observable).

Modelling technique: Modelled of bands (broad bands with N-type attachment[6]).

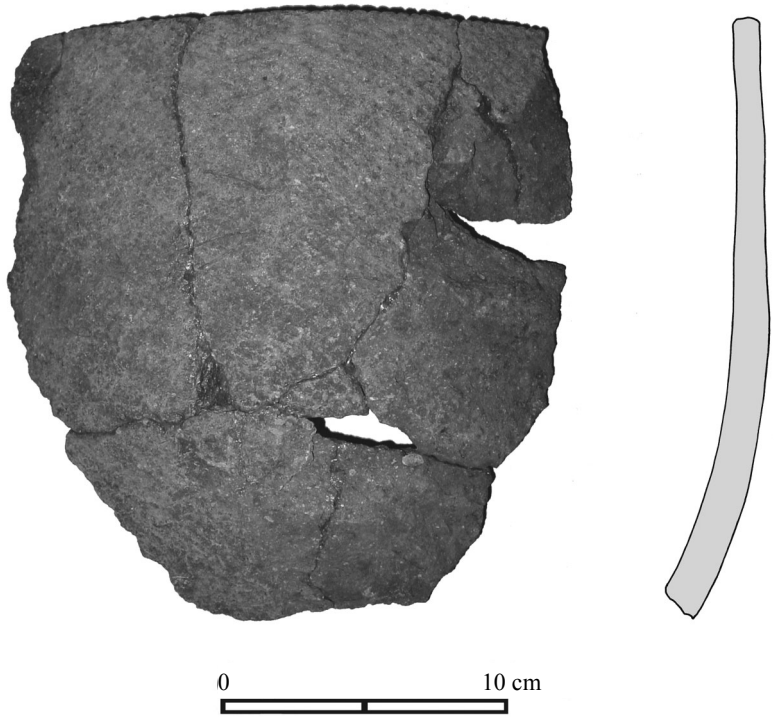

Fig. 2. Fragment of a clay vessel from Loona.

Joon 2. Loona savinõukatke.

[4] The base dates: 5698 ± 70 (Tln-1901), 5604 ± 52 (Tln-1873), 5575 ± 50 (Le-5452), 5464 ± 96 (Tln-1898), 5460 ± 100 (Ta-2686), 5370 ± 68 (Tln-1871), 5330 ± 90 (Ta-493) ^{14}C years.

[5] It is possible that the numerous fibriform impressions on the inner surface result from supporting the body of the vessel with a grass wisp while making the textile impression.

[6] Technological parameters defined as in Kriiska (1996).

Shape and size of the vessel: Probably a pot having a rounded bottom; diameter of the rim approximately 44 cm; height about 30–40 cm; the rim is thinning, unprofiled; thickness of the walls 11–13 mm; thickness of the rim 8–9 mm.

Surface treatment and ornamentation: The interior is striated, without ornamentation; the exterior is textile-impressed to the full extent, the rim bears diagonal grooves.

Textile impression: The impressions have been made with fabric woven in repp technique (Fig. 11a, Table 2). Both in the warp and the weft Z-spun yarns have been used, with the diameter of 1.5–2 and 3–3.5 mm, respectively. Thickness of the warp yarns has not been uniform. Weft yarns have been loosely spun but they are more uniform. In some places, the yarn has been flat and thus longitudinal unspun fibres are observable. The warp yarns were possibly made of nettle, and the weft yarns of bass (lime?).

Sample information: The sample was taken from the carbonized organics on the interior surface.

Date: 4165 ± 90 BP (Hela-751).

2. AI 4013: 8521 Akali settlement site (Fig. 3).

Inclusions of the modelling paste: Vegetable mixture.

Modelling technique: Modelled of bands.

Shape and size of the vessel: A pot; the rim is thickening, unprofiled; thickness of the walls 8 mm; thickness of the rim 11–12 mm.

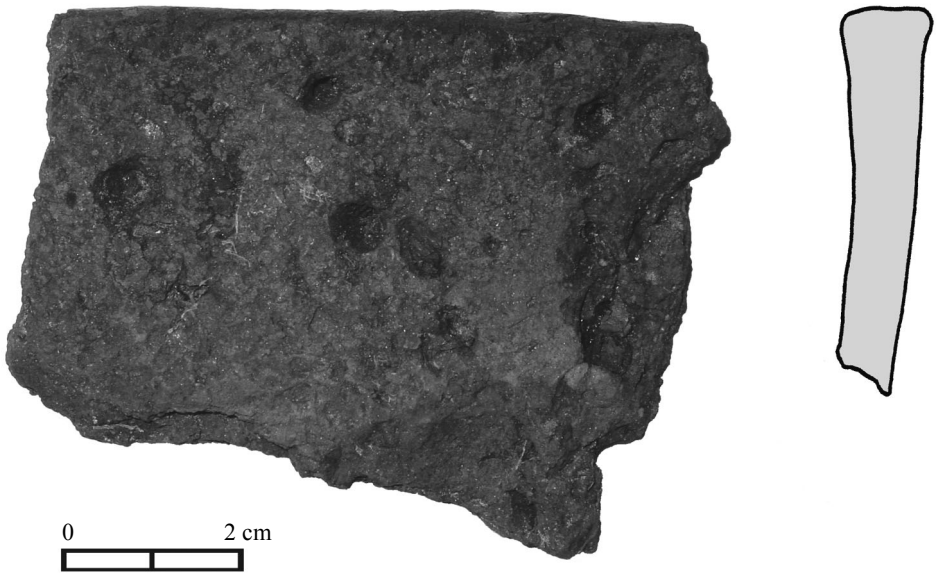

Fig. 3. Potsherd from Akali.

Joon 3. Akali savinõukild.

Surface treatment and ornamentation: The interior is smooth, without ornamentation; the exterior is textile-impressed to the full extent, two lines of pits occur below the rim.

Textile impression: The impressions have been made with fabric woven in repp technique that had an S-spun warp 2–2.5 mm in diameter, and a weft 4–5 mm in diameter (Table 2). The thickness of the warp yarns has not been uniform. The weft yarns have been loosely spun but they are uniform. In some places the yarn has been flat, unspun segments with longitudinal fibres are observable. The warp was probably made of nettle, but the weft material bass (lime?) could have been used as well.

Sample information: The sample was taken from the carbonized organics on the interior surface.

Date: 4055 ± 40 BP (Hela-752).

3. AI 4045: 1052 Kullamägi settlement site (Fig. 4).

Inclusions of the modelling paste: Vegetable mixture.

Modelling technique: Modelled of bands?

Shape and size of the vessel: A pot; the rim is thickening and curved outwards; thickness of the walls 8 mm; thickness of the rim 8.5–11 mm.

Surface treatment and ornamentation: The interior is smooth, without ornamentation; on the exterior a zigzag ornamentation of comb impressions (8 zones of zigzags) occurs on the rim, a textile impression is found below the rim, on the side wall.

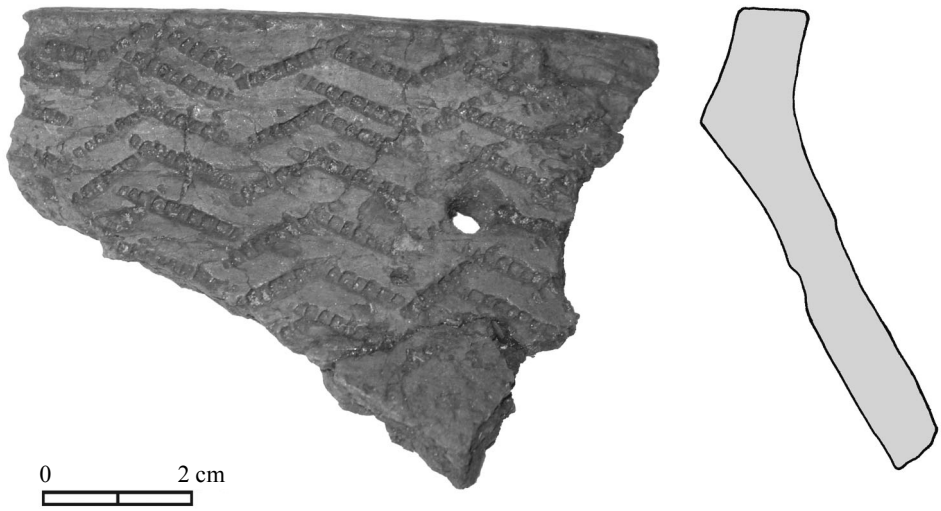

Fig. 4. Potsherd from Kullamägi.

Joon 4. Kullamäe savinõukild.

Textile impression: The impression is insufficiently preserved to be precisely identified.

Sample information: The sample was taken from the carbonized organics on the interior surface.

Date: 4140 ± 70 BP (Hela-754).

4. AI 4045: 1109 Kullamägi settlement site (Fig. 5).

Inclusions of the modelling paste: Vegetable mixture.

Modelling technique: Modelled of bands, 2–3 mm in width.

Shape and size of the vessel: A pot having a flat bottom; the rim is thickening and curved outwards; diameter of the orifice is approximately 40 cm; thickness of the wall 7–9 mm; thickness of the rim 14 mm.

Surface treatment and ornamentation: The interior is smoothed[7], on the rim there is a zigzag line of comb impressions; the exterior sides are textile-impressed to the full extent, the rim has horizontal and zigzag lines made by comb stamp (three single zigzag lines and four double horizontal lines).

Textile impression: The impression has been produced by textile made in tabby weave (?) (Fig. 11c, Table 2). The fabric has been quite dense; the thread count

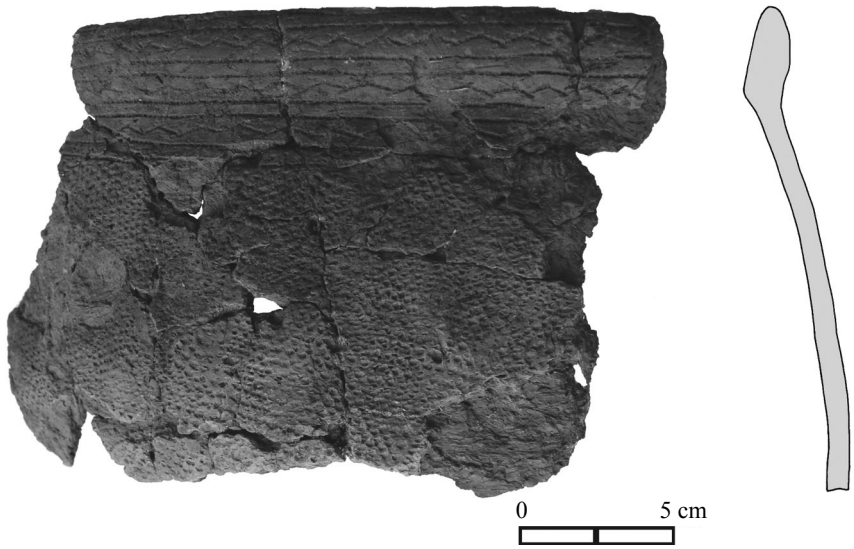

Fig. 5. Fragment of a clay vessel from Kullamägi.

Joon 5. Kullamäe savinõukatke.

[7] The interior surface is angular, possibly due to supporting the vessel with a hand while making the textile impression.

both in the warp and the weft is 6–8 per 1 cm, which is the largest number among the examined impressions. The warp was likely made of Z-spun yarn, while in case of weft yarn the spun was unidentifiable. The yarn has been tightly spun and is uniform in thickness. If the fabric has been woven on a loom (supposedly on the upright loom), it would be a firm evidence of fully established high-grade weaving skills and advanced technical implements. However, technically it is still possible that a material made in a simpler needle-netting technique was used as the matrix of the impression, since the impression of that material is very similar to the imprint of the fabric made in tabby weave (Fig. 13).

Sample information: The sample was taken from the interior surface of the vessel.

Date: 3605 ± 40 BP (Hela-755).

5. AI 4013: 3061 Akali settlement site (Fig. 6).

Inclusions of the modelling paste: Vegetable mixture.

Modelling technique: Modelled of bands?

Shape and size of the vessel: A pot having a flat bottom, the latter with salient edge; diameter of the bottom 10 cm; thickness of the walls 7–15 mm.

Surface treatment and ornamentation: The interior is striated, no ornamentation; the exterior is textile-impressed to the full extent, the salient bottom edge carries two lines of pits.

Textile impression: The impression is poorly examinable. Yarn 2.5–3.5 mm in diameter has been used as the warp, and yarn 3.5–4 mm in diameter as the weft (Table 2). The thickness of the warp yarns has not been uniform; the spun is unidentifiable (Fig. 11b).

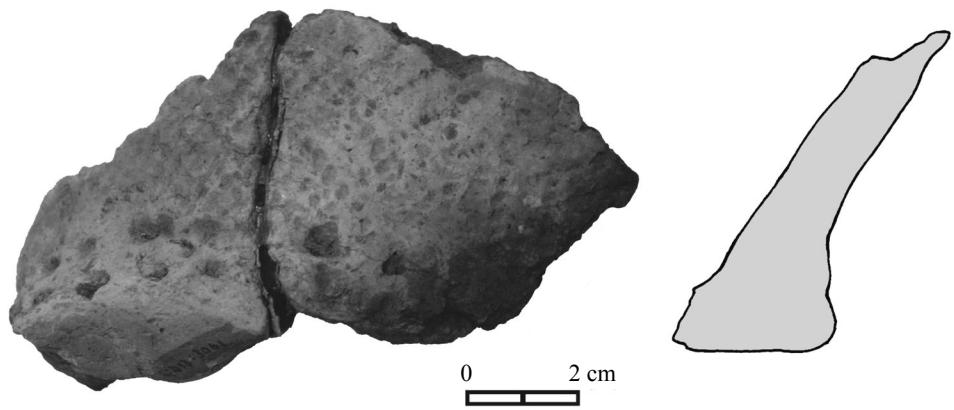

Fig. 6. Potsherd from Akali.

Joon 6. Akali savinõukild.

Sample information: The sample was taken from the carbonized organics on the interior surface.

Date: 4155 ± 65 BP (Hela-761).

6. AI 5030: 1–2 Assaku Kükita settlement site (Fig. 7).

Inclusions of the modelling paste: Rock debris.

Modelling technique: Modelled of bands (broad bands with U-type attachment).

Shape and size of the vessel: A pot; the rim is slightly curved outwards; diameter of the rim about 37–40 cm; thickness of the walls 11–12 mm; thickness of the rim 12–13 mm.

Surface treatment and ornamentation: The interior is smooth; the exterior is textile-impressed to the full extent, pits occur on the neck.

Textile impression: A fabric in tabby weave has been used as textile matrix (Fig. 11d, Table 2). The diameter of the unevenly spun yarn has been 2–2.5 mm in the warp and 2–3 mm in the weft. The density of both thread systems has been similar: in the warp 6–8 threads and in the weft 4–6 threads per 1 cm.

Sample information: The sample was taken from the carbonized organics on the interior surface.

Date: 2765 ± 50 BP (Hela-837).

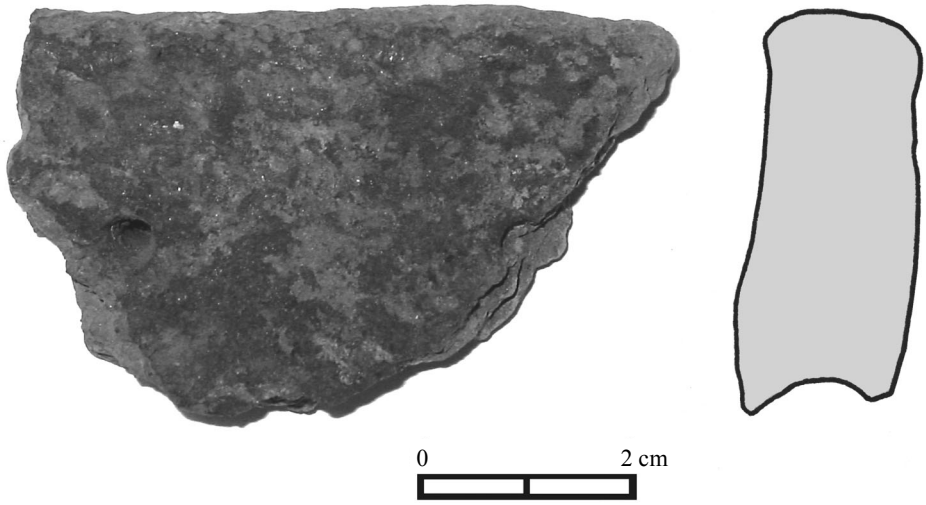

Fig. 7. Rim fragment of the dated clay vessel from Assaku Kükita.

Joon 7. Assaku Kükita dateeritud savinõu servaosa.

7. AI 4592: 1 Altküla settlement site (Fig. 8).

Inclusions of the modelling paste: Rock debris.

Modelling technique: Modelled of bands?

Shape and size of the vessel: A pot; the rim is thinning and slightly curved outwards; thickness of the walls 7–9 mm.

Surface treatment and ornamentation: The interior is smooth, without ornamentation; the exterior is textile-impressed to the full extent.

Textile impression: The material used for making the impressions has probably been made in the needle-netting technique (Fig. 12b, Table 2). The yarn, tight and Z-spun, was 2–2.5 mm in diameter.

Sample information: The sample was taken from the outer surface.

Date: 2885 ± 45 BP (Hela-838).

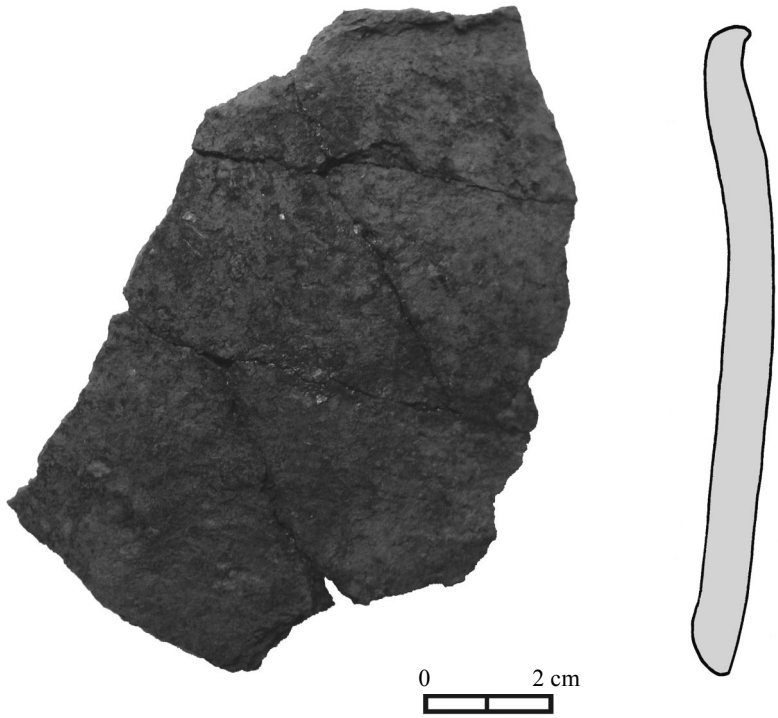

Fig. 8. Rim fragment of the dated clay vessel from Altküla.

Joon 8. Altküla dateeritud savinõu servaosa.

8. AI 6007: 1734 Kõpu IA settlement site (Fig. 9).

Inclusions of the modelling paste: Vegetable mixture.

Modelling technique: Modelled of bands (having U-type attachment).

Shape and size of the vessel: A pot; diameter of the rim approximately 20 cm; thickness of the walls 1.2 mm.

Surface treatment and ornamentation: The interior is smooth, without ornamentation; the exterior is smooth, without ornamentation.

Textile impression: No impression.

Sample information: The sample was taken from the interior surface.

Date: 5540 ± 55 BP (Hela-843).

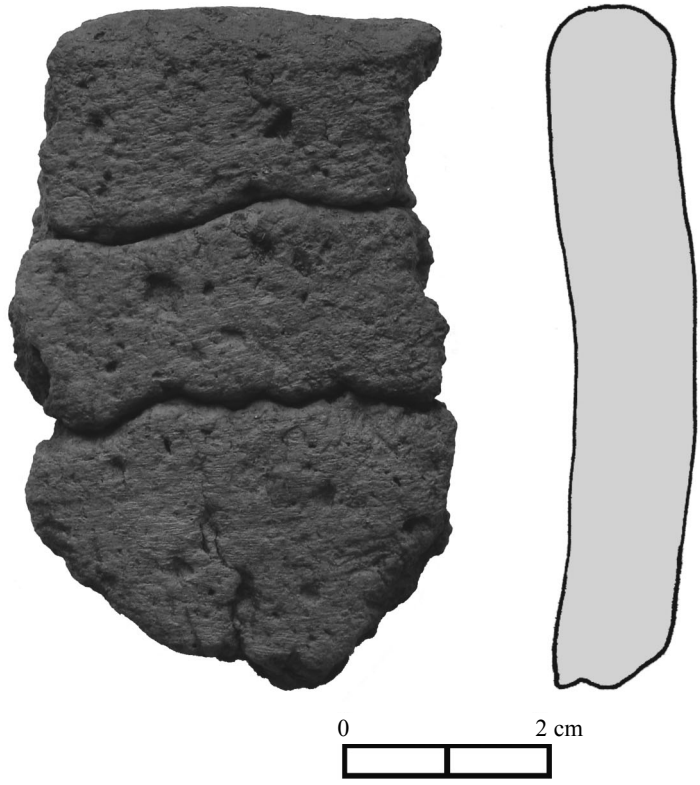

Fig. 9. Rim fragment of the dated clay vessel from Kõpu IA.

Joon 9. Kõpu IA dateeritud savinõu servaosa.

New dates and the ceramic typology

In Estonia, textile impressions occur on four types of ceramics. On rare occasions, textile impressions can be found on the surfaces of Late Combed Ware vessels. However, so far only few Late Neolithic (i.e. later than 3000 cal BC in date) settlement sites containing the Late Combed Ware pottery have yielded such finds. Sherds of this kind could be classified as the Late Combed Ware according to the composition of their modelling paste and modelling technique, as well as according to the shape and ornamentation (or the lack of the latter) of the vessel. In the frames of the current project, one potsherd supposedly of the Late Combed Ware type, found at the settlement site of Loona, has been dated.

In exceptional cases, textile impressions occur on the clay vessels which, on the basis of the other parameters and context, could be classified as the Corded Ware. In addition to the observations made in Estonia (Kriiska 2000, 66), the same phenomenon has been noted in Finland (Edgren 1970, 33) and in Latvia (Ванкина 1980, 56) as well. Also the Late Neolithic Pöljä Ware in Finland bears occasionally textile impressions (Meinander 1954a, 165–166).

In Estonia, the term "textile-impressed ware" is used in reference to two types of ceramics: (1) the Early Textile Ceramics and (2) the Textile Ceramics[8]. The former has been dated to the end of the Neolithic (in previous publications, the introduction of the textile-impressed ware has been dated to the 17th–16th centuries BC – Янитс 1959, 301) and to the Early Bronze Age, and the latter to the time span from the Late Bronze Age up to the middle of the Pre-Roman Iron Age in North and West Estonia (Valter Lang pers. comm. 15.03.2005), and up to the Middle Iron Age in Southeast Estonia (until the 6th century AD – Лаул 1997, 402). The Early Textile Ceramics and the Textile Ceramics differ from each other in the composition of the modelling paste as well as in the shape and ornamentation of the vessels.

The Early Textile Ceramics items are made of clay mixed with shell or rock debris, or with vegetable admixture. The vessels are large, although they have relatively small and flat bottoms. Their walls are strongly profiled; the rims are slightly curved outwards and, normally, a little thicker than the side walls of the vessel. The exterior sides of the vessels are covered by textile imprints and comb impressions (mostly in straight lines or in zigzag); the upper part of a vessel may bear sparse lines of pits or impressions made by cord coiled around a stick. Sometimes textile impressions are found on the rims and even on the interior sides of the vessel (Янитс 1959, 143–148).

[8] This is by no means a generally accepted designation. Thus, for instance, the Late Bronze Age coarse-grained pottery from the East European forest zone (including Estonia), which could also have textile impressions on the surfaces, has been termed as the ceramics of the Tapiola type and of the Asva type (Jaanusson 1981, 122; 1988, 173).

The Textile Ceramics vessels are made of clay tempered with mineral admixture consisting mainly of rock debris originating from the granite-gneiss group. The pots have been of various sizes, in exceptional cases even with the rim half a meter in diameter (Indreko 1939, 32). The shape of the vessels is simple: the walls are upright and the rims are slightly profiled. The rims are curved either outwards or inwards. In the latter case, the transition into the neck of the vessel is emphasized by a carinate extending sharply outwards (Lang 1991, 46). The textile impression covers either the entire exterior of the vessel or part of it, or is found only on the bottom. Sometimes textile impressions occur on the interior surface of the vessel as well. Ornamentation is relatively scanty and occurs usually only on the upper part of the vessel. The ornamentation elements include pits, circles, wound cord and finger-tip impressions, rarely also comb imprints (Vassar 1939, 80).

The new dates of the textile-impressed Late Combed Ware from Loona, and these of the Early Textile Ceramics from Akali and Kullamägi, indicate that both pottery types have been in use simultaneously in the Late Neolithic. Thus, they confirm the supposition made by Jaanits on the basis of the composition and find contexts of the ceramics that these types are partially synchronous, and that they first appear at the end of the Neolithic (Jaanits 1955, 181). The achieved dates do not enable us to ascertain the end date of these pottery types but, anyhow, the Late Bronze Age sites no longer contain this kind of ceramics.

The data from the settlement sites located in the mouth area of the River Emajõgi suggest that the Early Textile Ceramics and the Textile Ceramics have been "genetically" connected, i.e. merely the shape of vessels and composition of their modelling paste changed in the course of time. The fact that the Textile Ceramics in its characteristic features was fully formed already by the Late Bronze Age became evident by the investigations of the fortified settlements of Asva and Iru in the second half of the 1930s. The sample from Altküla provided a more exact date for the matter in question by locating this a little earlier than 1000 cal BC in the temporal scale.

Conclusions from material-technical analysis of textile impressions

Introductory remarks on the history of textiles

Concerning the oldest textile fabrics (in pure technical sense), references could be made to the fishing-nets made of bass or any other material, and to the other net-like braided artefacts that, evidentially, were in use in the Late Palaeolithic already. A find of the same kind from Estonia, the net remains and floats of pine bark found from the bog in Narva Siivertsi, is somewhat younger, dating to

the Late Mesolithic (Indreko 1931). The find from Antrea Korpilahti in Karelian Isthmus (Pälsi 1920), the net remains from Nidlöse and Ordrup bogs in Denmark (Becker 1941, 131; Hald 1980, 127, fig. 118) and from some other places belong to the same period. Net remains found from the settlement sites of Šventoji in Lithuania (Rimantienė 1979, 73–78) and Sārnate in Latvia (Ванкина 1970, 94–95) date to the Neolithic. The fishing-net of Antrea had been woven of common sallow (*Salix cinera*) bass (Kujala 1949), and these from Siivertsi, Šventoji and Sārnate of lime (*Tilia cordata*) bass (Indreko 1931, 56; Ванкина 1955, 144; 1970, 95). It is probable that already in those times, besides the fishing-nets also mats were braided, and perhaps some parts of the clothing as well. The Antrea net sheet wide of doubled bass yarn was approximately 27 m long and at least 1.3 m wide (Pälsi 1920, 17). It is hardly possible to produce this amount of high-quality yarn without special tools and, therefore, the use of a spinhook or even of a spindle already in the second half of the 9th millennium cal BC (^{14}C dates – Takala 2004, 151) should be assumed.

Along with the invention and development of new technical methods, the importance of various textiles in the everyday life increased. Unlike other materials used in prehistoric times, unfortunately very few textiles have preserved up to now. The oldest textile finds in Estonia (fragments of woollen stuff and bands) originate from as late as the Roman Iron Age. Therefore, the imprints of strings, yarn and cloth or cloth-like materials (mats for instance) on the ceramics provide, as a matter of fact, the only opportunity to have insight into the history of mastering and developing textile manufacture in Estonia and the neighbouring areas at the end of the Stone Age and in the early Metal Age. The study of impressions yields conclusions about the time of the emergence of several important textile manufacturing techniques and, to a certain extent, about their technical level. The AMS dates of textile-impressed ceramics allow us to suggest that some more advanced tools, such as hand spindle and weaving loom, came into use more than 1000 years earlier than hitherto believed.

Methods and results of the study of textile impressions

As the textile impressions on potsherds are in negative form, the surface imprints of the impressions were taken in order to obtain the reverse image using the dental modelling wax “Astynax”. The wax plates were softened by hot air. The gloss of the imprint was reduced and a light lustreless surface achieved with talc powder. A darker foil was achieved with extremely fine charcoal powder “Kindrus” used in photography. The image was examined in aslant falling light under binocular magnifier equipped with micro-measure. As in several cases

more than just one sherd of a particular vessel were available, it was possible to make complementary analyses in order to check the initial results. The averages of the obtained results are presented in Table 2.

By examining the textile impressions the type of weave, diameter of the yarn and, if possible, strand or spun of the latter, were identified. Yarn could have been spun clockwise (S-spun) or counter-clockwise (Z-spun). The binding of the fabric, i.e. the crossing-scheme of the warp and weft threads, as well as the density of the cloth, i.e. the number of the warp and weft threads in the section 1 cm long was ascertained. The impressions mostly originated from the fabric in tabby weave (Figs. 10a; 11b, d). At least one textile impression has resulted from a material made in the looped needle-netting technique (Fig. 12b). Tabby is the simplest weave when the weft passes alternately over and under the warp (Fig. 10a). The warp and weft are often of the same thickness and the distance between the threads is equal. Repp is a variation of tabby; the analysis is the same but one thread system is set closer than the other, or the warp and weft threads are of different thickness (Fig. 10b, c). Both the impressions of tabby and repp weave were represented. Looped needle-netting or simply needle-netting is a kind of sewing based on loops or meshes combined in various ways (Figs. 12, 13).

Table 2. Results of the technical analysis of textile impressions on the ceramics; wa – warp; we – weft

Tabel 2. Keraamika pinnal olevate tekstiilijäljendite tehnilise analüüsi tulemused

Site (store No.)	Binding	Density, thread/cm		Spun (S, Z)		Yarn diameter, mm	
		wa	we	wa	we	wa	we
Loona (AI 4210: 649)	repp	5–7	3.5–5	Z	Z	1.5–2	3–3.5
Akali (AI 4013: 8521)	repp	6–7	3–4	S	flat	2–2.5	4–5
Akali (AI 4013: 3061)	tabby	5–7	5–6	?	?	3–4	2–3
Kullamägi (AI 4045: 1109)	tabby (?)	6–(8)	6–(8)	S (?)	?	2–3	3–4
Assaku Kükita (AI 5030: 1–2)	tabby	6–7	4–6	S	S	2–3	2–2.5
Altküla (AI 4592: 1)	needle-netting	–	–	Z	–	2–2.5	–

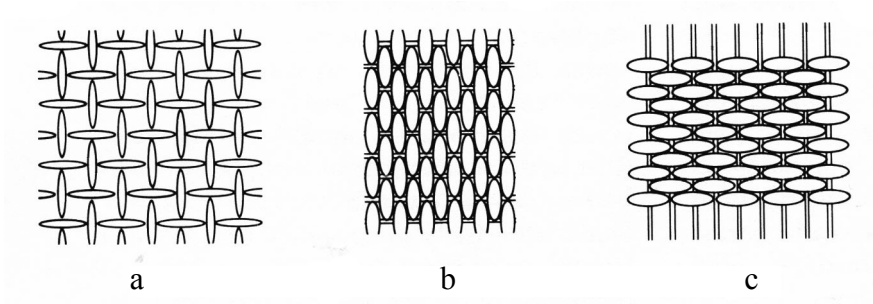

Fig. 10. Binding schemes. a plain tabby (linen), b, c repp.

Joon 10. Siduseskeemid. a lihtne labane sidus, b, c rips.

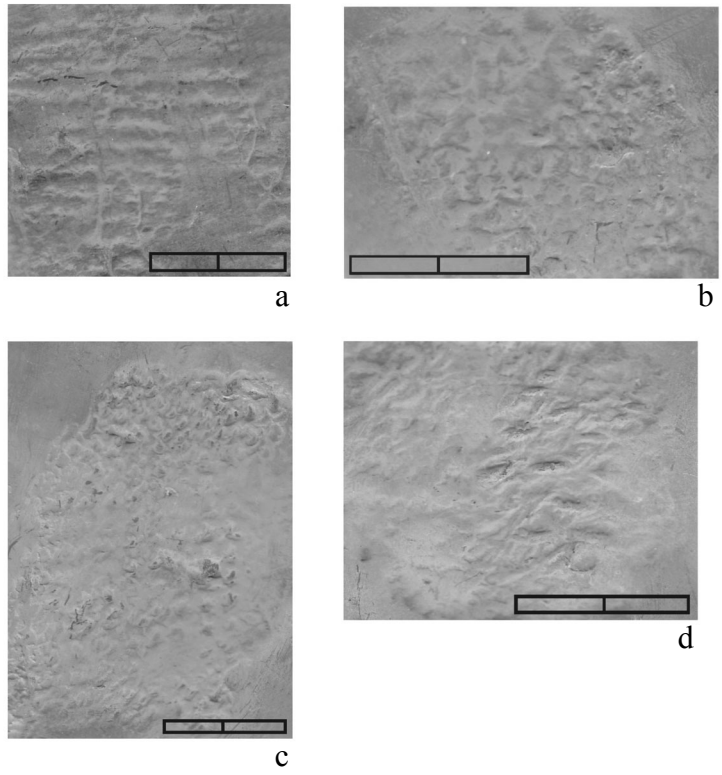

Fig. 11. Wax imprints from textile-impressed ceramics. a Loona AI 4210: 649 (repp), b Akali AI 4013: 3061 (tabby), c Kullamägi AI 4045: 1109 (tabby), d Assaku Kükita AI 5030: 1–2 (tabby).

Joon 11. Vahajäljendid tekstiilkeraamikalt. a Loona (rips), b Akali (labane), c Kullamägi (labane), d Assaku Kükita (labane).

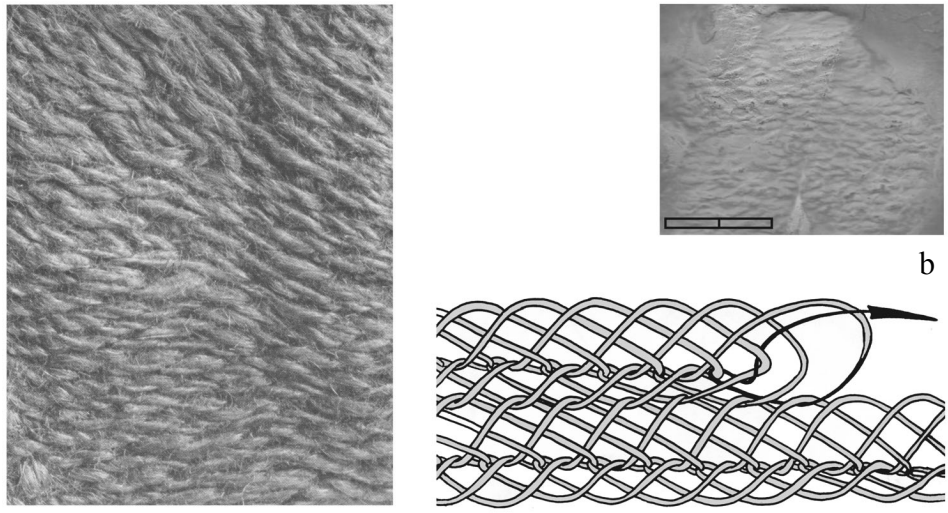

Fig. 12. Detail of the 1st century AD Åsle mitten made in needle-netting technique (after Hald 1980) (a), which is similar to the wax imprint from Textile Ceramics of Altküla (b), and scheme of type IIIc (c).

Joon 12. Detail 1. sajandil pKr nõeltehnikas valmistatud Åsle kindast (Hald 1980 järgi) (a), mis sarnaneb Altküla tekstiilkeraamikalt võetud vahajäljendiga (b), ja tüübi IIIc skeem (c).

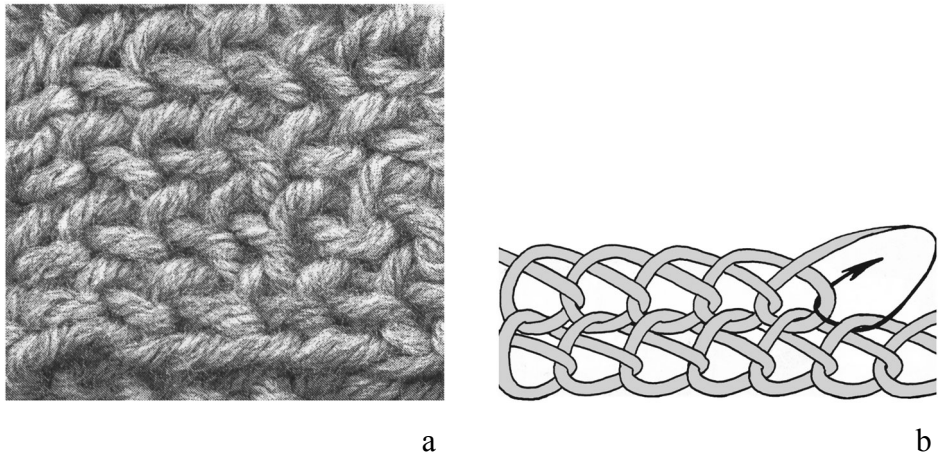

Fig. 13. A piece of cloth made in needle-netting technique of type IIb (a), and the corresponding scheme (b).

Joon 13. Nõeltehnika tüübi IIb kohaselt valmistatud tekstiililapp (a) koos skeemiga (b).

Materials of the textile matrices

In the forest zone the oldest sources for fibre have been, in all probability, bass and nettle. As mentioned above, fishing-nets stranded of bass cords were in use in the Mesolithic already. Later on, the bass was often used for making ropes. For instance, remains of bass cords frequently occur in the cultural layers of medieval towns.

Probably at the same time also nettle (*Urtica diocia*) came into use as a source for fibre. Together with hemp and hop, nettle belongs to the nettle order (at the same time, hop belongs to the Cannabaceae family). Nettle and hop are the components of the few remains of the Estonian relic flood plain forests. As the flood plain forests were among the first landscape components in the Estonian vegetation, which became influenced by human impact, the question emerges whether these species are the relics of the first plants naturalized in our region (Laasimer 1965, 74).

The North Siberian peoples still used thread of nettle fibre for sewing as late as at the beginning of the 20th century. In Europe, the nettle was utilized as an additional fibre source in Germany at the time of World War I (Stokar 1938, 57). In Finland the fabric of nettle fibre woven on handloom was used as wrapping material at the time of the Winter War and the War of Continuation (Leena Tomanterä pers. comm. 2002). Remains of the Neolithic and Bronze Age nettle fabric have been discovered in Denmark (finds from Slotshøj and Voldtofte). In North Europe, the nettle has been present since the Boreal climatic period (Tolonen 1981, 216; Hald 1980, 127); as a nitrofile, it grows especially willingly in the vicinity of human settlements. According to the description by U. T. Sirelius, transmitted by Manninen (1929, 305), in summertime the winter huts of the Khantys are "… often buried in a thick nettle coat that billows like a cornfield around them". Probably the picture was the same at the winter camps of hunter-fisher-gatherers of that time in our region as well. It is unlikely that the fibre source so easily obtainable and growing en masse remained unexploited. In some places, the Khanty and Mansi peoples of West Siberia braided nets of nettle fibre and wove nettle fabric as late as at the outset of the 20th century. For that purpose, they collected nettles after moving to their winter huts in autumn; subsequently the plants were sheaved and set under the eaves to wither (Manninen 1929, 305). It seems that trampling in the places where the nettle was growing en masse was wittingly avoided in order to protect these fibre plants.

To obtain fibre, the withered nettles were retted and barked with the help of a small wooden artefact, ethnographically called *luda*, or teeth (Manninen 1929, 306). Subsequently the material extracted from the pith was pounded with a pestle and scutched using wooden or bone knives (Hald 1980, 125). Also in the Far East and North America, fishing-nets were braided and cloth was woven of yarn spun of nettle fibre. Several languages contain evidence of the exploitation of the nettle as a fibre plant. Thus, once the original meaning of Finnish *pellava* (flax) was

"the nettle" (Toikonen *et al*. 1962, 514). In Latvian, an analogous relation exists between nettle – *nātre*, and linen – *nātns* (Mühlenbach 1925, 702).

The hop (*Humulus lupus*), too, could be considered as an important natural fibre plant. In Estonia, the hop started to spread in the Atlantic climatic period. Probably rather soon and along with the increasing cultivation of barley, hops became known as an appropriate admixture in making beer. However, direct evidence of the exploitation of the hop as a fibre source is absent in the archaeological record as well as in written sources and folklore. Yet, the hempen fibre is long and, due to various vegetable poison substances, it is resistant to mildew, especially to that caused by moisture (the observations made by Jüri Peets). If it was still used as a fibre source, it was presumably processed in the same manner as was flax or nettle. The other researchers, too, note the exploitation of the hop as a fibre plant (e.g. Hald 1980, 130).

The flax (*Linum usitatissimum*) is deservedly looked upon as one of the oldest cultured plants in the world. In Europe the evidence of its use has been obtained, for instance, from the Neolithic pile-dwellings in Switzerland and from the ancient settlement sites of the same age in East and Central Europe, in Belorussia and Germany, respectively (Чернявский 1969, 87; La Baume 1955). However, no analogous data are available from Estonia so far. The oldest remains of linen cloth from Estonia, small fragments of a fine-woven fabric, were found along with the hoard of Pilistvere, dating to the 6th century AD (Moora 1957, 203). In the lake sediments of South Finland (Häme) and North Sweden, the flax pollen appears relatively late as well, not until the 5th century AD. The same is also valid for hemp (*Canabis sativa*). Somewhat earlier, in the Pre-Roman Iron Age at the latest, flax cultivation had started in the Netherlands and North Germany (Lempiäinen 2003, 330).

In general, all the researchers who have studied textile-impressed ware have unanimously agreed that as the textile matrix, the fabric woven of plant fibre was used. First of all linen or hempen cloth has been considered, but the use of the nettle has been admitted, too (e.g. Laul 1966, 99). Woollen fabric, on the other hand, was *a priori* considered to be too soft for obtaining a clear imprint.[9] And yet, the impression on the ceramics found from the Altküla settlement site, made with the fabric that was identified with a considerable certainty as having been made in needle-netting technique, possibly indicates the use of woollen cloth. Whereas needle-netting has been often used for producing things of woollen yarn (mittens, socks, caps, etc.), J. Peets took, as an experiment, some wax imprints from modern woollen mittens made by needle-netting and knitting, and from a rather coarse medieval cloth fragment. While experimenting on dry textiles, difficulties arose in removing the hardened wax. Wet fabric, on the contrary, detached itself from the wax easily, leaving distinct and detailed weave imprints

[9] However, according to Russian researcher I. Tshernay (Чернай 1981, 84), the basis for the extensive spread of the textile-impressed pottery in the Dyakovo Culture area was created exactly by the outset of sheep rearing and, along with this, by the use of wool in cloth manufacturing in the third quarter of the 2nd millennium BC in the East European forest zone.

on it. Therefore, it is possible that the woollen fabric was applied as a textile matrix in the prehistoric times, too. From the technological point of view, it is possible that the textile impressions were pressed onto the surface of the clay vessel with a mittened hand. The mitten could have been sewn of woven fabric or made by needle-netting.

The relatively late start of flax cultivation in Estonia (presumably not much earlier than in Finland) excludes the possibility that the textile impressions on the Neolithic and Bronze Age[10] clay vessels originate from the fabric made of flax or hemp fibre. The impressions on the earlier textile-impressed ware have probably been made with the fabric of natural fibre material (of nettle or bass fibre), and these on the Textile Ceramics presumably also with linen or woollen cloth.

Conclusions

The new dates obtained confirmed the conclusion made on the basis of find context, first of all on the grounds of the horizontal stratigraphy of the Akali and Kullamägi sites, that in the Estonian area textile impressions were made on clay vessels already at the end of the Neolithic. However, the earliest of the recent dates – 2800–2700 cal BC – turned out to be approximately 1000 years older than hitherto assumed. The Late Combed Ware involving textile impressions and the Early Textile Ceramics that are clearly distinct from each other both in shape and ornamentation are, in general lines, contemporaneous. Although the dates are few in number, they still indicate that the Early Textile Ceramics has been produced during a considerably long period of time. For the present, the temporal distance between the earliest and the youngest date is a little less than 1000 years. Let us mention here that the textile-impressed sherds of the Corded Ware found in the Riigiküla XIV settlement site, which are the only sherds of this kind radiocarbon dated on the basis of charcoal collected from the site, originate from the same period (about 2500 cal BC in date[11]).

The new dates made some corrections also in regard to the younger pottery type or, as common in the Estonian research tradition, to the Textile Ceramics. The sample from Altküla shifts the date of the potsherds from this particular site approximately 1000 years back in time, as up to now it was assumed that the sherds originated from the Pre-Roman Iron Age settlement site (Jaanits *et al*. 1982, 176). At the same time this date, as that from the Assaku Kükita site, indicates

[10] The oblong bone and antler artefacts found from the cultural layer of the Late Bronze Age fortified settlement of Asva, interpreted as combs for scutching the flax, were formerly considered as the oldest sign of flax cultivation in the Estonian area (Jaanits *et al*. 1982, 144). However, ethnographical parallels allow us to consider them reaping tools, so-called weed sickles. Summer crop, especially lodged barley, was weeded together with roots, using an obtuse sickle or a fragment of it. On Saaremaa Island, for example, such weed sickles were still in use at the outset of the 20th century (Manninen 1933, 180–181).

[11] The base date: 3970 ± 100 (Ta-2680) ^{14}C years.

that the Textile Ceramics with its typical form and composition of clay mass was fully established already by the very beginning of the Late Bronze Age.

The potsherd found from the Kõpu IA settlement site was dated to the Early Neolithic, indicating that the fragment was not of the Corded Ware but of Narva type. This confirms once again that it is easy to be mistaken while identifying ceramics of similar composition, modelling technique and surface treatment, without additional support from the differences in typical ornamentation.

The textile impressions on the dated potsherds seem to have been pressed onto the surfaces of the vessels using fabrics made in different techniques. The majority of the impressions were made with fabric in tabby weave. The imprints studied were made with fabrics that had the same or similar density of the thread systems, as well as with repp. Only in case of repp it is possible to assert with 100% certainty that the fabric has been produced by weaving (the weft and warp yarns are different in diameter, which would be excluded in case of needle-netting technique). But problems emerge with textile impressions made with fabrics having the same density of the thread systems and threads of the same thickness, since it is not always possible to distinguish the woven fabric from the needle-netted material.

At least the textile impressions on the Neolithic pottery were made using fabric woven of natural fibre material, that is, of nettle or bass fibre. Later, the linen or even woollen cloth could have been used as well.

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Aivar Kriiska, Mika Lavento ja Jüri Peets

UUED AMS-DATEERINGUD EESTI NEOLIITILISEST JA PRONKSIAEGSEST KERAAMIKAST. ESIALGSED TULEMUSED JA INTERPRETEERINGUD

Resümee

Keraamikatüpoloogiatel on läbi arheoloogiaajaloo olnud oluline osa esiajaloo periodiseeringute ja kronoloogiate koostamisel. Muud muististe dateerimise meetodid ei ole keraamikatüpoloogiat tänini asendanud, kuigi viimast on mitmel põhjusel ka kritiseeritud. Hilisneoliitilised ja nooremad elupaigad on sageli multiperioodsed, kasutatud katkematult või vaheaegadega mitmel esiajalooperioodil. Seetõttu on neist keraamikale või ka teistele leidudele kindlat konteksti raske leida. Täpsemaid või vähemalt täpsustavaid tulemusi annavad tüpoloogiad, mis on aga samas meetodina ebatäpsed, kui tüüpe ei või siduda loodusteaduslike meetoditega saadud dateeringutega.

Tänapäeval on keraamikatüpoloogiaid oluliselt korrigeerinud savinõukildude pinnal säilinud väikestest söestunud orgaanikakogustest (karboniseerunud toidujäänustest) tehtavad AMS- (*Accelerator Mass Spectrometry*) dateeringud, saadud vanuste kalibreerimine päikeseaastateks. Kui pinnases ei ole pärast kultuurkihi ladestumist mingeid erakordseid protsesse toimunud, siis on kõrbekiht ja savinõu ühevanused.

Olles huvitatud võimalusest savinõusid võrrelda, tuleb tõdeda, et keraamika vanusemäärangud on enamasti ikka veel saadud kinnismuististe, savinõukildude leiukonteksti ja vormi- ning ornamendimuutuste põhjal. Probleemiks on samuti see, et mitmed keraamikatüpoloogiad on koostatud aastakümneid tagasi. Samas on aga olulisel määral lisandunud uusi leide. Nii ei ole eri maades kasutatavad tüpoloogiad enam üheselt võrdluskõlblikud. Ühelt poolt on uued leiud ja kontekstid sattunud vastuollu varasemate tüpoloogiatega, sundides aga teisalt ka nende aluseid ümber vaatama.

Soome, Karjala ja Eesti tekstiilkeraamika uurimisega on selgunud, et C. F. Meinanderi poolt enam kui poole sajandi eest Läänemere idarannikul eristatud ja pronksiajaga dateeritud Sarsa-Tomitsa tüüpi keraamika vajab mitmes osas uut määratlust. Üks selle keskne tunnus – tekstiilivajutus – esineb tegelikult mitmes neoliitilises keraamikarühmas ja Eesti ning Vene aladel jätkus tekstiilijäljendiga kaetud savinõude kasutamine kuni rauaaja keskpaigani. Kui tekstiilkeraamikaks loetakse kilde tekstiilivajutuse põhjal, katab see mitmeid praegu omaette rühmadena eristatavaid keraamikatüüpe (Eestis hiline kammkeraamika, nöörkeraamika, varane tekstiilkeraamika ja tekstiilkeraamika).

Samavõrd huvitav on ka tekstiilivajutistega kaetud keraamika "algupära" küsimus: kas see lähtub traditsioonist, mille alguse võime dateerida ja lokaliseerida ühte piirkonda, või on pigem tegu ilminguga, mis on "leiutatud" sõltumatult mitmes Euroopa piirkonnas?

AMS-dateeringud anavad aga lisateavet ka nende muististe kohta, kust konkreetsed savinõukillud pärinevad, ning loomulikult on uued vanusemäärangud olulised ka tekstiiliajaloo seisukohalt.

Eesti tekstiilijäljenditega keraamika dateerimisprojekti, mille esialgsed tulemused on käesolevas artiklis avaldatud, peamiseks eesmärgiks on luua alus Eestist leitud tekstiilivajutistega keraamika AMS-dateeringutele põhinevale kronoloogiale. Lähtekohaks oli algselt 12 proovist koosnev valim vanimatest ja probleemsetest Eesti asulakohtadest leitud savinõukildudest. Kõigilt keraamikakildudelt võetud kõrbekihtide proovides ei olnud aga dateeringute tegemiseks piisavalt süsinikku, mistõttu täiendati valimit hiljem uute proovidega. Kui kõrbekihti ei olnud tekstiilivajutistega savinõukildudel säilinud, siis võeti erandina proov samast asulakohast leitud teist tüüpi keraamikalt. Käesoleva artikli kirjutamise ajaks on Helsingi ülikooli dateerimislaboris tehtud 8 dateeringut.

Dateerimiseks valiti savinõukillud kolmest tekstiilijäljendiga kaetud keraamikatüübist ning keraamikast, mis koostise ja pinnatöötluse järgi liigitati algselt nöörkeraamikaks (Kõpu IA, joon 9). Viimane võeti asulakohast, kust on leitud ka (varast?) tekstiilkeraamikat, kuid selle pinnal ei olnud AMS-analüüsiks piisavalt kõrbekihti. Pooled käesolevas artiklis esitatavatest dateeringutest on keraamikast, mis pärineb Ida-Eestist Peipsi järve läänerannikul Emajõe suudmealal paiknevatest Akali ja Kullamäe asualakohtadest (joon 1: 3–6). Need asulakohad on aga ka kõige olulisemad ja rikkalikumad varase tekstiilkeraamika leiukohad kogu Eestis. Sealsete leidude põhjal see keraamikatüüp üldse Lembit Jaanitsa poolt eristati ning planigraafia ja kaasleidude järgi dateeriti. Kaks savinõukildu pärine-

vad asulakohtadest (Assaku Kükita ja Altküla, joon 7, 8), mille kontekst ja varasemad oletuslikud dateeringud andsid lootust saada teavet selle tekstiilijäljendiga keraamika "arengutest" nooremal pronksiajal ja eelrooma rauaajal.

Eestis esineb tekstiilijäljendeid neljal keraamikatüübil. Üksikjuhtudel on tekstiilijäljendid kantud hilise kammkeraamika nõude pinnale, kusjuures neid on seni leitud vaid vähestest hilisneoliitilistest hilise kammkeraamikaga asulakohtadest. Erandina esineb tekstiilivajutisi ka muude parameetrite ja konteksti järgi nöörkeraamikaks liigitatavatel savinõukildudel. Kahe savinõude tüübi puhul kasutatakse Eestis tekstiilkeraamika nimetust, jagades need varaseks tekstiilkeraamikaks ja tekstiilkeraamikaks. Esimene on dateeritud neoliitikumi lõpuga (varasemas kirjanduses on varase tekstiilkeraamika algus ajaldatud 17.–16. sajandiga eKr) ja varase pronksiajaga, teine nooremast pronksiajast kuni eelrooma rauaaja keskpaigaga Põhja- ja Lääne-Eestis ning keskmise rauaajaga Kagu-Eestis. Varane tekstiilkeraamika ja tekstiilkeraamika erinevad üksteisest nii vormimismassi koostiselt kui ka nõude kujult ja ornamendilt.

Varane tekstiilkeraamika on valmistatud teokarbi-, kivipurru- või taimse lisandiga segatud savist. Nõud on suured ja samas suhteliselt väikese lameda põhjaga. Külgseinad on neil tugevasti profileeritud, servad kergelt väljapoole pööratud ja tavaliselt külgseinast pisut paksemad. Nõude välispinda katavad tekstiilijäljendid ja kammivajutised; ülaosas võib olla harvade ridadena lohke või pulga ümber keeratud nööriga tehtud vajutisi. Mõnikord on tekstiilijäljendit ka serval ja isegi nõu sisepinnal.

Tekstiilkeraamika on valmistatud mineraalse lisandiga, peamiselt graniidigneissi rühma kivimite purruga segatud savist. Potid on olnud erineva suurusega, erandina isegi ligi poolemeetrise suuava läbimõõduga. Nõud on lihtsa kujuga: püstiste seinte ja vähe profileeritud servaosaga. Serv võib olla pööratud välja- või sissepoole. Viimasel juhul võib üleminek kaelaosale olla rõhutatud ka läbi teravalt väljaulatuva nivendi. Tekstiilijäljend võib katta kogu välispinda, osa sellest või olla vaid põhjal; mõnikord on tekstiilijäljend ka sisepinnal. Ornament (lohud, sõõr- ja näpuvajutised, ümber pulga mässitud nööri ning harva ka kammivajutised) on vähene ja tavaliselt vaid nõu ülaosas.

Uued dateeringud Loona tekstiilijäljendiga kaetud hilisest kammkeraamikast ning Akali ja Kullamäe varasest tekstiilkeraamikast osutavad, et need on olnud kasutuses üheaegselt hilisneoliitikumis (tabel 1). See kinnitab Jaanitsa poolt keraamika koostise ja leiukontekstide järgi tehtud oletust, et need tüübid on osaliselt samaaegsed ja saavad alguse neoliitikumi lõpul. Nende kasutamise lõppu ei võimalda saadud dateeringud määrata, kuid noorema pronksiaja muististes sellist keraamikat enam ei esine. See, et tekstiilkeraamika oma iseloomulike joontega oli välja kujunenud juba nooremal pronksiajal, sai selgeks Asva ja Iru kindlustatud asulakohtade uurimisel 1930. aastate teisel poolel. Altküla dateering täpsustab selle vanuse esialgselt veidi vanemaks kui 1000 aastat eKr.

Kuna esiajaloolised tekstiilid on säilinud vaid erandjuhtudel, on nööri, lõnga ja riide või riidelaadse materjali jäljendid keraamikal eriti oluliseks aluseks (kiviaja lõpu ja metalliaja varasemal järgul Eesti alal seni isegi ainsaks võima-

luseks), uurimaks tekstiilide valmistamisoskuse omandamist ja arengut. Jäljendite uurimine võimaldab teha otsuseid mitmete oluliste tekstiiltehniliste võtete kasutuseletuleku aja, aga teatud määral ka tehnilise taseme kohta.

Vaatlusaluses valimis määrati tekstiilijäljenditel koendi tüüp, kasutatud lõnga läbimõõt ja võimaluse korral säie ehk keerd. Lõng võib olla kedratud päripäeva (S-keere) või vastupäeva (Z-keere). Riidejäljenditel määrati koendi sidus ehk lõime- ja koelõngade ristumisskeem ning kanga tihedus, s.o lõime- ja koelõngade arv 1 cm pikkusel lõigul (tabel 2). Jäljendid pärinesid enamikus labasest (joon 10: a; 11: b–d), harvem ka ripssidusest riidest (joon 10: b, c; 11: a). Vähemalt üks tekstiilijäljend pärineb nõeltehnikas valmistatud esemelt (joon 12, 13). Varasemal keraamikal on tekstiilijäljendid tehtud ilmselt looduslikust kiudmaterjalist – nõgese- või niinekiust kootud riidega, hilisemal arvatavasti ka linasest või isegi villasest materjalist riidega. Viimasele võib osutada nõeltehnikana identifitseeritud tekstiilmaterjali jäljend Altküla asulakohast leitud keraamikal.

Dateeritud savinõukildudel esinevad tekstiilijäljendid on kantud nõude pinnale erinevates tehnikates valmistatud riietega. Nendest enamiku moodustas labases koes materjal. Esindatud jäljendid olid nii ühesuguse või lähedase tihedusega lõngasüsteemidega kangast kui ka ripsist. Vaid ripsi puhul võib kindlamalt väita kootud kanga kasutamist (koe- ja lõimelõngad on erineva läbimõõduga, mis nõeltehnikas valmistatud materjali puhul on välistatud). Seevastu ühesuguse tihedusega lõngasüsteemide ja samajämeduste lõngadega tekstiilijäljendite puhul tekib probleeme: alati pole võimalik eristada kootud kangast nõeltehnikas valmistatud materjalist (joon 13). Tänu tekstiilijäljenditega keraamika täpsustavatele AMS-dateeringutele nihkus täiuslikumate töövahendite – kedraga käsivärtna ja kangaspuude – kasutuseletuleku aeg seni aktsepteeritust enam kui 1000 aastat varasemaks. Vähemalt neoliitilisele keraamikale on tekstiilijäljendid tehtud arvatavasti looduslikust kiudmaterjalist – nõgese- või niinekiust kootud riidega, hiljem kasutati ehk ka linast või isegi villast riiet.

Kokkuvõttes kinnitasid AMS-dateeringud konteksti, ennekõike Akali ja Kullamäe planigraafia põhjal tehtud järeldust, et tekstiilijäljendeid hakati Eesti alal savinõudele tegema juba neoliitikumi lõpul. Tõsi, meie vanimad dateeringud – umbes 2700 aastat eKr – osutusid seni pakutust küll umbes 1000 aastat vanemaks. Tekstiilijäljenditega hiline kammkeraamika ja vormilt ning ornamendilt selgesti eristuv varane tekstiilkeraamika on laias laastus üheaegsed. Kuigi dateeringuid on veel vähe, osutavad need, et varast tekstiilkeraamikat on valmistatud küllalt pika aja jooksul.

Nooremasse, Eesti mõistes tekstiilkeraamikasse tõid uued dateeringud samuti korrektuure. Altküla keraamika dateering nihutab konkreetselt selle objekti savinõukillud ligi 1000 aasta võrra vanemaks varem esitatud oletusest, et tegemist võiks olla keraamikaga eelrooma rauaaja asulakohast. Samas osutab see koos Assaku Kükita dateeringuga, et päris noorema pronksiaja alguseks oli iseloomuliku vormimismassi koostise ja kujuga tekstiilkeraamika juba välja kujunenud.

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Tõnno Jonuks

ARCHAEOLOGY OF RELIGION – POSSIBILITIES AND PROSPECTS

The following article consists of three parts. The first part provides a short overview of the study of the history of Estonian prehistoric religion since the 18th–19th centuries Baltic-German scholars until the most recent studies by Estonian archaeologists. The overview aims to characterise the current situation of research and explicate the contemporary understanding of prehistoric religion. The second part of the article discusses the sources and defines some important key terms which have been used in the following, drawing a distinction between folk religion, pre-Christian religion and prehistoric religion, and rituality and significance of stone graves. Phenomenology, the most commonly applied method in Estonia, has been discussed at some length. The third part emphasises six main approaches, which the author of the article considers of importance in the study of prehistoric religion – namely, religion is dynamic and undergoes constant changes; each new religious phenomenon is incorporated into previously existing context; the study of prehistoric religion is only effective in interdisciplinary approach; understanding the importance and role of rituality; the importance of explicating key terminology; and studying religion against a general framework.

Artikkel on jagatud kolmeks. Esimene osa annab lühikese ülevaate Eesti muinasusundi uurimisloost, alustades 18.–19. sajandi baltisaksa uurijatest ja lõpetades eesti arheoloogide viimaste uurimuste ülevaatega. Selle eesmärgiks on näidata uurimissituatsiooni seisu ning põhjendada meie praegust arusaamist muinasusundist. Artikli teises osas arutletakse muinasusundi allikate ning mõnede olulisemate terminite üle. Mõnevõrra on analüüsitud ka Eestis valdavana kasutatud metoodikat – fenomenoloogiat. Kolmandas osas rõhutatakse kuut lähenemiskohta, mis artikli autori arvates on muinasusundi uurimisel olulised: religioon on dünaamiline ning see muutub ajas pidevalt; iga uus religioosne fenomen sobitatakse varasemale põhjale; muinasusundi uurimine on tulemusrikas vaid distsipliinidevahelisena; rituaali roll nii usundis kui eriti uurimismetoodikas; oluliste terminite defineerimine; laiema tausta arvestamine usundiuurimisel.

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It has become a common joke that if an archaeologist discovers an object he or she finds hard to interpret or assign a precise function to, it is categorised as a cultic object. Behind the joke, however, lies the bitter fact that this often results

in losing scientific interest in the object. Furthermore, the object is displayed on the covers of various publications, thus surrounded with a "cultic" aura, rendering it impenetrable and even ruling out the possibility that it may be understood; so, any interpretation leads to defining the object as a "cultic" or "ritual" object.

In the following I will attempt to analyse some approaches, and examine how and on which basis is the study of religious objects and prehistoric religion in Estonia productive and enables progress in the area of research – namely, progress from "cultic objects" to speculations about religious beliefs at the time the objects were used. Some lines of thought will, no doubt, lead to speculations, but speculations on religion will be certainly gratifying. Perhaps even more than in other areas of archaeology. Speculation is, after all, a form of argumentation and refuting wrong speculations may lead to more promising conclusions and will rule out at least some of the numerous possibilities.

The entire discussion that follows will deal with the Estonian material, the history of studying prehistoric religion and research possibilities. I believe that in building comprehensive universal theories there is more risk to cross paths with phenomenologists, where theories are applicable only on a very general scale and enable to analyse only the general human religious behaviour. Similar extensive lines of argumentation will naturally form the foundation for narrower studies. But the history of religion in a specific region, like Estonia, is directly linked to the source material of the region, and theoretical argumentations based on the material of other regions can be applied only on a very general scale.

On the history of study

Since the systematic study of religion emerged already in the 19th century, simultaneously with the awakening of National Romanticism, literature and scholars on the topic abound. True, the folk religion which remains outside mainstream Christianity and therefore has been mostly considered a superstition, has attracted constant scholarly interest since the mediaeval period and particularly by the clergy, who considered "recognising and rooting out the Satan" imperative. Analogous pieces of writing, which have been mostly affected by the classical antiquities and Romanticist approaches, have proved effective in studying the 18th–19th centuries mentality, but provide a rather subjective view of prehistoric religious conceptions.

In relation to the all-European national Romanticist movement in the 19th century, the focus of interest shifted from the contemporary superstition characteristic of the mediaeval period to the pure and innocent nature religion, untouched by the influences of Christianity, of the ancient heroicised period of independence. This was, in various aspects, a remarkable period and has exerted its indirect influence on conceptualising religion until today. This period saw the compiling of the national epic, which the non-academic audience still regard as authentic folklore, which has been orally transmitted from one generation to another from

prehistoric times. Also, folklore collection got a head start around the same period with one of its main foci on belief reports. At the same time, in 1881, the Chronicle of Henry of Livonia was translated into Estonian (Tarvel 1982, 14) and some time prior to that the connection between the Ebavere hill and the birth place of the ancient god Tharapita, the only pagan god we know, first mentioned in the Chronicle of Henry, was established (Knüpffer 1836).

Thus, in the 19th century the foundation was laid for many conceptions that were quite recently still acceptable. Considering this tendency against the European tradition it seems a relatively natural one. After all, the majority of the first museums were founded and the first collections of prehistoric findings were compiled around the same time, and people were actively involved in search of their roots. Also, literacy began to spread more widely, folklore collections were established in different parts of Europe, and the humanities became the focus of scholarly interest.

While in the relatively stable European countries the study of religion soon became a matter of academic study, in Estonia it largely remained a political tool, oscillating within a wide range. To counterbalance the 19th century theory of Goths in the Eastern Baltic and the cultural invasion of Germanic tribes (see further in Tvauri 2003), which was definitely evident in at least some authors' views on Estonia and its inhabitants, the study of the eastern kinsfolk of the Estonians was initiated. The introduction of the language tree and the theory arguing that the distant predecessors of the Estonians arrived from the area near the Urals certainly played a role in this. This national approach promoting freedom from German cultural influences was, no doubt, more fitting for the historical consciousness of the nation in the period of national awakening. Through this, religion as the central concept in public mentality was adopted as an ideological tool for the young Estonian intelligentsia and later also for the Republic of Estonia, and was used to emphasise the uniqueness of the Estonians, and the role of ethnic culture and its various phenomena even among other cultures (see e.g. Masing 1939). The ancient Estonian folk religion, reconstructed in Romantic form was manifest on various levels, assuming a more concrete form among the followers of Taara faith, built on similar Romantic notions (see Deemant 1988). The Romantic approach of the ancient religion also had an impact on folklore, which earlier authors have treated as the main source of folk and prehistoric religion. One of the most illustrative examples of the intersection of the study of history, historical consciousness and folklore is perhaps the following story, which was recorded in 1930:

> **The Sacred Stone of Kunda village**
> The sacrificial stone is located in the orchard of the Parijõgi farm, village of Kunda, where allegedly there used to be a sacred grove of ancient Estonians. This is what people say about the stone. In the old days, when there was still a lake in Kunda, the Estonians lived in pole huts built on the lakeshore and in the lake, catching fish and hunting in the woods. A sacred grove, which was situated on an elevated site at the lakeshore, was their sanctuary. There was a sacred stone in the middle of the grove, where people brought

> offerings to seek protection against wars, illnesses and other ailments, as people prayed there solemnly. When the Germans and Danish reached the northern regions of Estonia with their Christianisation, the Danish cut down the grove and forced the locals to attend sermons in the churches built by the Danish. After the grove trees were cut down, people still secretly prayed at the sacrificial stone, but soon the rulers of the land forbid it and people were Christianised. The stone had cup-marks, symbolising the dead, because when somebody died, his or her close relatives had an obligation to carve a cup-mark into the stone. The marks are clearly visible even now. As is the fire pit in the centre of the stone. The stone is slightly idented from weathering, which somewhat ruins its appearance (ERA II 221, 340/3 (24)).

Here we can notice several features characteristic of the 19th century, which largely originate in the National Romantic treatments. In addition to the mythological perception of time, where discrepancies in the course of time and the course of events are of no major consequence (the Lammasmägi settlement in Kunda is dated to 8,700 – 4,950 BC and Denmark's crusade in northern Estonia was launched only in 1219 AD), the account emphasises that each grove must have a sacrificial stone (in reality, however, the distance between the stone described above and the Kunda Hiiemägi (Kunda Grove) is some kilometres in a bird's-eye view) and also the fact that fire is made on the sacrificial stone, and that it has to look nice. The two latter aspects of the story have probably been influenced by classical mythology and religions in the classical antiquities, where sacrificial fire was made on altar rocks (Fig. 1).

Yet, the late 19th century and early 20th century treatments of religious history cannot be altogether ruled out from the viewpoint of scholarly research. Most important aspects here are terminology and exposition of problems. What is the theme of research? What are the sources? How reliable are the used sources in providing answers? Largely from the context of the 19th century traditions emerged Matthias Johann Eisen, self-learner and the first who started systematically collecting belief reports. In the 1920s another scholar, Oskar Loorits further developed the research. Loorits had an academic education and he brought the study to the academic level. Both Eisen and Loorits, who identified themselves as folklorists (Loorits 1998, XIV), did not set any clearly formulated problems in their works, causing misinterpretations, which led to misconceptions about the topic of their works. Relying on recently recorded folkloric belief reports as main sources, both authors wrote about the *Estonian folk belief*, whereas their work is first and foremost referential, and as such highly noteworthy. Unfortunately, Eisen's works remain only overview of sources. Even though Loorits considered the presentation of sources important, "aspiring exhaustive comprehensiveness" in some areas (Loorits 1998, XVI), he also emphasised the importance of analysis, and used extensive linguistic material in addition to the folkloric. Loorits himself did not elaborate on his definition of the concept 'folk belief', but the context suggests that differentiating between the folk belief of the pre-Christian period and that of the Christian period has proved no problem for him (or for other contemporary scholars). Differentiation between the Christian religion and pagan

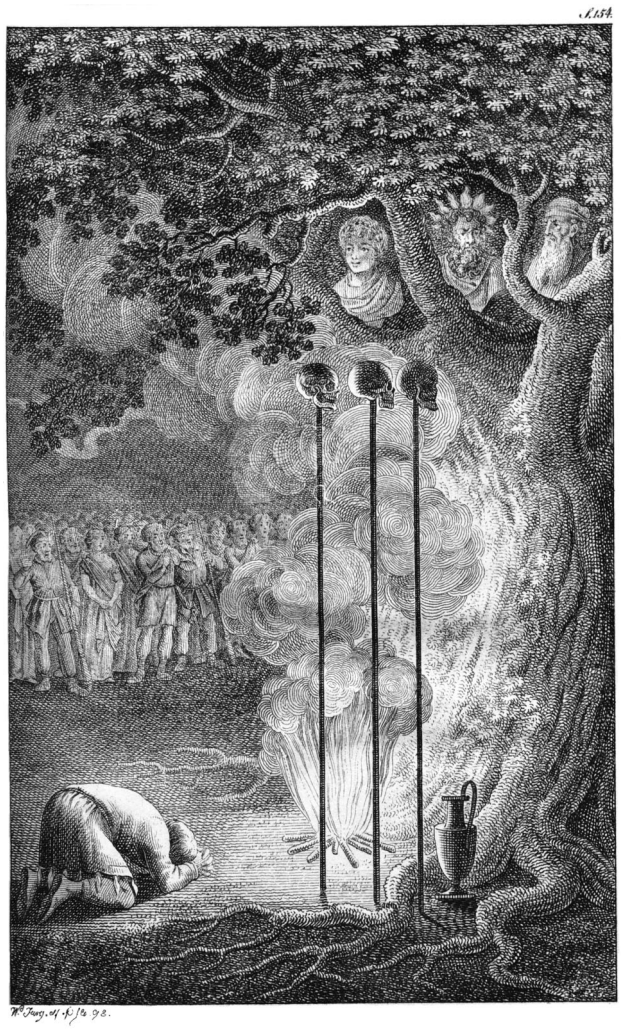

Fig. 1. A drawing in G. Merkel's treatment of history, depicting ancient Prussians conducting a sacrificial ritual.

Joon 1. Joonis G. Merkeli "Liivimaa esiajaloost", mis kujutab muistseid preislasi ohverdamas.

beliefs, however, has been crucial. This exposition of problems, relatively vague in terms of sources, has led to the situation where assumptions have been made across hundreds and thousands years on the basis of folklore at Loorits' disposal, recorded only a few decades before, the folklore collected by him personally and the very early stages of the study of Finno-Ugric linguistics. On top of that, Loorits presented a relatively chaotic view of the material, for example, narrating on Christian and non-Christian cultural phenomena in a single story (see e.g. Loorits 1998, II, 14). Thus it seems most appropriate to denote the research topic of

Loorits, Eisen and other authors of the period with the same term they have used – namely, *folk belief*. But before moving on to interpreting, the terms need to be defined, and I will return to that below.

The study of religion in Estonia underwent dramatic changes in the period following World War II. Oskar Loorits, former leader in the field, went into exile, where he published his voluminous thesis about Estonian prehistoric religion, having previously fallen into serious conflict with his colleagues (see Moora & Annist 2002). Among other collections of essays that Loorits published in exile, he also issued the book *Eestluse elujõud* ('Viability of Estonian Identity'; Loorits 1951), founded on Romantic notions, where folk belief played an important role, but the treatment of history had been discarded as unreliable a while ago, which is why the conclusions presented there have no more consequence than as descriptive of Loorits' personal disposition. There is no doubt, however, that Loorits' main work "*Grundzüge des estnischen Volksglaubens"* volumes 1–3, volume 3 (1957) in particular, has left an impressive mark in the Estonian folk belief historiography. This was, after all, a precedent in attempting to view folk belief as a complex system, which evolves in time. Considerable attention has been paid to the assumption of soul and power. Most of Loorits' conclusions, however, are considered unreliable and seen as subjective speculations, where the key words are "ethnic psychology", an idealised conception of Estonians as primitive Finno-Ugric tribes, where the prevailing social order is "a primitive democratic equality and parity in rights" (Loorits 1990, 78), etc. (for the critique of Loorits' work see e.g. Moora & Annist 2002, 247–263).

One of the few Estonian-born scholars of folk belief, who received the most progressive education of his time, was Ivar Paulson, who worked in Sweden and was a disciple of Ernst Arbman, professor of religious history at the University of Uppsala. Paulson's Ph.D. thesis *Die primitiven Seelenvorstellungen der nordeurasischen Völker* (1958) focuses on conceptions of soul in northern Eurasia. During the last years of his academic career Paulson turned his attention specifically towards Estonian folk belief. As was considered proper in this period, Paulson concentrated on issues surrounding the origin of religion; he also considered religion a constantly evolving phenomenon, emphasising the clear and relevant distinction between hunter-fisher-gatherers and farmer-herders.

Under the Soviet regime, the study of religion was somewhat more complicated in Estonia. Since the Department of Theology at the University of Tartu had been closed down, and the only institution providing education in religious matters, the Institute of Theology, mainly focused on training Lutheran ministers, no systematic theological education could be pursued in Estonia. However, since the study of religion could not be avoided, some studies were published. The mitigating factor here might have been the east-oriented conceptualisation of ancient Estonian religion, which circulated already in the pre-war period. Aliise Moora's article on the ancient religion of the Estonians, *Eestlaste muistsest usundist* (Moora 1956) was a follow-up to the pre-war tradition, where the main source of the history of religion was folklore. Moreover, she began to introduce archaeological findings,

though fitting these into a folklore-based system and using archaeological material only for illustrative purposes. The very first study into prehistoric religion by an Estonian scholar, which was mostly based on archaeological material and which clearly formulates the research topic as prehistoric folk belief, is an article by Lembit Jaanits – *Jooni kiviaja uskumustest* ('Characteristics of Beliefs in the Stone Age'; Jaanits 1961). Unfortunately, this remained the only study on the topic by archaeologists for a long period of time. In this article Jaanits studies Neolithic findings, which include the largest number of figurative pendants – i.e. objects easiest to interpret from the aspect of religion. The treatment of religion in *Eesti esiajalugu* ('Prehistory of Estonia', Jaanits *et al.* 1982), where religion is discussed only in relation with (seemingly) easily interpretable objects, is analogous in that sense. Among other archaeologists, next to Jaanits, the issue of religion has been perhaps most comprehensively studied by Vello Lõugas, whose central topic of research was sun worship and its manifestations in stone-cist burials and the Kaali meteorite crater (Lõugas 1996). Lõugas also published some minor studies on the history of Estonian ancient religion (Lõugas 1972). In terms of more recent studies, I cannot overlook Jüri Selirand's research on Late Iron Age mortuary traditions (Selirand 1974). The focus of his research is on object analysis and description of burial types and less on assumptions on religion, which is understandable given the lack of social studies at the time.

The 1990s saw a new beginning in research, when theoretical studies into archaeology as well as religious history, conducted in the meantime in western countries, became available for Estonian scholars. Still, Estonian archaeologists have mostly specialised in the social sphere and have published few studies on religion. The most consequential of these are Tarmo Kulmar's Ph.D. thesis on soul phenomenology of prehistoric Estonian religion (Kulmar 1994) and a series of articles under the same title (Kulmar 1992), which represent a novel viewpoint in the study of prehistoric religion. Relying mainly on archaeological studies and the works of (mostly German) theoreticians of religious history, Kulmar compiled quite an intricate system of Stone Age soul phenomena, at the same time demonstrating their interrelations and evolvement in time. Among the thesis subtopics were soul conceptualisation, as well as fear for the dead and beliefs about the living dead.

Other archaeologists have studied prehistoric religion, but to a far lesser extent. Here I must mention Valter Lang's attempt to conceptualise cultural landscape, which is rendered meaningful through religion (Lang 1999a). Likewise, Andres Tvauri in his study of cup-marked stones has introduced the religious principle, although linking it only to fertility cult (Tvauri 1997). Other archaeologists have touched upon the topic, but the main focus of their studies lies in the social aspect, and religion is used only for the purpose of interpreting social behaviour. An important subject in studying religion among Estonian archaeologists has been the Christianizing of the country (Mägi 2002; Valk 2001; 2003).

I have consciously excluded the studies of folklorists and ethnographers of the second half of the 20th century from the above brief historiographical overview,

mainly because these studies, especially the more recent ones, largely deal with folk belief of the modern period, i.e. the living present-day folk belief.

Sources reveal that the majority of conclusions in research history so far rely on folkloric heritage, linguistic etymologies and dating, and to a great extent on anthropological parallels. The latter applies mostly to Finno-Ugric tribes in Russia and Siberia. Archaeological material has been used first and foremost for illustrative purposes, sometimes even referring to it as "silent findings from earth", and their importance has started to grow only after the 1990s. Around this time there was a breakthrough in the general treatment of folk belief and henceforth archaeological material has been preferred over other sources.

Terminology

As the above overview suggested, several misconceptions have been occasioned by the confusion in terminology, which stresses the need to define, both phenomenologically and chronologically, what is being studied. The degree of precision in defining folk belief and its various phenomena is, of course, an altogether different question. Religion with its different manifestations often appearing in other fields is difficult to delineate or define in detail. In religious research it even seems practical to avoid establishing too strict boundaries or construe generally applicable detailed models, which will later start inhibiting research. After all, living religions, except for the canonical major world religions, are not committed to defining concepts, and the different concepts and phenomena interrelate and interact with each other rather than are subject to differentiation or definition.

For further discussion, however, at least some terms need to be explicated. Various terms have been used for marking Estonian folk beliefs at different periods. The earliest and perhaps the most common of these is *rahvausk/rahvausund*, or folk religion/belief. The terms were adopted by the very first scholars, Eisen and Loorits, to distinguish between the belief of native Estonians and the official Christianity. Unfortunately, none of the earlier scholars have attempted to explicate the terms, and it appears that their use of the term served the purpose of distinguishing between the Christian and non-Christian material, which they referred to as folk religion. This is how the term has also been interpreted in academic treatments (Viires 1986; Valk 1998). The most recent definition of the term folk belief has been proposed by Aado Lintrop, who defines it as "a popular interpretation of opinions and concepts of the dominant religion established in scriptures and comments to it on the basis of (in the Estonian tradition also pre-Christian) religious convictions at various times" (Lintrop 2003, 9). A different question is whether it is even possible to establish the system of folk religion upon a religion introduced later (in this case, Christianity). After all, it is generally known that folk religion includes many non-Christian elements, which cannot be regarded as interpretations of the scripture or its comments.

Even though the emphasis in the study of folk religion is laid on its non-Christian part, it is still a set of beliefs where Christian elements intersect with pagan ones. Depending on the sphere the proportion of Christian and non-Christian elements varies and I doubt that it is possible to find a single criterion, which would enable to determine the religious affiliation of a sphere or a phenomenon. This, in turn, will make the definition of the elements more difficult as each of these needs to be approached individually.

Another term used alternately with folk religion, is *paganlus*, or paganism. This term, however, has a strong qualitative nuance, which renders its use in academic writing somewhat problematic.

Another alternately employed term, which is considerably more specific than the temporally vague folk religion, is *eelkristlik usund*, or pre-Christian religion (Valk 2001). The term itself as well as its context of use clearly point to what it means – the term is most appropriate to mark the religion followed in the final centuries of the prehistoric period, or the period prior to the Christianisation of the country, in 13th century. On the other hand, the term cannot be used to mark far too distant periods, as, by doing that, it distances itself from its meaning – its opposition to Christianity, the official religion.

While generally discussing the religion on the Estonian territory since the beginning of human settlement up to the official Christianisation of the country, and hence the adoption of the term folk religion, the most appropriate term would be *muinasusund,* or prehistoric religion. The term has become increasingly used by archaeologists and religious historians (Kulmar 1992; 1994) and ethnographers (Viires 2001). Overlapping the concept of prehistory, the term prehistoric religion signifies a period which is not very narrowly defined, but still within certain limits. Compared to pre-Christian religion, prehistoric religion is a more neutral term and does not give preference to any other religion.

In addition to chronological terminology misinterpretation has been generated by various other, mainly religious concepts, which are employed relatively loosely and without further explication: for example, scholars often neglect defining terms like *totemism, shamanism, ancestral cult*, etc. This issue will be addressed below.

Sources

In the following I will primarily discuss sources connected with the Estonian prehistoric religion. As to the origin, the sources may be divided in three major groups: folkloric, written and archaeological. Certainly, the sources of religion are not limited solely to those that will be discussed below, but these have been most common in the Estonian tradition and therefore deserve greater attention. In addition linguistic sources have been used, but mostly by earlier scholars, Loorits, Masing and Paulson, but not so much in recent studies. In the following, in any case, we cannot overlook anthropological sources and those of other disciplines that have so far been used less systematically.

Folkloric sources mainly consist of folk tales and folk songs recorded in the late 19th and during the 20th centuries. Since these sources contain a great deal of religious material, this type has often been considered primary in the study of the Estonian prehistoric religion and the basis of the conclusions dates back to the 19th century stretching even further back to the Stone Age (Loorits 1932; Moora 1956). Authors presenting such conclusions usually tend to overlook the temporal space distancing the 19th–20th centuries from the prehistoric era, as well as various other changes in the religious context of Estonia (further on this see Valk 1998, 81–86). Also, they often fail to consider the history of folkloric interpretation, which is still largely influenced by the context of national awakening. Around this time the social need for free ancestors and the heroic past arose, and folkloric material was used for studying prehistoric period, on which relatively scanty information was available (further on this see Honko 1998). Reformation has also played an important role in the formation and development of folklore. In the period following the triumph of Reformation and Lutheranism, motifs rooted in Catholicism interrelated with conceptions of the pre-Christian religion and the Catholic elements became a part of the so-called paganism or folk religion. It has been argued that one reason why Catholic beliefs were retained in non-Christian folk religion was the general political situation of the time (Valk 1998, 76).

The study of one particular folklore genre, namely runo songs, might prove most effective. After all, runo songs, because of their stable and strict form, have often been considered thousands of years old (Künnap 2001, 14). Thus, the various motifs of the pre-Christian period might be retained particularly in runo songs. Unfortunately no uniform method has been worked out to determine these, and opinions on this topic are widely varied even about a single motive (cf. Valk, Ü. 2000; Lintrop 2001).

While discussing the use of folklore in studying prehistoric religion and world view, we cannot overlook the 18th–19th century Moravian Brotherhood and the heaven-goers' movements, which played a critical role in introducing Christian motifs among the wider general public. After all, the Moravian brethren and the heaven-goers were the ones who, by emphasising the personal experience in perceiving god and reading the Bible, managed to do away with folk religion based on non-Christian principles and convert the majority of the population into Christianity (Plaat 2001, 32–60).

Folkloric material can thus hardly be the main type of source in the study of prehistoric religion. Among the reasons is the nature of the material, as well as problems in associating certain motifs with the pre-Christian religion (see Lang 1999b, 172). Obviously, motifs of prehistoric beliefs have survived in folklore, but their recognition and further and more precise dating solely on the basis of folklore is hardly possible. In addition, as Lauri Honko has pointed out, the seemingly original starting point may prove to be an end result, or a result of some complex process (Honko 1998), which will render the analysis of folkloric material all the more complicated. And moreover, according to modern archae-

ological approach it is advisable to avoid the use of folkloric and written sources as primary in prehistoric religion research and archaeological data should be preferred in studying earlier periods. Folklore, however, should not be discarded altogether, since it does contain material from the pre-Christian period, although caution should be applied when constructing a religious system on the basis of random material (under the religious system I mean a system formed of different phenomena and their interplay, but which cannot be called a religion, since it does not include all the phenomena of a religion, but only a selection, either based on source materials or a scholar's preference).

Under **written sources** I have grouped contemporary chronicles, sagas, and other sources. In the context of contemporary prehistoric religion we might distinguish between two types of sources. The former cover the period up to the mid-13th century, and describe belief reports, which are considered "living" and are applicable to and practised by the majority of a society. The most classical and important chronicle here is, no doubt, the Chronicle of Henry of Livonia. It is hardly the only one, since allusions to (prehistoric) religion are also present in other Livonian chronicles (see Tamm 2001) as well as in several major European chronicles like the Chronicle of Adam of Bremen.

The latter type of source is mediaeval, which described non-Christian beliefs, but which are concerned with a religion that is no longer dominant and which practices are followed secretly from the chronicler (and other members of the clergy), or with a religion that is only known from second-hand sources (Bartholomaeus Anglicus). This type includes the chronicles of Balthasar Russow, Johann Renner, and other mediaeval Livonian chronicles.

Interpretation of belief reports of the chronicles is far more complicated than the way it has been used to date. The aim of chronicles has not been to describe a certain sphere of life, but was far more specific. Accounts of earlier chronicles usually present descriptions by a Christian author for readers of Christian countries about a foreign, and therefore dangerous or at least strange country. On the other hand, the purpose of belief reports in mediaeval chronicles has been mainly presentation and introduction of the heresies of the local rural population and to point out the need of Christianization of the country. These chronicles therefore describe what the chronicler has seen as deviant and what he has considered worth recording. This, in turn, renders the use of most of the chronicles in the study of prehistoric religion relatively problematic. Also, the chroniclers may have misunderstood some customs, or have included phenomena that they have considered complementary to the chronicle, but which they themselves had never witnessed, or which perhaps did not even exist. All in all, chronicles are unavoidable in the study of prehistoric religion, but should be approached with certain caution and considering the risks of interpreting chronicle accounts. Misinterpretation is most often caused by different points of emphasis – for example, while discussing the early 13th century burials, mediaeval chronicles only mention cremation, whereas archaeological material indicates that by the 13th century, inhumation had already

acquired an important position. As cremation was more characteristic pagan religion and therefore of more consequence for the chronicler, a greater emphasis was laid on this type of burial.

Another versatile feature of pagan religions in the accounts of mediaeval chronicles is their authors' wish to embed biblical quotations of miracle tales and magic stories into their accounts (Tarvel 1982). In addition, loans from authors of the antiquities and stereotypic stories have widely been used in mediaeval chronicles and not recognising these may result in serious misunderstandings (see Metssalu 2004, 51).

The material and interpretation of belief reports in post-mediaeval chronicles relies on completely different sources. Even though the chroniclers are also members of the clergy, enough time has passed from the official Christianisation of the country, so that elements of Christianity have started to influence the folk religion described in these. But here, too, the problem in interpreting the chronicles is that instead of the entire information on the religion, they only tend to include incidents that the clergy has considered disturbing. Thus, most of the chronicle reports inform of mortuary traditions and some more noteworthy sacrificial rituals, overlooking the more common and ordinary religious practices. Also, the dating of the sources and the material included, and new Christian influences have proved problematic for later chroniclers (see further in Valk 1998, 75–77).

As for the 18th–19th centuries chronicles, it is important to consider the context of time, as the description of reports was then influenced by the National Romantic approach. The influence of such National Romantic visions is very probably present also in modern religious perception. And this is exactly where the 20th century religious history stems from. Last but not least, I would like to point out the modern chroniclers' disposition to antique mythology and European prehistory, as various phenomena of the Estonian prehistoric religion have been borrowed from these sources. Thus modern chronicles and the belief reports included in them deserve further and wider-scale analysis.

The most significant **archaeological sources** are definitely graves. Since graves are usually the most important and often the only ancient relics, they have been thoroughly studied. Burials have also been used to reconstruct everyday life, or life outside the sacral sphere, which is the primary purpose burials serve.

The large number of graves compared to other types of relics in general, and more specifically on the Estonian territory, and also the active excavation of burials, are the main reasons why they can be considered the most examined type of prehistoric relics. Throughout times burials have been interpreted in different ways by different authors; the most common interpretation is perhaps their being *burying* sites, a view consistently held by Estonian archaeologists up to the 1990s (Шмиедехельм 1955; Selirand 1974; Jaanits *et al.* 1982). The spread of and access to the theoretical studies by West-European archaeologists has brought along a shift in interpreting burials from the social aspect also among the Estonian archaeologists (Ligi 1995; Lang 1996; 2000; Mägi 2002); this view is mainly built on

Ian Hodder's theoretical approach to graves as manifestation sites of the social elite (Hodder 1991). In addition to social interpretations, other approaches which emphasise the importance of rituals over social manifestations (Lang 1999a; Konsa 2003) and the need to consider the religious context while interpreting burial material, have been recently introduced in the Estonian archaeology.

A novel topic in research of religion is also the study of landscape (Lang 1999a; Vedru 2002), which has become particularly popular in the neighbouring countries. According to many authors, folk religion is a worldview, through which people discover and conceptualise their place in the world. This view connects religion with the physical world. Therefore, the nature of religion largely depends on the symbolic values that a particular group of people has attributed to the surrounding environment. In other words – environment is one of the factors that shape our worldview and religion (Meyer-Dietrich 1999, 165). Environment and landscape appear to be the main reasons why most burials and other religious structures are located on hillocks or hills. Michael J. Moore, for example, has argued that in Great Britain for someone participating in a ritual both were important – monuments around the ritual place but also monuments, which were visible from the ritual place (Moore 1995, 234). Every single object created a so-called religious space around it, but every one had an important role in relation to others.

While discussing religious sources we definitely cannot overlook find material, of which the most distinctive are pendants. Symbolic value, no doubt, may be attributed to any object regardless of the context of its discovery and its relative value for its owner. Such objects are, for instance, weapons, personal items (knives, combs, etc.) and jewellery. Certainly, symbolic value can also be attributed to tools and pottery. At the same time, the symbolic value of such objects is often secondary, being of consequence in a particular context, but is less expressive of general religious beliefs. This is why pendants are so important – next to the decorative function they strongly reflect religious conceptions, which have determined their shape. Among the largely geometrical shapes, some figural pendants stand out, inspiring interpretations with their different shapes. There are certain risks behind these seemingly easily interpretable objects, and I will address this issue below.

Attempts have been made to link various other archaeological monuments to religion. In Scandinavia some types of strongholds or buildings have been interpreted as cultic buildings, the same has been speculated about some temples in the settlements in the Baltic and Slavonic area. Unfortunately, Estonia so far lacks comparative archaeological material. This void could be filled with systematic archaeological study of sacred groves and sacrificial sites that have so far been neglected in research. Even though the cultural layer of the area is non-existent and object findings have been scanty, the application of natural-scientific methods in addition to the traditional archaeological methods may prove effective in the study of sacred groves.

Methods

It has been emphasised that compared to other fields of research, the studies into religious history have paid little attention to the methodological aspect (see e.g. Ahlberg 1999, 9). There are several reasons for that, but the most important of these is that religious history is an interdisciplinary field of study, and the application of a uniform method on widely different disciplines has proved relatively difficult.

Like elsewhere, the prehistoric religion of Estonia has so far been studied by the means of the **phenomenological method** (Loorits 1932; 1959; Jaanits 1961; Selirand 1974; Paulson 1997; Masing 1995; Kulmar 1994; Viires 2001, 198–214). By applying this method the focus of the studies is religious phenomena and their versatility, considering also their development. According to G. van der Leeuw, one of the founders of the phenomenological method, a religious phenomenon is something which appears or which exists and which the phenomenological method attempts to describe and systematically study (Leeuw 1986, 671; further on the phenomenological method see Hedin 1997). However, the phenomenological approach fails to observe the development of religion as a system of phenomena in general. Also, individual approach to single phenomena will not be able to provide a homogeneous view of religion.

The phenomenological approach is used not only by Estonian scholars, but has been characteristic of the European religious historical discourse in general and especially until the second half of the 20th century (Vries 1970; Dumézil 2001; Leeuw 1986). Although attempting to provide homogeneous views of religion, these studies have been structured according to phenomena, and the coexistence and interaction of different phenomena are difficult to follow.

In recent years the phenomenological method has prompted increasing criticism. Dag Hedin, who represents the critique of the traditional phenomenological method, argues that phenomenological method is justified only in examining single issues (Hedin 1997, 122). Hedin also suggests that phenomenology should concentrate not so much on compiling ideal typologies of particular phenomena (sacrifice, prayers, etc.), but should attempt to understand the real religious conception through dialogue (Hedin 1997, 128). The theory of Hedin, who is a historian of religion, relies on materials of traditional history of religion and is based on texts and hermeneutic methods, which intercept with interdisciplinary discourse and construct the context necessary for interpretation. Unfortunately, these methods cannot be applied to archaeological "texts", constituting the basis of voliqious historical research. Since Hedin takes as his source the "living" culture and religion, he also emphasises the dialogue between a scholar and transmitter of culture (Hedin 1997, 128), another aspect that cannot be applied in studying the archaeological past. Jeppe Sinding Jensen, a Danish religious historian, agrees with Hedin and suggests that instead of the current phenomenological approach reliqion should be studied and described narratively (Jensen 2003). Jensen also points to the need for defining, emphasising that one of the main problems of the phenomenological

method is creating confusion by speaking about some phenomena which exist on the theoretical level, but which are not present in actual religious practice. This is a far-flung problem, which I referred to at the beginning of this article, as many scholars use terms without explicating them and often the meanings seem to be lost to the scholar himself. One way to solve the problem is perhaps paying more attention to terminology and the explication of general terms. This would also preclude the situation where a vague definition is used in describing different phenomena by different scholars.

Some recurring phenomena in prehistoric religion

Recently, numerous studies have been published on the relationship of **ritual**s and archaeology (e.g. Brück 1999; Nilsson Stutz 2003). Also, discussions abound on the purpose and function of rituals. Perhaps the most concise definition here is that ritual integrated an individual into a group, strengthened the solidarity and sense of identity within the group, simultaneously determining social boundaries (Sundqvist 2003, 32).

Many anthropologists have studied ritual and its role in a living society (see Ahlbäck 1993; 2003), focussing on the psychological aspect of ritual on members of the society. The most popular trends in archaeological research in recent time have been separating ritual and myth, claiming that archaeologists dig up traces of rituals, not of myths. From this follows a line of argumentation that by recognising and understanding traces of rituals we will be able to understand them, and only then will we be able to understand myth, i.e. the ideological context that triggered the ritual.

Rituals occur on two different, but closely interrelated levels: (i) primary level, which is oriented to the ritual object, or a god, a deceased ancestor, etc., and (ii) secondary level, which is oriented to the living, and through which the community strengthens its unity and social strategies. Ritual is used to pass on important messages to the community and in addition to strengthening in-group relationships, it also strengthens ties with ancestors and deities, creating thus a homogeneous community (Boyer 2001, 232). The latter view, the role of ritual in a social system, is generally acknowledged in religious historical and archaeological discourse (Sundqvist 2002; Kaliff 1997; Lang 1999a), while the former, the primary level oriented to gods, the dead, etc. has often been overlooked. From the viewpoint of studying religion, however, this level is of greater significance, as it enables to understand religious concepts through rituals.

While analysing ritual in the Estonian archaeological context, I would first and foremost like to discuss stone graves – relics that provide more information than any others among prehistoric rituals. Assumptions have been made about various regions in Europe that places of cultic worship in settlements (Turčan 2001), buildings erected in settlements, and special structures constructed for ritual purposes elsewhere (Parker Pearson 1999) enable to interpret ritual behaviour. In

Estonia and the surrounding area, corresponding analyses have not been conducted. It is possible, though, that this is only a matter of research and the corresponding hypotheses will be formulated. One example could be the supposable cultic site beside the early *tarand*-grave in Tõnija, in Saaremaa (Mägi 2001).

Stone graves with constructions are cultic places rather than burial sites. The generally acknowledged interpretation until the 1990s was that the primary function of stone graves was burial sites. In recent years, however, the function of stone graves has been revaluated, mostly owing to the spread of the views of theoretical archaeology in Estonia. Although in the 1990s burials were largely interpreted from the social aspect, it is associated with the idea of a burial as a ritual place. Studies published thus far have interpreted burials as manifestation sites of the society's elite, where the latter performed certain rituals to display their position (Ligi 1995; Lang 1996; 2000; Mägi 2002). Related to it is the interpretation of stone grave as a symbol of land ownership (Ligi 1995; Lang 1996, 492) or a landmark (Tuovinen 2002). The treatment of ritual stone constructions as symbols of land ownership is quite popular and widely recognised in modern archaeological and anthropological research (Wallin 1993, 115; Kaliff 1997; 1998; Widholm 1998; Tuovinen 2002). In the archaeological theories spread in Scandinavia, the role of religious rituals in structural stone graves has been pointed out (Kaliff 1997; Widholm 1998; Victor 2002). It is true that religious rituals interrelate closely with social rituals which society's elite exploited to secure their status, but for the purposes of the present article I will attempt to accentuate religious rituals over social ones. Furthermore, societal factors that are manifest in mortuary rituals, as well as the burial and the religious ritual itself are mainly influenced by belief systems (see David & Kramer 2001, 379). Several theoretical studies into archaeology and religious history express the view that a ritual (and a sacred) place is where humans encounter supernatural forces, where primordial myths are reconstructed and through that the relationship of humans and supernatural forces, and indirectly also the relationship of societal forces, are established (Eliade 1958), which is manifest mostly in how a part of a society gains access to objects required for sacrifice (Wallin 1993, 129). Many archaeologists also proceed from the view that the symbolism of ritual communication reflects power relationships in the society, even though this view has prompted criticism, and ethnographic parallels have been drawn to prove that this reflects how it should be in an ideal situation (Parker Pearson 1982, 112), sharing similarities with the ideal culture and myth conceptualisation formulated by Lauri Honko (see Honko 1998). Therefore, no uniform interpretation claiming that burials with lavish grave objects were used by a "wealthy" family can be provided on the basis of grave material.

While analysing stone constructions used at rituals it is important to consider their chronology and temporal overlapping. In Estonia, both Vello Lõugas and Valter Lang have noted that stone graves were still in use long after burying had ended (Lang 2000, 104). Maintaining a grave construction for 1,000 years with no burying in the meantime (Lang 2000, 104) indicates that the site was not merely a burial place, but an object of broader ideological significance for the society.

Unlike several views discussed above, I hardly think that attributing excessive symbolism to burials and other similar relics (Kulmar 1999, 163; Lang 1999a; cf. Kaliff 1997; 1998) is rational, and have regarded graves primarily as ritual structures. Certainly, the symbolic meaning of graves cannot be entirely ruled out, but these are still first and foremost ritual constructions, which symbolic context is revealed only in relation of its rituals, the ritual function of the grave and the general religious context.

Having a clear understanding of burial and its ritual significance, we can proceed to speculate about symbolism underlying graves and related objects and structures. The objects and structures, no doubt, are of greater consequence in connection with the grave than taken separately (Renfrew 1996). Of various objects used in the study of prehistoric religion, pendants are most common by associated with religion. The interpretation of pendants, on the other hand, is often limited to stating that these are magical objects and amulets of mainly protective magic. Owing to the narrow limits of the phenomenological method, this may lead to a dead end. A good example here is pendants of mostly beaver but also marten astragalus (Fig. 2) and beaver figures which were used over a seemingly long period of time from the Neolithic to the Late Iron Age. Then again, pendants were used only in the Neolithic period and in the Late Iron Age, and not in the intermediary periods. Hence, their observation as a single phenomenon is not justified, because they represent two independent traditions. Also, the Late Iron Age pendants may not be representative of beaver cult in its religious sense (Tvauri 2001, 161), but were rather objects signifying social status. Pendants carved of beaver and marten astragalus (Luik 2003) may have been symbols of

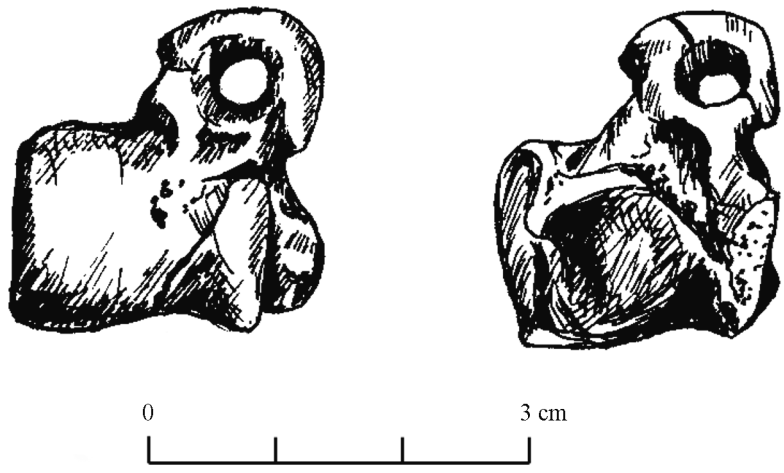

Fig. 2. Pendants of astragalus of beaver from Rõuge hillfort (drawing by Heidi Luik).

Joon 2. Rõuge linnamäelt leitud kopra kannaluust valmistatud ripatsid.

fur hunters or traders, instead (see Leimus & Kiudsoo 2004). In inhumation burials in Estonia, claw pendants have been discovered in male burials, whereas astralagi have been found in female burials (Luik 2003, 166). Beaver and marten were highly valued for their fur, and the claw of a furbearer may have been a symbol of a successful (and, consequently, wealthy) hunter and his wife. Thus, the claws of furbearers may not be connected to religion on the primary level (talking about cult of beaver or beaver totemism in the 13th century), but were first and foremost symbols of social status and were connected with religion only through this function. Animal claws, which retain the bone, thus indicating the existence of the object, were certainly not the only symbols – strips of fur and tails were used for the same purposes. All these animals whose paws or claws have been discovered could be grouped under a common name 'furbearers'. Analysing the material from this aspect may attribute altogether different meanings to objects that have been so far unquestionably linked to religion.

Some important aspects in the study of prehistoric religion

To conclude, I would like to present some starting-points, which may prove consequential in the view of the research history of Estonian prehistoric religion, and which may perhaps concretise and animate the current static image of "cultic objects" and "ritual places".

Religion is dynamic and undergoes constant changes. Religion is by nature closely related to social structures, and changes in social structures inevitably cause changes in religion. Consequently, we cannot talk about an abstract notion called "Estonian prehistoric religion", as in different periods it has displayed different nuances.

Categorisation of different periods is also problematic. In real life such boundaries are never established, and those that we draw ourselves, mostly in order to systematise and present material, always remain arbitrary. Various transitional stages tend to form next to the already established periods, which may make the general situation all the more confusing. Division into specific periods is also disputable. If a periodisation is constructed on the basis of certain relics, phenomena, objects, etc., it means that the rest of the phenomena will have to be fitted into forced boundaries. Not all phenomena have undergone similar changes: some last longer and in a more stable form over many periods or belief systems. Perhaps the most stable indicators might be graves, which are known from every archaeological period and which I myself have used in constructing periodisation (Jonuks 2003). On the other hand, burials provide an uneven view of prehistoric religion, as the focus is mainly on particular phenomena (such as beliefs connected to soul and the otherworld) and not specifically on prehistoric religion. Also, burials that have been discovered so far represent only a part of prehistoric burials. Still, of all the available phenomena, burials are the most stable ones to base a periodisation on.

Newer phenomena are fitted to earlier material. As already mentioned, religion undergoes constant changes. At the same time, not all phenomena constituting a religious system evolve equally: depending on various factors the development may vary. This constant, though uneven process requires that new phenomena, either borrowed or undergoing a transformation, should fit into the existing system. This means that it is impossible to borrow a phenomenon the principles of which would be different from the established system, and also that no phenomenon can undergo a sudden or drastic change. The best example here would be the bauta grave cemetery in Valkla, North Estonia, where remains of a single cremation burial had been inhumed within a stone circle laid in front of a bauta stone (Fig. 3). This is quite irregular from the widely practised custom

Fig. 3. Bauta grave in Valkla during the excavation in 1937 (photo in the Archive of the Institute of History).

Joon 3. Valkla bautakivikalme kaevamiste ajal 1937. a.

of the period to spread the cremated remains of several individuals between stones in the grave. The ideological explanation for the Valkla example might be the conception of individual soul (which explains the individual burial of the dead); this, however, did not fit into the generally established conception of collective soul, and has therefore remained a unique phenomenon in Estonia.

Such process also implies that in order to understand the phenomena of a certain period and their formation one must consider the period preceding these – that is, the broader context where these phenomena stem from.

Interdisciplinarity is of critical importance in the study of prehistoric religion. My emphasis on the importance of archaeological source material above does not necessarily mean ruling out methodologies of other disciplines. Archaeological source material has been given prominence only in consideration of the period, as no adequate written sources are available for this period, and transference of folkloric motifs is questionable. Nevertheless, other disciplines and methods must definitely be applied in interpreting archaeological sources. In interpreting religious material anthropological parallels have often been used, but while on the theoretical level authors agree that the parallel must be drawn with a society as close in the economical and technological advancement as possible, this principle has often been overlooked in practice, and the religion of Siberian hunter-fishers has been applied in interpreting the Estonian Iron Age, and comparisons are based on language affinity and the speculated similar worldview based on that (cf. Loorits 1959).

Rituality. The importance of rituality and the role of its study have been discussed above. On the basis of various traces of rituals, in the course of which objects have been left behind, burial structures have been constructed, bodies of the dead and grave objects have been inhumed in stone graves, and corpses or cremated remains have been handled in one way or another, we can speculate on the nature of these rituals. Having an understanding of and considering these rituals we can pose hypotheses about the underlying religious concepts. Consequently, it is impossible to form hypotheses about religion, mentality, or anything else on the basis of a single object, separately from the burial it belongs to, or any other context (see e.g. Antanaitis 1996). The use of rituals and especially theories about rituals in archaeology are far more complicated than they may seem. Liv Nilsson Stutz has pointed out that the use of theories from other disciplines, especially those posed in anthropology, is a risky business in the field of archaeology, and ignorance of their formation and context may lead to a dead end. Stutz suggests that a solution to this problem for archaeologists might be orientation to ritual as an action, rather than thought (Nilsson Stutz 2003, 51). However, behind a ritual there is always a thought, a religious context represented by the ritual, and while interpreting the traces of ritual as an action, it is important to consider that the ritual and the thought behind it would be in conformity.

Defining key terms. One of the main arguments against the phenomenological method of theoreticians of religion of the past few decades concerns the loose

and vague use of terminology. Providing definitions for and explicating such terms would definitely facilitate the solution of sometimes absurd situations, where ancestral cult and basically analogous afterlife have been assigned to every possible period, using basically similar terminology and descriptive style. Typically, archaeologists are more likely to notice regional differences and have paid less attention to concepts that have transformed in time (see Jaanits *et al.* 1982, 99, 414). Regardless of that, most scholars agree that beliefs have changed in time in accordance with changes in other phenomena, and the conception of afterlife is bound to change at some point.

Also, there are certain key concepts favoured by archaeologists, such as, for example, fertility cult, animism, totemism, also the broader terms cult and ritual, which need to be defined by each author individually. Clearly, a similar term can be used to characterise quite different phenomena, the distinction of which depends on their context or material. Therefore, definitions of such terms widely vary in different studies.

Prehistoric religion has to be viewed as a **general framework**, and studies into narrower topics should proceed from this view. Several authors of recent studies have pointed out that the study of prehistoric religion is possible only if it is considered in its entirety (see Nilsson Stutz 2003, 53). The general context is associated with the view according to which all phenomena existing in religion at a certain point of time have to be linked and in concordance. Thus forms a general framework, where all phenomena communicate and complement each other. In addition to speculations relying on archaeological material, this approach suggests that hypotheses can be made about probable phenomena and their nature even if none of these phenomena or no material trace of them has been preserved. For example is quite likely that independent and clear-cut beliefs in god emerged in the Late Neolithic or Early Bronze Age, especially if we consider linguistic sources, etymologies and dating (Kulmar 1994; Sutrop 2002, 31), the distribution of some stone axes, which reportedly served ritual purposes (Salo 1990), and sacred grove hills that were taken into use towards the end of the Early Bronze Age – Pre-Roman Iron Age (Jonuks 2003).

Consideration of the prehistoric religion in its entirety would also enable to avoid the risk of treading the same path as traditional phenomenology, where focussing too much on single details (phenomena) and loosing the general view from sight leads to seeing a single emphasised detail of prehistoric religion. However, unless it is set in a broader context, it is impossible to adequately observe the formation of the given detail and its interrelation with others. Consideration of the general framework in the development of the entire religious system also facilitates the compilation of more adequate studies into individual phenomena. The fragmentariness of archaeological material, which does not provide us with a comprehensive view, can be overcome with the application of a long-term perspective, which may compensate the incompleteness of material on a specific moment or a relic (Nilsson Stutz 2003, 53). Naturally, a comprehensive view of

prehistoric religion has been, is, and always will be an idealistic goal that cannot be achieved. Yet, I believe that this is what all research should aim for, even if it may sometimes lead to far-fetched speculations.

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Tõnno Jonuks

RELIGIOONIARHEOLOOGIA – VÕIMALIKKUS JA VÕIMALUSED

Resümee

On üldteada nali, et kui arheoloog leiab eseme, mida on raske interpreteerida või mille funktsioon ei ole üheselt teada, siis klassifitseeritakse see kultuslikuks. Nalja teine pool on aga pigem kurb – nimelt kaotatakse seejärel enamasti eseme vastu teaduslik huvi ning eset eksponeeritakse kõikvõimalike publikatsioonide aukohal, ümbritsedes seda "kultusliku" auraga, millest läbipääsu ega isegi selle võimalust ei nähta ning interpretatsioonid lõpevadki tõdemusega "kultuslikust esemest" vms.

Käesolevas püüan vaadelda mõningaid erinevaid lähenemisviise, kuidas ja millistel alustel oleks Eesti usundiliste esemete ja eriti Eesti usundi enda uurimine arheoloogiliste meetoditega edasiviiv ning mis võimaldaks astuda järgmist sammu – sammu, mis "kultuslikest esemetest" viiks edasi oletusteni, millised olid uskumused ajal, mil neid esemeid kasutati. Kindlasti viivad nii mõnedki sellised mõttekäigud spekulatsioonidele, kuid spekuleerida tasub usundi teemadel kindlasti. Ehk isegi rohkem kui teistes arheoloogia valdkondades. On ju ka spekulatsioon üks arvamuste vorme ning väärate spekulatsioonide ümberlükkamine võiks viia hoopis tõenäolisemate järeldusteni. Vähemasti välistab nende ümberlükkamine mingigi osa arvukatest võimalustest.

Kogu artikli arutlus puudutab ennekõike Eesti materjali, selle arengulugu ja uurimisvõimalusi. Usun, et kõikehõlmavate, universaalsete teooriate koostamisel

on suurem oht sattuda kritiseeritud fenomenoloogide teele, kus teooriad on kehtivad vaid väga üldises mastaabis, andes võimaluse analüüsida ainult inimese üldist religioosset käitumist. Loomulikult on sellised laiapõhjalised arutluskäigud aluseks kõikidele kitsamatele uurimustele. Kuid konkreetse piirkonna nagu Eesti usundi arengulugu on väga otseselt seotud selle piirkonna allikalise materjaliga ja teiste piirkondade põhjal koostatud teoreetilisi mõttekäike on võimalik kasutada vaid väga üldiselt.

Eesti muinasusundi vastu on uurijad huvi tundnud juba 18.–19. sajandi rahvusromantilistest liikumistest peale. Romantilistest käsitlustest ja antiikmaailma laenudest vürtsitatuna on sellised paganliku Eesti usundi jumalapanteonid praeguseks hüljatud. Küll aga on mitmed teised selle ajastu romantilised käsitlused jätnud oma tugeva jälje nii rahvalikku kui ka akadeemilisse usundilukku.

Märksa teaduslikuma mõõtme sai usundiuurimine 20. sajandi esimesel poolel, mil töötasid mitmed tänapäevalgi põhiautoreiks peetavad folkloristi taustaga uurijad nagu Matthias Johann Eisen, Oskar Loorits ja Uku Masing. M. J. Eiseni materjalikäsitlusi kasutatakse usundiuurimises praegugi. Teaduslikus mõttes väärtuslikumad on aga O. Looritsa allikapublikatsioonid. Kuid tema rahvuspsühholoogiast ning romantilisest soomeugri ürgdemokraatiast kantud teooriad on spekulatiivsed ja seetõttu tänapäevases teaduses ettevaatusega käsitletavad. Kogu 20. sajandi I poole usundiuurijate töid läbiva fenomenina võib jälgida teravat vastandamist saksa ja skandinaavia kultuuriruumile ning nende usundilisele sümbolile – kristlusele. Arvestades selleks ajaks väljakujunenud noort Eesti intelligentsi ning vastset Eesti Vabariiki, on sellised tendentsid ka mõistetavad: on ju usund üks olulisemaid meie-tunde loojaid ning värskelt formeerunud rahvusriigi oluline ideoloogiline komponent.

Pärast Teist maailmasõda jäidki senised usundikäsitlused kestma, kuid usundiuurimine ise hääbus. Ilmus vaid üksikuid uurimusi, kus varasemad tendentsid olid endiselt jälgitavad. Eestlasi peeti jätkuvalt egalitaarse ürgsoomeugriliku kultuuri kandjateks, kelle lähimad, nii keelelised, kultuurilised kui maailmavaatelised naabrid on Venemaa soome-ugri keeli kõnelevad rahvad. Kindlasti sobis selline käsitlus ka käibel olnud poliitilise situatsiooniga. Probleemsena kasutati usundiuurimises aga endiselt rahvapärimuslikke allikaid kui põhiallikat, mille põhjal koostati süsteem ning mida illustreeriti arheoloogilise materjaliga.

Uus ja tõsine muutus saabus alles 1990. aastatega, mil avanes juurdepääs Läänes tehtud teoreetilistele käsitlustele ning mil selliseid käsitlusi hakati kasutama ka Eesti materjali interpreteerimisel. Selle perioodi uued sotsiaalsed teooriad kummutasid ka varasema usundikäsitluse. Probleemseks on aga jäänud eesti arheoloogide suundumus pigem ühiskonna sotsiaalsete probleemide suunas, millega usundiuurimine on kõrvale jäänud.

Eesti muinasusundi kohta on läbi erinevate uurimisperioodide ja rõhuasetuste kasutatud erinevaid termineid. Neist levinuim on *rahvausund*, mida on kasutanud juba esimesed uurijad. Rahvausundi uurimisel on rõhuasetus enamasti küll selle mittekristlikule osale pandud ning tihtipeale on püütud selles näha ka otsest järglast muinasusundile, eeldades, et vahepealsetest ajaloolistest ja usundilistest muutustest

hoolimata on põhiosa säilinud muinasaegsena. Mitmed kaasaegsed uurimused on aga näidanud, et 13. sajandil toimus maailmapildis tugev murrang ja kesk- ning uusaegset rahvausundit ei saa muinasusundi uurimise allikana kasutada, hoolimata seal leiduvast eelkristlikust pärandist.

Akadeemilises kirjanduses on kasutatud ka terminit *eelkristlik*, mis on markeerinud just muinasaja lõpusajandeid. Vast korrektseim termin, käsitledes muinasaegset usundit alates inimasustuse algusest Eestis ning lõpetades 13. sajandi ristisõjaga, võiks olla *muinasusund*, mis on ühelt poolt ajaliselt piiritletud ja kattub kogu muinasajaga, teisalt ei sea see ka liiga pretensioonikaid piiranguid.

Usundiuurimine on kõikjal Euroopas olnud suhteliselt meetodivaene, kuid siiski ennekõike interdistsiplinaarne valdkond. Valdavaks metoodiliseks lähenemiseks on seni olnud fenomenoloogiline, mille põhjal on tehtud ka enamik Eesti materjali puudutavatest uurimustest. Viimasel aastakümnel on see meetod saanud aga mitmesuguse kriitika osaliseks: ühelt poolt just oma piiratuse, teisalt aga ebamäärasuse tõttu.

Sellest lähtuvalt tahaks toonitada mõningaid lähtepunkte, mis minu arvates on Eesti muinasusundit uurides olulised endale teadvustada.

Usund on dünaamiline ja pidevas muutumises, seetõttu oma olemuselt ka tihedasti seotud sotsiaalsete struktuuridega, mille muutumisega, mida arheoloogiakirjandus viimastel aastatel järjest rohkem rõhutab, peab järelikult muutuma ka usund. Seega ei ole võimalik rääkida mingist abstraktsest "muistsest Eesti usundist", kuna igal konkreetsel perioodil on see usund olnud erinevate nüanssidega.

Oluline on, et uuemad usundifenomenid sobitataks varasemale põhjale. Nagu eespool rõhutatud, on usund pidevas arengus. Samas ei muutu kõik usundit moodustavad fenomenid võrdselt, vaid sõltuvalt paljudest teguritest võib mõne areng olla kiirem või aeglasem. Selline ebaühtlane, kuid siiski pidev protsess nõuab, et uued fenomenid, mida laenatakse, või fenomenid, mis teevad läbi mingi muutuse, sobiksid olemasolevasse süsteemi. See aga tähendab, et ei ole võimalik laenata mingit fenomeni, mille põhialused oleksid üldkehtivast süsteemist erinevad, ning samuti ei saa üks fenomen läbi teha järsku ja väga põhjalikku muutust.

Rituaalsus on arheoloogilise perioodi usundiuurimise puhul võtmetähtsusega. Järjest enam on toonitatud, et arheoloogid ei kaeva välja müüte, vaid jälgi rituaalidest. Arvestades neid jälgi, mille käigus on maha jäänud esemed, ehitatud kalmestruktuurid, pandud kalmesse surnu ja tema panused ning surnukehadega või kremeeritud jäänustega ühel või teisel moel käitutud, saame hakata tegema oletusi selle kohta, millised olid rituaalid, millest jäid maha sellised jäljed. Neid rituaale teades ja arvestades saame hakata omakorda püstitama oletusi, millised olid need usundilised arusaamad, mis neis rituaalides väljendusid. Seega ei saa kalmest või ükskõik millisest muust kontekstist üht eset välja võttes järgmise sammuna otse püstitada oletusi usundi, mentaliteedi vms kohta. Ka rituaali ja eriti rituaaliteooriate kasutamine arheoloogias on keerukam, kui esmapilgul tundub. Nagu Liv Nilsson Stutz on välja toonud, on teiste distsipliinide, peamiselt antropoloogia poolt koostatud teooriate otse kasutamine arheoloogias ohtlik, ja nende kujunemiskäiku ja tausta mitte tundes võib sattuda ummikteele. Tema poolt välja

pakutud tee oleks arheoloogide suurem suunatus rituaalile kui tegevusele, mitte kui ideele (*thought*) (Nilsson Stutz 2003, 51). Samas on rituaali taga siiski alati ka idee, uskumuslik taust, mida rituaal väljendab, ja rituaali kui tegevuse jälgede interpreteerimisel tuleb arvestada ka seda, et rituaal ja selle kaude hoomatav idee oleksid kooskõlas.

Viimase aastakümne usunditeoreetikute üks olulisemaid kriitikapunkte fenomenoloogilise meetodi vastu puudutab mõistete liiga vaba ja ebamäärast kasutamist. Selliste mõistete defineerimine ning lahtimõtestamine aitaks kindlasti kaasa, et lahendada kohati absurdseid olukordi, kus esivanemate kultust ning põhimõtteliselt sarnast hauatagust elu on nähtud kõikide perioodide puhul ja nii terminid kui kirjeldusviis on põhimõtteliselt sarnased. Iseloomulik on ka, et arheoloogid on pigem valmis nägema piirkondlikke erinevusi ning vähem on tähelepanu pööratud ajas muutunud kujutelmadele (vt Jaanits *et al.* 1982, 99, 414). Ometigi on enamik uurijaid ühel arvamusel, et usund on muutunud ajas koos teiste nähtuste muutumisega ja seega ei saa ka hauataguse elu kontseptsioon püsida samasugusena pikka aega.

Kindlasti vajaksid iga autori poolt eraldi lahtimõtestamist ka sellised arheoloogide meelisfenomenid nagu viljakuskultus, animism, totemism; laiemalt võttes ka nii kultus kui rituaal. On ju selge, et sarnase terminiga saab iseloomustada küllaltki erinevaid nähtusi, mis erinevad oma sisus lähtuvalt kontekstist ja materjalist. Seega erinevad selliste terminite tähendused igas uurimuses.

Usundit peab vaatama kui tervikpilti ja alles seda arvestades saame hakata üksikuurimusi tegema. Tervikpilt on seotud ka lähtekohaga, mille järgi kõik usundis ühel hetkel eksisteerivad fenomenid peavad olema omavahel seotud ning üksteisega sobima. Seega moodustub laiem raamistik, milles iga fenomen omavahel suhtleb ning üksteist täiendab. See lisab aga arheoloogilise materjali põhjal tehtavatele oletustele võimaluse, et on võimalik teha oletusi tõenäoliste fenomenide ja nende iseloomu üle ka juhul, kui need ise või materiaalsed jäljed neist ei ole säilinud. Tervikpildi arvestamine aitaks välistada ka ohtu sattuda klassikalisele fenomenoloogilisele rajale, kus, keskendudes liigselt ühele detailile (fenomenile) ning kaotades silmist üldpildi, näeme üht detaili usundist tugevasti võimendatuna, aga kui me ei pane seda laiemasse konteksti, ei suuda me siiski adekvaatselt jälgida selle detaili kujunemist ja seoseid teistega. Arvestades tervikpilti kogu usundi arengus laiemalt, on ka adekvaatsemaid üksikfenomeniuurimusi kergem koostada.

Loomulikult on ka selge, et tervikpilt muinasaegse usundi kohta on ja jääbki uurijatele vaid idealiseeritud eesmärgiks, mille lõplik saavutamine on võimatu. Samas peaks see olema aga siiski uurimuste laiem eesmärk, isegi kui see viib mõnikord ebatõenäoliste spekulatsioonideni.

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Sigita Mikšaitė

PRODUCTION OF CERAMICS OF NARVA CULTURE (RECONSTRUCTIONS BASED ON EXPERIMENTAL ARCHAEOLOGY)

The pottery of Narva Culture was the first ceramics in the East Baltic Region. In the course of practical experiment, the questions related to the production technology of Neolithic pottery were resolved and studied in detail. That includes clay preparation, coil joining, ornamentation and firing. Vessels were made experimentally, giving an understanding of the archaic techniques and traditions of the Neolithic potters. Two ways for ceramics firing, namely field hearth and pile-fire have been tested.

Narva-tüüpi keraamika oli esimene keraamikaliik Ida-Baltikumis. Praktiliste eksperimentide käigus uuriti üksikasjalikult neoliitilise keraamika valmistamise tehnoloogiaga seotud küsimusi: savi ettevalmistamine, savilintide ühendamine, nõude kaunistamine ja põletamine. Savinõude eksperimentaalne valmistamine aitas mõista neoliitiliste pottseppade arhailisi tehnikaid ja traditsioone. Ühtlasi testiti kaht keraamika põletamise viisi: põletusaugus ja tuleriidal.

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Introduction

In the East Baltic region where the cultures of hunters and fishermen lasted longer than in Central Europe, the appearance of ceramics is considered to be a very important feature indicating the beginning of the new Neolithic age. In Lithuanian, Latvian and Estonian historiography such an approach has been and still is dominating (Rimantienė 1996; Girininkas 1994; Kriiska 2001; Loze 2001; Brazaitis 2003). In Lithuania, the early start of the Neolithic is dated 5500/5300 cal. BC (Antanaitis-Jacobs & Girininkas 2002). Latvian archaeologists start the Early Neolithic since 5500 cal. BC (Loze 2001), Estonia dates it 4900 cal. BC (Lang & Kriiska 2001).

For the archaeologists investigating the Neolithic culture, forms of ceramics, mixtures and ornamentation served as the base for the cultural evolution schemes and reflect traditions of history. In their work researchers do not ignore questions related to the production and use of ceramics. However, these issues are often

considered secondary. Therefore, it is indispensable to trace all the stages of the vessels' production process.

The aim of the described experiments within this research work was to reconstruct production technologies and traditions of Narva-type ceramics, to ascertain different ways of pottery molding and decoration of their surface using many different tools. We tried to look at ceramics production from a Neolithic potter's point of view and strove to perceive concrete traditions of the ceramics production. Pottery has been molded on the basis of the analogues from Šventoji 6th settlement, Daktariškės 5th settlement and Žemaitiškės 2nd settlement (Lithuania; Fig. 1).

History of research

There is quite a number of theoretical works classifying, summarizing and analyzing in detail the Neolithic ceramics. However, the research of archaeological ceramics and its production technology reconstructions have not attracted much attention although the revival of the old technologies and traditions is a very important factor for the deepening knowledge about the pattern of life of previous generations.

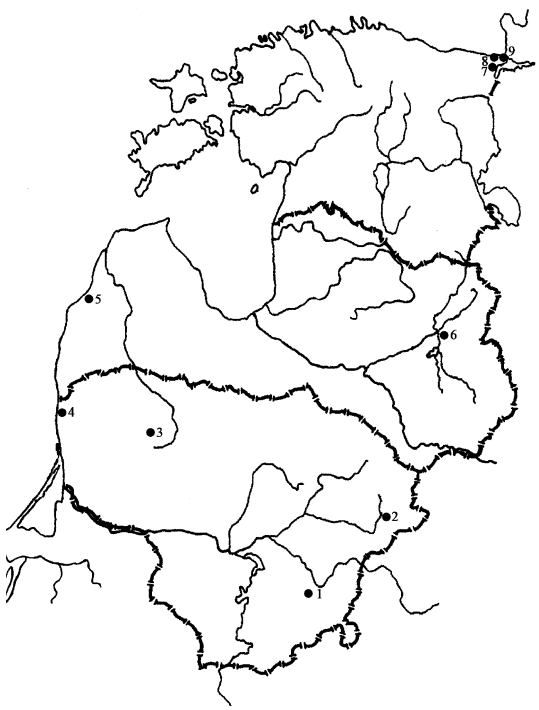

Fig. 1. Location of the sites mentioned in the paper. Lithuania: 1 Trakai, 2 Žemaitiškės 2, 3 Daktariškės 5, 4 Šventoji 6. Latvia: 5 Sārnate, 6 Piestiņa. Estonia: 7 Narva Joaoru, 8 Riigiküla, 9 Lommi III.

Joon 1. Artiklis käsitletud muististe asukoht.

The East Baltic archaeologists, Nina Gurina, Ilze Loze, Rimutė Rimantienė, Lucija Vankina who were the first to assess ceramics as reflector of cultural-ethnical processes, paid attention to such features as the importance of mixtures, molding techniques, firing temperature.

There are currently only a few researchers who reconstruct the Neolithic ceramics production process not only for their own pleasure but also for science and education. In Estonia, questions related to ceramics production were investigated in theory and practice by Aivar Kriiska (Kriiska *et al.* 1991; Kriiska 1996; Kalm *et al.* 1997). The article by Baiba Dumpe which appeared recently

in Latvia raises problems related to ornamentation technology production of the Corded Ware (Dumpe 2003). In the research works Valdis Berziņš focuses on ceramics of a Narva-type Sārnate settlement in Latvia (Berziņš 1999; 2000; 2003). In Lithuania Džiugas Brazaitis carried out analysis of the Narva-type ceramics technology, morphology and ornamentation (Brazaitis 2002; 2003). However, so far there are no articles devoted to the reconstruction of Neolithic ceramics in the historiography of Lithuanian archaeology.

For already five years, the Vilnius Guild of Potters has been periodically organizing archaic ceramics camps in Trakai (Lithuania), in the courtyard of the Peninsula Castle. The researchers are engaged there in the research of scientific archaeological ceramics and reconstruction of the old technologies using an experimental method. Narva Culture ceramics was chosen to be the main topic for the 2004 summer camp. However, the summer camp was not limited to practical activity, theoretical questions also came into view and hypotheses were checked out.

Sources and methods

A sufficient base of theoretical knowledge was accumulated in the preparation stage for practical activities. First of all, it has thoroughly examined the original Narva Culture ceramics, i.e. many ceramics findings stored in the Lithuanian National Museum from Šventoji 6th settlement, Daktariškės 5th settlement and Žemaitiškės 2nd settlement were analyzed. The level of the roast of fragments and their surface was evaluated in the review process. Professional potters were greatly surprised by the work of their predecessors – pieces of ceramics were very light but sufficiently strong and had survived perfectly. To avoid confusion between many forms and ornaments, the most characteristic and frequent vessel types and ornaments motifs were identified for reconstructions.

All possible material from different sources was collected. Theoretical knowledge related to the peculiarities of Narva-type ceramics, the pattern of life of Narva Culture people was taken into consideration based on the works performed by prominent cultural researchers Rimutė Rimantienė, Algirdas Girininkas, Ilze Loze and Lucija Vankina.

One should mention that the features of the pottery of Narva Culture in the East Baltic region differ. It can be divided into several local variants. The Narva-type pottery material from Lithuania will be the basis in this research.

Presentation of material

The principles of all Neolithic ceramics production can be divided into several main stages: 1) preparation of clay mass; 2) molding of a vessel; 3) ornamentation of surface; 4) drying and 5) firing. Each of these aspects received particular attention.

Preparation of clay mass. The first step in pottery molding is the preparation of clay mass. Paste-making is the process by which raw materials such as clay, temper, and water are blended. It is very important to know how to prepare raw materials for use, how and in what proportions to mix them.

Since Narva Culture ceramics distinguishes from ceramics of other Neolithic cultures by its specific clay mass, the greatest attention was devoted to the clay mass while performing the experiment.

The first attempt was focused on the clay mass with crushed shells. This temper of clay mass is most characteristic of the pottery of Narva culture. Since most of the Neolithic settlements, particularly in Lithuania, were located close to water bodies (Brazaitis 2003), shells could be found in ceramics almost in every settlement.

Berziņš, having examined the mixture of shells in ceramics, states that before crushing, the shells used to be fired (Berziņš 2000). This thought has been fully approved by Dumpe, who carried out the reconstructions of Corded Ware (Dumpe 2003). In the process of the experiment, shells split easily into sufficiently small fragments and it does not require additional crushing by hand after they are burnt in the ember, put into the vessel and watered. Besides, cracked burnt shells do not cut hands. For the burning of shells by primitive conditions temperature must not be too high, otherwise the shells crumble to dust and are not suitable to be mixed in clay. However, if shells are not sufficiently burnt it is difficult to crush them.

Crushed shells in the clay mass are characteristic of several features. The first is that this kind of temper increases the durability of ceramics against technical and mechanical load (Berziņš 2000). However, this fact has not been thoroughly investigated. The second characteristic feature is their susceptibility to heat. A vessel with such a temper will crumble if burnt at too high temperature. Calcite ($CaCo_3$) starts to split at 650–750 °C. When the vessel cools down, calcium oxide (CaO) conjuncts with air humidity, generating calcium hydroxide ($Ca(OH)_2$), which is composed of bigger crystals. Expanding calcium can fissure walls of a vessel or crush it completely. Yet, this could be avoided by insuring that the burning temperature does not exceed 750–800 °C and some salt is mixed into the clay mass, for example, simple natrium chloride or forming clay mass with salty water. Without any doubt, shell mixture had an important role in providing durability of pots for boiling, and that in some cases it could compensate the low temperature of firing.

Other basic organic material, used as temper of Narva-type pottery, was plant remains. The use of this type of mixture is obvious from the lightness of the pots, the porosity of walls and the imprints visually observed in the breaks of chips. The hypotheses of chopped straws were rejected immediately after the first attempts. Many difficulties appeared while trying to chop them into small pieces and the fragments appeared too big for molding. Clay mass with crushed straws was not flexible and it was difficult to shape. No problems emerged with crushed

hay or grass. Thin and tiny hay parts more or less distribute evenly when clay is molded.

It is considered that pots with plant mixture are more sensitive to heat, that is why a pot placed into fire becomes warm much quicker. Of course, due to the porosity of a vessel, water permeability increases. This is why the surface of vessels meant for cooking food and keeping liquids had to be covered by impermeable substance or other means used to ensure impermeability.

In the discussions about the variety of mixtures and their qualities, a hypothesis emerged concerning the use of horse dung as a temper. Some considerations on using other substances, such as bird manure can be found in literature (Лозе 1988). However, there are certain doubts since it is not clear how such amounts of it could be collected. Such doubts were not raised while discussing the dung of horse or other animal feeding on grass. The necessary amount of this kind of dung can be easily collected. Hay within manure is distributed evenly, and this is why clay mass is easily shaped if clay is kneaded with horse dung. Since digested hay becomes softer, clay mass is plastic and the molding becomes much easier. Pots burnt with dung mixture have a remarkable lightness.

After burning, the abrasion made in the new pottery was compared with that in the original Narva-type ceramic fragments (Fig. 2). Nevertheless, in order to approve or reject the hypothesis concerning this type of mixture used in Narva Culture ceramics, more research work has to be conducted. Thus, so far this question remains open.

Molding vessels. The goal of Trakai summer camp was to select a concrete archaeological sample and restore analogues which comply with the original parameters as much as possible (Fig. 3).

Before starting to mold pots with pointed bottom, which are characteristic of Narva Culture, there was a debate as to where the molding should start. If work starts from the spike, it will be difficult to hold the vessel. It had to be found out

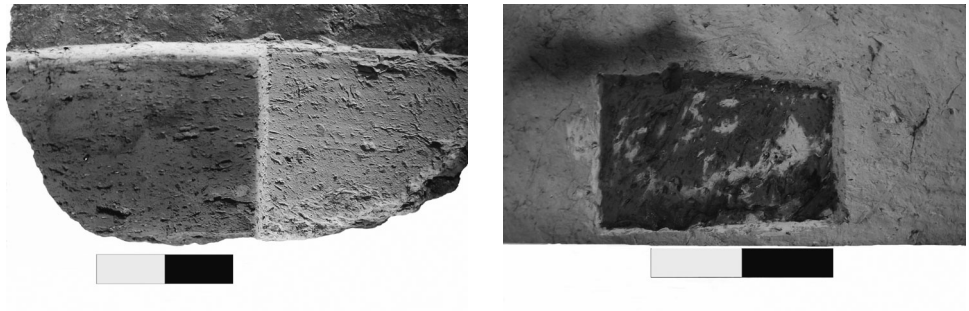

Fig. 2. Crosscut of the original Narva-type fragment (left) and newly burnt vessel with dung temper (right). In both fragments the imprints of burnt out organic mixture are visible. Photos by Dainius Strazdas.

Joon 2. Narva-tüüpi savinõu killu (vasakul) ja sõnnikuga segatud savist tehtud uue savinõu killu (paremal) läbilõige. Mõlemal katkel on näha välja põlenud orgaanilise lisandi jälgi.

Fig. 3. The pot (analogue) burnt in field hearth in Trakai, Lithuania. The vessel was made in accordance with the photo and description of authentic example (Sārnate settlement, Latvia). Photos by author and from Vankina (1970).

Joon 3. Trakai (Leedu) põletusaugus põletatud savinõu, mis valmistati Sārnate asulakohast (Läti) leitud nõu foto ja kirjelduse järgi.

how to hold the vessel in the upright position and at the same time not damage its form. Many methods were analyzed, of which two appeared to be the most suitable: the molded vessel is placed into a pit with hay or into a ring which is made from clay. It should be sufficiently thick so that it would hold the growing weight of a pot. If the pot is molded from the mouth and continuously narrowing, it could be difficult to connect clay coils at the spike.

The form of vessels with pointed bottom most probably emerged because of its functionality. However, researchers have unanswered questions why such type of vessel was produced and used.

The East Baltic region researchers engaged in the Neolithic ceramics state in unison that the Neolithic vessels were molded from different clay coils, the conjunction methods of which have received lots of attention (Rimantienė 1979; Kriiska 1996; Berziņš 2000; Brazaitis 2002). There are two basic methods to join the clay coils together: U-type and N-type.

a) U-type. In the profile of the vessel wall, the line for the coil conjunction is seen as round: the rim of lower coil is convex, whereas the upper coil is concave.
b) N-type. In the profile of the vessel wall the line of both lower and upper coils thinned out into narrow edges in opposite directions.

It should be noted that different conjunction methods could be encountered in the same settlements.

When investigating Lubāna lowland (Latvia) settlements Loze identified a characteristic method for wall thinning. This technique was called “scoop and anvil”, i.e. the walls, upheld from the outside, were whisked up from the inside of

the vessel up to desirable thickness (Loze 1983). It seems that this method for thinning of the walls is used even now. By whisking it is possible not only to thin the walls of a vessel, but to shape the desirable form and smooth out roughness.

The other method for wall thinning is to scrape off the unnecessary thickness with a sharp tool. It became clear that this could be done with the help of a big scallop, flat stone with sharp rims or a polished wooden plate. After such scrap the walls retain an embossed shading (Brazaitis 2002).

Pottery with walls has evident advantages since such pots are lighter. Besides, they convey warmth better and increase resistance against repeated thermal impact (Berziņš 2000; Brazaitis 2003). In other cases, priority is given to vessels with thick walls: because of lower permeability of heat they can be used for keeping liquids and are resistant to mechanical load. Certainly, lower heat permeability has also a negative side if the content in the vessel has to stay warm for a longer time.

Ornamentation. Tools. Few basic ornament groups can be distinguished in Narva-type ceramics (Brazaitis 2003; Лозе 1988):

– first group refers to imprints. By the shape they can be distributed into several subgroups: bigger and smaller round pits, right-angled columns, grain form and triangle imprints (Iršėnas & Butrimas 2002). In most Narva-type ceramics these elements are dominating;
– second group contains comb-like ornaments, made by a toothed ornamentation tool. In Lithuanian historiography this ornament is related to the Combed Ware Culture, though Estonian archaeologists do not agree with this assumption;
– third group refers to corded and textile imprints. Most often these ornaments are considered the result of making the surface even with a stick with a cord around it (Dumpe 2003). Knot imprints might be also ascribed to this group.

Since there are no tools for ornamentation in the archaeological material, one can only guess about them. However, it did not take long to find an answer. A simple wooden stick appeared to be the most convenient and universal tool for ornamentation. If an artisan wants to decorate the vessel by round pits, he just has to choose a stick with the desired thickness. Right-angled or triangle imprints can be made by adjusting its shape using a sharp tool. In order to make the tools last longer, they can be easily made of bone. A birch-bark suits well for the polishing of the surface of a vessel.

Firing. Unfortunately, the evidence about the hearths of the Neolithic potters is very poor. All researchers of Neolithic ceramics admit that pots were burnt in the open fire. Some of them call this method firing of the pit, others firing of the fireplace. All names are correct. However, "field hearth" seems to be the most appropriate for ceramicists (Strazdas 2004) (Fig. 4).

It is advisable to make the place for burning deep, so that pots burn in the pit. The edges of the pits have to be piled by stones of two or three layers since in the burning process they reflect heat. A few stones are placed on the pit bottom so that the heat which is generated between live coal and pot rises up. Earthenware is placed on them. Gaps are left for firewood. A gap is also left between the vessel

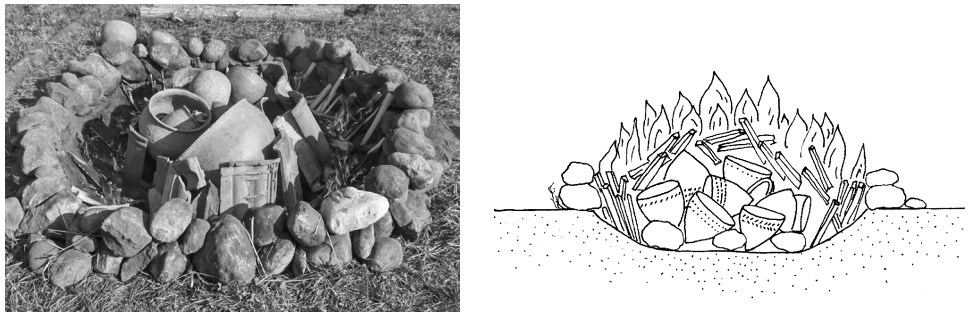

Fig. 4. Field hearth at the beginning of heating. The principle of firing of field hearth. Photo and picture by author.

Joon 4. Põletusauk põletamise algul. Paremal – põletusaugus põletamise põhimõte.

and the edges of the pit, which is filled with chopped firewood. It is important to maintain even heating, it takes two-three hours, and it must be made sure that the fire will not reach the pottery. After that, firewood is placed closer to the wares and the temperature is increased. It is important to know that the hearth becomes heated unevenly. The artifacts placed inside and at the bottom heat more slowly. The field hearth finishes heating by placing firewood between the articles and above them. At the end of burning the hearth is closed down. The diminishing fire is covered with some organic substance, e.g. sawdust, and sand is spread over them. The hearth is left to cool down.

It is easier to watch the sides of the artefacts and judge upon the temperature if the burning takes place in the dark. In the opinion of the potters who used this process, the temperature in the hearth could reach up to 850 ºC in the upper side and 950–1000 ºC at the bottom. However, this temperature is too high for the vessels molded with the shell mixture. The temperature should not reach beyond 750 ºC if one wants shells kneaded with clay not to disintegrate and crack the vessel. After examining a few fragments of Narva-type ceramics from Narva Joaoru, Lommi III and Riigiküla (Estonia), it was established that their firing temperatures most probably exceeded 700 ºC (Kriiska 1996). Research conducted by Vankina showed that vessels produced in the Sārnate settlement (Latvia) were burnt at temperature not exceeding 600 ºC (Ванкина 1970). Ceramics research of the Piestiņa settlement which is located in the Eastern part of Latvia showed that the average burning temperature even reached 400–500 ºC (Zagorskis 1973).

Examining the old Narva-type potsherds, it was noticed that their colour is predominantly grey, dark grey or black. One should naturally keep in mind that the colour of pottery depends on the contact with oxygen when burning and the composition of the soil of the cultural layer. However, some potsherds clearly reveal that colours of inside and outside differ. It could be explained by the not very high temperature of firing.

Thus, it was proved that the old ceramics were not burnt fully but only well dried. This is due to low temperatures. The strength of potsherds can be compared with a piece of chalk. At first sight, this fragment is hard. However, if one scrapes it by a sharp tool, it easily crumbles.

One more method of burning archaic ceramics has been tested in Trakai. Potters called it "anthill" (Fig. 5) (Strazdas 2004). It is no primitive fire as it at first might appear. It is piled carefully and according to a special system. Two or three layers of large pieces of woods are placed at the bottom. The vessels are put on them. Fine firewood is inserted into the gaps. All this construction is evenly covered by a layer of straw which is coated by tempered clay. The moistened straw burns slower and longer, heating slowly the vessels inside. In the lowest part of the cone on the ground, a mouth is cut to burn the fire inside the "anthill". At the top of the cone, there is a small hole, a chimney. While burning, it is important that the fire does not go out and that it is not too strong. After four-five hours the fire gradually goes down to the main piles of firewood, above which the wares are placed. The temperature is increased by closed "anthill" walls. The "anthills" are left to cool down when the firewood stops burning.

A similar burning method was described by Berziņš and Kriiska (Berziņš 2000; Kriiska 1991; 1993), although they describe the burning process with the open fire flame, i.e. neither clay nor straws are used for covering pots and wood.

Based on ethnographic data, this method of burning came from South China. The old Romans used some of the "anthill" burning principles. They used to place clay and straws on the lower kiln part (Strazdas 2004).

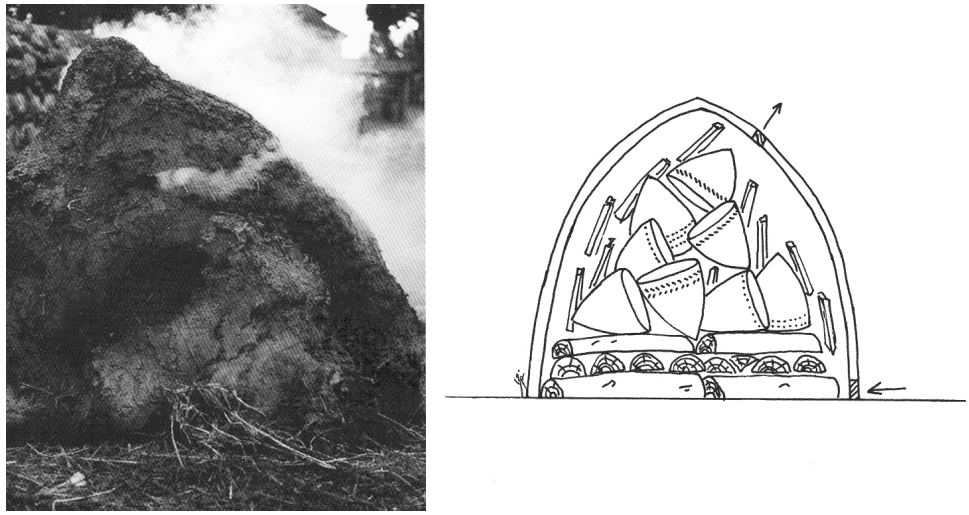

Fig. 5. "Anthill" after two hours of heating. On the right – the principle of firing of pile fire. Photo by Audrius Kacelavičius, picture by author.

Joon 5. Põletusriit pärast kaht tundi põletamist. Paremal – riidas põletamise põhimõte.

Water permeability. Permeability of ceramics to water decreases when ceramics burns at high temperature. However, the Narva-type ceramics was burnt at very low temperature, which is why after the burning process water saturates through the vessel walls. It has been observed that the more organic mixtures in the clay mass, the easier and quicker does water saturate through the vessel walls. Due to this, it has been necessary to cover the surface of vessels meant for keeping liquids and preparing food with water-resistant substance or use other methods to stop the permeability.

One of the packing methods is covering the vessel surface with resin. Most often it was applied to the vessels when still warm after burning (Berziņš 2000). Certainly, this method cannot be applied to vessels meant for cooking food. Resin can only be used for covering the inside part of the vessel. If used on the outside, this material burns out. One more method to prevent permeation is to boil food in the vessel which then gets burnt to the walls of vessel and fills the pores in them. However, this method causes some uncertainty as the thick layer of burnt substance inside the vessel appears not only because of the burnt product, but also because of the burning surface layer while using the vessel. Also it is possible that people did not try to clean the vessels on purpose, realizing its benefit for the reduction of permeability.

Summary and conclusions

The molding techniques of archaic ceramics can be learnt fast but much more experience is needed to achieve the required thickness of the walls or a desirable form of a vessel.

The Trakai camp had the aim of restoring an analogue which would be as close as possible to the original. Concrete archaeological samples were selected, which were then restored according to all available parameters.

The preparation of clay mass is the basic stage in the ceramics production. The resistance of vessels in fire depends on the clay and the mixtures. It is important to remember that vessels molded from clay and mixed with shells are not very heat-resistant. When they burn the temperature should not exceed 750 °C. The camp discussed using horse manure in the preparation of clay mass. Unfortunately, after many experiments this question is still undecided.

The forms of Narva-type ceramics are not of great variety. One more question remains unanswered which relates to the reasons why the Neolithic people produced and used pointed-bottom vessels.

The vessels of the Neolithic age were molded from different clay coils by connecting them in two ways, called U-type and N-type. From the first sight, there is a big variety of the Narva-type ceramic ornaments. After more thorough analysis, however, they can be divided into only a few groups: imprints, comb-like ornaments and corded textile imprints. Natural tools were selected for ornamentation: sticks, shells, birch bark.

The burning of vessels is the most difficult and decisive stage and requires a lot of patience and experience. Two ceramics burning methods were tested in the Trakai camp: field hearth, where vessels are put in a pit, loaded with firewood and heated continuously, and the "anthill" method where vessels and firewood are placed in an orderly heap and covered by tempered clay. Referring to low burning temperature (400–750 °C), different colours in the sherds, it is possible to confirm that the Narva-type ceramics used to be dried but not burnt.

After burning, it is necessary to ensure that vessels are resistant to liquids. This is assumed to be achieved in two ways: by covering the surface of a vessel by resin and boiling food in a vessel, which clings to the walls and fills in the pores.

Characteristic forms of vessels, their size, shells and plant mixtures, ornaments motives transferred from generation to generation, as well as molding and burning technique used also nowadays means the development of pottery traditions. The Neolithic potters achieved an outstanding professional level. Big vessels produced by them even if they were burnt at low temperature were sufficiently strong and could survive in the open fire. Ceramics is an important source for researching material and spiritual culture. If questions related to ceramics production and technologies of usage become priority, new knowledge would make it possible to look at culture from another point of view.

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The author is very grateful to the Vilnius Guild of Potters for the possibility to participate in the organization of the camp of archaic ceramics.

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Resümee

Vilniuse Keraamikute Gildi korraldatud arhailise keraamika valmistamise laager Trakais (Leedu) on seadnud endale eesmärgiks teha savinõusid, mis sarnanevad originaalsetega nii palju kui võimalik. Selleks on välja valitud konkreetsed arheoloogilised leiud ning püütud rekonstrueerida neid kõigi võimalike parameetrite alusel.

Neoliitilise keraamika valmistamise põhietapid on järgmised: savimassi ettevalmistamine, nõu vormimine, pinna ornamentimine, nõu kuivatamine ja põletamine. Kõiki neid etappe püüti projekti käigus üksikasjalikult tundma õppida.

Savimassi ettevalmistamine on keraamika tegemisel üks olulisemaid etappe. Savinõu vastupidavus põletamisel sõltub otseselt savi segamisest ja sellele lisatud materjali omadustest. Keraamikalaagris püstitati tööhüpotees hobusesõnniku kasutamisest savimassi ettevalmistamisel, kuid hoolimata paljudest katsetest jäi küsimus endiselt lahtiseks.

Neoliitiliste savinõude valmistamisel kasutati erinevaid savilinte, mida võidi ühendada kahel eri viisil: U- ja N-tüüpi ühendusega. Narva-tüüpi keraamika ornamentika sisaldas mitmeid elemente: lohud, kammivajutused ja nöörtekstiili pressingud. Kõige sagedasemateks ornamendimotiivideks olid siiski väikesed ümarad või nelinurksed lohud, mille tegemiseks kasutati looduses leiduvaid vahendeid: pulgakesi, teokarpe, kasetohutükke.

Kõige raskem ja vastutusrikkam töö oli keraamika põletamine, mis nõuab rohkesti kogemusi ja oskusi. Trakai laagris katsetati kaht põletusviisi. Esimesel juhul asetati savinõud põletusauku, mis täideti puudega ja süüdati seejärel põlema. Teisel juhul laoti savinõud ja puud korrapärasesse riita, mis kaeti tambitud savikihiga. Narva-tüüpi savinõude värvuse põhjal otsustades võib arvata, et neid põletati üsna madalal temperatuuril (400–750 °C); seda võib nimetada pigem kuivatamiseks kui põletamiseks.

Pärast põletamist oli vajalik katta nõu pinnad vettpidava vahendiga või kasutada muid võimalusi niiskusläbivuse peatamiseks. Arvatakse, et selle tegemiseks kasutati neoliitikumis kaht meetodit: nõupinnad kaeti kas vaiguga või keedeti nõu sees toitu, kuni see kõrbes nõu pinda sisse ja kattis poorid.

Olles tundma õppinud Narva-tüüpi keraamika valmistamistehnoloogia detaile, võib väita, et neoliitilised pottsepad olid saavutanud väljapaistva professionaalse taseme.

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Ülle Sillasoo

MIS SAAB ARHEOBOTAANIKAST EESTIS?

Arheobotaanika on Eestis vähetuntud teadusala, mida siinsetes ülikoolides ei õpetata ning millega pidevalt tegelevaid ja tegelnud inimeste kokkulugemiseks piisab ühe käe sõrmedest. Samas viitab nii arheoloogiliste kaevamiste kui ka võetud pinnaseproovide arv teatud vajadusele ja võimalusele selles valdkonnas pisut enam ära teha. Arheobotaanilised leiud on materiaalse kultuuri uurimise üks allikatest. Väljakaevamised on üksnes andmete kogumiseks ja baasiks järgnevale teadustööle. Arheobotaanika on Eestis kriisiseisus, kuna väljaõppinud spetsialistidele ei leidu erialast tööd. Ühe põhjusena näeb autor riiklikult finantseeritava linnaarheoloogia ja materiaalse kultuuri uurimiskeskuse puudumist. Lahenduseks oleks koostöö arendamine välismaa kolleegidega, mis ei välistaks koostööd kodumaiste arheoloogide, ajaloolaste ja loodusteaduslikke meetodeid kasutavate spetsialistide vahel.

Archaeobotany is a discipline little known in Estonia. It is not taught at local universities, and the specialists who work or have worked in this area could be counted on one hand only. At the same time, the increasing number of archaeological investigations and samples that have been taken for archaeobotanical research refer to a certain necessity and opportunities to go further. Archaeobotanical finds are sources for the history of material culture. Excavations are just one part of the investigation meant for collecting data on which further research work is based. Estonian archaeobotany could be considered in crisis because graduated specialists are unemployed. As one of the reasons the author sees the lack of a state financed research centre of medieval town archaeology and material culture. As a solution the author proposes collaboration with foreign colleagues, which at the same time would not exclude collaboration between domestic archaeologists, historians and specialists who use natural scientific methods in archaeology.

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Sissejuhatus

Arheoloogiliste kaevamistega seonduvad enamasti ehitiste ja konstruktsioonide jäänused, esemelised leiud ja kaevandi stratigraafia. Vähem räägitakse nn arheoloogilisest maatriksist, mis neid konstruktsioone ja esemeid ümbritseb või täidab. See pealtnäha ilmetu surnud pinnas sisaldab möödunud aegadest säilinud ja kuhjunud elutegevuse jäänuseid. Selles arheoloogilises maatriksis võib eristada anorgaanilist osa, kuhu kuuluvad pinnase looduslikud mineraalsed koostisosad,

ja orgaanilist osa, mille moodustavad looduslikud ja antropogeensed taime- ja loomajäänused. Aine tasandist kõneldes sisaldab pinnas looduslikke ja inimtegevuse tagajärjel tekkinud keemilisi ühendeid. Kaasaja arheoloogias kasutatakse mitmesuguseid loodusteaduslikke meetodeid, selgitamaks, millist lisateavet see maatriks vastava paiga kohta sisaldab. Artikkel annab ülevaate ühe sellesse valdkonda kuuluva eriala – arheobotaanika – olemusest, allikatest ja üldistest uurimisvaldkondadest ja käekäigust Eestis ning püüab leida vastuseid tekkinud küsimustele, miks ei saa teha Eestis arheobotaanilist teaduslikku tööd ning mida teha selleks, et eriharidusega keskkonnaarheoloogid ei peaks otsima tööd muudest valdkondadest või teadusest hoopiski loobuma. Käesolev ülevaade lähtub arheobotaaniku ja keskaja materiaalse kultuuri uurija vaatevinklist.

Mis on arheobotaanika?

Arheobotaanika on kitsas tähenduses arheoloogiliste taimejäänuste uurimine. Paralleelselt arheobotaanikaga kasutatakse paleo-etnobotaanika mõistet, mille tuletas 1950. aastatel taani teadlane Hans Helbaek (1955), eristamaks vastavat uurimisvaldkonda klassikalisest loodust uurivast paleobotaanikast. Arheo- ehk paleo-etnobotaanika keskendub inimtegevuse ja kultuuri uurimisele, seostades looduslikust keskkonnast pärit leide taimede kasutuse ja sihipärase ümberpaigutusega peamiselt igapäevaelu ja asustust ümbritseva maastiku kujundamise eesmärgil. Taimed, mida inimesega seotud paikadest leitakse, on suure tõenäosusega täitnud toiduainete, ravimite, toor- ja ehitusmaterjalide ning energiaallikate ülesandeid, samuti rahuldanud inimeste rituaalseid ja esteetilisi vajadusi (vt Willerding 1978; Hall jt 1982; Steuer 1986; Hastorf & Popper 1988; Greig 1989; Zeist jt 1991; Jacomet & Kreuz 1998).

Arheobotaanika on seotud paljude inimtegevuse ja materiaalse kultuuri valdkondadega, näiteks põllumajanduse, aianduse, kulinaaria, meditsiini ja kaubavahetusega. Arheoloogilisi taimeleide liigitataksegi nende üldise ainelise funktsionaalsuse ja kontekstuaalsel baasil, kuna mitmesugused ideoloogilised aspektid ei ole selle uurimismeetodiga enamasti haaratavad. Samas võisid ühed ja samad taimed täita mitmeid majanduslikke, kultuurilisi ning võimalik, et ka poliitilisi rolle, mis selgub alles erinevat tüüpi materjale ja dokumente uurides. Arheobotaanika all võib laias tähenduses mõista ka antropogeensete taimede ajaloo ja osa kultuuris uurimist, mille allikateks on peale arheobotaaniliste leidude veel vihjed ja viited kirjalikes ning kujutised pildilistes materjalides ja mõnikord suuline pärimus niivõrd, kuivõrd see ei tulene kirjasõnast või piltidest.

Arheobotaanika allikate olemasolu ja valik sõltub sellest kultuuripärandi osast, mis on omandanud materiaalse kuju. Meie teadmised on määratud sellega, millisena ja kui suures mahus see pärand on säilinud ja meieni jõudnud. Nagu ikka, luuakse, kas teadlikult või ebateadlikult, kultuuripärandi säilimiseks jõukamates kihtides enamasti paremad tingimused kui vaesemates ning sellega seoses kajastab suurem osa allikmaterjalidest kõrgema sotsiaalse ja materiaalse positsiooniga

inimeste elu. Arheoloogiliste taimejäänuste säilimisel on tähtsad nii säilimistingimused pinnases, taimeosade erinev vastupidavus, nende erinevad töötlemisning kasutusviisid kui ka vastavate taimede ohtrus, kasutatud taimeosade spetsiifilisus ja tarbitud kogused. Taimejäänuseid leitakse sageli prahi kontekstis, mistõttu nendel kui allikatel ei ole ühiskonnas nii suurt materiaalset väärtust kui kirjalikel ja pildilistel. Kultuuriajaloo seisukohalt on aga taimede arheoloogilised leiud sama tähtsad kui taimede jäädvustused sõnas ja pildis.

Kuna arheoloogilised taimeleiud „ei räägi", on paralleelselt arheoloogilise uurimistööga vajalik tegelda ka kirjalike ja pildiliste allikate uurimisega, eriti mis puudutab keskaja ja varase uusaja perioode, selgitamaks põhjalikumalt vastavaid kultuurilisi kontekste ja vältimaks ajalooliste leidude tõlgendamist hilisematest kultuurilistest kontekstidest lähtuvalt. Kirjalikud materjalid aitavad vastata küsimustele „kuidas?" ja „miks?" ning võimaldavad uurida taimede kui sümbolite rolle, kuid samas nõuavad erilist tähelepanu ja lähenemist nimede tõlgendamise seisukohalt, sest terminoloogia, mida seal kasutatakse, pole taimede liigispetsiifiline. Ka piltidel kujutatud taimed, mis võivad viidata teatud taimede olemasolule, kasutusele ja rollile igapäevaelus, ei ole mineviku üksühene peegeldus, vaid pigem üldistuste, kogemuste, traditsioonide ja sümbolite kogumid, mille tähendus muutub mõistetavamaks kirjanduslike tekstide, ajalooliste rituaalide, ebausu, traditsioonide ja teaduse arengu taustal (Sillasoo 2003a; 2003b). Seega ei saa näiteks keskajale spetsialiseerunud arheobotaanik tegelda vaid arheoloogiliste taimeleidude uurimisega, vaid peab kontekstide selgitamisel kasutama kõiki olemasolevaid allikaid. Samas muutuvad need allikad arheobotaanikutele ja ajalooliste taimede uurijatele kättesaadavaks üksnes arheoloogide, ajaloolaste ja kunstiajaloolaste vahendusel, mis teeb selle töö mitmekordselt interdistsiplinaarseks.

Arheobotaanika on ühenduslüli humanitaar- ja loodusteaduste vahel, saades ühelt allikad ja teiselt uurimisobjekti. Kahjuks pööratakse kaasaja botaanikas aja ja kultuuri dimensioonile vähe tähelepanu ja nii ei arvata meil arheobotaanikat loodusteaduste valdkonda kuuluvaks. Ka taimkatte ajalugu õpetatakse Eesti ülikoolides minimaalselt või üldsegi mitte ning kaasaegsed botaanilised uuringud ei näi vajavat ajaloolist lähenemist enamaks kui sensatsiooniks. Siiski on igal botaanilisel uuringul peale ruumiliste ka ajalised koordinaadid. Taimkatte kujunemisel ja muutumisel on inimesel ja tema kultuuril oluline tähtsus, mille nüansid avalduvad taimede ajaloo, leviku ja kasutuse uurimisel. Inimene ei saa läbi teda ümbritseva looduseta, mida ta oma kultuuriga mõjutab isegi siis, kui esimese uurimisega tegelevad loodusteadlased ja teisega humanitaarid.

Arheobotaanika uurimisseis Eestis

Arheobotaanika ajalugu Eestis on lahutamatu siinse arheoloogia ja paleobotaanika ajaloost (vt Laasimer 1965; Jaanits jt 1982; Jaanits 1988; Kungur & Selirand 1988; Lõugas 1988; Jaanits 1991; Rõuk 1992; Lang 2000; Soon jt 2000).

Vanimad teadaolevad viited arheobotaanilisele materjalile Eestis pärinevad aastast 1867, kui Tartu ülikool ostis Isamaalise Muististe Keskmuuseumi (*Zentralmuseum vaterländischer Alterthümer der Kaiserlichen Universität zu Dorpat*) jaoks 32 liigi seemnetest koosneva taimejäänuste kogu. Ometi ei pärinenud need taimejäänused mitte 19. sajandi väljakaevamistelt Eestis, vaid hoopis Robenhauseni vaiehitise väljakaevamistelt Šveitsis (vt AI 2635: 2213). Rahvusvahelises kontekstis toimus see arheobotaanika ajaloo ja arengu esimesel etapil, milleks loetakse aastaid 1865–1947. Euroopa tasandil arvatakse arheobotaanika nurgakiviks taani teadlase Osvald Heeri (1865) publikatsiooni ja nimelt vaiehitistest leitud taimedest (Willerding 1978).

Pikka aega olid arheobotaanilised uuringud Eestis pühendatud ainult muinasaegsetest asulakohtadest ja linnustest leitud söestunud kultuurtaimede määramisele, millega tegelesid mitmed taimede või nende kasvatamisega seotud erialade spetsialistid. 1930. aastatel leitud Saaremaa Asva asulakoha ja Tallinna lähistel Iru linnuse potikildudel uuriti teraviljajäljendeid ja määrati söestunud teravilja, Kuusalu Pajulinna söestunud ladestustes tera- ja kaunvilju (Lõugas 1988; Moora 1939). Seejuures tegeles Iru linnuse söestunud teravilja määramisega Tartu ülikooli põllumajandusosakonna õppejõud Nikolai Rootsi (1888–1974). Esimeseks siinset arheobotaanilist materjali põhjalikumalt uurinud teadlaseks vahetult pärast Teist maailmasõda oli aga läti botaanik Alfred Rasinš (1916–1995). Uurides 1950. aastatest alates muinasaegseid söestunud teravilja ladestusi nii Lätis kui ka naabermaades, tegi ta kindlaks mitmeid varasemaid ja uuemaid teraviljajäljendeid ning -proove, sh Asva, Iru, Kuusalu ja Otepää asulakohtade ja linnuste kaevamistelt. Nende ja tema mitmete teiste teravilja- ja umbrohuleidude baasil tehtud uurimistööd avaldasid märgatavat mõju tolleaegsetele arusaamadele Eesti ja Läti muinasaegsest põllundusest. Rasinš oli teadaolevalt esimene, kes rõhutas, et iga arheoloogiliste kaevamistega tegeleva instituudi juures peaks asuma arheobotaanikalabor (Lõugas 1988). Rasinš polnud tol ajal taas mitte ainus siinsete taimsete makrojäänuste määraja. Taimejäänuste juhuleiud, mis kaevati 1950. aastatel Tartu muinaslinnuse uurimise käigus, määras kindlaks Tartu ülikooli taimefüsioloogia ja geobotaanika osakonna tolleaegne juhataja professor Heigo Miidla (1919–1989) (Trummal 1964). Eesti Põllumajanduse Akadeemia põllumajanduse ja sordiaretuse osakonna juhataja professor Hugo Richard Sutter (1909–1974) määras samal ajal Rõuge muinaslinnuse söestunud teraviljade leiud. Söestunud teravilja Soontaga muinaslinnuse väljakaevamistelt (1966–1971) tegi kindlaks Jaan Lepajõe (1928–1999) Eesti Põllumajanduse Akadeemiast (Tõnisson & Lepajõe 1978). Eestis ei olnud ühtki arheobotaanikut, kes oleks spetsialiseerunud arheoloogilistelt kaevamistelt leitud taimejäänuste uurimisele. Nii-öelda juhuslikke taimeleide määrasid sageli juhuslikud uurijad, kes piirdusid väljapaistvamate leidude dokumenteerimisega.

1986. aastal loodi Eesti NSV Teaduste Akadeemia Ajaloo Instituudi juurde geoarheoloogia ja muinastehnoloogia labor, kus hakati järjepidevalt läbi viima projekte, mis tegelesid muinasaegse loodusliku keskkonna ja selle muutumisega seotud temaatikaga. Intensiivse ehitustegevuse algus linnades sel perioodil tõi

endaga kaasa ka keskaja arheoloogia ja taimeleidude uurimise (Tammet 1988). 1988. aastal loodi Eesti Muinsuskaitse Seltsi juurde arheoloogiarühm AGU ning aasta hiljem võeti sinna tööle arheobotaanik, selle artikli autor. Võiks öelda, et 1980. aastate lõpp tähistab süstemaatilise arheobotaanilise uurimistöö algust Eestis. Arheobotaanilisi proove koguti ja määrati peaaegu kõikides keskaegsetes kaevandites, kus leidus vettinud kihte ja söestunud ladestusi hästi säilinud taimejäänustega, näiteks kaevandiprofiilides, jäätmekastides ja muudes ehitusjäänustes. Nendest leidudest on tänaseks tekkinud mahukas andmebaas (Sillasoo 1997). Suurem osa nendest andmetest on teaduslikult läbi töötamata ja publitseerimata, paljudel proovidel puuduvad dateeringud. Peamine põhjus seisneb ilmselt selles, et väljakaevamised linnades on tavaliselt päästekaevamised, mida finantseerib vastavale alale valmiva ehitise tellija, kes on huvitatud tööde kiirest teostamisest, mida märgib lõpparuanne. Väljakaevamiste tulemuste teaduslik läbitöötamine ja publitseerimine pole olnud kohustuslik, mistõttu sõltuvalt töid teostanud arheoloogist võibki materjal jääda avaldamata. Samas on Eesti keskaegsetes linnades läbi viidud arheoloogiliste kaevamiste arv suur ja see suureneb iga aastaga (Trummal 1990; Alttoa & Tamm 1992; Tamm 1993; Valk 1993; 1995; Metsallik 1995; Pärn & Tamm 1999; Vissak 1999; Vunk 1999).

Arheobotaanilise materjali poolest on kõige paremini läbi uuritud keskaegne Tartu (Tammet 1988; Abakumova 1990; Abakumova & Sillasoo 1991; Sillasoo 1995; 1997; 2001; 2002; Hiie 2002). Tartu kaevamiste andmeid on kasutatud diplomi- ja kraadiõppe lõputööde kirjutamiseks Tartu Ülikoolis ja Kesk-Euroopa Ülikoolis Budapestis (Sillasoo 1989; 1996; Uudelt 1991) ja üksikuteks uurimistoetustega rahastatud projektide läbiviimiseks (Sillasoo 1997). Üks viimaseid suuremaid töid oli ETF-i uurimistoetuse ja selle hoidja Jaan Tamme toetusel arheobotaaniliste leidude ja kirjalike viidete põhjal läbi viidud Eesti keskaegseid linnu hõlmanud uurimus, mis käsitleb hansakaubanduse mõju hindamist toitumisele keskaegses Põhja-Euroopas, kaasa arvatud keskaegne Liivimaa (Sillasoo & Hiie 2003; Sillasoo 2004). Koos leidude süstematiseerimisega käsitlevad need uurimused keskaegse linnaelu ökoloogilisi ja igapäevaeluga seotud aspekte.

Kuhu lähed, eesti arheobotaanika?

Arheobotaaniline uurimistöö nõuab korraliku tehnikaga laborit ja hulgaliselt aega mikroskoopimiseks ning tulemuste läbitöötamiseks kirjalike allikate ja arheoloogia kontekstis. Sellega ei saa tegelda üksnes avariikaevamiste käigus. Arheobotaanika on ka selline uurimisvaldkond, mis laiemas teaduslikus kontekstis ei kuulu ega hakkagi ilmselt kuuluma prioriteetide hulka. Või kui, siis oleks tegemist pigem moeküsimusega. Praeguse seisuga tundub arheobotaanika olevat Eestis kaduv eriala, sest leidudel põhinevat teaduslikku tööd ei toimu ning selle eriala nn kriitiline mass on liiga väike, et muude erialadega iseseisvalt konkureerida. Uutel teaduslikel publikatsioonidel puudub finantseerija, sest sihtfinantseerimise määrab juba olemasolevate publikatsioonide arv ja kvaliteet. „Võõra“

instituudi „võõra“ teema eest vastutaja ei luba enda teema arvel „muude asjadega“ tegelda.

Arheobotaanika võiks kuuluda taimkatte, kultuurtaimede ja keskkonnaajaloo õppeprogrammidesse seal, kus neid kursusi läbi viiakse. Arheobotaanika kui eriala ja uurimismeetod võiks kuuluda arheoloogia ja materiaalse kultuuri ning igapäevaelu ajaloo õppeprogrammidesse selleks, et selgitada võimalusi, mida vastav uurimistöö võib avada, ja aspekte, millega tuleks arvestada. Teadustöö seisukohalt on arheobotaanika kaasamine hädavajalik eriti keskaja linnade arheoloogiasse ja keskaja materiaalse kultuuri uurimisse, samuti nagu arheozooloogia ja antropoloogia. Taoline interdistsiplinaarne lähenemine kultuuriajaloo uurimisele ei oleks mitte üksnes soositud, vaid suisa kohustuslik ning annaks suurepäraseid tulemusi, kui leiduks linnaarheolooge, kes paneksid kokku keskaja linnu ja nende materiaalset kultuuri käsitlevaid interdistsiplinaarseid projekte. Ideaalis võiks eesti arheobotaanika kõrvuti väljakaevamiste ja andmete süstematiseerimisega tegelda veel näiteks Eesti ala ning selle keskaegsete linnade taimkatte ja haljastuse, põlluviljade umbrohukoosluste ning põllumajandusajaloo, toitumise ja taimede muude kasutusviisidega seotud küsimuste uurimisega. Seda saab teha aga ainult siis, kui teaduses nii vajalik kriitiline mass või kontekst on olemas ja/või kui koostöö arheoloogide, ajaloolaste, kunstiajaloolaste ja nende uurijate vahel, kes töötavad keskkonnaajaloo erinevate aspektide uurimisega, oleks tõhusam.

Kokkuvõte

Tänapäeval tehakse pinnase arheobotaanilisi analüüse vaid Ajaloo Instituudi geoarheoloogia ja muinastehnoloogia laboris Tallinnas, kuna nende ja varasemate andmete teaduslik läbitöötamine kuulub asjast huvitatute hobide valdkonda. Ülalkirjutatust johtuvalt ei piirdu arheobotaanika aga mitte üksnes leidude määramisega, eriti mis puudutab keskaja taimeleide. Tööpõld pole üksnes lai, vaid ka huvitav, seda ka laiema publiku vaatevinklist lähtuvalt. Kuigi muinasaegseid taimeleide on Eestis määratud ja uuritud juba möödunud sajandi algusest saadik, on suurem keskaegsete taimeleidude andmekogu, spetsialistid ja mõningane potentsiaal arheobotaanikaga teaduslikult tegelda tekkinud alles hiljuti. Samas on aga kujunenud olukord, kus juhtivate teadusalade nagu botaanika ja arheoloogia võimalused on piiratud, kaasamaks teadusse ja haridusse interdistsiplinaarseid, aeganõudvaid ja produktsioonilt teistele alla jäävaid arheobotaanika teemasid. Interdistsiplinaarsus on spetsialistile mõneti kurnav mitte üksnes vajalike teadmiste rohkuse, vaid ka mittemõistmise ja mitterahastamise suure ohu tõttu. Kuigi tänapäeva teaduspoliitikas seatakse see sageli eesmärgiks, on tegelikus elus interdistsiplinaarselt mõtlevaid teadlasi vähe. Ilmselt ei saa ka väikese Eesti teadus tervikuna paljudel juhtudel selliseid ekstravagantsusi endale lubada ning tõenäoliselt tuleb laienenud Euroopas välisabile igas mõttes rohkem loota. Järjepidevuse ja orienteerituse seisukohalt oleks hea, kui igal maal oma kodumaine spetsialist võtta oleks.

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Ülle Sillasoo

WHAT WILL BE WITH ARCHAEOBOTANY IN ESTONIA?

Summary

Archaeobotany is a field little known in Estonia. It is related to archaeological study of plant remains and research into the history of the use of plants. The discipline is not taught at Estonian universities and the specialists who work or have worked in this area could be counted on one hand only. At the same time, the increasing number of archaeological investigations and samples that have been taken for archaeobotanical research refer to a certain necessity and opportunities to go further. Archaeobotanical finds are sources for the history of material culture as far as everyday life of people depends on plants as resources for food, raw material and fuel; next to appeasing material needs plants may also have been used for aesthetical and religious purposes. The lists of plants included in the unpublished reports of archaeological excavations are not to be considered as complete results of archaeobotanical research. Excavations are just one part of the investigation aimed at collecting data on which further research work is based. The major scientific archaeobotanical work that relies on the results collected from excavations analyses and interprets this information. Plants are the objects of archaeobotanical investigation with archaeological matrix being the source, and the purpose of the research is to discover details of everyday life and make generalizations about culture. Thus it is a real interdisciplinary research that cannot be pursued isolated but in collaboration with several specialists, various information and concepts. The same could be said for archaeologists as scientists, particularly for those who work with well-preserved and rich findings from medieval towns, for example. Estonian archaeobotany may be considered as being in crisis, because although there are dedicated specialists to do scientific work, they lack opportunities for that. Medieval archaeological material where a great part of archaeobotanical data come from is scientifically little investigated and used in the research of material culture. The criticism of the author about the situation is the criticism of an unemployed graduated archaeobotanist. She considers it not only her personal problem but as the result of the situation in Estonian archaeology and in Estonian science. As the domestic research centre of medieval town archaeology and material culture is lacking, the author proposes, as a solution, collaboration with foreign colleagues, which at the same time would not exclude improved collaboration between domestic archaeologists, historians and specialists who use natural scientific methods in archaeology.

REVIEWS

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A NEW REVIEW OF LATVIAN CASTLES

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Andris Caune and Ieva Ose. Latvijas 12. gadsimta beigu – 17. gadsimta vācu piļu leksikons. Rīga, 2004 (590 pp).

Already in the late 1950s one of the authors of this book, archaeologist Andris Caune, planned to write a lexicon of Latvian castles. However, his permanent research work in Riga, the writing of articles and monographs on the results of that research, as well as large-scale fieldwork on the Bauska castle (in the 1970s–1980s) took up all his time. Only in the 1990s, when his daughter, art historian Ieva Ose, had become his match as a research companion, the opportunity appeared to realize the plan designed several decades before. To start with, Ieva Ose made a thorough study of the archival materials and archaeological literature available in Riga and Stockholm, as well as in Estonia. Fieldwork and photographing started in 1997. This approach gave an opportunity to proceed from the individual to the general, and already in 1999 Ieva Ose could publish the first volume of the series concerning Latvian castles – materials of the symposium "Latvijas viduslaiku pilis, I" (Medieval Castles of Latvia, I), focused mainly on the medieval castles of the Archdiocese of Riga. A review of the collected archival information was published in Ieva Ose's next book, the historiographic monograph "Latvijas viduslaiku pilu petnieciba 18.–20. gadsimta" (Studies of the Medieval Castles of Latvia in the 18th–20th Centuries), which was published in 2001. The next subject to be handled was the Order's castles on the territory of present-day Latvia, leading to the publication of the third volume of the series, "Pētījumi par ordeņpilīm Latvijā" (Studies of the Order's Castles of Latvia), written by 15 researchers and compiled/edited by Ieva Ose.

And now, in 2004, we hold the general lexicon of Latvian castles "Latvijas 12. gadsimta beigu – 17. gadsimta vācu piļu leksikons" (Latvijas viduslaiku pilis, IV). Actually this miscellany did not appear on a vacant space either. Since the publication of the German translation by Johann Gottfried Arndt of the chronicle of Henry of Livonia in 1753, with an appendix providing a table of the castles, towns and monasteries of Old Livonia, researchers have, ever and again, returned to the subject: the castles, established by Germans, remained administrative and economic footholds of foreign power for centuries, still arousing interest in considerably later times. This is clearly proven by the review by Andreas von Löwis of Menar "Über die Entstehung, den Zweck und den endlichen Untergang der Ritterschlösser im Alten Livland" // mitt.-Riga; Leipzig, published in 1840, as well as Alexander von Richter's study of a somewhat later date. Karl Löwis of Menar was indisputably a great figure in this field, regarding not only Latvia but also Estonia. He started his research, as well as writing respective articles, in 1888. During the nearly forty years to follow he

managed to publish more than thirty papers enfolding the region from Narva to Klaipeda (Memel). Besides doing separate studies of sacral and profane architecture (also in Tallinn and Narva), his main attention was turned to castle architecture. The crown jewel of his study is the "Burgenlexikon für Alt-Livland", published in Riga in 1922. Its 127 pages of text and 63 drawings comprise most of the information known to that day about the castles of Old Livonia. Owing to the scantiness of fieldwork the publication naturally enough could not achieve perfection, and certainly not the academic weight either. Since archaeological research both in Latvia and Estonia, particularly concerning medieval castles, in the period between the two World Wars was relatively inactive, a new quality was offered only 20 years later by Armin Tuulse, who defended and published his doctoral dissertation "Die Burgen in Estland und Lettland" (Dorpat, 1942). Unlike many earlier (and also later) researchers, Armin Tuulse was able (thanks to the scholarship from the University of Tartu) to study the castles of Germany, Holland, Belgium, France and Italy in 1937–38, and also to do research in the archives of Riga, Stockholm and Königsberg. All this enabled him to present a more thorough stylistic analysis and largely to establish a typology of the castles of Old Livonia, as well as their genesis, which in many cases is still valid today.

As for the book by A. Caune and I. Ose it comprises the entire information available about the medieval castles on the territory of the present-day Latvia, whoever their founders – the Order of the Brethren of Sword, or the Livonian branch of its successor the Teutonic Order (the Livonian Order), the Bishop (later Archbishop) of Riga, the Bishop of Courland, or the vassals of the aforementioned. They are grouped on the basis of their location in the territories of either the Order or the Bishops. Most of the 136 castles were also included in the lexicon of K. v. Löwis of Menar. On the other hand, among the castles of the late 12th–16th centuries there are some (Dīgnaja/Dubena, Dobe/Doben, Liepene/Lepene, Līva/Liva, Remīne/Remin and several others) that are mentioned in written sources but their precise location is still a point of disputation. The lexicon also enfolds those castles, which – founded earlier by local inhabitants and furnished with timber fortifications only – were used as abodes by Germans in the 13th–14th centuries. Such are Asote/Aszute, Jersika/Gercike, Mežotne/Mesothen, Svētkalns/Heigenberg, Tērvete/Terweten, Vectalsi/Alt-Talsen, etc. The lexicon also includes the mill with a watchtower of the brothers Bertholds (Brāļa Bertholda dzirnavas) from the first quarter of the 13th century, classified as a fortification in 1938 by L. Arbusow (jun.), and the so-called Red Tower (Rīga, Sarkanais tornis) of the same function at the lower mill in the present-day Tornkalna quarter of Riga, on Jelgava Street.

The composition of the book is simple. Each object is provided with basic data: including earlier names, address, a short description of the location, a short review of history, a description of the present-day state of the object, a review of architectural and archaeological investigations, a list of literature concerning the object and the location of the existing plans, drawings and photos of the object. Usually the year of the latest visit of the authors to the object is also mentioned. The book ends, as usual, with a list of references. Most of the short articles are illustrated with the oldest pictures, historical as well as modern plans or charts of the objects. As for historical pictures, the 10 volumes of "Sammlung verschiedener Liefländischer Monumente, Prospekte, Münzen, Wappen etc." by the Baltic-German cultural historian Johann Christoph Brotze (1742–1823) have been of great value for the authors. These contain, alongside with materials on history, genealogy, numismatics, architecture, art, etc., also drawings of architectural monuments made by the author on the spot. We must also give credit to our Latvian colleagues for publishing the manuscript materials of Brotze, kept in the library of the Latvian Academy of Sciences – during the last decade (1992, 1996, 2002) three volumes have been published, and soon, they say, a volume discussing southern Estonia will follow.

Although the generalising text of the lexicon covers only twelve pages, it is extremely informative. There we learn about the building materials of Latvian castles – timber (late 12th–13th centuries), dolomite (north of the Daugava River and around the Gauja River) and erratic granite blocks brought to the Latvian area by a glacier sheet (in Courland, West Latvia, and in Vidzeme, Central Latvia). Red brick, so characteristic of Prussian castles, was used on a limited scale (Turaida/Treiden, Ludza/Ludsen, Grobiņa/Grobin, etc.). Generally brick was used only for framing doors and windows and as vault material. Lime mortar made of dolomite, used as a binding substance, made it possible to erect walls with a thickness of 1.3–1.8 m, which in the age of fire-

arms increased even to 4–6 m. Owing to the flat relief of Latvia most of the castles were located on riverbanks and some on uplands (Koknese/Kokenhusen, Augstroze/Hochrosen, Ludza/Ludsen, etc.). Moats filled with water provided additional defence. Only a few castles were built on islands (Sala/Holme, Viļaka/Marienhausen, Alūksne/Marienberg). The period of building medieval castles lasted longer in Latvia than in Estonia – from the late 12th century until the beginning of the 17th century, which makes five centuries all together. Nevertheless the differences, compared with Estonia, are not great. And like in Estonia, castles are still in use, up to the present day, though not as defence constructions but reconstructed for a different purpose. Completely or partly, 11 castles – Alsunga/Alschwangen, Dundaga/Dondangen, Ēdole/Edwahlen, Jaunpils/Neuenburg, Krustpils/Kreutzburg, Lielstraupe/Gross-Roop, Mazstraupe/Klein-Roop, Nurmuiža/Nurmhusen, the existing castle of Riga, Šlokenbeka/Schlokenbeck, Ventspils/Windau – are still used as a dwelling, school, museum or an administrative building.

The four maps and four tables, giving a review of all Latvian castles, considerably increase the value of the book. The material presented there is chronologically divided between five centuries and begins with the founding of the Bishop's castle of Ikškile/Üxküll in 1185. The final objects, founded in the early 17th century, are suggested to be Priekule and Bramberge. Actually, the maps and tables contain 142 names instead of the 136 presented in descriptions. The reason lies in that several of the castles have been re-erected, particularly those which were originally built of timber (Grobiņa/Grobin, Jelgava/Mitau, Tērvete/Terweten) and a decade later rebuilt in stone. Changes also took place in the monastery of Daugavgrīva/Dünamünde, which was founded at the beginning of the 13th century as a fortified Cistercian monastery, but after 1305 was rebuilt into the castle of the commandery of the Order. For the same reason the castle of Riga has been regarded as several separate objects. As the second castle of Riga burned down at the end of the 15th century, the castle, newly erected in 1515 is regarded as the third. Besides the time of founding or first mention, the castles are (in the tables) classified on the basis of their masters or owners. Accordingly, we can find Order's, Bishop's, Archbishop's and their vassals' castles. Concerning the 13th century, the town of Riga and the Cistercians are also regarded as masters; in the final third of the 16th century, the Duke of Courland is added. Although it is common to consider foreign conquerors likely to build stone castles, we can observe an exceptional feature at Latvian castles: at least 14 of those founded in the 13th century and 4 even in the 14th century were built of timber.

Dividing by centuries, we can say that of the 142 German castles in Latvia, 49 were built in the 13th century, 54 in the 14th century, 20 in the 15th century, and 19 castles or fortified manor-houses in the 16th century. By owners the division is as follows: the Order founded 60 and their vassals 17 castles, the number of castles founded by bishops and archbishops is considerably smaller – 37, and their vassals built 28 castles.

Dividing the castles by their location in cultural-historical regions the result is: 73 of them are located in the central part of Latvia, i.e. in Vidzeme, 35 in the western part – Kurzeme, 21 in Zemgale and 13 in the southwestern part – Latgale.

The special value of the lexicon for other researchers springs from the following. The authors – one an archaeologist and the other an art historian – have assembled in the publication all information obtained by fieldwork up to 2003, adding references to publications in which one can find up-to-date additional information. After all, investigation of Latvian castles (medieval ones included) started already in tsarist times, continued, on a limited scale, in the Latvian Republic in 1920–1940, and was in full swing in the 1950s and 1960s. True, the latter was primarily due to extensive rescue excavations caused by the construction of a cascade of hydro-power-stations on the Daugava River. The investigations of Lokstene and Oliņkalns in 1959–1964, or the archaeological excavations of the castle complex of Sēlpils in 1963–1965 could serve as examples. But we might as well mention excavations in Bauska (Bauske), carried out by Caune himself in 1976–1992, or the investigation and conservation work of Cēsis (Wenden), which began already in 1952 and is still going on. That is one of the main reasons why the investigation of medieval castles of Latvia is remarkably well advanced, comparing to the situation in Estonia. The reviewed publication is a vivid illustration of the fact.

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PIIRID LOODUSES JA KULTUURIS

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Piirid looduses ja kultuuris. Arheoloogia-geograafia kevadkool 19.–20.03.2005, Taevaskoja

19.–20. märtsini toimus järjekordne arheoloogia kevadkool, seekord arutleti-diskuteeriti koos geograafidega. Seminari eesmärk oli kombata piire looduses ja kultuuris, leidmaks kahe teadusharu kokkupuutepunkte, ühisjooni ning ka erinevusi.

Arheoloogia on alati aktiivselt otsinud koostöövõimalusi teiste teadusharudega, et jõuda tõepärasema ja adekvaatsema minevikukujutamiseni. Ei ole mõtet leiutada jalgratast, kui keegi teine on seda juba varem teinud. Avatud mõtlemine ja teiste teaduste meetodite ning kontseptsioonide arutamine ja vaatlemine võivad arheoloogiat tunduvalt paremini edasi arendada kui vaid omakeskis pusimine. Ka toimunud seminar näitas, et sarnaseid teemasid on võimalik lahata väga erinevalt. Paratamatult võib ühe teadusharu sees tekkida omamoodi vaakum, kus teadlased mõtlevad ja kirjutavad enam-vähem ühesuguses suunas ning uute vaatenurkade leidmine muutub üha keerulisemaks.

Paar kuud enne seminari korraldamist püüdsime geograafidega välja mõelda mõned kattuvad teemad. Üllatusena selgus, et mõlemale teadusele huvipakkuvaid probleeme on palju: maastik, inimene, nende omavaheline suhe, keskkond ja selle mõjutused, täppisteaduslikud uurimismeetodid, maastiku ja inimese poolt tekitatud piirsituatsioonid jne. Esimesel kohtumisel tekkis (tõstatati) ka muinsuskaitse ja looduskaitse omavahelise koostöö küsimus, kuid seminaril sellele enam keskenduda ei jõutud.

Kevadkooli eesmärk oli luua õhkkond, kus ettekannete käigus tekiks viljakaks diskussiooniks hea atmosfäär. Osaliselt see ka õnnestus ning loodetavasti jäi igal osavõtjal vähemalt üks hea mõte peas helisema.

Seminari üldtemaatika lähtus looduslikest ja antropogeensetest piiridest. Kus ja kuidas võib piire näha? Mis põhjustel on mõned alad piiratud? Kes neid piirab? Võib-olla on piirid ainult uurija enese peas? Suures osas lähtusid ettekanded etteantud teemast ning probleemidele prooviti läheneda piirsituatsioonikeskselt.

Kõige otsesemas mõttes käsitles looduse ja inimese koosmõjul tekkinud piire inimgeograafia doktorandi Taavi Pae ettekanne "Mõningaid tähelepanekuid Eesti- ja Liivimaast", kus otsiti selgitusi teravatele kontrastidele Lõuna- ja Põhja-Eesti vahel. Kahe piirkonna erinevused ilmnevad näiteks kirikaedadesse matmises, erinevas sümboolikas kirikutornides (Lõuna-Eestis Riia mõjutusena levinud kuke sümbol, Põhja-Eestis pigem rist), erinevates lehmatõugudes (Lõuna-Eestis eesti punane, Põhja-Eestis eesti holstein), arhitektuuris (Lõuna-Eestis levinud savi, Põhja-Eestis paekivi), keeles ning lõpuks ka looduslikus aluspõhjas (Lõuna-Eestis devon, Põhja-Eestis silur), mille piir kattub enam-vähem Liivimaa ja Eestimaa kubermangude piiriga ning seeläbi võimendab erinevusi veelgi. Seega võib Põhja- ja Lõuna-Eesti kultuurilist eripära osaliselt tõlgendada isegi geoloogilise

aluspõhja erinevusega, kuid kas see kahe piirkonna elanike mentaliteeti ka nii põhjapanevalt on muutnud, jääb igaühe enda otsustada.

Kontrastide otsimisele ja analüüsimisele keskendus ka inimgeograafia doktorant Anu Printsmann, kes vaatles Kohtla-Järve õõnsate maastike ilu ja valu, seda läbi erinevate inimsaatuste ja elulugude. Kohtla-Järve sündis alles aastal 1946. Põlevkivi toel tõusis linn heale majanduslikule järjele, kuid juba 60 aastat hiljem vaevleb kunagine ihaldatud elu- ja töökoht kriiside käes. Industriaallinna maastiku kontseptsioonil on mitu kihti, neist lähemalt lahkas Printsmann inimeste elulugudesse põimunud mõttemaastikke. Järgnenud diskussioonis kerkis küsimus elulugude hermeneutikast: kuidas näiteks inimese emotsionaalne seisund võib mõjutada tema jutustatud elulugu?

Mõnevõrra teises võtmes vaatles maastikku kartograafia magistrant Edgar Sepp, kes proovis õietolmuanalüüsi põhjal modelleerida muistset maakasutust Rõuge Tõugjärve ümbruses. Antud juhul jäi lahtiseks probleem, kuidas seda kõike oleks võimalik kasutada minevikust reaalse pildi andmiseks. Ettekande tulemusena tekkinud arutelus ilmnesid ka mõned erinevused täppis- ning ühiskonnateaduslikes mõttemallides ja metoodilises lähenemises. Kui oleks võimalik ühendada täppisteaduslik mudel allikaid võrdleva ning tõlgendava meetodiga, oleks tulemus kõige optimaalsem.

Mineviku maakasutuse probleeme käsitles ka geoinformaatika magistrandi Helle Koppa ettekanne "Muutused maastikus ja kaartides: Vana-Kuuste 1800–1995", kuid erinevalt Edgar Sepast keskendus ta rohkem ajaloolisele ajale, kasutades selleks erinevaid kaarte, statistilisi andmeid, arhiivimaterjale ning ka kirjanduslikke allikaid. Veel pooleli oleva uurimuse kaugemaks eesmärgiks oli vaadeldava piirkonna kaartidest luua aegrida ning kasutada seda mineviku maakasutuse tõlgendamiseks. Ettekande diskussiooni osas ilmnes, kui komplekssselt on võimalik maastikku mõtestada. Mis vahe on loodusmaastikul ja kultuurmaastikul? Kas tänapäeva Eestis on üldse võimalik nende kahe vahele piiri tõmmata? Kuidas mõjutavad teed ja raudteed muutusi maakasutuses ning arusaamist maastikust?

Teatud mõttes modelleerimiseks võis pidada ka arheoloogia magistrandi Mari-Liis Rohtla ettekannet "Esemelise leiumaterjali piirkondlikud eripärad", milles ta keskendus tüpoloogiliselt sarnaste esemete levikule ning võimaliku päritolu tõlgendamisele, seda peamiselt Kristina Creutzi ja Anna Bitner-Wróblewska tööde põhjal. Ettekandele järgnenud arutelus jäi kõlama mõte, et esemete tüpoloogiliste levikukaartide koostamine on arheoloogiateaduses igandiks ning kätkeb endas mitmesuguseid probleeme, kuid ilma neid koostamata ei ole siiski võimalik originaalset interpretatsiooni üles ehitada. Teiseks peamiseks küsimuseks oli, millega seletada samaaegsete esemete leiutihedust või leiutühjust erinevates piirkondades.

Eraldi võib käsitleda kolme ettekannet, mis kõik arutlesid piiratud ala kontseptsiooni üle: Piret Pungase "Kiigekohad Eesti maastikes", Mari Lõhmuse "Kammkeraamikakultuuride matused ning nende paiknemine ruumis" ja Karin Vimbergi "Lipa ringvall-linnus".

Inimgeograafia doktorant Piret Pungase kiigekohtade analüüs lähtus pigem tänapäevasest kui etnograafilisest ja rahvaluulelisest ainesest, andes seetõttu rohkem sotsiaalteaduslikku kui ajaloolist infot. Kiigekohtade kasutuses ilmnesid mõned väga huvitavad seigad, näiteks kiigekoha ebapopulaarseks muutumine pärast õnnetust või muud halva iseloomuga juhtumit (kui noored tulevad kiigele narkootikume tarbima). Samas käis läbi ka mõte, et kiigekoht kui noorte sotsiaalse lävimise seisukohalt oluline paik on kaotamas oma endist tähtsust, seda eriti massimeedia ning virtuaalsete suhtlusvõimaluste tõttu. Erinevusi kiigekohtade kasutamises võib näha ka nõukogude aja ning taasiseseisvunud Eesti vahel: okupeeritud Eestis aitas kiikumise traditsioon sarnaselt laulupidudele teatud mõttes hoida rahvuslikku identiteeti, kuid viimase 15 aasta jooksul on kiigekohtadest saamas peamiselt turismiobjektid ning peopaigad.

Kevadkooli ainsa kiviajauurijana rääkis arheoloogia üliõpilane Mari Lõhmus kammkeraamikakultuuride matuste paiknemisest ruumis, analüüsides asulasse ja asulast välja matmise erinevaid tõlgendusi ning nende taga olevaid võimalikke muutusi kiviaja inimese ideoloogilises maailmavaates. Hämmastaval moel tundusid kiigekohad ja kammkeraamikakultuuride matused omavahel ideeliselt seotud olevat. Mõlemad haakuvad inimasustusega väga tihedalt, kuid on samal ajal ruumiliselt piiratud ning kannavad teatud tabulist ja kultuslikku laengut. Üldise arutelu käigus selgusid ka mõistete *riitus* ja *rituaal* erinevad tähendusväljad, millest esimene on osa viimasest.

Arheoloogia üliõpilane Karin Vimberg keskendus oma ettekandes Lipa ringvall-linnusele, mille interpreteerimine on rohkem kui problemaatiline. Vaid 2 m laiuse ja vaevalt 1 m kõrguse kivivalliga

piiratud ala on seni tõlgendatud varase eelrooma rauaaegse linnusena, kuigi kivivallid on ilmselgelt liiga tagasihoidlikud, et omada tugevat kaitsefunktsiooni. Sarnaseid ringvalliga ümbritsetud alasid on leitud ka Skandinaavias, kus osa uurijaid on omistanud neile kultusliku tähenduse, kuid analoogseid mereäärseid muistiseid on vaadeldud ka sadamakohtadena.

Soovimata vähendada mainitud kaheksa ettekande tähtsust, peab tunnistama, et kevadkoolis jäi esitamata kõige olulisem: kahe teaduse eluolu ning võimalikke ühiseid suundumusi tutvustav referaat. Seda kompenseerisid küll osaliselt üldine diskussioon laupäeva õhtul ning mitteametlikud silmast silma vestlused, kuid ikkagi jäi puudu süvitsi mitmeteaduslikkusesse minevast mõttevahetusest.

Koosolemisel esitamata jäänud ettekande sisu haakub hästi kevadkooli üldise temaatikaga. Piirid ei eksisteeri ainult riikide või maakasutustüüpide vahel. Ennast piiritlevad ka teadusalad. Institutsionaliseerumine kui distsipliini defineerimine on põhjustanud teadustevahelise isolatsiooni, mille tagajärjel rühmituvad teadlased uurimissuundade kaupa ja eelistavad suhelda ning mõtelda enda eriala piires. Antud protsess on laiemalt tuntud akadeemilise hõimkondlusena (nt Clark 1987; Ylijoki 2000). Võib öelda, et nii on läinud ka geograafia ning arheoloogiaga Eestis – küll kogemata ning õnneks mitte täielikult. Arheoloogia on sattunud humanitaarsesse filosoofiateaduskonda, kui geograafid jagavad maja loodusteadlastega. Erinevates ringkondades liikudes on aga jäädud võõraiks, seda eelkõige organisatsioonilisel tasandil. Täielikust isolatsioonist on asutusi hoidnud vaid mõned üksikud piiririkkujad-entusiastid – käputäis tudengeid, maastiku-uurijaid, geoinformaatikuid.

Nagu Taevaskojas selgus, on teineteise tundmiseks siiski põhjust. Koostöö oleks kasulik mitmel eri tasandil. Esiteks praktiliste nõuannete osas. Suurt huvi tunti geograafia erinevate leivaalade nagu näiteks GIS-i või kartograafia vastu. Sõltuvalt arheoloogide huvist oleks võimalik korraldada erinevas formaadis kursusi või seminare loodus- või inimgeograafia meetoditest. Teiseks on teoreetilisi või metodoloogilisi probleeme, mida teise teadusüksuse vaatenurk aitaks vaadelda uue nurga alt. Sedasorti vestlused tekkisid näiteks seoses muldade ja kultuurkihiga. Eriti kerkis üles küsimus piiride suhtelisusest: looduses ei pruugi piirid olla alati selged, vaid sujuva üleminekuga ühtede omadustega alalt teisele.

Omalt poolt pakub mõned potentsiaalsed uurimissuunad välja ajaloogeograaf Malcolm Wagstaff (1983): sotsiaalsete protsesside ning ühiskonnaga tegelevate teaduste üks fundamentaalseid küsimusi on sotsiaalse rühma äratundmine. Kuigi inimgeograaf saab tihtipeale toetuda usutavatele statistilistele näitajatele, näiteks jõukus või amet, peab ta mõnikord nagu arheoloogki kasutama materiaalseid tõendeid: näiteks majade välisilme või muu usutavasti kultuurilist väärtust omav objekt. Teise ühise huvina märgib Wagstaff ära ühiskonna tegevuste ruumilise organiseerumise ning kuidas väliste tõendite kaudu saab määrata asustusmustreid ja -piire. Mõlemad teadused jagavad huvi ühiskonna võimusuhetest, olgu need siis majanduslikud, sotsiaalsed või poliitilised.

Veelgi tihedam teaduslik lõimumine aitaks süüvida sügavamatesse teoreetilistesse ühendkohtadesse, kus ruumilised ning artefaktide tõlgendamise meetodid moodustavad ühisosa.

Last but not least: ühessegi teaduslikku vormi mitte mahutatav maastiku-uurimine kuulub võrdselt nii geograafide kui arheoloogide repertuaari. Loodetavasti toimub siingi positiivne areng, kuna hetkel on see kõige perspektiivikam kahe distsipliini ühisosa.

Kokkuvõttes läks kevadkool edukalt. Sõltumata sellest, kas tegu oli vaid ühekordse äratundmise või intensiivsema koostöö algusega, saadi aimu teineteise tegemistest. Jääb üle vaid loota, et sedasorti vahva rahvahulk taas üheskoos filosofeerimiseks põhjust leiaks!

Kasutatud kirjandus

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ABBREVIATIONS – LÜHENDID

1. Museums and archives – Muuseumifondid ja arhiivid

AI – Ajaloo Instituudi arheoloogiakogud ja arhiiv Tallinnas

2. Trükised – Publications

AVE – Arheoloogilised välitööd Eestis. Archaeological Field Works in Estonia, 1997–. Koost ja toim Ü. Tamla. Tallinn, 1998–.

EAA – Eesti Arheoloogia Ajakiri, 1997–.

MAL – Muistsed asulad ja linnused. Arheoloogiline kogumik, I. Toim H. Moora & L. Jaanits. Tallinn, 1955.

MEL – Muistse Eesti linnused. 1936.–1938. a uurimiste tulemused. Toim H. Moora. Tartu, 1939.

SMYA – Suomen Muinasmuistoyhdistyksen Aikakauskirja. Helsinki, 1874–.

TATÜ – Eesti NSV Teaduste Akadeemia Toimetised, 1952–1955; Ühiskonnateaduste seeria, 1956–1966; Ühiskonnateadused, 1967–1989; Eesti Teaduste Akadeemia Toimetised. Ühiskonnateadused, 1990–1991; Humanitaar- ja sotsiaalteadused, 1992–1996. Tallinn.

TÜ AKT – Tartu Ülikooli Arheoloogia Kabineti Toimetised, 1–. Tartu, 1923–.

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