

# SMALL BONE SPADES: MATERIAL USED, PROCESSING TECHNOLOGY, AND POSSIBLE FUNCTION

HEIDI LUIK AND ÜLLE TAMLA

## Abstract

Estonian and Latvian small bone spades are discussed. The majority of spades are found in hill-forts and settlement sites from the 11th to the 13th centuries. The tools and technique of manufacture are investigated.

Key words: Estonia, Latvia, 11th to 13th centuries, bone spades, bone manufacturing.

## Introduction

The writing of the present paper was inspired by finds of several small bone spades in archaeological excavations of recent years, and the study of local bone-working in connection with the financial support of the Estonian Science Foundation for the research projects “Ancient Hill-Forts of Estonia: Varbola Jaanilinn. Fortifications, Buildings, Finds. The Socio-Economic and Military-Political Background” and “Bone Artefacts in Estonian Archaeological Material from the Prehistoric and Medieval Periods (the last quarter of the first millennium and the first half of the second millennium AD)”. With the help of the grants mentioned, the technique of manufacture of bone artefacts has been investigated, the material identified, and copies of some bone objects, including a small bone spade, have been made.

No special publication has been issued about bone spades as a separate type of artefact, and they have rarely been published along with other finds. Therefore, the present paper sets out to make a survey of all known finds of small bone spades, and to investigate the material, tools and technique of manufacture. At the same time, we try to find out whether the differences in their shape, material and decoration enable us to determine their field of use and their users, and to specify the territorial differences or chronology. The present study is based on all known finds of small bone spades in Estonia (the collections of the Institute of History in Tallinn and of Tartu University, and the archaeological collections of Pärnu and Viljandi museums) and in Latvia (the find complexes of Daugmale, Aizkraukle, Mārtiņšala, Talsi and Jersika in the Latvian History Museum in Riga). The information about small bone spades from other regions is mostly from archaeological literature.

## Small bone spades in Estonia

In Estonia a total of 39 small bone spades and some presumed blanks are known from 13 spots (Table 1 and Fig. 1–11). Of these finds, about one third have been published (Moora, Saadre 1939: Fig. 27; Тыниссон, Селиранд 1978: Fig. 2: 1; Краут 1980: Plate 18: 12–15; Tamla, Tõnisson 1990: Plate 11: 3; Tamla 1992: Fig. 5: 4; Valk 2000: Photo 5: 1, 2; Tamla, Maldre 2001: Fig. 8–11; Luik 2001: Fig. 5 and 6; Lang et al 2002: Fig. 6).

The majority of Estonian small bone spades are found at hill-forts and settlement sites, mainly the larger hill-forts and settlement sites from the end of the Prehistoric Period (11th to 13th centuries), but some also come from sites with both earlier and later material. None of the bone spades were found at sites with only medieval finds, which indicates that they were not manufactured any more by the Middle Ages. In some excavations, those of the Kuusalu settlement site and the Varbola hill-fort, it was observed that several small bone spades were found on a relatively small and densely built-over area (Luik 2001: 24; Селиранд, Тыниссон 1978; Тыниссон, Селиранд 1978). The origin of the bone spades from Savastvere is different: four small bone spades were found, together with bronze ornaments, in a hoard discovered in a settlement layer dating from the middle or the second half of the 12th century (Jaanits et al 1982: 363–365). Only two bone spades have been found among the contents of graves, both from the excavations of the flat cemetery of Pada, dated to the late 12th or early 13th centuries. One of them, a fragmentarily preserved openwork specimen, was placed between the legs of a young man who died at the age of 18 to 20 years, slightly above the knees (grave 92). The other, a plain small bone spade, was discovered with a dou-

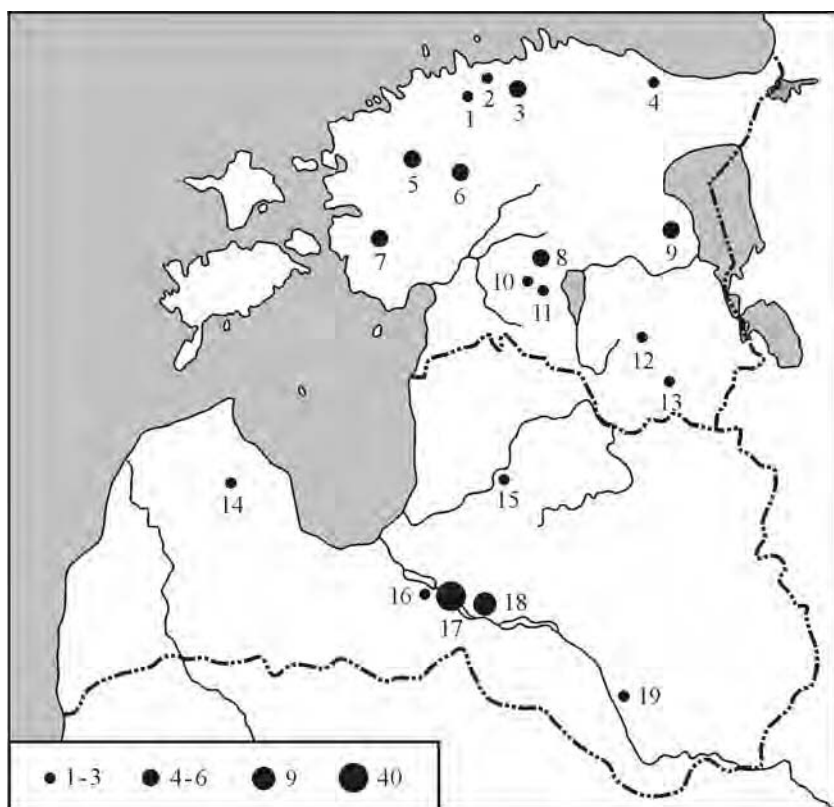


Fig. 1. Distribution of bone spades in Estonia and Latvia:  
 1 Lehmja; 2 Rebala; 3 Kuusalu;  
 4 Pada; 5 Varbola; 6 Keava;  
 7 Soontagana; 8 Lõõhavere;  
 9 Savastvere; 10 Mustivere;  
 11 Viljandi; 12 Otepää; 13 Rõuge;  
 14 Talsi; 15 Cēsis; 16 Mārtiņšala;  
 17 Daugmāle; 18 Aizkraukle;  
 19 Jersika (Drawing by Kersti Siitan)

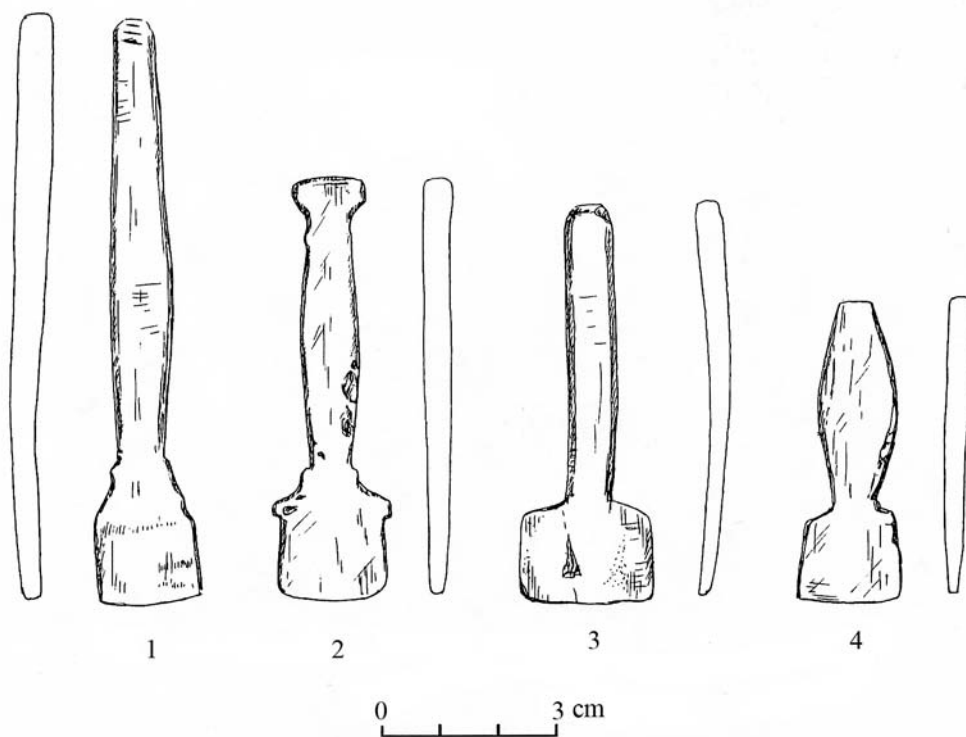


Fig. 2. Bone spades from the Savastvere hoard (AI 3355: 130, 132, 131, 133. Drawings by Heidi Luik)

ble burial of children (grave 122), where it was located beside an earthenware vessel on the tibiae of a child buried at the age of six to eight years (Tamla, Maldre 2001: 373). Although no small bone spades have hitherto been found with cremation burials, we must bear in mind that burnt bone artefacts are, as a rule, not discernible. Generally, bone artefacts are discovered in cremation burials only if they contain preserved metal

rivets (eg combs), or if they bear visible ornamentation (eg Luik 1994: Fig. 12–14; 1998: Fig. 17, 33–37; Mägi 2002: Plates 1: 6; 24: 2, 3 and 25: 15).

#### Small bone spades in Latvia

In Latvia, small bone spades (a total of 54 specimens from six spots; Table 2 and Fig. 1; 12–15) occur on the

Livs' territories, and only a few have been published (eg Ģinters 1936: Fig. 13: 6; Apals 1998: Fig. 6: 14).

Latvian bone spades come from hill-forts, the overwhelming majority of them, 40 specimens, from the Daugmale hill-fort. Daugmale was the most important manufacturing and trade centre in the lower reaches of the River Daugava, and has been classified as proto-town or early urban centre, and controlled the trade on the River Daugava until the last quarter of the 12th century (Urtāns 1994; Latvijas pilskalni 1998; Rādiņš 2000: 121; Ciglis et al 2001: 12). Since 1935, large-scale excavations have been carried out in Daugmale, and extensive material recovered (circa 18,000 artefacts and 200,000 potsherds; Rādiņš 2000: 102).

From the southeastern-most centre of the Daugava Livs, Aizkraukle, nine spades and blanks are known, from other find spots one or two specimens have been found. We must also consider the possibility that the material we have seen does not include all the bone spades found in Latvia.

### Small bone spades in other regions

Relying upon information from published finds, as well as a brief study of the Novgorod collection of finds, we may suppose that small bone spades were also used in northwest Russia, eg in Novgorod (Колчин et al 1985: 80; НГМ КП 33996/A-100: 27) and Pskov (eg Белецкий 1991: 29). The reason why only one small bone spade is known from Finland (Visa Immonen, pers. comm.) probably lies in the poor preservation of bones in the soil there. An object rather similar to specimens from the eastern shore of the Baltic Sea, named "a flat spoon", was found in Schleswig, north Germany (Ulbricht 1984: 63, Plate 46: 14). At least three small spades made of reindeer antler have been found in Arctic Norway. According to the description by Thorleif Sjøvold (Sjøvold 1974: 257) they are about ten-centimetre-long specimens, rather flat, with short handles and wide blades, the edge of which is more or less sharp. In Sweden, two small bone spades are known from Birka (Arbman 1940: Plate 151: 3, 8). About one of these, richly decorated with plaited deco-

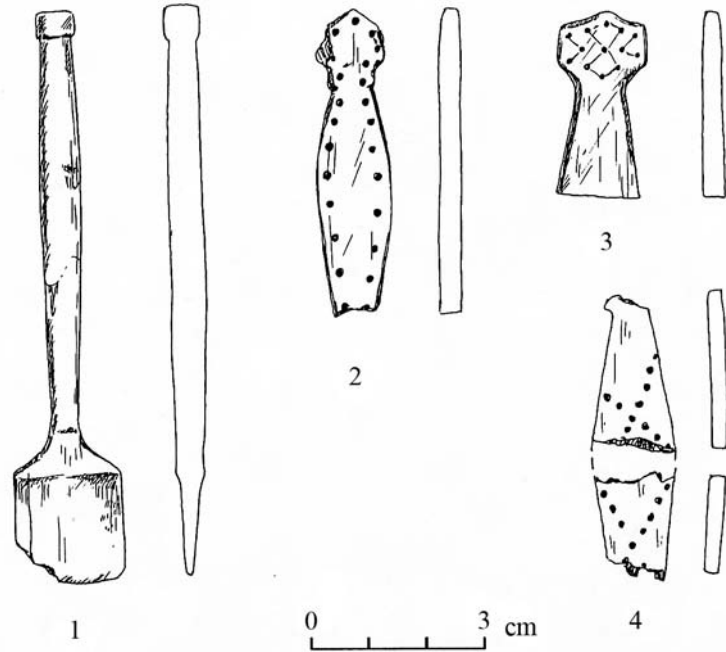


Fig. 3. Bone spades from Lõhavere hill-fort (AI 4133: 1355, 1961a, AI 3578: 1311, AI 4133: 1961. Drawings by Heidi Luik)

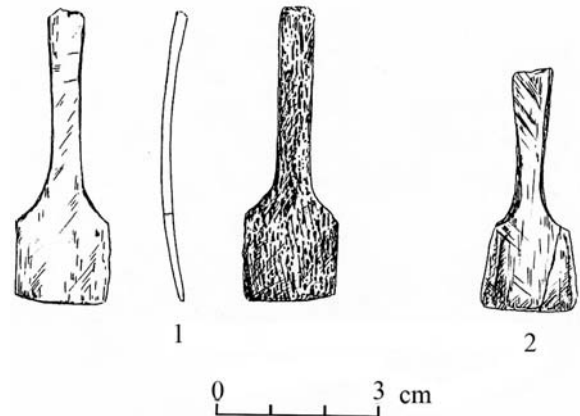


Fig. 4. Bone spades made of rib from Rõuge (AI 4040: 3698) and Otepää (AI 4036: IIIO 216. Drawings by Heidi Luik)

ration and pits, and with a partly preserved blade, it is not clear whether it was spade-shaped or spoon-shaped like the other finds depicted on the same plate. The spoons found in the British Isles have flat blades, like Estonian and Latvian small spades, but their shape is more triangular or oblong, and they have round edges (MacGregor 1985: Fig. 98: l-p).

Larger spade-shaped objects (up to 20cm long), mostly made of whale bone, have been found in Norway and the British Isles (Sjøvold 1974: Plates 27: I; 28: f and 59; MacGregor 1985: 176–177, Fig. 93: g, h). Obviously, the range of their use (which is not definitely known, but it has been presumed that they might have been used for chopping meat) is different from that of

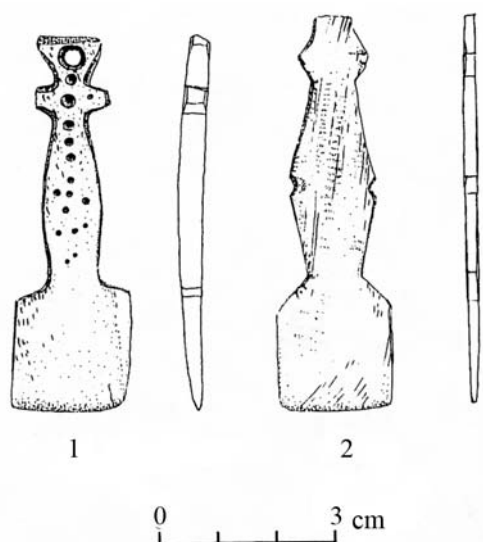


Fig. 5. Bone spades from Varbola hill-fort (AI 4783: 746, AI 5299: 372. Drawings by Kersti Siitan)

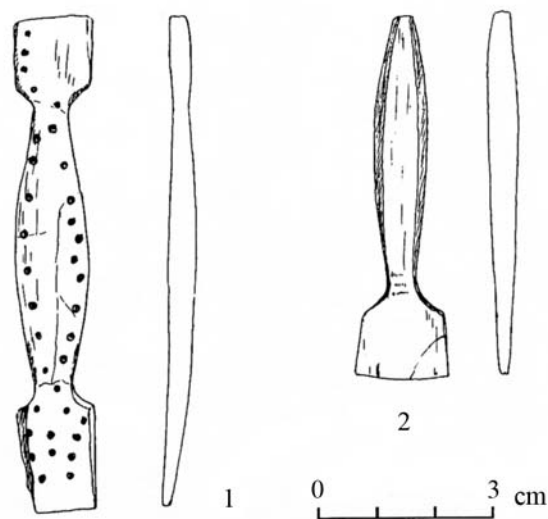


Fig. 7. Bone spades from Lehmja settlement site (AI 5310 III: 700/ 744, 566. Drawings by Heidi Luik)

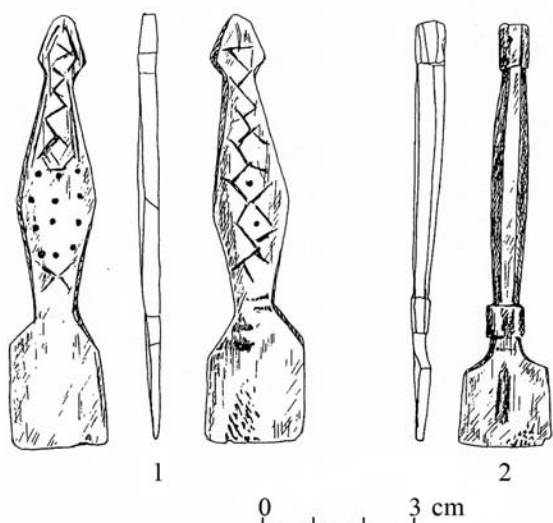


Fig. 6. Bone spades from Kuusalu settlement site (AI 5043: 536, 444. Drawings by Heidi Luik)

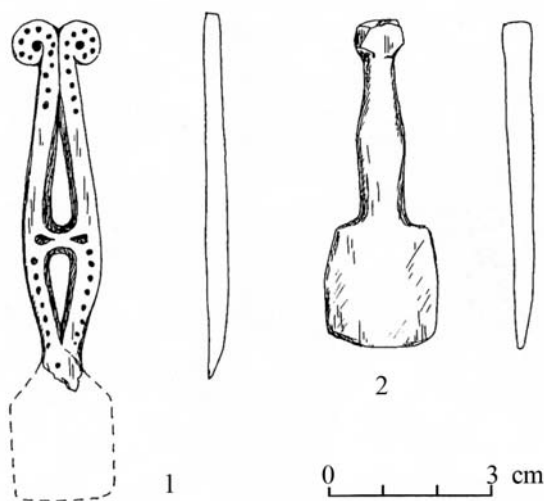


Fig. 8. Bone spades from Pada cemetery (AI 5366: XCII, 12, CXXI, 4. Drawings by Heidi Luik)

small bone spades. It must only be mentioned that several of the large bone spades from Norway come from richly furnished (women's) graves dating from the period from the seventh century to the second half of the ninth century (Sjövold 1974: 257 ff.).

### The appearance of small bone spades

Most of the small bone spades discussed have smooth polished surfaces. The decorated specimens often have decoration on both sides. The shape of the handles of bone spades varies. There are small spades with thin handles, the diameter of which is nearly the same in width as in thickness. The handles often end with a slightly widening knob. Such spades are usually not

decorated (Fig. 3: 1; 6: 2; 12: 4). Some have flat handles of an even width. These specimens are not decorated either (Fig. 2: 1, 3; 4: 1, 2; 9: 2). Most frequent are small bone spades with flat handles widening in the middle. Some of these handles have profiled edges. This type also contains some undecorated spades (Fig. 2: 2, 4; 5: 2; 7: 2; 8: 2), but often they are decorated with a pattern of pits or engraved lines (Fig. 3: 2-4; 6: 1; 7: 1; 10; 12: 2, 3), where sometimes the pits form a cross (Fig. 5: 1; 12: 1). One of the Daugmale spades has an engraved plaited ornament on the handle (Fig. 13: 3). Some have openwork carved handles; sometimes these are also decorated with lines or pits (Fig. 8: 1; 9: 1; 11: 1, 3, 4; 13: 1, 2). Some spades have a pierced hole(s) in the upper part of the handle (Fig. 5: 1; 11: 1; 13: 1), which indicates the possibility that they



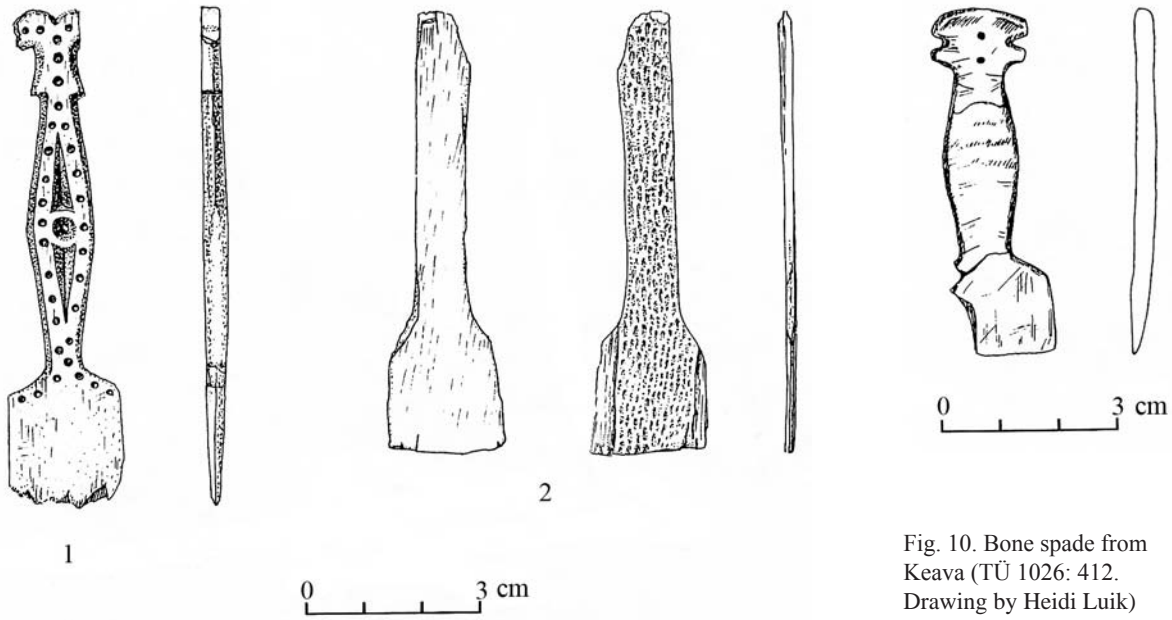


Fig. 9. Bone spades from Viljandi (VM 10742: 390, 781). Drawings by Kersti Siitan)

were probably worn as pendants. It was also possible to hang spades which had handles ending with a knob or an extension (eg Fig. 2: 2; 6; 10). There are also spades which have no hole, knob or extension on their handle (eg Fig. 2: 1, 3, 4), and which accordingly could not be hung.

Most of the wholly preserved spades are seven to nine centimetres long. The shortest is the 5.3-centimetre specimen from the Savastvere hoard. Some shorter ones are around six centimetres long. The longest spades are about ten centimetres long. The blades of the spades are mostly 1.6 to 2.5 centimetres wide. The thickest place, usually in the middle part of the spade, is 0.15 to 0.7 centimetres thick; on specimens made of rib it is 0.15 to 0.25 centimetres, and on those made of long bones it is 0.25 to 0.7 centimetres.

#### Material and manufacture. Experiment in making a bone spade

The material of the bone spades found in Estonia was identified by Liina Maldre, an osteologist at the Institute of History. According to her, the majority of small spades are made of bone; only one, a specimen from Kuusalu (Table 1: 21), is thought to be made of elk antler (Luik 2001: Fig. 6: 1). According to Maldre, the

Fig. 10. Bone spade from Keava (TÜ 1026: 412). Drawing by Heidi Luik

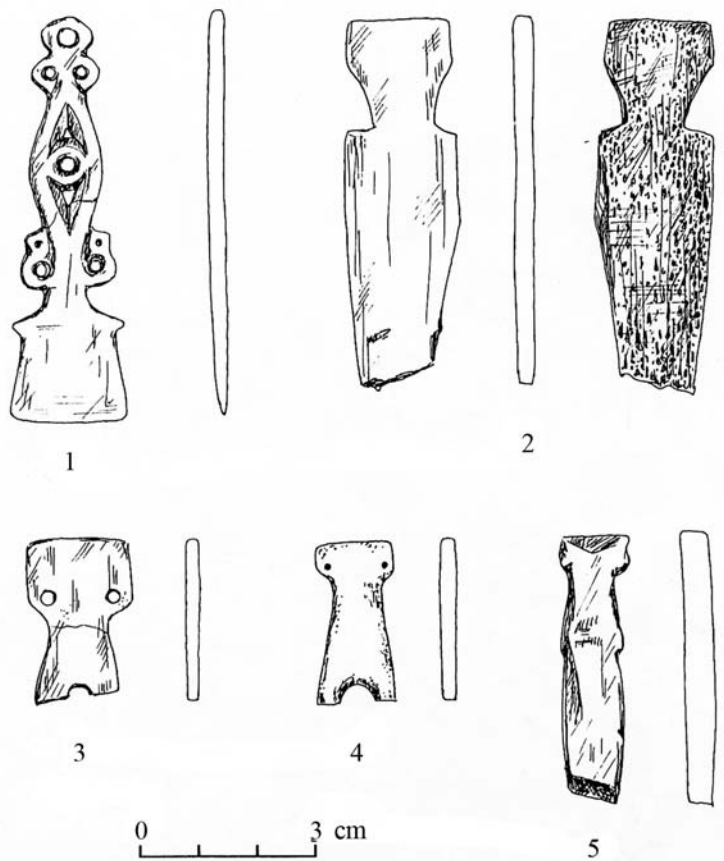


Fig. 11. Bone spades from Soontagana hill-fort (PäM 2766: 856, PäM 2767: 1343, 1130, PäM 1971a: 410, 480). Drawings by Heidi Luik)

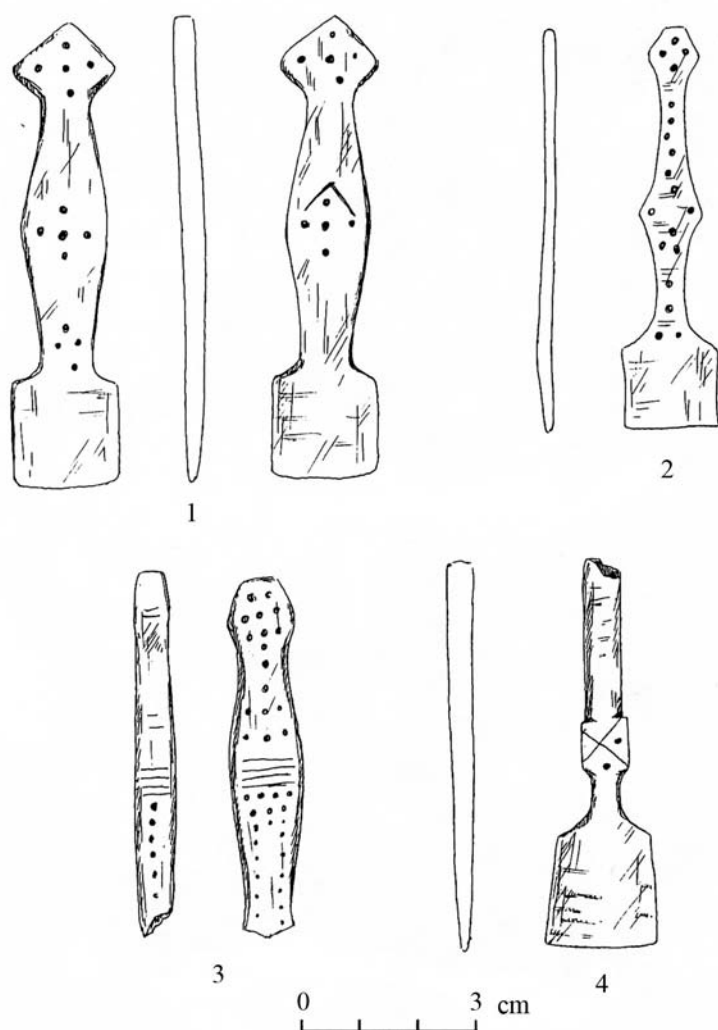


Fig. 12. Bone spades decorated with dots from Daugmale (A 9964: 7424, 105, 7727, A 11971: 1165. Drawings by Heidi Luik)

spades are too thoroughly worked to make it possible to determine the animal species, and in most cases also the part of the skeleton from which the bone for the spade was taken. In many cases, long bones were used; while a more accurate identification of the bone is impossible. Most likely they were the metacarpal and metatarsal bones of cattle and horses, which have quite a thick and straight compact part, but other bones also could have been used. The smaller part of the spades, six in total (Fig. 4; 9: 2; 11: 2–4), are made of ribs. The Latvian spades are also mostly made of long bones; the use of ribs is considerably rarer, it was identified in only eight cases (Table 2: 1, 15, 19, 22, 25, 39, 46 and 48; Fig. 14). Three spades (Table 2: 6, 7 and 26; Fig. 15) are different from the others, since they are made of the shield of a sturgeon (*Acipenser sturio*, identified by Lembi Lõugas).

In determining the method of work and its sequence, blanks and unfinished artefacts play an important part, making it possible to recreate the production chain

(Averbouh 2001). Among Estonian and Latvian finds there are some presumed blanks and unfinished spades (Fig. 9: 2; 11: 2, 5; 14 and 15; Luik 2001, Fig. 6: 5). The sawn-off ends of long bones, and fragments of long bones and ribs bearing cutting traces, which may be debris from bone-working, including the manufacture of bone spades, occur among finds from several sites (eg Soontagana: Päm 2766: 713; Varbola: Tamla, Maldre 2001: 372, Fig. 3 and 4; Otepää: Maldre 2001: 21, Fig. 7: a; Daugmale: A 11971: 1694).

Depending on the material – long bone or rib – used for making the spade, the preparation was different. From long bones, first of all, the epiphysis was removed, then the bone was sawn or split into strips of the required width (Ulbricht 1984: 19, Fig. 2). These strips were cut into pieces of the required length, of which the spades were carved (Fig. 16). Ribs were first cut into pieces, after that both edges were cut off and the bone was split longitudinally into two thin plates (Fig. 17: a; Ulbricht 1984: 22). Another possibility was to cut a piece of a suitable length from the rib, and, without splitting it, to carve a spade (Fig. 17: b). After that, there were two possibilities: first, to use the spade made of unsplit rib (Fig.

17: b1; eg Table 2: 25 and 39), in this case spades with one porous side that split incidentally in the course of processing or use were cast aside. The second possibility was that the spade was split deliberately after carving it in order to get two spades (Fig. 17: b2; eg Fig. 14). In this case, porous bone tissue can be observed on the rear sides (Fig. 4: 1; 9: 2). We do not know whether it was left this way because the artefact would become too thin and brittle if the rear side was also polished, or whether the artefact remained unfinished for some reason. The latter seems likely, for instance, in the case of an unfinished spade from Viljandi (Fig. 9: 2). From Soontagana fragments of two very thin spades are known, with both sides polished (Fig. 11: 3, 4). This was possibly the reason why these spades were broken while in use.

Small bone spades made of the shield of a sturgeon, found in Latvia, are very rare. They are characterised by the flaky slivering surface, and by the rear with large round pores (Fig. 18). One of these was found at Daugmale and two at Aizkraukle. One of the latter is an un-

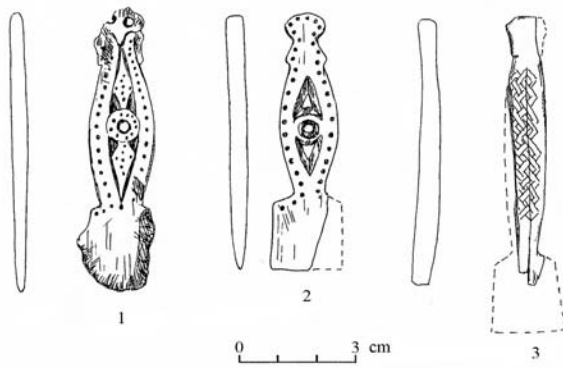


Fig. 13. Bone spades from Mārīņsala (RDM I 2443) and Daugmale (A 11971: 735, A 11970: 1752. Drawings by Heidi Luik)

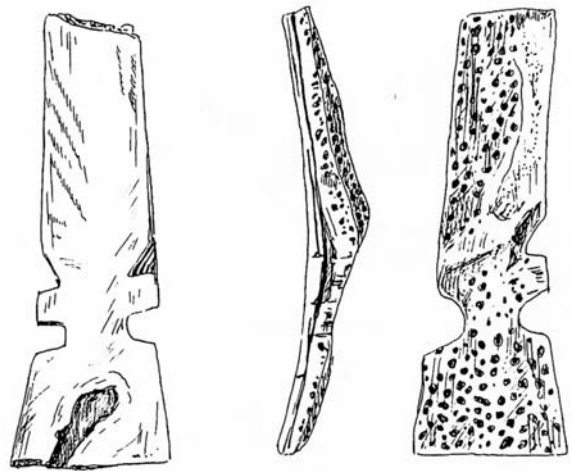


Fig. 15. An unfinished spade made from the shield of a sturgeon found at Aizkraukle (A 12301: 238. Drawing by Heidi Luik)

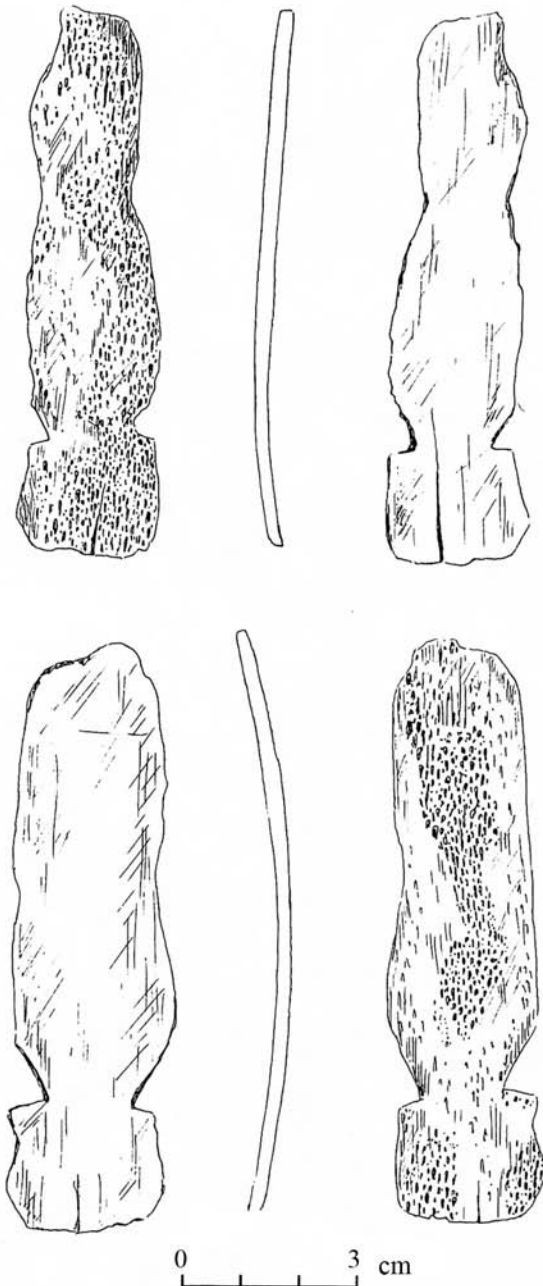


Fig. 14. Unfinished spades made of rib found at Aizkraukle (A 12222: 139. Drawings by Heidi Luik)

sually large specimen with the width of the blade at 3.5 centimetres. Since its handle is broken, its length cannot be determined. The other of the Aizkraukle spades is unfinished (Fig. 15), which proves that spades were made from the shield of a sturgeon on the spot.<sup>1</sup>

The tools used for bone-working can best be studied on the basis of debris from bone-working and unfinished objects, since the finished artefacts are usually carefully polished, and thus the traces left by tools are not discernible any more. Most likely a saw was used for the primary cutting of the bone, but due to further processing traces of sawing cannot be seen on the artefacts. They can be observed on the debris from bone working found in Otepää and Varbola (Maldre 2001: Fig. 7: a; Tamla, Maldre 2001: 372, Fig. 4). For the longitudinal splitting of bones, especially the shorter fragments, an axe was used (Ulbricht 1984: 29), or a chisel and a hammer (Spitzers 1999: Fig. 12). However, the main tool for carving bone spades was obviously a knife. It was even possible to smooth the surface only with a knife. On the basis of traces on several spades, we can say that most were smoothed with a knife. Sometimes rasps and files were also used, traces of them are discernible on some bone objects (eg on one of the spades from Varbola, Fig. 5: 2, as well as on some Latvian spades, eg Table 2: 4 and 52). For the final polishing, organic matter may have been used, such as sand and leather, ash, chalk, etc (Ulbricht 1978:

<sup>1</sup> Some artefacts from the shield of a sturgeon have also been found in Estonia: eg a larger pendant was found in Pada settlement site (Tamla 1983: Table 15: 4), and a piece of a shield came to light in the excavation of Town Hall Square in Tallinn (Fig. 18).



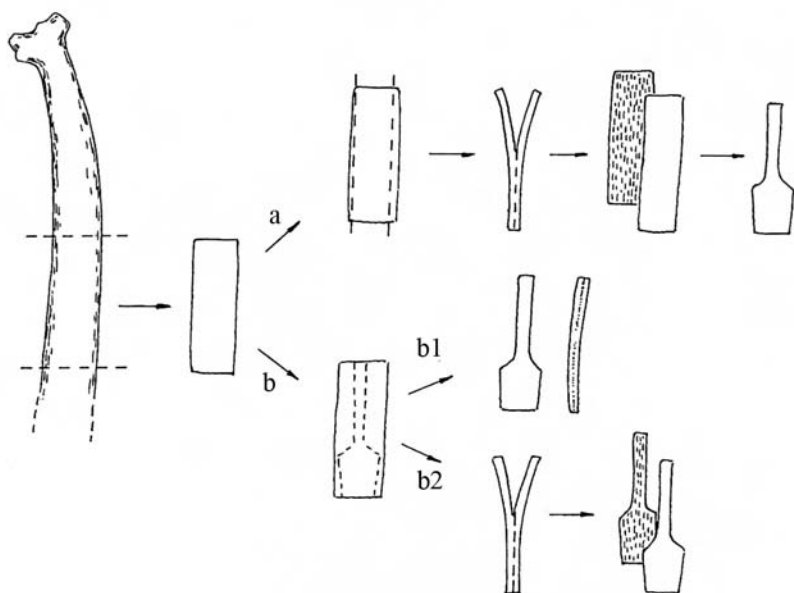


Fig. 16. The stages of making a spade from a rib: a) the piece of rib is split longitudinally into two thin plates and then the spade is made; b) the spade is carved without splitting the rib; b1) a spade of unsplit rib is used; b2) the spade is split deliberately after carving in order to get two spades. (Drawing by Heidi Luik)

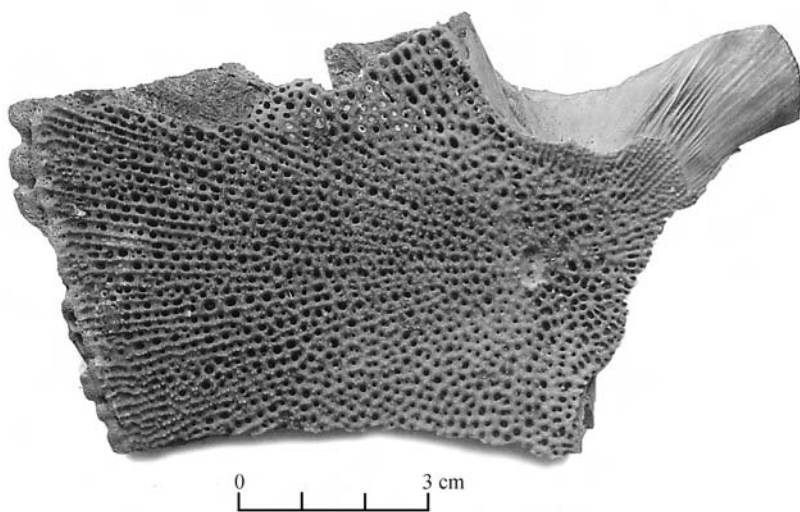


Fig. 17. A fragment of a shield of a sturgeon found at Tallinn (AI 4061: 2681). (Photograph by Erki Russow)

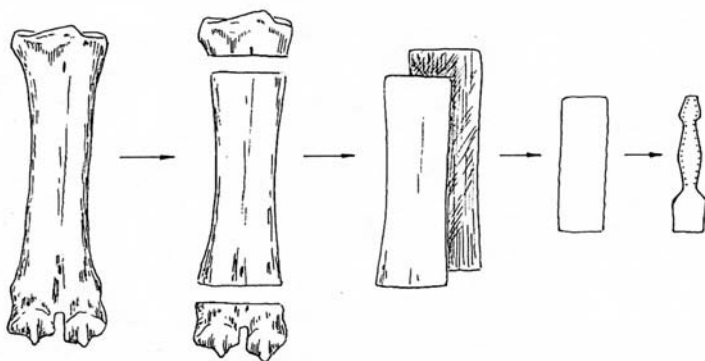


Fig. 18. The stages of making a spade from the metacarpal bones of cattle. (Drawing by Heidi Luik)

41; MacGregor 1985: 58). Polishing the surface was important also, because this way the pores on the surface were filled in, thus preventing the excessive drying of the bone. By preserving its moisture, the bone also preserves its tenacity and elasticity; a dry bone becomes brittle and fragile.

Among spades made of long bones there are decorated and undecorated specimens. The ornamentation usually consists of a simple pattern of pits and engraved lines, the application of which did not require special tools: a knife with a sharp point was enough. For carving openwork spade handles, the basic tool was also a knife, which was also used to make the larger holes. Small round holes were obviously made with an auger. The spades made of ribs are usually undecorated, only sometimes (eg on spades from Soontagana) have some holes been bored in the handles (Fig. 11: 3, 4).

Jana Ratas, of the Institute of History, has made an experimental copy of one of the openwork spades from Varbola (Fig. 19). She used the metapodium of an elk. First, the bone was boiled until the emission of grease ceased. The bone was sawn into pieces before boiling, to make it possible to use a smaller pot. Ingrid Ulbricht thinks it is likely that bone was boiled to prepare it for further processing (Ulbricht 1984: 18-19). Arthur MacGregor, on the contrary, asserts that long boiling removes collagen from the bone (in boiling water, collagen turns into gelatine, which is soluble in water), thus making the bone brittle (MacGregor 1991: 360). Raw bone is the easiest to cut and process, but freshly boiled bone is also relatively easily cut. Later, it becomes harder to process. Ratas discovered in the course of her experiment that





Fig. 19. A bone spade from Varbola (ERM A 484) and a copy of the spade made by Jana Ratas. (Photograph by Heidi Luik)

to make a boiled bone more easily workable, it must be soaked in hot water from time to time. It is also possible to make an artefact from a raw bone, and to clean it by boiling afterwards, but raw bone tends to putrefy very quickly. The bones may also have been cleaned of meat and grease by some other method, for instance by burying them in the ground for some time (Luik 2000: 144), or by putting them into an anthill, where ants clean them. This method is nowadays used by hunters for preparing trophies.

Next, Ratas cut a piece of a suitable size from the bone using a saw; the further processing was done mainly with a knife and a rasp. For piercing the holes, she used an auger and a knife. Because of the absence of more suitable tools, she carved the cavities in the handle of the spade with modern chisels for making woodcuts and linocuts, holding the blade at the required angle against the bone, and hitting the handle with a hammer. In her opinion, this can also be done with a sharp-tipped chisel and a hammer. For finishing the surface, a knife and a file were used, and the final polishing was done with sand and a piece of woollen cloth. It took about 25 hours (after boiling the bone) to make this spade, but we must bear in mind that this was just the first attempt. Carefully copying the shape and size of the original also extended the time. An experienced craftsman would, no doubt, take considerably less time to make such an artefact. Besides, the study of the

methods the experiment used also demonstrated how beautiful and impressive new bone objects were, compared to preserved archaeological ones (Fig. 19).

### The use

What were small bone spades used for? They have often been called pendants, but only some of them are given a hole in the upper part of the handle. Neither are they all decorated. Without precluding the possibility that some of the spades were used as ornaments (pendants resembling in shape and in size bronze amulets, imitating, most likely, padlock keys<sup>2</sup>), it seems more likely that they were commodities which could be worn hanging from a belt or a chain. It is assumed that they were cosmetic or toilet objects. For instance, it has been suggested that they were dandruff-scrapers (Moora, Saadre 1939: 176). But they could also have been used to take ointment or salve, including honey, from a receptacle and/or to spread it on the skin (as spatulas).

Who used these spades? About gender and age we can only draw conclusions on the basis of finds from burials, which are very few. Therefore, we cannot say anything definite on this point. The only finds from burials suggest that these objects could also have been used by (young) men and small children. Could the small bone spades be some objects belonging to the local elite? The assumption of their cosmetic use would connect them primarily with the wealthier section of the population. This is supported by the finds' locations: the majority of the spades are found at hill-forts, which were the political centres of their time, and most of them are also mentioned in the Chronicle of Henry the Livonian (HCL 1982). Spades found in the early urban manufacturing centre of Daugmale are especially numerous. The rich hoard of bronze and silver ornaments, also containing four small bone spades, found at Savastvere (Jaans et al 1982: 363-365, Fig. 249; Luik 1999: 143, Fig. 10, 11) most likely also belonged to a wealthy and influential woman. Both bone spades from the Pada cemetery come from richly furnished graves. In the double grave there was a small penannular brooch by the chest of a child aged six to eight years; the hands were decorated with bracelets of bronze wire; around the neck was a necklace of three sheet pendants coated with silver, a tooth pendant, a bronze bell and glass beads; and at the feet there was an earthenware pot. Still richer was the burial site of a young man buried together with a

<sup>2</sup> Such pendants have been found in Latvia, in the richly furnished female burial site of the Scandinavian type in Smukumi (From Viking to Crusader 1992: No 2247), and in the burial ground in Jaunzeme (Tõnisson 1974: Plate 32: 7).

Table 1. Small bone spades found in Estonia

No	Find place		Find number	Material	Decoration
1.	Savastvere	hoard	AI 3355: 130	long bone	undecorated
2.	Savastvere	hoard	AI 3355: 131	long bone	undecorated
3.	Savastvere	hoard	AI 3355: 132	long bone	undecorated
4.	Savastvere	hoard	AI 3355: 133	long bone	undecorated
5.	Lõhavere	hill-fort	AI 3578: 1311	long bone	dots, lines
6.	Lõhavere	hill-fort	AI 4133: 1355	long bone	undecorated
7.	Lõhavere	hill-fort	AI 4133: 3439	long bone	dots
8.	Lõhavere	hill-fort	AI 4133: 1961	long bone	dots
9.	Lõhavere	hill-fort	AI 4133: 1961a	long bone	dots
10.	Lõhavere	hill-fort	AI 3578: 313	long bone	undecorated
11.	Mustivere	settlement	AI 3993: 503	long bone	fragment
12.	Otepää	hill-fort	AI 4036: IIIO 216	rib	undecorated
13.	Rõuge	hill-fort	AI 4040: 3698	rib	undecorated
14.	Varbola	hill-fort	AI 4783: 576	long bone	fragment
15.	Varbola	hill-fort	AI 4783: 746	long bone	dots
16.	Varbola	hill-fort	AI 5299: 372	long bone	profiled, undecorated
17.	Varbola	hill-fort	ERM A 484	long bone	openwork
18.	Kuusalu III	settlement	AI 5043: 389	long bone	undecorated
19.	Kuusalu III	settlement	AI 5043: 444	long bone	undecorated
20.	Kuusalu III	settlement	AI 5043: 463	long bone	dots
21.	Kuusalu III	settlement	AI 5043: 528	antler?	dots, lines
22.	Kuusalu III	settlement	AI 5043: 536	long bone	dots, lines
23.	Kuusalu III	settlement	AI 5043: 562	long bone	undecorated
24.	Lehmja III	settlement	AI 5310 III: 566	long bone	undecorated
25.	Lehmja III	settlement	AI 5310 III: 700/ 744	long bone	dots
26.	Lehmja III	settlement	AI 5310 III: 875	long bone	openwork, lines
27.	Pada	cemetery	AI 5366: CXXI, 4	long bone	undecorated
28.	Pada	cemetery	AI 5366: XCII, 12	long bone	openwork, dots
29.	Rebala	settlement	AI 5916: 8	long bone	undecorated
30.	Viljandi	settlement	VM 10742: 390	long bone	openwork, dots
31.	Viljandi	settlement	VM 10742: 781	rib	unfinished
32.	Keava	hill-fort	TÜ 1026: 412	long bone	dots
33.	Keava	hill-fort	TÜ 1026: 432	long bone	fragment
34.	Keava	hill-fort	TÜ 1026: 508	long bone	undecorated
35.	Keava	hill-fort	TÜ 1026: 503	long bone	openwork, dots
36.	Soontagana	hill-fort	PäM 2766: 856	long bone	openwork
37.	Soontagana	hill-fort	PäM 2767: 1130	rib	openwork
38.	Soontagana	hill-fort	PäM 1971a: 410	rib	openwork
39.	Soontagana	hill-fort	PäM 1971a: 607	long bone	fragment
?	Soontagana	hill-fort	PäM 2767: 1343	rib	blank?
?	Soontagana	hill-fort	PäM 1971a: 480	long bone	blank?

Table 2. Small bone spades found in Latvia

No	Find Place	Find number	Material	Decoration	
1.	Aizkraukle	hill-fort	A12222: 139	rib	blank (2)
2.	Aizkraukle	hill-fort	A12222: 171	long bone	undecorated
3.	Aizkraukle	hill-fort	A 12276: 164	long bone	dots
4.	Aizkraukle	hill-fort	A 12276: 224	long bone	undecorated
5.	Aizkraukle	hill-fort	A 12301: 43	long bone	undecorated
6.	Aizkraukle	hill-fort	A 12301: 238	shield of a sturgeon	unfinished
7.	Aizkraukle	hill-fort	A 12301: 299	shield of a sturgeon	dots
8.	Aizkraukle	hill-fort	A 12345: 7	long bone	undecorated
9.	Aizkraukle	hill-fort	A 12345: 199	long bone	profiled, dot
10.	Daugmale	hill-fort	A 9964: 105	long bone	dots
11.	Daugmale	hill-fort	A 9964: 172	long bone	openwork
12.	Daugmale	hill-fort	A 9964: 672	long bone	fragment
13.	Daugmale	hill-fort	A 9964: 911	long bone	openwork, dots
14.	Daugmale	hill-fort	A 9964: 1035	long bone	dots
15.	Daugmale	hill-fort	A 9964: 1456	rib	undecorated, hole
16.	Daugmale	hill-fort	A 9964: 2033	long bone	dots
17.	Daugmale	hill-fort	A 9964: 2331	long bone	undecorated
18.	Daugmale	hill-fort	A 9964: 2349	long bone	undecorated
19.	Daugmale	hill-fort	A 9964: 2510	rib	fragment
20.	Daugmale	hill-fort	A 9964: 3630	long bone	undecorated
21.	Daugmale	hill-fort	A 9964: 4115	long bone	fragment
22.	Daugmale	hill-fort	A 9964: 4505	rib	profiled
23.	Daugmale	hill-fort	A 9964: 4669	long bone	profiled, openwork
24.	Daugmale	hill-fort	A 9964: 6242	long bone	openwork, dots
25.	Daugmale	hill-fort	A 9964: 6359	rib	undecorated
26.	Daugmale	hill-fort	A 9964: 6531	shield of a sturgeon	undecorated
27.	Daugmale	hill-fort	A 9964: 6813	long bone	fragment, undecorated
28.	Daugmale	hill-fort	A 9964: 6920	long bone	fragment, undecorated
29.	Daugmale	hill-fort	A 9964: 7424	long bone	dots, lines
30.	Daugmale	hill-fort	A 9964: 7464	long bone	fragment, dots
31.	Daugmale	hill-fort	A 9964: 7727	long bone	dots, lines
32.	Daugmale	hill-fort	A 9964: 7959	long bone	dots, lines
33.	Daugmale	hill-fort	A 9964: 8218	long bone	fragment, undecorated
34.	Daugmale	settlement	A 11970: 61	long bone	unfinished
35.	Daugmale	settlement	A 11970: 1752	long bone	plaited
36.	Daugmale	hill-fort	A 11971: 281	long bone	fragment, dots
37.	Daugmale	hill-fort	A 11971: 735	long bone	openwork, dots
38.	Daugmale	hill-fort	A 11971: 1165	long bone	profiled, dots, lines
39.	Daugmale	hill-fort	A 11971: 1522	rib	undecorated
40.	Daugmale	hill-fort	A 11971: 1536	long bone	undecorated
41.	Daugmale	hill-fort	A 11971: 2401	long bone	undecorated
42.	Daugmale	hill-fort	A 12150: 441	long bone	openwork
43.	Daugmale	hill-fort	A 12705: 107	long bone	dots, lines
44.	Daugmale	hill-fort	A 12600: 100	long bone	undecorated
45.	Daugmale	hill-fort	A 12695: 127	long bone	undecorated
46.	Daugmale	hill-fort	A 12695: 466	rib	undecorated
47.	Daugmale	hill-fort	A 12763: 77	long bone	dots
48.	Daugmale	hill-fort	A 12763: 100	rib	unfinished?
49.	Daugmale	hill-fort	A 12826: 157	long bone	undecorated
50.	Mārtiņšala	hill-fort	RDM I 2443	long bone	openwork, dots
51.	Mārtiņšala	hill-fort	RDM I 2445	long bone	profiled, dots
52.	Talsi	hill-fort	A 11431: 1938	long bone	undecorated
53.	Jersika	hill-fort	A 10330: 665	long bone	fragment
54.	Cēsis	hill-fort	VI 242: 92	long bone	openwork



spear: on each arm he had bracelets twisted out of three wires; on the third finger of each hand there was a ring twisted from several wires; he also had a bronze chain with an openwork pendant round the neck, a penannular brooch and bronze spirals on the chest, a belt with a bronze buckle and plaques, with a tinderbox and a sheathed knife with a bone handle hanging from it. The knife is remarkable for its finely worked bone handle, decorated with an S-pattern and two lozenge-shaped bronze plaques. This handle is evidently not of local origin, but made by a specialised craftsman.<sup>3</sup>

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### Abbreviations

A – Latvian History Museum, Riga  
 AI – Institute of History, Tallinn  
 ERM – Estonian National Museum, Tartu  
 Päm – Pärnu Museum  
 RDM – Collection of the Dome Church of Riga  
 VI – Latvian Institute of History, Riga  
 VM – Viljandi Museum  
 TÜ – University of Tartu  
 HfM – State Museum-Reserve of Novgorod

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<sup>3</sup> In analyses of the contents of graves the Danish archaeologist Lotte Hedeager has introduced a method where, in comparing graves, she does not consider every find separately, but counts the number of different artefact types (NAT). By this method, the NAT of the child's burial site with a bone spade from Pada is 9, and the NAT of a male burial is 12. Such a method of comparison has not been used widely in Estonia. In her latest study, Marika Mägi (Mägi 2002: 115, Fig. 51) presents a calculation for burials in Saaremaa, where the average NAT for the 12th century is circa 10. Thereby, the burials analysed in the stone graves belong to the wealthier section of the population of Saaremaa.

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Ülle Tamla  
Institute of History  
Rüütli 6 10 130 Tallinn, Estonia  
e-mail: ulle.tamla@ai.ee

Heidi Luik  
Institute of History  
Rüütli 6 10 130 Tallinn, Estonia  
e-mail: heidi.luik@mail.ee

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## KAULINIAI MAŽI KASTUVĖLIAI: MEDŽIAGA, GAMYBOS TECHNOLOGIJA, NAUDOJIMAS

HEIDI LUIK, ÜLLE TAMLA

Santrauka

Maži kauliniai kastuvėliai paplitę visoje Estijos teritorijoje, išskyrus Saarema. Latvijoje jie iš esmės aptinkami Dauguvos lyvių teritorijoje. Randama šių dirbinių ruošinių ir nebaigtų drožti kastuvėlių, dėl to, kaip manoma, jie yra vietinės gamybos. Kastuvėlius galima sieti su XI–XIII amžių gyvenvietėmis. Vienintelis Vikingų laikotarpiu datuotinas kastuvėlis, pagamintas iš šonkaulio, aptiktas Rougėje (Rõuge).

Iš viso Estijoje surasta 39 tokie dirbiniai ir keletas ruošinių (1 lentelė ir 1–11 pav.). Dauguma jų aptikti XI–XIII a. piliakalniuose ir gyvenvietėse. Nė vienas toks dirbinys nebuvo rastas viduramžių gyvenvietėse. Tai rodo, kad tuo metu jie jau nebuvo gaminami. Tik du kastuvėliai aptikti XII–XIII amžiaus pradžios Pada (Pada) kapinyno kapuose. Latvijoje maži kauliniai kastuvėliai (iš viso 54 vienetai) rasti lyvių teritorijoje (2 lentelė, 1, 12–15 pav.). Latvijoje jų aptikta piliakalniuose. Dauguma, apie 40 vienetų, buvo Daugmalės (Daumāle) piliakalnyje, 9 kastuvėliai ir ruošiniai yra iš Aizkrauklės (Aizkrauklē), likusieji – iš kitų vietų.

Šie dirbiniai taip pat buvo naudoti ŠV Rusijoje, t. y. Novgorode ir Pskove. Panašių dirbinių rasta ir Šlėzviège. 3 kastuvėliai, padaryti iš šiaurės elnio rago, žinomi iš arktinės Norvegijos, 2 aptikti Birkoje.

Daugelis aptariamų dirbinių yra gerai nugludintu paviršiumi ir ornamentuoti iš abiejų pusių. Ornamentas sudarytas iš duobučių arba linijų, kartais kryžių iš duobučių (3:2-4, 6:1, 7:1, 10, 12:2, 3, 5:1, 12:1 pav.). Vienas kastuvėlis iš Daugmalės yra papuoštas tinkliniu ornamentu (13:3 pav.). Yra ir neornamentuotų kastuvėlių (2:2, 4, 5:2, 7:2, 8:2 pav.).

Rankenėlės įvairios (2:1, 3, 3:1, 4:1, 2, 6:2, 9:2, 12:4 pav.). Kai kurių dirbinių rankenėlių galuose išgręžtos skylutės, todėl galima prielaida, kad jie buvo nešiojami ant kaklo (5:1, 11:1, 13:1 pav.).

Gerai išlikusių kastuvėlių ilgis yra 7–9 cm, jų ašmenų plotis 1,6–2,5 cm. Pagaminti iš ilgųjų gyvūnų kaulų, dažniausiai iš arklių ir galvijų čiurnų kaulų. Mažesnieji drožti iš šonkaulių. Latvijoje šie dirbiniai taip pat dažniausiai gaminti iš ilgųjų kaulų. Šonkauliai naudoti retai (2 lent.). Labai retai maži kauliniai kastuvėliai daryti iš eršketo (*Acipenser sturio*) žvynų (18 pav.). Vienas

iš jų nebaigtas gaminti (15 pav.). Tai įrodo, kad jie taip pat gaminti vietoje.

Kokie įrankiai buvo naudojami kaulams apdirbti, geriausiai galima pamatyti tyrinėjant dirbinių nuolaužas ir nebaigtus gaminti daiktus. Užbaigti dirbiniai yra kruopščiai nupoliruoti ir jų paviršiuje įrankių paliktų pėdsakų nematyti. Išilginiam kaulo perskėlimui naudoti kirvis, kaltas ir kūjelis. Pagrindinis įrankis kauliniams kastuvėliams gaminti, be abejonės, buvo peilis. Kartais naudotos ir dildės. Jų palikti pėdsakai matyti ant dirbinių paviršių (5:2 pav.). Galutiniam daikto poliravimui naudoti ir smėlis, oda, pelenai bei kreida.

Istorijos instituto konservatorius J. Ratas pagamino vieno iš kastuvėlių kopiją. Darbas truko 25 valandas. Žinoma, įgudę meistrai tokį dirbinį pagamindavo greičiau.

Kam buvo naudojami maži kauliniai kastuvėliai? Dažnai jie skiriami kabučiams, tačiau tik dalis galėjo turėti tokią paskirtį. Greičiausiai jie buvo skirti kosmetikos ar tualetų reikmenims, pavyzdžiui, pleiskanoms pašalinti, taip pat galėjo būti naudojami ir balzamui ant odos tepti. Kas juos naudojo? Apie tai, kokios lyties ir amžiaus gyventojai kastuvėlius naudojo, galima spręsti iš kapuose rastų šių dirbinių. Tačiau kapuose jų rasta nedaug. Tai jaunų vyrų ir mažų vaikų kapai. Daugiausia kaulinių kastuvėlių aptikta piliakalnių kultūriniuose sluoksniuose, kurie tuo metu buvo politiniai regionų centrai. Daugelis jų minimi Henriko Latvio Livonijos kronikoje. Turtingas žalvarinių ir sidabrinių daiktų lobiai su 4 kauliniais kastuvėliais, aptiktas Savastverėje (Savastvarē), priklausė turtingai moteriai. Taip pat dviejuose turtinguose kapuose kastuvėliai rasti ir Pados kapinyne.

Maži kauliniai kastuvėliai buvo paplitę žemyninėje Estijoje ir Dauguvos lyvių teritorijoje Latvijoje. Ruošiniai ir nebaigti gaminti tokie dirbiniai rodo jų vietinę kilmę. Dar negalima kalbėti apie tai, kad juos gaminti specializavosi atskiri meistrai. To daryti neleidžia dabar turima šaltinių bazė.

Vertė Vytautas Kazakevičius