PATTERN OR RANDOM? CONTEXTUALISING ESTONIAN BRONZE AGE BRONZE STRAY FINDS ON THE LANDSCAPE

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Abstract

The vast majority of Estonian Bronze Age (1800–500 cal BC) large metal items (axes, spearheads, sickles) are single stray finds. In contrast, bronzes from settlements are mostly associated with on-site metal casting (casting waste and broken objects), and burial sites have yielded objects of a personal nature, e.g. tweezers, razors, and clothing-related items such as buttons. Some of the stray finds have been linked to possible settlement sites. Deposition in bodies of water has been suggested as an explanation for a couple of items. Although deemed to have been precious prestige items, the reasons for their seemingly contextless find situation have until now not been systematically explored. This study addresses the character of the find locations. To infer the original deposition environment, archive material and topographical and geological data were combined. The results indicate site-specific patterns in the distribution of artefacts, with a preference for wet contexts (especially rivers). This is particularly well illustrated by two regions with bronze items from both the Early and the Late Bronze Age: Kumna in northwest Estonia, and Reiu in southwest Estonia. The patterns noted suggest intentional human activities, possibly related to the phenomenon of depositing bronzes on the landscape, as is identified in other parts of Europe.

Key words: stray bronze finds, Bronze Age, landscape, depositional customs, single depositions, multiple depositions, Estonia.

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Introduction

The majority of Estonian Bronze Age (1800–500 cal BC) large metal finds consist of approximately 45 objects, mainly axes and spearheads. Most of them, both Early and Late Bronze Age items, were found during construction, cultivation or metal detecting in non-settlement, non-burial contexts. In contrast, bronze finds from settlements are predominantly associated with on-site bronze casting (casting waste, scrap metal), and those from burial sites are of a personal nature (tweezers, razors, buttons, etc). Nearly all bronze finds from clear settlement and burial contexts date from the Late Bronze Age. A connection between stray bronze finds and settlement sites has been suggested on a few occasions, and some items have been associated with possible deposition in bodies of water. In cases of items found decades ago by laymen and in locations not surveyed by archaeologists, the possible archaeological context may have gone unrecognised. In recent years, the growing popularity of metal detectors has brought about a noticeable increase in new finds. Cooperation between detectorists and archaeologists has made it possible to check many find locations, and confirm the lack of an immediately recognisable archaeological context. How did these bronze items then enter the archaeological record? Why were they left on the landscape?

Bronze Age metal finds outside settlement and burial contexts are known all over Europe. People have buried or left bronze in the landscape in multiple-object hoards, as well as individually, without reclaiming them. The tradition of depositing bronze objects in wetlands and bodies of water, as well as on dry land, has been identified almost everywhere in Europe, including Scandinavia and the southern Baltic region (e.g. Fontijn 2002; Bliujienė 2010; Yates, Bradley 2010a, 2010b; Szabó 2011; Hansen 2013; Melheim, Horn 2014; Rundkvist 2015). The debate about the meaning of this phenomenon, with all its variations over large geographical and temporal distances, is still going on. Some of the currently most popular theories include sacrifice, mundane safe-keeping, conspicuous consumption and memory practice, with the problematic distinction between ritual and secular deposits still forming a large part of the discussion (Melheim 2015a, 85, and references cited therein).

For Estonian material, the possibility of stray bronze finds being connected with deposition practices has until now not been systematically explored. Although the items have been studied from a typological perspective, almost no attention has been paid to the find locations, leaving most of the artefacts without a topographical context. This is partly due to the previously insufficient numbers of finds for these questions to even become relevant, and partly due to the lack of technical pos-

sibilities for answering them (online databases with digitised archive materials, geological data, etc). It is generally accepted that bronze artefacts were precious prestige items, indicating social status, communication networks and complex social behaviour (Jaanits et al. 1982, 135; Kriiska, Tvauri 2002, 95; Lang 2007a, 76; Lang, Kriiska 2007, 110ff.). But their find circumstances have been implicitly assumed to result from accidental losses. An exceptional find in this respect is the Late Bronze Age Tehumardi hoard from Saaremaa Island, comprising numerous broken bronze objects of Scandinavian types, along with casting waste, which is clearly a deliberate deposition (Tallgren 1922). The find has traditionally been interpreted as a scrap hoard meant for recasting, with its possible ritual character taken into consideration only recently (Sperling 2013).

Scandinavia is seen as the main focus of foreign communication by inhabitants of Estonia during the Late Bronze Age (1100–500 cal BC; Kriiska, Tvauri 2002, 116ff.; Lang 2007a, 253, 2007b, 80ff.; Sperling 2014). Contacts with Scandinavia had intensified by the Late Neolithic (Jaanits 1985; Lang, Kriiska 2007), with numerous Late Neolithic and Bronze Age imported stone and bronze axes of Scandinavian origin serving as examples of either direct or mediated contact (Lang 2007a, 25ff., 42ff., 2010; Lang, Kriiska 2007). Considering that in Scandinavia, the tradition of depositing bronzes on the landscape was widespread throughout the Bronze Age (e.g. Larsson 2011), there are good grounds for asking whether this practice could also explain the seemingly nondescript find circumstances of Estonian bronze items. It is also noteworthy that from the Neolithic onwards, the majority of Estonian numerous wetland finds, unlike earlier ones, cannot be directly associated with food gathering. The probability of the Neolithic finds being offerings knowingly placed in wetlands has already been pointed out (Kriiska, Roio 2011, 69). Moreover, some Neolithic and Early Bronze Age shaft-hole stone axes have been deposited in watery contexts (lakes, rivers, bogs), and on dry land near visible landmarks; they have been interpreted as offerings (Johanson 2006, 114). This suggests that the cultural practice of deliberately depositing certain items on the landscape had, at least to some degree, been established in Estonia by the beginning of the Bronze Age.

For the following, I have taken as a starting point a notion phrased by Katharina Becker (2013, 227): 'The demonstration of non-random patterns in the record needs to be the departure point of any study that aims to identify and interpret deliberate deposition.'

After denoting observable patterns in artefact distribution, further interpretations of the character of their deposition can be made. In other words, in the case of distinguishable patterns in find distribution, stray finds might not be accidental, but originate from a context not known to the researcher. With this in mind, I looked at the find locations not on a regional distribution map, but on the scale of the landscape, in the context of physical surroundings (see also Paavel 2015a). I focused on identifying bronze deposition patterns during the Bronze Age by answering the following questions: at which landscape features are the items found? What was the landscape like during the time of deposition? Do the locations have something in common, and what might it signify? Can we see changes during the 1,300 years of the Bronze Age?

Material and methods

There is currently information of about 45 stray bronze finds from Estonia. Of these, 35 items could be placed on the landscape with enough accuracy to continue with characterising the locations (see Table 1, Figs. 1–2). Excluding three items with problematic dates, there are 19 Early and 13 Late Bronze Age objects represented in the study. Axes form the majority, with 27 examples, dominated by socketed axes and palstaves. As has been mentioned, most of the items are single finds. There are two possible exceptions. One is the axe from Mummassaare (NE Estonia; no 13), which was found together with the remains of another bronze object, possibly a sickle, which disintegrated during extraction from the soil (Schmiedehelm 1936, 1). Another possible case is the Kumna site (NW Estonia; nos 7–10), where six bronze rod fragments have been found ten to 30 metres from a decorative pin fragment. Recent soil disturbances due to land improvement and cultivation (Kriiska 2014a) make it impossible to confirm whether they were deposited together. All in all, 18 locations have been checked by archaeologists (see Table 3), with fieldwork specifically for this research undertaken at Astangu, Igavere, Kumna, Mehikoorma, Tutermaa and Silla locations, by means of landscape surveys, test-pitting and soil coring. This paper presents the preliminary results, which will be supplemented by future fieldwork.

Understanding the context of deposition means knowing the prehistoric environment of the find locations. This presupposes an accurate provenance for the discovery, good chronological datability of the metalwork, and, ideally, radiocarbon dated environmental sequence (Yates, Bradley 2010a). Less than ideally, we do not have specific environmental sequences for individual find locations, but for coastal sites it is possible to use the sequences compiled for post-glacial shore displacement studies. Generally, to infer the original

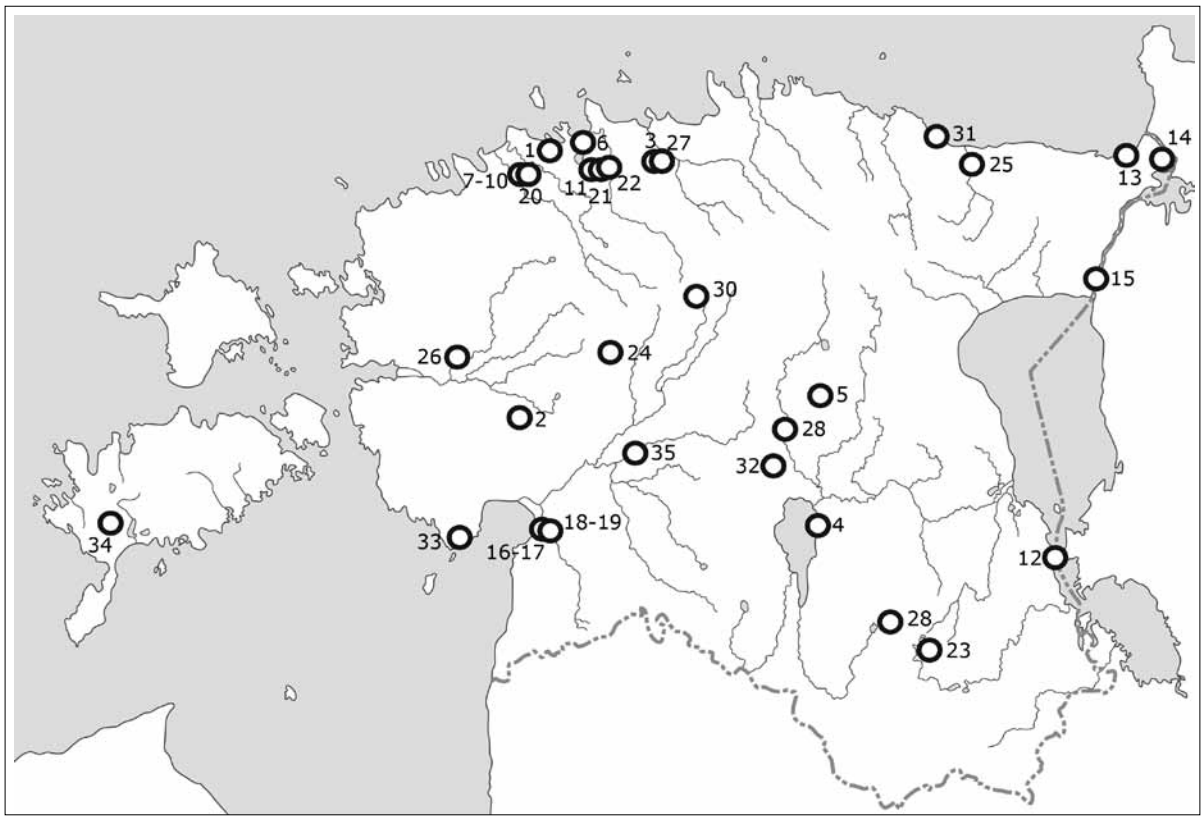

Fig. 1. Find-locations of Bronze Age bronze stray finds included in the study. The numbers correspond to those in Fig. 2 and Tables 1 and 3. Compiled by K. Paavel.

character of the find locations, different sources were combined: historical maps from the online databases of the National Archives of Estonia[1] and the Estonian Land Board,[2] archive material, topography, published shore displacement data (Grudzinska et al. 2013, 2014; Rosentau et al. 2011, 2013), and information on soil types. In the Bronze Age, climatic conditions in northern Europe were noticeably colder and moister than today (Seppä et al. 2009; see also Kalnina et al. 2015), and land reclamation work in the last 150 years has drained huge areas of former Estonian wetlands (Iital 2012, Fig 1.10). It was also taken into account that the importance of wetlands in the landscape was remarkably higher in the Bronze Age than today.

The preservation of the finds as an indicator of the deposition environment was also considered. Dark brown or black staining on objects with a metallic sheen will indicate anaerobic corrosion with dominant sulphide staining; blue and green corrosion products will indicate oxides produced in shallow burials (Rodgers 2004, 111ff.). Of course, the appearance of bronzes is not, in itself, proof of the deposition environment being either wet or dry. As waterlogged sites become dry, artefacts in pristine condition will be covered with blue and green corrosion products. However, the reverse situation, oxidised bronzes regaining their original metallic sheen after becoming waterlogged, is not possible. Therefore, when combined with other types of data, some inferences can be made for the finds that have retained their metallic sheen (for further discussion on the reliability of using this information, see Vandkilde 1996, 33ff. and references).

Placing stray bronze finds in the cultural landscape, in the context of known contemporaneous archaeological sites, is a difficult task. Our knowledge of Estonian Early Bronze Age material culture is limited: it seems to be very similar to Late Neolithic material, at least when it comes to everyday items of flint and bone, along with pottery. The archaeological traces of settlement sites are difficult to discern, as the occupation layers were apparently very thin. As a result, very few Early Bronze Age settlement sites are known, and graves are nearly absent (see Tõrv, Meadows 2015 for recent results regarding some Early Bronze Age burials), leading to the term Epineolithic culturelessness, or the absence of any expressive archaeological culture (Lang 2007a, 36ff.). Stray finds (bronze items, and rather numerous late and simple shaft-hole stone axes) form the largest part of the archaeological material from the first half of the Bronze Age.

[1] See http://www.ra.ee/kaardid/
[2] See http://geoportaal.maaamet.ee/

Fig. 2. Bronze stray finds included in the study (with the exception of nos 23, 29 and 33). The numbers correspond to those in Fig. 1 and Tables 1 and 3. Photograph of item no 28 is taken by Tarvi Toome. All other photograpss are taken by K. Paavel. For collection references see Table 1.

Table 1. Bronze stray finds included in the study. The numbers correspond to those in Figs 1–2; fr = fragmentary.
See Abbreviations for explanation of inventory numbers

No	Location	Artefact	Period	Environment at the time of finding; find circumstances	Depth (cm)	Year	Inv. no
Provenance: coordinates							
1	Astangu	Socketed axe	IV–VI	Swampy forest; metal detector	16	2015	AI 7521
2	Eerma	Spearhead	II–III/V	Field; metal detector	5	2014	PäMu 27484 /A 2681
3	Igavere	Palstave	II (–III)	Field, metal detector	-	2015	AI 7485
4	Järveküla (Rannu)	Socketed axe	V–VI	Field; metal detector	-	2012	TÜ 2197
5	Kaavere	Palstave	II–III?	Pond shore; metal detector	-	2009	TÜ 1756
6	Kadrioru	Battle axe	IV–V	Tallinn inner-city; while backfilling a water pipe trench, from organic-rich sand under about one to 1.5 m of modern debris	-	2012	-
7	Kumna	Palstave, fr	II	Right bank (flood plain) of River Keila; metal detector	5	2010	AI 7286
8		Dagger/knife	I–II		-	2010	AI 7287
9		Decorative pin, fr	V	ca 10–30 m from decorative pin	10	2015	-
10		Bronze rod, fr (6)	V–VI		10	2014; 2016	AI 7302 (2014)
11	Kurna	Socketed axe, fr	V	Field; metal detector	-	2014	AI 7465
12	Mehikoorma	Flanged axe	I–II	Lake Lämmijärv (inundated area), water depth of about 1 m; metal detector	25	2015	TÜ 2576: 1
13	Mummassaare (Vaivara)	Socketed axe	V	Edge of a flat klint escarpment overlooking the sea; found between topsoil and the brown sand underneath it, possibly accompanied by a sickle	-	1935	AI 3379
14	Narva	Palstave	II	Trench bank (straightened brook); metal detector	80	2013	AI 7464
15	Permisküla	Arrowhead	II–III	Foot of a sand dune; metal detector	20	2011	TÜ 1983
16	Reiu	Palstave I	II	Field, about 140 m from Reiu palstave II; metal detector	15	2009	PäMu 24008 A 2645
17		Palstave II	II	Field, about 140 m from Reiu palstave I; metal detector	3-4	2014	PäMu 27487 A 2682
18	Silla	Socketed axe I	IV–VI	Trench bank (straightened brook) in a planted forest; metal detector	15–20	2015	PäMu 27489 /A 2684
19		Palstave II	II	River bank; metal detector	20	2016	
20	Tutermaa	Flanged axe	I/II	Field; metal detector	5	2008	HMK 8704 A 844
Provenance 500 m or better							
21	Järveküla (Jüri)	Socketed axe	II-III/V–VI	Field	-	1983	TLM 19855
22	Jüri	Socketed axe	V–VI	Field, during ploughing	-	1949	TLM 10471
23	Lauri (lost)	Axe	-	River valley slope; fell into the river and was lost	-	-	-
24	Lelle	Palstave	II–III	Under the edge of a boulder, after destroying it	-	1946	AI 4378
25	Lüganuse	Socketed axe, fr	I–II	Field; metal detector; along with numerous other, mostly Iron Age finds	-	2014	AI 7170

No	Location	Artefact	Period	Environment at the time of finding; find circumstances	Depth (cm)	Year	Inv. no
26	Pähküla	Spearhead	V–VI	Ploughing the south side of a gravel hillock	-	1919	AI 2643: 42
27	Raasiku	Sickle	IV–VI	Boggy meadow about 130 m from the River Raasiku (right bank), digging a trench; possibly together with birch bark and bones; found between peat and bluish clay under it.	80	1933	AI 3243
28	Raidsaare (Taganurga)	Flanged axe	I–II	Bank of the River Põltsamaa, under about 50 cm thick humus layer, in clay; about 1 m above water surface	50	1909	AI 2513: 89
29	Valgjärve (lost)	Flanged axe	I–III?	-	-	-	-
30	Vissuvere	Spearhead	V–VI	Ploughing, together with a bronze ring fragment (?)	15	1943	AI 3940
Provenance less accurate than 500 m							
31	Aseri	Flanged axe	I–II	Sea shore	-	2003?	AI 6638
32	Eesnurga	Socketed axe	IV–VI	Field cultivation, the axe had stuck to the cultivator spike	-	1972	VM 11474 A
33	Kõpu (Audru, Tõstamaa)	Palstave	II–III	Amelioration works, from soil lifted from a trench	-	1967	PäMu 1225
34	Käesla	Palstave	I–II	Trench bank, between rocks	-	1962	SM 7283
35	Toonoja	Palstave, fr	II–III	From a destroyed turf-covered 3.6 x 3.6 m setting of burnt stones and charcoal	-	1903	AI 2312

Table 2. Landscape features associated with stray bronze finds. The categories are not mutually exclusive

Landscape feature	Number of associated finds	Percentage of associated finds (ca %)
River	14	40
Slope	10	29
Wetland	6	17
Higher ground	6	17
Sea	3	9
Lake	2	6
Boulder	1	3
Spring	1	3

A lot more sites are associated with the Late Bronze Age. The distribution of stone graves, fossil fields, fortified settlement sites and cup-marked boulders is, however, mostly limited to northern and western Estonia (in a very broad sense, the coastal region), including the islands (Lang 2007a, 49). The contrast with inland areas is seen to indicate differences in territorial strategies and cultural behaviour (tied to contrasting economic and settlement patterns), which materialised in above-ground stone graves and field markings in the coastal region. Fundamentally, the formation of these differences is explained by the geographical attributes of coastal versus inland areas (Lang 2007a, 93ff., 2011, 160ff.). Open settlement sites from the Late Bronze Age and/or the Early Iron Age are concentrated in two main regions, north and southeast Estonia, but this can be explained by the current state of research (Lang 2007a, 49ff.). For the same reason, the find locations of stray bronze and stone implements are often the only type of known Bronze Age sites on regional distribution maps. Thus, in many areas, additional fieldwork is necessary to view the stray finds in the settled landscape.

The study uses the traditional six-period Nordic Bronze Age chronology created by Oscar Montelius (cf. Montelius 1986). Compared to the currently accepted Scan-

Table 3. Landscape features that characterise find locations. The numbers correspond to those in Figs 1–2

No	Location/Find	Wetland	Sea	River	Lake	Spring	Slope	Higher ground	Boulder	Surveyed	Related finds / identified archaeological context	Fieldwork / context references
1	Astangu		X							+	-	Paavel 2016a
2	Eerma						X			-		
3	Igavere	X				?				+	-	Paavel 2016b
4	Järveküla-Rannu				X		X			+	-	Lang 2012
5	Kaavere	X				X				+	-	Zadin 2012
6	Kadrioru		X							-		Lang 2015
7	Kumna palstave			X						+	-	Kriiska 2014a, 2015
8	knife			X								
9	decorative pin			X								
10	bronze rod fr			X								
11	Kurna	X					X			-		
12	Mehikoorma	?			X					+	-	
13	Mummassaare			X				X		+	Fireplace 3.2 m from the axe	Schmiedehelm 1936
14	Narva	X		X						+	-	Kriiska 2014b
15	Permisküla						X			+	-	Kriiska 2012; Kriiska, Kuz'minykh 2012
16	Reiu palstave I	?		X			X			+	-	Zadin 2013
17	palstave II	?		X			X			-		
18	Silla socketed axe I			X						+	-	Paavel 2015b
19	palstave II			X						-		
20	Tutermaa						X			+	-	
21	Järveküla-Jüri						X			+	Settlement site?	Lõugas 1983
22	Jüri							X		+	Settlement site?	Lõugas 1965a
23	Lauri			X						-		
24	Lelle								X	-		
25	Lüganuse						X			-		Posti 2014
26	Pähküla	?					X			-		Šturms 1935
27	Raasiku			X						+	-	Indreko 1934
28	Raidsaare			X						-		Šturms 1935
29	Valgjärve							X		-		Raid 1921
30	Vissuvere							X		+	Settlement site? Darker soil, charcoal, broken stone adze	Lõugas 1965b
31	Aseri		X							-		Zadin 2012
32	Eesnurga							X		+	Settlement site? Bronze fragment, flint, handmade pottery	Lang *et al*. 2006a–b
33	Kõpu	X								-		Lõugas 1970
34	Käesla	X	?				X			-		Zadin 2012
35	Toonoja			X				X		+	A late stone axe from the same farmsite	Šturms 1935

dinavian chronology (e.g. Hornstrup et al. 2012), the beginning of the Bronze Age is dated to a somewhat earlier time in the Baltics, to 1800 cal BC (Lang, Kriiska 2001, 94-99). The absolute dates of the periods have recently been specified by new radiocarbon dates, most recently by Hornstrup et al. in their 2012 paper based on Danish material. Thus, the dates accepted for this study are as follows: period I 1800/1700–1500 cal BC; period II 1500–1300 cal BC; period III 1300–1100 cal BC; period IV 1100–950/920 cal BC; period V 950/920–800 cal BC; period VI 800–530/520 cal BC.

Results: diversity and similarities in find locations

The bronze stray finds could be associated with the following landscape features: running water, sea, lake, spring, wetland, slope, higher ground, and boulders (Tables 2–3). These features are not mutually exclusive, and most finds can be associated with more than one. They can be broadly grouped as: 1) bodies of water; 2) wetlands; 3) slopes and dry land. Even though, by definition, bodies of water may also include wetlands, I have separated contained features of still water (lakes, ponds) and running water (rivers) from wetlands, which in this study include excessively moist areas (bog, marsh, fen and peatland; also taking into account the fact that it is difficult to make a distinction between them retrospectively, especially in areas of active later use). It is possible that some of the bogs on 19th and 20th-century maps used to be lakes at one time. Hence, the number of wetland-associated finds may be an overestimation on account of the lakes. At the same time, as fields are more attractive to metal detectorists than wetlands, the find distribution is likely to be skewed in favour of drained, and not preserved, wetlands.

Bodies of water

The association with bodies of water was made on the basis of topography and distance. Hence, current shore/riverbank finds, and those from low, wet or drained slopes heading towards water (possible earlier shoreline locations), are all associated with bodies of water. Some items associated with current trenches could be linked with previous brooks based on archive records and fieldwork (e.g. Silla I socketed axe, see below). There are only a few locations that can be associated with both higher ground and rivers (Mummassaare and Toonoja socketed axes, nos 13 and 35). Both of these places have been checked, with no archaeological remains found (Schmiedehelm 1936; Aivar Kriiska personal communication).

Of all the stray finds included, roughly 60% are associated with some kind of body of water (20 items; the bronze rod fragments from Kumna are considered as one entity, because even though all of them have broken or cut ends, only some can be matched with others). Fourteen artefacts were deposited in or near rivers, with nine items found directly on the river bank or flood plain. Multiple types of objects are represented among this group: palstaves, socketed axes, flanged axes, a sickle, a knife, a decorative pin fragment, and bronze rod fragments. They include both Early and Late Bronze Age items (eight and five items respectively; with the addition of the undated axe from Lauri, no 23). The Toonoja and Lauri sites are located at confluences of rivers.

Three axes were deposited in the sea. The find location of the Aseri flanged axe (periods I–II; no 31), which is today on a flat beach plateau, was several metres under water in the Early Bronze Age. The Astangu socketed axe and the Kadrioru battle-axe (nos 1 and 6; periods IV–VI and IV–V respectively) were deposited in northern Estonian klint bays filled with organic-rich sandy-silty sediments. In addition to these three, the Mummassaare location (period V socketed axe) is situated on a precipice overlooking the sea. Trial excavations conducted there confirmed the lack of an occupation layer. Only the remains of a fireplace were found, the connection of which with the bronze item(s) remained unclear (Schmiedehelm 1936, 2ff.).

Two axes may be associated with lakes. The first location, Järveküla (no 4, Rannu municipality; periods V–VI), was checked, and no signs of archaeological remains or occupation layer were found (Lang 2012, 1). The site is located on a nondescript dry gentle slope leading towards Lake Võrtsjärv, 170 metres from the shoreline. The history of Lake Võrtsjärv is complex, and is characterised by big changes in the water level (up to three metres during one year; Moora et al. 2002, 158 and references). Since the find spot is about four metres above the water level, the location was probably not influenced by floods.

The second item associated with lakes, the Mehikoorma palstave (no 12), was found at Lake Lämmijärv (connecting lakes Peipus and Pskov), about 120 metres from today's shoreline, at a depth of about one metre. It was located in an area inundated by Lake Peipus, as it has slowly tilted southwards due to post-glacial land uplift. In the course of this research, the lake shore near the site was checked for archaeological remains, but nothing older than 16th-century pottery (Archaeological Collections of the University of Tartu, inv. no TÜ 401) was found. The pottery originates from a settlement site heavily eroded by wave action, illustrating

the slim likelihood of any preserved archaeological remains in situ. The lake shores at the site are low and flat, and the lake bottom slopes gently eastwards (ca 350–450 m from the shore). During the second half of the Subboreal (1800–800 cal BC), there was a marked rise of over two metres in the water level in the southernmost part of Lake Pskov (Miidel et al. 1995, Fig. 5). As yet, there are no radiocarbon dated environmental sequences about the progression of the rising water level in this area. On a broader geographical scale, it might also be significant that Mehikoorma is located at the narrowest spot in the whole reach of lakes Peipus, Lämmijärv and Pskov, where today it is 1.8 kilometres across to the eastern shore.

Wetlands

Six axes were found at locations that are either (partially drained) wetlands today or were swampy before drainage. Some of them were coastal locations that have since dried up due to land uplift (Kõpu, Käesla, nos 33–34). Typically, these sites are located in low flat areas or depressions characterised by (mineralised) peaty soils. There might be brooks or rivulets nearby, but these are small, largely untraceable in the relief, and therefore it is risky to associate them with Bronze Age items.

One distinctive wetland location is the Kaavere find spot of a small palstave (no 5; periods II–III?). The previously swampy area, fed at least partly by a spring, has been drained, leaving two ponds. The palstave was found on the bank of one of them. This find has already been tentatively assumed to originate from a possible ritual context, on the basis of its watery find location (Zadin 2012, 27, 41). The Kaavere site is the only one associated with a spring, but there is of course no reason to assume that the spring was distinguishable in the wetland more than 3,000 years ago.

Slopes and dry land

For topographical reasons, slope locations can be separated from a group of sites on higher ground, on hilltops and drumlins. A slope seems to be a rather nondescript landscape feature in the context of this study. However, some inferences can still be made. In five cases, we are dealing with slopes leading towards wetlands (Järveküla in Jüri, Kurna, Käesla, Tutermaa, Pähküla; nos 21, 11, 34, 20, 26). Some of these locations may have been wetlands in the Bronze Age. This indicates that the number of wetland-related locations might be a cautious underestimation. Slope locations are connected with running water in two cases (Reiu I and II; nos 16–17), and with dry land in four cases, with two of them checked for archaeological remains and none found (Järveküla in Rannu, Tutermaa; nos 4, 20). The arrowhead from Permisküla (periods II–III; no 15) was found at the foot of a sand dune (Kriiska, Kuz'minykh 2012). The relatively nondescript location is today nearly 500 metres from the nearest river (the Narva), in a remote wilderness, with the only landmarks distinguished nearby being the northeast-to-southwest-oriented dunes that are characteristic of that part of northeast Estonia. An easy-to-lose object, it would appear to be more an unintentional than an intentional deposit, probably resulting from failed hunting or warfare activities.

Five out of six higher ground locations have been checked for archaeological remains. The results are inconclusive: three presumed settlement sites (Jüri, Vissuvere, Eesnurga; nos 22, 30, 32), one completely destroyed stone construction (Toonoja, no 35), and one fireplace, the connection of which with the bronze find is unclear (Mummassaare, no 13).

Places of particular importance? Locations with multiple finds

The overwhelming majority of find locations are geographically so distant from each other that there is no reason to see any concentration of find spots. It seems rather that the whole of Estonia is sparsely covered with stray bronze finds, with emptiness in the middle part of northern Estonia and the southern parts of Viljandi and Pärnu counties. However, there are two exceptional regions: Kumna on the River Keila in northwest Estonia, and a stretch of the River Reiu in southwest Estonia.

In Kumna, multiple bronze items have recently been found on a kilometre-long stretch of the river (Fig. 3; nos 7–10). The oldest is a knife of Seyma-Turbino type. The dating of Seyma-Turbino phenomena reaches from the 20th century cal BC until the middle of period I (Yushkova 2012, 134 and references). From the same riverbank, an incomplete unfinished palstave (period II; see below), a decorative pin fragment (period V), and six fragments of cast bronze ring-ingots or rods (periods V–VI) were found. The pin and the rod fragments were found approximately ten to 30 metres apart, but it is unclear if they were deposited together. The river bank is low and floods seasonally, even though it has been improved with numerous trenches.

Four bronze items have been found along the River Reiu. Two palstaves (period II; Reiu I and II, nos 16–17) were discovered 140 metres apart, about 500 metres from the current riverbed (Fig. 4). Both historical maps and the topography indicate the valley of a

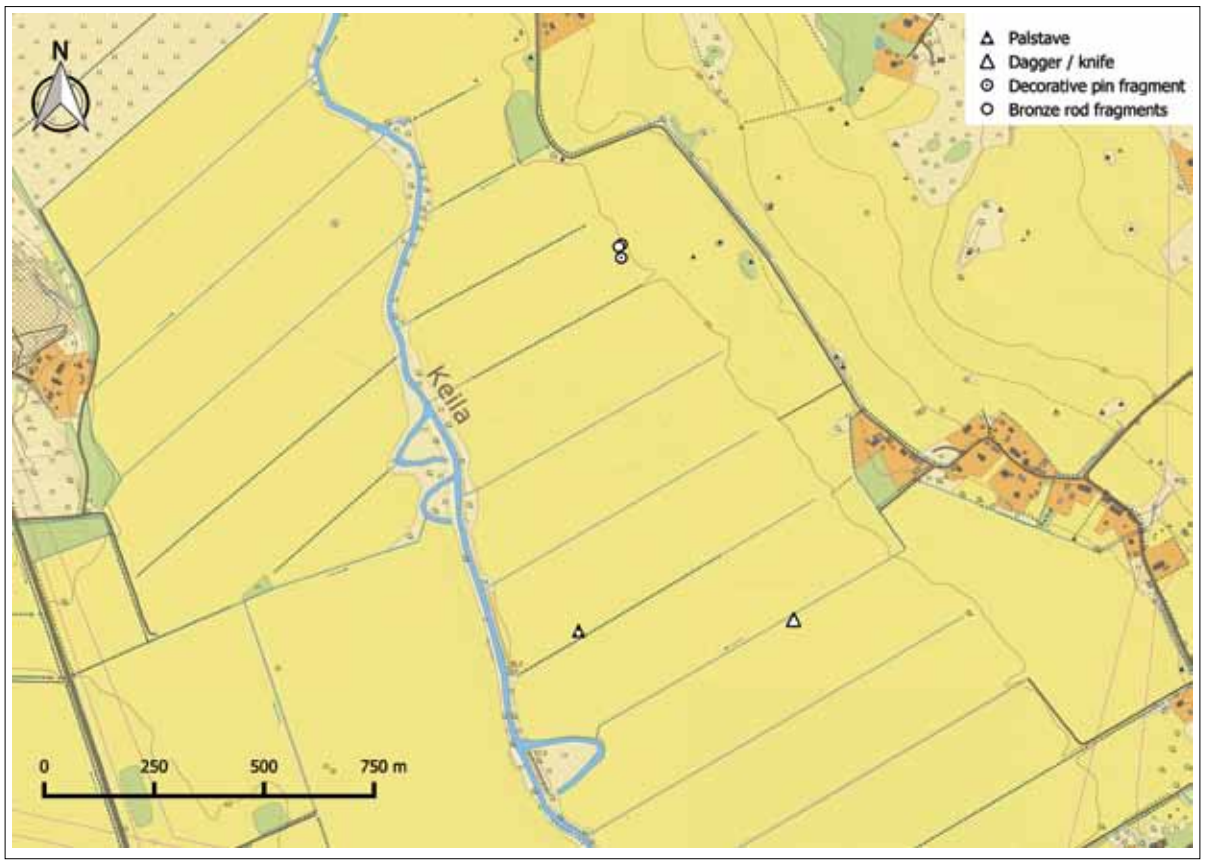

Fig. 3. Kumna find location in northwestern Estonia (map: Estonian Land Board). Compiled by K. Paavel.

former tributary about 350 metres east of the find locations. The axes were found in lowland currently cut in half by a drainage trench leading towards the dried-up river valley. About two kilometres upstream, a palstave (Silla II, period II, no 19) was found in a slope of sediment on the inside of a meander. The youngest artefact is a socketed axe of Akozino-Mälar type (Silla I, no 18; periods IV–VI), found in the bank of a partially straightened brook, a small tributary of the River Reiu. The stratigraphy of the find spot indicates alternating processes of peat formation and sedimentation, whereas the axe was found in the uppermost layer of mixed soil scooped out during dredging (Paavel 2015b, 1, Fig. 3). The brook rises in a large wetland east of the find spot.

Discussion

The results indicate associations of find spots with certain landscape features. Watery conditions (bodies of water, wetlands) are prevalent and represented throughout the entire Bronze Age, with almost 70% of finds associated with them. Running water seems to have been particularly important (40% of finds). Objects from both the Early and the Late Bronze Age can be associated with rivers, including five out of ten palstaves, two out of four flanged axes, and most of the rare object types (sickle, decorative pin, knife/dagger, ring-ingots). Nine artefacts were found directly on a river bank or flood plain. Wetlands and slopes leading towards wetlands are also well represented.

The patterns distinguishable in the find spots of stray (prestige) objects should not automatically be interpreted as resulting from random losses, but as indications of some specific human activity, clearly less coincidental than has been presumed. In the context of the Bronze Age deposition customs in Europe outlined above, the results of this study seem to point to location-specific depositing. In other words, bronze objects were apparently left in certain places in the landscape. In Scandinavia, wetlands have assumed a role as places of communication with supernatural beings since the Neolithic. Since the Early Bronze Age, the custom of depositing single bronze items, particularly weapons, in the landscape (especially in rivers) was widespread there (Larsson 2011, 8; Vandkilde 1996, 243ff., Fig. 263). As is mentioned above, depositing objects in wetlands has also been noted in Estonian material in the Neolithic (Kriiska, Roio 2011, 69; Johanson 2006), and it continued long after the Bronze Age (e.g. Oras 2015). Hence, the results presented here fit well into the broader picture temporally, as well as geographically.

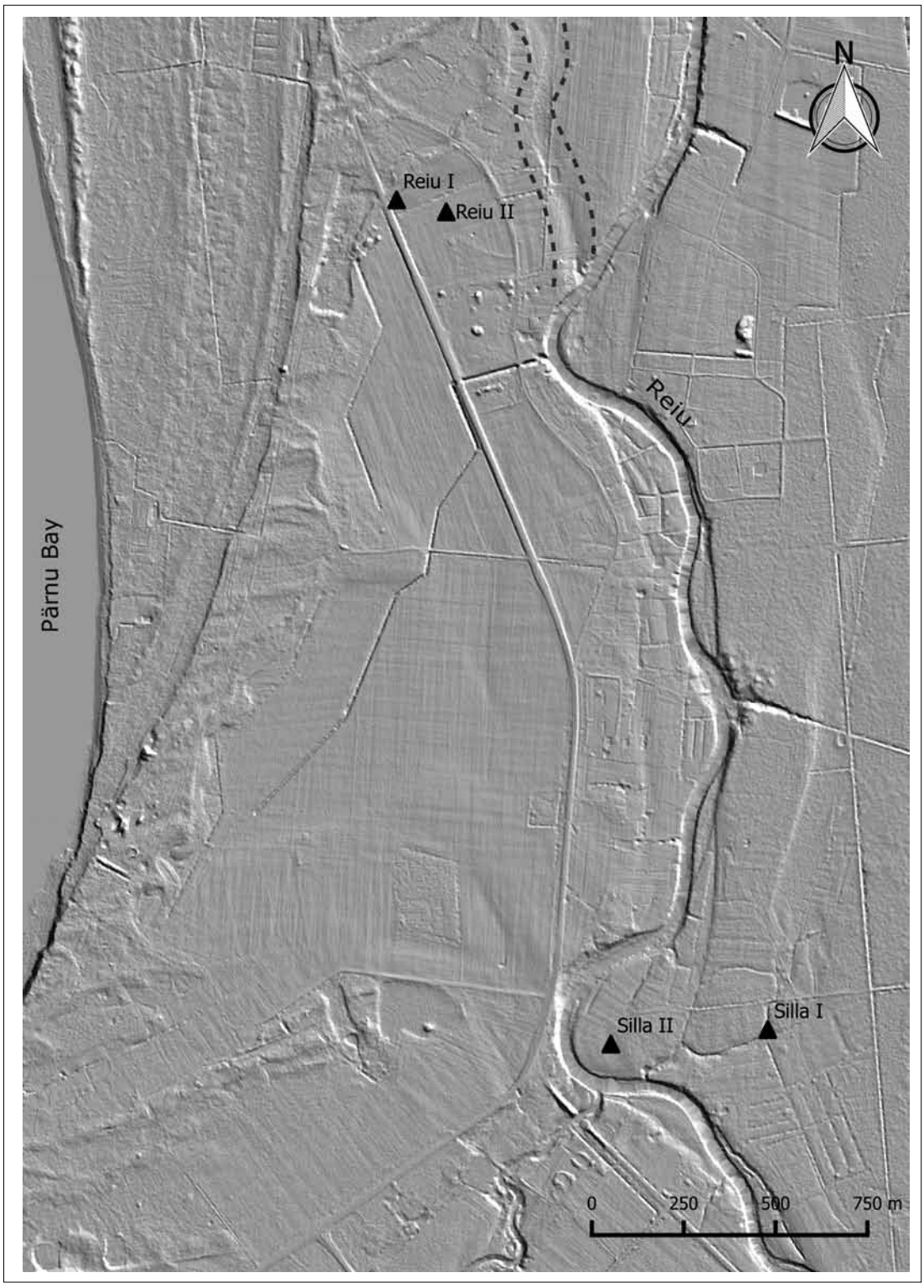

Fig. 4. Reiu and Silla find locations on the relief map. The dotted line marks the former rive valley (map: Estonian Land Board). Compiled by K. Paavel.

Throughout the Bronze Age, the most likely places in Estonia for depositing bronzes were large bodies of water. Bronze artefacts were also left in wetlands, or on the edges, on the fringes of potentially habitable areas, or in other words, on the edges of ecosystems with different potential for human intervention. This may be seen as a continuation and development of the Neolithic custom of depositing stone items in wetlands. These were places that during the early phases of agriculture probably still provided a large part of subsistence. A number of both Early and Late Bronze Age nondescript dry locations might represent unrecognised settlement contexts (Lelle, Lüganuse; Järveküla in Jüri, Jüri, Vissuvere).

The Early Bronze Age in Estonia is seen as a time of the finalisation of massive, long-term changes in settlement patterns, the economy and the social sphere, which started at least in the final phase of the Stone Age. By the end of the Early Bronze Age, the hunting and fishing-based economy had been superseded by agriculture and animal husbandry (Kriiska 2003; Lang 2010, 2011). Settlement sites (villages) that had previously mostly been located near bodies of water moved away, to land suitable for agriculture (individual farms). The main subsistence for many communities now came from a landscape remarkably more influenced by human intervention than before. These large-scale changes must also have changed the perception and meaning of the landscape, along with belief systems. When it comes to depositing bronze items in the landscape, the differences between the Early and the Late Bronze Age are too small to make any generalisations. During both periods, as has already been mentioned, rivers were the most common places in the landscape to part with bronze items. There are also clear examples of axes deposited in the sea. Six locations are at the joins of different bodies of water: two at river confluences and four in bays, where different types of water (fresh and brackish) meet (see also Fredengren 2011). The differences between coastal and inland areas in the distribution of certain types of archaeological site (stone graves, fossil fields, and cup-marked boulders) are not visible in the deposition patterns of bronze items.

Axes, the most numerous type of artefact in the material, can be associated almost equally with rivers and slopes (ten and eight instances; again not mutually exclusive), followed by wetlands and higher ground (six and five instances respectively). There are slight differences between the landscape features associated with each type of axe, but as the number of items is small, the situation is likely to change with each new find. No flanged axes can currently be associated with certainty with wetlands, unlike palstaves and socketed axes. Similarly, there are no clear cases of palstaves found on higher ground. All types of axe were deposited in or near rivers, the sea or slopes.

To compare the deposition locations of items of presumed different geographical origin, there is not enough typologically unambiguous material. We have clear examples of Scandinavian or northern European types (e.g. flanged axes, the Kumna decorative pin fragment), as well as east or southeast European types (e.g. the Lüganuse axe and the Kumna knife of Seyma-Turbino type, the Kadrioru battle axe of Koban type, and the Permisküla arrowhead from the east European forest or forest steppe). Additionally, there are items thought to be locally made that are either modelled after north European examples or combine elements of both eastern and western origin (e.g. the Mummassaare axe). On top of that, there are items with no direct analogues (e.g. Kaavere), as well as two axes of the notorious Akozino-Mälar type (Astangu, Silla I), examples of which occur in two groups far apart, central Sweden and Tatarstan in Russia (Kuz'minykh 1996; Melheim 2015b). All this leaves us concluding that we need additional material.

Multiple episodes of deposition

The Kumna and Reiu sites were the first in Estonia where the repeated deposition of bronze artefacts has been discovered. Depositions have taken place there in both the Early and the Late Bronze Age. This indicates firstly that people recognised these places as appropriate for depositing metal objects as early as the Early Bronze Age, meaning that ideas about suitable deposition locations must already have been established. This makes sense in view of the Neolithic custom of depositing items in wet contexts. Secondly, these two sites demonstrate that depositing bronzes in (Kumna) or near (Reiu) rivers was a long-term tradition, and it is possible that there are more places of this kind. The existence of the Kumna and Reiu sites seems to support the interpretation of bronze items ending up in the landscape because of deliberate depositing. Moreover, a strictly secular interpretation, e.g. the axes accidentally dropped into rivers while clearing them of coarse woody debris, would fail to explain the loss of a knife, a decorative pin, and bronze wires from different periods in the same stretch of river.

At Kumna, at least three separate occasions of depositing can be distinguished (palstave, knife, pin and bronze wires), and at Reiu, four occasions. Similar locations with multiple episodes of deposition are known from numerous places in Europe (see e.g. Fontijn 2002, 260ff.). From geographically closer areas, a

suitable example is the River Minija in the Klaipėda district in Lithuania. On one bank of the river, at the village of Dovilai, a bronze mould for casting socketed axes was found (1600–1400 cal BC), and a deposit of several bronze objects (1400–1200 cal BC) was found on the other bank at the village of Gedminai (Čivilytė 2004, 226, Fig. 5–6; Bliujienė 2010, 138).

Similar repeatedly used sites are also known near lakes Mälaren and Hjälmaren in Sweden: Storsicke, Tackhammarsbro, Hyndevads Dammar, Vrenaan, Ingla and Grop-Norrby (Rundkvist 2015, Tab. 3.2). All these were wet locations in settled areas, one to four kilometres from registered burnt mounds and rock art (Rundkvist 2015, 31). Four of the six were in or next to a river, at the point where it entered and/or exited a major body of water in the Bronze Age. At least three sites were white water gorges, with rapids or waterfalls (ibid.). There is no clear indication of either of these near the Kumna or Reiu locations. The Reiu I–II and the Silla I axe can be linked to current or former tributaries of the River Reiu, but the confluences are about 300 to 400 metres away.

Deposition activities probably did not leave any noticeable traces on the landscape that would have attracted people decades or centuries later (Fontijn 2002, 260ff.). With no evidence of lasting markers other than natural ones, there have been attempts to explain the repeated use of certain locations with the collective memory and oral traditions (ibid.), as well as with a long-lived set of rules for where deposition is appropriate (Rundkvist 2015, 22ff.). The latter explanation seems particularly relevant to places with depositions a long time apart. That said, it cannot be ruled out that the tradition was continuous, but it did not leave any archaeologically visible traces (e.g. depositions of organic material).

Coming back to the notion mentioned above according to which different bronze artefact types are found in different contexts (stray finds versus settlements or burials), we could consider that these reflect an association between certain artefact types and deposition customs. In general, this seems to be the case. However, the Kumna site shows that the division is not very clear-cut, with tools/weapons, ornament(s) and raw material (rod-ingots) all represented. What is more, the palstave from the site is unfinished: its surface has not been polished, and neither have the uneven edges left by the two-piece mold been sanded down. The axe's top part is missing, with fresh grinding marks making it impossible to tell whether it was a casting failure or a later breakage. In any case, this is a unique find of an unfinished stray object. Fragmentary stray finds are few (see Table 1), and not from clearly similar contexts, with some of them probably fragmented during cultivation.

Theoretical considerations on artefact depositions

The deliberate depositing of objects in the landscape is geographically and chronologically a very widely registered phenomenon. It is not even strictly limited to the Bronze Age. The practice needs to be viewed in its social context, responding to developments in other aspects of society. It is clear that, regionally and chronologically, there have been different rules for object material and types, the amount and arrangement of items in deposits, preferential locations in the landscape, etc. Asking any overarching 'why' questions would thus lead to a risk of oversight, speculation and interpretational shortcomings. Currently, some of the most favoured theories see this custom in the Bronze Age as a way of communicating with supernatural entities, with the additional closely tied component of maintaining or transforming social ties or identities (see also Brück 1999). The exact nature of these supernatural beings, be they ancestors, spirits, gods or something else, is beyond the scope of scientific claims.

The concept of the Estonian Late Neolithic and Early Bronze Age religious sphere has mainly been built on a contrast with the preceding period. The earlier part of the Bronze Age is characterised by a nearly complete absence of known burials, along with the disappearance of the pendants and figurines that were common in earlier material (Jonuks 2009, 99ff.). Of course, if almost no graves or settlement sites are known, neither can grave goods or settlement finds be found. The scarcity of archaeological objects which would enable specifically religious interpretations has been pointed out as a distinct characteristic of the period from the Late Neolithic to the Viking Age (3200 BC–1050 AD; Jonuks 2009, 146). Tõnno Jonuks has noted the marked difference between the shores of the Baltic Sea, with abundant religion-related find material in the west, and the almost complete lack of it in the east. He sees this as an indication of noticeable differences in religion, and puts the turning point at some time during the Late Neolithic, when the apparent disappearance of source material points to a transformation in religion, compared to earlier, hunter-gatherer societies (Jonuks 2009, 146). While I have some reservations regarding some objects being more 'religion-related' than others, the noticeable change in the archaeological material is beyond question.

Jonuks has also proposed that while the Late Neolithic, together with the Early Bronze Age, was a transitional

period between hunter-gatherer and farming societies, this also pertained to religion-related concepts, preserving many important aspects of the preceding period (2009, 149, 157ff.). While most Late Neolithic burial sites are located on the shores of streams or in their vicinity, the settlements have moved further away from bodies of water. He sees this contrast as an indication that in Late Neolithic ideology, some landscape elements important to hunter-gatherers were still actively linked to social practices (Jonuks 2009, 155). Even though it remains unclear what distance he meant by proximity to water, and even though there may be several other reasons for the distribution patterns of burial sites in the landscape (e.g. soil properties), the claim that some Neolithic practices continued is supported by patterns in the deposition of bronze items. Moreover, he views both stone and bronze axes as probable attributes of ritual practices (ibid., 157ff.), although comparing this with Scandinavia, their ritual role must have been a lot smaller (ibid., 149).

The noticeable pattern in Estonian Bronze Age material largely resembles that of northern Europe, including the east Baltic, albeit to a remarkably smaller order of magnitude. The bronze objects that arrived here through contacts with neighbouring areas, particularly Scandinavia (Lang 2007a, 41ff.; Lang, Kriiska 2007, 110ff.), probably came with an understanding of how they (or some of them) were to be treated. As Tobias Kienlin has argued (2017, 147), when it comes to imports, people actively select concepts or objects that fit into existing notions of the world or social strategies. Foreign elements that make their way into a new context are likely to undergo acts of 'translation', active reinterpretations of their meaning and re-contextualisation to establish their specific positioning and role in the local discourse and practice (Ibid.). If we agree that people are more willing to accept new elements that somehow fit in with their understanding of the world, it would explain why some objects made from a new material, bronze, began to receive similar treatment as some stone implements.

Conclusions

Viewing stray bronze finds in the landscape context has made it possible to distinguish some common features in the find locations. Almost 70% of the 35 bronze stray finds analysed are associated with some kind of wet context, rivers being the most common. Multiple types of object are represented among these finds, with the exceptional Kumna site providing most of the unique item categories (bronze rods, knife, decorative pin fragment). Six axes were found in locations that either are or were wetlands. In five cases, bronzes were found on slopes leading towards wetlands. Some of these locations may have been wetlands in the Bronze Age, whereas at least some of the six locations on higher ground probably represent unrecognised settlement sites.

Although additional research is necessary to put the find locations in the context of the cultural landscape, these patterns seem to indicate wilful human activity, as a result of which bronze objects were left in certain places in the landscape. As the strongest apparent association with bodies of water is evident among both Early and Late Bronze Age material, it appears that for a long time particular natural locations for depositing bronze objects were preferred. This interpretation is supported by two locations associated with rivers, Kumna in northwest Estonia and Reiu in southwest Estonia, that have evidently been used time and time again for depositing bronze objects, with long intervals.

When interpreting these distribution patterns as being related to the phenomenon of depositing bronzes in the landscape, the situation is similar to that in northern Europe, including the eastern Baltic region. The custom is not unique to the Bronze Age, continuing a tradition that began in the Neolithic and continued long after the Bronze Age. As the number of stray bronze finds from Estonia is at present relatively small, it does not allow us to make far-reaching generalisations regarding deposition details. It does, however, highlight the need to revise the implicitly assumed concept of these items being accidental losses, and instead view them in the context of intended and wilful depositions made in probably much the same way as in areas with which there were active contacts, and from which many of them (presumably) initially originated.

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Abbreviations

MKA – National Heritage Board of Estonia

TÜ AK – Department of Archaeology at the University of Tartu

Museums and archives

AI – Tallinn University Archaeological Research Collection

TÜ – Archaeological Collections of the University of Tartu (TÜ AK)

PäMU – Pärnu Museum

HMK – Harjumaa Museum

TLM – Tallinn City Museum

VM – The Museum of Viljandi

SM – Saaremaa Museum

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NUOSEKLUMAS AR ATSITIKTINUMAS? ATSITIKTINIŲ RADINIŲ IŠ ESTIJOS LAUKŲ KONTEKSTUALIZAVIMAS

KRISTIINA PAAVEL

Santrauka

Atsitiktiniai bronziniai radiniai (datuojami 1800–500 BC) pateikė neįprastą kontrastą: nors ir priskiriami brangiems, prestižiniams dirbiniams, jų radavietės neatitiko šių dirbinių vertės. Daugelis tokių radinių buvo aptikta vykdant įvairius žemės darbus, nesant aiškiai identifikuojamo archeologinio konteksto. Taigi, kaip ir kodėl tokie brangūs dirbiniai atsirado laukuose? Kokiose vietose jų dažniausiai randama? Ar radavietės susijusios tarpusavyje?

Šiame straipsnyje pristatomi radaviečių analizės rezultatai. Analizei buvo atrinkti 35 atsitiktiniai radiniai, kurie suteikė pakankamai informacijos apie savo kilmę. Iš jų daugumą sudaro įvairių tipų kirviai. Buvo ištirtos gamtinės sąlygos, kurios dominavo radavietėse bronzos amžiaus laikotarpiu. Tam buvo pasitelkti paleoekologijos, topografijos, geologijos ir archyvų duomenys. Paaiškėjo, kad 70 proc. radinių yra sietina su drėgna terpe, o dažniausiai pasitaikanti aplinka – upės (14 radinių, žr. 2, 3 lenteles). Kiti radiniai buvo susieti su buvusiomis ar esamomis šlapynėmis, o likę sausumų radiniai galėtų būti priskirti dar neatrastoms gyvenvietėms. Štai tokiu būdu išryškėjo anksčiau nepastebėta sisteminga žmogaus veikla. Žvelgiant platesniu mastu, bronzinių dirbinių aukojimo žinoma ir iš kitų Europos vietų. Kad Estijoje tai taip pat buvo svarbi tradicija, patvirtina radiniai iš upių ar netoli upių, ten atsiradę ankstyvuoju ir vėlyvuoju bronzos amžiaus laikotarpiais (1, 3, 4 pav.). Šis paprotys yra žinomas ir iš ankstesnio neolito amžiaus, taigi galima pastebėti tradicijos tęstinumą. Nors radinių nėra gausu, šio tyrimo rezultatai vis tiek reikalauja permąstyti ankstesnes prielaidas, kad bronziniai radiniai buvo pamesti netyčia, ir juos traktuoti kaip sąmoningus aukojimus.