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KOHTLA-VANAKÜLA WEAPONS AND TOOLS DEPOSIT: AN IRON AGE SACRIFICIAL SITE IN NORTH-EAST ESTONIA

Kohtla sacrificial site is a unique deposit of Iron Age weapons and tools concealed in watery context, located in north-eastern Estonia. It was discovered by a metal detectorist in 2013 and thoroughly studied by archaeologists in 2013 and 2014. The two fieldwork seasons resulted in a collection of artefacts and their fragments from the total of at least 400 initial objects. As a result, the Kohtla find is the largest of its kind in Estonia and second largest in the eastern Baltic. AMS dates from the charcoal pieces relating to different layers of the deposit, wooden remains from the sockets of the weapons as well as artefact typochronology indicate that the formation of the deposit was a result of the long-term use of the site from around the turn of common era up to the Pre-Viking Age (550–800 AD), whilst the vast majority of objects seem to belong to the Roman Iron Age (50–450 AD). Here we present the detailed overview of this extraordinary archaeological discovery, describe its context and content, and set it into the broader picture of similar finds both in Estonia and in the wider circum-Baltic context.

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Introduction

In August 2013 a metal detectorist reported the discovery of around a dozen heavily corroded iron artefacts in the field of Kohtla-Vanaküla village (Kohtla from here onwards), Ida-Virumaa county (north-east Estonia). A month later the site was examined by archaeologists supported by a volunteer group of metal detectorists and archaeologists. During these initial studies it became evident that

an extensive Iron Age deposit including various weapons and tools had been discovered. The following fieldwork seasons in late summer 2013 and 2014 (Oras & Kriiska 2014; 2016) confirmed that Kohtla fields concealed a unique find: the earliest and largest iron artefact deposit in Estonia and the second largest of the kind in the whole eastern Baltic region.

The aim of this paper is to give a detailed overview of this remarkable find and provide further information on its exact content and context in order to introduce the Kohtla deposit to the wider international audiences. Furthermore, several scientific analyses were carried out as part of the studies of the Kohtla weapon deposit. Therefore we also aim to exemplify the importance of the applications of multidisciplinary analysis of such finds, because as we demonstrate, combining different analytical approaches immensely helps to better understand the chronology and initial context of the find. Finally we will set the Kohtla deposit into the wider context of Iron Age sacrificial sites and weapon deposits in Estonia and in the wider Baltic Sea region, discussing both similarities and divergences of the phenomenon of intentional concealments of iron artefacts in the 1st millennium AD.

Fieldwork

The artefacts from the Kohtla deposit were discovered in a vast area covering the total of almost 4.66 ha (Fig. 1). Ca 150 artefacts were discovered during an extensive and systematic grid-based scanning in the area of ca 2 ha with metal detectors. The artefacts were scattered all over the field at the depth of some 30–40 cm, most likely as a result of ploughing and other agricultural activities in later historical periods (Fig. 1: B).

In the central part of the field the detector signals were extremely intense, indicating a larger concentration of finds as opposed to single scattered artefacts in other parts of the study area. Based on the signal distribution a small excavation trench of approximately 2 × 3.5 m was created (T1 in Fig. 1). The first artefacts were unearthed some 20 cm below the surface. Continuing with the soil removal a vast concentration of iron artefacts, spread in the area of roughly 2 × 2 m in deposited on top of each other, were revealed (Fig. 2). The artefacts were collected in two excavation seasons of 2013 and 2014, whilst in 2014 further extensions to the initial trench were added in order to obtain the artefacts from the profile sections as well. The central excavated area (T1, Fig. 1) providing the majority of finds was altogether ca 12 m^2. All the items were documented and recorded separately with unique identifying numbers. The fieldwork at Kohtla in two seasons resulted in more than 800 catalogue numbers of weapons and tools, including axes, spearheads, hoes, sickles, knives, and their fragments, and some other artefacts (see below).

During the second fieldwork season, in 2014, an extensive magnetometer study was carried out in order to detect other potential iron artefact concentration areas. Based on magnetometric measurements, additional trial trenches were created in

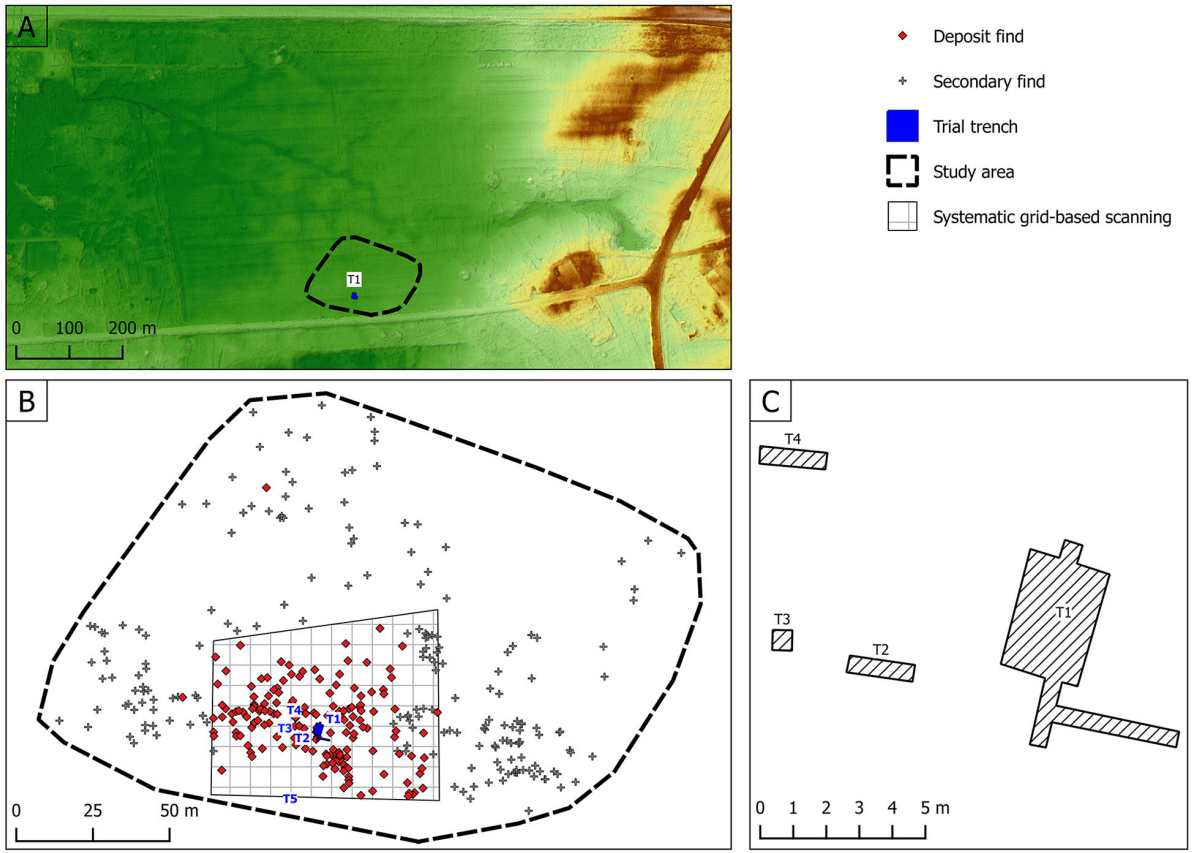

Fig. 1. The surveyed area at Kohtla. A – location map of the study area, B – studied area with detected finds and excavation trenches, C – close-up of different excavation trenches excavated in 2013 and 2014. Map by Andres Kimber. For colour version of this figure see the online version of this paper at https://doi.org/10.3176/arch.2018.1.02.

Fig. 2. The view of the first layer of artefacts revealed in the excavation trench at Kohtla. Photo by Jaana Ratas.

various parts of the field (see Fig. 1). However, it became clear that although some additional iron artefacts were discovered in the trenches, there was no similar vast conglomeration of iron objects in those areas. The anomalies detected were most likely related to different geological and anthropogenic sediment disturbances.

Find material

The total sum of catalogue numbers given to intact and fragmentary objects from Kohtla is 818. However, this number is largely dependent on the state of preservation of the finds. Fragile objects, like sickles, have been fragmented to unidentifiable pieces, only a small amount of which could be fitted together. Thus the number of initial artefacts is much smaller. The exact number of artefacts concealed is difficult to determine, but considering also that not the entire site has been excavated, it ought to be at least some 400. The vast majority of objects are spearheads, axes and sickles (Fig. 3). Although the iron weapons and tools are in clear predominance in the find, there are also a few unique items included in the deposit.

One of the very few ornaments discovered in the deposit was the head part of a large bronze cross-bow brooch (Fig. 4: A). The brooch was found as a scattered find in a metal detector test pit some tens of metres from the main excavation trench. Its foot has been bent and broken off before the concealment. Only six similar exemplars have been found in Estonia so far (Tvauri 2012, 134). According to the artefact typo-chronologies of similar finds in Finland and the Balts' region it ought to belong somewhere around the 6th and 9th century AD and such finds have been related to high-status male warriors (Kivikoski 1973, 64; Bliujienė 1999, 107 f.). In addition to a brooch, a half of a small round blue glass bead and two mounts (one of them a small pyramid-shaped made of copper alloy, the other made of iron) were found.

There were also two strike-a-light stones found in the main concentration area of the deposit. They represent two different types, one being clearly worked into an oblong shape (Fig. 4: B), the other resembling a natural unworked stone yet with clearly discernible hollows for attaching a holding device in one end (Fig. 4: C). They both have clear grooves in the middle part of the stone created during the extensive use of fire making, i.e. striking an awl-like high-carbon iron device across the groove to produce sparkles for lighting the fire. These two items represent two separate types of strike-a-light stones in the Baltic Sea region, with similar items having been discovered across the Baltics and Scandinavia from the Roman Iron Age to the Migration Period (e.g. Monikander 2015; Salo 1990; Pellinen 1999). It is noteworthy that such strike-a-light stone finds have been almost exclusively related to the male warrior paraphernalia (Monikander 2015, 58). However, in Estonia, over 70 strike-a-light stones have been discovered, mostly as stray-finds, in rarer cases also in sand barrows and stone graves (Jaanits et al. 1982, 291), and at some regions these have been related to the distribution of slash-and-burn fields (Kriiska 2010).

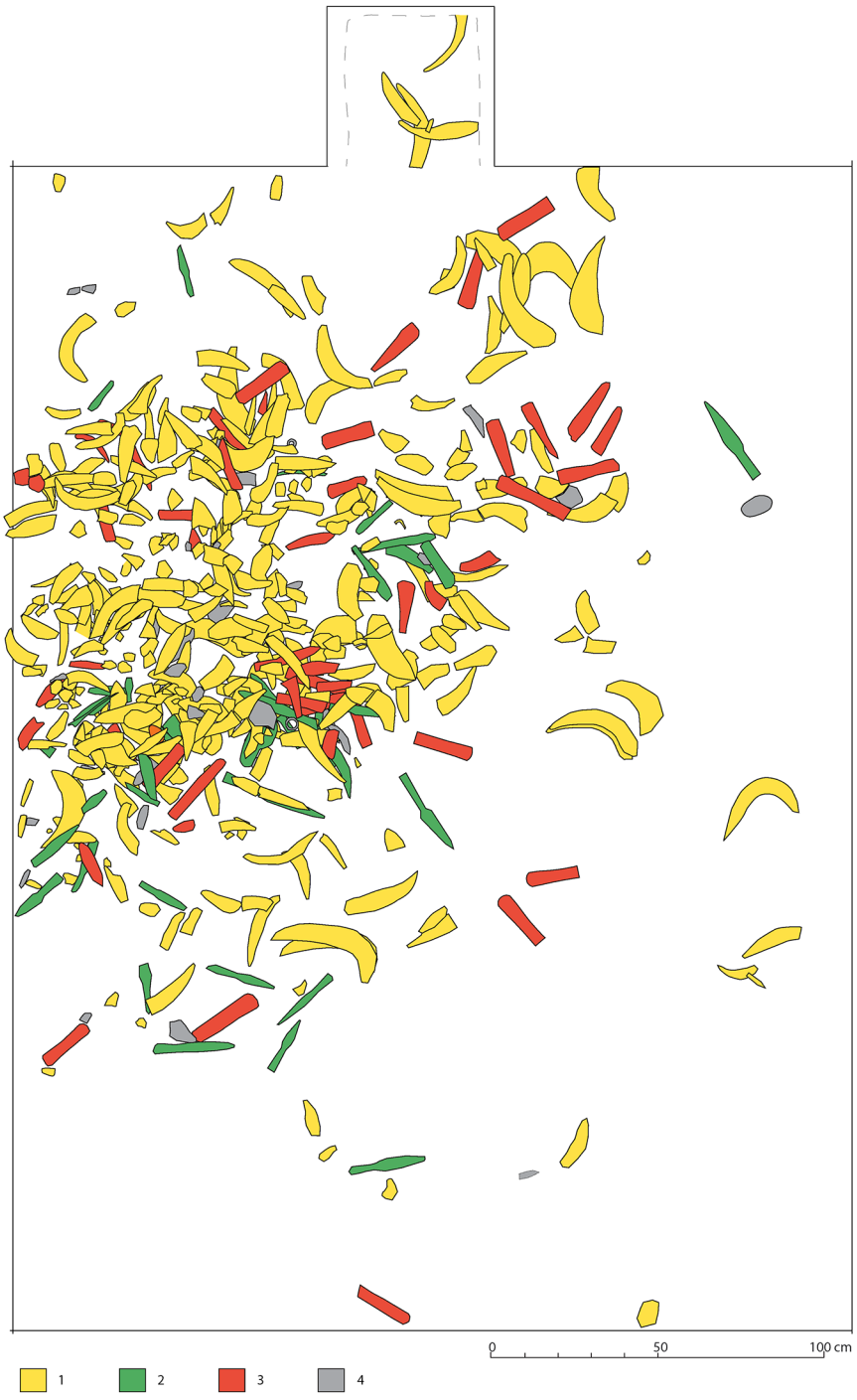

Fig. 3. Distribution of different artefacts in the main concentration area at Kohtla. 1 – sickles, 2 – spearheads, 3 – axes, 4 – other. Drawing by Jaana Ratas. For colour version of this figure see the online version of this paper at https://doi.org/10.3176/arch.2018.1.02.

Fig. 4. Selection of artefacts from Kohtla deposit. A – the head part of a cross-bow brooch, B – oblong strike-a-light stone, C – unworked strike-a-light stone (TÜ 2309: 1, 2, 3) (A & B from Oras & Kriiska 2014, fig. 5). Photos by Kristel Roog and Ester Oras; technical realization Kristel Roog.

In addition to the above, at least 12 knives, three hoe blades, one rivet, seven iron rings (possibly parts of belt or horse gear equipment), a small hammer (possibly of later historical date) and one raw iron bar were found.

Some scarce bone finds were also found among the material from Kohtla. Mostly these were small pieces of cremated bones scattered between the artefacts. They were very difficult to identify in terms of species, but they most likely represent animal bones (analysed by Anu Kivirüüt, see Appendix 5.2. in Oras & Kriiska 2016). Perhaps the most remarkable finds among the bone material, however, were the remains of an unburnt sheep skull[1], which were discovered in various places in the excavation trench, and between the artefacts *in situ*. The latter suggests that it is temporally closely related to the initial archaeological deposit, not an accidental later addition. Unfortunately the collagen preservation was extremely poor and we could not obtain a direct AMS date of this find, which would allow to confirm its relation to the rest of the deposit.

In addition to artefacts and bone material, some charred remains of possibly wooden constructions were discovered. These were irregular charred pieces of wood at the bottom of the excavation trench, some sooty patches filled with charcoal, in one case forming a shallower posthole in the extension of trench 1. The remains seemed to belong to smaller logs and there was no direct indication of more substantial constructions (major deep postholes, layers of wood, etc.). Thus, they might originate from a temporary simple platform destroyed in a fire, from some kind of illumination means used during the depositional act(s), or from organic artefacts deposited in burnt condition. In order to establish the chronology of these remains and their relation to the artefact deposit, AMS dates were conducted of these remains (Table 1).

[1] Identified by Eve Rannamäe, University of Tartu.

Table 1. AMS dated material from Kohtla deposit. Results calibrated with OxCal v4.3.2 (Bronk Ramsey 2009) and the IntCal13 atmospheric calibration curve (Reimer et al. 2013)

Artefact number (TÜ 2309:)	Dated material	Context / relation to object	Radiocarbon age	Calibrated age 95.4 (2 sigma)	Laboratory number
N/A	Charcoal	Wooden construction beneath the deposit (Wood 1)	1935 ± 29	AD 4–129	UBA-24557
N/A	Charcoal	Wooden construction beneath the deposit (Wood 2)	1934 ± 31	22 BC – AD 133	UBA-24560
N/A	Charcoal	Wooden construction beneath the deposit (Wood 3)	1901 ± 39	AD 23–220	UBA-27690
N/A	Charcoal	Wooden construction beneath the deposit (Wood 4)	1929 ± 39	40 BC – AD 209	UBA-27691
N/A	Charcoal	Charred remains in trench 1 extension (Wood 5)	1259 ± 29	AD 670–864	UBA-27693
53	Wood	Spearhead (socket)	1954 ± 65	111 BC – AD 225	UBA-29330
63	Wood	Spearhead (socket)	2107 ± 170	739 BC – AD 318	UBA-27684
65	Wood	Spearhead (socket)	2079 ± 52	347 BC – AD 49	UBA-29331
72	Wood	Spearhead (socket)	1883 ± 28	AD 65–218	UBA-27689
240	Wood	Axe (socket)	1920 ± 29	AD 5–135	UBA-27686
226	Wood	Axe (socket)	2063 ± 30	170 BC – AD 3	UBA-27681
249	Wood	Axe (socket)	1923 ± 30	AD 2–136	UBA-27688
376	Charcoal	Under the sickle	1889 ± 31	AD 55–220	UBA-27692
424	Charcoal	Sickle	1964 ± 27	41 BC – AD 85	UBA-27679
453	Charcoal	Sickle	1788 ± 30	AD 134–330	UBA-27680
577	Charcoal	Sickle	1972 ± 35	47 BC – AD 120	UBA-27683
610	Charcoal	Sickle	1781 ± 30	AD 138–334	UBA-24558
611	Charcoal	Sickle	1767 ± 25	AD 144–346	UBA-24559
642	Charcoal	Sickle	1778 ± 38	AD 132–345	UBA-27687
696, 697	Charcoal	Under the pair of sickles	1967 ± 30	43 BC – AD 115	UBA-27682

Spearheads

Among the assemblage from Kohtla, there were 122 fragmented spearheads (Fig. 5), 18 blade tips or fragments with lenticular cross-section as well as 38 sockets or socket fragments also belonging to spearheads. All of the spearheads have tubular sockets, one was fastened to the shaft with an iron nail (TÜ 2309: 74). The blades are either narrow-lozenge or pointed-oval shaped (Fig. 5) with lenticular cross-section. A few spearheads have 2–4 mm high midribs along the blade with either convex or triangular cross-sections (e.g. TÜ 2309: 37, 87). There are clear variations in the overall length of the spearheads, and in the proportions of the blade to socket, but the fragmentation allowed only a limited number of meaningful measurements to be taken. The blade length of 22

Fig. 5. Selection of spearheads from Kohtla deposit (TÜ 2309: 19, 37, 53, 55, 63, 65, 69, 87). Photos by Kristiina Paavel; technical realization Kristel Roog.

spearheads could be measured, varying between 6–20 cm. Socket length could be measured in 28 cases, and it remained between 5–12.5 cm. The outer diameter of the sockets was 1.5–2.5 cm. All in all, the total length of 22 spearheads could be measured or approximately assessed. The lengths vary between 14.5–31 cm, with the majority being approximately 20–25 cm long.

Most of the damage to the spearheads is caused by post-depositional processes, especially recent drainage and cultivation. Items scattered farther afield from the concentration area were in particularly bad shape, having been dragged around during ploughing. In only a few cases pre-deposition damage of the spearheads could be detected – a broken-off socket (TÜ 2309: 24) and some slightly bent blades (TÜ 2309: 45, 65, 74).

Socketed spearheads with narrow lozenge-shaped blades have usually been dated to the Migration Period, many of those feature a raised midrib with a convex or triangular cross-section (Tvauri 2012, 190). Spearheads with a simple pointed-oval-shaped blade and rather varied blade-to-socket ratios have been used from the Migration Period until the Viking Age (Tvauri 2012, 190 ff.). However, there are some examples from much earlier contexts as well. One of these is the Late Pre-Roman Iron Age hoard of Pernaja in Malmsby, in south-west Finland, which is of a similar composition to Kohtla – iron sickles, a socketed axe, spearheads, and additionally scythes and tenon axes (Salo 1968, 83; 1984, 191). A few items have been found from burial sites in Estonia as well, e.g. grave II at Poanse (Mandel 2000, fig. 18). This context has been dated to the end of the Pre-Roman Iron Age (Lang 2007, 176), whereas the spearhead type has been dated from the (Late) Pre-Roman Iron Age until the Early Roman Iron Age (Lang 2007, 187 and literature cited). Spearheads of a similar shape have been found from a few other *tarand* graves as well (e.g. grave I at Viimsi), but the parts of graves that contain weapons have usually been dated to the end of the Roman Iron Age and the Migration Period (Lang 2007, 216). As the direct dates of wood remains from some of the spearheads show (see below), rather earlier dates from Pre-Roman and Roman Iron Age are characteristic of the Kohtla spearheads.

Several spearheads contained wood remains in their sockets attesting that their initial deposition was carried out with handles (or parts of them) still attached. The remains were microscopically analysed in order to identify the wood species used as handle material. The results invariably indicated deciduous trees (12 out of 14 samples analysed, whilst two remained unidentified) and it was possible to further identify their origin in four cases: in three examples birch (*Betula*), and one case probably acer (*Acer platanoides*)[2] were used. Some of these were AMS dated in order to establish a more precise chronology of spearheads discovered in Kohtla (Table 1; Tvauri et al. 2018).

[2] Identified by Regino Kask, Estonian University of Life Sciences.

Axes

Axes are represented by 100 specimens (Fig. 6), to which nine socket fragments can be added. The overwhelming majority of the axes are socketed, commonly with a slightly flaring blade section, but some examples with the blade section narrower than the socket. They lack a small loop for the handle which is characteristic of socketed axes from the Pre-Roman Iron Age until the (Early) Roman Iron Age (Lang 2007, 140). They would thus appear to represent a later, more massive form of socketed axes which were used during the Late Roman Iron Age and the Migration Period, at least until the 7th century AD (Lang 2007, 140; Tvauri 2012, 124). Similar items have thus far been found in Migration Period and 7th century graves, at forts, settlement sites and as stray finds (Tvauri 2012, 124), and from wealth deposits that have accumulated over long periods of time (Oras 2015). However, again the direct AMS dates from the wood remains of the sockets show that we are dealing with earlier examples belonging to the Pre-Roman and Roman Iron Age (Table 1; Saage et al. 2018).

The state of preservation of axes was much better compared to spearheads. The length of socketed axes was 10–28 cm, mostly around 15–20 cm. The diameter of the sockets was 2.5–5 cm, commonly between 3.5–4 cm. Blade width was quite standard, 4–5 cm. Before cleaning and treatment in alkaline solution, the socketed axes weighed around 400–800 g (the treatment reduced the weight

Fig. 6. Selection of axes from Kohtla deposit (TÜ 2309: 197, 200–202, 227, 230, 248, 255, 269, 294). Photos by Kristiina Paavel; technical realization Kristel Roog.

by 20–120 g, depending mainly on the success in removing the hardened soil from the sockets). The only detectable pre-depositional modifications on socketed axes include a bent and partially broken-off socket (TÜ 2309: 215) and some notched blades (TÜ 2309: 238, 246). One axe socket had a broken-off spearhead socket corroded to the inside of it (TÜ 2309: 229).

Additionally, there are seven examples of shafted axes with narrow blades. Two rather massive specimens have broad polls (TÜ 2309: 255, 269). They are 24 and 19 cm long, weighing around 800–900 g. This type of axe has been tentatively dated to the Pre-Viking Age (Tvauri 2012, 124). Four examples have narrow polls, being somewhat smaller and lighter, i.e. 15–18 cm in length, weighing 400–600 g (e.g. TÜ 2309: 230, 294). Based on Latvian analogues, this type has been dated to the 6th–10th centuries (Tvauri 2012, 125). One slightly flaring axe blade probably also belonged to a narrow-bladed shafted axe (TÜ 2309: 260). Shafted axes have been produced in eastern and northern Europe covering the vast region from southern Finland to the steppe areas of the Black Sea since the Pre-Roman Iron Age onwards (Tsiglis 2000, 112). The early versions of such axes are scarce finds; in Estonia and Latvia only some tens are known so far, with usually unclear find context (Jaanits et al. 1982, 191, 232; Tsiglis 2000, 112). However, it has to be noted that we have no direct dates of wood remains from shafted axes, and although the majority of socketed axes are from around the Early Roman Iron Age, the shafted versions could be also of later date. In addition to axes, one has to mention three hoe blades, which so far have been rare in Estonian archaeological collections.

As with spearheads, several axe sockets contained wooden handle remains. A total of 13 specimens were analysed. Similarly to spears, the material used was mostly from deciduous trees, although in two examples also coniferous trees had been used. Four axes had handles made of birch (*Betula*), and four of acer (*Acer platanoides*)[3]. The dates obtained from several of the wooden remains from axes help to elaborate on the chronology of this type of socketed axes in the eastern Baltic (Table 1).

Sickles

All the sickles (Fig. 7) from Kohtla were fragmented, some broken into more than ten or even twenty pieces. The high rate of fragmentation is mostly due to smaller amount of iron preserved in these thin artefacts compared to e.g. axes and spearheads.

Due to the extremely fragmentary nature of the sickles, determining the number of the originally deposited specimens was a major challenge. Two different methods were used (see Juus 2015 for details). First, following the concept of MNI (minimum number of individuals) from osteoarchaeology, the MNA (minimum number of artefacts) was employed. All of the ends of sickle

[3] Identified by Regino Kask, Estonian University of Life Sciences.

Fig. 7. Selection of sickles from Kohtla deposit (TÜ 2309: 311, 313, 369). Photos by Taisi Juus; technical realization Kristel Roog.

hafts (they mostly end with a little hook or sometimes without one), and the tips were counted. Since the handle was usually better preserved than the tip, the first was considered as a more reliable indicator. According to this method at least 128 sickles were represented. Additionally, the fragments presumably belonging to haft ends and tips were also counted. These included, the number increases to 176 sickles. The second method was based on dividing the whole weight of the sickle fragments with the average weight of one sickle. At first, standard deviation of the weight of 14 complete sickles was calculated. One of them turned out to be an outlier (considerably heavier than others) so the weight of 13 sickles was used. The average weight of a sickle based on those 13 exemplars was 107.3 g. The total weight of sickle finds was divided by an average weight of one sickle (24 548.5 g / 107.3 g), which gave the result of 228 (rounded down to the nearest whole number). Thus, based on weight calculations there might have been even 228 sickles in the deposit.

Due to the very fragmented material the specific sickle types could only be determined for 20 specimens. Most of them were quite wide and curved, but some narrower examples (possibly heavily sharpened, see Fig. 7) were represented as well. The width of more intact blades varies from 2.5 to 6.7 cm, but most of them were at least 4.5 cm wide. The length was 18–31 cm, mostly around 22–27 cm. The length by the arch was at least 23 cm but mostly at least 30 cm. The longest

one was 45 cm. According to the Estonian sickle typology (Laul & Tõnisson 1991), they belonged to type IIIb and its subtypes, which are common among similar iron artefact depositional sites from north-eastern Estonia. Remarkably, however, the Kohtla deposit has doubled the number of sickles known from Estonian Iron Age.

Dates

In total, 20 AMS dates were obtained from various samples from the Kohtla weapon deposit: five from wooden constructions, seven from wooden remains from the sockets of spearheads and axes, and eight from charcoal pieces directly relating to the sickle finds. The results are presented in Table 1 and Fig. 8.

The results of AMS dating from wood remains from the sockets of spears and axes are particularly noteworthy: they are one of the few direct dates in the eastern Baltic Iron Age depositional material allowing to establish a more detailed chronology of the specific artefact types. As is evident, the dates from axes and spearheads are mostly from around the Roman Iron Age (ca 50–450), some could be even slightly earlier, belonging to the Pre-Roman Iron Age. This is somewhat earlier than previously reported for these particular types of finds, i.e. most often around the Migration Period (Tvauri 2012; see also Tvauri et al. 2018). Our results indicate that the spearheads and axes of the kind might go back several centuries earlier in the eastern Baltic material. This is in fact also supported by some similar finds from earlier i.e. Pre-Roman Iron Age and Early Roman Iron Age finds from other sites around the Baltic Sea, e.g. the Finnish Pernaja Malmsby find mentioned above.

Dates of charcoal pieces directly relating to sickle finds (either directly beneath or even between the sickle blades) are either contemporaneous with most of the axes and spearheads, although four examples could be slightly later in date. One explanation is that these sickles are potentially later additions to the deposit, or that somewhat later fragments of charcoal might have still ended up in close stratigraphical context with the sickle blades. However, statistically it is still possible that they do overlap with the rest of the weapons' dates, and thus no clear chronological distinction can be made.

The radiocarbon dates from the charcoal remains from potential wooden constructions beneath the artefact deposit layer and from the shallow post-hole in trench 1 extension allow to make two major conclusions. First, the wooden remains under the thick layer of artefacts in the main excavation trench are roughly from the same time period as the artefacts concealed on top of it and if these are related to some kind of wooden construction, this was built at the time or directly prior to the major depositional event. The results from charcoal remains in trench 1 extension, however, are of later date, i.e. from around the Migration Period.

These results indicate that there were at least two separate phases of use at the depositional site – one from around the first centuries around the turn of common era, the other from around mid-1st millennium AD. Both earlier, i.e.

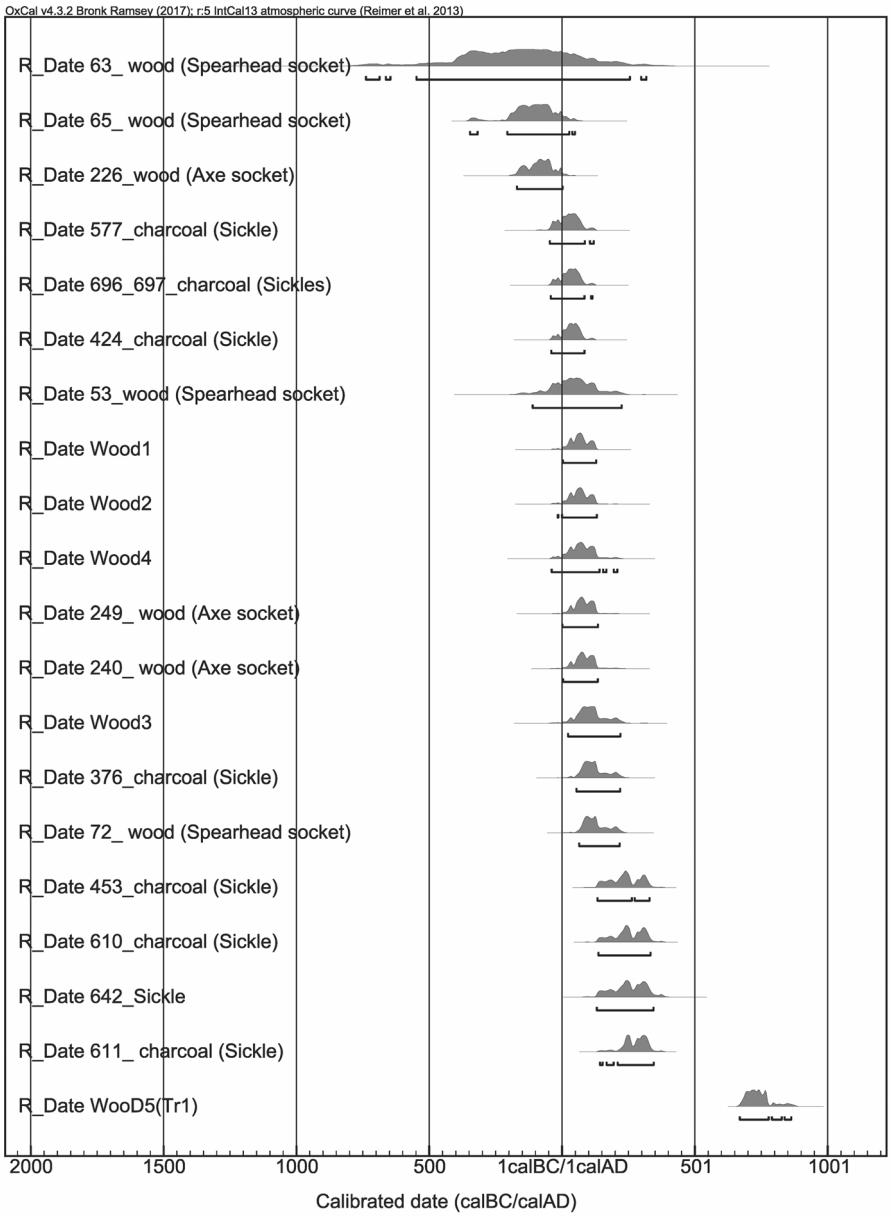

Fig. 8. Calibrated AMS results from the Kohtla deposit. Results calibrated with OxCal v4.3.2 (Bronk Ramsey 2009) and the IntCal13 atmospheric calibration curve (Reimer et al. 2013).

(Pre-)Roman Iron Age, and later uses of the site are supported by artefact finds as well. Namely, the dated wood from the sockets of axes and spearheads belongs to around the turn of common era and it is most likely that majority of the weapon and sickle finds belong to this particular timeframe, showing that the most

extensive use of the site took place at this time period. The later period date from trench 1 extension is supported by the brooch find, potentially also some axes of later origin. However, this later use-phase was possibly far less extensive as indicated by fewer later artefact finds and number of direct AMS dates belonging to this period.

Environment

The contemporary landscape at Kohtla does not give any indication of the possibility that the deposit might belong to any water-related context. However, looking at the relief-specific Lidar data (Fig. 1: A) historic maps, and the toponym of the farmstead in which the site is located, quite a different story is revealed. Namely, it is clear that there was a larger spring and a small rivulet had been running in the area still in the 19th century as seen on historical maps (Fig. 9). The name of the farmstead – *Luharahva* (Eng. Water-meadow farm), as well as stories told by local elderly community members describe that the area was marshy and wet meadow, which was difficult to cross during the spring and autumn seasons and that it was turned into a dry field as the result of mining

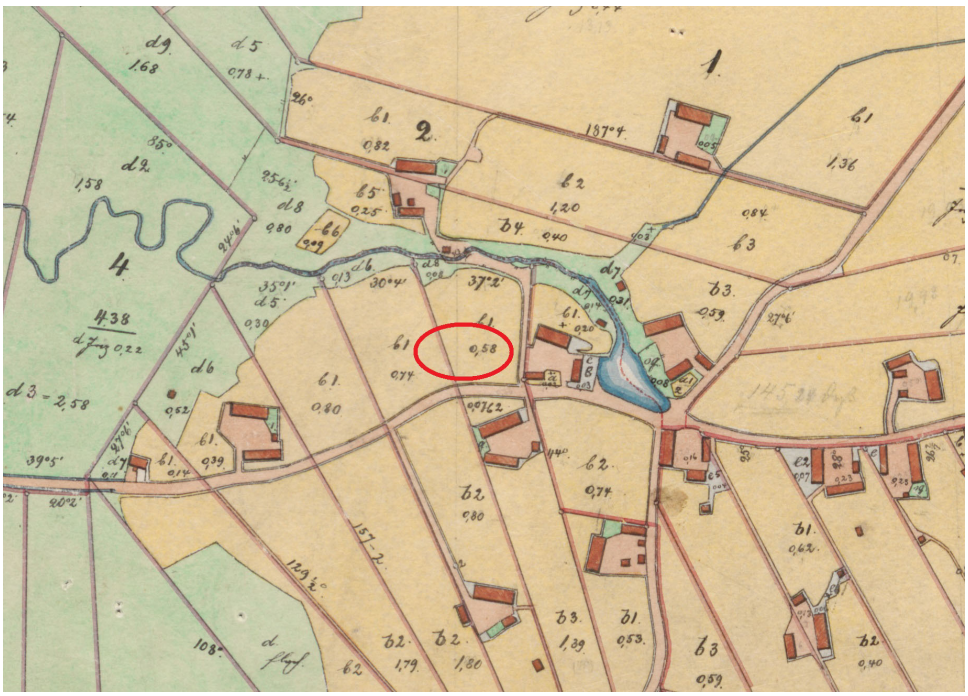

Fig. 9. Historical map of the area around Kohtla sacrificial site from the 19th century displaying a spring and a small rivulet. The location of the find-spot marked with red circle. Map: EAA 3724-4-1599-16 (from Oras & Kriiska 2014, fig. 6). For colour version of this figure see the online version of this paper at https://doi.org/10.3176/arch.2018.1.02.

activities around the mid-20th century. These hints allowing to relate the site with watery depositional context were also validated and supported by further environmental analysis (see Kriiska et al. 2018). As part of these analyses the location of the now dried-out rivulet was determined in the landscape. Additionally samples of soil blocks were collected for micromorphological analysis showing several features characteristic to wetland site (see Kriiska et al. 2018 for details).

Discussion

The Kohtla weapon deposit with its total number of at least 400 initial artefacts is the largest Iron Age intentional artefact concealment in Estonia. It contained a vast number of different iron artefact types, many of which are not the most common in Estonian archaeological collections. For instance, as a result of the Kohtla deposit the number of sickles and hoe blades increased by an order of magnitude, also the number of socketed axes went up by tens thanks to the Kohtla find. Therefore, the deposit makes an important contribution to our overall understanding of Iron Age material and has a significant input for further developments of local artefact typo-chronologies.

The additional uniqueness of the Kohtla deposit relates to the fact that, unlike in Scandinavia, so far thorough scientific excavations at similar artefact deposit sites have been rare. Most of such "hoards" have been discovered by non-specialists who often have removed the items from their initial context. Although some disturbance due to later tillage work is expected in the case of the Kohtla find as well, we can still be certain that the artefact layers in the main excavation trench were left *in situ*. This opened up several additional possibilities for studying and interpreting the site, including e.g. the relationship between different artefact types, various sampling methods allowing direct relation to specific artefacts, immediate environmental reconstructions, etc. These altogether allow to make better argued interpretations of the find and its formation processes – the questions which often have remained unanswered due to lack of pristine contextual information.

Relating to artefact typo-chronology perhaps the most important achievement is the direct scientific dating (AMS) of specific artefact types. The dates obtained from wood remains preserved in the sockets of axes and spearheads widen our knowledge on the use and distribution of these artefact types considerably. As discussed, the results from the Kohtla deposit show that socketed axes and spearheads, the types of which have been previously mostly thought to belong to the Migration Period or following centuries, are in fact earlier. Majority of them belong to the middle of the Roman Iron Age, but for some, the date of use might extend even up to the turn of common era (see also Tvauri et al. 2018; Saage et al. 2018).

Although unique in terms of abundance of artefacts, the Kohtla deposit has several counterparts, both locally and abroad. There are around half a dozen similar weapons-tools deposits known in Estonian prehistoric material. These include amongst others Alulinn, Kunda, Rikassaare, Igavere, and a North-Estonian find of unknown exact origin (see Oras, 2015, chapter 6; 2010 and literature cited). They all contain predominantly iron artefacts – mostly weapons, but also some tools. Vast majority of items belong to the 6th–7th centuries typo-chronologically, although there are also a couple of later finds (Kaabe, Koorküla Valgjärv) of similar nature in which objects from around 8th–9th centuries were found. The number of objects and types of artefacts vary to some extent (see Table 2). The common denominator is clearly spearheads, but also axes and battle knives or even fragments of swords are presented in those finds. It is particularly noteworthy that all these 'hoards' relate exclusively with watery depositional context: they have been discovered from either bog (marshy overflooded area) or in direct relation to open water sources. There is almost no mixing of different object types, i.e. no co-occurrence of iron and precious metal or bronze objects in these deposits, and it is clear that iron objects have been distinctively selected for these deposits. Therefore one can conclude that there was a specific depositional tradition followed in the 1st millennium AD Estonian material where preferential deposition of iron objects, mostly weapons, but also tools, in watery contexts was conducted, whilst precious metal or bronze ornament concealments were handled in different contexts and geographical areas (see Oras 2015 for details).

Taking a closer look at the deposits of iron artefacts, it becomes evident that there is even more specific depositional phenomenon spreading in the north-eastern coastal region of Estonia, Virumaa county, which extremely closely correlates with the Kohtla deposit. Namely, both in Alulinn and Kunda a marshy/bog area has been used for depositing iron items over several centuries: the earliest objects belong to the first centuries AD, the majority of items to around 6th–7th century, and in the case of Alulinn objects from the 12th–13th century are presented as well. Furthermore, if in other Estonian iron deposits sickles and scythes are rare, then they are found in abundance in the case of Alulinn and also from the North-Estonian deposit, whilst in Kunda the extraordinary addition of tools includes coal trowels. All these finds are located in a close cluster of only some 30–40 km from each other and they clearly represent a similar depositional tradition, which has several common denominators: the long-term use of the same site, iron objects including either weapons and/or tools, water-related depositional context.

The specific depositional practice combining weapons and tools in watery contexts is a wide-spread phenomenon in the circum-Baltic region. Several similar deposits are known from the other Baltic countries and Poland as well (see e.g. Bliujienė 2010; Nowakiewicz & Rzeszotarska-Nowakiewicz 2012; Oras 2015). The most famous are perhaps the two Kokmuiža finds from Latvia where

Table 2. Iron weapons-tools deposits from Estonia. Provided are the minimum number of specific object types according to their preservation in contemporary storage collections

Wealth Deposit	Typo-chronological dating of artefacts (AD)	Environ-ment	Swords	Axes	Battle Knives	Spear-heads	Other Weapons	Horse Gear	Sickles/ Scythe	Other Tools	Other Iron Objects	Comments
Rikassaare	550–650	River			7	54						
Igavere	500–700	Marsh	1	5		1	1	1	1		7	7 iron plates from possible cauldron
Kaabe	400–800	River	1	1								Very wide date range of objects
Koorküla Valgjärv	700–900	Spring		1		3				1	1	1 shear (lost), fragment of iron artefact, 1 bronze coin (lost)
Kunda I	1st–3rd; 6th–7th century	Bog	1	9		5				2	6	2 coal trowels, 2 iron plates from possible cauldron, 4 fragments of iron artefacts
Alulinn	2nd–3rd; 6th–7th; 12th/13th century	Bog	3	13		51			27	1	3	1 harpoon, 3 fragments of iron artefacts
North-Estonia	2nd–7th century	N/A		3	5	21			51			
Kohtla-Vanaküla	ca 1st century BC–8th/9th century	Marsh		100		122			128 (176)	18	13	12 knives, 3 hoes, 1 hammer, 2 strike-a-light stones, 1 brooch, 2 mounts, 1 rivet, 1 glass bead, 1 buckle, 7 iron rings

hundreds of weapons (total of ca 1280 and 130 objects for the first and second deposit respectively), but also tools, bracelets, belt parts, etc., all characteristic of warrior paraphernalia, were found (Riekstiņš 1931; Urtāns 1977)[4]. The date of artefacts in the Kokmuiža deposits is mid-5th – early 6th centuries coinciding rather well with the Estonian examples discussed above. However, so far these dates have been based on artefact chronologies rather than on direct radiocarbon dating. Looking at the artefactual content of Kokmuiža finds, the spearheads and axes, but also strike-a-light stones look very similar to the ones discovered in Kohtla for which the direct date is a couple of centuries earlier. However, this does not necessarily contradict the dates proposed for the Latvian finds, since it needs to be kept in mind that the use of similar weapon types may prolonged over several centuries (see also Tvauri et al. 2018).

In the context of dating and in comparison with other eastern Baltic finds the Kohtla deposit stands out for its earlier origin, i.e. the majority of items seem to have been deposited somewhere around the first centuries AD, with also some earlier and later additions. These dates, however, overlap well with the similar depositional practices in the western Baltic, namely the famous Scandinavian booty sacrifices such as Illerup, Nydam (Rau 2010), Vimose, Ejsbøl, Thorsberg, Porskjær in Denmark and northern Germany (Illkær 2003; Pauli Jensen 2009; Rau 2010). These too contain mainly weapons, but also some tools and personal attires found in water related contexts. Artefacts therein belong mostly to the Roman Iron Age (with also some earlier and later additions). The Kohtla find is the first among others in the eastern Baltic to coincide with the Scandinavian finds in terms of dates. It forms an interesting link between the eastern and western Baltic depositional traditions showing that this phenomenon of depositing iron objects, often with strong military connotation, might have had earlier and rather wider-spread echoes also in the eastern Baltic region. This, in turn, allows to propose the hypothesis that differently from the later finds in the eastern Baltic, the Kohtla deposit reflects more larger-scale Roman Iron Age historical events and processes, i.e. conflicts and contacts of violent nature, resulting in rather similar material expressions at the two sides of the Baltic Sea.

However, there are also several aspects for which Kohtla deposit is unique amongst its Scandinavian and eastern Baltic counterparts. First, differently from others, there are very few examples of personal attires, especially ornaments from Kohtla. The only possibly earlier decorative item, which might belong to the same period as the majority of weapons and sickles, is a fragment of a glass bead. The other ornament from Kohtla is the previously mentioned head of the cross-bow brooch, which, although being also associated with the elite warrior status (see e.g. Vilcāne 2003, 132), is clearly a later addition to the find dating several centuries later than the majority of weapons and tools. Second, it is evident

[4] Other similar finds are e.g. Vecmokas and Kalnamuiža from Latvia, and slightly later find of Šluostikiai from Lithuania (see Urtāns 1977; Bliujienė 2010; Oras 2015 for details).

that tools have been deposited in abundance in Kohtla, because the fragments of sickles form a large part of the whole deposit. This is somewhat unexpected especially when comparing the contents of similar finds from Latvia and Scandinavia which tend to have a very close relationship to war activities and warrior personal belongings ranging from weaponry to symbolic and male-related ornaments (warrior bracelets, belt parts, etc.). Also, unlike the Scandinavian parallels, there has been barely if any considerable pre-depositional manipulation like hatching and bending of weapons in Kohtla. Few axes and one spearhead show some signs of potentially pre-depositional deformation, there is also an example of a socket of an axe into which a spearhead must have been stuck after which its blade has been broken off, and finally the previously mentioned head of the brooch must have been bent off from its tail part. But these examples are rare and most of the objects seem to have been deposited in intact condition.

This allows to propose an interpretation of the Kohtla find as an example of rather small-scale, perhaps even so-called Virumaa specific, regional depositional practice, which, on the one hand, combines the lines of some wider-spread circum-Baltic, but on the other, also describes very local traditions of artefact concealment. The following of the wide-spread depositional phenomenon is expressed by the inclusion of weapons (spears and axes) in the deposit, which indicate warrior related and violent nature for at least part of the concealment. The fact that many sockets of weapons still included wooden fragments hints at the possibility that they were deposited with the handles, e.g. thrust into ground, although it is also possible that the handles were broken/cut off prior the deposition. Here, we might talk about potential booty sacrifices in the similar meaning as Scandinavian Roman Iron Age finds have been discussed (Randsborg 1995; Ilkjær 2000). The latter is also supported by further specific analysis of artefactual material. Namely, the study of a typical Kohtla axe presented by Saage et al. 2018 concludes that the finds of similar technique and date have been discovered in other parts of the eastern Baltic, but not in Estonia. Also, the finds of strike-a-light stones are generally scarce in Estonia, but very similar examples have been discovered in e.g. Kokmuiža finds in Latvia (Riekstiņš 1931), Illerup in Denmark (Ilkjær 2000) but also in Finnish Iron Age material (Salo 1990; Pellinen 1999). Additionally, the fragment of the cross-bow brooch is most likely not a local production and similar finds have been related to coastal eastern Baltic regions. Thus, the artefactual material seems to indicate at least some foreign origin allowing to hypothesize that we are looking at possible sacrifice of war-related items collected from the enemies' troops either locally or abroad, and most likely in several occasions. The latter interpretation fits rather well with the overall character of finds of similar nature in Scandinavia as well.

However, the multiple depositional acts forming one single large concealment is something of its own local character. In the case of Kohtla but also in other Virumaa finds we see dating ranges over half a millennium up to the 6th–7th centuries (or even 12th–13th centuries). An extra twist to this local long-term

practice feature is given by the considerable number of tools found at Kohtla: there are both sickles and hoes having clear agricultural rather than warrior connotations. These make one think more towards e.g. fertility related rituals associated with harvesting and land cultivation. Also, the strike-a-light stones could be related to land cultivation, namely slash-and-burn fields, and related fertility rites (e.g. Kriiska 2010, 24).

Perhaps this long-term use of one and the same site is the key to solve this problem, which at first sight might look like an issue of controversy. Namely, as the long-term and repeated use of the same site evidences, it was clearly an important landscape and cultural locale for the local community which was remembered, re-used and passed along over many generations. In this context it can hardly be expected that the exact reasons triggering the deposition of artefacts had been the same over centuries. Therefore the inclusion of artefacts of rather different nature could be even expected. Perhaps it is worth suggesting that different artefact functional groups represent different actualities in given societies over time. In times of wars and violent attacks warrior related equipment (either local or confiscated) was considered as suitable means for calming down the situation and addressing the supernatural. In times of famine or bad harvest (or why not good harvest?), more suitable items like sickles and hoes were selected instead. Relating to these, and potentially also some other depositional reasons, which will never become fully available for us today, there might have been more and less intensive use periods of the site. The latter is also supported by the direct radiocarbon dates and typology based dating of the complete artefact set from Kohtla. Therefore it would be wrong to try to give only one and single explanation to this unique site, and perhaps the sacrificial site in the widest sense without any direct or single relation to specific booty sacrifices or fertility cults is in place. As such, the inclusion of weapons and tools is not necessarily contradictory. Instead, there are rather two more important focal aspects for the Kohtla deposit. First, the exact location – the depositional site binding together different reasons as expressed by different artefact functional groups over several centuries. And second, the material itself – iron as the common denominator indicating that there were rather strict ideas as to what is suitable for depositing at this particular site.

Conclusions

The Kohtla deposit belongs to the earliest and is so far the largest Iron Age (sacrificial) deposit in Estonia and the second largest in the eastern Baltic region. It is an example of a depositional site with long-term usage ranging from the turn of common era up to the Pre-Viking Age, in which, however, very distinctive and acknowledged selections of artefacts – mostly iron objects of weapons and tools – can be seen. Owing to the opportunity to excavate the Kohtla site and finding

the artefacts *in situ* we were able to maximize the information about the environment, artefacts, their spatio-temporal details and ways of concealment. The increase in several artefact types and direct AMS dates of items discovered in Kohtla help to refine the Iron Age artefact typochronology in the eastern Baltic. On a wider interpretative scale the Kohtla deposit forms an intriguing link between the Scandinavian and the eastern Baltic Iron Age weapons-tools deposits. It is somewhat earlier than the majority of its eastern Baltic parallels coinciding with the specific depositional tradition in Scandinavia. With its weaponry finds it might even reflect similar warrior-related connotations proposed for the western Baltic finds from the same period, carrying the seal of the spirit of the times in Roman Iron Age circum-Baltic context. Yet, it also contains several strands of more local depositional traditions like the inclusion of artefacts of agricultural nature or the very long-term use of the site covering several centuries. Thus, the Kohtla find is a unique and important example of combinations of both local and wide-spread Iron Age depositional practices at the two sides of the Baltic Sea.

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KOHTLA-VANAKÜLA RELVADE JA TÖÖRIISTADE PEITVARA: RAUAAEGNE OHVERDUSKOHT KIRDE-EESTIS

Resümee

2013. aasta augustis andis otsinguvahendi kasutaja teada, et Ida-Virumaalt Kohtla-Vanaküla põllult leiti mõnikümmend korrodeerunud raudeset. Järgnenud arheoloogiliste uuringute käigus 2013. ja 2014. aastal tuvastati senini Eesti vanim ja suurim ning Baltimaade suuruselt teine raudesemetest koosnev peitvara.

Leiud paiknesid osalt laialiküntuna, osalt kontsentreeritumalt kokku üle 4,5 ha suurusel alal (jn 1). Suurem osa laialiküntud arheoloogilistest esemetest tuvastati 2013. aastal süstemaatilisel metallidetektoritega teostatud otsingul, kuid kõige arvukamalt paiknesid leiud ühel kontsentratsioonialal, kuhu rajati 2 × 3,5 m kaevand (jn 2). Viimast laiendati 2014. aastal, et koguda eelmisel kaevamishooajal maha jäänud esemed. Lisaks rajati 2014. aastal mitu proovitranšeed, kontrollimaks magnetomeetriauuringutega tuvastatud anomaaliate iseloomu.

Kokku kogunes Kohtla välitööde jooksul 818 alanumbrit leide. Ometi ei kajasta see leidude koguarvu, sest mitmed esemed (eriti sirbid) olid äärmiselt fragmenteerunud ja nende algset arvu on keeruline tuvastada. Siiski võime Kohtla leiu üldarvuna kõnelda vähemalt 400 tervikesemest (jn 3). Nende hulgas on erandlikena näiteks üks ambsõle pea ja kaks tuluskivi (jn 4), väike klaashelme katke, kümmekond nuga, kolm kõblast, mõned naastud-needid, rauast rõngad ning toorrauatükk. Arvukalt – kokku vähemalt 122 leiuga – on esindatud odaotsad (jn 5). Kirveid leiti kokku 100, millest enamiku moodustavad putkkirved, kuid on ka mõni üksik

silmaga kirves (jn 6). Sirpide algset arvu on nende fragmentaarsuse ja suure korrodeerumise tõttu väga keeruline määrata, kuid diagnostiliste osade, s.o sirbi kandade ning tippude arvu alusel võiks nende hulgaks määrata vastavalt 128 või 176 eset (jn 7).

Lisaks esemeleidudele tuvastati pisikesi põlenud luufragmente, mis ilmselt kuuluvad kõik loomaluude hulka, ja fragmente lamba põlemata alalõualuust. Samuti leidus kaevandi ja selle erinevate laiendite piirkonnas rohkelt söematerjali: nii esemete vahel söetükikestena kui ka suuremate söestunud fragmentidena kaevandi põhjas. Lisaks avastati puidujäänuseid mitmete kirveste ja odaotste putkedest, mis viitavad, et esemed olid maha jäänud koos varrega (või otsast maha murtud varrega). Enamasti oli nende puhul tegemist lehtpuuga, esindatud olid nii kask kui ka vaher.

Tänu orgaanilise materjali rohkusele – söeleiud kaevandi piires ja puidujäänused esemete putkedes – õnnestus kogutud materjali dateerida AMS-meetodil (tabel 1, jn 8). Selle kaudu saadi ka esimesed esemetega seostatavad orgaanika otsedateeringud, mis võimaldavad täpsustada odaotste ja kirveste kronoloogiat. Kui enamasti on seda tüüpi odaotsi ja kirveid peetud rahvasterännuaja ning järgnevate perioodide leidudeks, siis Kohtla materjal näitab, et vastavad esemetüübid ulatuvad vähemalt rooma rauaaja, võimalik, et koguni eelrooma rauaaja lõppjärku. Noorim dateering on aga söekogum kaevandi laiendist, mis jääb 7.–9. sajandisse, olles põhimõtteliselt samaaegne leitud sõlepea ajalise määranguga. Nii saab väita, et Kohtla leiu kasutusaeg jääb pikka ajavahemikku ajaarvamise vahetusest viikingiaja alguseni.

Kuigi tänapäeval on leiukoha keskkonnaks tavaline põllumaa, viitavad selle kunagisele seotusele märgalaga nii leiupaiga toponüüm (Luharahva talu) kui ka kohalike inimeste mälestused kunagisest üleujutatud karjamaast. Veelgi enam, nii lidarikaardistuse (vt jn 1: A) kui ka ajalooliste kaartide (jn 9) põhjal on näha, et leiukoha vahetus läheduses on paiknenud suurem allikakoht, millest voolas välja väike jõgi. Leiukeskkonna seotust vesise alaga kinnitasid ka välitöödel teostatud täpsemad loodusteaduslikud analüüsid.

Kohtla peitvara on oma umbes 400 esemega ja otseselt esemetega seostatavate AMS-dateeringutega Eesti varaseim ning suurim omalaadne rauaaegne leid. Tänu Kohtlale suurenes mitme esemetüübi, näiteks kõplad, sirbid ja putkkirved, arvukus tunduvalt. Oluliseks tuleb pidada ka ainulaadset võimalust teha leiukohal põhjalikke arheoloogilisi välitöid, mis võimaldasid täpselt dokumenteerida leiukogumit ja seda ümbritsevat keskkonda, koguda loodusteaduslikke proove ning teostada laboritingimustes täiendavaid analüüse (AMS-dateeringud, metallograafilised uuringud jne).

Kohtlale sarnaseid rauaaegseid leiukogumeid on Eestis teada umbes pool tosinat: Alulinna, Kunda, Rikassaare, Igavere, Kaabe, Koorküla Valgjärve ja Põhja-Eesti leid (vt ka tabel 2). Enamik nimetatuist kuulub aga mõnevõrra hilisemasse ajajärku ja neid on dateeritud peamiselt 6.–7. sajandiga. Mõnevõrra erandlikud on Virumaalt leitud Alulinna ja Kunda kogumid, sest kuigi enamik esemeid neis kuulub nimetatud keskmise rauaaja sajanditesse, leidub neis esemete

kronoloogia põhjal ka mõnevõrra varasemaid ning hilisemaidki esemeid. Näib, et raudesemete peitmine vesikeskkonda pika ajaperioodi vältel võis olla üks omalaadne Virumaa rauaaegne fenomen.

Siiski pole Kohtla ja Virumaa leiud Läänemere regioonis unikaalsed. Baltimaade kontekstis ületab Kohtla peitvara leiuarvukuselt üksnes kuulus Läti Kokmuiža 5.–6. sajandi leid, kuid sarnaseid leide on teada Lätist-Leedust veel teisigi. Veelgi arvukamad on samalaadsed, peamiselt relvadest, kuid mõningal määral samuti tööriistu sisaldavad leiukogumid Skandinaavias. Neist kuulsaim on ilmselt Taani Illerupi leid, kuid vähem tuntud pole ka Nydami, Hjortspringi, Vimose, Ejsbøli, Thorsbergi, Porskjæri jt leiud. Neid rooma rauaaja ja mõnevõrra varasemaid kogumeid on tõlgendatud kui sõjasaagi, kas siis sissetungijate või võõrkäigul kogutud vara ohverdusi.

Kohtla leiukogu tõlgendus on mõnevõrra keeruline. Rohked relvad (eriti odaotsad) viitavad võimalikule seosele vägivaldsete väliskontaktide ja sõjategevusega. Selle tõlgenduse kasuks räägib ka asjaolu, et vähemasti mõningaid esemetüüpe (näiteks sõlg, metallograafiliste uuringute põhjal ka osa kirvestest) leidub ka teistes Läänemere regioonides. Kuid arvukad tööriistad samas leiukogus viitavad aga teistsugustele, näiteks põlluharimisega seotud tõlgendusvõimalustele. Tuleb ka silmas pidada, et Kohtla ohverduskoha kasutusperiood ulatub üle mitme sajandi, s.o ajaarvamise vahetusest kuni viikingiaja alguseni. Nii ehk polegi üleliia üllatav, et selle pika aja vältel võisid konkreetsed esemete peitmispõhjused varieeruda, kajastades vastaval ajajärgul ühiskonnas n-ö aktuaalsemaid teemasid ja ulatudes näiteks sõjategevusega seotud rituaalidest viljakuskultuseni. On aga tähelepanuväärne, et suures osas jäi ohverdatud esemete materjalivalik (raud) samaks ja et sama paiga korduv kasutus üsna sarnaseks tegevuseks jätkus põlvest põlve väga pika perioodi jooksul. Sellist ühe paiga tähtsustamist, pikaajalist, kuid erineva funktsiooniga esemete (relvad, tööriistad) kajastatud kasutust, näitlikustavad teisedki Virumaa sama perioodi leiud, viidates sellele, et tegu võis olla Virumaa spetsiifilise kultuurilise käitumisega.