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Author: Valter Lang
Editor: Margot Laneman
Translators: Mariko Veldi and Enn Veldi
English editor: Julie Raymond-Yakoubian
Lay-out: Kristel Külljastinen
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Contents

Introduction

The aim of the book is to analyse social, economic, and cultural processes during the Bronze and Early Iron Ages (18th century BC – 5th century AD) in what is today Estonia. The above period between the Stone Age (ca. 9000–1800 BC) and the Middle Iron Age (AD 450–800) was an era of significant and crucial developmental processes. The final transition from a foraging to a farming economy occurred during that time and resulted in an extensive settlement shift from suitable hunting and fishing places to agricultural lands. In relation to the above processes, the general settlement pattern changed, and the agricultural household as the main settlement unit became prevalent. Social relations also changed, which contributed to the development of stratified societies, at first mainly in coastal Estonia and later throughout continental Estonia. Significant developments took place both in material and intellectual culture. By the end of the period the Estonian areas had changed beyond recognition compared to what they had been at the beginning of the period.

European background

As noted, the present study analyses the societies of the Bronze and Early Iron Ages in what is the present territory of Estonia (Figs. 1–2). Thus, the geographical borders of the study are artificial, created by contemporary political powers. Nevertheless, Estonia, like any other country, has always been just a corner in the wide world, linked to other similar places by hundreds of stronger or weaker threads. While focusing on a small specific region, one cannot therefore ignore its relations with the wider surrounding world. However, the definition of the 'wider world' is problematic in the philosophical sense because it is impossible to say where it started or ended. In the case of the Bronze and Early Iron Ages on the Estonian territory, Europe presents an appropriate background, and in most cases northern and north-eastern Europe will do.

Copper and gold were the first metals introduced to Europe in the second half of the fifth and in the fourth millennia BC. In the Copper Age (ca. 4500–2500 BC) the Balkans, the Iberian Peninsula, and the Ural region in eastern Europe were the most important metal-processing regions. At the same time, Neolithic cultural traditions (Typical and Late Combed Ware, Corded Ware, and Early Textile Ceramics) spread in Estonia.

The Bronze Age witnessed major restructuring in the economy, ethnic and social relations, religious beliefs, etc. In various regions of Europe the Bronze Age is differently dated. It generally spans from 2500 to 800 BC (Harding 2000, 1 ff.) or from 2300 to 500 BC (e.g. Kristiansen 1998, fig. 13). A significant developmental trend of the era was the establishment of closer contacts between different regions and societies, which meant that technological innovations made in one place spread increasingly rapidly all over Europe. In addition to the spread of technologies and materials, often non-material phenomena, such as common lifestyles, customs, ideology, and religious ideas became widely disseminated. That is why increasingly more such phenomena occurred,

Fig. 1. *Map of Europe.*

which to a greater or lesser extent united the whole of Europe and at the same time distinguished it from the rest of the world, although the continent as a whole remained rather heterogeneous and colourful with regard to ethnicity, culture, society, and economy.

Researchers explain the economic and cultural cohesion of this broad region by two intertwined phenomena – dynamism of the centre–periphery–margin system, and the Bronze Age 'world system' (see Sherratt 1993; Kristiansen 1998; Lang 2000a, 27 ff.). Both phenomena were based on a well-organized network of contacts, which gradually spread all over Europe. The extensive network of contacts explains the striking intercontinental similarity of bronze artefacts, one of the most outstanding elements of the material culture. These contacts spread mainly along larger rivers and the sea coast. The rivers Weser and Rhine linked northern Europe with central

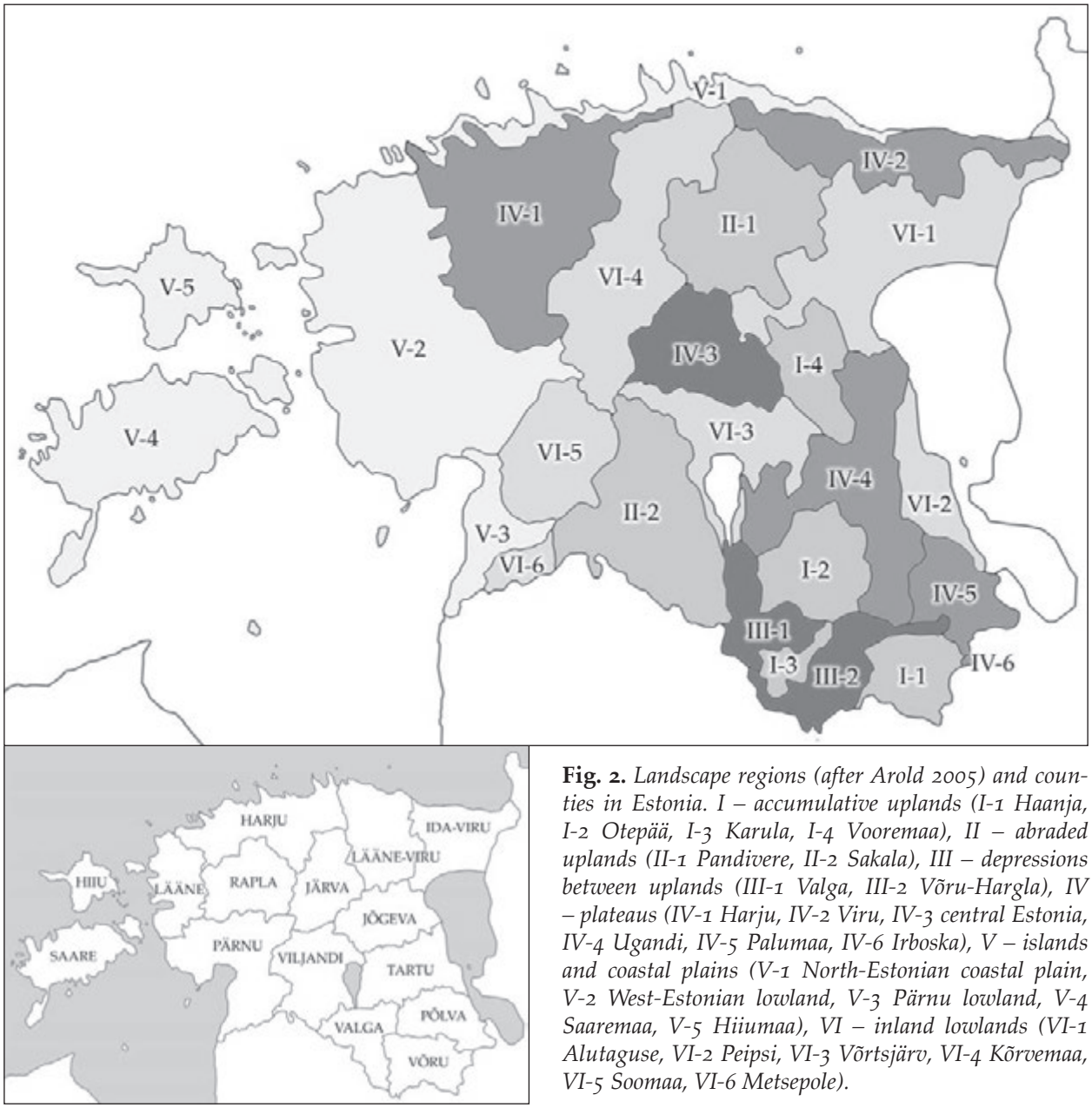

Fig. 2. *Landscape regions (after Arold 2005) and counties in Estonia. I – accumulative uplands (I-1 Haanja, I-2 Otepää, I-3 Karula, I-4 Vooremaa), II – abraded uplands (II-1 Pandivere, II-2 Sakala), III – depressions between uplands (III-1 Valga, III-2 Võru-Hargla), IV – plateaus (IV-1 Harju, IV-2 Viru, IV-3 central Estonia, IV-4 Ugandi, IV-5 Palumaa, IV-6 Irboska), V – islands and coastal plains (V-1 North-Estonian coastal plain, V-2 West-Estonian lowland, V-3 Pärnu lowland, V-4 Saaremaa, V-5 Hiiumaa), VI – inland lowlands (VI-1 Alutaguse, VI-2 Peipsi, VI-3 Võrtsjärv, VI-4 Kõrvemaa, VI-5 Soomaa, VI-6 Metsepole).*

and southern Europe from the west, the Elbe, the Oder, and the Vistula from the centre, and the Dnieper and the Dniester from the east, whereas the most important artery on the east–west axis was the Danube. These are the routes that are usually mentioned in the general treatments of the European Bronze Age (e.g. Kristiansen 1998, 27 f.); however, one should not neglect other routes that may be of less importance in the broader regional context but that are significant for the

areas on the eastern coast of the Baltic Sea. One of them, the so-called 'northern route' ran from to the Urals and the Volga–Oka region in eastern Europe to Karelia and northern Scandinavia, with one of its branches reaching the southern shore of the Gulf of Finland. The water highway of the Daugava (Western Dvina) River that runs through the eastern Baltic region was definitely noteworthy; the numerous Bronze and Iron Age settlement sites on its shores support the above claim.

The spread of bronze in Europe after the middle of the third millennium BC resulted in more rapid regional specialization, which was in harmony with the concomitant developments in manufacturing, consumption, and trade (see Sherratt 1993). The use of bronze as the standard medium of exchange played an important role here. In the past, participation in more extensive trade systems depended on the 'common cultural code', i.e. the contacts were established within large cultural blocks, such as Combed Ware, Corded Ware, Bell Beaker cultures, etc., which were characterized by their own specific value systems. During the third millennium BC the possibility for cross-regional trade contacts which depended on the possession of metals rather than a common culture became increasingly possible. Thus, large-scale cultural units split up into smaller groups. The latter often differed from each other in regard to certain types of material culture (pottery, bone artefacts, etc.), which were produced in numerous locations throughout the region, allowing for a greater degree of differentiation. However, their style of bronze artefacts remained similar, based on fewer central locations of production and the influence of the metal processing centres.

The introduction and extensive spread of iron was accompanied by new and highly significant changes in social, economic, and cultural relations. The technological skills necessary to produce iron reached south-eastern Europe through Asia Minor at the end of the second millennium BC and spread rather quickly, within a few centuries, until they reached the Nordic region (see Snodgrass 1989; Bouzek 1989; Härke 1989; Buck 1989; Hjärtner-Holdar 1993). Nevertheless, it took centuries until the societies of central and northern Europe completed their changeover to an economy based on the production of iron. The process was greatly influenced by the collapse of the so-called Bronze Age world system, which took place in central and western Europe around the 8th century BC (see e.g. Bouzek 1989). The northern part of Europe witnessed it only in the middle of the first millennium BC. The above collapse was usually accompanied by the dispersion of settlements (gradual desertion of the previous centres), disappearance of and decreases in grave goods (or at least their change), as well as several other changes in the material culture. No doubt the common reason for the development of these trends was the fact that iron could be produced almost everywhere, and therefore the need for the communication and trade networks characteristic of the Bronze Age disappeared. Thus, the acceptance of iron was not only economically of major significance, but it also played an important role in the restructuring of social relations.

A new powerful factor in the history of the peoples of both central and northern Europe was the expansion of the Roman Empire to the Rhine and Danube Rivers at the beginning of the first millennium AD. Profound social, economic, and cultural changes affected not only the societies protected by the *limes* but also communities behind it, in the so-called Free Germania and even further, all over the *Barbaricum* (see e.g. Randsborg 1991). Direct contacts with the provinces of Rome, which to a greater or lesser extent resulted in certain structural changes in the local societies, can be rather well observed in the archaeological record as far as southern Scandinavia and the southern and south-eastern

shores of the Baltic Sea. The evidence of the contacts becomes increasingly sporadic when moving further to the north. The social unrests of the early Migration Period, which changed the sociopolitical systems of central and western Europe beyond recognition, but had no direct impact on the northern peoples, ended the stable economic and cultural development of the Roman Iron Age. Nevertheless, even the northern peoples did not remain completely unaffected by the indirect influences and consequences of those processes.

Chronology of the Bronze and Early Iron Ages in Estonia

The period covered by this book spans from ca. 1800 BC to AD 450.[1] The above period of 2250 years is divided into shorter sub-periods based on a previously developed periodization and chronology.[2] The currently accepted treatment divides the *Bronze Age* in Estonia into two periods – Early and Late Bronze Age. The time frames of the periods are ca. 1800–1100 and 1100–500 BC, respectively, and they correspond to the periodization of the Nordic Bronze Age (i.e. periods I–III and IV–VI). The Early and Late Bronze Age can be distinguished very clearly; the former is characterized by few findings and the latter by rich and versatile material. At the same time, recent years in particular have witnessed new evidence suggesting that the social, economic, and cultural development towards the society characteristic of the Late Bronze Age might have begun several hundred years earlier than previously thought. It might serve as ground in the future to single out the period of Middle Bronze Age in Estonia for research. In the case of triple classification the sub-periods of the Bronze Age would be as follows: Early (1800–1300 BC), Middle (1300–900 BC), and Late Bronze Age (900–500 BC). The structure of the present treatment is still based on an earlier periodization; however, the above triple classification with the respective names is also used where necessary.

The Early Iron Age is divided into two periods; each of them has two sub-periods. The *Pre-Roman Iron Age* (500 BC – AD 50) is comprised of the Early and Late Pre-Roman Iron Age. Although the archaeological material of the above sub-periods is clearly different, the line between them is not fixed as yet; the existing data suggest that it would be most appropriate to date it sometime in the middle of the 3rd century BC. Nevertheless, one cannot rule out the possibility that in the future new and more precise dates will shift the above line to a somewhat later date. The *Roman Iron Age* (AD 50–450) is also divided into two periods – Early and Late Roman Iron Age with the line of demarcation at ca. AD 200. The above date is rather tentative due to the custom of collective burials characteristic of the Roman Iron Age graves, where single burials can not be distinguished nor dated precisely. The end of the period is somewhat better defined by the change in both grave forms and material culture.

About the book in general

As noted, the structure of the book is based on the currently accepted periodization, according to which the Early Bronze Age is an era in its own right characterized by few finds. Thus, the first chapter treats this period separately as an introduction to the developments that prevailed starting with the Late Bronze Age. On the other hand, the next archaeological periods are viewed uniformly from the perspective of social,

[1] The radiocarbon dates are calibrated in solar years (1 sigma), if not stated otherwise, using the calibration program OxCal v. 3.10 (Bronk Ramsay 2005).

[2] About the reasoning of the periodization and chronology of the Bronze and Early Iron Ages in Estonia see more Lang & Kriiska 2001.

settlement-historical, economic, and cultural processes. We are dealing with an early agrarian society that is characterized by many more commonalities than differences throughout the Late Bronze Age, the Pre-Roman and Roman Iron Ages, but which, on the other hand, can be clearly distinguished from both the preceding and succeeding social formations. The developments in settlement history, economy, grave building, social relations, culture, and religion, which transcend the above periods, are analysed separately in chapters 2 to 5.

The study does not refer to the previous research because the first volume of the series *Estonian Archaeology* dealt with it at great length (Lang 2006). However, the earlier studies (e.g. Jaanits *et al.* 1982; Kriiska & Tvauri 2002) have given rise to a number of problems that will be addressed below in more detail. The main questions are the following:

(1) As shown by the previous research and revealed in the present study, the transition from hunting and fishing to farming was extremely protracted both in Estonia and in all the other regions on the eastern coast of the Baltic Sea. What were the reasons for and consequences of this slow change?

(2) The number of sites and finds from the Early Bronze Age, especially metal artefacts, is still very small. Is this due to an economic, trade, or social characteristics of prehistoric societies or a shortcoming of archaeological research?

(3) Most information concerning the Late Bronze and Early Iron Ages is still obtained from the monumental above-ground stone graves. Putting aside the issues related to the one-sidedness and bias of such data, it is important to discuss the essence of the monuments, the possible reasons for building them, and their effect against the background of more general social relations. Are they just ordinary burial places (as was generally assumed not long ago), a social manifestation of the elite, or cult buildings and mediators for ritual communication? What role did the attempt to control the past and social memory play in construction of such monuments?

(4) There are striking differences in the distribution and characteristics of coastal sites and inland sites in Estonia in the Late Bronze and Pre-Roman Iron Ages. What did the differences in the material culture mean from the viewpoint of culture, economy, social relations, and settlement? If the coast and the inland used to be two completely different worlds, then what was the origin of and possible reasons for the discrepancy between them? Or can commonalities between the two regions also be highlighted?

(5) Finally, how can the manifestations in Estonian archaeological record, which had occurred in a rather similar manner already much earlier in other regions, be interpreted? Are there any general stages and regularities that the societies experience in certain conditions that leave behind rather similar traces, and if so, what is their essence? Or should one explain similar phenomena in the material of different regions and times in each case by specific *ad hoc* reasons?

There are of course a number of other problems and questions, and they will be treated below in the relevant sections. Because several questions and issues need to be approached in new ways or in greater detail than in previous studies, they will be dealt with at more length here. Such an approach might seem inapt from the perspective of the structure and homogeneity of the text, which is intended as a general treatment. However, it is unavoidable considering the current state of research. Thus, the book is an independent study of the issues, some of which have and some of which have not been previously analysed at length, rather than a synthesis in the traditional sense.

The common peculiarity of the general treatments of prehistory and history is that they present a general view, the 'grand narrative' about

the distant past of a nation and/or people, typically from the most ancient past until the present, based on tens and hundreds of single articles and books that differ radically with regard to their essence, volume, and theoretical-methodological approach. This is especially true of general historical treatments. The 'general archaeologies' of northern Europe usually include the era following the melting of the last ice sheet until the era enlightened by written records from the Middle Ages. In other words, in addition to a fixed starting point one also knows the final outcome – the point where society enters the stage of 'history' (or appears as it is today). The task of the author in the compilation of such general treatments is, on the one hand, to study the earlier single studies based on his or her own views and understandings – his or her narrative about the past – and, on the other hand, to fill in the existing gaps (as each answered question gives rise to fresh unsolved problems, the result being more questions and topics that are unstudied than studied). As for the unexplored issues, researchers apply inductive conclusions, constructions based on logic or analogy. All too often the assumptions are led by 'iron logic', 'common sense', or a teleological mentality. Thus, an archaeologist who is the author of a general treatment is sitting in two chairs at the same time – one of them is the high throne of a judge and the other the low bench of a storyteller.

The author of the present study does not desire either chair; he prefers a small mat in an open excavation pit. That is why I make an attempt to offer a glimpse of prehistory from the level of sites and excavations. Thus, this study, as in anthropology, focuses on single objects (or groups of single objects) and their specific characteristics. The aim, however, is to make generalizations about past human experience. When dealing with one or another site, group of sites, artefact or a group of artefacts, the analysis will posit what one could conclude about the way the prehistoric people and society understood themselves and what we can thereby comprehend about the social order, historical change, or the functioning of the mind in general (Geertz 2003, 35).

An open excavation area or the whole of archaeological record cannot be compared to an open book; at least it is not a completed book with a fixed beginning, clear development of the theme, and a fixed end. Following the example of Peeter Torop (2005), who compared culture to a draft, any site or layer of an excavation area could be compared to a page in the first draft rather than a completed book. No site has survived in the form in which prehistoric people initially planned it; besides their original ideas and realizations, the sites often include something that is occasional, unintentional and unnecessary, evidence of experimentation with certain ideas, creation of both the preceding and succeeding generations, and what was added and destroyed by site formation processes. The most important fact is that all the layers are present in the site, on the draft page (cf. Torop 2005). When exploring the sites, an archaeologist can find already completely uncovered and neatly cleaned out features in any layer of the excavation area, but it might also contain some details of the structures located in the next layer, a number of single finds unrelated to the structures, and also traces of the features located higher and removed during the course of the excavations. What is important again is that all the features, no matter how complete or fragmented, are present on the given page. The same picture of the draft finally unfolds when we visualize our present understanding of prehistory. Some of it has been long known and 'elementary', much is still in the form of a sketch or even a vague presentiment, and again what matters is that they do exist. Thus, the present text should be treated as another sketch or draft of the Grand Book of Prehistory, ignoring the fact that it can never be completed.

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Chapter 1

Prerequisites for the Development of an Agrarian Society: the Early Bronze Age

The Early Bronze Age has typically been regarded as the prehistoric period with the fewest number of sites and as a result has been largely neglected by researchers. Why this is the case is not so clear if we look soley at the quantity of sites and finds. However, in terms of the quality of the material culture, the number and significance of the different artefact types and the amount of archaeological research, the Early Bronze Age definitely pales in comparison with other prehistoric periods. Moreover, in contrast with some other archaeological periods, the past twenty-five years since the publication of the last overall review of prehistory in Estonia (Jaanits *et al.* 1982) have not witnessed any considerable increases in knowledge regarding the Early Broze Age. But it is important, in the framework of a general treatment of Estonian prehistory, to understand the significance of the Early Bronze Age in regard to the developments in economy, settlement, and society of the following period, the Late Bronze Age. This is because the Late Bronze Age contrasts sharply with the Neolithic in all aspects, at least in northern and western Estonia. The aim of this chapter is to understand the development mechanisms, the driving forces behind the processes, and all of the changes that resulted in the transformation of the Neolithic foraging society (which to some extent already had characteristics of a primitive farming economy in certain regions) into an advanced Late Bronze Age agrarian society in coastal Estonia. Another aspect of the problem at hand is why coastal and inland regions of Estonia failed to reach the same development stage at the same time.

1.1. Settlement and economy

1.1.1. Settlement sites

A small number of settlements constitute the main presently known sites dating to the Early Bronze Age;[3] no burials or hoards dated to the period have been recorded. Our limited knowledge of the material culture of the period, including pottery, stone and bone artefacts, hinders considerably the identification of settlement sites. It has been assumed that in the second millennium BC people made and used the same ceramics, flint, quartz, bone, and horn items as they did

[3] Recent research has revealed that the first field systems, and maybe even stone graves, evolved at the end of the Early Bronze Age; they will be dealt with below, in the context of the Late Bronze Age.

in the Late Neolithic. Thus, the categorization into a particular time period of such artefacts or sites containing them is rather difficult (Jaanits *et al.* 1982, 130). However, the style of one artefact type – the shaft-hole stone axe – changed considerably during the Late Neolithic and the Early Bronze Age.

The above observation regarding the conservatism of some of the material culture during the second millennium BC seems to be relatively well founded. In the Late Neolithic (3200/3000–1800 BC) three pottery styles – Late Combed Ware, Corded Ware, and Early Textile Ceramics with influences from both – were manufactured in what is today Estonia (Kriiska & Tvauri 2002, 86). At present it is unclear whether some other form of Corded Ware, developed later in time, was still used in the north-eastern Baltics during the second millennium BC. Some sherds have been unearthed from the Ķivutkalns Early Bronze Age flat cemetery on the lower reaches of the Daugava River (Denisova *et al.* 1985, fig. 34: 9–10), but their origination in an earlier settlement site cannot be ruled out. A bronze sickle from the beginning of the Bronze Age has also been found in the Kivisaare Corded Ware settlement site (see Lang & Kriiska 2001). Hille Jaanusson (1985, 46 f.) claims that Late Corded Ware, in her terminology 'Villa-type ceramics', spanned the periods I and II of the Bronze Age. The earliest AMS dates show that a basic form of Textile Ceramics had already emerged by the second quarter of the third millennium BC;[4] however, textile impressions were used to finish pottery in the Late Bronze and Early Iron Ages, suggesting that this kind of processing method was also used in the intermediate period, that is, in the Early Bronze Age. As for Late Combed Ware, the latest dates come from the end of the Neolithic (see Lang & Kriiska 2001, 92), but it is unknown for how long Combed Ware continued to be manufactured. Nevertheless, one cannot rule out the possibility that the pottery styles characteristic of the Late Neolithic were still manufactured in the Early Bronze Age, at least at the beginning of the period.

On the other hand, it is still unclear when the ceramic styles characteristic of the Late Bronze Age started to develop. The AMS dates for the Asva-style coarse-grained pottery[5] from the Joaorg fortified settlement in Narva indicate the 12th and 11th centuries BC (see below 2.2.1); the so-called Lüganuse-style ceramics emerged at roughly the same time, that is the 12th–9th centuries BC. Some of the Late Corded Ware from the Kivisaare settlement has a rock temper similar in composition to the Asva-style ceramics, which seems to indicate that the items were manufactured in the Early Bronze Age. The composition of the stratigraphically latest sherds of Textile and Corded Ware from the Akali and Kullamägi settlement sites also contained rock temper different from the previous period (Jaanits 1959, 171). As for the above types of ceramics, such composition is characteristic of the Epineolithic.[6] Evidently some ceramics from settlement sites in the Emajõgi River estuary (i.e. Akali and Kullamägi) date from the Early Bronze Age, because stratigraphically they directly followed the Late Neolithic pottery styles (Jaanits 1959, 170 f.). Thus, we have reason

[4] The dating of carbonized organics taken from the surfaces of the Textile Ceramics has up to now yielded the following results: 4165±90 BP (Loona), 4055±40, 4155±65 BP (Akali), and 4140±70, 3605±40 BP (Kullamägi), (sample numbers Hela-751, 752, 761, 754 and 755 respectively). The calibrated value of the most recent date (1 sigma) spans from 2030 to 1890 BC, which is towards the end of the Stone Age (Kriiska *et al.* 2005).

[5] The main ceramic styles of the Late Bronze and Early Iron Ages will be in greater detail discussed below, in section 3.3.2.

[6] Rock debris of various origins (quartz, feldspars, amphiboles, and mica) is the most common temper in the so-called Finnish Textile Ceramics, the manufacturing of which started much later in Finland than in Estonia, i.e. ca. 1800–1700 BC (Lavento 2001, 48, 106).

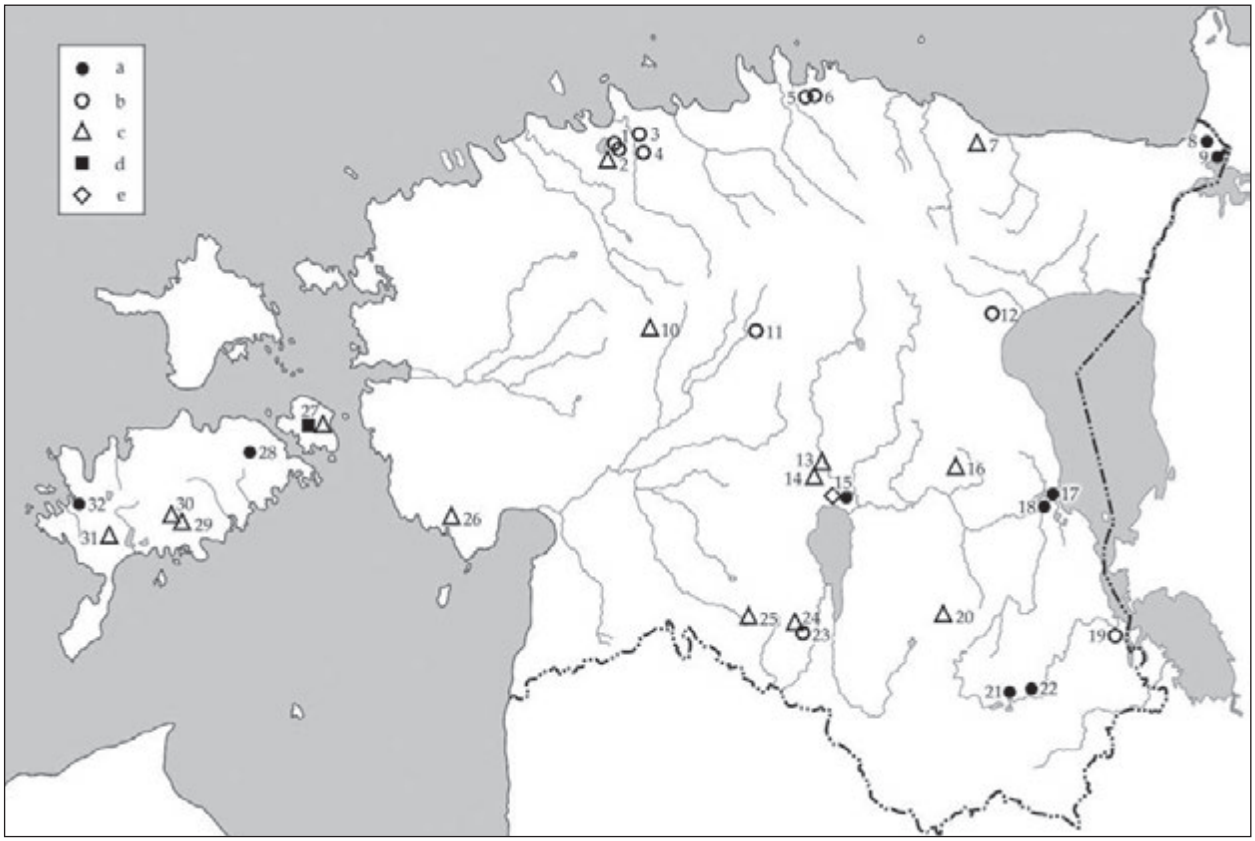

Fig. 3. *Settlement sites and isolated bronze artefacts of the Early Bronze Age. (a Late Neolithic settlement site with probable Early Bronze Age habitation, b Early Bronze Age settlement site, c bronze axe, d bronze spearhead, e bronze sickle.) 1 Assaku, 2 Järveküla, 3 Proosa, 4 Pajupea-Aru, 5 Vatku, 6 Ilumäe, 7 Aseri, 8 Riigiküla, 9 Joaorg in Narva, 10 Lelle, 11 Tarbja, 12 Linnanõmme, 13 Raidsaare, 14 Eesnurga, 15 Kivisaare, 16 Äksi, 17 Kullamägi, 18 Akali, 19 Laossina, 20 Valgjärve, 21 Villa, 22 Kääpa, 23 Kaera, 24 Helme, 25 Karksi, 26 Tõstamaa, 27 Muhu (find spot uncertain), 28 Kuninguste, 29 Tahula, 30 Kaarma, 31 Käesla, 32 Loona.*

to believe that some of the sites commonly dated to the first millennium BC, which revealed Asva- or Lüganuse-style ceramics, may actually originate from an earlier period.

Early Bronze Age settlement sites (Fig. 3) can be divided into two groups based on their cultural and geographic contexts. A quarter of a century ago (Jaanits *et al.* 1982, 130) archaeologists could only name Early Bronze Age settlement sites that were established in the Neolithic and which supposedly continued to be used later in time. These sites included: Akali and Kullamägi in the Emajõgi River estuary, Villa and Kääpa in south-eastern Estonia, Kivisaare on the northern coast of Lake Võrtsjärv, Joaorg in Narva and Riigiküla in north-eastern Estonia, and Loona and Kuninguste on Saaremaa Island.[7] It was observed that all the settlement sites, usually located near

[7] In addition, the settlement site unearthed under the Kaseküla stone-cist grave of the Late Bronze Age was originally dated to the Early Bronze Age. New excavations have revealed, however, that it was a Late Neolithic settlement site of the Late Combed Ware period (Kriiska *et al.* 1998).

a lake or the mouth of a larger river, contained a small amount of ceramics that typologically originated from the Neolithic, but, considering the above-mentioned factors, could actually have been manufactured during the Early Bronze Age. It must be stressed, however, that until a radiocarbon date has been obtained to support the continuity of life and the use of the ceramic types in the mentioned settlement sites during the Early Bronze Age, their dating to that period remains hypothetical. Archaeologists have not succeeded in uncovering any structures or other concrete evidence to definitively date the above settlement sites.

Laossina II in south-eastern Estonia is perhaps the only recently discovered settlement site that can be included with the previously mentioned sites; unfortunately, it was partly destroyed before formal excavations started. A calibrated radiocarbon date shows that this settlement site on the coast of Lake Pskov was established as early as the second half of the fourth millennium BC, but a small number of ceramics (including Lubāna-type;[8] see Kiristaja 2003, 87, fig. 10: 1–3), perhaps some flint fragments, and a late shaft-hole stone axe (which was uncovered previously near the settlement site) can be dated to the Early Bronze Age (Aun 2002; Aun & Kiristaja 2003). As only a small part of the settlement has been researched, it remains unknown whether the site was continuously inhabited from the Neolithic through the Bronze Age, or if it was abandoned at some point and was later resettled. The scarce material that is available supports the latter possibility, and for this reason the Laossina II settlement site might be treated in the second group of the settlement sites of the Estonian Early Bronze Age as well.

The past decades have, in fact, brought to light new data on some fundamentally different settlement sites. In comparison with the above settlements, the total area of such sites was considerably smaller and the cultural layers were extremely thin and less intensive or seemed to be absent altogether. These settlement sites were no longer located on the shores of large waterbodies, but were situated in places where the arable land and pastures were suitable for primitive farming. One such settlement was located at Assaku near Tallinn and yielded two radiocarbon dates on the borderline between the Stone and Bronze Ages.[9] The findspot of the Järveküla bronze axe, which also revealed some pieces of quartz and pottery sherds with rock-debris temper, was also apparently a small settlement site. In addition, features characteristic of a settlement site such as a fire place, ceramics, flint, and bones were present near the findspots of some late stone axes, for example at Proosa, Kaera, and Linnanõmme. Because these types of features are difficult to discern in the archaeological record, they usually remain unnoticed and unrecorded and are rarely studied. Some of the settlement sites, for example Vatku I or Ilumäe II (Lang 2000a, 65 ff.), may date to either the end of the Neolithic or to the Early Bronze Age.[10]

The Early Bronze Age settlement sites are strikingly similar in character to the type of settlement site that emerged in Estonia during the period of

[8] The Lubāna-style ceramics, which are characteristic of the Early Bronze Age in eastern Latvia (Loze 1979), were also unearthed at the settlement sites of Akali and Villa (Kiristaja 2003, 87).

[9] The dates were 3480±45 and 3460±35 BP (Tln, without subnumber), the calibrated value is 1880–1690 BC.

[10] In addition to the quartz flakes, a flint arrowhead dating from either the Late Neolithic or the Early Bronze Age was uncovered at the Vatku I settlement site. Ilumäe II settlement site revealed Corded Ware and pieces of quartz artefacts; the following radiocarbon date, which seemed somewhat doubtful at first, was obtained: 3506±58 BP, calibrated value 1890–1750 BC (Tln-2215). Taking into account that the Corded Ware might have been used even during the Early Bronze Age, the above date need not be considered too late.

the Corded Ware Culture. This is true not only of the second but also the first group of sites, as the finds of the latter also indicate very small or short-term settlements established at the location of a previous settlement, rather than being continuously settled. This phenomenon is quite common in both Estonia and Finland. Similarly, most Corded Ware settlement sites were very small and their cultural layer was rather thin with few artefacts, including some ceramics and stone and bone items (see Jaanits 1966; Lang 2000a, 62 ff.; Kriiska 2000). Also the fact that some Corded Ware settlement sites are indicated only by a boat axe and some pottery sherds (e.g. Võhma near Rakvere), stresses the similarity between the Corded Ware and Early Bronze Age settlement sites. In addition, the Corded Ware and the Early Bronze Age settlement sites are linked in regard to their geographical locations on the landscape.

The appearance and increasing prevalence of small settlement sites with a thin cultural layer during the Late Neolithic and Early Bronze Age is a phenomenon that can also be seen in several neighbouring areas in the Baltic Sea region. The phenomenon was accompanied everywhere by a settlement shift, in the course of which people increasingly settled in areas suitable for primitive agriculture. At the same time, the older fishing settlements on the shores of larger lakes and rivers were gradually deserted. In Latvia, the Lake Lubāna depression, which was densely populated during the Neolithic (Loze 1979, fig. 2), has served as an example for observing this settlement shift in the archaeological record. During the Early Bronze Age the population gradually moved from the lake to adjacent higher areas covered by glacial till that were more suitable for subsistence farming (Vasks 1994a, 65 ff., fig. 36). Isolated finds such as late shaft-hole stone axes were first and foremost employed to identify use of these higher areas; open settlement sites dating to the Early Bronze Age are only known at places where settlements were already present in the Neolithic. The settlement of new areas during the Early Bronze Age can also be seen on the banks of the Daugava River where previous Neolithic settlement is almost unknown (Vasks 1994a, 67 f.). In Lithuania, small settlement sites with a thin cultural layer had emerged by the Late Neolithic (Rimantienė 1999a). During the Early Bronze Age in Lithuania, a decrease in the use of flint items and the introduction of rock-tempered, striated pottery characteristic of the later fortified settlement sites can be observed (Grigalavičienė 1995, 21; Rimantienė 1999a). Settlement sites in Finland also became considerably smaller in the Late Neolithic and Early Bronze Age. However, these new settlements in Finland, particularly inland sites, were often established in areas suitable for foraging subsistence (Lavento 2001, 137 ff.). Early Bronze Age settlement sites are almost unknown in south-western and southern Finland, and dating indicates that most of the sites originated in a later period (Salo 1984, 120). Both Finland and Lithuania witnessed a considerable decrease in the importance and use of flint at the beginning of the Bronze Age (Lavento 2001, 130). Additionally, the absence of large settlement sites and an increase in the number of dispersed settlements can be observed in central Sweden beginning in the Late Neolithic. This is in contrast to southern Sweden and Denmark where the first larger farming villages emerged during the Late Neolithic (Burenhult 1991, 11 ff.).

Thus, the general picture of Bronze Age settlement sites in Estonia is similar to that of our neighbours. Following from this, one can assume that trends in the development of settlements and economy were also rather similar. These commonalities included smaller and obviously more mobile settlement units than previously, and increasing experimentation with farming. In addition to pollen diagrams indicating human manipulation of plants, the above trends are supported by the locations of the new settlement

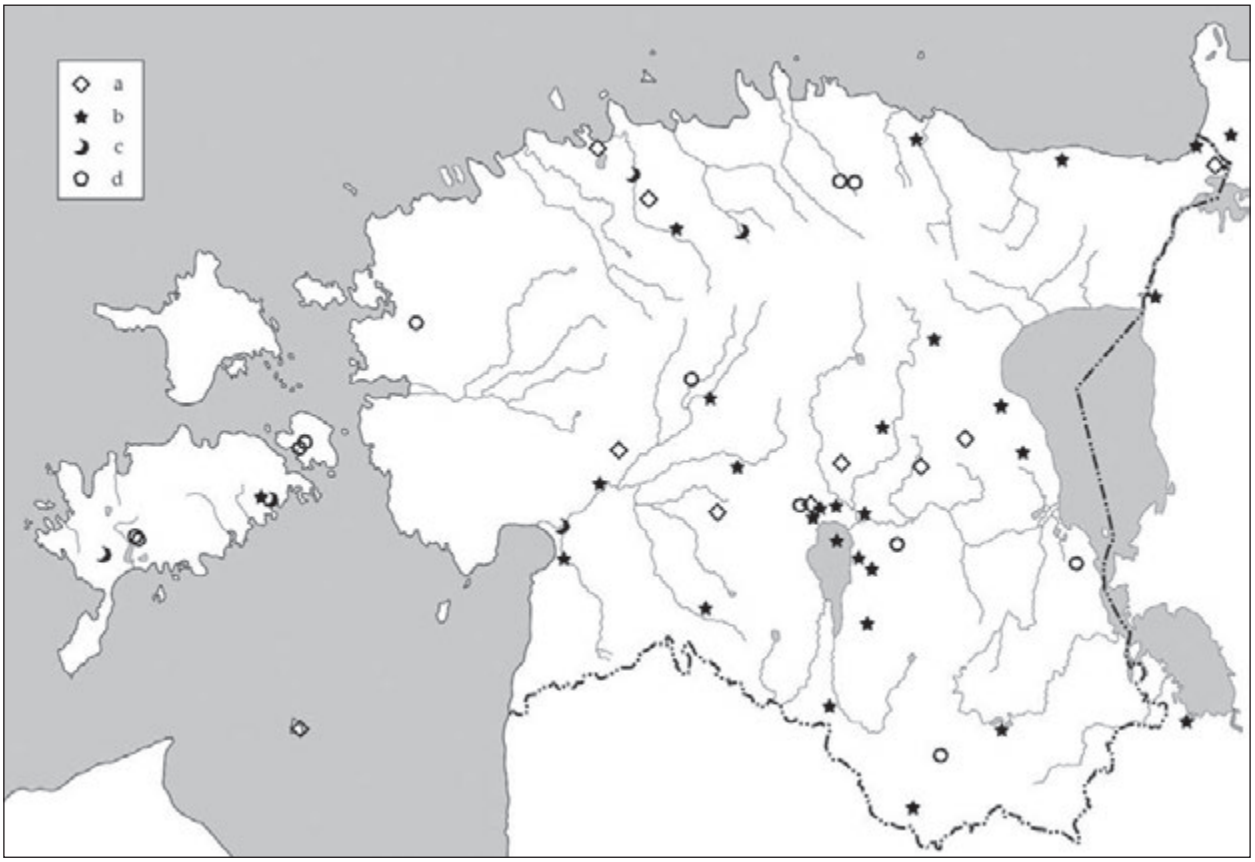

Fig. 4. *Distribution of late stone axes with foreign characteristics (composed by K. Johanson). a rhomboid, b five-cornered, c with recurved butts, d undetermined type.*

sites, which were characterized by suitable soil rather than waters rich in fish or good hunting grounds. Aside from these similarities, important differences can also be noted in the development of the material culture of the time (see below 1.1.2 and 1.2.2). The common characteristic of sites on the eastern coast of the Baltic Sea seems to be a remarkable decrease in the use of flint. Did quartz become more popular than flint in the region during the Bronze Age? Although at present we know of only a few dozen Early Bronze Age settlement sites, more will certainly be discovered in the future, and then perhaps this question can be answered. Detailed fieldwork, which to date has been carried out in only a few areas, and specific strategies are necessary to locate additional sites in the landscape. And because they were typically left behind at or near settlement sites, the locations where late stone axes (fragments and semi-finished products) have been found should be included in such strategies.

1.1.2. Late stone axes

The majority of stone axes found in Estonia that date from the Late Neolithic and Early Bronze Age are islolated finds, with a few exceptions that were found in settlement sites (Jaanits 1959, 204 f.; Lõugas 1970a, 97; Kriiska & Saluäär 2000,

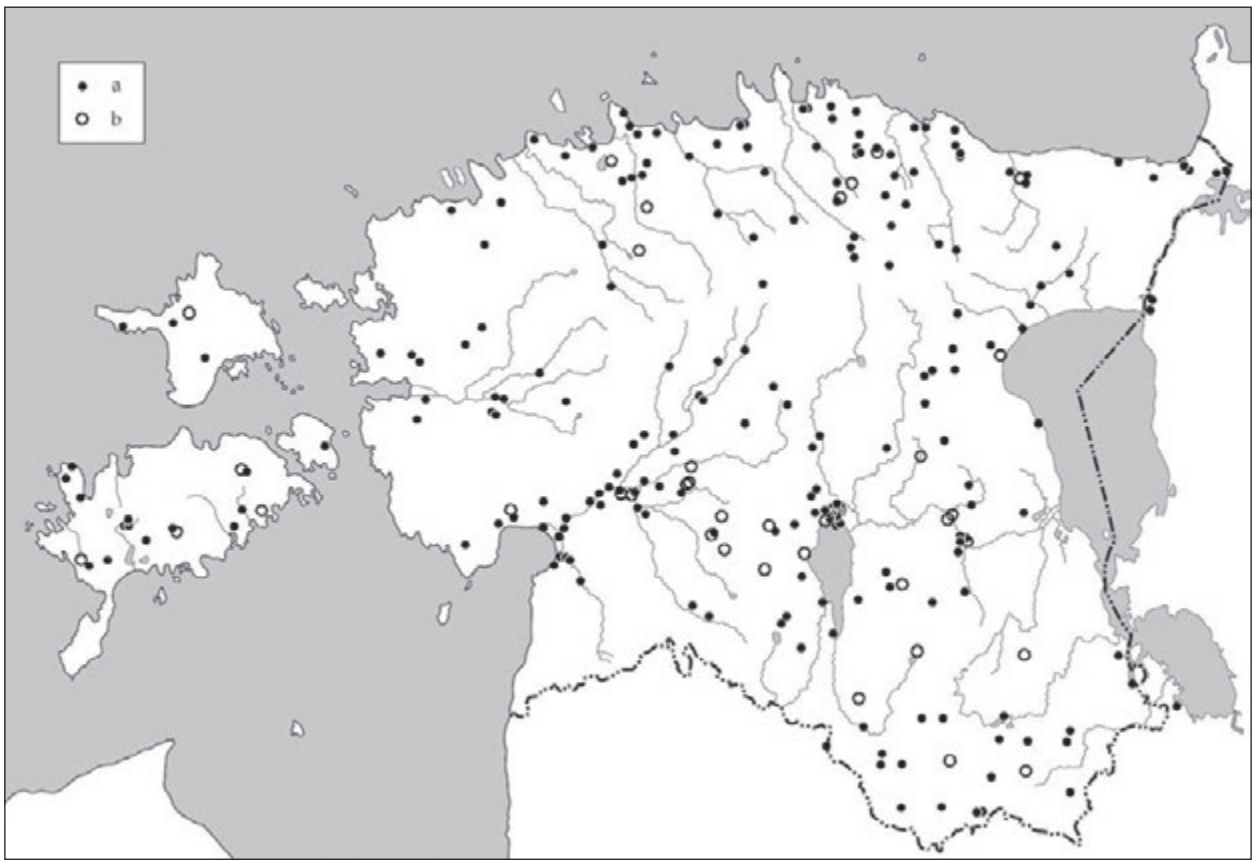

Fig. 5. *Distribution of simple stone axes (a) and axes of undetermined type (b) (composed by K. Johanson).*

16 f.). These axes have a simpler morphology (oval, triangular or drop-shaped) than that of boat axes. Some axes, however, have close parallels to ones found in adjacent regions, particularly in Scandinavia. These similarities may indicate contacts between the people of these areas. Estonian late stone axes (other than boat axes and those typologically related to them, which have an earlier date) with foreign characteristics can be divided into several types.

Five-cornered axes (with several sub-variants), 30 in number (Figs. 4: b, 6).[11] These types of axes have been distributed across the eastern Baltic region as far north as Finland and are associated with the influence of the central European Lusatian (Lausitz) Culture (Meinander 1954b, 79 f.). This cultural phenomenon, which has its origins in the last quarter of the second millennium BC, mostly belongs to the Late Bronze Age. In Scandinavia, five-cornered axes (over 70) have mostly been found in eastern and southern Sweden, with some in Denmark, but none of them can be dated through the context of their discovery (Baudou 1960, 49 ff., pls. IX–X, map 30).

Rhomboid axes with sharp faces, 12 altogether (Fig. 4: a). These axes have been dated to the later

[11] The total number of each type of stone axe was calculated by Kristiina Johanson (personal communication).

Bronze Age in both Scandinavia and Finland, though this reasoning is based on only a few finds. Some axes of this type have been found in the complexes of periods V–VI in Denmark, and some others discovered in Finland have been dated to the Late Bronze Age according to the context of their discovery, either with respect to changes in sea level or other nearby archaeological sites (Baudou 1960, 50 ff.; Äyräpää 1938, 890 ff.; Meinander 1954b, 70 ff.). The dating of Finnish axes to periods V–VI cannot be seen as definitive, however, because the axes may have been lost in water or the nearby archaeological sites where they might have originated may have been occupied during other periods. Thus, we can only say with certainty that such stone axes were still in use during the Late Bronze Age; we do not know when they were originally manufactured. The few Estonian axes – all isolated finds – cannot help to solve this problem. According to Äyräpää (1938, 893), the rhomboid axes found in Estonia were imported from Scandinavia.

Fig. 6. *Five-cornered stone axes. 1 Holohhalnja at Senno, 2 Krivski at Irboska (AI 3361; 3591).*

Fig. 7. *Stone axes with recurved butts. 1 Hirmuste at Kärla, 2 Asva (AI K91: 49; 3307: 147).*

Axes with recurved butts, five in number (Figs. 4: c, 7). With the exception of one, each of these axes is an isolated find. The one axe that was not an isolate was an incomplete specimen, and was found in the lowermost horizon of the cultural layer of the fortified settlement at Asva on Saaremaa Island. According to Evert Baudou (1960, 52), the Asva axe is the only well-dated axe with a recurved butt in northern Europe; its find conditions suggest an association with period IV, at the latest. As stated by Äyräpää (1938, 892), the Estonian axes in question (he knew of only two) were manufactured in Scandinavia or northern Germany.

Some specimens, characterized by long parallel side faces, resemble the axes of *Augšzeme type.* These were particularly popular in Latvia from the Late Neolithic through the advent of the Iron Age (Graudonis 1967, 83, pl. I: 14; 1989, pl. V: 2, 9, 12; LA, 1974, pl. 14: 2–3; Lietuvos atlasas I, 88 ff., figs. 8: 11, 9: 1–3, 10: 1). Estonian axes of this type (presented among the simple shaft-hole axes in Fig. 5) reflect southern influences.

Fig. 8. *Simple shaft-hole stone axes. 1 Villivalla, 2 Kanadeasu, 3 Siisivere, 4 Skamja, 5 Tori (AI 3725; 3744; 3648; 3754; 3650).*

Compared to axes mentioned above, *simple shaft-hole stone axes* were mass-produced, and were mostly made on the spot. Two hundred and twenty eight such axes (plus a number of small fragments) have been found in Estonia so far (Figs. 5, 8). This is a rather small number compared to Latvia where, for example, around 600 axes were discovered in the Daugava River basin alone (Vasks 2003, 28), or in Lithuania where more than 1000 axes were known as of 30 years ago (Juodagalvis 2002), not to mention the thousands of axes found in the counties of central Sweden.[12] The shape of the axes varies everywhere but it is usually rhomboid, oval, triangular or drop-shaped, or something in-between. As all the differences seem to be morphological and not functional, geographical, or chronological, and represent, at least partly, the axe in its final stage of use, then all the axes will be treated as a uniform group. The different sizes and the diversity in the shape of the axes can be explained by the length of time that a particular axe was used and by the number of times an axe was reshaped. Every time a long axe broke (usually at the hole, where the shaft and axe body are hafted together) it was reshaped and used until it broke again. The continuous reshaping of the axe resulted in a decrease in the height of the axe, as well as modification to its overall shape (Lekberg 2002, figs. 5.4–5.6). The prevailing basic shape of Estonian simple shaft-hole stone axes, which is oval, is believed to have originated from the local sharp oval axes of the Late Neolithic (Jaanits *et al.* 1982, 118); however, it should be reminded that later simple shaft-hole axes look basically the same in all the countries of the Baltic Sea region (see e.g. Vasks 2003, fig.; Huurre 1979, fig. p. 86; Østmo 1977, figs. 14–16). It is believed that the simple shaft-hole axes had appeared by the end of the Neolithic, although few have been recovered from Late Neolithic settlement sites in Estonia.[13] So far the only radiocarbon date obtained in relation to such a stone axe comes from a fragment of wood found in the hole of a rhomboid axe discovered at Vaibla. The date obtained from this wood fragment was 3060±85 BP (calibrated date 1430–1210 BC), which is during the Early Bronze Age (Kriiska 1998). The fragments of the late shaft-hole axes uncovered at the fortified settlement sites of Asva and Ridala can be dated to the end of the Early or to the beginning of the

[12] Cederlund (1961, 74) claims that around 5000 simple stone axes have been found in the counties of Uppland, Närke, Västergötland and Östergötland.

[13] Two fragments of simple shaft-hole stone axes were unearthed from the Kullamägi settlement site (Jaanits 1959, 204 f., fig. 21: 1–2), but they may be related to settlement of the site during the Bronze Age. In addition, an axe fragment was found in the Lemmetsa I Neolithic settlement site (Kriiska & Saluäär 2000, fig. 3).

Late Bronze Age with more certainty than the axes from other locations.

For how long were stone axes manufactured and used in Estonia? It is clear that, with a few exceptions they are absent in the fortified settlement sites of the coastal zone;[14] thus, the upper limit of production and use would be the beginning of the Late Bronze Age. It is noteworthy that many more stone tools have been unearthed from the fortified settlement sites of both north-eastern Lithuania and Latvia.[15] Given that those settlement sites were established in the beginning of the Late Bronze Age, one can assume that the stone items were made and used there rather actively at least until the end of the Bronze Age or even longer.[16] The scarce data presently available suggests that at least in north and west Estonia, active use of stone axes ended sometime earlier, perhaps explaining why considerably fewer axes have been found in Estonia compared to our southern neighbours.[17] So far no exclusively Late Bronze Age and/or Pre-Roman Iron Age settlement sites have been excavated inland (with the exception of the Late Pre-Roman Iron Age layers of some hillforts, but they did not reveal any stone tools); therefore, it is impossible to claim with any certainty whether the use of stone continued through those periods. As for Scandinavia, some researchers claim that the use of simple shaft-hole axes had ceased by the beginning of the Early Bronze Age (Østmo 1977, 175) although some specific forms, such as rhomboid, five-cornered, and axes with recurved butts are rather numerous in the Late Bronze Age material (Baudou 1960, 47 ff.).

Late stone axes have been found in all parts of Estonia (Figs. 4–5); their distribution is somewhat more concentrated in the Lake Võrtsjärv region, the Pärnu River basin, the islands and northern Estonia. The general view is that the Neolithic boat axes in all their varieties were first and foremost ritual, status, and prestige items that served as symbols of power and were often placed in the grave to be used in the afterlife. Simple shaft-hole stone axes, on the other hand, were mainly used for cutting bushes and trees and for the cultivation of the soil (Østmo 1977, 186 ff.; Vasks 2003). Experiments conducted with similar axes showed that they were indeed suitable for cutting, but the traces of wear and tear indicated contact with much heavier materials than wood, for example, with stones that could be found in the ground (Østmo 1977, 186 ff.). Considering the spread of the shaft-hole stone axes mainly in agricultural areas, it seems more likely that they were first and foremost used for soil cultivation (perhaps

[14] Five of stone axe fragments (includig one with a recurved butt and two simple shaft-hole axes), two adzes and a fragment of one, a piece of stone bored out from a shaft-hole, and a flint scraper were unearthed from the first (earlier) horizon of the cultural layer at the Asva fortified settlement (Lõugas 1970a, 345); some flint scrapers, a fragment of a stone axe, and a piece of stone bored out from a shaft-hole were found at Ridala; no axes were discovered at Iru but flint and quartz artefacts from the site are most likely connected with the Corded Ware settlement site that was located in the same place earlier. Stone axes are also missing at Kaali. Stone artefacts found at the Joaorg settlement site in Narva can also be connected with the local Neolithic settlement phase.

[15] The Ķivutkalns settlement site revealed 98 stone axes or fragments of axes (Graudonis 1989, 21 ff.), Brikuļi 26 axe fragments and 29 adzes (Vasks 1994a, 34), Narkūnai 47 stone items (Volkaitė-Kulikauskienė 1986, 18), Nevieriškė 92 axes and adzes (Grigalavičienė 1986a, 62), and Sokiškiai 20 axes (Grigalavičienė 1986b, 102).

[16] In both Latvia and Lithuania there was a sharp decrease in the number of stone tools during the transition to the Iron Age in the second half of the first millennium BC (Graudonis 1967, 84; Vasks 2003, 28; Grigalavičienė 1995, 129).

[17] It was previously thought that the use of stone axes ended earlier in northern and western Estonia than in southern Estonia due to a more rapid and complete switch to bronze items (Jaanits *et al.* 1982, 155). Comparison with Lithuania and Latvia shows that this kind of reasoning is unfounded.

the first tillage) and deforestation, which involves both cutting down trees and breaking the turf; though other uses cannot, of course, be ruled out. The possibility that some of the axes served as ritual items, as they had previously, and indicated one's status, prestige, or group identity must also be considered. Examples of such axes include, first and foremost, all the imported axes, ones manufactured more carefully than usual, and axes that could not be used as tools because their shaft holes are too small. I will return to the above-mentioned axes below in connection with the analysis of social behaviour and the trade of prestige items.

Depending on the possible functions of the axes in the past, their findspots may reflect either the place where they were made, a location where they were used, lost or thrown away, or a burial and sacrificial site. It seems that, in contradistinction to the Late Neolithic, stone axes were not used as grave goods during the Early Bronze Age in Estonia. Archival records include some information about stone axes that were reportedly found with bones,[18] but unfortunately these records are vague, amateurish, and have not been verified; thus it is uncertain if the bones were human. Based on available data, it is reasonable to assume that the use of stone axes as grave goods decreased considerably or even disappeared altogether in the second millennium BC,[19] not only in Estonia, but in almost all the countries on the eastern coast of the Baltic Sea. For example, none of the 268 graves at the Ķivutkalns flat cemetery, located on the lower reaches of the Daugava River, contained stone axes. This is in contrast to a number of axes uncovered from the cultural layer of the settlement site that was established on top of the cemetery (Denisova *et al.* 1985). Late stone axes have not been recovered from any other known and researched Early Bronze Age graves in Latvia,[20] Lithuania or Finland. The situation is different to the west of the Baltic Sea, for example in Sweden, in the respect that the late stone axes were indeed put in the grave, but they were, to a greater extent, representatives of an earlier period, that is, the Late Neolithic (2300–1800 BC) (Lekberg 2002, 107). Additionally, stone axes were rarely put in Early Bronze Age stone-cist graves in Sweden (Burenhult 1991, 32) and the custom had disappeared completely in the Late Bronze Age when bronze axes replaced stone axes. On the other hand, regions in Scandinavia do exist, for example in south-eastern Norway, where the majority of the shaft-hole axes were uncovered as isolated finds from lands suitable for cultivation (Østmo 1977, 188 ff.).

As it is highly unlikely that some of the Estonian late shaft-hole stone axes might mark the location of ancient graves in the landscape (see also Johanson 2006), then the only remaining explanation is that they were associated with living areas and sacrifice sites. Per Lekberg (2002), who has extensively researched the late stone axes in Sweden, observed that the stone axes uncovered from votive contexts (hoards) were longer and in better condition than usual, and that some of the axes were even semi-finished products, meaning that relatively new items with high potential use-value were sacri-

[18] For example, an axe from Reiu was found in a high sandy hillock where bones where also unearthed; the same was noted in regard to the axe fragment found in Kisuvere. Bones were also present near the findspots of late stone axes in Karuküla, Kuremaa and Männametsa.

[19] One has to mention the late stone axe blank that was recovered from a Late Bronze Age ship grave at Lülle (Lõugas 1970b, fig. 6: 1). The item was found in the stone and soil fill material used to bury the ship, but most likely it does not represent grave goods.

[20] Two stone axes unearthed from the barrow at Rēznes present an exception. One of them, a unique two-bladed axe, was uncovered near a cremation, and the other, a simple shaft-hole axe, was the only find in a barrow heap, and it may not be connected with any burial (see Ozols 1969, figs. 22–23).

ficed. On the other hand, no intact and usable axes were unearthed from the settlement sites – all the artefacts were either fragments or semi-finished items. The scarce Estonian material, which includes only fragments of axes uncovered from the settlement sites of Asva, Ridala, Kullamägi, Sangla, and Pada, supports the latter observation. The rather rich material of the fortified settlement sites of Latvia and Lithuania also contained only single almost-intact stone items (cf. Graudonis 1989, pls. V–VI; Volkaitė-Kulikauskienė 1986, figs. 18–19; Grigalavičienė 1986a, figs. 10–12; 1986b, fig. 10; Vasks 1994a, pl. I; 2003). The find circumstances have to be taken into account when studying the meaning of the axes; proximity to existing or past water bodies may indicate sacrifice, and higher and drier findspots may indicate settlement sites. However, Andrejs Vasks (2003) pointed out that the majority of the axes found in higher and drier areas, which are presently arable lands, are also intact; thus, it is difficult to interpret them as indicators of settlement sites. Nor is it plausible that intact axes were simply thrown away, because they were too valuable to be purposefully discarded. Vasks assumes that even the ordinary axes used as tools carried a symbolic, magical meaning in certain contexts, and that they were deliberately left in specific places. The same obviously applies to the Estonian simple shaft-hole stone axes because a considerable proportion of them are intact and usable and many have no traces of wear. According to Kristiina Johanson's recent studies (2005; 2006), 123 stone axes (14%) out of 820 Neolithic and Bronze Age axes of all types can be connected to settlement sites and 76 axes (9.4%) can be connected to offerings or caches. A considerably large number of stone axes have been repeatedly reused, in both prehistoric and historical times and therefore the location of their discovery cannot reflect their original meaning or use.

Today it is impossible to ascertain the precise ritual meaning of the axes,[21] but considering the circumstances of their discovery it was likely related to land cultivation. In that respect the Early Bronze Age shaft-hole axes can be compared to the Late Bronze Age and Early Iron Age cup-marked stones – both seem to represent a stone cult focused on fertility, including soil fertility.[22] Cup-marked stones occur mostly in northern and western Estonia (see more in section 5.3.1) where permanent field systems cultivated with ards were established beginning in the Middle and Late Bronze Ages. Perhaps the extensive spread of the ard and permanent farming was the reason why the use of simple shaft-hole axes ended sooner in the coastal areas rather than in inland areas, where shifting agriculture and deforestation of virgin land remained important for many centuries. Regions where the axe

[21] Vasks (2003, 30) pointed out that an axe is not only a tool in Latvian folklore, but it also carries a symbolic, magical meaning '[...] where the fate of the axe is taken as being linked to the fate of one's native land and vice versa. For example, there is a string of folk songs describing how a soldier leaving for a fight hacks an axe into an oak tree. Whoever takes the axe will also take the land. [...] In general, in such songs, the axe is associated with decisive, dramatic, and even crisis situations in human life.' Axes are often related to lightning in folklore (it was believed that axes were found in places where lightning had struck), or in other words, imbued with heavenly powers. The above belief is common in Russia, Scandinavia, Germany, Bulgaria, etc. (Vasks 2003, 30, and the literature cited), and also in Estonia (Johanson 2006).

[22] As the tradition of cup-marked stones is almost unknown in Latvia, one can assume that the stone axe cult lasted longer there, and it also explains why many more stone axes are recovered in Latvia. The same seems to also apply to southern Estonia where cup-marked stones are rare, whereas stone axes, especially late forms, are abundant (Johanson 2005). Additionally, it should be noted that there is only a small overlap in the areas where simple shaft-hole axes and cup-marked stones are present in Finland (cf. maps: Meinander 1954a, fig. 44, and Tvauri 1997, fig. 7).

as a tool for clearing land was used decreased and as a result, there was a respective change in cult objects and rituals.

1.1.3. Pollen diagrams

In addition to the small number of sites and numerous isolated finds, pollen diagrams of lake and bog sediments may reveal evidence of Early Bronze Age settlement areas. Pollen diagrams showing clear signs of human activity are considered to be just as reliable as archaeological finds in terms of providing evidence for the existence of a settlement. Moreover, pollen diagrams often reflect human activity, first and foremost in regard to the economy and, in turn, how such activities affected the environment. About 400 pollen diagrams have been drawn up for Estonia, and one tenth of them included an analysis of human impact on the environment. However, only 30 cross-sections are considered to be reliable (diagram reliability being constituted by having over 1000 pollen grains identified per sample and a time frame based on the interpolation of at least three radiocarbon dates) (Poska *et al.* 2004). As the results of these cross-sections are somewhat different,[23] they will be dealt with on a regional basis (Fig. 9).

Clear signs of human activity reshaping the environment were already present in *northern Estonia* at the beginning of the Neolithic, whereas farming indicators appeared only at the end of the period. The diagrams from Maardu and Saha, located near Tallinn, and the Kahala cross-section provide ample evidence of farming ca. 2200–2000 BC (Veski & Lang 1996a–b; Saarse *et al*. 1999). The first signs of tillage are rather modest everywhere, but the cleared areas and the richness of plants characteristic of meadows and pastures strongly suggest stock rearing. Signs indicating pastoral farming near the Viitna Lakes are present starting ca. 2200 BC (Saarse *et al.* 1998). A significant increase in human impacts during the Late Neolithic was followed by a subsequent decline – reforestation began in the Saha, Maardu and Kahala areas, and a marked decrease in the indicators of human impact on the environment were present. This period of decline in activity was dated to ca. 1650–1300 BC in Kahala, in Maardu it spanned from the Early Bronze Age to the beginning of the Late Bronze Age, and the Tondi diagram did not reveal any human impacts from 1300–900 BC (Saarse *et al.* 1999; Veski & Lang 1996b; Lang & Kimmel 1996). Northern Estonia witnessed an increase in human impacts to the landscape during the transition period to the Late Bronze Age; first in Kahala, after 1300 BC and then in the Tondi, Saha and Maardu areas around 900–700 BC. Interestingly enough, people started to grow grain in Viitna, which is a peripheral area, during what was a decline in such activity in other parts of the region, just before the increase in human impacts noted above. The Viitna diagram dated the presence of barley in the region to 1600 BC, followed by wheat in 1100 BC (Saarse *et al.* 1998).

The earliest evidence of cereal cultivation in the *eastern Estonian* pollen diagrams dates to 4000 BC (Poska *et al.* 2004) and was obtained from the Akali settlement site. The first signs of Neolithic land use were followed by a decrease in all the indicators of human impacts – the proportion of herbs diminished to a minimum and reforestation occurred everywhere (Poska & Saarse 1996). The opening up of the region (i.e. clearing of forests and vegetation for primitive farming) can be observed in the middle of the

[23] The results are not only different in various regions, which is to be expected, but also in different treatments of the results. Thus, some generalizations in general surveys (Poska & Saarse 1996; Poska *et al*. 1999) fail to correspond with the data presented in the publications of the respective diagrams. In the case of contradictions, the present study prefers the latter, that is, the primary sources.

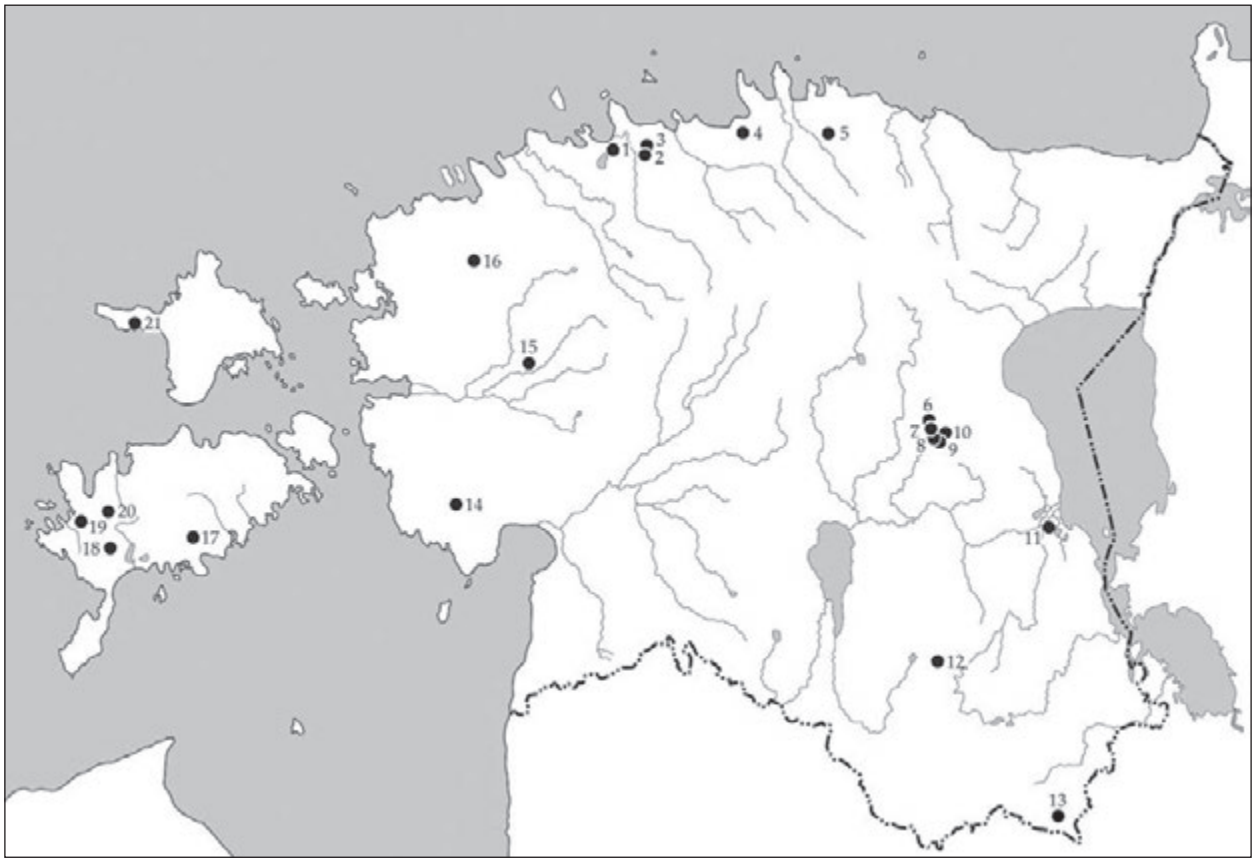

Fig. 9. *Location of pollen analysed sites mentioned in the text. 1 Tondi, 2 Saha, 3 Maardu, 4 Kahala, 5 Viitna, 6 Siniallikas, 7 Kuremaa, 8 Pikkjärv, 9 Raigastvere, 10 Kõrenduse, 11 Akali, 12 Ala-Pika, 13 Siksali, 14 Tõhela, 15 Velise, 16 Mustjärv, 17 Kaali, 18 Pitkasoo, 19 Vedruka, 20 Karujärv, 21 Kõivasoo.*

second millennium BC; the varying amount of microscopic charcoal particles indicates repeated broadcast burning, which may suggest slash-and-burn agriculture (e.g. near the Lake Pikkjärv and Siniallikas Spring, see Pirrus & Rõuk 1988). The Kuremaa and Raigastvere diagrams of the period revealed evidence of farming through the presence of *Cerealia* pollen (Pirrus & Rõuk 1988; Moe *et al.* 1992). The period of rather significant human impact was replaced with stagnation, decline and reforestation at the end of the Early Bronze Age. Following this, the beginning of the Late Bronze Age witnessed a revival in human activity; this phenomenon occurred in the Kõrenduse, Pikkjärv, Raigastvere, and Siniallikas areas beginning around 900–700 BC.

The landscape started to open up due to human activity in *southern Estonia* by the Late Neolithic. The cultivation of barley and wheat, the pollen of which was acquired from the sediments at Siksali, was started in the beginning of the Bronze Age (ca. 1700 BC; Laul & Kihno 1999). Both Siksali and Ala-Pika witnessed the decrease in human impacts and the short-term recovery of forests during the middle of the Early Bronze Age (Kihno & Valk 1999). A rather significant revival of human impact at Siksali was dated to ca. 1250–900 BC when several forest fires suggestive

of slash-and-burn agriculture occurred; *Cerealia* pollen is present at Ala-Pika beginning in ca. 1200 BC. Both Siksali and Ala-Pika experienced human impacts to varying degrees until ca. 700–600 BC, which marks the beginning of a new and more powerful revival in human activity (Laul & Kihno 1999; Kihno & Valk 1999).

People had begun to open up the landscape on the *islands and in western Estonia* by the Early Neolithic. The earliest *Cerealia* pollen (*Avena, Hordeum,* and *Triticum*) obtained from this area dates to 4000–3500 BC and was gathered from various parts of the region – from the bogs of Velise and Mustjärve, and Lake Tõhela in the continental part, and from Kõivasoo on Hiiumaa Island (Veski 1998; Kriiska 2003, tab. 1). The emergence of cereal cultivation in the Pitkasoo and Vedruka areas also dates to about the same time (Poska *et al.* 1999, 308 f.). After a period of decline, in the middle of the second millennium BC, human impacts and the indicators of cereal and pastoral farming increased and remained continuously stable until the first millennium BC. The beginning of the new rise in human impacts can be dated to ca. 800–600 BC in various regions on Saaremaa Island, for example in the surroundings of Lakes Karujärv and Kaali (Saarse & Königsson 1992); this trend occurred at the same time in other parts of what is today Estonia.

This overview has revealed that the character and extent of human impacts differed in various regions and times. An important characteristic is that the periods of major human impact were rather short and were replaced by periods of decline; decrease in human impact in some places was followed by a rise in other regions. As the pollen diagrams reflect the environmental changes only in the vicinity of sampling sites, the situation seems to indicate considerable instability, at least in regard to the location and use of arable land; settlements in general were likely impermanent. One can assume that people continued to look for better and more suitable places for farming. The character of settlement and economy, and the respective reflections in pollen diagrams, were basically the same in south-western Finland, Latvia, and Lithuania at the time (see Lang 1999a, 367 f.).

1.1.4. The first *landnam*

The above-described trends in the character of finds, sites, and the development of settlement and economy, which had begun by the Late Neolithic, are characteristic of a process called the first *landnam*. Economically, the process involved gradual transition from foraging to subsistence farming and, in terms of settlement history, it resulted in a settlement shift from the coasts of larger water bodies (rivers, lakes and the sea) to places suitable for land cultivation and pastoral farming.[24] Both economic and settlement patterns co-existed in the Late Neolithic, whereas the settlement type based on hunting and gathering alone had almost disappeared by the beginning of the Bronze Age. It would be difficult to explain the absence of large settlement sites on the coasts of water bodies otherwise.

To date, the settlement shifts that occurred during the *landnam* from the Late Neolithic until the Early Bronze Age have been researched in detail only in northern and southern Estonia. Putting aside the settlement centres of hunters-gatherers at Riigiküla, Kunda, Vihasoo, Jõesuu at Jägala, and in some other places, one can claim that in northern Estonia the settlement located further away from the coast was established during the Corded Ware period (3000–1800 BC). Both the small settlement sites of the period and the findspots of boat axes are usually located near the

[24] Richard Indreko (1934) was the first to date the beginning of the occupation of lands suitable for farming to the Late Neolithic although his argumentation is only partly valid today.

glint (gliff) zone, in rendzina (Est. *loo*; Swe. *alvar*) soils, or in the vicinity, and away from larger water bodies (e.g. Iru, Ilumäe II and IV, Võhma in Kadrina parish). In the morainal inland areas where the soil is thick and difficult to cultivate, the late shaft-hole axes prevail (see Lang 2000a, 75 ff.; 2000b, fig.), although a few (later) boat axes and associated settlement sites (Võhma near Rakvere, and Jõuga) have also been found there. Thus, the first *landnam* spread from the glint zone inland. The earlier fishing-hunting-gathering centres died out gradually and the permanent settlements on the seacoast disappeared.

Settlements of the Corded Ware period in southern Estonia (see Johanson 2005) continued to be positioned, in many cases, at the same places where previous hunting-gathering settlements were located, for example at Tamula, Kääpa, Villa, Akali, Kullamägi, and on the northern coast of Lake Võrtsjärv. However, new areas better suited for farming had already been put into use by that time (e.g. Madi and Olustvere). Simple shaft-hole axes are rarely uncovered near the old settlement centres of hunter-gatherers; they primarily come from areas that were put into use in the Late Neolithic or even later. This means that the earlier centres were deserted by the beginning of the Bronze Age at the latest. Both boat and simple shaft-hole axes have been uncovered from the flatter parts of the central and southern Estonian rolling country – the Vooremaa, Sakala and Karula uplands, whereas only simple shaft-hole axes are typically found in the hillier Haanja and Otepää uplands. Thus, the general settlement trend was that first the coasts of large water bodies and the river mouths entering them were deserted, followed by the abandonment of river forks. New settlements were first established in flat areas (predominantly in the foothills), and the heart of the uplands was settled only afterwards, throughout the Bronze Age.

As for both north and south Estonia, one must stress that the areas where the farming settlements would become permanent later (i.e. in the Late Bronze Age and Early Iron Age) were gradually put into use already during the first *landnam*. Small Early Bronze Age settlement sites with few finds indicate that the sites were used for short periods of time and that a limited number of people inhabited them; the population at such sites likely consisted of single households. The pollen diagrams show that small plots and headlands where mainly wheat and barley were grown (oats were probably considered a weed) were also temporary and only used for brief periods of time. This type of primitive, limited, and mobile slash-and-burn agriculture can be called *dispersed cultivation*. Definitely it was not the only or the main means of subsistence in the Early Bronze Age. Lake and bog sediments suggest pasture farming (i.e. stock rearing); hunting, fishing and seal hunting in coastal areas was also likely practised. On the other hand, it must be stressed that the increasing need for suitable arable and pasture land was the most important factor influencing the location of and search for new settlement sites. Farming had become such an important activity that in addition to the settlement shift, it was also accompanied by changes in ritual practices. It is reasonable to assume that the simple shaft-hole axe, which was the most important (or maybe the only) tool for deforestation necessary to carry out slash-and-burn type agriculture before the introduction of the ard, became a cult and ritual item.

The first *landnam* and the transition from hunting and fishing to farming in general was a remarkably long process. It took 2500 years in northern and western Estonia and up to 3500 in central and southern Estonia from the emergence of *Cerealia* pollen in the diagrams until the establishment of societies where the main means of subsistence was agriculture. The situation is similar in other countries on the eastern coast of the Baltic Sea; farming societies were established in Lithuania, Latvia, and Finland

during the Late Bronze Age at the earliest, and even then not in all regions (e.g. Antanaitis 2001; Antanaitis-Jacobs & Girininkas 2002; Zvelebil 1993). It took even longer in regions located to the east of Lake Peipsi, for example north-western Russia, where the first evidence of farming came from the Typical Combed Ware Culture period (Königsson & Possnert 1997); agriculture became the main means of subsistence in that region not before the Middle Iron Age. It is commonly held that such a slow transition to farming can be explained by unfavourable climate and the plentitude and availability of alternative resources for hunting and fishing. Both explanations are obviously valid to a certain extent, but they are insufficient for understanding the whole process.

The long and gradual transition period provides indirect evidence that the process involved local populations, not in-migration of farming tribes. The fact that the development of a new dispersed settlement pattern was accompanied by the abandonment of the old settlement centres of hunters-fisher-gatherers, suggests that the occupants of the new areas were local, and supports the above claim (see Lang 2000b). On the other hand, the long transitional period involved a specific type of economy – complex fishing-hunting or the 'Forest Neolithic' economy (Zvelebil 1993, 157), which presumably fulfilled the subsistence needs of the small and dispersed population in the best possible way. Based on retrospective calculations (Lang 1990a) the population of Estonia was most likely under 10,000 in the Early Bronze Age, which means that the average population density was approximately one person per five square kilometres.

The transition to farming, which was a much more labour-intensive lifestyle than foraging (Sahlins 1974; Cashdan 1989) and yielded results after a longer period of labor (see Zvelebil 1993 and the literature cited), was not the consequence of economic difficulties (e.g. famine due to the lack of game, fish, seals) as generally thought before. Rather, the transition can be explained by the social needs and behaviour of the society at large, the significant factors here being social competition between the leaders of the society, trade of prestige items, and the manufacturing of grain-based alcoholic drinks to be consumed at (religious) celebrations and upon entering into various alliances (see e.g. Bender 1978; Sahlins 1974, 149 ff.; Jennbert 1988). It can be assumed that the transition to farming, which was the best way to obtain additional resources, was more rapid and complete in regions where the social contacts both within and between the communities were closer and the competition between the leaders was more fierce because of the need to maintain such relations. The small size and low density of the population in Estonian and other areas on the eastern coast of the Baltic Sea during the third and second millennia BC explains why the above social needs and behavioural patterns did not develop here, at least not to the same extent as they did in the southern latitudes. It was the crucial absence of the social engine that determined a slower pace of economic growth.

In regard to social and economic developments, and considering the major differences between the coastal and inland areas that emerged during the Late Bronze Age, it is strange that at first glance the Early Bronze Age material gives no indication of the transition to come. The isolated finds of the period, including metal artefacts, are more numerous in southern Estonia. The situation changes, however, if the assumption that stone axes were used over a much longer period inland than in coastal areas proves to be correct; in that case the axes disperse over a greater length of time and the density of finds for each period becomes much lower. The reasons why the developmental trends in the coastal zone proceeded in a different direction become evident only later, at the end of the second millennium BC.

In conclusion, it must be stressed that crucial economic and settlement processes, although slow, took place in what is presently Estonia during the Early Bronze Age. By the Middle Bronze Age the progression of the above processes had reached a plateau in northern and western Estonia as the resources needed for extensive development were gradually exhausted due to the limited availibility of rendzina soils suitable for primitive cultivation. The extensive development continued more than 1000 years later in central and southern Estonia. These regional differences are one of the reasons why the cultural and economic picture was dramatically different in various parts of Estonia during the first millennium BC.

1.2. Society and culture

1.2.1. 'Epineolithic culturelessness'

As noted, the material culture of the Early Bronze Age was rather meagre; very few settlement sites are known and graves seem to be completely absent. It is not possible to highlight any specific flint, quartz, or bone items characteristic of the era; only stone axes are numerous. As for ceramics, it is known that some forms disappeared and that something new was beginning to evolve, but one cannot distinguish any specific style characteristic of the era or region. Metal was rare and could be found only in the form of imported finished products. Unlike in Latvia and Lithuania, one cannot speak of local metal production in Estonia at that time (see below, 1.2.2). The so-called *Epineolithic culturelessness*– absence of any expressive archaeological culture – which originated at the end of the Neolithic and deepened during the Early Bronze Age, is a region-specific phenomenon, as the situation in the neighbouring countries differed significantly. A few examples would include the Lubāna-type pottery characteristic of Latvia that flourished in the Late Neolithic and Early Bronze Age (Loze 1979), and the Kiukainen-type pottery (Meinander 1954a), as well as other groups of ceramics that followed the latter, including Textile Ceramics that were known in Finland (see Lavento 2001). What was the reason for the absence of any prominent material culture, not only pottery but also flint and bone items, as well as grave sites in Estonia? The rather numerous late and simple shaft-hole axes and all the other finds demonstrate that it cannot be explained simply by the absence of habitation.

One of the reasons for the lack of definitely recognizable archaeological culture could have been a small and highly dispersed population. Low population density did not encourage the exhibition and manifestation of material wealth or social relations due to the lack of social interactions (including competition). As for pottery, a direct link seems to exist between, on the one hand, the quality and richness of ornamentation, and on the other hand, the size and density of settlement units; when the concentration of settlements increased considerably and social communication intensified, people started to pay more attention to small details such as the decoration of ordinary household pottery. The quality of pottery declined when social interactions decreased or when people wanted to disguise their relations (see Braun 1991). It is reasonable to assume that the above also applies to some other manifestations of material culture, first and foremost phenomena of artistic expression.[25] All

[25] David P. Braun (1991, 367) explains the phenomenon as follows '[...] less decorative activity will take place in settings where there are fewer opportunities for actors to try to affect each others' social perceptions through visual means. Opportunities could be fewer either because (a) there is little interaction going on, (b) there is little chance of things being seen physically in a given setting, (c) the setting is one in which few social tensions come to bear, or (d) the setting is one in which people avoid expressions of social difference.'

Neolithic cultures of the eastern Baltic region, which are primarily defined through pottery styles, including the pottery of the Kiukainen and Lubāna types, reflect much larger social units than the single households. The same applies to Late Bronze Age fortified settlement sites and to the hillfort settlements dated to the second half of the first millennium AD, which were characterized by both relatively large populations and varied material culture, especially the array of pottery forms and ornaments.

The absence of a clearly defined culture in Estonia during the Early Bronze Age is illustrative of one of the main concepts in archaeology – the archaeological culture. To briefly summarize, despite serious criticism the early studies, beginning with G. Kossinna and V. G. Childe, tended to associate archaeological cultures with ethnic (language) groups and considered differences in material culture to be the manifestation of ethnic differences (see Lang 2001 and the literature cited). Today it can be claimed that the essential prerequisite for the development of archaeological culture was not ethnic peculiarity but the existence of a sufficiently dense social network. Obviously it is impossible to define what 'sufficiently dense' means, but it is clear that the single household pattern dominant in Estonia during the Early Bronze Age was insufficient for such interaction and the development of a distinct or expansive archaeological culture. Thus, the difference in cultures was not the manifestation of various ethnic identities, but can be explained by the fact that people living in various regions behave, think, and express their thoughts and artistic preferences differently.

Another issue for consideration is why the larger social communities split into small units during the transition to farming. It was not the case all over the world, but it is characteristic of various regions of northern Europe. Although the Estonian and Scandinavian ethnographic parallels show that slash-and-burn agriculture was a one-family activity, and that even one person could manage it (Manninen 1933, 8; Kortesalmi 1969, 298 f.), it cannot be the reason for the division of communities because a larger number of people working together would have done the work more efficiently. It is the far reaching character of slash-and-burn agriculture that may have favoured the emergence of dispersed settlement; when the soil became exhausted after some years people were forced to look for new plots and, therefore, a small group of people needed a rather large land base. Soils suitable for primitive farming were not found in plots sizeable enough to feed larger groups of people. In addition to the above economic geography-related factors, the driving force behind the development of a dispersed settlement pattern was a gradually deteriorating situation surrounding land ownership concerns. In other words, despite the fact that work was done individually, collective ownership relations had prevailed up to this point in time, and tension over who owned and had the right to use slash-and-burn fields and the grain they yielded arose. Ownership relations have always been significant to the development of farming societies; the larger the social community, the more authority needed to regulate relations within it. As for the single household pattern, the problem was easy to solve as the fields belonged to those who had cleared the land. In the Early Bronze Age this probably meant that the individual had rights of use rather than actual private ownership of the cultivated land, and it is reasonable to assume that after the arable land was deserted it again became communal property. The main trend seems to have been that of a transition from communal ownership to individual, that is, the ownership was transferred from kin groups or tribes to single households.

Low settlement density and small settlement units does not preclude the presence of communication or linking networks between such dispersed populations. Marriage networks, kin

relations, the organization of communal events (bigger fishing, hunting and trading trips or religious festivals), political alliances, and a common past and traditions all linked the settlement units within a certain region. Leading social theorists showed long ago that the motor of any social interaction in prehistoric times was the principle of reciprocity (see Sahlins 1974, 191 ff.), which will be discussed below in greater detail. On the other hand, when interpreting the scarce Early Bronze Age material of the region, social stratification and power of chiefs cannot be ignored. The most convincing pieces of evidence for social stratification are imported items that indicated social prestige.

1.2.2. Exchange of prestige items

As noted previously, some Estonian stone axes were imported from Scandinavia and the southern Baltic region. Though there was enough local material and know-how to make axes on the spot, items made in remote lands probably gave additional prestige and power to their owners. The social value of metal items was even more significant than that of foreign stone artefacts.

The earliest metal artefacts

No artefacts of copper or gold – the first metals that were taken into use in their pure natural form – have been recovered in Estonia so far. During the European Copper Age, the Neolithic cultural phenomena spread in Estonia as evidenced by the presence of Narva Ceramics, Typical and Late Combed Ware, Corded and Textile Ceramics. Considering that single items made from Uralian copper were unearthed in northern Sweden, northern and eastern Finland, and Karelia (see Halén 1996; Pesonen 1998; Lavento 2001, 119 f.), all of them in the context of the Typical Combed Ware Culture, one cannot rule out that some copper items also circulated through trading networks in what is now Estonia. In Latvia the earliest metal artefacts, although made of bronze, were found in the Zvejnieki Late Neolithic grave No. 277 (Zagorskis 1987).

Altogether 14 bronze artefacts dated to the Early Bronze Age are preserved in Estonian museums: 12 axes, one sickle and one spearhead; ornaments are completely absent. In addition to the above items, there is some data regarding two narrow-bladed flanged axes, the provenances of which are unknown. One of them was presumably found on Muhu Island and the other in Valgjärve in south-eastern Estonia (see Lõugas 1970a, 84, note 5). Like the majority of late stone

Fig. 10. *Bronze palstave (1) and flanged axes (2–5). 1 Lelle, 2 Raidsaare, 3 Tahula, 4 Kaarma, 5 Äksi (AI 4378; 2513: 89; K10: 1; K98; 2513: 90).*

axes, the bronze artefacts are also either isolated finds or of uncertain provenance (Fig. 3).

The 14 axes can be divided into three morphological types. Seven axes belong to the group of *flanged axes*, six of which represent narrow-bladed, 'high-flanged axes of class C' as described by Vandkilde (1996, 107 ff., 223) (Fig. 10: 2, 4–5). Such artefacts were manufactured in the southern Scandinavian/northern German cultural area during the Montelius period IB (i.e. 16th century BC). The seventh axe, found at Tahula on Saaremaa Island, and characterized by a wide halberd-like blade and low flanges (Fig. 10: 3), was also likely made in that region, although an East Prussian origin has been suggested (Jaanits *et al.* 1982, 132). The corresponding axes in East Prussia differ considerably from the Tahula axe, however (cf. Kulikauskas *et al.* 1961, fig. 53: 1–2). According to Vandkilde (1996, 101 ff., 211), such axes (called 'waisted flanged axes of Virring type') were made and used in the Montelius period IA (17th century BC). In the countries that lie to the east of the Baltic Sea, the flanged axes described above are reported only from Estonia; in Finland they are absent (Meinander 1954b, 19), and the corresponding axes in Latvia and Lithuania represent slightly different types (Graudonis 1967, pls. XXIII: 4, 6–7, 9, 11; XXIV: 12–13).

There are five *palstaves* (Fig. 10: 1) that belong to a group of axes widely distributed in Scandinavia during Montelius period II (Montelius 1991 [1917], figs. 850–853; Oldeberg 1976, figs. 196, 248). A unique *socketed axe* from Järveküla (northwestern Estonia), the most beautiful artefact from the Estonian Bronze Age (Fig. 11: 1), still has no exact parallels; it should, however, belong to the group of so-called *nordische Streitbeile* by Aner (1962, 180 ff., figs. 6–8), and also has rough similarities with some specimens from Södermanland in Sweden (Montelius 1991 [1917], fig. 878; Oldeberg 1976, fig. 2724). Judging by its general proportions, the shape of the blade, and the decoration motifs, the Järveküla axe was most likely made somewhere in Scandinavia during period II of the Montelius. One additional socketed axe was recently found in Eesnurga, central southern Estonia (Fig. 11: 2); it is likely that this relatively long and slender axe was produced in southern Scandinavia at the end of the Early Bronze Age (Lang *et al.* 2006).

Fig. 11. *Socketed axes from Järveküla (1) and Eesnurga (2) (TLM 19855; VM without number; photos: E. Väljal and A. Kriiska).*

As all axes found in Estonia appear to originate from west of the Baltic Sea, the sickle from Kivisaare and the spearhead from Muhu Island (Figs. 12–13) demonstrate the different paths of exchange. The former has come from what is today the Ukraine, the latter from the area of the

Fig. 12. *Spearhead from Muhu (AI 1047).*

Seima-Turbino Culture near the Ural Mountains (Jaanits *et al.* 1982, 132). The latter is dated to the 17th–15th centuries BC, but it could even be some centuries older.[26]

One can conclude that all of the above-mentioned bronze artefacts were made in the earliest Bronze Age (periods I and II), while there are no specimens known from period III, and new imported goods do not appear again until late in period IV. It seems that the era of relatively active contacts between Estonia and Scandinavia during the Late Neolithic (beginning in the Corded Ware period) and Early Bronze Age was followed by a 'less active' period in the last quarter of the second millennium BC. The situation was the opposite in Finland, for example, where the majority of imported metal goods belong to periods II and III, but are almost unknown in period I. In Latvia, too, the Scandinavian influence seems to have become stronger in period III, as one can infer on the basis of both imported goods and multi-layered burial mounds in Reznes, Kalnieši and elsewhere (Lõugas 1985, 53). The number of bronze artefacts from period III is much greater than that of earlier times in both Latvia and Lithuania; this situation may be at least partly explained by the advent of local metalworking.

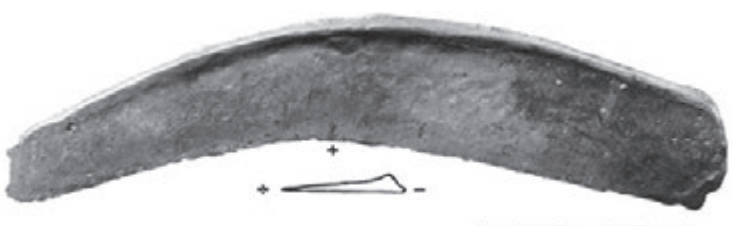

Fig. 13. *Sickle from Kivisaare (AI 2758: 12).*

[26] This date is based on culture-historical comparisons with neighbouring cultures. However, there are some radiocarbon dates from the complexes densely related to this archaeological culture (e.g. 3560±30 and 3630±75 BP; see Tshernykh & Kuzminykh 1989, 259 ff.) the calibrated values of which are 2020–1770 and 2200–1770 BC respectively.

The social context of imported items

The movement of artefacts from one area to another reflects the relations, contacts, and interactions – i.e. the communication – between people living in those areas. Judging from the ethnoarchaeological parallels, such communication may have differed greatly in terms of content and social meaning at different times and in different regions. In trying to interpret communication in the final part of the Neolithic and Early Bronze Age, one must specify the meaning of imported goods, and also consider the comparative ethnoarchaeological evidence.

As is apparent from the data presented above, there are no raw materials – such as flint, amber, or bronze bars (or respective assemblages of broken artefacts) – among the imported objects. The majority of artefacts of foreign origin were mostly finished axes and were made of either stone or bronze. Particularly in the case of bronze axes, researchers have been inclined to stress their importance in the development of economic and labour productivity (Jaanits *et al.* 1982, 132 ff.). The rarity of such artefacts in Estonia, however, compels one to doubt whether they were used at all in everyday work. Even in the Bronze Age cultural centre of the south-eastern Baltic region, the function of bronze axes, examples of which number in the hundreds, probably did not involve that of practical work (Sidrys & Luchtanas 1999, 170). This theory is augmented by the refined appearance of several bronze objects (the axes from Järveküla and Tahula, and the spearhead from Muhu Island), and particularly by the large number of imported stone axes and other stone implements. It is difficult to imagine how the importation of stone axes could have improved local labour productivity. If metal tools had a noteworthy economic effect in Estonia in the Early Bronze Age, one could also expect the introduction of metalworking technology around the same time. There is still no evidence of local metalworking, however, although the parallels from both Latvia and Lithuania[27] suggest that corresponding workshops may be found in the future when there is greater knowledge of and ability to study Early Bronze Age sites. Instead of economic function, one must keep in mind the component of social prestige when interpreting imported goods of stone and bronze. In other words, the imported artefacts of the Late Neolithic and Early Bronze Age in Estonia have nothing to do with economic development or intentional trade, but are instead an indication of social behaviour, first and foremost communication and relationships.

Behind the imported artefacts in question there appears to have been an expression of the phenomenon known as the *gift-partnership* in the anthropological literature (see Orme 1981, 180 f.), which has much in common with Colin Renfrew's *prestige chain* model (1972). The purpose of such communication was not to obtain economic profit, but to establish and maintain friendly relations between both individuals and social groups. The key word here is *reciprocity* – the basis for the principles of social relations and a driving force in traditional societies around the world. Although anthropologists distinguish between different variations in the type of the reciprocity – i.e. generalized, balanced, or negative reciprocity (Sahlins 1974, 193 ff.) – it is important to state that as every gift presupposes a return gift, it creates a social link, or even a feeling of indebtedness, between the individuals. As specifically asserted by Barbara Bender (1978, 212), the giving of gifts

[27] The Lagaža settlement in Latvia has revealed evidence of bronze casting; the calibrated value of the radiocarbon dates obtained from the cultural layer were 2300–1400 BC. The respective data for Lithuania comes from the Žemaitiškė 2 and Papiškė 4 settlements, which date to 2300–1600 BC (Loze 1979, 79 f., 121; Antanaitis 2001, 11; Lang & Kriiska 2001, 97). Locally made bronze items did not become common in the southern part of the eastern Baltic region until ca. 1300–1100 BC (Sidrys & Luchtanas 1999, 169).

creates obligations. The resulting ever-present economic instability offers many opportunities for leaders to demonstrate their generosity by giving gifts to the commoners, and thus it forms a basis for social stratification and the emergence of leaders surrounded by 'debtors'.

In this case, however, the mechanisms of exchange and the routes of transport that gifts followed are more important issues to discuss. According to ethno-archaeological parallels, the gifts may have moved either along kinship lines, where the most active communication took place between relatives who lived closer to one another, or through social ranks both within and between the larger communities (Sahlins 1974, 196 ff.). In ranked societies, one can distinguish two levels in the exchange of gifts: one level is based on the principle of reciprocity, and the other on the principle of redistribution. The latter became more common in complex chiefdom-like societies, although here too, it was based on reciprocity being its more organized and centralized expression, which was integrated with leadership-related obligations and duties (Sahlins 1974, 208 ff.). In the case of the Late Neolithic and Early Bronze Age in the eastern Baltic region, we cannot speak of chiefdom-like societies or chiefly redistributions of goods; instead there was a simple reciprocity-based exchange between individuals and neighbouring groups.

The nature of exchange based on the principle of reciprocity could vary considerably, as demonstrated in the anthropological and ethno-archaeological literature (see Sahlins 1974, 185–275; David & Kramer 2001, 360 ff.; Orme 1981, 180 ff.). Every active member of a society could have a partner in several other groups, and through a series of mutual exchanges of gifts, goods could move over long distances.[28] The final recipient of an artefact probably had no idea where it was made. A classical example of such exchange networks is the *kula*-circle in the archipelago of Melanesia, where the groups involved exchanged ritual goods by accompaniment ceremonies, in both clockwise and counter-clockwise directions.[29] The corresponding goods had to move away from the place of manufacture and the original giver; they could not be used in everyday life and work (some of them were even too small for such use) and their value increased with each exchange. The main *kula*-goods were ornaments, such as necklaces and armbands – usually made solely for the purpose of ceremonial exchange – but there is some evidence that in earlier times the range of goods was greater, also including ceremonial ceramics and polished stone axes (Orme 1981, 185 f.; Johnson 1989, 72 ff.).

Although there is no data about the probable social mechanisms of exchange around the Baltic in the Late Neolithic and Early Bronze Age, one can consider that at least those stone axes that could not be used in everyday work (because they were too small or had too narrow a shaft hole) served as ceremonial exchange goods (see Vasks 2003). There is no doubt that many other axes were also exchanged. In the archaeological record, all stone axes of foreign origin can be explained in this manner, because there was no economic reason to exchange them. The range of exchanged items was also undoubtedly greater than that listed above: objects made of organic matter that have not survived, stone axes of

[28] Exchange networks, which extended up to 620 kilometres inland, were known in north-eastern Australia, for example (see Cashdan 1989, 43).

[29] There is even some data that the partnership relations were handed down from generation to generation (Orme 1981, 183), which could explain also the survival of the communication lines over centuries in northern Europe. The so-called friendship trade between Estonian and Finnish coastal areas was, in principle, the same phenomenon, although in the form known to us it represented a much more advanced custom of trade (see Vilkuna 1964; Troska 1998, 230 ff.).

simple or universal types (the movement of which is difficult to establish), and of course, bronze luxury items.

In socially ranked societies, the so-called diplomatic exchange of gifts carried out by chiefs was also important, although this was not done for economic benefits but rather with the purpose of establishing and maintaining friendly relations between groups (Orme 1981, 181 ff.). Such an exchange of gifts, based on balanced reciprocity, is a universal and timeless way to establish relations between both the nearest neighbours and distant strangers, and it seems reasonable to assume that the gifts exchanged by chiefs were, on average, more valuable than those exchanged by common people. The latter were also repeatedly exchanged and not used in everyday life; archaeologists usually find them either in graves or in places where they were ultimately deposited or lost (see Lavento 2001, 172 and the literature cited). Estonian metal artefacts from the Early Bronze Age correspond completely to the criteria for prestige items: they do not bear many traces of wear, and although they have not been discovered in graves, they have rarely been found in hoards either; these items would have been considered very valuable goods in the local context.

Although the majority of the Estonian Late Neolithic and Early Bronze Age imports originated in southern Scandinavia, this does not necessarily mean that the local people had direct contacts with that area. As mentioned above, prestige items may have passed through many hands by way of repeated exchanges over extremely great distances. Hence, artefacts made in southern Scandinavia could reach what is today Estonia over, for instance, either the southern, western or northern shores, or the islands of the Baltic. However, it still seems possible that, at least in period I of the Bronze Age, the people of Estonia had direct contacts with some areas of Scandinavia, as none of the flanged axes produced there and found in Estonia have been discovered in Finland or in the southernmost part of the eastern Baltic region. At approximately the same time, some connections were also made in the east, as evidenced by a spearhead of Seima-Turbino origin. Imported items (socketed axes) of eastern origin, which are dated to the beginning of the Bronze Age, are also known in Finland (Meinander 1954b, 39 ff.). Thus, metal artefacts made in Scandinavia in period I of the Bronze Age have, in their eastward movement, reached Estonia, but not further; in the same way the artefacts made in the area of the Seima-Turbino Culture have, in their westward movement, reached Estonia and western Finland, but not further.[30] In period II, the pattern of social networks and connections with Scandinavia seems to have been enlarged to include both Finland and Latvia, as can be determined on the basis of the distribution of palstaves. Following this, in period III, Estonia seems to have been almost excluded from such a network; there are no known imported metal goods from that time (except the Eesnurga axe). It is possible that metal artefacts were mostly replaced by stone axes at that time, as the rhomboid axes and those with recurved butts could have such a late date. It is not clear how this kind of change should be interpreted, nor is it clear whether such a change really took place at all.

In determining the boundaries of the region with the most intimate interactions, including the areas of present-day Estonia, the coastal zone of Finland formed the northernmost border. In the south, the Daugava River basin was usually not crossed. It is likely that in the west, the main

[30] In addition to Estonian example, an early spearhead of Seima-Turbino type is known in Gribžiniai, Lithuania (Tshernykh & Kuzminykh 1989, fig. 45: 6). The four axes uncovered in Finland and two spearheads from the Baltic region represent the products of the above Bronze Age cultural centre, which extended furthest to the west.

area of contact was the eastern coast of central Sweden and not the more distant areas in southern Scandinavia.[31] How far to the east contacts reached is more questionable, as the Bronze Age of north-western Russia has not been thoroughly investigated and it is very difficult to draw conclusions on the basis of one single spearhead. It is possible that this spearhead, found on Muhu Island but originating from the Urals, may have entered an exchange system via Finland as well. In principle, we are dealing here with the same area of contacts, which on the basis of material culture becomes much more visible in the Late Bronze Age.

1.3. Centre – periphery relations

An important aspect of the Early Bronze Age social communication networks were the centre–periphery relations. The present treatment is based on a modification of the work of Andrew Sherratt (1993; see Lang 2000a, 28–30). Sherratt has defined the following socio-economic structure at the continental European level, that is, the macro level: centre or core, periphery or hinterland surrounding it, and the margin, which is located even further away. He claims that such a triple-level structure was established when urban settlement with its characteristic division of labour, trade, and consumption developed in the core area (first in Asia Minor and later in the eastern Mediterranean). The towns within this core needed a hinterland from which to obtain raw materials and to market their goods to. Before the development of towns there was a simple two-level structure (core and margin). When the urban centre began to develop it was surrounded by a rather narrow and well-defined hinterland, which could withstand structural changes in the society, ideology, and economy due to its interaction with the centre. As a result the hinterland could become a new centre. The centre and hinterland were dependent on each other, although the dependence was asymmetric; however, the same does not apply to the core and the margin. The influence of the core extended through the hinterland to the borders of the margin, but it did not cause any structural changes there. Sherratt sees a wave-like trend in the historical process where hinterlands become the cores and thus increasingly remote margins become the hinterlands. Long trade routes and extensive trade networks, which influenced the local core areas and singled out the regions to where the hinterland was extended, played a significant role in the process (Sherratt 1993, 8).

It seems, however, that one can also speak of centre–hinterland–margin relationships prior to the establishment of towns. In addition to towns, core areas with much denser settlement, rich archaeological assemblages, and innovative cultural behaviour have also functioned as centres for larger regions. Such core areas inevitably needed to be surrounded with peripheral zones where they could obtain raw materials and other resources for economic development, and where they could market their products. The archaeological material shows that core areas at various stages of development, and with a variety of functions, were linked and dependent on the surrounding areas in one way or another, long before the establishment of towns. However, it is problematical to show the extent and degree of the dependency between the centres and possible hinterlands and their relation to the margin because the material is sketchy and open to

[31] The metal items dating to the Early Bronze Age have a rather similar shape across the Nordic region, which is why it is difficult to distinguish from what specific region they reached Estonia (for a different view see Lõugas 1985, 53). Presumably, it is reasonable to follow the principle of geographic proximity, whereby the imported items originated from the nearest possible region.

Fig. 14. *Baltic Sea region at the outset of the Early Bronze Age. a–c Nordic Bronze Age Culture (a core area, b peripheral zone, and c areas with marginal impact), d–e West Baltic Barrow Culture (d core, e marginal area), f Pre-Lusatian cultures.*

different interpretations. It is also difficult to define the interactions between centres at various levels of complexity. On the other hand, one cannot ignore the dynamics of the centre–hinterland–margin relations and their influence on regional developments in both the social and economic spheres, regardless of the presently scarce archaeological data.

Two significant cultural centres, which are important for Estonia, developed in the Baltic Sea region during the Early Bronze Age (Fig. 14). The earlier and larger of the two was located in southern Scandinavia and northern Germany, and the smaller one in what was formerly East Prussia and what is presently north-east Poland and Kaliningrad oblast. During the Early Bronze Age there was a complex chiefdom-like society in southern Scandinavia; the outstanding prehistoric remains of the period are large barrows, numerous hoards of valuables, and abundant and extravagant artefacts. The foreign contacts of the Scandinavian chiefs included, most importantly, central Europe and the Mediterranean. The Scandinavian chiefs tried to imitate the lifestyle of the chiefs in the other regions they had contact with. The above Bronze Age culture extended as far north as central Sweden, and sites and finds become more rare further north. Bronze Age stone graves, although with a somewhat different shape and location in the landscape, are also known in northern Sweden along the Gulf of Bothnia and in the coastal zones of western and south-western Finland. In Sweden and Finland these stone graves (dated by the grave goods) belong to periods II and III, although some archaeologists believe that in Finland they may have been also erected during period IV (Salo 1984, 130). It is reasonable to assume that the stone graves in the Mälaren area and to the north of it, and on the Finnish coast, constituted the northern periphery of the southern centre's sphere of influence during the Scandinavian Bronze Age. Present-day Estonia was clearly not part of the periphery during the Early Bronze Age, but rather constituted the margin, although interactions in the form of gift-partnerships could have been a regular occurrence.

The cultural centre located on the south-eastern coast of the Baltic Sea developed somewhat later, not until period III of the Nordic Bronze Age. The core area of this region was within the boundaries of the so-called West Baltic Barrow Culture area, which extended as far north as the western coast of present-day Lithuania, and in the south-west it converged with the Pre-Lusatian cultural region. Metal artefacts, both imported and manufactured on the spot, are less numerous in this cultural centre than in southern Scandinavia; such artefacts are most frequently prestige weapons (axes, but also spearheads, swords, knives, etc.). The find material and barrows indicate that a rather complex chiefdom society, the leaders of which had contacts with southern Scandinavia and central Europe, had evolved on the south-eastern coast of the Baltic Sea. Baltic amber, which is believed to have been the main trade item, reached (obviously through numerous exchanges) as far as the Mycenaen Culture in the Mediterranean (Sidrys & Luchtanas 1999, 169 ff., figs. 2–3). Bronze items from the centre located on the south-eastern coast of the Baltic Sea reached almost as far north as the Daugava River, but to date are completely absent in Estonia and northern Latvia.

An extensive area where metal-processing technology was unknown or only practised on an experimental basis was located next to and between these two Bronze Age cultural centres. This area included Estonia, northern Latvia, and the regions to the north of the Gulf of Finland. Most of the bronze items circulating in the region entered the local communication network, which was based on gift-partnerships, through Sweden; first they probably reached directly Estonia, and later over the Finnish coastal areas. There is reason to assume that the Seima-Turbino bronze first reached Finland along the northern river

corridors, entering the local communication network, and only later reaching Estonia. As for the exchange of elite prestige items, the contacts with central Sweden and south-western Finland were the most important for Estonia; both areas are in essentially the same direction when considering the main navigation routes (at least in the case of travel or trade originating in northern Estonia). The inhabitants of Saaremaa Island could have had direct contacts with Gotland, as the archaeological record clearly indicates in the Late Bronze Age. It is obvious that the coast of Finland constituted the periphery of the Scandinavian Bronze Age Culture, whereas present-day Estonia and northern Latvia definitely belonged to the margin. This is why no major structural changes in the society, ideology, or economy that could have been reflected, for instance, in the building of monumental above-ground stone graves and the development of local metal processing, took place in the Early Bronze Age – all this started at a later date.

The stated trends in the development of contacts apply first and foremost to metal artefacts. However, somewhat different relations can be observed in regard to the exchange of stone axes. As for the latter, some of the exchange routes definitely go unnoticed because most axes from the Baltic Sea region looked rather similar, and it is difficult to identify where they may have originated from and travelled to. Rhomboid axes and axes with recurved butts, which were used until periods IV or V, seem to be representative of the same Scandinavian region as most of the bronze items, and thus indicate a continuation of the contacts between the eastern and western coasts of the Baltic Sea, which had begun by the Late Neolithic (see Jaanits 1985).[32] The question remains as to why stone items were still exchanged during the 'advanced Bronze Age'. However, considering the fact that both bronze and stone axes were gifts with a ceremonial meaning and were not utilitarian tools, the material that they were manufactured from was also probably not important. The five-corned axes also suggest rather close contacts in the direction of the central European Lusatian Culture, probably through the southern Baltic neighbours. The Augšzeme-type stone axes also indicate southern contacts. Stone axes were indeed brought across the Daugava River, but not metal items of southern origin, other than the Kivisaare sickle.

[32] In Scandinavia most of the latest stone axes were found in eastern Sweden (Baudou 1960, maps 29–34), that is, in the region having the closest contacts with the opposite shore of the Baltic Sea.

1.4. Conclusion

Although the sites dating to the end of the Neolithic and especially the Early Bronze Age, remain poorly known in Estonia, one can still claim that significant changes in society, economy, and settlement occurred during this thousand-year period. We can only speculate about the slow changes that occurred, but such opinions can be derived by comparing data from the Late Neolithic and Late Bronze Age, which have a larger and more diverse amount of material known than does the Early Bronze Age. The changes that took place were protracted, but also inevitable, considering the existing (and ever-changing) circumstances. The result was the development of an early agrarian society in the coastal zone by the end of the second millennium BC and inland many centuries later.

The economic essence of the changes was a transition from foraging to farming, although a mixed economy is characteristic of the period as a whole. People had begun to experiment with farming by the Middle Neolithic, and the final conversion took place inland during the first millennium BC. An important development during the final Neolithic and Early Bronze Age was that

suitable arable and pasture lands started to determine the location of settlements. Another significant process that accompanied the change in the structure of the economy was the settlement shift, the so-called first *landnam*. This was the most extensive and important settlement shift between the development of the first settlement network of hunter-gatherers and the urbanization process of the 19th and 20th centuries. During that period, areas that would become the location of farming settlements in the following centuries came into use for the first time. The changes in economy and settlement patterns gave rise to social changes; though it would be even more accurate to say that the above spheres all changed at the same time and influenced each other. The main social change was the split of foraging communities into smaller settlement units, which were probably not bigger than a single household.

The lengthiness of the development processes can be explained by their own inner logic. Sparse settlement pattern consisting of small units was insufficient to create the critical mass needed for a rapid transition to production or development of a new and well-defined material culture. Estonia remained a distant margin for the cultural centres of the Bronze Age located in southern Scandinavia and the south-eastern coast of the Baltic Sea during the Early Bronze Age. The present data suggests that metal-processing technology was unknown in Estonia; a few bronze items arrived through gift-partnerships and had almost no role in advancing labour productivity. We have no direct data on religion, but it is safe to assume that some elements of the fertility cult started to evolve at this time; stone axes may have been used in rituals related to cultivation and fertilization.

Chapter 2

Settlement Sites and Settlement in the Late Bronze and Early Iron Ages

In comparison to the end of the Neolithic and the Early Bronze Age, many more sites have been discovered that are associated with the Late Bronze and the Early Iron Ages: over 3000 sites are currently known for these latter periods. A large proportion of these sites are stone graves and cup-marked stones, but the number of settlement sites known has also increased to a remarkable degree. Thus, so far there are data regarding 130 settlement sites from this period – which is six times more than in the second millennium BC. With regard to their nature and location, the settlement sites can be divided into two large groups. The first group are enclosed settlement sites, which consists of four types: so-called fortified settlements on hillocks, simple hilltop[33] settlements, ring forts built on flat ground, and early promontory hill forts. The second group includes small open settlements in modern fields or in their vicinity. The latter are much greater in number.

The location of stone graves in particular, as well as fossil fields, fortified settlement sites, and cup-marked stones in the first millennium BC reveals a wide discrepancy, on the one hand, between northern and western Estonia (including the islands) and, on the other, central and southern Estonia. Such differences disappear during the first half of the first millennium AD. In this chapter I will examine whether there were any differences, and what the nature of them was, between the different parts of the country in the character and location of settlement sites and general settlement patterns. It will be necessary to take a look at enclosed settlement sites and how they differed from the usual open settlement sites, when and why were they established and separated from the larger community, who their inhabitants were, and what they did. Finally, an attempt will be made to analyse the regularities of settlement development over a period of 1500 years in various parts of the country, also taking into account the distribution of other site types (i.e. graves, cup-marked stones, and isolated finds).

2.1. Open settlement sites

The past 25 years have witnessed a remarkable increase in the number of known open settlement

[33] Because of the relatively flat relief in Estonia, even the hills are not very high and usually rise no more than a few dozen metres.

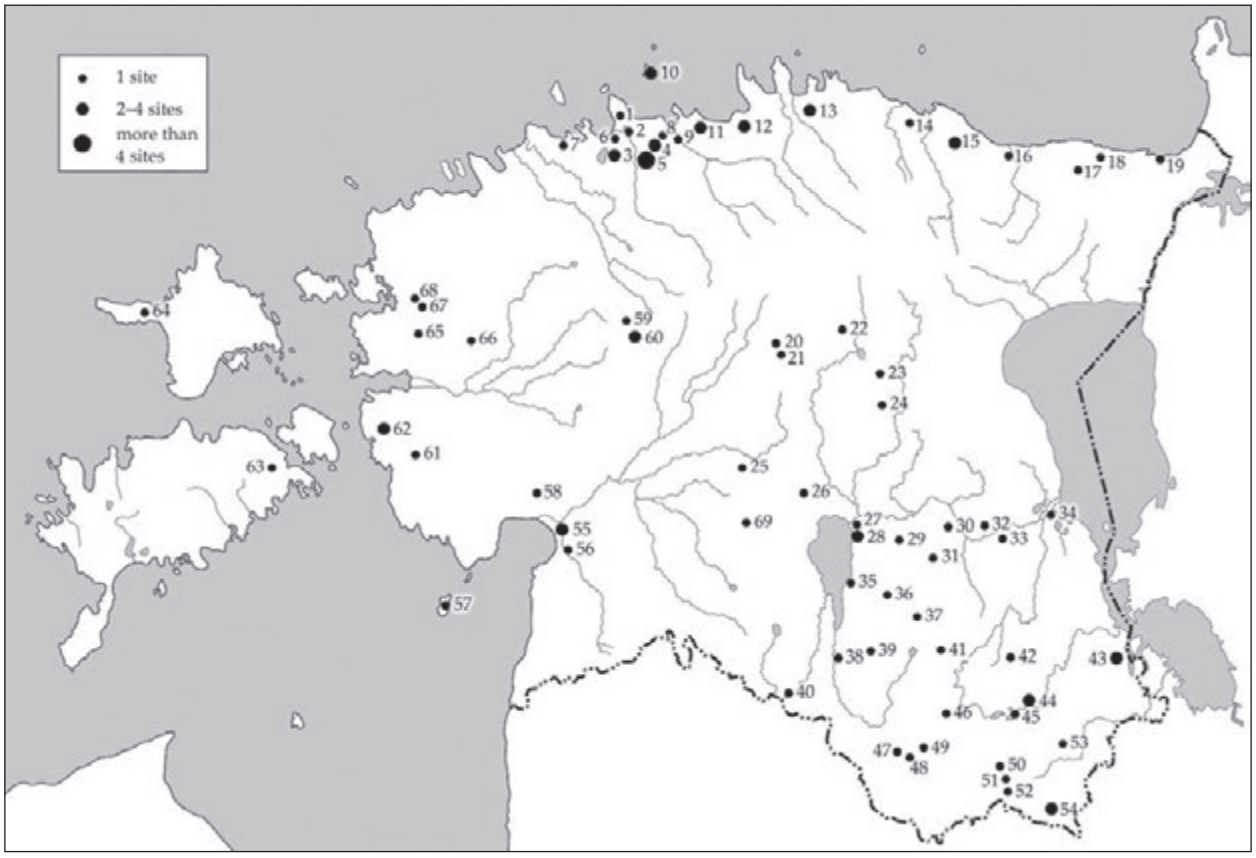

Fig. 15. *Open settlement sites of the Late Bronze and Early Iron Ages. 1 Viimsi, 2 Iru, 3 Kasevälja and Peetri at Mõigu, 4 Maardu, Kadaka and Ülejõe at Lagedi, Pähklimägi and Saha, 5 Jüri, Rae, Lehmja, Lehmja-Loo, Pajupea, Vaskjala and Assaku, 6 Tallinn-Liivalaia, 7 Rannamõisa, 8 Jõelähtme, 9 Joa, 10 Prangli I–IV, 11 Valkla and Rummu, 12 Muuksi and Kalamäe, 13 Ilumäe II, Tõugu I and III, 14 Kaliküla, 15 Viru-Nigula and Pada, 16 Jäbara, 17 Kohtla-Järve, 18 Toila, 19 Pimestiku, 20 Tarbja, 21 Nurmsi, 22 Koeru, 23 Kõola, 24 Eristvere, 25 Olustvere, 26 Siimusaare, 27 Verevi, 28 Suure-Rakke and Sangla, 29 Rõhu, 30 Tartu, 31 Unipiha, 32 Sääsekõrva, 33 Mäksa, 34 Akali, 35 Vehendi, 36 Uderna, 37 Nõuni, 38 Jõgeveste, 39 Komsi, 40 Valgjärv at Koorküla, 41 Ala-Pika, 42 Metste, 43 Väike-Rõsna, Võpolsovo, Tonja and Kretska, 44 Kääpa and Villa, 45 Tamula, 46 Majala, 47 Karula, 48 Lüllemäe, 49 Mähkli, 50 Rõuge, 51 Plaani, 52 Ruusmäe, 53 Kalatsova, 54 Siksali I and II, 55 Altküla and Reiu, 56 Laadi, 57 Mõisaküla, 58 Lemmetsa, 59 Valtu, 60 Koogimäe and Käbiküla, 61 Linnuse at Vatla, 62 Kõmsi and Kaseküla, 63 Pöide, 64 Kõpu, 65 Ehmja, 66 Kullamaa, 67 Rui, 68 Koela, 69 Mustivere.*

sites[34] from the Late Bronze and the Early Iron Ages, but as before, there has been very little research directed towards such sites. *Eesti esiajalugu* (Jaanits *et al.* 1982, 148, 174 ff., 219, pl. X) lists the following 10 settlement sites from this period: Jüri, Rannamõisa, Ülejõe at Lagedi, Lehmja-Loo, and Mõigu in northern Estonia, Siimusaare and Kõola in central Estonia, Akali at the mouth of the Emajõgi River, and Altküla and Kaseküla in western Estonia; no open

[34] The term 'open settlement site' means, in this treatment, a settlement site that has no traces of either man-made or natural defences.

settlement sites had been found in north-eastern or south-eastern Estonia or on the islands. At the moment there are data regarding more than 90 open settlement sites that in part or fully date to the Late Bronze Age and/or the Early Iron Age. There are two geographically distinct regions in Estonia where many more settlement sites have been discovered than in other parts of the country (Fig. 15). One of the regions is northern Estonia, particularly the area to the south-east of Tallinn, which has been known for its settlement sites for a long time. South-eastern Estonia is the second region that is rich in settlement sites but has come forward in this respect only recently. Few open settlement sites have been located in central or south-western Estonia so far, while in the western part of the country they are slightly more numerous than in the latter regions.

The apparent concentration of open settlements in two main regions can only be explained by the current state of archaeological research. The numerous settlement sites in northern Estonia have been found, in large part, due to the active work of the local amateur historian Oskar Raudmets and the archaeologist Vello Lõugas, in addition to some special research projects in the framework of which more detailed and targeted landscape surveys were carried out (Lang 1996a; 2000a; Vedru 2001; Tamla 1996). The settlement sites in south-eastern Estonia have been found over the last decade or so since the archaeology program was re-established at the University of Tartu, where the main research focus was on southern Estonia. Andres Vindi has been particularly successful in finding settlement sites in the south and Mati Mandel has located many sites in western Estonia (see Mandel 2003, 165 ff., fig. 20). Therefore, it can be assumed that more thorough landscape surveys might reveal many new settlement sites in the less well-investigated regions of central and south-western Estonia. This has been true in the Keava area in northern central Estonia, where the results of fieldwork recently carried out there located settlement sites of the period where none had been previously known.

Throughout the country, most settlement sites were discovered either as a result of landscape surveys or in conjunction with the excavation of other types of sites, and they yielded only a handful of ceramics. Only six sites have been archaeologically excavated, and the excavations were limited in scope. Thus, there is a huge gap in our knowledge of the open settlement sites of this period. It is known, however, that most of the settlement sites are small, rarely encompass more than half a hectare in surface area, and have thin cultural layers with few artefacts. Nothing is known about the planning of the settlements, the number and character of buildings, or the nature of everyday life. Additionally, more accurate dating of the open settlement sites has often been impossible because material that could be radiocarbon dated and metal artefacts are rarely obtained. The dating of the settlements located in south-eastern Estonia is particularly difficult because the surface finds, which usually consist of a small number of textile-impressed and/or striated potsherds, do not allow for precise chronological placements within the period under discussion. In the following, some settlement sites, characteristic from one or another aspect, will be dealt with in more detail.

Jüri, a settlement site near Tallinn, has been considered an open settlement site that was established by the Late Bronze Age. This site, located on a slightly elevated ridge of a field yielded a Bronze Age socketed axe of period V or VI, a number of fireplaces that had been scattered by ploughing, some whetstones, a grinding stone, and some striated and smoothed potsherds. Also located on this ridge were several stone-cist graves (some had been destroyed), and one of the earliest iron smelting sites in Estonia, which was situated a few hundred metres to the west on the edge of a swampy pasture; some striated ceramics were also found on

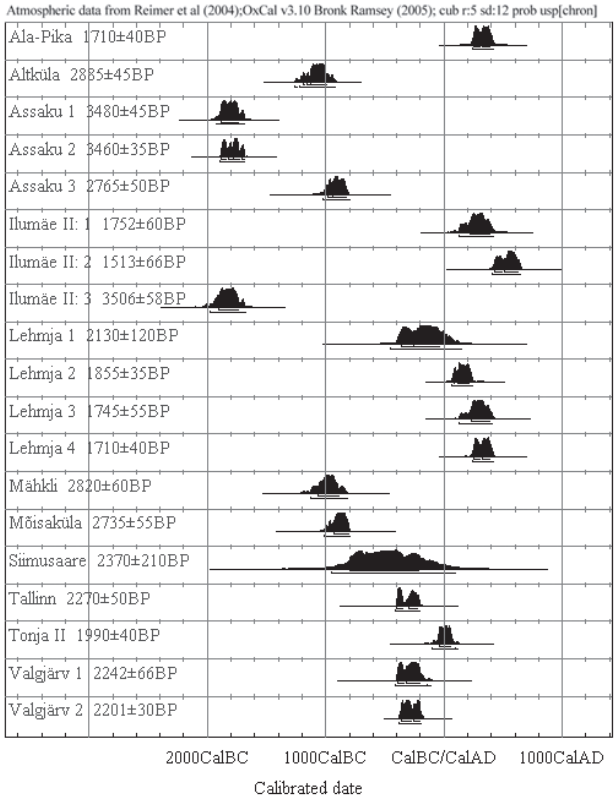

Fig. 16. *Radiocarbon dates from open settlement sites.*

the ridge (Lõugas 1970a, 307 ff., 525 ff.). These features compose, without a doubt, a long-term settlement unit, the various remains of which may be dated either to the Late Bronze or the Early Iron Age. Unfortunately, the cultural layer of the settlement has been largely destroyed due to intensive cultivation. Approximately a dozen of similar settlement locations of limited scope, the survey of which yielded ceramics of the time, have been found in the area of Jüri–Assaku–Lehmja (Fig. 15: 4–5; Lang 1996a, figs. 108–109).[35]

No archaeological excavations have been carried out at Jüri or the surrounding areas. The settlements of Rannamõisa and Ilumäe II, as well as some other sites (e.g. Siimusaare and Ala-Pika), have been excavated on a small scale. Unfortunately, the results of the excavations were modest, and work was usually limited to the investigation of some fireplaces and gathering a few finds. House floors of the period have not, to date, been found anywhere. The Ala-Pika settlement site revealed only a single fireplace (1.75 m in diameter), which had been dug into the original ground surface and has been definitively dated to the Early Iron Age (Fig. 16). Additionally, rough household ceramics, some beads, bronze spirals, a grinding stone, and a scythe stone could be dated to the early stage of the settlement. Two stone graves were located 300 m and 380 m, respectively, from the settlement site, which had been deserted before the Viking Age (Valk 1996).

The 56 m² excavation at the Ilumäe II settlement, northern Estonia, was, by chance, located in an area where there were no remains of buildings. The cultural layer of the 0.3 hectare settlement had been disturbed via ploughing in the Middle Ages, and as a result it was covered with up to 40 cm of soil transported from higher ground by plough-action. The cultural layer was more or less intact only in the hollows that reached down to the original ground surface. The only remaining and undisturbed features were associated with the production of ceramics. The site revealed a hollow (60 cm in diameter and 30 cm in depth) filled with raw clay and covered by a thin layer of fine stone debris (see below, Fig. 57). Two fire pits that did not contain any stones but that revealed many potsherds were unearthed nearby (Lang 2000a, 174 ff., figs. 80–83). One is probably dealing with a clay-kneading area and pits for firing the ceramics, which according to the radiocarbon samples date to the Late Roman Iron Age, i.e. the 4th–5th centuries AD. The following finds recovered from the excavation also verify the date: a bronze spiral, glass beads, two whetstones, and

[35] A textile-impressed clay pot obtained from a settlement site at Assaku has been AMS-dated to the 10th–9th centuries BC (Fig. 16: Assaku 3; Kriiska *et al.* 2005, 14).

580 potsherds; most of the latter were smoothed (80.2%) while a small proportion was faintly striated. About 100 small clay daubs indicate the use of clay lining in house building of the time. The Kõvermäe *tarand*-grave, which is located 125 m from the settlement site, dates to the same period, while the ard marks found under the cultural layer of the settlement site are of a slightly earlier origin (Lang 2000a, 178 ff.).[36]

Most of the other open settlement sites, similar to Jüri and Ilumäe, are also located in an agricultural environment in the vicinity of lands suitable for cultivation and near pastures; other sites of the period (usually stone graves) have often been found in the vicinity of open settlements. This applies to northern and western Estonia (e.g. Kaseküla, Kõmsi) and, in part, also to southern Estonia (e.g. Ala-Pika and Vehendi). For this reason, as well as for their small surface area, there is no doubt that the sites represent the locations of farming (single) households.

A few exceptions can be recognized, however. Although it seems that the coastal zone directly adjacent to the sea in northern Estonia was not permanently settled since the (Late) Bronze Age, a settlement site has been found in an area of more recent beach ridges at Rannamõisa, approximately 12 kilometres west of Tallinn. Excavations here revealed several hundred striated and smoothed potsherds which had been decorated with twisted cord and comb-stamped impressions. The finds date to the end of the Bronze Age and to the Pre-Roman Iron Age. The closest contemporary stone graves are located about 1.5 km from the settlement in the *loo* (*alvar*) areas behind the limestone terrace. The Altküla settlement is also located outside the distribution area of the stone graves, on a high northern bank in the lower reaches of the Pärnu River valley. The cultural layer of the settlement, which is located in the sandy plain, has been disturbed by later cultivation, but it revealed a fireplace and 112 sherds from three clay vessels. The surfaces of the vessels were either striated or covered with textile-impressions, and the neck areas of two vessels had been decorated with a row of circular indentations. The AMS-date of the burnt layer containing organic material, which was obtained from the inner surface of a sherd, indicated the 12th–11th centuries BC (Fig. 16; Kriiska *et al.* 2005, 15).

The location of the settlement sites associated with several large lakes is similar to that of the settlements of Rannamõisa and Altküla. Such sites include Akali by Lake Peipsi, Sangla and Verevi near Lake Võrtsjärv, the Maardu settlement on the shore of Lake Maardu, perhaps even Kullamaa, and the pile dwellings in Lake Valgjärv near Koorküla that seem to date to the Pre-Roman Iron Age based on two radiocarbon dates[37]. No stone graves from the same period have been uncovered in the vicinity of any of the above-mentioned settlements. The Mõisaküla settlement on Kihnu Island, which was AMS-dated to the 10th or the 9th century BC (Fig. 16; Kriiska & Lõhmus 2004, 135), and four settlement spots on the isle of Prangli (Kriiska 2002b) also belong to this group of settlement sites. The same probably applies to the settlements in southern Estonia that date back to the pre-*tarand*-graves period, that is, the first millennium BC. While the location of the settlements on the shores of large water bodies suggests the importance of fishing, the absence of stone graves indicates different burial practices, and therefore different religious beliefs. The possibility that these sites were temporary camping places used by the farming communities for seasonal fishing purposes cannot be ruled out, either.

[36] This is not a complete chronology of the site; a settlement site from the Corded Ware Culture period, and a field dating to the Middle Ages were also located at the same place.

[37] No other find material dating to the Pre-Roman Iron Age has been found in the lake so far (see Roio 2003).

Thus, two different settlement patterns can be distinguished in the Late Bronze and the Pre-Roman Iron Ages based on the location of open settlement sites. One pattern was common in northern and western Estonia and was made up of a rather dense network of farming households. The distribution of the settlement sites, as well as grave groups where no settlement sites have yet been found nearby (but where one should assume the existence of settlements because of the burial sites), indicate that the settlement units were usually located only a few kilometres apart and sometimes even closer (see Lang 1996a; 2000a). The dwellings were, as much as is known, closely linked to the stone graves; they were typically located only a few hundred metres away from the graves. However, there were also some exceptional settlement sites, as noted, the surroundings of which have not revealed any stone graves. On the other hand, the population density in central and southern Estonia remained rather low at this time, and no stone graves or any other burial sites have been discovered in the vicinity of the dwellings[38] with a few exceptions such as Vehendi. The location of the settlement in the landscape indicates that fishing and other types of foraging were practised besides cultivation. The main development trend at this time was that the settlement pattern characteristic of the northern and western Estonia, which consisted of farming households that established stone graves, started to spread into the inland regions during the Late Pre-Roman and Roman Iron Ages.

[38] Single pit graves with cremations that have been found under the Vehendi and Põlgaste stone graves indicate that a burial custom different from that in other parts of the country was practised in south-eastern Estonia (but was probably even more widespread). Such burial sites are difficult to locate. As a result, it is unknown how common the practice was or where the respective graves were located in regard to the settlements (see a more detailed treatment below, Chapter 4).

It must be noted that the open settlements from the first millennium BC are also relatively unknown in neighbouring areas of Latvia and particularly in Lithuania. The open settlements re-appear in the archaeological record beginning in the Late Pre-Roman and the Roman Iron Ages, giving archaeologists a glimpse of the everyday life of the people of the time. The best studied sites in Latvia include Kivti, Kerkūzi, Spietiņi, and Jaunlīve. The dwellings in the Kerkūzi settlement, which had been enclosed by a fence, were quadrangular (4 x 4 and 5 x 5 m) or rounded-oval in layout (and the floors of the latter had been dug slightly into the ground). The find material included Roman coins, a crossbow fibula, shepherd's crook pins, and numerous ceramic finds with smoothed and striated surfaces (Vasks 1994b). A part of the Spietiņi settlement site that mainly dates to the Roman Iron Age revealed an iron smelting area with at least five furnaces, which was located away from the dwellings (Daiga 1964). Eighteen fireplaces dated to the Late Roman Iron Age and a well-preserved iron-smelting furnace have been found at the Jaunlīve settlement site, which is ca. 2 hectares in surface area (Atgāzis 1994). The Kivti settlement in eastern Latvia was established in the Late Pre-Roman Iron Age, but most of the find material dates to the Roman Iron Age and the Migration Period. Traces of quadrangular post or corner-jointed constructions measuring 6 x 6 or 6 x 5 m were found. The find assemblage was diverse, including rich ceramic finds in addition to various decorative pins, brooches, bracelets, and tools such as sickles, knives, axes (also stone axes), casting moulds, and even a spearhead (Šnore 1978). Thus, the Latvian data indicates that both above-ground and semi-subterranean dwellings were used in the Early Iron Age, the former becoming increasingly common over times (Andrejs Vasks, personal communication).

Interesting data about the sites of this period (except the Roman Iron Age) have been obtained in south-western Finland. There, settlement sites are very small; they are usually not more than several hundred, and rarely more than several thousand square metres in surface area, strongly suggesting that they were occupied by single households. Several house floors have also been found. Remains of a 4 x 4.3 m wattle-and-daub building with a dirt floor were found in the Rieskaronmäki Late Bronze Age settlement. Another slightly larger building had been used for smelting bronze in the same settlement, and the third structure was even bigger (17 x 8.2 m) with a stone foundation up to a few metres in thickness. People lived only in one part of the house while the other part was likely intended for animals (Salo 1984, 115 ff.; Uino 1986, 150 ff.). Wattle-and-daub buildings have been uncovered in other parts of the Finnish coastal zone too, and their architecture seems to reveal Scandinavian influences. In addition, there is evidence that post-built huts, which had a round or square base and a surface area of more than 30 m², was a rather common dwelling in the Early Iron Age (Asplund 2002). The Otterböte (Åland) round stone foundations dating to the Late Bronze Age do not seem that unusual in the above context (see Gustavsson 1997; Lang 1999b). Henrik Asplund (2002, 233) has emphasized that no corner-jointed constructions erected in the Bronze or Early Iron Age have been found in Finland; the earliest evidence of this building technique was obtained in the Ketohaka II settlement, which dates only to the end of the Roman Iron Age (see Uino 1986, 179). A significant change in house building techniques had thus taken place compared to the Neolithic, probably due to western influences. Asplund's (2002) claim that the building traditions might have differed in the inland and coastal regions could be true as well.

2.2. Enclosed settlement sites

Estonian archaeological literature has traditionally used the term 'fortified settlement', Est. *kindlustatud asula* (at first also 'fort-settlement'; *linnus-asula*) since the late 1930s to describe non-open settlements dating to the Late Bronze and the Early Iron Ages. The Estonian fortified settlements were compared to similar sites located in the eastern European forest belt and in Latvia and Lithuania. The fortified settlements of Asva and Iru were two of the first fortified settlements found in Estonia, and were useful for comparisons to the eastern sites due to their rich cultural layers and multifamily occupations. All other sites that were located on hilltops or ridges, but that did not contain a cultural layer similar to the Iru and Asva settlements, were later also classified as fortified settlements based on this tradition. Other enclosed settlements, differing from Asva and Iru in both character and content, were also included. At the moment there is so much data about the 'non-open settlements' (Fig. 17) that it is necessary to discuss them from a different point of view.

All the sites that cannot be interpreted as common open settlement sites can be characterized by limited and controlled access because of their location in the landscape or fortifications. For this reason they will be called *enclosed settlements* or *enclosures*. The latter are generic terms and include objects with different character and function. The common denominator of the sites is isolation and closure of a certain space from the rest of the world, following Michael Olausson (1995),[39]

[39] Olausson (1995) distinguished the following types of enclosed spaces among the sites of central Sweden (Uppland): hill forts, areas enclosed by ramparts (some are fortifications and others are not), hilltop settlements, and enclosed burial sites. The classification presented here differs slightly Olausson's due to the peculiarities of the Estonian material, which will become evident below. However, the main principle – the isolation and closure of a certain space – remains the same.

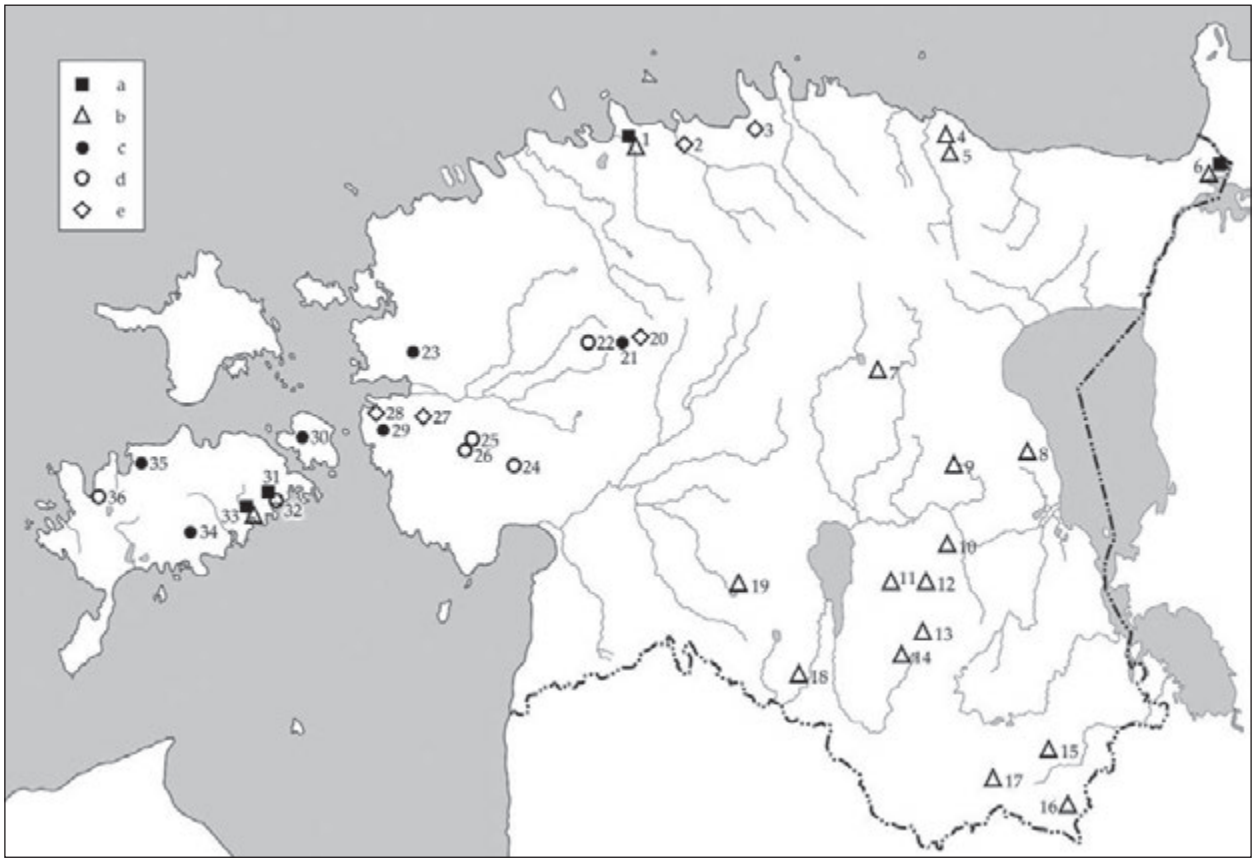

Fig. 17. *Enclosed settlement sites of the Late Bronze and Early Iron Ages. (a fortified settlement site, b hilltop site, c early ring fort (investigated), d early ring fort (uninvestigated), e early promontory hill fort.) 1 Iru, 2 Jägala, 3 Muuksi, 4 Koila, 5 Pada, 6 Joaorg at Narva, 7 Ripuka, 8 Alatskivi, 9 Saadjärve, 10 Tartu, 11 Peedu, 12 Unipiha, 13 Makita, 14 Otepää, 15 Hinniala, 16 Haapala, 17 Rõuge, 18 Tõrva, 19 Viljandi, 20 Võnnumägi at Keava, 21 Lipa, 22 Sõtküla, 23 Ehmja, 24 Virussaare, 25 Kurese, 26 Keblaste, 27 Lihunetsi, 28 Salevere, 29 Massu, 30 Päälda, 31 Ridala, 32 Mustla, 33 Asva, 34 Kaali, 35 Võhma, 36 Pidula.*

whereas the existence of fortifications is not necessary where steep hill slopes deny access and enable control. The current data allows us to distinguish at least four sub-groups of the enclosures – *fortified settlements*, *hilltop settlements*, *ring forts on flat ground,* and *early promontory hill forts*. The reasons why certain spaces had been separated and enclosed are slightly different for each type, and will be discussed below. A significant reason for the establishment of enclosures (and also an exacerbated result of their existence) is a change in the social communication between communities, between insiders and outsiders (see Harding 2000, 58); that is, one tries to keep strangers or outsiders away from the group or to control communications and interactions with them. This was a phenomenon in ancient Estonian society that resulted, on the one hand, in the symbolic use of certain landscape elements in social communication and, on the other hand, led to the rise of hierarchical settlement patterns, which are not apparent in the earlier archaeo-

logical material from the Neolithic or the Early Bronze Age. The hierarchical settlement pattern is an organization of society with qualitative, i.e. functional or status-related differences, between the settlement units (see Lang 2002a).

Fortified settlements represent a remarkable group of Bronze and Early Iron Age sites. They have been found in Estonia and, in particular, in the southern part of the Baltic region in Latvia and Lithuania, and to a lesser extent in south-western Finland and central Sweden. 'Fortified settlement' has always been a contradictory term in Estonia because not all such settlements have revealed traces of considerable fortifications. However, settlements without man-made fortifications were typically established in places that at least provided good natural protection (the better the location, the less man-made fortifications one can see and vice versa). Thus, in the present study the term 'fortified settlements' describes sites offering man-made or natural protection; they were settled for long periods by communities larger than a single household, and their cultural layers are thick and rich in finds.

All the hilltop settlements were located on topographical rises ('hills' in the Estonian sense), but their thin cultural layers with few finds are more characteristic of the open settlements. Unlike fortified settlements, one cannot talk about large communities or long-term settlement in the case of hilltop settlements; in addition, they were rarely fortified. The two types of settlements are also chronologically separated from each other.

To date, the only data about the first ring forts comes from the western part of Estonia and the islands. Ring forts (surrounded either by one or two ramparts) were erected on flat ground; the rampart(s) enclosed round or oval areas, where the cultural layer is usually thin. The sites seem to have been places for cult rituals and ceremonies. The puzzling monument at Kaali is definitely the most well known of this site type. Similar interpretations are most likely valid for early promontory hill forts as well, of which few are known.

2.2.1. Fortified settlements

Only four fortified settlements have been found in Estonia so far: Iru in northern Estonia, Asva and Ridala on Saaremaa Island, and Joaorg at Narva in the north-eastern corner of the country. All four sites have been archaeologically studied, and the excavations yielded rich and diverse material that considerably adds to the understanding of life in the Late Bronze Age.

Iru

The Iru fortified settlement is located within the later Iru hill fort, 10 km to the east of central Tallinn in a bend of the Pirita River (Fig. 18). The surface area of the site is ca. 5100 m², and about one quarter of it has been excavated (1257 m²).[40] The Late Bronze Age settlement stage is called the fortified settlement, although no direct evidence of man-made fortifications has been uncovered so far. There is some reason to assume that the natural protective characteristics of the hill, that is, steep slopes (the relative height of the hill is 10–12 m) and the river at the foot, met the security needs of the time.

The excavations at Iru have revealed four house floors and several fireplaces, which belonged to the period under discussion based on stratigraphy and the find material (Fig. 19). The dwellings were located on the lower western part of the hill, and they had been erected crosswise next

[40] The main treatments dealing with the Iru fortified settlement are the following: Vassar 1939; Lõugas 1970a; Jaanits *et al.* 1982, 146–148; Lang 1987a; 1996a.

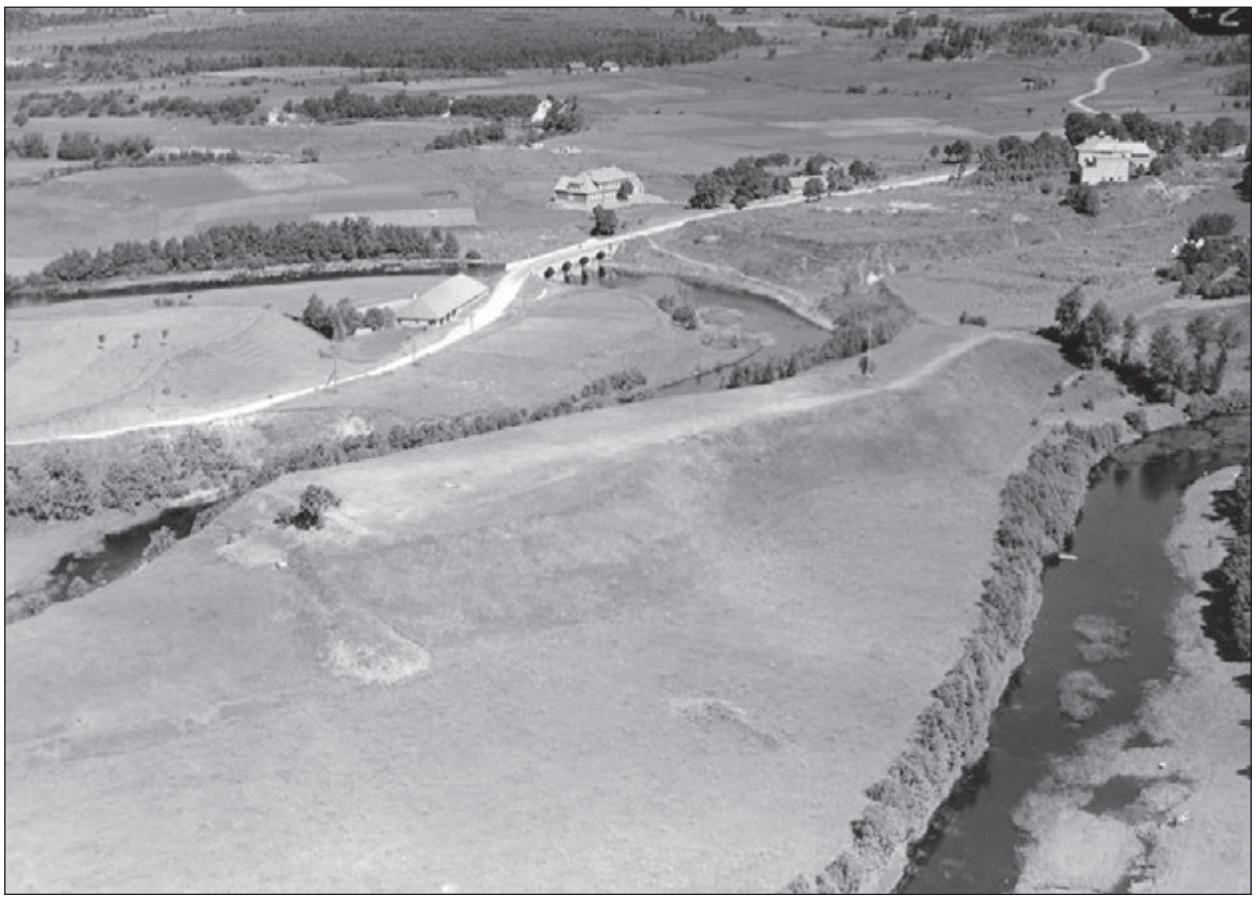

Fig. 18. *Fortified settlement at Iru, view from south-east.*

to each other in regard to the edge of the hill. The Iru houses were rectangular and their floors had been slightly dug into the ground; they were up to 10 m in length and 3–5 m in width. Postholes wedged with stones were discovered along the centre line of the floor, indicating that a gable-shaped roof had probably rested on the posts. A house floor that was found under the central rampart of the later hill fort allowed delineation of architectural details (Fig. 20). The building was more than 8 m in length, and corner-jointed in construction. A posthole wedged with stones was found along the centre line of the longitudinal wall, where a supporting pole had probably been set. An open fireplace was located in the centre of the dwellings, and many animal bones, ceramic finds, and various items were found nearby. Postholes wedged with stones and fireplaces were also found in the layer of the fortified settlement outside the dwellings. These postholes and fireplaces were probably remains of lighter buildings similar to conical huts, or they may have been open fire places located in the yard.

Most of the find assemblage consisted of ceramics; ca. 4150 sherds were found. The following metal artefacts were uncovered: a bronze spearhead, two fragments of a bronze neck-ring, four small bronze awls, and iron awl. The latter is similar to the small bronze awls and indicates (along

with a similar item found in Asva) the introduction of iron at an early time. The inventory from the 1955 excavations shows that two bronze buttons had been found at Iru, but unfortunately they have not survived. Bone and horn items included a seal harpoon, a bridle bit, arrowheads, needles, awls, knives, decorative pins, and a spoon. A group of items directly associated with land cultivation consisted of many round faceted grinding stones, a horn hoe (or ard point), and a probable flax comb or a dented sickle for cutting grain.

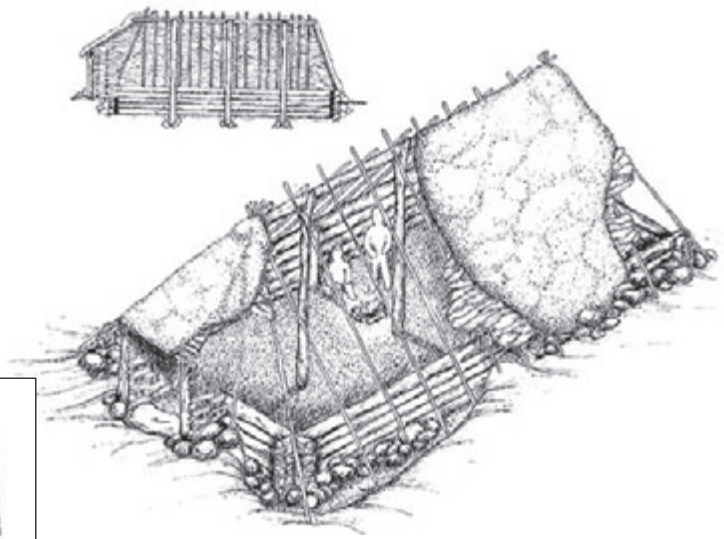

Fig. 20. *Reconstruction of a Bronze Age house at Iru (drawing: E. Lang).*

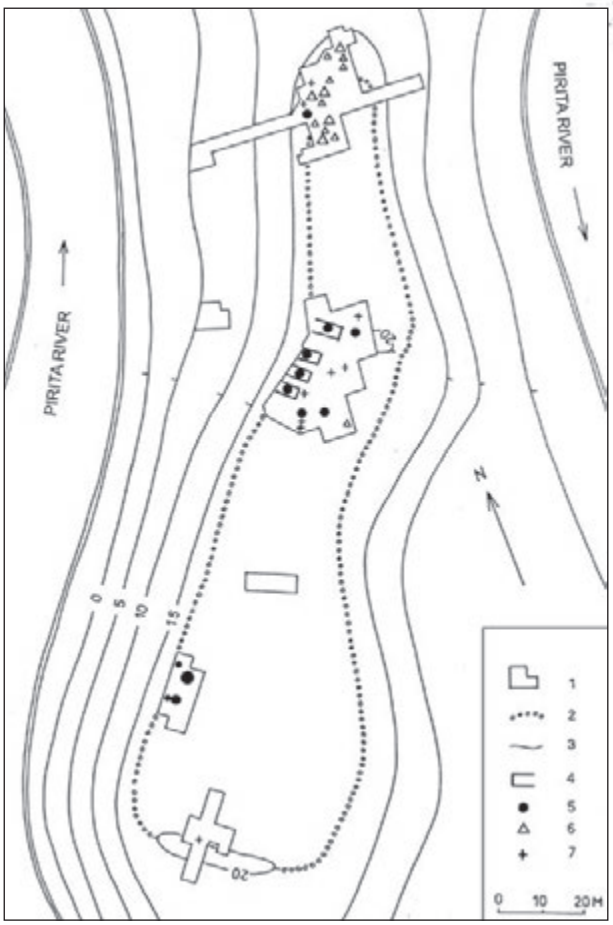

Fig. 19. *Late Bronze Age structures in the Iru fortified settlement (after Lang 1996a, fig. 6). 1 excavation area, 2 edge of the plateau, 3 isohypse, 4 house foundation, 5 fire place, 6 pieces of crucibles and moulds for bronze casting, 7 metal artefact.*

Fifty-one fragments of clay moulds have been found at the Iru fortified settlement (Fig. 52). Most of these moulds were designed for producing bronze rings that had either a round (4–7 mm in thickness) or oval (6 x 8 mm) cross-section. Some of the other fragments may have been from moulds used to produce bronze wire that was extremely thin (2–3.5 mm in thickness). Besides the mould fragments, the find material also included several crucibles (Fig. 53). Most mould fragments were found in the excavation area located on the northern edge of the hill, which also contained the remains of a single structure − an oval fireplace. The other excavation blocks that contained house floors revealed only a few mould fragments. The house floors found in the excavation area located on the northern edge of the hill could have been destroyed, but the absence of mould fragments in other places is not random. It can be assumed

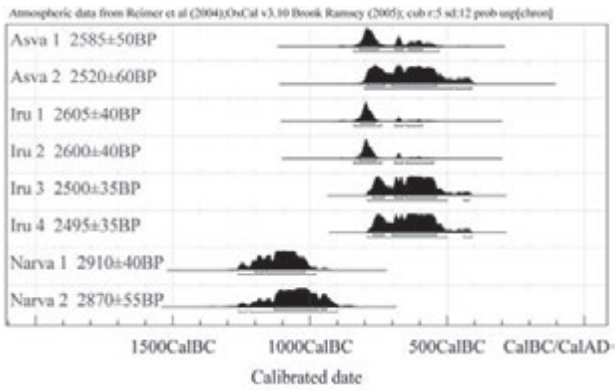

Fig. 21. *Radiocarbon dates from fortified settlements.*

that bronze was only cast in the northern corner of the hill, and it was probably done away from any dwellings.

The bronze items uncovered so far are rather nondescript and difficult to date and therefore do not help date the Iru fortified settlement more accurately. Typologically, they belong to periods V–VI of the Nordic Bronze Age. The four radiocarbon dates (Fig. 21) help to specify the chronology of occupation for the settlement; their calibrated value is ca. 825–520 BC. Taking into account comparisons with the other Estonian fortified settlements, the period ca. 800–500 BC can be considered the occupation period of the Iru fortified settlement.

Asva

The Asva settlement is located on the eastern side of Saaremaa Island on a narrow north–south trending moraine ridge 5 km away from the present seacoast. During the Late Bronze Age the site was located on the shore, which at that time was a small cape that had risen from the sea at the end of the Stone Age. The settlement was up to 90 m in length, 47 m in width, and 3500 m² in surface area; around one sixth of the site (571 m²) has been excavated (Fig. 22).[41] At least three different occupation layers at Asva date to the Late Bronze Age – (1) a non-fortified settlement, which was separated from the later stages by a gravel layer, (2) fortified settlement stage I, and (3) fortified settlement stage II.

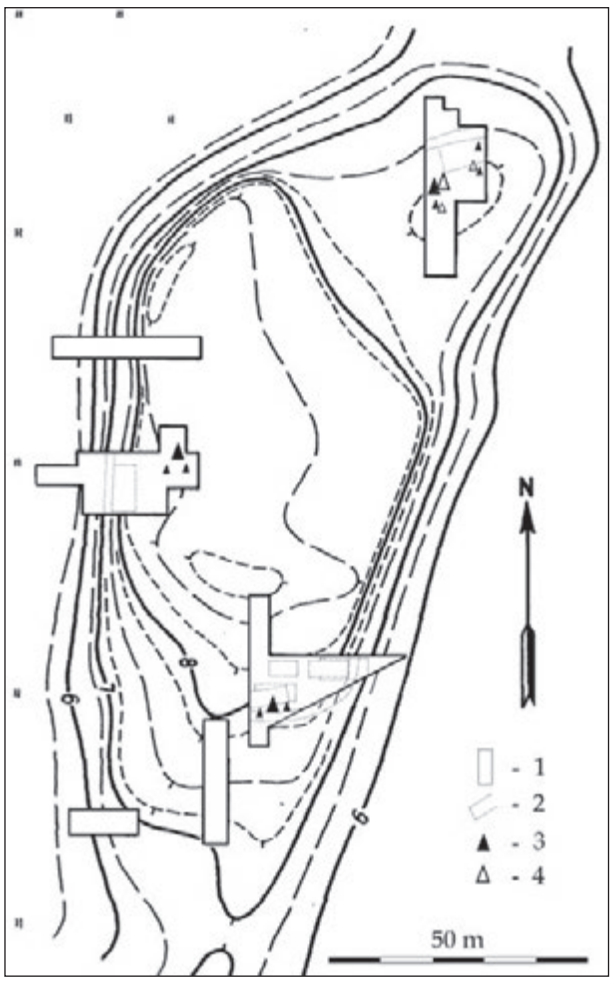

Fig. 22. *Fortified settlement of Asva (composed by U. Sperling). 1 excavation areas, 2 contours of houses and defensive walls, 3 bronze casting evidence of stage I, 4 bronze casting evidence of stage II.*

[41] The most important works regarding Asva include Indreko 1939, Vassar 1955, Lõugas 1970a, Jaanits *et al.* 1982, 136 ff., 172, and Sperling 2006.

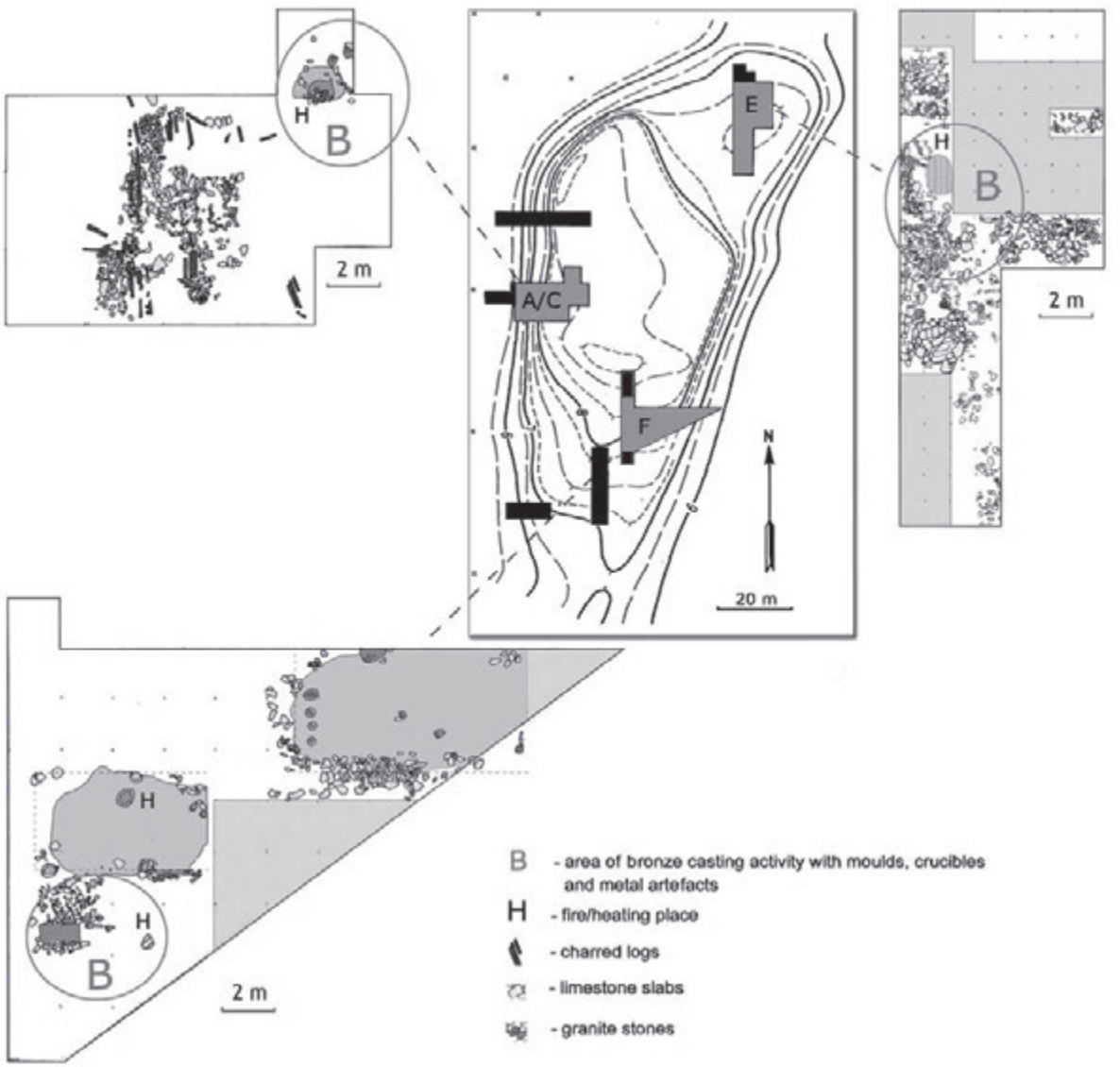

Fig. 23. *Fortified settlement of stage I at Asva (composed by U. Sperling).*

The cultural layer of the *earliest settlement* has only been preserved in a strip of land a few centimetres in thickness and 3–4 m in width located on the western slope of the ridge; no building remains were found. *The fortified settlement stage I* (Fig. 23) was fortified with a stone wall that was ca 1.5 m in width, but no significant earth moving had been carried out. The building remains, such as the house floors and open fireplaces, were located directly behind the wall. The best preserved remains included the floors of two rectangular houses, which were 3.5–4 m in width and probably had corner-jointed constructions similar to the houses at Iru. The houses were located in the south-eastern corner of the settlement and had been built crosswise in regard to the slope,

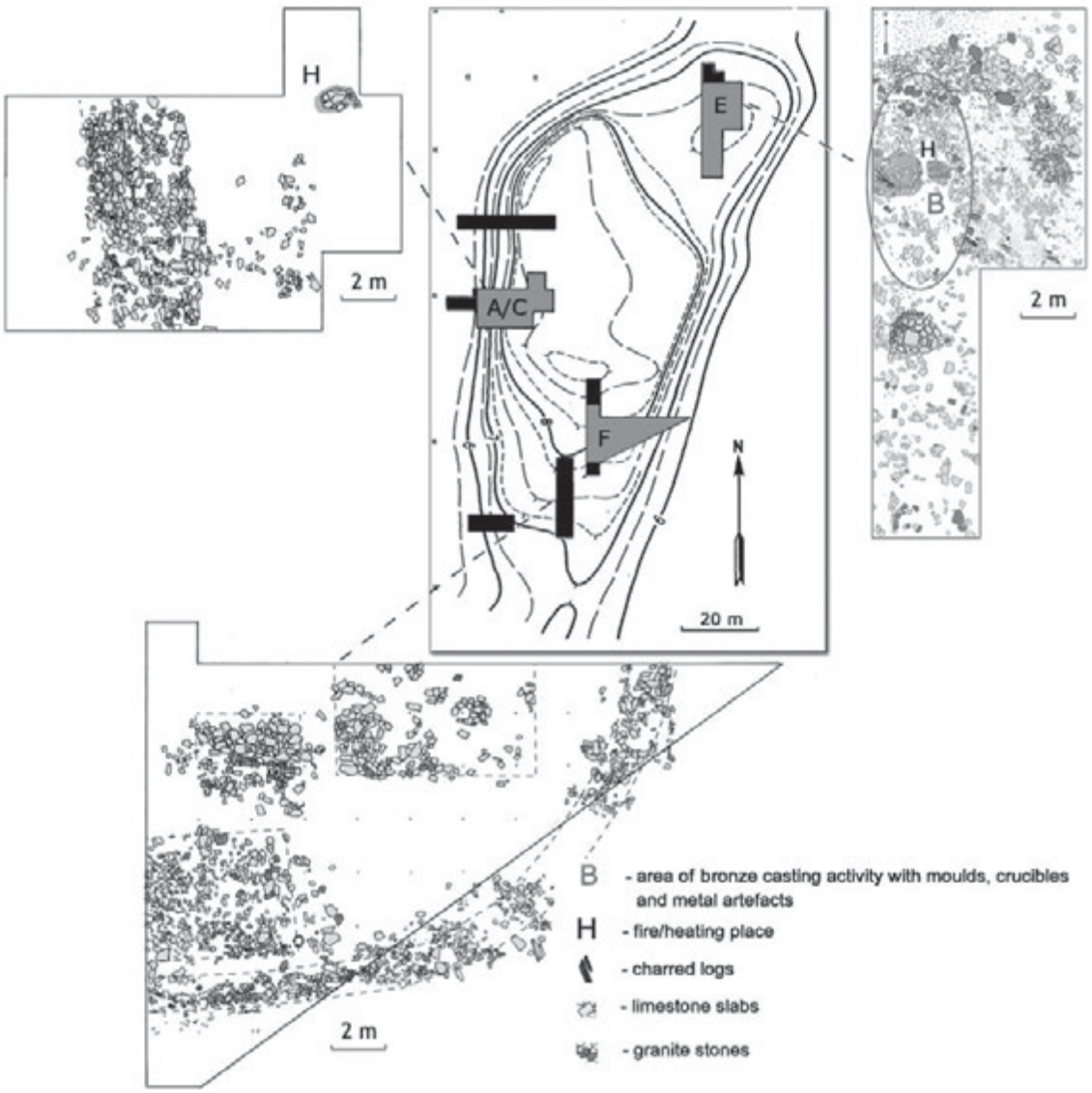

Fig. 24. *Fortified settlement of stage II at Asva (composed by U. Sperling).*

like at Iru. No firm house floors from the stage under discussion have been found in other parts of the settlement area. Few stones had been used for building houses at the time of the fortified settlement I, and the houses had dirt floors. In the case of at least one house it was noted that a fireplace was located by the side wall and not in the centre of the house as usual, and that the roof above it had perhaps been lined with clay (Lõugas 1968). The fireplaces located inside had been slightly dug into the ground and were filled with burnt stones. In addition to stable log buildings, traces of smaller and lighter buildings, such as conical huts, were uncovered. The bronze smelting furnaces and mould fragments indicate that metalworking had been practised in all parts

of the settlement, including the dwellings located in the south-eastern corner. The intensive layer of ash and soot suggests that the fortified settlement stage I was destroyed by fire.

At the time of *the fortified settlement stage II* (Fig. 24) the fortification of Asva became more important. An earthen rampart was erected on the side facing the land, and a defensive fence of stones and wood was built on top of it. The slopes had also been raised up to half a metre in other places. During this time stones were often used for building, and all the house floors had been paved with limestone slabs. The precise outlines and measurements of the dwellings could not be determined, but they were located on the south-eastern, western and north-eastern edge of the hill at the time of fortified settlement stage II. Unlike the previous stage, the south-eastern part of the settlement did not reveal any traces of bronze casting; such traces were found in northern part of the site but to a much more limited extent. The stratigraphic observations indicate that the stage II of fortified settlement directly followed the stage I.

The Asva find assemblage is similar to the Iru material, but its items are more numerous and diverse in shape. Most of the material consists of ceramic finds (ca. 32,000 potsherds) and bone and horn items (ca. 500). The few bronze items include a fragment of a Härnev-type decorative pin (along with its respective mould), three awls, two ring fragments (both identical and 5 mm in diameter), a bronze rod (raw material or semi-processed), and several pieces of bronze. The settlement revealed more than 800 fragments of clay moulds and crucibles, which had mostly been designed for producing rings with round cross-sections like in Iru, but there were also nine two-sided reusable moulds for making decorative pins with disc-shaped heads, spearheads, and axes (Lõugas 1966). Other noteworthy finds include decorative bone pins and double buttons made of horn, which had been modelled on the respective bronze items of period IV; horn hoes or ard points, flax-processing tools or sickles made from bone, harpoons, arrowheads, bridle bits, spoons, and other items were also found. Few stone items were unearthed, with the exception of numerous grinding stones, including five broken stone axes, two or three adzes, a core bored out of an axe hole, four stone net sinkers, a flint scraper, and a number of flint and quartz flakes.

All the occupation layers at the settlement followed each other without considerable breaks in time. In addition to a Corded Ware sherd, the earliest finds include stone items that were uncovered in the lower part of the cultural layer (these were not present in the stage II horizon). The datable metal items were no earlier than period V, while some bone items probably originated from the earlier fortification stage I. Two radiocarbon dates have been obtained (Fig. 21); the earlier one probably dates to fortified settlement stage I, and the later one dates to fortified settlement stage II (Jaanits *et al.* 1982, 146, 172). The dates and the find material suggest that the Asva fortified settlement (stage I) was established ca. 900 BC. At the moment it is impossible to estimate the date that the non-fortified settlement was established. The current data does not allow a determination of the temporal borderline between the first and second fortification stages at Asva. Similarly to Iru, the upper temporal limit of the settlement might have been around 500 BC.

Ridala

The Ridala fortified settlement is located in the coastal zone on the same moraine ridge as Asva, but lies 5 km to the north. The ridge was a small coastal island at the time of the settlement. The Ridala settlement was slightly over 4000 m² in surface area, and 1.5 m in height, measured from the foot of the present-day ridge. Approximately

one tenth of the settlement site, or 435 m² (in two excavation areas) has been excavated (Fig. 25).

In contrast with the multiple occupations of Asva, the Ridala settlement was used over a shorter period and it contained only a single occupation layer (see Moora 1967, 66 ff.). The number and character of fortification phases is not as clear as at Asva. Both excavation areas, in particular the south-eastern slope, revealed traces of two parallel wooden palisades that enclosed the settlement; the palisades were separated by 6 m (Fig. 26). Two rows of post holes (1–1.5 m apart) survived from both palisades, and some of the holes had been wedged with stones; a charcoal line (from the burning of a palisade) was also found. The posts of both palisades were 1.5–2.5 m apart, whereas the posts that composed the outer row were slightly more separated from each other than the posts of the inner row. It can be assumed that walls made from horizontal beams rested on the vertical posts, and thus each palisade consisted of two parallel walls that had to be linked to each other in order to make them stable. No significant earthworks had been carried out to make the slopes steeper, but the gaps between the walls of the palisade may have been filled with soil and stones to ensure the stability of the structure. A heap of stones located against the outer palisade at the south-eastern foot of the ridge, which has been mistakenly regarded as a separate rampart (Jaanits *et al.* 1982, 146), probably originates from such a filling. Was the Ridala settlement enclosed by two concentric palisades like the ring forts on Saaremaa Island? If that was the case, then it is strange that the dwellings were located between two palisades. Or do the palisades originate from different periods, meaning that the surface area of the settlement had increased, and there were two stages of fortification? Because none of the excavation areas included the area enclosed with the inner palisade, nothing is known about the plan or the date of the central portion of the settlement.

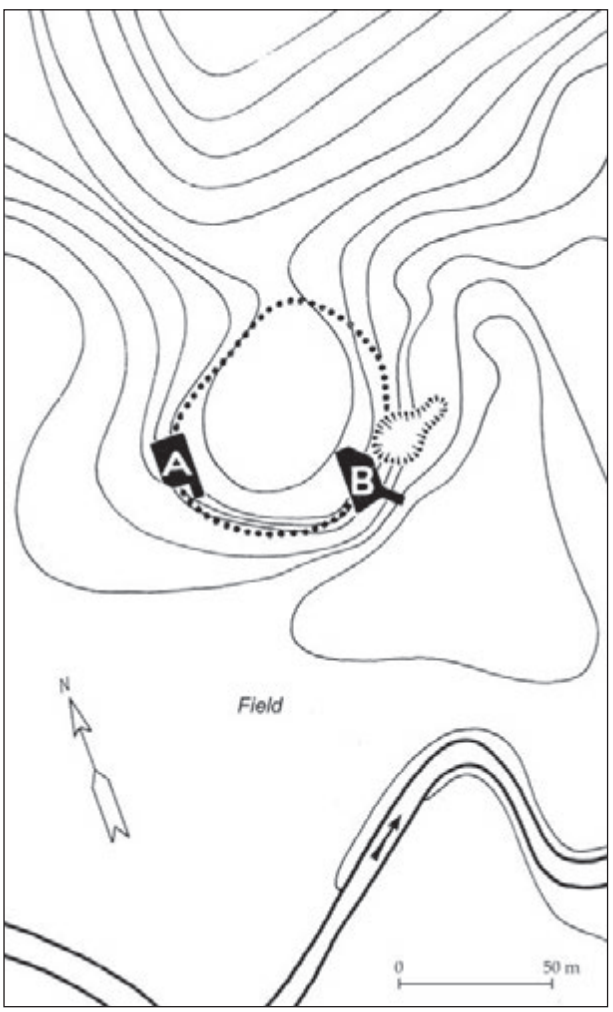

Fig. 25. *Fortified settlement of Ridala with excavation areas and limits of cultural layer (after Jaanits* et al. *1982, fig. 101).*

As noted, the rectangular houses may have been located between the two palisades. However, if the palisades dated to different periods (which is more likely), then the houses were located by the interior side of the palisade, and ran parallel to it. One of the excavated houses was 3.5–5 m in width and had a floor paved with limestone slabs. The other excavated dwelling was larger than the first, 10 m in length and 6–7 m in width;

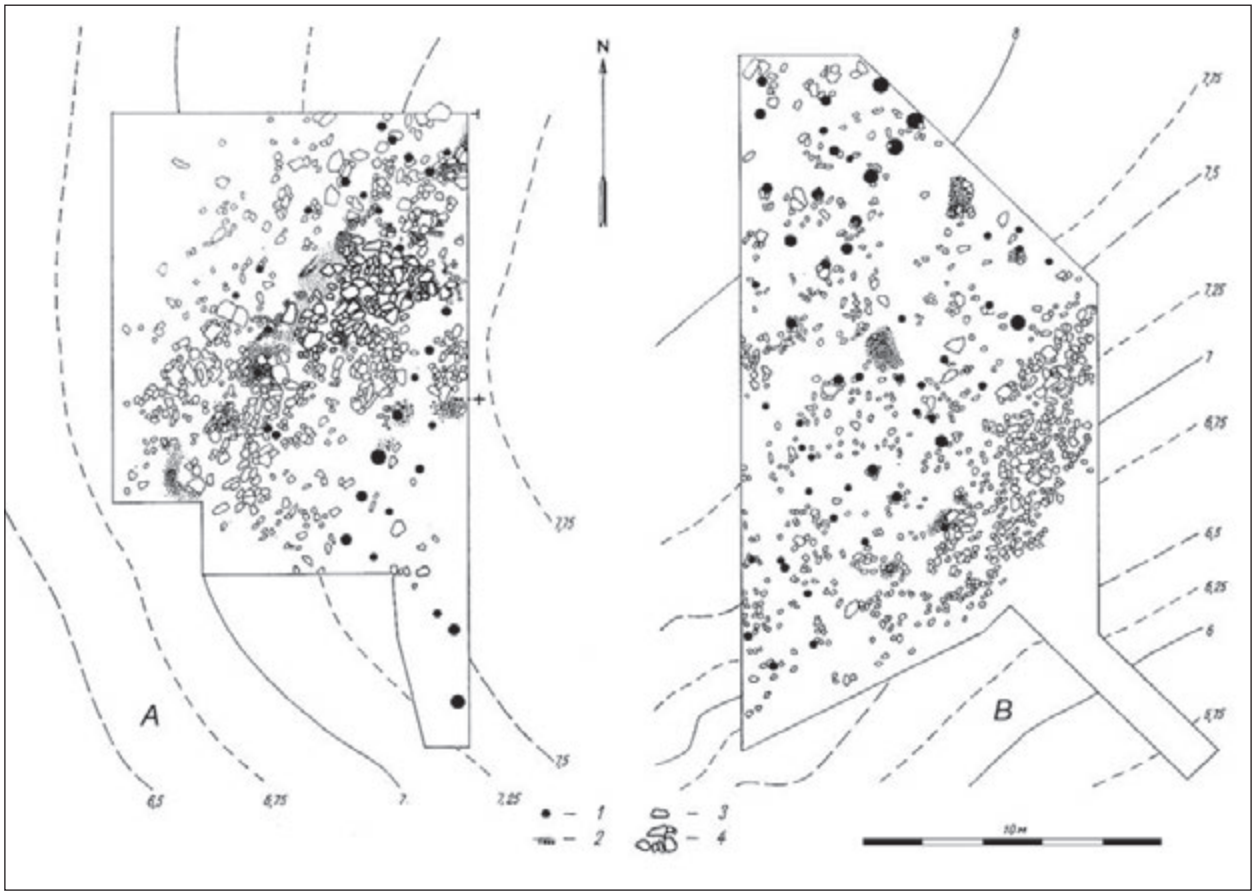

Fig. 26. *Features found at the fortified settlement of Ridala (after Moora, H. 1967, fig. 3). 1 post hole, 2 charcoal layer, 3 stone, 4 stone layer (supposed house floor).*

it had a dirt floor and postholes wedged with stones, which were found in the longitudinal axis, indicate a row of posts on which a gable-shaped roof rested. Fireplaces were also found outside the dwellings. A rectangular fireplace made from limestone slabs was found near (or possibly inside) the house with the stone floor. Numerous mould fragments suggest that this fireplace had been designed for bronze casting.

The Ridala find assemblage is similar to that of the Asva and Iru settlements. Most of the finds included ceramics – ca. 4200 potsherds were uncovered. One hundred and two fragments of moulds were unearthed, and they mostly originate from moulds used for casting rings. Few stone tools were found: a fragment of a stone axe, an adze, a core bored out of the hole of an axe, some flint scrapers, and a dozen grinding stones. The excavations also uncovered two bronze items − a socketed axe with a loop (Fig. 73: 5) and a fragment of a twisted neck-ring; both come from period V. Because no finds that can be compared with the earliest or the latest finds from Asva have been uncovered at Ridala (Lõugas 1970a, 357), the settlement has, on the whole, been dated to period V (900–600 BC). As of yet, no radiocarbon dates have been obtained.

Joaorg at Narva

The fortified settlement of Joaorg is located 1 km upriver from the Herman Castle in Narva on a 10 m high limestone hill on the left bank of the Narva River (Fig. 27). Most of the hill was destroyed when a hydroelectric power station was built in 1950–1955. The cultural layer was almost completely destroyed, though a portion of it survived on the top and on the north-western slope of the hill. The plateau was originally ca. 10,000 m² in surface area. The famous Stone Age settlement of Joaorg at Narva was located at the north-western foot of the hill.

A few Bronze Age ceramics were already found during the excavations of the Stone Age settlement in the 1960s. Additional excavations at the site took place as late as 1992 when a small excavation area (17 m²) was dug on the north-western slope of the hill (Jaanits 1994). Traces of a limestone wall on the slope of the hill were uncovered at that time, but the date of the wall is unknown (it is possible that it dates to the Late Iron Age when the site served as a hill fort again). Because the find assemblage consists mostly of Stone Age ceramics, it can be assumed that not only the hill foot but also the hill top was used at that time. Other finds included Bronze Age potsherds, a bone arrowhead (which is similar to one from the Asva settlement), and one fragment of a clay mould.

The remaining portion of the cultural layer that had survived on the hill top was excavated in 1996 (82 m²; Nikitjuk 1997; 1998). The thickness of the cultural layer varied, reaching up to 1.1 m. A collapsed wall, which was 1.2–1.5 m in width, was found along the edge of the hill top; the date of the wall is still unknown. More than 1000 artefacts were uncovered, and most of them were ceramics dating to the Stone and Bronze Ages. The Bronze Age sherds (ca. 450) are similar to the ceramics from the Iru and Asva settlements, but they also have some peculiarities. The Joaorg settlement has not revealed any fine-grained ceramics dating to the Late Bronze Age and only few textile-impressed sherds have been found. The most common decorations include twisted cord impressions, which are sometimes accompanied by circular indentations, transverse cuts, and needle pricks. The clay temper of the

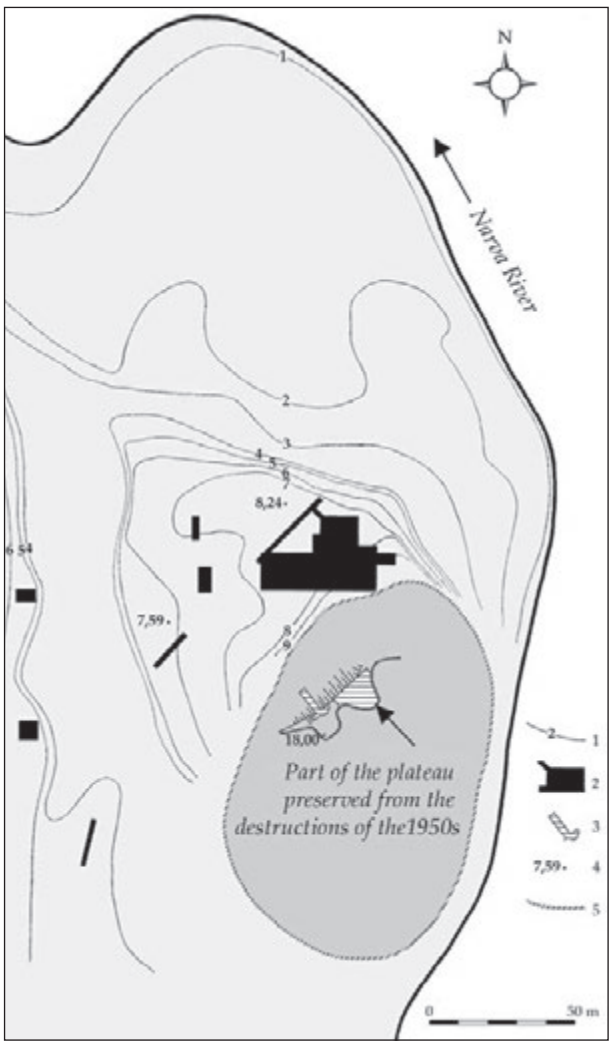

Fig. 27. *Fortified settlement of Joaorg at Narva (after Kriiska & Lavento 2006, fig. 1). 1 isohypse, 2 excavations at the Stone Age settlement site, 3 excavations at the fortified site, 4 altitude, 5 contour of the original hill.*

Joaorg ceramics is slightly finer than in Asva or Iru coarse-grained pottery, and it rather resembles the Late Neolithic ceramics, which also contains stone debris. These differences can probably be explained by the fact that Joaorg dates to a slightly earlier period than Asva and Iru; the samples taken from the burnt layers on two potsherds were dated to 12th–11th (10th) centuries BC (Fig. 21; Kriiska & Lavento 2006). The only radiocarbon date obtained from the cultural layer comes from the Pre-Roman Iron Age (see below, 2.2.2).

Fortified settlements and their context

The fortified settlements of Estonia and the eastern Baltic region on the whole can be compared to a more or less similar group of sites located in the eastern European forest belt (from the Dyakovo and Gorodishche Cultures), in central Europe (from the Lusatian Culture), and also to some places in Scandinavia. The fortified settlements of the eastern coast of the Baltic Sea were mostly concentrated along the Daugava River in Latvia and in north-eastern Lithuania; the latter area is rich in hills and lakes and is geographically close to the group of sites along the Daugava. Around 70 fortified settlements are known in the region, and in some areas they form a rather dense network. However, it is assumed that there were only about a dozen fortified settlements in western Latvia and western Lithuania while three fortified settlements were located somewhat far apart in northern Latvia. A number of fortified sites have been found in eastern Latvia (only a few of them have been investigated), some in southern Lithuania, and a few have also been uncovered to the north of the Gulf of Finland. As in the case of Estonia, I tend to classify some of these fortified settlements in the eastern part of the Baltic region (in particular in northern and western Latvia) into a separate group called hilltop settlements,[42] which will be discussed below.

The earliest fortified settlements in Lithuania were founded by the last quarter of the second millennium BC and were used until the Early Roman Iron Age (Grigalavičienė 1995, 22 ff.). This type of settlement was established more or less at the same time in Latvia, at the turn of the second millennium BC,[43] and remained in use until the first centuries of our era (Graudonis 1967, 10 ff.). The Joaorg settlement at Narva was also inhabited by the last centuries of the second millennium BC. The remainder of the fortified settlements in Estonia and south-western Finland were established in an even later period, and thus one can notice the chronological distribution and a decrease in the number of the fortified settlements when moving from the south to the north. In Latvia and Lithuania, however, some of the fortified settlements revealed only few artefacts, and thus it is possible that they were not continuously occupied throughout the pre-Christian millennium. It is probable that in addition to long-term settlements, there were also short-term settlements occupied only during the Bronze Age, and gaps in occupation were

[42] Andrejs Vasks (1991, appendix) and Jānis Graudonis (1967, 10–24) claim that 30 enclosed settlements dating to the Bronze and Early Iron Ages have been excavated to some degree in Latvia. About one third of them can be interpreted as hilltop settlements based on the classification presented in the current study. In addition, 79 hills of this kind are known where only single Bronze or Early Iron Age potsherds or items have been found as surface finds or in test excavations. It is impossible to distinguish between the sites typologically before carrying out more thorough studies.

[43] For instance, in the Daugmale settlement has revealed bronze and stone items dating to the end of the second millennium BC (Vasks 1991, 140). The calibrated values of some of the radiocarbon dates obtained in Ķivutkalns date to the end of the second millennium BC; the same can be noted for a radiocarbon date from Padure (Andrejs Vasks, personal communication).

probably also rather common, in particular during the Pre-Roman Iron Age.

It can be assumed that man-made fortifications were rather modest at Estonian fortified settlements; they were limited to either a wooden or stone palisade, and in the case of the second fortification stage at the Asva settlement, there was a low earthen rampart. The settlements along the Daugava River were fortified to a much higher degree. For example, the slopes of the Ķivutkalns and Viņakalns settlements were steepened, the plateaus were widened, and powerful ramparts of earth, stone, and clay were erected; wooden chambers were built inside the ramparts to prevent them from collapsing (Graudonis 1989, 12 ff., 55 ff., figs. 10–12, 35, 36). Earthen ramparts and ditches were used for fortifying the settlements of north-eastern Lithuania (e.g. Volkaitė-Kulikauskienė 1986, 16 ff., fig. 9), but they remained rather modest in comparison with the fortifications around the lower reaches of the Daugava River. Thus, the defence function seems to have been much more important in the case of the southern fortified settlements than in Estonia. As for Finland, it seems that the site locations were so high and steep that additional fortifications were not needed; although remains of stone walls have been found in some places (see Luoto 1984, 155 f.), they seem to belong to later inhabitation phases.

In some ways the construction of the defensive fence(s) at Ridala was unique in the Baltic region. As noted, the palisade, or defensive wall to be more exact, consisted of two linked walls made from horizontal beams; the walls were supported by vertical posts, and the gap between the walls was filled with earth and/or stones. The height of the construction is not known, but the outer wall may have been up to 2 or 3 m. Rows of postholes, which were often grouped in twos or more, have been found on the edges of several fortified settlements in Latvia and Lithuania, including Brikuļi, Mūkukalns, the earliest fortification stages at Ķivutkalns, Narkūnai, and Sokiškiai (Vasks 1994a, figs. 13–15; Graudonis 1967, 20; 1978; 1989, figs. 8, 13; Volkaitė-Kulikauskienė 1986, fig. 9; Grigalvičienė 1986b, figs. 3, 5–6), as well as farther to the east in the European forest belt (e.g. the Shilovskoye hill fort of the Abashevo Culture, see Epokha bronzy, 1987, fig. 59). The posts were located either close to each other (that is, the palisade was made of only vertical posts, unlike in Ridala where horizontal posts had also been used), or there were short spaces of up to 50–80 cm between the posts. In the latter case the evidence has been interpreted as a multi-row wattled palisade (Graudonis 1967, fig. 9; LSV, 2001, fig. 95).

In most cases there is a two-row palisade, which is not random, but reflects a specific building technique. There is reason to believe that the parallel walls made of horizontal or vertical posts or wattle were linked and supported each other. It is plausible that the gap between the walls (usually 1.5–2.5 m in width) had to be filled with some material (sand, earth, stones) to make the construction stable. The stone heaps near the rows of postholes, observed at Ridala and in other places, may originate from such a filling (for Mūkukalns see Graudonis 1967, fig. 10; 1978). Such a rampart was wide enough to stand and walk on, and one could take shelter behind its outer wall, which was probably higher, to fight the enemy. The analogues to the fortification walls built of vertical or horizontal beams and filled inside can be found in the fortified settlements of the Lusatian Culture in central Europe (see Champion *et al.* 1984, fig. 9.9). The earliest defensive wall of this kind in the eastern Baltic region was found at the Lagaža settlement near Lake Lubāna and dates to the Late Neolithic or Early Bronze Age (Loze 1978, figs. 12–15).[44] The wooden chambers of the

[44] Ilze Loze interpreted the fence, which was ca. 1 m in width, as a common outer fence associated with houses in the settlement.

wall found at Ķivutkalns and Viņakalns are further developments of the defence constructions found at Lagaža or Ridala, in conditions where a much wider and higher earthwork had to be stabilized.

It is difficult to make generalizations about the layout of the fortified settlements because most of them have been excavated to a rather limited extent. The dwellings ran parallel to each other in a single group located on the lower edge of the hill at Iru, and the rest of the hill was not inhabited. The northern tip of the hill was only, or mostly, used for bronze casting. The layout of the Iru settlement must have been planned with a purpose. The settlements of Asva and Ridala have been excavated to a lesser extent, and it is difficult to guess what their general layouts may have been like. It is clear, however, that some dwellings were located directly behind the defensive fence. At the settlements in the area around the lower reaches of the Daugava River (see Graudonis 1989, fig. 35), which have been studied in greater detail, the houses seem to have been built directly behind the rampart, leaving the yard empty in the centre of the site. In the fortified settlements of north-eastern Lithuania (e.g. Narkūnai) there was also a high concentration of dwellings directly behind the defensive fence, but there are also settlements (Nevieriškė) where houses had been randomly built only on one part of the hill (Volkaitė-Kulikauskienė 1986, fig. 9; Grigalavičienė 1986a, fig. 5).

Data about house building in Estonia during the Stone, Bronze, and Early Iron Ages is scarce for a variety of reasons connected to the character and focus of current research (see Kriiska 2002a). However, fortified settlements are exceptions; they give us a glimpse of the local Estonian building tradition, which seems to have equivalents in neighbouring areas to the north and east. The house remains uncovered at Iru were, at least in part, corner-jointed constructions, and the floors were dug into the ground to a depth of twenty or more centimetres. In addition, vertical posts had been used to support the horizontal timbers and the ridge of the roof (Fig. 20). The combined use of the vertical and horizontal beams, by the Middle Neolithic at the latest, has also been documented in Finland. The floor of a house in Kärmelahti (eastern Finland), which measured 8 x 7–7.5 m, had been dug up to half a metre down into the original soil. The lower portion of the wooden house frame consisted of a corner-jointed frame (reaching the height of three rows of beams), which prevented the collapse of the inward-facing walls; the gable-shaped roof, which reached to the ground, rested on two rows of posts, which was necessary considering the width of the house (Katiskoski 2002, 197 f., fig. 34).[45] Thus, it seems that the Iru corner-jointed architecture represents a rather ancient tradition, which had originally been a construction technique of the peoples of the eastern European forest belt and which spread westward later, reaching Scandinavia by the Viking Age or perhaps slightly earlier (Uino 1986, 180 ff.).

It has been assumed that the houses of Ridala, by contrast, were post-built structures (Moora 1967, 67 ff.). Ridala has revealed many postholes indeed, but most of them should be associated with the settlements' two defensive fences. In fact, no evidence that could be interpreted as true post-built structures has been found at Ridala or Asva so far. This indicates that the houses were probably corner-jointed constructions in which vertical beams had been used, similar to Iru. On the other hand, the dwellings of the Lithuanian and Latvian fortified settlements were mostly post-buildings; sometimes they had several rooms, and the floors were often sunk slightly into the original soil (Volkaitė-Kulikauskienė 1986, fig. 68; Grigalavičienė 1995, figs. 17, 20–22;

[45] Similar reconstructions of Neolithic dwellings from the eastern European forest belt have also been presented (Patrushev 2000, fig. 17: 2).

Graudonis 1989; Vasks 1994a, figs. 22–24). Post-built structures prevailed in central Europe and Scandinavia during the Bronze Age (Harding 2000, 24 ff.), and also along the Finnish coastal zone, which revealed strong western influences. Thus, the fortified settlements of the Estonian coastal zone bordered on the distribution area of two large building traditions − post- and corner-jointed constructions.

Communities larger than a single household inhabited the fortified settlements of the eastern Baltic region. It can be estimated that ca. 30–50 people at a time lived in the four houses at Iru, and the communities inhabiting Asva and Ridala were probably of a comparable size.[46] Similar population figures have been provided for the Latvian fortified settlements as well − Ķivutkalns 40–60, Viņakalns 30–50, and Brikuļi 40–70 inhabitants (Graudonis 1989, 89; Vasks 1994a, 67), but the actual figures were probably slightly higher. Such calculations are based on the assumption that four to five persons lived in a house, which is too few for a single family (although the Latvian dwellings were slightly smaller than in Estonia). These settlements consisted of 10–12, 8–10, and 10–15 dwellings, respectively, and with an estimated household size of 7–13 individuals, approximately 100 persons could have lived in each settlement. Even more people may have lived together in the settlements of north-eastern Lithuania. The Late Bronze Age layer of the thoroughly studied Nevieriškė fortified settlement revealed 13 dwellings (ca. 3.5 x 5 m in size), all in use at the same time (Grigalavičienė 1986, 59 ff., fig. 5); the population of the settlement could have reached 90–170 persons at the time. Thus, not only was the concentration of fortified settlements much higher in the southern part of the Baltic region than in the Estonian coastal zone, but the settlements were also more populous.

If the Late Bronze Age settlement pattern consisted mostly of single farming households in Estonia, then why did much larger communities inhabit the fortified settlements? Who were those people and what did they do? Why did they fortify their settlements?

The find assemblage from all of the fortified settlements of the eastern Baltic region indicates that land cultivation and cattle rearing were the main sources of subsistence for their inhabitants. The basis of subsistence for the populations of open settlements (i.e. single households) was probably the same. The fortification of some of the settlements has previously been explained by the need to protect the surpluses and reserves (dairy products, crops, and bronze), which resulted from increased productivity (Jaanits *et al.* 1982, 155); other proposed reasons included tensions in the society that arose because of unequal distribution of supplies and products, competition for better living places (LSV, 2001, 439), or unsettled times and outside dangers (Salo 1984, 121). It is not necessary to explain the co-habitation of large communities and fortification of settlements in places where it was the predominant way of life, as in north-eastern Lithuania and south-eastern Latvia, or in several places in the eastern European forest belt. The phenomenon needs to be analysed at length in Estonia (also in northern and western Latvia and south-western Finland), because co-habitation of communities was an exceptional settlement type there. It should not be taken for granted that similar sites reflect similar phenomena in ancient societies.

Besides cattle rearing and land cultivation, bronze was also cast in the fortified settlements, while the traces of bronze work are extremely rare in both open and small hilltop settlements.

[46] Here the average size of a household is considered as 7–13 persons, which was probably the case in Estonia in the Roman Iron Age (Lang 1996a, 357). As most of the Iru hilltop where the living areas were located has been excavated, it is unlikely that it contained more dwellings. Much of the living area at Asva and Ridala has not yet been excavated.

The process of bronze casting (the recasting of scrap metal into new items in the case of Estonia) does not require much labour, and that is why it does not explain the establishment of large settlements. What is important is the social organization behind the acquisition, recasting, and distribution of scrap metal. The hoards consisting of broken bronze items, especially the scrap metal that has been found so far at Tehumardi on Saaremaa Island or on the western coast of Latvia in Staldzene (Vasks & Vijups 2004), are a clear indication that the raw material for bronze casting was obtained from Scandinavia. This means that sea crossings were required to obtain the metal, and the building and manning of ships definitely required cooperation of large communities or the teaming up of several small families. Bronze was a strategic material at the time, and it was neither cheap nor common. That is why the production, storage, and redistribution, or marketing of the metal needed to be safeguarded. It may also have been that the technology and process of bronze casting, which could have been accompanied by some cult rituals, needed to be concealed from outsiders.

Thus, Estonian fortified settlements could have consisted of groups of people that were drawn together around chiefs. These groups may have been composed of related families who were active in importing, reprocessing, and distributing the metal. Seafaring has traditionally been a male activity, and it can be assumed that males also practised the metalwork associated with it. Cattle rearing and land cultivation, on the other hand, has traditionally been practised by women and dependants on the Estonian islands and the coastal regions (EA I, 1955, 679). The location of fortified settlements, in particular that of Asva and Ridala, indicates that cattle rearing and land cultivation were secondary activities. The settlements were located at least a short distance away from arable land, but directly on the coast. These coastal locations were suitable for seafaring and would have been in need of enclosures to protect the settlements from the outsiders. The location of Iru and Narva in regard to arable land was more favourable, but it was also so in respect to communication routes. Most of the fortified settlements of Latvia are also favourably positioned in regard to a significant transportation and communication artery – the Daugava River.

2.2.2. Hilltop settlements

As noted, there are several settlement sites in Estonia where the cultural layer is similar to that of open settlements, but whose location in the landscape is similar to that of the fortified settlements or later hill forts. At present eighteen such

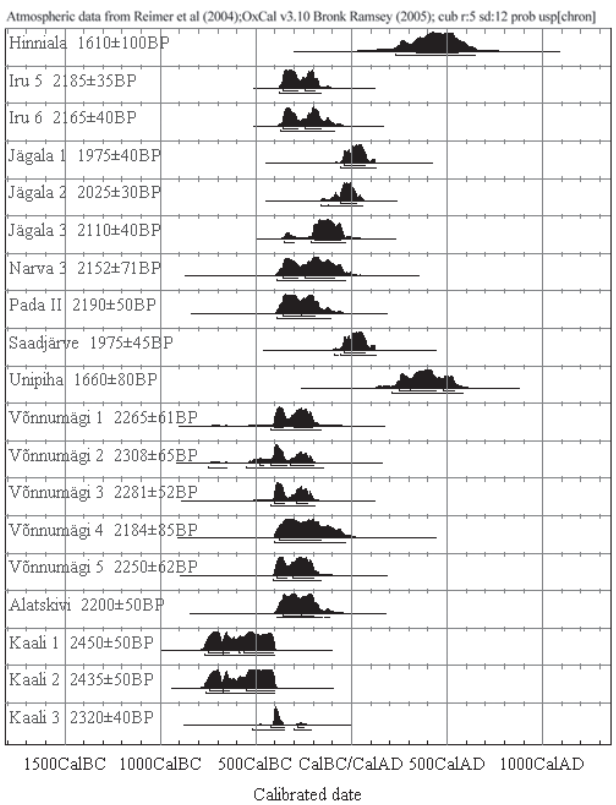

Fig. 28. *Radiocarbon dates from different enclosed sites.*

sites are known, and most of them have been found by chance during the excavation of later hill forts or other sites.

The excavations at Iru in 1984–1986 revealed wooden structural remains that were stratigraphically situated between the fortification layers dating to the Late Bronze Age and the Middle Iron Age (Lang 1987a; 1996a, 51 ff.). Unfortunately, it remains unclear if the charred logs had once been part of a fortification or a dwelling because it was not possible to distinguish any construction features. The calibrated values of radiocarbon dates obtained for this wood were ca. 360–175/120 BC (Fig. 28). Thus, this cultural layer with ambiguous wooden structural remains dates to the middle of the Pre-Roman Iron Age. A small portion of the find material from the hill fort (ca. 70 sherds of pottery, including sherds decorated with comb stamps and cord impressions) also dated to the Pre-Roman Iron Age (Lõugas 1970a, 366 ff.). In addition to ceramics, a bone shepherd's crook pin and an iron decorative pin with a roll head can also be associated with this short-term settlement or the fortification phase at Iru.

Radiocarbon dates that are close to those from Iru have been obtained from the Pada II hill fort, from Kalevipojasäng at Alatskivi, and from the Joaorg settlement at Narva, while the earlier layer of the Saadjärve hill fort dates to a slightly later period, and the Unipiha settlement is even younger (Fig. 28; see Tamla 1980; Aun 1974; 1975; Nikitjuk 1997; Lavi 2002).[47] Few ceramic finds that can be dated either to the Pre-Roman or, more widely, Early Iron Age have been found anywhere. In addition, several hill forts have revealed finds dating more or less to the same period. Although ^{14}C samples have not been taken from those sites, it is very likely that they were occupied during the period under discussion. Such hill forts include Koila, Punamägi at Ripuka, Makita (early ceramics were found under the village cemetery that dated to a later period), Asva, and Peedu. For example, more than 40 striated and three textile-impressed potsherds found at the Peedu hill fort (including sherds from two vessels with pit decorations and two other sherds with twisted cord impressions) date to the Late Bronze Age or the beginning of the Early Iron Age. A bone arrowhead, two faceted grinding stones, some greyish-beige flint flakes, and pieces of horn with traces of processing also date to the same period. However, most of the material found at the hill fort dates to the second half of the first millennium AD (Moora 1939).

More easily identified structural remains have been unearthed so far only at Koila (north-

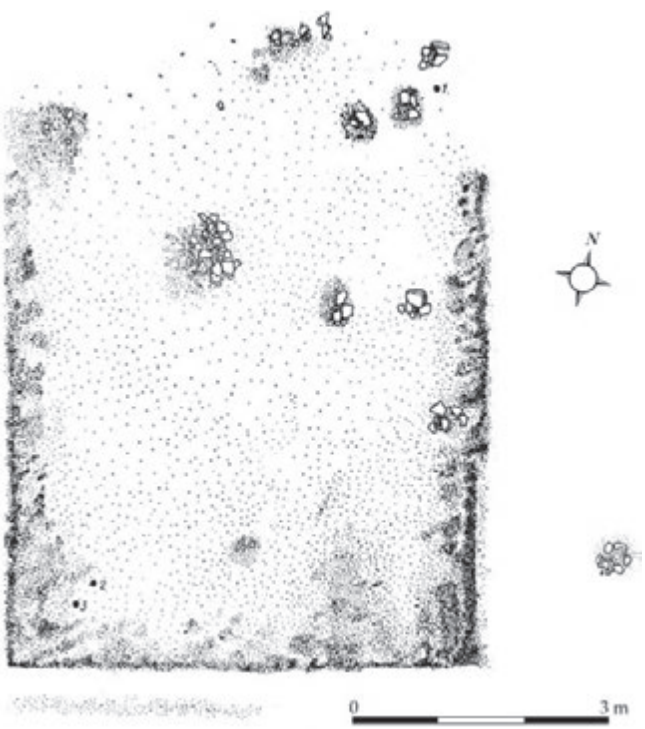

Fig. 29. *Early Iron Age house floor at the Koila hilltop site (after Schmiedehelm 1955, fig. 48).*

[47] Recently, an Early Pre-Roman date (2342±61 BP) was also obtained from the Hinniala hill fort in south-eastern Estonia (Valk 2007).

eastern Estonia) where traces of a dwelling were found in an earlier layer located under hill fort strata dating to the Middle Iron Age (Fig. 29; Schmiedehelm 1955, 166 ff., figs. 47–48, tab. XVII). It can be assumed that the dwelling was a 5.5 x 6 m corner-joint structure. Several fireplaces that had been sunk into the ground were found in the area of the dwelling, but it is unclear if they all dated to the occupation period of the dwelling. Only a few ceramic finds, two flakes of quartz, and a polishing stone were found. Some of the potsherds were covered with textile-impressions or were striated, indicating that the site had been established in the Pre-Roman Iron Age at the latest.

Several Middle and Late Iron Age hill forts in southern Estonia have yielded few textile-impressed or striated pottery, metal items, or radiocarbon dates of an earlier period. Such sites include Tartu (Toomemägi), Rõuge, Tõrva (Tantsumägi), Viljandi (Musumägi), Otepää, Haapala (Tornimägi), and Hinniala (Liinamägi). The excavations at the Hinniala hill fort produced, in addition to an early radiocarbon date (and other finds of later times), some radiocarbon dates from the transition period from the Roman Iron Age to the Middle Iron Age (1610±100; 1449±56, and 1542±57 BP) (see Kiristaja 1996; Valk 2007). As no textile-impressed or striated pottery was found at this site, it can be assumed that both types of ceramics were no longer used in the Migration Period.

Hilltop settlements have so far been found only in northern and southern Estonia, with the exception of one that has been discovered on Saaremaa Island (Fig. 17). The reason that no hilltop sites or open settlements have been found in central Estonia is presumably due to the current state of research. Most hilltop settlements are located in the vicinity of Early Iron Age sites such as open settlements or stone graves, indicating that the hilltops were not the only inhabited places in the area. The co-occurrence of open settlements and (enclosed) hilltop settlements makes the settlement pattern of the time hierarchical. The area surrounding Unipiha in south-eastern Estonia illustrates this type of settlement pattern. The hilltop settlement here was used in the 3rd–5th centuries AD (Fig. 28); it revealed a handful of ceramic sherds that were striated or decorated with pits, bronze beads strung on a wire, the base of a grinding stone, and a scythe stone (see Aun 1975). It is not known if the open settlement, which was located next to the hill, was inhabited at the same time because the few textile-impressed ceramic sherds could date to an earlier or a later period as well.[48] The surrounding area has revealed ten Early Iron Age stone graves, which were located in six different groups (Aun 1975, fig. 7). Based on this information it can be estimated that a settlement group consisted of at least six households, and one of them likely occupied the Unipiha hilltop settlement. Other similar complexes (e.g. Iru, Muuksi, Koila, and Ripuka) are also known. It may be that the settlement groups reflect the so-called dominant farm system, which will be discussed at length in the chapter dealing with social structures (5.1.3).

Hilltop settlements with thin cultural layers that contain few finds are also known in Latvia. As noted, about a dozen or even more such settlements can be distinguished among the sites that have been excavated (see Vasks 1991, appendix). They occur all over the country, for example, in Aizkraukle, Kalnazieds, Ķišukalns, Lokstene, Matkule, and Paplaka. All of the three enclosed settlements in northern Latvia − Sārumkalns, Tanīskalns, and Zestvaine − which have revealed single early potsherds, and a few items made of stone, flint, and bone (Graudonis 1967, 22 f.; Vasks 1991, appendix), were modest hilltop households

[48] A flint scraper found in the excavation area dug in the rampart indicates that the settlement could have been of earlier origin, but most of the material found within the hill fort and the settlement site suggests a later origin.

rather than large fortified settlements. So far the hilltop settlements have not yielded any traces of bronze casting (except for a piece of a crucible and a fragment of a mould used for making rings found in Sārumkalns), while most excavated fortified settlements have revealed rather large quantities of such evidence.[49] The hilltop settlements were dated to the Late Bronze and Early Iron Ages, and Matkule and Paplaka in western Latvia date only to the second half of the period.

Due to the lack of archaeological evidence it is not clear why some of the settlements were established on hilltops while others were built on flat ground. The finds uncovered so far indicate that the hilltop settlement units were, like the open settlements, single households. With the exception of the Sārumkalns hilltop settlement where metal was produced, few artefacts have been recovered at this type of site. Hilltop settlements have traditionally been associated with security needs in times of social and political unrest. Hill fort strata dating to the middle of the Pre-Roman Iron Age have been linked with the short-lived appearance of weapons in graves and with the spread of early *tarand*-graves, which supposedly reflected the emergence of a new elite and the tensions that accompanied such a development (Ligi 1995, 218 ff.). This description of the hilltop settlements in Estonia may be valid, but the explanation of the reason for their development is nevertheless too narrow. The hilltop settlements covered not only the middle of the Pre-Roman Iron Age but also a long period spanning from the Late Bronze Age (Peedu) through the Late Roman Iron Age (Unipiha and Hinniala). Moreover, hilltop settlements were much more common than the early *tarand*-graves or the weapons they contain.

The symbolic use of the landscape according to the principle that 'the best and the most important people live in higher places' could already be seen at Iru during the Late Bronze Age, where an open settlement was established on the terrace located at the foot of the hill despite the fact that there was enough space on the hilltop. This type of Late Bronze Age settlement hierarchy probably reflected not only symbolic aspects of social stratification but also significant differences in wealth. The Iru open settlement revealed primarily rough household pottery and no traces of bronze casting, while the find material obtained from the settlement on top of the hill was rather diverse and rich (Lang 1996a, 108). In the Early Iron Age, however, significant differences in wealth between the open settlements and hilltop sites can no longer be observed in the archaeological record any more – what remains is only the symbolic use of the landscape by some outstanding groups of society.

The interpretation presented here, according to which a hilltop location symbolized a higher social status, does not mean that the households were equal in places where hilltop settlements have not been found. The analysis of the grave groups presented below clarifies this and shows that an egalitarian appearing settlement pattern covered up social differences. The hilltop settlements, on the contrary, served to highlight the social and economic differences, which at the time were barely noticeable. Such behaviour can be interpreted as a snobbish desire of the new elite to promote itself.

2.2.3. Early ring forts

In western Estonia and the islands there is a separate group of enclosed settlement sites containing one or two circular ramparts. The group is

[49] According to the available data (Vasks 1991), 15 out of the 45 fortified settlements (together with sites, which are considered more simple hilltop settlements in this treatment) archaeologically studied in Latvia have revealed evidence of bronze casting.

Fig. 30. *Meteorite crater at Kaali, view from north-west (photo: A. Kraut).*

not homogenous in form and the sites are also from different time periods. Some of these sites probably do not belong to the period under discussion. However, they form a peculiar and geographically and socially defined group of sites, which need to be analysed in more detail. The main commonalities between the sites in regard to social relations is that all the establishments were built for cult and ceremonial purposes and seem to have been erected by large communities. It can be assumed that the enclosed cult place at Kaali, formed due to a natural catastrophe, was the earliest of these sites.

Kaali

The Kaali site is located in the swell of a meteorite crater on Saaremaa Island (Fig. 30). Geologists have dated the fall of the meteorite differently,[50] but the most recent studies based on an AMS-date obtained from the deepest organic sediments of the crater lake suggest that the impact took place in the Early Bronze Age between 1690 and 1510 BC (Veski *et al.* 2004). Saaremaa was

[50] The literature about the Kaali meteorite craters and their dates is extensive, but for an overview see Lõugas, V. 1996; Veski *et al.* 2001; 2002; 2004.

rather densely populated at the time, and the meteorite impact, which has been compared to the blast of a small atomic bomb, definitely had a deep emotional impact on the inhabitants. [51]

The fall of the meteorite created a crater[52] with a circular swell surrounding it. The diameter of the swell was 105–110 m, and its outer side was later fortified with a limestone wall, which was up to 2 m in width and at least 2.2 m in height. In addition, a concentric circular rampart of 479 m in circumference and 2.3–2.8 m in width was built with large stones (up to 1.8 m in diameter). Thus, the Kaali site consists of a lake, which was probably considered to be holy, and two concentric circles enclosing it; one of the circles had been created by the meteorite blast and the other was man-made (Fig. 31).

A cultural layer in the north-eastern sector of the swell was deposited in the Late Bronze and Early Iron Ages and has been interpreted as a fortified settlement similar to the ones at Asva, Ridala, etc. (Lõugas 1978a; Jaanits *et al.* 1982; Kriiska & Tvauri 2002, 105 ff.). The area covered by the cultural layer was only 600–800 m², 135 m² of which was excavated in 1976–1977 (Lõugas 1978a–b). Two quadrangular platforms surfaced with limestone were discovered, but were only partially excavated. It can be assumed that the

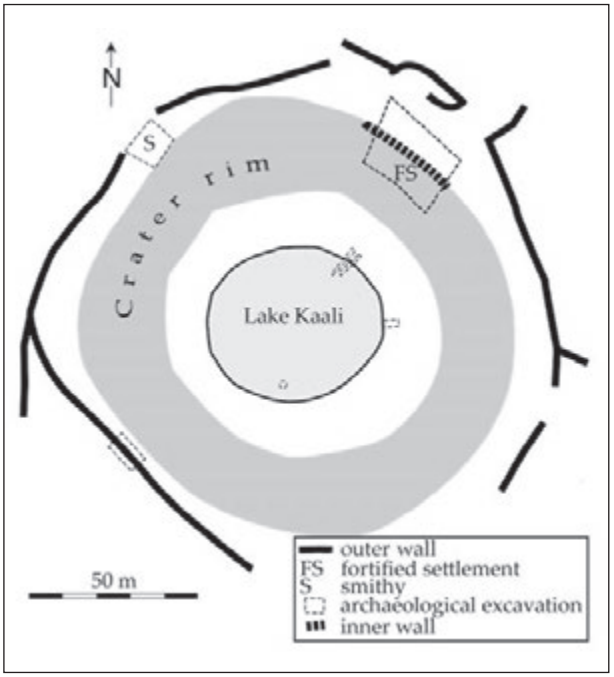

Fig. 31. *Enclosed cultic site at Kaali (after Veski* et al. *2004, fig.2).*

platforms had once been the paved floors of some buildings or dwellings. The inner and outer sides of the rampart revealed a heavily burnt layer and the remains of some timbers, which ran parallel to the rampart. It is likely that there was once a wooden palisade on the stone rampart. The excavations uncovered a considerable amount of ceramics, including sherds decorated with pit ornamentation, impressions of a twisted ring, and with pinches; the same techniques had also been applied to the ceramics found at Asva, Ridala, and to a lesser extent at Iru. In addition, other items were unearthed, including twenty mould and crucible fragments, eight pieces of amber, a double button of horn, a spearhead made of bone, a flax comb or a dented sickle used for cutting grain, some grinding stones, and a few pieces of iron and iron slag. In the upper part of the cultural layer four silver items were excavated, three of which formed a hoard (two

[51] A runic verse (XLVII) from the Finnish epic Kalevala describes how the sun had dropped onto the ground in a lake called Alue and burned everything. The folk songs of Kuusalu parish, which is located in northern Estonia, speak about the burning of Saaremaa. The chronicle of the Henry of Livonia (HCL, XXIV, 5) mentions that Tharapita (Taarapita), the chief god of the inhabitants of Saaremaa, had been born in Mount Ebavere (north-eastern Estonia) and flown to Saaremaa (the trajectory coincides with the fall of the meteorite). Folklore cannot be scientifically associated with the Kaali meteorite, but it is an interesting corollary to the archaeological and geological data.

[52] Only the main crater is addressed here; in addition, there are nine small secondary craters at Kaali, which will not be discussed.

spiral bracelets and a band-like neck-ring), and one spiral finger-ring, which was a separate find. The hoard probably dates to the Late Roman Iron Age.

Three radiocarbon dates have been obtained from the Kaali settlement (Fig. 28). Their calibrated value is ca. 760–210 BC, i.e. the Late Bronze Age and Early Pre-Roman Iron Age. This date is in harmony with the findings, in particular with the ceramics. In addition to the types that were common in the Late Bronze Age, the ceramic finds included forms, paste, and decorations characteristic of the Pre-Roman Iron Age. The silver items noted above, and some of the ceramic finds, suggest that the site was significant through later periods as well. It should be added that the surroundings of Kaali have also revealed an isolated find of a bronze Härnev-type decorative pin, similar to the one found at Asva.

In addition to the settlement, a 10 m stretch of the outer stone rampart has been excavated at Kaali (Lõugas 1980). Many animal bones (cattle, horse, pig, dog, and goat/sheep) had been thrown against the inner side of the rampart while the outer side did not reveal any finds. A single sherd of a hand-made clay vessel, which was found between the rampart stones, dates the establishment of the rampart to prehistoric times but does not help to date it more precisely. Ruins of a smithy from the 17th or the 18th century were discovered inside the rampart.

Vello Lõugas, who has extensively studied the Kaali monument, has offered various interpretations of the site. These range from a description of the site as a common fortified settlement (Jaanits *et al.* 1982), to a religious temple dedicated to the goddess Nerthus and known all over northern Europe (the latter idea cannot be found in scholarly literature, however; see Lõugas 1995b). Kaali has also been the source of inspiration for a number of fiction and travel stories (see Lõugas, V. 1996; Meri 1976). As Kaali was indeed fortified and inhabited, there is at first sight some reason to compare it with the other fortified settlements. On the other hand, one has to keep in mind that much energy and material was needed to erect the fortifications, whereas the cultural deposits are located in only a small area, and the find assemblage is rather poor and dispersed throughout a long period of time. This suggests that the site was a cult monument rather than a common settlement. Moreover, Kaali is not located near important sea or land routes as are other fortified settlements. Some written sources claim that Lake Kaali was considered holy (see Meri 1976); the bones found by the inner side of the rampart may suggest sacrifices. Taking also into consideration the hints about the fall of the meteorite and the strong impact it made on people for centuries afterwards, which survived in the folklore and folk religion, there is reason to classify the Kaali complex as an enclosed cult site.

Võhma and Pidula

Two ancient sites that are similarly to Kaali characterized by two circular ramparts are known in the north-western corner of Saaremaa Island

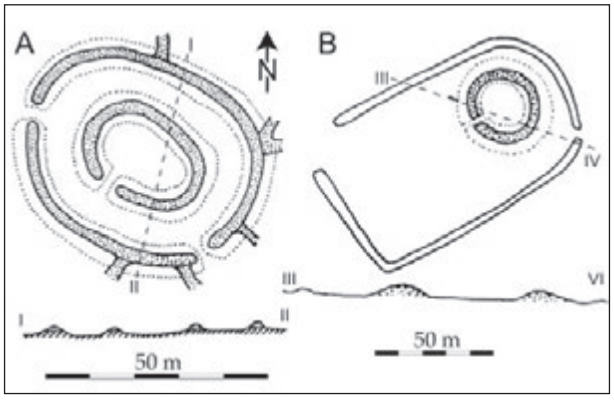

Fig. 32. *Ring forts of Võhma (A) and Pidula (B) (after Veski* et al. *2004, fig.5).*

(Fig. 32). One of the sites is located in a pasture in the village of Võhma near Mustjala, on the eastern edge of an extensive block-shaped field complex. These fields were still in use in the 19th century, when they were first mapped (Troska 1987, fig. 5), and were established in the Early Iron Age at the latest if not earlier (however, this needs to be further investigated). The western part of the complex contained several stone graves, one of which turned out to be a *tarand*-grave dating to the Pre-Roman Iron Age (see Lõugas 1988; 1989).

The ramparts of the Võhma ring fort, which are made of granite and limestone, have been piled on flat ground. The inner rampart is taller and more massive, and it encloses an oval-shaped 30 x 15 m area, while the outer circular rampart is slightly lower with a diameter of 45–55 m. Both ramparts have gates for passage. Vello Lõugas carried out trial excavations in the area enclosed by the inner rampart in 1986. The excavations did not reveal any features that could be interpreted as structural remains and the cultural layer was also thin and contained few artefacts. About fifty potsherds were found, most of which were dated to the Early Iron Age, though there is not an accurate means by which to date them. Nevertheless, the find material contained a Salenieki-type (see below, 3.3.2) clay vessel. This style of ceramics emerged in other parts of Estonia during the Late Roman Iron Age or perhaps even the Migration Period. Both the upper and lower parts of the cultural layer contained many flakes and blades of quartz. The very bottom of the excavation pit revealed a stone adze along with some pieces of charcoal; the adze should be older than the rest of the findings. It may be the case that there was an earlier settlement site (or some other type of site) dating to the Neolithic beneath the ramparts, which were constructed at a later date.

At present it is not possible to provide a more precise date for the establishment of the Võhma ring fort, but it was definitely in existence by the (Late) Roman Iron Age at the latest. The fact that there are two massive stone ramparts, built around a tiny area, and their striking similarity to Kaali point to a possible cult function for the site. One cannot rule out that the numerous quartz flakes were used for some cult ritual as such items have often been found in stone graves dating to the Early Iron Age (see Lang 2000a, 159 f.).

A similar monument is located in the Pidula manor park, but it is not so round as the Kaali or Võhma ramparts. The inner circular stone rampart is 2 m in height with a diameter of 14–17 m, whereas the outer rampart is much lower and is shaped more like a rectangle (95 x 60 m). The trial excavation pits located in the area enclosed by the inner rampart revealed a potsherd, which was difficult to date, and pieces of charcoal. Though it has been proposed that the lord of the local manor helped to redesign the Pidula ramparts, it could have originally been a prehistoric construction. Similarly to Võhma, there are also Early Iron Age stone graves and block-shaped fields in the vicinity that were presumably established in prehistoric times.

Massu, Päälda, and Lipa

In addition to the monuments with two concentric circular ramparts, there are eight or nine sites, which have a single low circular rampart. Such sites are called 'early forts with circular ramparts', but various researchers have dated them differently. Evald Tõnisson claimed that the monuments belonged to the Middle Iron Age, although he did not deny that some of them might have been established by the Early Iron Age (Jaanits *et al.* 1982, 267, fig. 165). Vello Lõugas (1984), on the other hand, was convinced that the fortifications dated to the Late Pre-Roman and Early Roman Iron Ages. The excavations carried out so far indicate that the

circular ramparts that have been investigated date to a rather early period.

At the moment there are grounds to date at least three enclosures built on flat ground and with low ramparts to the Early Iron Age. One of these enclosures is located at Massu on the western part of the mainland. A 1.2 m high and up to 8 m wide rampart (including the ruins) encircles an area of 50–60 m in diameter. The fort had two gates, one in the north-eastern sector and the other in the south-western sector. The inner yard of the fort had been ploughed up, and the cultural layer was uncovered only under the ruins of the walls. Lõugas dated the site to the first centuries AD based on the few coarse-grained pottery sherds found (Lõugas 1975, 86, pls. III: 2, X: 10–12).

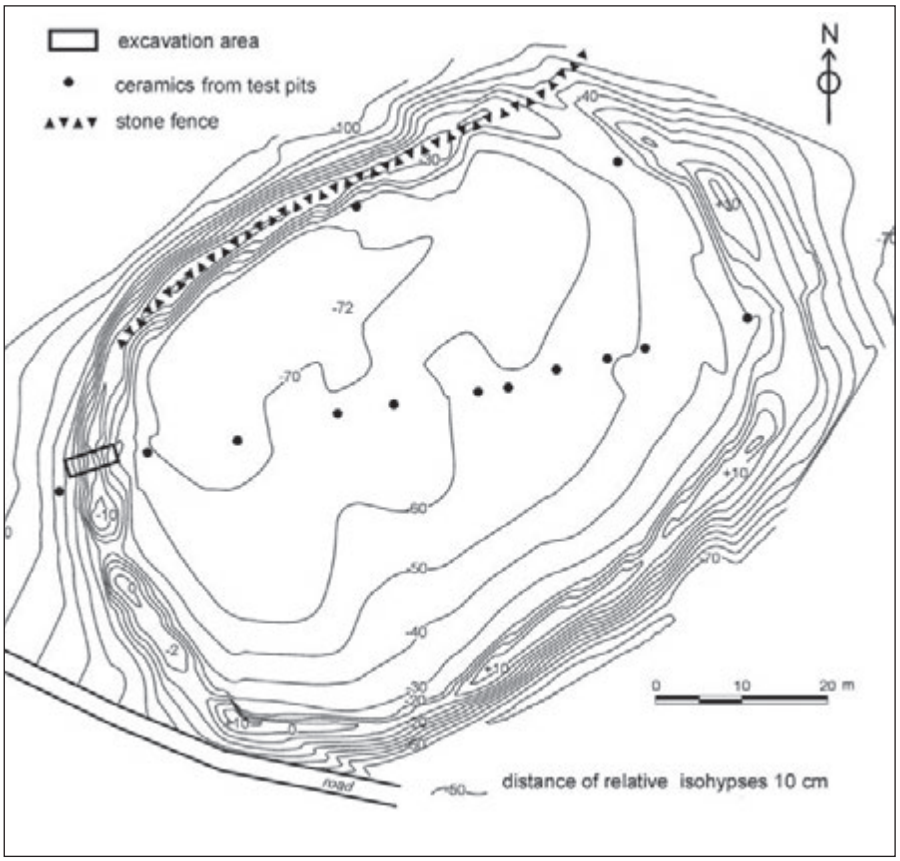

Fig. 33. *The Lipa ring fort (after Konsa* et al. *2006, fig. 1).*

The Päälda site is located in the middle of Muhu Island and is approximately as large as the Massu enclosure, only slightly more oval in shape (50–70 m in diameter). The width of the rampart (together with its ruins) is approximately 7–8 m, and the height is 0.8 m, but archaeological investigation showed that the width of the rampart, which had been piled as a dry wall, was originally only 3 m (Lõugas 1984, 351, pl. IV). A cultural layer rich in charcoal was found behind the rampart, but it contained few finds. The pieces of ceramics were fragmented and difficult to date; Lõugas estimated that they belonged to the Late Pre-Roman Iron Age (Lõugas 1984, 351).

The layout of the Lipa enclosure at Rapla County resembles an 80 x 55 m rectangle with rounded corners (Fig. 33). The circular rampart had been established on flat ground; the current width of the rampart and its ruins is 7–8 m, and the height is 0.7–0.8 m. Only a single gate can be distinguished in the western part of the site. A cross-section of the rampart (see Konsa *et al.* 2006) showed that it was 3 m in width, had been constructed with large granite stones, and small stones had been used as fill material (Fig. 34). The numerous trial excavation pits indicated that the cultural layer covers the entire area enclosed by the rampart. Pottery with smoothed

Fig. 34. *Construction of the stone wall in Lipa (photo: V. Lang).*

and slightly striated surfaces dates the Lipa rampart enclosure to the Early Iron Age.[53]

The similarity of the circular rampart at Mustla, located on Saaremaa Island near Ridala, to the ramparts at Massu and Päälda suggests that it belongs to the same period of time. Kantsimägi at Sõtküla and Ta(a)ramägi at Keblaste also probably date to the same period, while Kuradimägi at Ehmja is perhaps of later origin. Kuradimägi was not built on flat ground but on a 0.8 m high ridge, and a Viking Age potsherd was found there. There was an occupation layer from the Early Iron Age next to the circular rampart, however, suggesting that the latter could have been established approximately at the same time (Mandel 1983).

The early ring forts of western Estonia and the islands have been rightly compared with similar sites in Gotland and Öland (Lõugas 1975, 86 f.). These sites have a rather small surface area that is enclosed by a single or multiple circular ramparts made from stones or earth. The excavations have shown that the enclosures in Gotland (32 total) have almost no cultural deposits, or they are extremely poor in finds;[54] the ramparts have been radiocarbon dated primarily to the Pre-Roman and Early Roman Age (see Cassel 1998, 131 ff.). Nineteen such ring forts are known in Öland. The isolated finds helped to date the earliest ramparts to the Late Roman Iron Age and the Migration Period, whereas the later ones date to the end of prehistoric times (Stenberger 1933, 213 ff.; Wegraeus 1976). Single sites with circular ramparts have also been discovered in the eastern part of central Sweden (Ambrosiani 1964, 176).

As for the ring forts in Gotland, it has been noted that they are mostly located in settlement centres, on the land of the predominant farm. The local people may have gathered there for celebrations or to exchange gifts; that is, they had a cult-ceremonial rather than military-protective function (Cassel 1998, 145 ff.). On the other hand, some forts with circular ramparts in Gotland, for

[53] A radiocarbon date was obtained from under the rampart (2982±83 BP), however this date is too early to be acceptable.

[54] Except for an extraordinary hoard found at the Havor enclosure, which contained Roman imports (see Stenberger 1977, 278 ff., fig. 175).

example, Eketorp and Ismantorp, had once been densely covered with buildings and served first and foremost as military bases. The nature and location of early circular rampart sites in Estonia is similar to those in Gotland. The lack of data does not allow verification of their use for similar ceremonial purposes. However, the absence of a cultural layer or a lack of finds (except at Lipa) suggests that large communities did not permanently inhabit the places. On the other hand, it would have been too labour-intensive for single households to build them and even more impossible to defend them. That is why the most probable interpretation of the early ring forts in western Estonia (and the promontory hill forts; see below), is that the households of a certain settlement area established them as ceremonial or cult places. The distribution of the early ring forts throughout only the western part of the country (Fig. 17) supports the idea that they were modelled, to some extent, on similar overseas sites. The present material does not allow us to definitively establish whether or not the local enclosed cult site at Kaali could have served as the model for building single and double circular ramparts.

2.2.4 Early promontory hill forts

Early promontory hill forts such as Salevere and Lihunetsi in western Estonia, Jägala and Muuksi in northern Estonia, and Võnnumägi in northern central Estonia, form a separate group of sites enclosed with ramparts. They all have low hemispheric stone ramparts, which separate a part of the hill from remaining plateau. The area enclosed within the rampart is rather large (at Jägala 2.8 ha, at Muuksi more than half a hectare, and a quarter of a hectare at Salevere), whereas the cultural layer is thin and has few artefacts. The excavations at Jägala (Fig. 36; Johanson & Veldi 2006) dated the lower layer of the rampart, which contained wooden fortifications (Fig. 35),

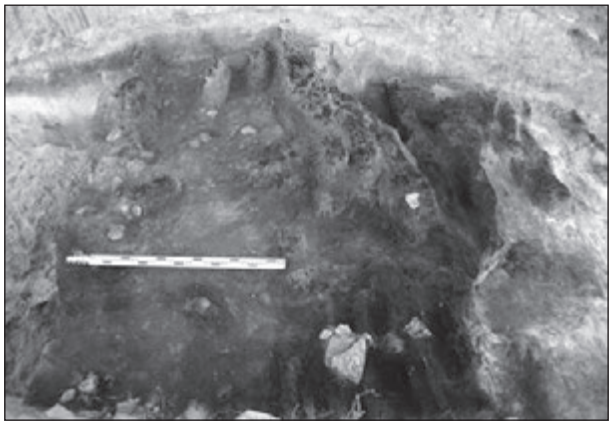

Fig. 35. *Wooden structures in the rampart of Jägala promontory hill fort (photo: M. Lõhmus).*

to the Late Pre-Roman Iron Age (Fig. 28) while the upper fortification belongs to the Middle Iron Age. Limited archaeological excavations at Muuksi (Moora 1955, 52 ff., pl. VIII: 1; Vedru 1999b) yielded few Early Iron Age ceramics, but the rampart, or at least its re-built parts, were

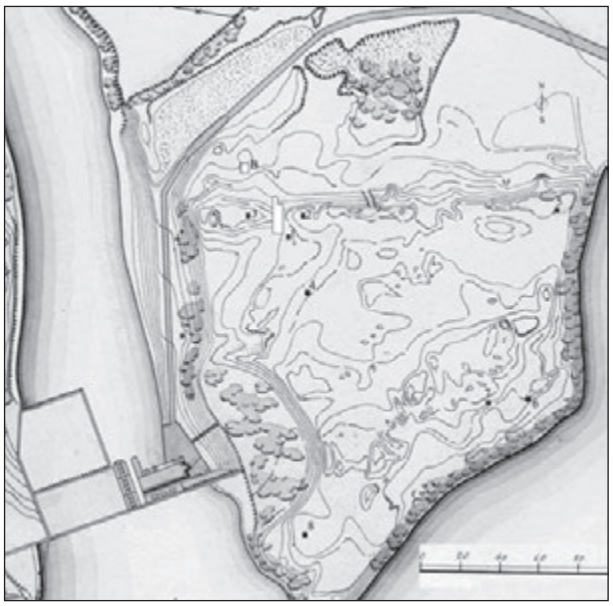

Fig. 36. *Promontory hill fort at Jägala with excavation areas of 2005 (after Johanson & Veldi 2006, fig. 1).*

Fig. 37. *Reconstructed rampart of Võnnumägi, view from north-west (photo: V. Lang).*

radiocarbon dated to the last centuries of prehistoric times. Rather ancient-looking fossil block-shaped fields and early stone graves are located nearby the Salevere rampart, which is 5–6 m in width and 0.5–1 m in height (Mandel 2003, 167). In addition, some settlement sites and a sacrificial well are also located there. Although no archaeological excavations have been carried out at Salevere, one might assume that the complex dates back to the Early Iron Age.

Võnnumägi at Keava has been studied more closely over the past few years (Lang *et al.* 2003; 2004b; 2005b). It is on a long promontory, part of which (an area of ca. 95 x 54–60 m) has been separated from the rest of the hill by a slightly curved rampart 6–8 m in width and 0.5–1.5 m in height. An excavated cross-section of the rampart showed that it was 2.8–3.2 m in width and consisted of a body of sand and smaller stones, densely covered with rather large stones (Fig. 37). The cultural layer near the wall was thin and contained only a dozen potsherds. The excavation area in the south-western side of the plateau, similar to the other sides of the hill, did not reveal any fortifications; the cultural layer was thin and mixed there. The radiocarbon dates obtained from the various levels of the cross-section of the rampart all indicated the 4th and 3rd centuries BC (Fig. 28).

Thin and poor in finds, cultural layers of the early promontory hill forts suggest that these sites, similar to the ring forts on flat ground, were not established for ordinary habitation of large communities. On the other hand, the large-scale construction work needed to erect ramparts suggests larger groups of people

working together to achieve specific goals. These observations allow to compare early promontory hill forts with ring forts on flat ground; it is possible that the former sites, too, were founded for cult and ceremonial purposes, although purely defensive functions cannot be ruled out either. In both cases it is obvious that these sites served communities which were much larger than common single farms.

2.3. Developmental trends in settlement throughout Estonia

Previous sections of this chapter have dealt with different types of settlement sites dating to the Late Bronze or Early Iron Ages that are known in Estonia. As noted, besides the differences in chronology and morphology, the settlements are characterized by different social backgrounds. Thus, it is clear that the society of the period under discussion is much more dynamic and diverse than had generally been believed before. The social component of settlement patterns will be discussed at length below (Chapter 5).

The concluding portion of this chapter will deal with the development of settlement in various regions of Estonia. For that purpose not only different types of settlement will be analysed but also other types of sites, including graves, cup-marked stones, and isolated finds (see also below, Figs. 82, 102, 116, 148). Estonia will be divided into the following six regions: north-western, north-eastern, central, south-eastern, south-western, and western.

2.3.1. North-western Estonia

North-western Estonia includes the region that was, at the end of prehistoric times, divided between the counties of Rävala and Harju. Topographically, this region can be divided into two distinct parts − coastal plains, which are located between the sea and the Baltic glint, and the plateau located south of the Baltic glint. The plateau can be divided into an area of thin rendzina soils on limestone bedrock (*loo* areas), and an area densely covered with moraines located further away from the coast. The south-eastern part of the region is covered with Kõrvemaa forests and bogs (see Fig. 2).

The few sites and isolated finds from the end of the Stone Age and the Early Bronze Age are centred near the Baltic glint in areas with rendzina soils, and mark the geographic preferences of the first *landnam.* Few finds have been uncovered in areas further inland (Lang 1996a, figs. 101, 107, 112, 117, 120, 125). The location of known settlement sites and stone-cist graves suggests that Late Bronze Age settlement was concentrated first and foremost in the *loo* areas. The most dense settlement networks developed in the area between Valkla and Kahala (in particular around Lake Kahala), in the vicinity of Rebala and Jõelähtme, and along the lower and middle reaches of the Pirita River; all of these areas have also been thoroughly investigated (see Lang 1996a, figs. 102, 113, 121). The population density in the above areas reached one household per ca. nine square kilometres, which in a broad sense equals one person per square kilometre (see Lang 1996a, 432 ff.).[55] Thus, some regions saw a five-fold increase in the population over a relatively short period (by comparison with the Early Bronze Age), which was definitely not the result of increased local birth rates alone. Moving further inland from the rendzina soils near the Baltic glint, population density seems to decrease considerably, as the number of stone-cist graves decreases markedly, and no settlement sites are

[55] Such calculations are based on the results of a palaeodemographic study of the stone-cist graves, which will be discussed in more detail below (5.1.3). The findings suggest that a group of stone-cist graves, similar to a *tarand*-grave, represents one household.

known in that region either (Lang 1996a, figs. 108, 118). The stone-cist graves and some possible settlement sites appear only in the surroundings of Kehtna, which is located in the southern part of prehistoric Harju County (Lang 2002b, fig. 4). Nevertheless, cup-marked stones are distributed almost evenly across north-western Estonia (except the wide forest belt between Rävala and Harju), but their concentration is slightly higher in areas near the Baltic glint. Unfortunately, at present it is not possible to accurately date the cup-marked stones within the Bronze and Early Iron Ages, and thus the stones alone cannot be used as an indicator of Late Bronze Age settlement (for more about cup-marked stones see below, 5.3.1).

During the Late Bronze Age in north-western Estonia, differentiation and hierarchy between settlements was present − in addition to common single households there was the Iru fortified settlement. Moreover, units of higher and lower status can be distinguished even among single households that buried their dead in stone-cist graves. In addition, there most likely were households that did not build any stone graves at all. Thus, one can speak of four separate types of settlement units, each with a different status (for more about social organization see below, section 5.1.3).

Late stone-cist graves, early *tarand*-graves, cairn-graves, a few settlement sites, and cup-marked stones all indicate Pre-Roman settlement. The former core areas (e.g. the lower, and especially the middle, reaches of the Pirita River, and the area around Lake Kahala) were continuously inhabited, and the areas around Rannamõisa and Ilmandu (west of Tallinn), where a few early *tarand*-graves and field remains have been excavated, became more densely populated. Additionally, areas to the south, for example, the heart of Harju district, where signs of earlier Bronze Age settlement were sparse, also became more heavily populated (Lang 2002b, fig. 4). It may well be that most cup-marked stones in Harju date to that period, indicating the spread of agricultural settlements. The structure of the settlement remained hierarchical, however. In addition to single households of varying status, hilltop and promontory settlements were inhabited and used in various places (Iru, Jägala, Muuksi, and Võnnumägi).

The significant settlement processes that had presumably begun by the Late Pre-Roman Iron Age developed further in the Roman Iron Age. The possible distribution of settlements during the period under discussion can be observed in the location of the *tarand*-graves, since settlement sites and isolated finds are rare, and it is unknown whether cup-marked stones continued to be made. The areas of *loo* (rendzina) soils, in particular the surroundings of Rebala–Jõelähtme and Lake Kahala, witnessed a considerable decrease in the density of the settlement network, though it does not completely disappear anywhere (Lang 1996a, figs. 114, 122). At the same time areas further inland that had previously been peripheral, for example, the southern parts of Rävala and Harju became more densely populated (Lang 1996a, fig. 118; 2002b, fig. 4). The distribution of the *tarand*-graves seems to indicate that the density of the settlement network became more balanced in various parts of the region. For example, the average population density in Rävala, which is a well-studied region, decreased to one household per ca. 13–17 km^2 (Lang 1996a, 436), whereas the old core areas still remained more densely populated than the peripheries. In other words, the population density decreased in core areas, and the peripheries became more densely populated. The average population density in the heart of Harju district reached the level of Rävala. This process reflects migration from the *loo* areas to the inland regions that had larger areas of unoccupied land with fertile soils (which were difficult to cultivate, though). A number of *tarand*-graves from that period have been archae-

ologically studied (Lagedi, Saha, Viimsi, Mõigu, Kurna, Proosa, Lehmja-Loo; see Lang 1996a).

In contrast to the earlier periods, the Roman Iron Age settlement units of north-western Estonia were all common farming households – no hilltop settlements are known at present. Nevertheless, as was the case earlier, places of higher and lower status can be distinguished among the households, which points to shadow stratification.

2.3.2. North-eastern Estonia

North-eastern Estonia encompasses the late prehistoric Viru County; a wide forest belt and a wetland area, located above the Valgejõgi and Loobu Rivers, separates north-eastern Estonia from the north-western part of the country. Both regions are similar in terms of the landscape and agricultural settlements. North-eastern Estonia also has the coastal plain (though narrow in some places) and the North-Estonian plateau. The Alutaguse forests cover most of the area, however (Fig. 2).

Many of the isolated finds dating to the end of the Stone Age and the Early Bronze Age are concentrated near the Baltic glint zone in north-eastern Estonia, but the number of isolated finds is also rather high in the inland regions, in particular in the central and northern parts of the Pandivere uplands and around Rakvere, Tapa, and Tamsalu, and to a lesser degree in northern Peipsimaa (Lang 2000a, figs. 22, 23). The Late Bronze and Early Pre-Roman Iron Age stone-cist graves, on the other hand, are concentrated in a rather narrow zone near the Baltic glint (Lang 2000a, figs. 90, 93; Schmiedehelm 1955, fig. 51), with the exception of a large grave group directly over the western border of Lääne-Viru County near Tapa (Naistevälja at Moe). The presently known settlement sites dating to the Bronze and Early Iron Ages are also concentrated in the same zone. When travelling from the west, large and more densely concentrated groups of stone-cist graves can be found between the villages of Vihasoo and Palmse, and between Vihula and Lauli (see Lang 2000a, 90 ff., 195 ff.). The next large grave groups are located around Viru-Nigula in Koila, Malla, Koogu, and Tamme (Tamla 1996, 216, fig. 28). The area around the lower reaches of the Purtse River had become an important region by the Bronze and Early Iron Ages; the graves at Napa, Purtse, Lüganuse, Jäbara, and Varja are located there, and several of them, such as Napa, Lüganuse, and Jäbara have been archaeologically excavated and data from them has been published (Schmiedehelm 1955, 18–60, fig. 51). Continuing towards the east one can find rather dispersed grave groups around Ontika, Valasti, Voka, and Vaivara.

The Late Bronze Age settlement pattern in Viru County is similar to that of Rävala in the sense that only a single fortified settlement – Joaorg at Narva – is known there. No graves from the same period have been located for dozens of kilometres in all directions from the Joaorg site. The population density in the area of the stone-cist graves was high, reaching up to one household per 4–5 km² in the area between Vihasoo and Palmse (Lang 2000a, tab. 5), while it probably remained at a similar level to Rävala in other places (though this has not been studied in detail). Nevertheless, the areas where stone-cist graves occur were not the only inhabited places. Sediments from the Viitna Lakes indicate that crop growing and cattle rearing had been practised in the area during both the Early and Late Bronze Ages and later (Saarse *et al.* 1998, 38, fig. 5). The closest stone-cist graves, however, are located 7–8 km away near Palmse. It may be that cup-marked stones, which are rather evenly distributed through the zone near the Baltic glint and in inland areas, are the first indicators of farm settlement outside the distribution area of the stone-cist graves.

As settlement continued and became more dense in the zone near the Baltic glint through-

out the Pre-Roman Iron Age, which previously had been marked by stone-cist graves, areas further inland were inhabited, too. Several Pre-Roman Iron Age early *tarand*-graves in Viru have been studied at Tõugu, Võhma (Tandemägi), and Uusküla (Lang 2000a), and at Kunda (Hiiemägi). In addition, some *tarand*-graves dating to the end of the Pre-Roman Iron Age or the beginning of the Roman Iron Age have been studied at Kuura, Jäbara, and Toila (Schmiedehelm 1955). Some isolated finds (e.g. a sword of the late La Tène type) and probably also numerous cup-marked stones indicate that the central and southern parts of the county were also inhabited. The Alutaguse forests to the north of Lake Peipsi were not permanently inhabited.

The Pre-Roman Iron Age settlement network also maintained its hierarchical nature in Viru district. In addition to graves with both rich and poor grave goods (indicating the existence of status differences between single households), three hilltop settlements are known − Koila, Pada II, and Joaorg at Narva. No burial sites have been located near Joaorg as of yet.

The Roman Iron Age settlement network, which is mainly marked by *tarand*-graves, rather evenly covers the areas suitable for cultivation in north-eastern Estonia. The peculiarity of Viru County, by comparison with north-western Estonia, is that the zone near the Baltic glint remained densely populated (and was possibly the most densely populated area in Estonia at that time), which can be explained by the existence of large reserves of land suitable for cultivation (e.g. Schmiedehelm 1955, fig. 53). However, some places experienced population declines; the population density in western portion of Viru County, which is well studied in regard to settlement history, dropped 20–25 per cent in the zone near the Baltic glint by comparison with the previous period (Lang 2000a, tab. 5, figs. 92, 93), while the population density in the coastal areas of central and eastern Viru increased. The average population density further inland in the vicinity of Haljala, Kadrina, and Rakvere was around one household per 13–16 km² in the Roman Iron Age (Lang 2000a, figs. 93, 94); the figures were the same for north-western Estonia. Thus, the agricultural occupation of the inland regions of Viru County could not have occurred only in the Late Pre-Roman and the Roman Iron Ages (in conjunction with the spread of the *tarand*-graves away from the coast), but it must have taken place much earlier, probably starting in the Early Bronze Age, as the distribution of shaft-hole axes indicates (Lang 2000a, 202 ff.). In this respect, the inland regions of Viru differ from Harju where few stone axes have been uncovered and where the first *landnam* must have occurred later.

Similar to north-western Estonia, no Roman Iron Age hilltop settlements are known in north-eastern Estonia. At first sight the settlement network seems to have been rather egalitarian, but the study of numerous *tarand*-graves (e.g. Jäbara, Pada, Kohtla-Järve, Türsamäe; Schmiedehelm 1955) has shown that differences in status between single households were rather common at the time. The location of the iron smelting site of Metsküla at Mäetaguse (Peets 2003, 51 ff.), which is far away from the stone graves, suggests that areas outside the distribution area of the *tarand*-graves were also inhabited.

2.3.3. Central Estonia

Central Estonia is generally thought of as including ancient Järva County and the small counties of Alempois, Nurmekund, Mõhu, Vaia, and the northern part of Ugandi County as far as the Suur-Emajõgi River. This definition of central Estonia includes different natural landscapes (Fig 2); Kõrvemaa is covered with wetlands and forests, the western and southern part of the Pandivere is uplands, Vooremaa has a drumlin-

type landscape, and the area around Lakes Peipsi and Võrtsjärv is lowlands.

Isolated finds dating to the end of the Stone Age and Early Bronze Age have mostly been discovered in the southern part of central Estonia, in particular from the northern shore of Lake Võrtsjärv in the west to Lake Peipsi in the east, while a few isolated finds have been found in Järva. It can be argued that some of the late stone axes also mark Late Bronze Age settlements, which are poorly represented in existing data. Stone-cist graves that definitely date back to the Bronze Age are only known at Naistevälja near Moe (30–35 graves), which is located to the south of Tapa on the border with Viru County. The other known graves are likely of later origin, dating to the Pre-Roman Iron Age, but they have not been investigated so far. A group of at least five (but probably more) stone-cist graves has been found at Tirma near Laiuse, and some probable stone-cist graves are located at Viisu near Paide. A stone grave has been partly excavated at Nava; the sandy soil under the *tarands* revealed inhumations with grave goods from the Pre-Roman Iron Age. Several early grave finds have been discovered around Pilistvere (Vahamulla at Kabala and Venevere), at Leedu near Anna, and at Laupa-Lõola in the vicinity of Türi (see Lõugas 1970a, 507 ff.).

Although more stone graves dating to the Late Bronze and Pre-Roman Iron Ages have been found, they are not numerous enough to allow for detailed conclusions about settlement history. It is clear that burial with grave goods in monumental, aboveground graves was uncommon in the inland regions of Estonia in the Bronze and Pre-Roman Iron Ages (the area of Naistevälja near Moe can also be viewed as belonging to northern Estonia). However, this does not mean that the areas were as sparsely populated as one might assume on the basis of the few known graves. This general settlement picture is complemented by data from some open settlement sites (Nurmsi, Tarbja, and Siimusaare), and hilltop settlements (Alatskivi, Saadjärve, and Ripuka), which pre-date the *tarand*-graves and illustrate that the settlement pattern had already become hierarchical. In addition, the pollen-analytical study of bog and lake sediments has yielded much data about the existence of settlements and the cultivation of land in the first millennium BC. Cup-marked stones are also numerous in central Estonia, but they become less frequent when moving from the north to the south. Additionally, some isolated finds thought to date from this time period have found their way to museums, and the early iron smelting site at Tindimurru is worthy of mention, as well (Peets 2003, 57 ff.).

Tarand-graves, and some isolated finds that probably originate from them, are the main indicators of the settlement network during the Roman Iron Age (Moora 1966). *Tarand*-graves cover farming lands more densely in the area between Türi, Paide, Jõgeva, and Simuna, while they are less frequent elsewhere. Only the following five *tarand*-graves have been archaeologically studied: Nurmsi (Vassar 1943), Tarbja (Moora, T. 1967), Kõrenduse (Lavi 1978), Lahepera (Lavi 1980), and Nava. Traces of earlier settlements or burial sites were uncovered under all of the graves (except Lahepera), which suggests that the lack of known sites can be explained by the fact that central Estonia has been archaeologically studied to a limited extent. Similar to northwestern and north-eastern Estonia, no Roman Iron Age hilltop settlements are known in central Estonia, but an iron smelting site was found in Puiato (Peets 2003, 57 ff.).

2.3.4. South-eastern Estonia

South-eastern Estonia is defined here as the area south of the Suur-Emajõgi River, and east of both Lake Võrtsjärv and the lower reaches of the Väike-Emajõgi River. This area encompassed most of Ugandi County at the end of prehistoric

times. The majority of this area is covered by the Otepää, Haanja, and Karula uplands with flat lands located between them; shallower and wetter depressions of rivers and lakes border on south-eastern Estonia in the east, west, and north (Fig. 2).

The late shaft-hole axes dated to the end of the Stone Age and the Early Bronze Age are dispersed across this area rather evenly, but their concentration is higher along the western shore of Lake Pskov (Johanson 2005, fig. 1). They are completely absent in the lowlands located between the eastern slope of the Otepää uplands and the western shores of Lakes Peipsi and Pskov.

Few Late Bronze and Pre-Roman Iron Age sites have been discovered in south-eastern Estonia so far, although the number of known sites is gradually increasing. The Vehendi stone-cist graves, which are located on the eastern shore of Lake Võrtsjärv, are the only known graves built on the ground (Laul 1978). In addition, some pit graves containing cremation burials have been found under later graves in some places (Vehendi, Põlgaste, and potentially also Siksali, Antsla, and Ruusa). It is possible that this type of burial, which is difficult to locate archaeologically, spread beyond south-eastern Estonia into other inland areas outside the distribution area of the stone graves. A Late Pre-Roman Iron Age pit grave with inhumation burials has been found at Tamsa near Pangodi. Some of the rather numerous open settlements were inhabited in the first millennium BC although it is usually difficult to distinguish between Roman and Pre-Roman Iron Age finds due to very poor deposition layers. Earlier settlement sites include Akali, Sangla, Mähkli, Mäksa, Ruusmäe, Tonja II, Uderna II, and Vehendi. At least two hilltop settlements − Peedu and Makita − date to the end of the Bronze Age or the Pre-Roman Iron Age. Also taking into account those settlement sites that could feasibly date to the Roman Iron Age (in addition to the ones definitely belonging to that period), it is clear that almost the same areas were settled as during the period when the late shaft-hole axes were spreading. This supports the claim, presented in the previous chapter, that the areas suitable for cultivation were first settled during the Early Bronze Age and that settlement then became permanent there in the following periods.

The Roman Iron Age settlement network is much denser in appearance due to more than 100 *tarand*-graves that have been discovered (Laul 2001, 27 ff., fig. 3). In the area between Lake Võrtsjärv, the Ahja River, and the upper reaches of the Võhandu River, graves are located close together, whereas they are completely absent in the eastern portion of south-eastern Estonia. Open settlements (e.g. Väike-Rõsna, Võpolsovo, and Kretska)[56] and iron smelting sites (Kalatsova and Siksali, see Peets 2003, 64 ff.) have been found in the area, reinforcing the claim that the settlement sites were much more widely spread than the distribution area of the stone graves would indicate. The social structure of Roman Iron Age settlement in south-eastern Estonia is much more diverse than in northern Estonia. For example, at Unipiha a hilltop settlement existed adjacent to the open settlements or single households that were marked with stone graves. It is possible that several other hill forts in south-eastern Estonia, which have yielded few textile-impressed and striated ceramics or other artefacts, were initially settled at the end of the period (or during the next period, i.e. the Migration Period); such hill forts included Rõuge, Tartu, Otepää (see Laul 2001, 21 ff.), Tornimägi at Haapala, and Liinamägi at Hinniala.[57] In the neighbouring southern areas

[56] In addition, there are Early Iron Age settlement sites known to the east of the present border between Estonia and Russia; see Kiristaja 2003, figs. 15–16.

[57] Besides the sites mentioned above, some nearby open settlement sites and the Irboska (Izborsk) hilltop settlement (which is now on the territory of Russia), should also be noted (Kiristaja 2003, 91).

of Lithuania and Latvia, the hill forts, now often along with the open settlements located at the foot of the hill, were again put into use during the Late Roman Iron Age, giving reason to believe that the tradition of establishing hill forts reached Estonia from the south, and that it happened slightly earlier than has been assumed. In south-eastern Estonia, occupation layers from Late Roman Iron Age and/or the Migration Period hill forts and the associated settlements at the base of the hill are thin. Complexes comprised of both a hill fort and an open settlement site at its foot developed only during the Pre-Viking and the Viking Ages in Estonia.

2.3.5. South-western Estonia

South-western Estonia is defined as the area between Lake Võrtsjärv and the Väike-Emajõgi River in the east, and the Pärnu River and the Gulf of Riga in the west. This region formed Sakala County at the end of prehistoric times. The landscape of south-western Estonia includes the Sakala uplands, which are similar to uplands in south-eastern Estonia, and a lowland divided by the Pärnu River and its tributaries the Navesti and the Raudna Rivers. The Lake Võrtsjärv depression is a separate unit characterized by a lowland with small drumlins on the north-western and western shores of the lake (Fig. 2).

The Late Stone and Early Bronze Age shaft-hole axes, along with other isolated finds, are mostly concentrated in the Pärnu River basin and on the northern shore of Lake Võrtsjärv, and are also rather evenly (but less densely) distributed across the Sakala uplands (Johanson 2005, fig. 1). These finds reflect both the continuity of settlement in ancient foraging centres and the first *landnam* in areas suitable for cultivation.

Archaeologically speaking, the Bronze and Early Iron Ages have been poorly studied in south-western Estonia. Probable stone-cist graves have been discovered only at Mõnnaste, Ämmuste, and Holstre (Lõugas 1970a, 514 ff.). The sparsely located cup-marked stones occur across a much wider area, but do not occur outside of the Sakala uplands. The *tarand*-graves are also rather numerous in the uplands; 66 such sites were known as of half a century ago (Vassar 1956). A distribution map of the stone-graves and cup-marked stones shows that largely the same areas were inhabited during the Early Bronze Age as were later in the Late Bronze and Early Iron Ages. Few *tarand*-graves have been excavated to date (e.g. Ülpre, Kuude, Sammaste, and Vana-Võidu), and they contained surprisingly few grave goods. On the other hand, the stone graves established during the Roman Iron Age were also usually repeatedly used over the next centuries, until the Late Iron Age, indicating continuity of settlement and religious behaviour.

Few settlement sites are known in south-western Estonia. Other than the settlement sites of Altküla and Laadi by the Gulf of Pärnu, which contained ceramics with textile impressions, sites on the Sakala uplands include the following: Mustivere, Olustvere, Valgjärv at Koorküla, and Jõgeveste. Few surface finds were obtained by inventorying the Jõgeveste settlement, and only eight striated potsherds were found at Mustivere. The extensively excavated Olustvere settlement revealed more findings, including an early iron smelting site with the remains of two furnaces, as well as striated ceramics, both of which helped date the site to the Roman Iron Age (Peets 2003, 63 ff.). The nature of the Valgjärv settlement site is unclear because only two radiocarbon dates, the samples for which were taken from wooden pegs found in the lake, have been obtained so far. The hilltop settlements of south-western Estonia included Viljandi and Tantsumägi at Tõrva, which yielded a small number of textile-impressed and striated ceramic sherds. Based on the available data, the hierarchical structure of the settlement network of Sakala is similar to the

settlement network in the rest of Estonia, in particular to neighbouring south-eastern Estonia, though few sites and little find material have been found so far.

2.3.6. The islands and western Estonia

Finally, general settlement trends will be dealt with in a review of settlement in the western part of the mainland and on the larger islands such as Saaremaa, Hiiumaa, and Muhu. At the end of prehistoric times this region was divided into two large counties − Läänemaa and Saaremaa − while Hiiumaa was called *insula deserta*. The region is largely characterized by flat and low-lying land (Fig. 2), the so-called western Estonian type of landscape, which gradually rose from the sea in isostatic rebound over millennia. Because thin and stony *loo* areas constitute the most common landform, lands suitable for cultivation are limited in Lääne County. The core areas of the islands that were higher, and where the sea retreated earlier, contain more land suitable for farming

Late Stone and Early Bronze Age stone axes, adzes, and bronze items have for the most part been found in western and eastern Saaremaa and Muhu, while they occur less frequently on Hiiumaa and in northern Lääne County. A considerable number of the finds can be associated with the Kasari River basin, indicating the presence of a foraging settlement, although land cultivation, especially cattle rearing, could have been practised as well.

Most stone-cist graves from the Late Bronze and Early Pre-Roman Iron Age have been discovered in Saaremaa, and they occur in the same regions where Early Bronze Age isolated finds have been found, i.e. the areas of Võhma–Mustjala–Kihelkonna–Lümanda, Kärla–Kaarma, and Pöide–Valjala. An area newly settled during the Late Bronze or Early Pre-Roman Iron Age was the Sõrve peninsula. The island of Muhu had been settled previously, but the lands around Poanse–Kaseküla–Kõmsi–Vatla and Auaste–Tagavere–Taebla, which are located on the westernmost point of the mainland, seem to have been settled during the period under discussion. Stone-cist graves occur in Hiiumaa only on the Kõpu peninsula. A large number of the stone-cist graves on the islands and in western Estonia have been archeologically studied, including Loona, Kaunispe, Türju and Karuste in Saaremaa (Lõugas 1970a, 374–405; Vassar 1956, 164 ff.), several Kõpu graves on Hiiumaa (Lõugas 1970a, 406 ff.; 1982; 1984), and Kaseküla in Läänemaa (Mandel 1975).

Compared to northern Estonia, few cup-marked stones have been found in the area (Lõugas 1995a). The cup-marked stones generally occur in the same regions as the stone graves, but with some exceptions. Many such stones are known in the Valjala–Pöide region in eastern Saaremaa, while few have been found in western and north-western Saaremaa, and they are completely absent around Võhma and Lümanda. On the other hand, a group of cup-marked stones were found in central Saaremaa, which contains rather few Bronze and Early Iron Age sites. It is noteworthy that the cup-marked stones are absent on Hiiumaa, including on the Kõpu peninsula. On the mainland, primarily the Kõmsi–Vatla and Uugla–Taebla areas have revealed cup-marked stones, but single stones have been found in other places, too (Mandel 2003, fig. 20).

Few open settlement sites from the Bronze and Pre-Roman Iron Ages have been found in western Estonia and the islands, and it is impossible to date them more accurately within the period due to the poor find material. Early sites have been discovered at Linnuse near Vatla, and at Kullamaa, which are located on the mainland. However, the fortified settlements at Asva and

Ridala provide data about other types of settlements in the Late Bronze Age. Neither of the fortified settlements is located centrally in regard to the common farming households, as is the case at Iru in northern Estonia, but rather have been built apart from them on the shore. Thus, it seems that the communities of these fortified settlements were ranked rather than stratified in regard to the common households. This does not mean that the fortified settlements did not have considerable socio-economic influence over the common households, particularly if considering their main activity, which was the import of bronze. Finally, the enclosed cult site of Kaali should be mentioned, which adds an interesting element to the social and religious relationships of this region.

Early *tarand*-graves are the most significant and the best studied site-type from the Pre-Roman Iron Age, in particular its later period, and the Early Roman Iron Age. Such graves have been found on Saaremaa and Muhu Islands, and in the western part of the mainland, mostly in the same regions where the earlier stone-cist graves spread, but they also occur across a larger area. Most of the *tarand*-graves on Saaremaa are concentrated in the north-western, western, and eastern parts of the island, and in the central part that has few stone-cist graves. Some of the early *tarand*-graves occur in the same grave groups as stone-cist graves, and sometimes the *tarands* have even been attached to graves with a circular layout. Such graves have been studied in Kurevere, Lümanda, and Võhma in Saaremaa, and in Mäla on the island of Muhu (Lõugas 1977; 1986; 1988; 1989). At this same time, people also began to establish *tarand*-graves on the mainland of western Estonia in places that were located either between two previous settlement centres (e.g. Keskvere and Parila) or farther inland, for example Rõuma and Leila (Mandel 2003, fig. 20). Early *tarand*-graves of Lääne County, which have so far not been found next to stone-cist graves, have been studied at Kõmsi, Poanse, and Taebla (Lõugas 1972a; Mandel 1978; 1982). No such burial sites have been studied on Hiiumaa, although some are probably present at sites that have not yet been excavated.

As mentioned, few open settlements have been found, and they have been rather roughly dated (the Pöide settlement in Saaremaa, and the Kõmsi and Kaseküla in Lääne County probably date to the Pre-Roman Iron Age), but one might assume that the early ring forts and promontory settlements of western Estonia and the islands were established during this period of time. As noted, it is likely that several surrounding households jointly erected the ring forts and promontory sites for religious and ceremonial purposes. If this interpretation is valid, then it is incorrect to compare the settlement structure of western Estonia to that of central or southern Estonia, where the presence of hilltop settlements clearly indicates it was socially hierarchical.[58] That is why, since the Pre-Roman Iron Age, societal development on the islands and in western Estonia seems to have followed a different path from that of northern, central, and southern Estonia.

The differences in the development of the settlement and the society in this region became even more evident during the Roman Iron Age. Monumental stone graves with jointed enclosures or *tarands*, where rich (or less rich) grave goods were placed, were erected across Estonia, except in western Estonia and the islands where few graves of this type have been found. It seems that grave goods were no longer placed in the early *tarand*-graves beginning in the 1st

[58] However, we cannot rule out the possibility that the other Estonian hilltop settlements also had a certain religious or ceremonial character that was significant to the wider surrounding areas. On the other hand, there is no evidence of their cult character in contrast to places on the islands and the western part of mainland Estonia that had been enclosed by circular ramparts, the building of which required extensive labour.

century AD; no finds from the 2nd or the 3rd centuries have been uncovered so far (with a few exceptions). The typical *tarand*-graves did not emerge prior to the end of the Roman Iron Age in Saaremaa. Such *tarand*-graves have been found at Liiva-Putla and Tõnija (Kungla 1967; Mägi 1999). *Tarand*-graves containing Roman Iron Age finds are completely absent in the western part of mainland Estonia, and no such sites have been uncovered on the islands of Muhu or Hiiumaa either. Presently no settlement sites, field remains, or isolated finds have been found which definitively date to the 2nd or 3rd centuries AD in this part of the country.

The question as to whether there was a settlement gap on the islands and in western Estonia during the Roman Iron Age has intrigued researchers for eighty years. The absence of Roman Iron Age sites (i.e. *tarand*-graves) and finds in the area caught researchers' attention in the 1920s, when the prehistoric sites and finds were initially systematically registered and mapped. The phenomenon was at first explained by the absence of permanent farming settlements (Tallgren 1924, XVI), and it was later believed that as cattle rearing became less important the population migrated from the coastal zone to higher parts of Estonia where the soils were better for growing crops (Moora 1932, 35). It was even proposed that people had migrated to Finland (Vassar 1938a). Moora (1956, 94 ff.) revised his point of view later by claiming that the population did not relocate, but that it spread into higher areas at the beginning of the era. A separate tribal area was identified in western Estonia in the 1950s; the native Estonian population inhabited it in the Roman Iron Age, but its demographic and economic growth were much slower than in other parts of the country (Vassar 1956). The absence of *tarand*-graves was explained by the survival of some archaic features of the economy (such as a preference for cattle rearing) and culture (continuity of old burial customs, which were characterized by few grave goods). Lõugas (1970a) proved later that land cultivation became predominant in the *loo* areas of the coastal zone during the Pre-Roman Iron Age at the latest, which shattered the previous theory. The first *tarand*-graves were found and excavated on Saaremaa Island and in western Estonia soon after that, and it seemed for a while as though the differences of Saaremaa and western Estonia were not significant when compared to other parts of the country.

However, it soon became evident that the find material from those graves was completely different from the grave goods found in typical *tarand*-graves from other parts of Estonia; and it was only moderately similar to that of the earliest *tarand*-graves. A later analysis showed that, architecturally, one was dealing with a variation of the *tarand*-graves, the so-called *early* tarand-*graves*, which spread mostly to the islands and coastal Estonia (Lang 1990b). The early *tarand*-graves of the islands and Lääne County were at first dated to the 1st or 2nd (and occasionally the 3rd) century AD, but a more detailed analysis of the find material indicated that many of the graves had been established by the Early Pre-Roman Iron Age, and that most were established during the Late Pre-Roman Iron Age (*op. cit.*). Vello Lõugas (1995b), who did the majority of the excavation work at the graves, also later claimed that the burial sites had been abandoned by the 1st century AD. Lõugas estimated that a Germanic cult site had been established by Lake Kaali on Saaremaa Island at the beginning of the Roman Iron Age. He also proposed that people were sacrificed to the heavenly gods there, and that the previous inhabitants had been driven off of the island or even exterminated.

As noted, the Kaali cult site dates to the Late Bronze and Pre-Roman Iron Age, and there is no evidence that a Germanic cult site had been established there at the beginning of the Roman Iron Age. Early *tarand*-graves similar to those on

Saaremaa were common in western Estonia, and their chronology is also similar, i.e. there is a gap in burials with grave goods around the 2nd or 3rd (and even the 4th) century AD. Pollen diagrams would verify that large areas remained uninhabited over two or three centuries, if that was the case. The palynological data from Lake Kaali indicate that there was a considerable increase in human activity in the Late Bronze Age when people started to grow grain. There seems to be a gap in this agricultural activity, though, and if the dates are correct, then the gap occurred only at the end of the Roman Iron Age and during the Migration Period (Saarse & Königsson 1992). On the other hand, the pollen diagram indicates that cattle rearing became more prevalent during this period. Thus, one can assume that there was no gap in settlement, but that the differences can be explained by a change in land use. No other pollen diagrams from Saaremaa or western Estonia, which have been studied from the perspective of human influence, show a gap in settlement around the Roman Iron Age, whereas indicators of grain growing were replaced by signs of cattle rearing in the Mustjärve diagram, for instance (Veski 1998).

This issue, it should also be added, needs to be further studied from archaeological and palaeoecological perspectives. It is evident that monumental stone graves were erected only in certain periods, i.e. when settlement-related, social, or religious reasons required it. Thus, the desertion of the graves or the disappearance of burials with grave goods cannot be interpreted as emigration. If that was the case, the same theory should apply to most of Estonia at the beginning of the Migration Period when people were no longer buried in *tarand*-graves. On the other hand, one cannot ignore the fact that no sites or isolated finds have been found on Hiiumaa Island dating to the period after the Early Pre-Roman Iron Age, although this may be explained by certain gaps in research. Several places in Estonia witnessed shifts in regard to sites and settlements, for example, from the zone near the Baltic glint to the inland regions, but no other place saw such total desertion as Hiiumaa Island did. As for the islands and western Estonia as a whole, the current material gives some reason to believe that a combination of the two explanations is rather logical. It is possible that due to the exhaustion of arable land some of the population moved, which resulted in less social stress and competition for agricultural land, and thus the need to express social tensions in the form of monumental graves disappeared. Certain differences in societal development had become evident on the islands and in western Estonia by the Late Pre-Roman Iron Age, and that might have influenced later developments, in particular the expressive behaviour of people. Future studies will show if this hypothesis is correct.

2.4. Conclusion

The analysis of Late Bronze and Early Iron Age settlements reveals a rather diverse picture of the era and the people of the time. Moreover, this diversity extended through both space and time. The first *landnam*, or the colonization of lands suitable for cultivation, which began in the Late Neolithic and gained ground in the Early Bronze Age, had begun to reach its first conclusion in the thin rendzina soils of northern and western Estonia and the islands by the beginning of the first millennium BC. It seems that agricultural land became scarce at this time, which brought about the gradual aggravation of territorial strategies. Such developments can also be seen in so-called expressive behaviour (cf. Hess *et al.* 2000, 61), which is reflected in the establishment of stone graves built above the ground and field markings. There was enough land suitable for cultivation in the inland areas, in particular in central and southern Estonia, and thus the

colonization of inland areas continued into the Late Bronze and Pre-Roman Iron Ages. The colonization of the inland areas was prompted mostly by the local birth rate, which is also likely the reason why the process was so slow. The end of the first millennium BC and the beginning of the next millennium witnessed rather modest immigration to the areas of later Harju and inland Viru Counties while some other places, such as the zone near the Baltic glint in northern Estonia, the islands, and western Estonia experienced emigration. The first *landnam* also came to an end in central and southern Estonia by the beginning of the Roman Iron Age.

The existing archaeological evidence indicates that the most common settlement unit was a single household or a farm. Such farms are represented in the archaeological record either by small open settlement sites with thin cultural layers, or by the location of graves and grave groups. The location of some of the open settlements on the landscape suggests that not all farms subsisted entirely on crop growing in the first millennium BC, but that fishing and seal hunting were still important for some. However, most of the households were located in areas with soils suitable for cultivation and away from large water bodies.

The analysis of the character and location of the settlements allows us to draw several conclusions about the social structure of the society of the time. It became evident that the society of the Late Bronze and Early Iron Ages was socially rather heterogeneous in Estonia. In addition to the single farms, there were a number of communities that lived in fortified settlements. These settlements were bigger than the single farms, and they consisted of many families and probably also dependants, and their main activities were the importation, recasting, and marketing of metal. It can be assumed that the chiefs of the fortified settlements exerted a certain socio-economic influence over the surrounding open farm settlements, but in general it seems that the fortified settlements and their adjacent communities stood somewhat apart from the farm settlements. The inhabitants of the hilltop settlements, on the other hand, probably wanted to show their social aspirations through their choice of settlement location in regard to the surrounding landscape and community, while the find material from hilltop settlements does not differ from that of the open settlements. The hilltop settlements make the settlement structure hierarchical almost everywhere in Estonia, except for western Estonia and the islands, whereas in the inland areas they emerged much earlier than the monumental stone graves. The early ring forts of western Estonia and the islands, together with the early promontory hill sites, probably served as regional gathering places for certain ceremonies or other activities.

Chapter 3

Agriculture and Handicraft in the Late Bronze and Early Iron Ages

The settlement analysis presented in the previous chapter offered a great deal of information about the economy of the Late Bronze and Early Iron Ages. The main economic activities at the time included land cultivation and cattle rearing, as can be inferred from the location of the farms in the landscape. In addition, fishing and seal hunting (presumably also land mammal hunting) were important in some places, and metalworking was practised at fortified settlements. This chapter will focus on agriculture and handicraft during the Late Bronze and Early Iron Ages.

In comparison with the book *Eesti esiajalugu* (Jaanits *et al.* 1982), published 25 years ago, most new data is related to the study of prehistoric land use systems as a number of early fossil fields have been discovered, mapped, and excavated since its publication. Although the field systems of the time reflect changes in cultivation, it is also important from the viewpoint of social studies to explore what can be said about land ownership relations, which constitute a non-material, but important, aspect of society that is usually neglected by archaeologists. Pollen analysis studies of bog and lake sediments have also revealed much new data. The question is whether the pollen diagrams coincide with the archaeological data or do they complement them in some important way. When investigating the economic activities of the time metalworking cannot be overlooked, including the production of both bronze and iron, the secrets of which were discovered during this period. What is important is not only where and how many metal artefacts were produced in what is now Estonia, but the influence of the metal work on the development of the society. The archaeological material also reflects other types of handicraft, such as pottery-making, and to a lesser extent wood and bone work, the making of clothes, boat and ship building, etc.

3.1. Land cultivation and cattle rearing

The remains of fossil fields, find material uncovered at settlements and burial sites (both bone material and tools), as well as the pollen diagrams of bog and lake sediments provide data on land cultivation and stock rearing. On the basis of fossil fields, common land use systems can be reconstructed.

3.1.1. Land use systems

In a broad sense the term *land use system* can be defined as the regulated use of any area that is governed by ownership relations. The land use systems of foraging societies, where the use of hunting grounds and fishing waters had to be negotiated between communities, can also be accommodated by this definition. Communal ownership usually prevailed in such systems. In a narrower sense, the term refers to the regulated use of agricultural land (fields, pastures, and meadows), which is usually combined with the use of non-agricultural lands, such as forests and water bodies. The type of ownership may differ in various land use systems, ranging from communal ownership to full private ownership of all land types, but a combination of private and communal ownership is most common. Ancient fields and field systems can be studied archaeologically through features such as field fences, plough marks, clearance cairns, and baulks associated with stone clearing. Field systems constitute the material aspect of land use systems, and they can be used to draw conclusions about the system as a whole and the ownership relations that governed it.

Clearance cairn fields and block-shaped fields are the two main types of field systems in use during the Late Bronze and Early Iron Ages. The sub-types of block-shaped fields include the so-called Baltic and Celtic fields. All the presently known early fields in Estonia were discovered on the thin rendzina-soils on limestone bedrock in northern and western Estonia and the islands, whereas they are absent in the inland regions. The main reason for their absence inland seems to be the fact that after initial tillage, and the exhaustion of thin stony soils, the lands were no longer suitable for cultivation. Thus, formerly cultivated fields were left fallow and were later used as pastures and meadows, and as a result, the original clearance cairns and baulks survived. The thicker soils of inland Estonia were probably not exhausted to such an extent, and later land use may have destroyed the earlier structures. In addition, the peculiarities of social and territorial strategies between the coastal and inland areas, which explain why permanent field systems were not needed everywhere, should be taken into consideration.

Clearance cairn fields

Clearance cairn fields constitute a field system where individual field plots are not separated by monumental stone or earthen fences and the only remains of which are stone cairns. However, such fields and their individual parts must have also had some fences to protect crops from animals. These were probably light wooden fences that could be easily relocated and which have left no traces in the ground. This is noteworthy, as ploughing in the same place over a long period of time should leave unploughed rows resembling baulks along the wooden fences. Because this has not been observed in ancient clearance cairn fields it is possible that these places were not cultivated over a long period, or that the fences were regularly relocated (e.g. after each fallow period), and thus the plots were reshaped and the emerging shallow baulks were re-ploughed. Single baulks on the clearance cairn fields, which seem to be random, may indicate this type of land use (e.g. Iru, Kaseküla).

Clearance cairns are usually round or oval-shaped stone heaps 3–5 m in diameter. The height of the clearance cairns depends on the heaped stone material – for limestone it is typically 20–30 cm but may reach over half a metre in the case of granite stones. A group can consist of tens or hundreds of such heaps, and the fields covered with them can range from tens to hundreds of hectares. Around 400 clearance cairns have been identified in Kõmsi, western Estonia in an area of

700 x 800 m (Fig. 38); 78 of them have been excavated (Lõugas 1972a; Mandel 1982; ETRA, 1992, 69 f.). The heaps were low, quite small (diameter 1.5–4 m), and were sometimes piled around some bigger boulder. The early cairn excavations neglected the burnt layer beneath the stones that contained charcoal and which was the result of the first slash-and-burn clearing of the fields. Samples for radiocarbon dating could have been collected from these charcoal layers, which would have yielded a more precise date for the clearing of the fields and cairn building. The few finds unearthed from the clearance cairns (single potsherds, animal bones, and an occasional fragment of a metal artefact) allowed archaeologists to date the establishment of the Kõmsi fields to the Early Iron Age, although they had also been cultivated during the later prehistoric periods. Thus, the cultivation of the Kõmsi fossil fields coincides more or less with the use of the stone graves in the area, i.e. graves dating from the Pre-Roman to the Late Iron Ages.

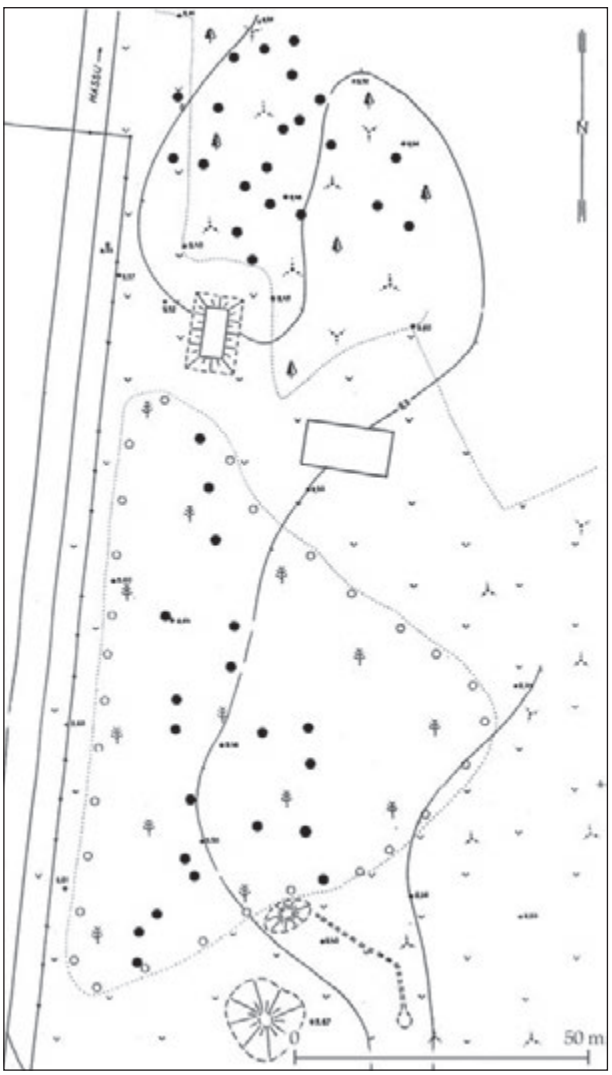

Fig. 38. *Part of the clearance cairn field at Kõmsi.*

Thorough archaeological study of the clearance cairn fields in other parts of Estonia has also indicated that such sites were used for a long period, usually from the beginning of the Iron Age until the Middle Ages. One such complex that has been studied in detail more recently is located more than 10 km west of Tallinn on village lands at Ilmandu and Muraste (Lang *et al.* 2004a). The complex consisted of field remains (mostly clearance cairns, to a lesser extent block-shaped and strip fields) in several compact groups located in an alvar area 2 km in length and over 0.5 km in width, which was covered with junipers. The remains were badly damaged during Soviet land improvement projects. The radiocarbon analysis suggests that the clearance cairns were erected in the Early Pre-Roman Iron Age (a date also verified by a pottery find), and that they were regularly built until modern times (Fig. 39). However, land use was more intense in different parts of the complex at different times. The study of the remains of the Iru fields has revealed material from different periods (Lõugas 1976a). Such field complexes that evolved over a long time reflect continuous settlement and land use in a particular place. This can also usually be verified by the chronology of nearby sites.

Besides long-term and large complexes there are also short-term and smaller fields that consist of only a dozen or fewer heaps. Seven clearance

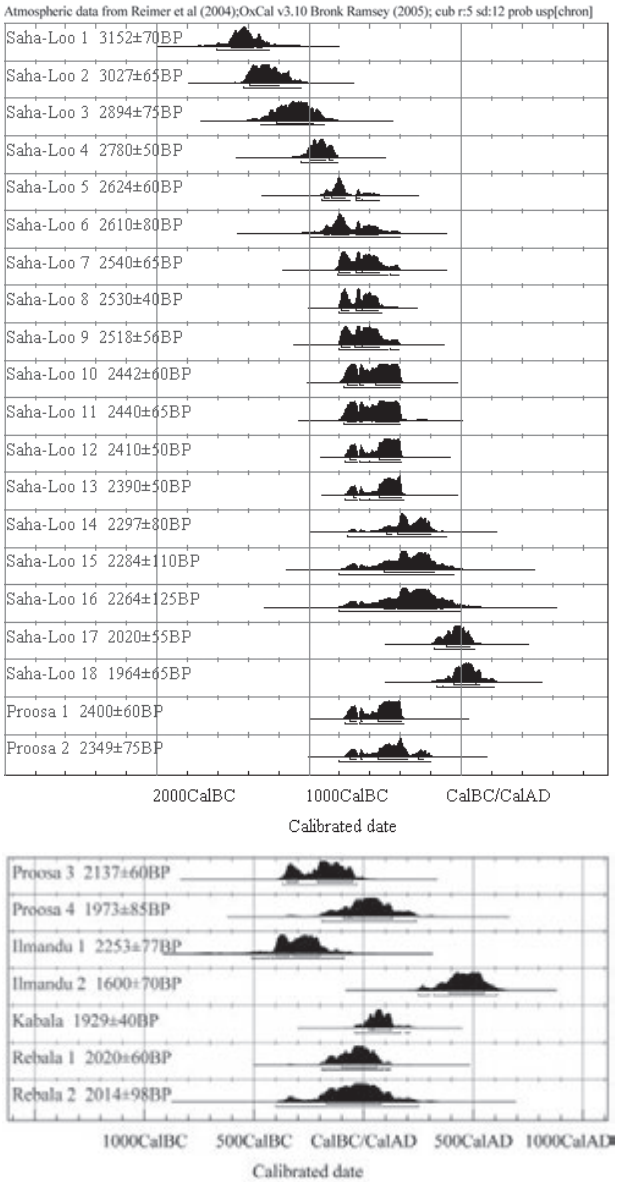

Fig. 39. *Radiocarbon dates from fossil fields.*

cairns were uncovered at Kabala near Rapla in the same group with seven stone graves. The excavation of one of the clearance cairns produced a radiocarbon date indicating field clearing in the Early Roman Iron Age. The earliest clearance cairns studied in Estonia as of yet are located at Saha-Loo and may have been established as early as the Late Bronze Age (see below). Much data on such field remains dates back to later prehistoric periods and historical times (Lang 1995a).

Clearance cairn fields were the widely used field system in Estonia beginning in the Late Bronze Age. They were also widespread in other parts of the world. Such early clearance cairn fields are known in Sweden (Widgren 1987; Jönsson *et al.* 1991; Mascher 1993), whereas the archaeologically studied clearance cairns of Finland, Latvia, and Lithuania all date to a later period. It is presumably just a matter of time before corresponding field remains from the Bronze or Early Iron Ages are discovered in those countries.

Block-shaped fields

For clearance cairn fields, it is generally impossible to identify the position, shape and size of the individual plots, whereas in the case of the block-shaped fields the plots are fully or partially separated from each other by baulks of soil, stones, or both. Based on their morphology and chronology the block-shaped fields are divided into three types – Baltic, Celtic, and proper block-shaped fields. Only the first two date to the period under discussion, and together they can also be called early block-shaped fields because the proper block-shaped fields are a later phenomenon which began to emerge in the Middle or Late Iron Age.

Baltic fields

Baltic fields is a conventional term for early field systems which occur around the Baltic Sea; they can be treated as predecessors to the morphologically more advanced Celtic fields (Lang 1994a). They are sometimes also called *Pre-Celtic fields* (Nielsen 1984). The term is conventional because

Fig. 40. *Fossil fields at Saha-Loo (after Lang 1996a, fig. 85). 1 baulk, 2 clearance cairn, 3 buried stone fence, 4 stone fence, 5 field path, 6 area presented in Fig. 41.*

it was constructed by a researcher on the basis of his or her ideal model of the development of the block-shaped fields, or more precisely, its ideal development phase. The so-called 'proper Baltic fields' are rare everywhere and there is usually a combination of the Baltic and typical Celtic fields, depending at what stage the establishment and use of one or another field complex ended. The terms are unrelated to the respective ethnonyms, that is, the Balts or the Celts, although in the latter case it was at first believed to be true.

In Estonia the Baltic field systems have only been thoroughly studied at Saha-Loo, located on the eastern edge of Tallinn (Lang 1994a–b; 1995a; 1996a, 249–258; Lang *et al.* 2005a). A 22 ha area was compactly covered with the field remains at the time that they were mapped (1992); because the western part of the complex was badly

damaged, one can estimate that the total area of the former field system was 40–50 ha (Fig. 40). One hundred and eighteen low clearance cairns and 243 baulks piled with stones of various sizes were observable. One hundred and eighty single plots enclosed with either baulks or with baulks and stone heaps were preserved. Fifty-one of them were surrounded with baulks on all four sides and had an area of 143–920 m² (an average 361 m²). In addition, the middle and north-eastern parts of the complex revealed traces of cattle paths, which consisted of two long, parallel fences similar to baulks.

The investigations at Saha-Loo showed that the field complex there was built gradually over a long period of time. The first step after the trees and shrubs were burnt was the piling of stones into regular heaps, the location of which was random, depending on the natural occurrence of the stones in the soil. The field cultivation that followed presumably took place repeatedly after fallow periods, which were necessary for the soil to rest and recover its fertility. At the same time features similar to baulks, which gradually became longer and higher, began to emerge on the edges of the plots. Their formation was favoured by both the location of the initial stone heaps (original and higher heaps can be noticed in many baulks) and the existence of wooden fences surrounding the cultivated plots. The reason why the plots were more or less quadrangular at the end can be explained by the ploughing technique; the primitive ard did not turn the soil but only cut it, and in order to loosen the soil the field was ploughed in at least two crossing directions (see Windelhed 1984, 96 f.; Brongers 1976, 60).

When looking at the map of the Saha-Loo fields one notices striking irregularities in the character of the field remains and in the position, shape, and size of the plots. The patterns are more or less regular only in the south-western and north-western parts of the mapped area, which contains only a few separately located stone heaps and where the plots are enclosed on all sides by solid baulks. The number of stone heaps increases remarkably in the middle of the complex, most of them occurring either on the edge of or between the baulks, or in rows parallel to them. The eastern edge of the field complex contains only stone heaps with an irregular position;

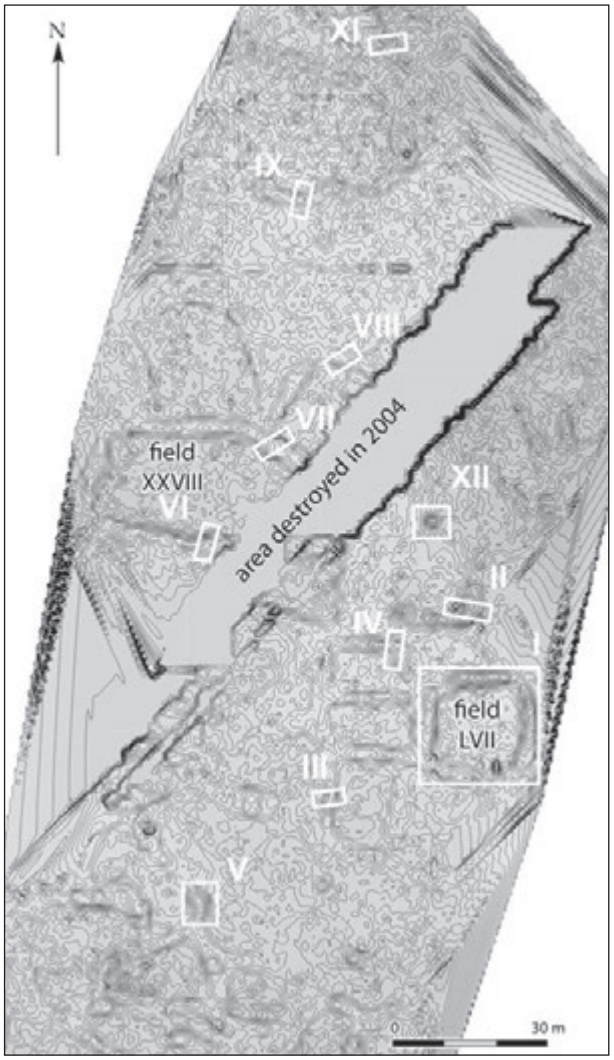

Fig. 41. *Field remains in the north-western part of the Saha-Loo complex (after Lang* et al. *2005a, fig. 3). Rectangles mark the 2004 excavation areas.*

the above mentioned cattle paths and single field fragments were also uncovered in this area of the field complex. It can be estimated that the south-western and north-western parts of the Saha-Loo complex were cultivated most intensely and over an extended period of time, whereas in other parts of the complex the evolution of the baulks ceased. Thus, the current pattern reflects various stages in the process of field development. It must be stressed that the whole field complex developed in an unorganized way without a prior plan over a long period of time. The shape and size of the cultivated plots changed many times until the baulks of increasingly larger amounts of stone permanently fixed them.

Another important aspect of the arrangement of the Saha-Loo fields is the grouping of the field remains into smaller areas, most only one half hectare in size (Fig. 41). It was only in the south-western corner of the site where the plots rather evenly covered a larger area of 2.5 ha. Approximately one dozen such groups can be identified and each included up to one dozen small plots. Narrow zones that did not contain any field remains separated these groups from each other. It can be assumed that these small groups of field plots were used at the same time, though likely in rotation according to the fallow system. The slightly different dates obtained from the sub-groups also support this claim.

Small pieces of charcoal left behind from slash-and-burn clearing, the radiocarbon dating of which helped to determine the age of the fields, occurred everywhere beneath the stone heaps and the baulks, and often also within them. Eighteen out of the 19 charcoal samples dated so far seem to be relevant (Fig. 39).[59] The dates suggest that the cultivation of the Saha-Loo complex began in the north-western sector. Three samples of charcoal from the baulks on the opposite sides of field No. XXVIII were dated to the Middle Bronze Age, ca. the 14th–11th centuries BC. The next oldest date (10th–9th centuries BC) was obtained from the sub-group directly to the north-west, and two samples having slightly later dates (9th–7th centuries BC) came from the baulks to the south-east of field No. XXVIII. Interesting dates were obtained from the fully excavated baulks of field No. LVII located next to the above (Fig. 42); one of the four samples dated to the 8th–6th centuries BC, two were from the 5th–3rd centuries BC, and one was from the turn of the era. Such dispersion of dates suggests long-term cultivation (the baulks were developed in various stages). All the samples from the western and southern parts of the Saha-Loo complex dated back to 8th–5th centuries BC, whereas the only sample from the north-eastern sector (where the charcoal beneath the baulks was scarce) is somewhat later and dates to the 5th–2nd centuries BC. A charcoal sample taken from beneath the baulk bordering the cattle path dated to the Late Pre-Roman Iron Age. It can be estimated that the network of cattle paths at Saha-Loo was not part of the original field system but was developed later, during the final stages of the use of the area for cultivation when it was primarily used as a pasture.

Striking irregularities in the shape, size, and position of the field blocks and the co-occurrence of baulks and numerous stone heaps within a single complex was characteristic of the Baltic field systems. Such sites are numerous in northern and western Estonia, but they have been randomly documented so far, and they have been archaeologically studied to a limited extent. It is an established fact that the block-shaped fields that more or less correspond to the above description were not a phenomenon narrowly limited in time in Estonia because they also occurred in the later periods of the Iron Age and during the Middle Ages. The plots of

[59] AMS dating indicated that the radiocarbon date of one sample was 1090±65 BP (Ua-3364), which is 1000 or 1500 years later than the others, suggesting that the sample must have been contaminated with a later piece of charcoal.

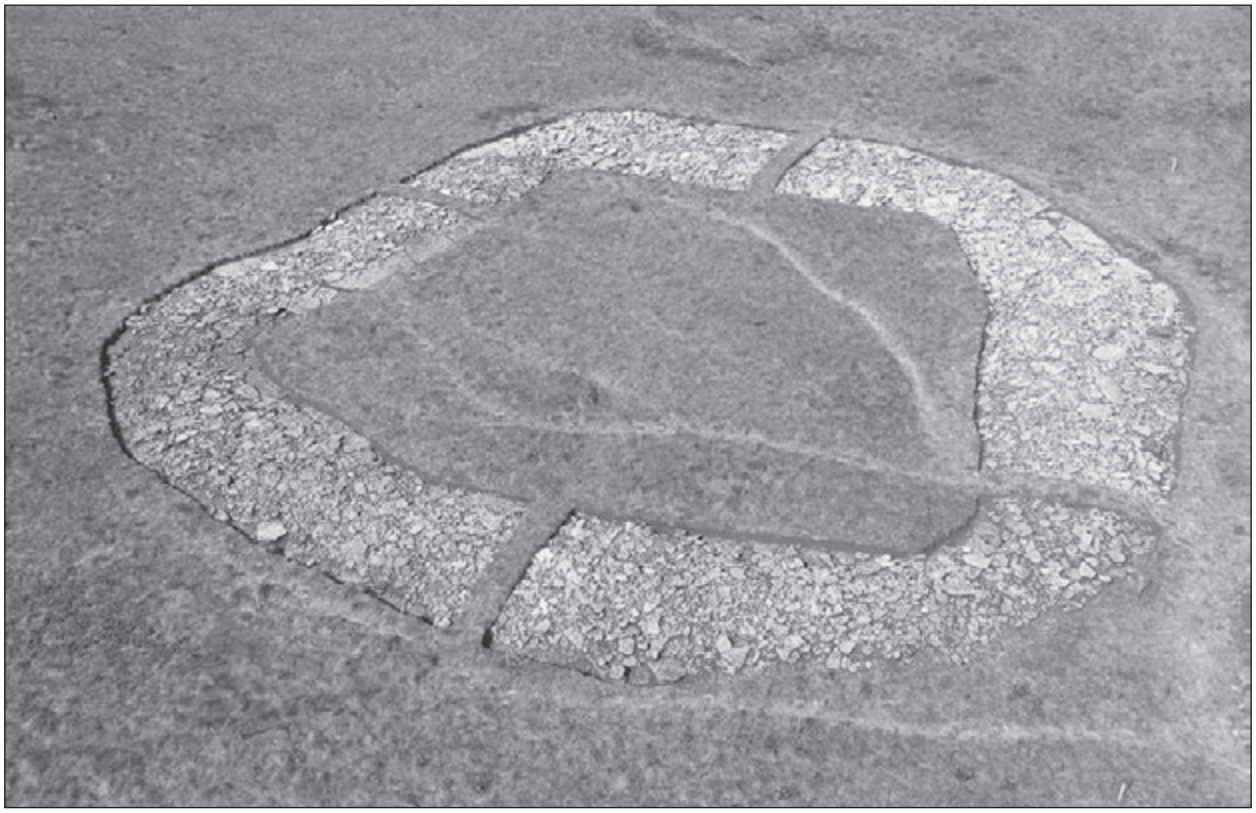

Fig. 42. *Field plot LVII at Saha-Loo, view from north-east (photo: V. Lang).*

the later proper block-shaped fields were usually much more regularly quadrangular, and it must be stressed that they were up to ten times larger than the Saha-Loo plots discussed above. In order to distinguish the earliest layer in the development of the block-shaped fields, the definition of the Baltic field system needs to be expanded to also note that the plots were rather small (their average area at Saha-Loo was less than 400 m², and the largest area was less than 1000 m²) (see Lang 1994a).

The plots in other countries around the Baltic Sea, where the Baltic or Pre-Celtic field systems have been studied, were much larger than in Estonia, and the same applies to the typical Celtic fields. The size of the Bronze and Early Iron Age plots decreases when moving from the south-west region of northern Europe towards the north-east, averaging ca. 2500 m² in England, 1600 m² in northern Germany, and only ca. 600 m² in Gotland (Müller-Wille 1979, 238). Later the field systems developed in a different direction in those countries and block-shaped fields were no longer created; thus it is not difficult to distinguish earlier complexes from the later ones. In Gotland the above field systems are known around Kräklingbo and Alskog (Johansson 1993), several of them have been identified in Denmark (Nielsen 1984), in the British Isles, and in the northern parts of continental Europe (Harding 2000, 158 ff.; Brongers 1976). Bronze or Pre-Roman Iron Age Baltic fields have so far not been uncovered anywhere on the eastern Baltic Sea, except in coastal Estonia.

Celtic fields

The main morphological peculiarity of the Celtic fields compared to the Baltic fields is the regularity and uniformity in the shape, size, and position of the plots, and the small number of stone heaps. The size of the plots is more or less similar to those of the Baltic fields, which distinguishes them from the later block-shaped fields. The Celtic fields that have been studied in more detail in Estonia are located at Proosa and Rebala.

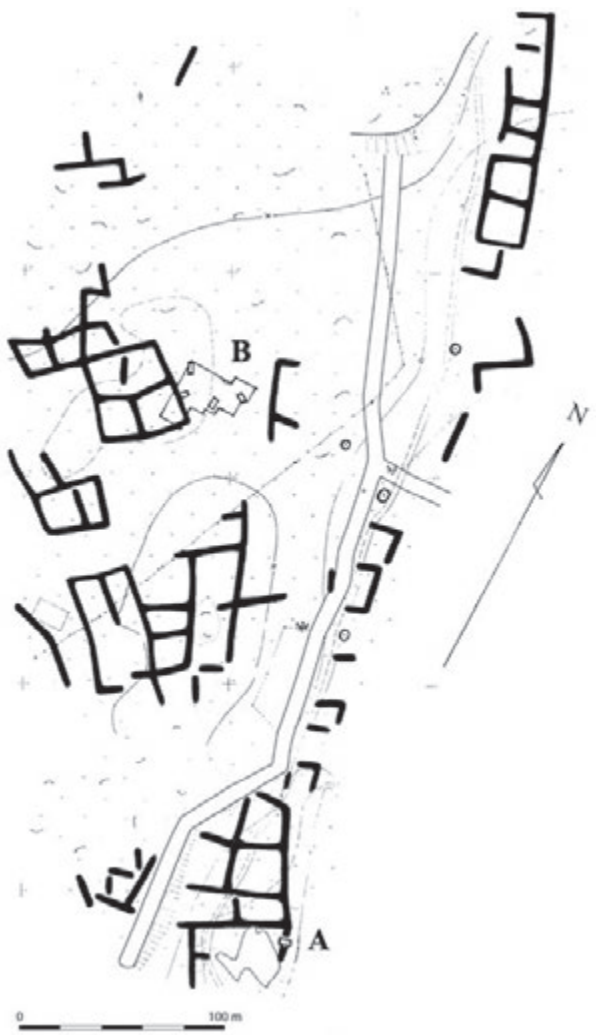

Fig. 43. *Fossil fields at Proosa (after Lang & Laneman 2006, fig. 1). A 1993 excavation area, B 2005 excavation areas.*

The Proosa fields are only one kilometre to the west of the Saha-Loo fields (Fig. 43). Eighty-seven baulks that fully or partially enclosed 81 rectangular plots were identified on 10 ha in 1993; since then the western portion of this area has been destroyed by construction activities. The size of the 24 measurable plots ranged from 195–696 m² (averaging 390 m²). The area covered with fields was originally also much larger at Proosa but damage from limestone pits, trenches, and the Soviet military base has destroyed it a great deal. In contrast to the Saha-Loo baulks the Proosa baulks are very uniform – single heaps (i.e. original stone heaps) in the baulks, which would verify their gradual evolution cannot be distinguished. The whole complex looks solid and regular, leaving the impression that the position and the size of the fields had, to a certain extent, been planned. The archaeological excavations at Proosa have so far been limited to five trenches dug through the limestone baulks in 1993 and 2005 (Lang 1994c; Lang & Laneman 2006). A slash-and-burn layer rich in charcoal was also uncovered beneath the stones. It was dated to a period that spans from the 6th–5th centuries BC to the 1st century AD (Fig. 39).

The ancient fields at Rebala were discovered in 1982, and the first studies were carried out at the same time (Lõugas 1983; ETRA, 1992, 72 f.). The whole area, about 6.5 ha, was mapped in 2000 (Lang *et al.* 2001). The Rebala fields enclosed six stone-cist graves and were grouped in a dense cluster in the southern part of the complex near graves I–III, whereas the baulks occurred less frequently in the northern part (Fig. 44). Although the general layout of the Rebala fields seems irregular compared to Proosa, one can still observe that a certain plan must have existed. The position of the fields suggests that they were created later than the graves; evidence of this can

Fig. 44. *Fossil fields and stone-cist graves at Rebala (after Lang* et al. *2001, fig. 1).*

be seen in a number of large granite stones that were pushed against the grave walls during field clearance (Fig. 45; Lõugas 1983, pl. IV).[60] Fifty-eight shallow baulks 3–4 m wide and of different lengths and only one stone heap of unknown age were documented here. Several dozen small plots can be distinguished in the southern part of the complex; they are more difficult to observe in the northern part due to the sparseness of the baulks.

[60] The fields probably date back to the period when the graves had already been established but before the walls of the graves had begun to collapse. Other stone graves in northern Estonia have revealed similar traces of stone clearance (Väo, Saha).

The Rebala fields have yielded two radiocarbon dates from the same period, which suggests the Late Pre-Roman Iron Age (Fig. 39). One of the samples was charcoal obtained from a fire place which had been built into an existing baulk and the other from the slash-and-burn layer under another baulk. The radiocarbon dates obtained from beneath the stone graves indicate a much earlier period, 12th–10th centuries BC (see below, Fig. 97). The excavations in 2000 proved that the stones of some baulks rested directly on the limestone bedrock, suggesting that soil (together with the charcoal from slash-and-burn clearing) had been removed from beneath the stones before the baulks were established. This may suggest that the position and location of the baulks had been planned to some extent or, on the other hand, that the thin soil had to be used economically. In the latter case the soil would have been relocated from beneath the rather wide baulks to the surrounding arable land.

The closest equivalents to the Estonian Celtic fields can be seen in Gotland (Lindquist 1974; Carlsson 1979) but they are also widely known in areas of southern Scandinavia (south Scania and Denmark), northern Germany, the Netherlands, and on the British Isles (Brongers 1976; Müller-Wille 1965). The appearance and size of the Celtic fields is somewhat different in various regions, but they usually date to the same period. The Celtic field system started to spread in the Late Bronze Age and at the beginning of the Pre-Roman Iron Age, and was abandoned in the middle of the Roman Iron Age. Only the British Isles saw the emergence of such fields by the Early Bronze Age, and there they were also abandoned later than in other places (Bradley 1978). A number of studies, especially in Gotland (see Windelhed 1984), have shown that field systems often covering hundreds of hectares were not created or used simultaneously; only small parts of them were used concurrently. It is estimated that after some years a

Fig. 45. *Stone-cist grave II at Rebala from south-west. Stones taken from the fields are visible on the northern side of the grave.*

part of the field was left fallow for 20 or 30 years, and new plots were established and put to use. The position of the plots was fixed at the start of the cultivation, at least for the part of the complex that was used at the same time. The position of the baulks was sometimes marked with a simple row of stones or with bigger stones placed in the corners of the plot. As for the areas scarce in stone, baulks were formed from unploughed lines where roots and weeds were tossed and soil was heaped with an ard. After the exhaustion of soils in the area of plots the earthen baulks of such complexes were sometimes also used for cultivation.

3.1.2. Agricultural tools

Ards

Until the beginning of 1990s it was believed that only hoe cultivation was practised in Estonia during the Late Bronze Age. The Pre-Roman and Roman Iron Age material did not reveal any direct evidence of the use of the ard, although southern Scandinavian parallels and early Germanic loan words – Est. *ader* (ard), *põld* (field), and *vagu* (furrow) – suggested that a certain primitive ard was known (EA I, 1955, 42 ff.; ETRA, 1992, 62 ff.).

There is now much more evidence to support the latter assumptions.

Stone clearance and the introduction of block-shaped fields are a clear indication that the ard was in use in Estonia by the Late Bronze Age at the latest. The size of the plots, and particularly their quadrangular shape, can only be explained by the use of the ard (crook). The use of the hoe for the cultivation of such large plots would have required a great deal of labour, the availability of which is difficult to imagine, taking into consideration that the settlement pattern consisted of single households.[61] However, the excavation of Estonian early fossil field complexes has not revealed any ard marks, which are common in Scandinavia and elsewhere. The reason is that the early fields studied in Estonia were all located on thin rendzina soils on top of limestone bedrock where the thickness of the humic layer was equal to the thickness of the plough layer. While the ard was able to reach the limestone bedrock and loosen pieces of limestone, which were tossed into heaps, it was unable to leave any marks on the surface of the bedrock. Fields with thicker soils existed, of course, but there the ard presumably did not reach the lighter sand beneath (on the background of which the ard marks containing darker soil could be seen), or such places have not yet been identified or archaeologically studied. Researchers have noted that some primitive wooden ards, with a foot that ran more or less parallel to the ground, were unable to leave marks beneath the plough layer (see Harding 2000, 128).

The oldest ard marks uncovered so far were discovered at Ilumäe in northern Estonia (Fig. 46). A former cultivation layer where the ard marks could be distinguished as narrow dark lines against the background of light sand were unearthed beneath the cultural layer of the settlement site No. II (see above, 2.1), dated to the Late Roman Iron Age (Lang 2000a, 178 f., figs. 84–86). The average width of the ard marks was 4–7 cm and they mostly crossed each other. The lines covered stretches that ranged from a few dozen centimetres to a few metres; their cross-section resembled an asymmetrical (tilted) U, and they were 3–4 cm deep, depending on the level

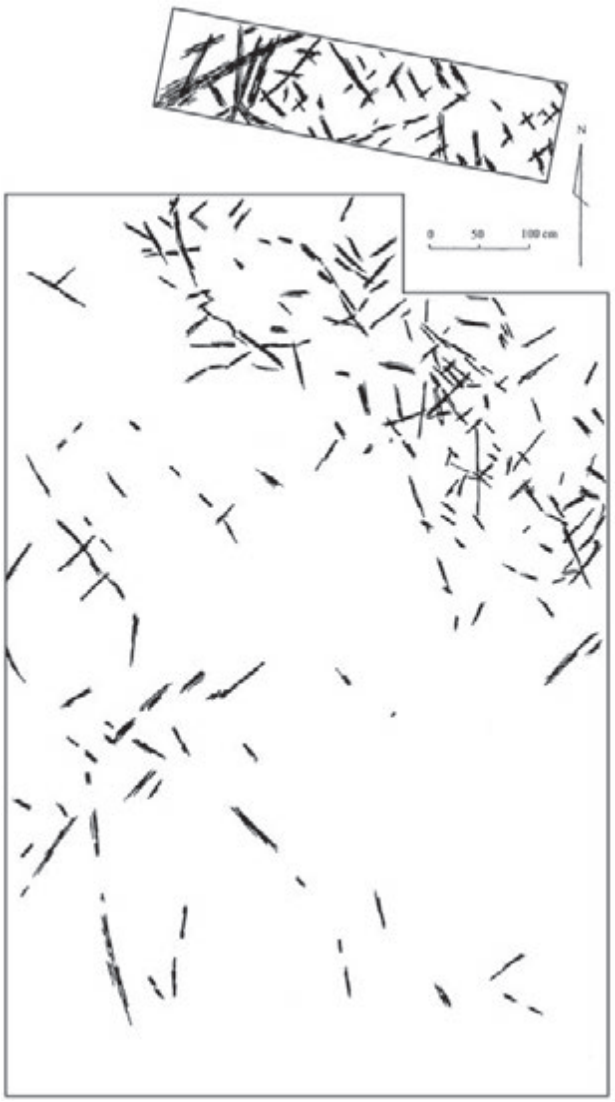

Fig. 46. *Ard marks at Ilumäe (after Lang 2000a, fig. 84).*

[61] It is assumed that wooden ards were unsuitable for the first tillage of the slash-and-burn fields, and that hoes, spades, and axes were probably used instead (see Harding 2000, 125, 128).

of measurement. The parallel ard marks were 10–50 cm (mostly 15–30 cm) apart from each other. Unfortunately, it was impossible to date the plough layer more precisely; the ard marks contained some pieces of charcoal but they could have originated from the settlement layer above, like the single potsherds found there. The ard marks date to the period between the end of the Stone Age or the beginning of the Bronze Age (when there was a Corded Ware settlement site on this spot) and the Late Roman Iron Age. Single ard marks uncovered during the excavation of the nearby Ilumäe IV settlement site presumably date to the first millennium BC (Lang 2000a, 184 f., fig. 88).

The Ilumäe ard marks are an example of crosswise ploughing with a primitive crook ard, which was used in Europe from the Neolithic through the Middle or the Late Iron Age. Similar ard marks uncovered beneath the cultural layer of a Late Bronze Age fortified settlement site at Dievukalns, Latvia, support the claim that the ard was already known in the countries on the eastern coast of the Baltic Sea in earlier times (Zariņa 1982). Those marks dated to the Middle Bronze Age at the latest, whereas the ard marks unearthed beneath the cultural layer of the Indrica settlement site are earlier than the Late Pre-Roman Iron Age (Zariņa 1996). Parts of a wooden ard and details of an ox yoke from the Late Neolithic have been uncovered at the Šventoji settlement site (4A) in western Lithuania (Rimantienė 1999b, fig. 5). The earliest ard marks known in Finland were unearthed at Sääksmäki on the foot of the hill fort of Rapola, and Mikkeli. At Rapola the marks dated as late as AD 780–1217 (Vikkula *et al.* 1994), and at Mikkeli the marks belonged to the Early Viking Age (see Mikkola 2005). Ard marks from crosswise ploughing, the dating of which indicates only that they are from an earlier period than the stratigraphically higher cultural layer dating to the end of the prehistoric times or the Middle Ages, have been uncovered at various places in Estonia (e.g. Olustvere, Viljandi, and Tallinn).

In addition to the ard marks, researchers have found some stone and horn tools that could have been used as blades to strengthen the wooden ards. The Saha-Loo excavations revealed the first blade; it has a 12 cm long (broken at both ends) and 4 cm wide phyllite body with a trapezium-shaped cross-section (Fig. 47); the material suggests that it may have been imported from some

Fig. 47. *Probable ard point from Saha-Loo (AI 5975).*

place in Scandinavia. A number of stone tools with slightly different shapes, but presumably with the same function, have been found at several places in northern Estonia (e.g. at Vatku and around Loksa); some of them were unfinished (Lang 2000a, 70 ff., figs. 15–19). Most of these tools were made from a soft stone similar to numerous equivalents from the British Isles (Rees 1979). Horn items uncovered from fortified settlements, which were thought to be hoes (Fig. 48: 1, 4), though it is difficult to imagine them as striking tools, may be grouped as items with a similar function. Such horn tools have been discovered in great numbers at Latvian and Lithuanian fortified settlement sites. Moreover, two of what are presumably stone ard points (LSV, 2001, fig. 90) also come from Ķivutkalns and from the Riga area, which in turn have closer equivalents from hill forts in Russia along the Volga River. Some stone tools from different periods that have been interpreted as ard points are also known from Finland and Sweden (Brady 1990; Damell 1981).

Fig. 48. *Antler hoes or ard points (1, 4) and bridle bits (2–3) from Asva (without number; AI 3799: 124; 4366: 122, 1832; after Jaanits* et al. *1982, fig. 108: 4–7).*

The development of the northern European early crook ards is not clear enough to make more specific or firm determinations about the function of such tools (see Harding 2000, 126). However, it is more likely that they were used for cultivation than for some other function.

Sickles

It is assumed that the sickle was the main tool for cutting crops. Neolithic sickles were made from either wood inset with stone blades, or were made completely of flint, whereas in the Metal Age bronze or iron was used. Thousands of sickles are known from Scandinavia that date to either the Neolithic or the Bronze Age.

Fig. 49. *Bronze sickle from Raasiku (AI 3243).*

Neolithic, Bronze and (Early) Pre-Roman Iron Age sickle finds are rare on the eastern coast of the Baltic Sea. Neolithic flint sickles have not been found in Estonia, and there is only one bronze sickle dating to the Early Bronze Age (Kivisaare; Fig. 13) and one bronze sickle from the Late Bronze Age (Raasiku; Fig. 49). They are as rare in the Pre-Roman Iron Age material (only one Late Pre-Roman Iron Age iron sickle from the early *tarand*-grave at Poanse, see Mandel 1978, pl. VI: 2). Various sickles, sickle knives, and scythe-knives which can be used to cut crops appear in grave finds and hoards only at the very end of the Pre-Roman Iron Age and in the Roman Iron Age (Laul & Tõnisson 1991). However, they constitute a rather small group of finds. The situation is the same in Latvia, where only two bronze sickles, from the fortified settlement of Daugmale, are known (LSV, 2001, fig. 91; Andrejs Vasks – personal communication), in Lithuania where two bronze sickles from period V are reported (Grigalavičienė 1995, 162, fig. 91: 10–11), and they seem to be absent in Finland until the Late Pre-Roman Iron Age (cf. Meinander 1954b). The reason why it is rare to find sickles to the east of the Baltic Sea at the end of the Neolithic and in the Bronze and Early Iron Ages is that, similar to shaft-hole stone axes and other agricultural tools, they were not used as grave goods or placed in hoards. In that respect the countries on the eastern coast of the Baltic Sea contrast with Scandinavia and many other places in Europe where Bronze Age sickles have been recovered from either hoards or graves. The sickles disappear from the archaeological material in Scandinavia during period VI (Baudou 1960, 45), and they reappear in the form of iron sickles and sickle-knives by the second half of the Pre-Roman Iron Age (Nybruget & Martens 1997, 85).

The same can be said about areas on the southern coast of the Baltic Sea between the Oder and Vistula Rivers (see Wołągiewicz 1992, fig. 4).

Graves and hoards are directly linked to religious beliefs, which helps explain the above differences. Whether and to what extent the differences in religion reflect respective differences in economic behaviour is difficult to say because the settlement sites have not been studied well enough, but obviously differences did exist. On the other hand, it is clear that if the fields were cultivated and the crops were ground (numerous grinding stones verify this, see below) then one had to cut the crops somehow. Were only ears of grain picked, or were the cornstalks manually pulled? Ethnographic data supports manual pulling of the crops, and it is known that a blunt sickle was used for that job (Manninen 1933, 80). It is also possible that common bronze/iron or bone/horn knives were used for cutting the crops.[62] All these suggestions may basically be valid, but it is impossible to study them archaeologically in any greater detail at this time. Based on the available data, it seems that in the countries on the eastern coast of the Baltic Sea crops were cut in a different way than in Scandinavia until the turn of the era, and that these practices also influenced religious and ritual behaviour.

Grinding stones

Multi-faceted grinding stones and some grinding stands are the only surviving food processing tools, although the stones may have also had some other functions (see Vassar 1943, 234 ff.). Several hundred grinding stones have been found in Estonia, mostly as isolated finds, but they were also numerous in the context of settlement sites (including fortified settlement sites), and in graves (Fig. 50). As for the grave finds, it is not clear if the stones were intended as grave goods or if they just occurred in the grave material by chance. I tend to support the first possibility rather than the second because crop processing (or some other similar activity) normally took place at settlement sites, and the occurrence of the artefacts in graves, which were at least a few hundred metres away, could not have occurred by chance. As for some stone graves (e.g. Nurmsi, and Võhma in Mustjala),

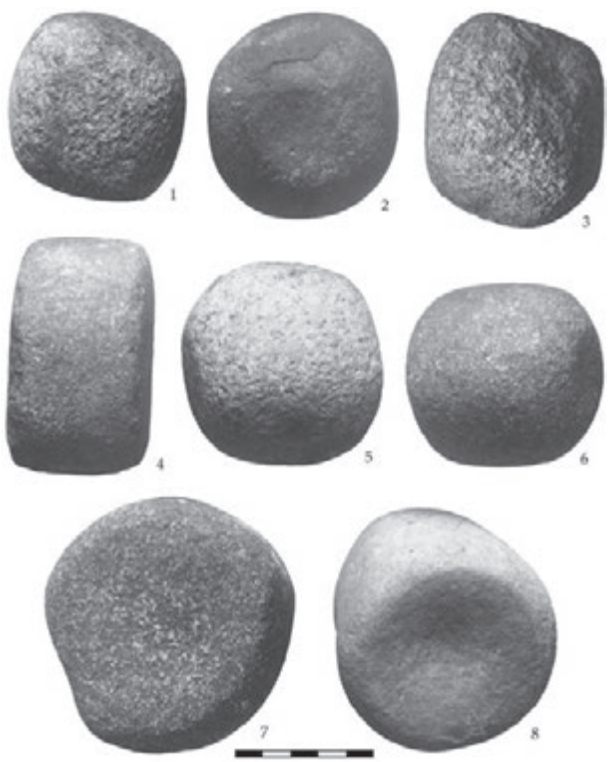

Fig. 50. *Grinding stones from the* tarand*-grave at Nurmsi (AI 2533: 93; 2431: 158; 3323: 37; 2486: 66; 3323: 199; 2431: 16; 2481: 167; 3323: 17).*

[62] Bone items with dented edges, which sometimes occur in Estonian fortified settlements (Fig. 51) and are commonly interpreted as swingles and flax combs, are also suitable for crop cutting; there is no other evidence indicating that flax was grown that early (see Kriiska *et al*. 2005). Some sickle-shaped bone items are also known (Vassar 1955, pl. XXIII: 3). Some researchers have posited that wooden sickles were also used (Harding 2000, 130).

the finds could also have originated from the settlement that was previously located at the same place.

Grinding stones have been found in northern and western Estonia (including the islands) and also in central and south-eastern Estonia. The grinding stones are rarer, however, in southern parts of northern Estonia and in south-western Estonia (see Lõugas 1989, fig. 1) that have not been thoroughly studied in terms of the Bronze and Early Iron Ages. The find contexts of the tools indicate that they date from the Late Bronze Age at the latest until the Roman Iron Age (incl.). Such tools have not been uncovered from sites containing only Middle and Late Iron Age finds. Similar grinding stones were rather common across Europe from the Neolithic through the Iron Age and are numerous in all neighbouring countries, including Latvia, Lithuania, Finland,[63] and Scandinavia (LA, 1974, pl. 15: 13; Kivikoski 1973, fig. 190; Kaliff 1999, fig. 7).

3.1.3. Cattle rearing and grain growing

Archaeological finds, including faunal remains, obtained from various sites have revealed significant data on grain growing and cattle rearing. The main sources of data for the Late Bronze Age are fortified settlement sites, while the majority of data on the Pre-Roman and Roman Iron Ages has been recovered from graves, with a few exceptions. It is difficult to interpret the grave finds from an economic point of view and it requires caution.

Bones of domestic animals (78–80%) dominate the finds at the Asva and Ridala fortified settlement sites; most of them belong to goat or sheep, followed by cattle and pig, and then horse[64]. Exact percentages of these species can be rather different if one compares different excavation areas of both sites (Table 1; Maldre 2007, tab. 2). As for the bones of wild animals, seal (68–88%) and elk (9–24%) were found in the greatest numbers (see Paaver 1965; Lõugas 1994; Maldre 2007). The Iru finds also support the Asva and Ridala data, but as the Bronze Age layers in Iru are often mixed with later strata, these numbers should not be seen as constituting concrete figures. The same basic composition of the stock, where small horned animals dominate, followed by cattle and pigs, also prevailed in northern and

Species / %	Asva 1939	Asva 1948–1949	Asva 1965–1966	Ridala 1961–1963
Goat / sheep	51	37.1	44	47
Cattle	17.9	36.3	31	18
Pig	18.8	14	15	27
Horse	11.8	10.6	9	6
Dog	0.5	2	1	2

Table 1. *The percentages of bones from domesticated animals from different excavation areas at the Asva and Ridala fortified settlements (after Maldre 2007).*

[63] Six-faceted grinding stones emerge in Finland in the Bronze Age, and were in use through the Middle Ages (Salo 2004, 265); most of them have been dated to the Middle Iron Age (Kivikoski 1973, fig. 190).

[64] Liina Maldre (1998) suggested that the relatively high proportion of horse bones, a large part of which belong to young animals, in the Estonian, Latvian, and Lithuanian fortified settlements indicated that horse meat was used for food. Horse bones constitute ca. 5% of the bone finds in other parts of Europe, and it is assumed that by the Bronze Age horse meat was no longer eaten (Harding 2000, 136, 143).

western Estonia in the later periods. Late Roman Iron Age faunal material (although scarce) from the Ilumäe II settlement site verifies this; 45% of all the animal bones belonged to goat or sheep, 32% to cattle, 11% to pig, and only 5% to horse (Maldre 2000b). This is also true for Pre-Roman Iron Age grave material, as the percentage of the bones was the same, for example, in the Tõugu II, Ilmandu III, and Poanse I and II graves (Maldre 1997; 1998a; 2000a). The occurrence of chicken bones in (Late) Pre-Roman and Roman Iron Age graves is noteworthy; they were present in all of the burial grounds noted above (see Lang 2000a, 215) as well as in a Saha-Loo clearance cairn (Lõugas, L. 1996). A few hare, fish and seal bones in the graves also suggest that hunting and fishing were practised during the Pre-Roman and Roman Iron Ages.

The composition of the stock was slightly different around the fortified settlement sites in Latvia and Lithuania. Cattle bones (38–47%) clearly dominate the faunal material at settlement sites on the lower reaches of the Daugava River, followed by pig (18–27%), horse (17–21%), and then goat or sheep (12–22%) (LSV, 2001, 122, tab.). Pigs were the main animals reared in north-eastern Lithuania (42–61%), followed by cattle (24–32%), goat or sheep (10–16%), and horse (5–15%) (Grigalavičienė 1995, 99).[65] Cattle rearing prevailed in temperate Europe during the Bronze Age, while goat/sheep rearing was common in the Mediterranean region (Harding 2000, 134 ff.). Sheep and/or goat rearing also became more wide-spread in Scandinavia during the Bronze Age (Kristiansen 1998, 107, fig. 54).

On the one hand, differences in the composition of the stock reflect differing natural conditions for animal rearing, but, on the other hand, they also reflect differences in dietary patterns. Recent research into osteological material of the Ridala fortified settlement (Maldre 2007) has demonstrated that cattle have been slaughtered quite young (not a single specimen older than 3.5 years could be identified) – thus, it seems that in Ridala cattle was kept primarily for meat and not for dairy breeding. The distribution of clay vessels with perforated walls that likely served as cheese strainers also suggest differences in diet between countries on the eastern coast of the Baltic Sea; numerous fragments of strainers have been unearthed in the Daugava basin (e.g. Graudonis 1989, pls. XXXIII, XLVIII) where cattle rearing (and perhaps breeding) was common, but only a single vessel from Asva is known in Estonia. Differences in diet may also indicate differences in other cultural sectors and variations in stock composition have sometimes been interpreted as manifestations of social differences. For example, cattle rearing dominated in some elite Danish settlements while sheep/goat bones dominated at non-elite settlements. In the Lusatian Culture, settlements practising cattle rearing also occur along with the open settlements rearing pigs (see Kristiansen 1998, 109). Unfortunately, the open settlements in Estonia and in the other eastern Baltic countries have not been studied to an extent that would allow a similar level of analysis.

Imprints of grain on the ceramics found at fortified settlements (mainly Asva) are clear indicators of grain growing. The issue has not been studied in Estonia, and the finds are occasional and non-representative. Barleycorn imprints (more than 10) are most numerous among the Asva finds, followed by one occurrence each of wheat and oat. Bone artefacts with dented edges uncovered from the fortified settlements have been considered to be tools for processing flax and evidence of flax growing, but they may have been used for crop cutting as well (see above; Fig. 51). Pollen diagrams clearly indicate

[65] By the Roman Iron Age cattle rearing had increased in Lithuania and seems to have surpassed pig rearing (see Michelbertas 1986, 203).

Fig. 51. *Bone tools for processing flax or cutting crop from Asva (1–2) and Ridala (3) (AI 4366: 689, 1391; 4261: 473; after Jaanits* et al. *1982, fig. 108: 1–3).*

that barley, wheat, and oats[66] were the main varieties of grain grown in Estonia during the Late Bronze Age and Pre-Roman Iron Age; rye pollen also occurred but was probably only a weed at that time. It can be assumed that rye growing in Estonia began in the Late Roman Iron Age; rye pollen has been found in the sediments of Lake Maardu and dates to the beginning of the 3rd century, and in the sediments of Lake Ala-Pika in the 6th century (see Veski & Lang 1996a; Kihno & Valk 1999). As for flax growing, pollen diagrams cannot be used to make any conclusions because flax pollen does not spread easily.

Another aspect of the issue is what proportion of the daily diet did the field crops constitute. Unfortunately, we have no data about the crop yields of the time. Data from the 17th century, which may also be valid for the last centuries of the prehistoric times, suggests that a single household needed at least a 3-hectrare field to survive (Tarvel 1972, 48). The Saha-Loo half-hectare field complexes, which there is reason to consider were arable land used at the same time, indicate land use that is about six times smaller. It suggests that cattle rearing rather than cultivation served as the main source of food in the Late Bronze Age (although the latter gradually gained importance). Palaeopathological studies of human teeth also verify this through the existence of tooth caries, which is a clear indication of the consumption of sucrose rich cereals. Caries were not common in stone-cist grave societies, whereas they became more wide-spread only during the Pre-Roman and Roman Iron Age (Kalman 2000b; see also below, 5.1.1).

The pollen diagrams show a significant change in land use, as a rather short-term phase of strong human impact on the environment in the Late Neolithic and in the Early Bronze Age became considerably longer and more stable during the period in focus. Based on this data, periods of intense human impact, indicating crop growing and cattle rearing, that lasted four or five hundred years and even longer at many places, can be identified (e.g. Kahala, Maardu, Tondi, Raigastvere, Siksali; see Fig. 9). This suggests fixed settlements and permanent cultivation in specific areas, i.e. dispersed fields were replaced by permanent fields. The use of the Saha-Loo field complex over a millennium, and several other ancient fields (Ilmandu, Kõmsi, etc.), best illustrate the above trend that is present in the pollen diagrams, whereas the archaeological evidence as a whole indicates a stable settlement pattern.

These long-term periods of strong human impact first occur in the pollen diagrams of northern Estonia ca. 1300 BC near Lake Kahala and 900 BC near the Tondi bog. The period of

[66] Unfortunately, the specific varieties of wheat and barley are not known, and oats may have been a weed.

long-term human impact starts approximately in the 8th century BC in the Raigastvere and Pikkjärv area, located in the eastern part of central Estonia, and also at several places on Saaremaa Island. Southern Estonia and other inland parts of the country witnessed the start of the same process a century or even a few centuries later (Veski 1998; Lang & Kimmel 1996; Saarse *et al.* 1999; Pirrus & Rõuk 1988; Laul & Kihno 1999). Although phases of sharp decrease in human impacts can be observed at some locations (e.g. Maardu, Ala-Pika) in either the Late Pre-Roman or Early Roman Iron Age, the Roman Iron Age witnessed a considerable increase in human impacts almost everywhere. The occurrence of cornflower pollen in the bog and lake sediments during the Late Roman Iron Age (e.g. at Raigastvere and Siksali) is considered to be evidence of the emergence of proper permanent fields.

3.1.4. Land use systems and society

As noted, the early block-shaped fields emerged simultaneously almost everywhere in north-western and northern Europe (except the British Isles) at the beginning of the Late Bronze Age. Although the details of the fields differed across regions, the fact that they were created suggests some significant commonalities in the respective societies at that time. What were the societal developments that led to the adoption of permanent land use systems?

The Late Stone and Early Bronze Age land use systems in Estonia can be treated as dispersed cultivation or rotating slash-and-burn cultivation, as presented in the first chapter. Small and temporary slash-and-burn fields, which were moved often, did not leave any significant traces in the landscape or in bog or lake sediments; the periods of human impact at these locations were rather short and were followed by a decline in activity. Such extensive and dispersed land use could not permanently influence ownership relations. The plots were cultivated individually, but became accessible to everyone once they were abandoned. It may well be that a territorial strategy applied only to areas where one or another community had the right to practise slash-and-burn. The tradition was kept alive for a long time, even in historical times, and it was reflected in the custom of clearing forest and brush for slash-and-burn activities in the areas that were in communal use (see Lang 1996a, 491 and the literature cited).

The settlement network gradually became denser and farmers had to manage with a smaller amount of land; this in a context where cultivation and cattle rearing were increasingly becoming important sources of subsistence. The fertile rendzina soils of northern and western Estonia, which were easy to cultivate but rapidly lost their fertility and were unable to recover by themselves, first witnessed the increasing population density. By the beginning of the Late Bronze Age, the population density on the rendzina soils reached a state where the use of arable land had to be much more regulated. Thus, land scarcity was the factor that led to a more effective territorial strategy and ownership relations became fixed in the landscape in certain areas. Monumental and permanent structures, mostly stone-cist graves and field systems, were used in Estonia to indicate that the land belonged to a certain family or kin group. There was no need to apply any such territorial strategy in the sparsely populated inland regions during the Late Bronze Age, and that is why such monuments were not established there during that time. It must be emphasized that the establishment of the field systems reflected private ownership of arable land where the prevailing settlement unit was a single household, but common lands (forests, meadows and pastures) and water bodies were probably in communal use.

Extensive land use was still practised, as only a small part of a larger complex was cultivated at one time; yet, this extensive use had decreased and was limited to much smaller areas than previously. One may assume that manure was used to recover soil fertility and at that time this was most likely done in a 'natural' way, i.e. by keeping animals on the fields that were left in fallow for a longer period. The use of the field complexes, such as Saha-Loo, over the course of 1000 years suggests that the rendzina soils were already being regularly left in fallow during the Late Bronze Age. The longer and more stable periods of human impact in the pollen diagrams can be explained by stricter regulation of ownership relations and the concentration of cultivation activities in certain places. The phenomenon was not only characteristic of Estonia, but also of many other areas in northern and north-western Europe (see Berglund 1985, fig. 4; Harding 1989, 177).

The analysis of the early block-shaped fields shows that the Baltic field systems were irregular and unplanned, while the Celtic fields were characterized by a more regular and uniform layout, which suggests planning. The irregular development of the block-shaped fields needs no particular explanation, but reasons for intentional and purposeful human behaviour must be found. As noted, the gradual development of stone baulks (and other rubbish) on the edges of the plots was the result of crosswise ploughing and long-term land use. Ancient farmers quickly realized that the baulks could be used to separate the arable land from the pastures (and from the animals), that they could be walked on when the grain was growing, and that they helped to prevent soil erosion from wind. The baulks also carried a symbolic meaning because they created a separation of part of the land from its surroundings (and from the common land), both in terms of the ownership relations and the opposition of open and closed spaces. The area enclosed by the baulks belonged to someone and it prevented others, either animals or people, from entering it.

Social relations based on private ownership, which resulted in greater social stratification, changed along with the gradual development of the first block-shaped fields during the Late Bronze Age. The existing land use system, which was characterized by a number of plots separated by baulks, was also useful for measuring the land. The measurements were necessary to estimate the time required for fieldwork, the amount of seed grain needed, the proportion of different varieties of grain, and the amount of the harvest. The elite (chief) may have used the measurements to establish the taxes and obligations of each household, and this is why the plots had to be comparable in size. Perhaps the taxation of arable land explains why the irregular and unplanned plots of the ancient fields started to become more regular in shape and similar in size over time. The Saha-Loo fields, where sectors which were used for a long time had a regular pattern, and the later Proosa and Rebala fields that had a regular layout and did not contain random stone heaps, illustrate this development.

The shape and size of the individual plots of the clearance cairn fields cannot be distinguished today, but from a technological point of view they represent the same type of cultivation as the block-shaped fields. The settlement units that cultivated such fields were similar to the units that created block-shaped fields, because in both cases they were worked by single households. Thus, there is reason to believe that the ownership relations, i.e. a farmer's legal right to the arable land, did not differ much either. Similarly, there is reason to believe that the clearance cairn fields were also taxed. The only peculiarity of the clearance cairn field system was that fixed field fences which lasted for long periods of time were not built. Given the state of current research it

cannot be estimated why only stone heaps were piled at some places while solid block-shaped fields were created at other locations (sometimes even at a neighbouring farm).

Not enough research has been carried out to surmise how the land use systems developed during the Roman Iron Age. It is clear that the clearance cairn fields were still created, as the few dates obtained from stone heaps (Kabala, Ilmandu) indicate (Fig. 39). Block-shaped fields dating to the Roman Iron Age have not yet been discovered, although there are a number of known complexes which, based on the nearby sites (e.g. graves), suggest that they were also used during that period.[67] As the development of the block-shaped fields continued in later prehistoric and historical times, there is reason to believe that such systems were also used in the interim.

In conclusion, the common change in the development of the societies, which was accompanied by the permanently fixed land use systems in wide areas of northern and north-western Europe, resulted in a shift from extensive land use to intensive land use and better regulated ownership of arable land. Arable land was measured and evaluated (no matter how primitive and rough the measurements and evaluations were), and thus it could be taxed.

3.2. Metal work

In addition to cattle rearing and land cultivation, a new activity emerged during the Late Bronze Age which became an important source of income and wealth. This activity was the manufacture and trade of metal items.

[67] Dating fossil fields based on nearby sites is risky. The dates from the Rebala, Tõugu, and Uusküla graves differ by a millennium from that of the surrounding fields.

3.2.1. Bronze work

The start of local bronze production

The earliest evidence of local bronze work in the southernmost eastern Baltic region suggests that such activity had begun by the Early Bronze Age and mass production started there during period III of the Bronze Age (see Chapter 1). Single Early Bronze Age moulds are also known from Finland, while no evidence of such early local bronze work has been uncovered so far in Estonia. As for two palstaves found in Estonia, it has been estimated that they represent local rough and unfinished metal work from period III (Jaanits *et al.* 1982, 132), but so far this has not been verified. On the contrary, the number of finished items would have been considerably greater if they had been produced locally.

The Late Bronze Age witnessed a change when bronze was produced at the Estonian fortified settlements. As Estonia was far from both the copper and tin deposits, bronze production skills were not needed. The existing archaeological material suggests that scrap metal was recast into new items at the fortified settlements in both Estonia and elsewhere on the eastern coast of the Baltic Sea. Fragments of clay moulds and crucibles, as well as some production waste (fragments of items and casting waste) are evidence of metal work (Fig. 52). Such find material has been uncovered from all Estonian fortified settlements (Asva, Ridala, Iru, and Narva) and the enclosed cult site of Kaali, but nowhere else. Asva, with more than 800 moulds and crucibles, was one of the largest bronze work centres in the eastern Baltic region; the other settlements have revealed far fewer items (see 2.2.1). It must be stressed that local bronze work had almost no influence on the development of the local material culture, i.e. neither new forms of items were created nor

Fig. 52. *Moulds for bronze casting from the Iru fortified settlement (AI 3428: 1250, 1263* et al.*).*

were old ones further developed.[68] Vello Lõugas (1966, 103) has estimated that 98% of the items cast in Estonia represent lost forms in terms of the archaeological material.

Most of the moulds are representative of a technique called *cire perdue*, or the lost wax method. In this method, a wax model of the item to be manufactured was covered with a mould made of a mixture of sand and clay that had holes, through which the heated wax would run out, and the molten metal was poured in; the mould had to be broken to remove the item. At the time, this was a new technology that had only begun to spread across Europe during the Late Bronze Age (see Harding 2000, 224 ff.). The main items that were manufactured in Estonia and other parts of the Baltic region using the lost wax technique were bronze rings. The rings typically had a round cross-section and were 5–6 mm thick (sometimes up to 15 mm) and some had a hollow round or flat cross-section (Lõugas 1966, 103 ff.; Lang 1996a, pl. VII: 18–22). The Estonian Late Bronze Age archaeological material contains almost no such rings; in addition to some ring fragments from the mentioned fortified settlement sites that were most likely production waste, only one bracelet uncovered from a Jõelähtme stone-cist grave is known (Kraut 1985, pl. V: 16). The situation is similar around the Daugava basin and the fortified settlement sites of north-eastern Lithuania, which were bronze production centres.

A smaller number of the moulds (more than 10) represent another type of technology; they consist of two symmetrical sides that were tied together with a string for casting. These moulds were also made of clay and their outer surfaces contained impressions of the string used to tie them together. All examples of this type of mould were uncovered at Asva (Lõugas 1966, 106 ff.). The mould fragments suggest that they were used for manufacturing socketed axes, decorative pins (Vassar 1955, fig. 40: 3) and short spearheads, the socket of which was sometimes decorated with a shallow ridge (Lõugas 1966, 108, fig. 2: 1–3).

Two different types of crucibles have been uncovered; some were short with a round bottom while others were taller and had flat bottoms (Fig. 53). The 5–6 cm tall crucibles were made of clay and the diameter of the mouths of the round-bottom crucibles were not larger than 3–4 cm (Lõugas 1966, fig. 2: 6, 7, 10). The crucibles have so far been found only at the Asva and Iru settlement sites; the flat-bottom crucibles occurred only in the earliest layer of the Asva fortified settlement.

The temperature necessary to melt bronze (900–1100 ºC) was probably obtained by using a common fire place that was dug partially into the ground and had stone-lined walls. In addition, small forges and bellows may have been used. Four fire places uncovered at Asva revealed traces of bronze work, and one of them was

[68] Local development traits were only noted in regard to the socketed axes of periods V–VI, which became slighlty smaller in size and simpler in form compared to their Scandinavian equivalents (Lõugas 1966, 111).

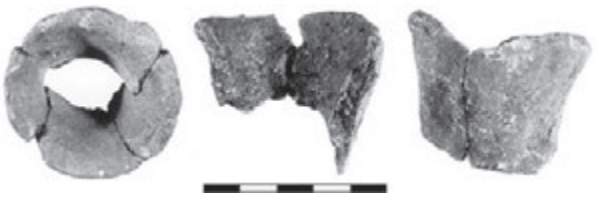

Fig. 53. *Fragments of crucibles from the Iru fortified settlement (AI 3428: 1250* et al.*).*

particularly interesting. A half-meter thick layer of ash and coal was unearthed in a round area that had been dug into the ground and had a diameter of 1 m. It can be estimated that the fire place was covered with turf in order to increase the heat because the burnt layer contained a large amount of peat ash (Vassar 1955, 117). Most of the mould and crucible fragments uncovered at the Iru settlement site were found near an oval fire place lined with stones located on the small northern plateau of the hill. The metalwork centres of central and eastern Europe have revealed a number of funnel-shaped clay items which were probably tuyeres (Harding 2000, 220, fig. 6.9). Fragments of similar items have also been unearthed in Estonia (e.g. Lõugas 1966, fig. 1: 2; Lang 1996a, pl. VII: 14–16),[69] but according to Jüri Peets (personal communication), tuyeres could also have been wooden.

The bronze trade network in the Late Bronze Age

As noted, only fortified settlement sites in Estonia have revealed traces of bronze working. The inhabitants of these sites belonged to larger communities than the average agricultural farm and were able to obtain raw materials, to reprocess them, and to re-market the products. Coastal Estonia was part of a wider bronze manufacturing and consumption network, the centre of which was in southern Scandinavia. But what role did the Estonian fortified settlements play in this network?

During the Late Bronze Age there was a striking dissonance between the countries on the western and south-eastern coasts of the Baltic Sea on the one hand, and the countries along the eastern coast on the other. A number of fortified settlement sites where a considerable number of bronze items, mostly bronze rings, were manufactured are known in Estonia as well as Latvia and north-eastern Lithuania, but bronze is rare in graves, hoards, and at other sites. Isolated finds are also rare, and the archaeological material contains very few rings. The sites, and in particular the graves and hoards, uncovered in the cultural centres of Scandinavia and on the south-eastern coasts of the Baltic Sea revealed, on the contrary, large quantities of bronze. Despite this, traces of bronze casting are not as common as might be expected. It might be estimated that the equipment used for bronze casting (particularly moulds for casting rings) occur rarely in Scandinavia because the respective settlement sites have not been studied thoroughly enough; two comprehensively excavated settlement sites in Hallunda, for instance, revealed more than 300 mould and crucible fragments (Jaanusson 1981, 19). It is not clear, however, where the bronze produced to the east of the Baltic Sea ultimately went.

It is undoubtable that Bronze Age graves and hoards from Estonia, Latvia, and north-eastern Lithuania contained little bronze compared to their western and southern neighbours because of differences in religion, ideology, and social behaviour. Taking into consideration the spread of bronze, one can probably also speak about differences in economic behaviour, which can be explained by the origin of the raw material. An interesting find is the only Estonian hoard dating to the Bronze Age, found at Tehumardi on

[69] If the bottom of a crucible has not survived, it can be mistaken for a tuyere.

Fig. 54. *Hoard of Tehumardi from Sõrve (AI K11: 1–10).*

Saaremaa Island, near the narrowest part of the Sõrve peninsula, which was probably at one time the sea coast (Fig. 54; Tallgren 1922, 75; Jaanits *et al.* 1982, 154, fig. 106). The hoard contained fragments of items characteristic of period V of the Nordic Bronze Age but unfamiliar to Estonia, such as fragments of two short swords, a spearhead, a razor, a neck-ring, and a fibula. It has long been estimated that this was a hoard of Scandinavian scrap metal meant for recasting (Šturms 1935, 261). A similar but much larger (weighing 5.6 kg) hoard of bronze fragments was uncovered at Staldzene (near Ventspils), located on the western coast of Latvia, in 2001. The items were typical of periods V and VI of the Scandinavian Bronze Age, in particularly period VI, but unfamiliar to Latvia (Vasks & Vijups 2004). These hoards clearly indicate that large quantities of scrap metal were imported from Scandinavia to the eastern shore of the Baltic Sea during periods V–VI of the Bronze Age when fortified settlement sites were common in Estonia. The existing material does not reveal whether and to what extent scrap metal was imported from centres on the south-eastern coast of the Baltic Sea.

The eastern Baltic archaeological material contains few bronze items cast locally, suggesting that at least some portion of them were taken to other regions. It is unlikely that bronze was exported further to the east, for example to the Volga and Kama Rivers region (the grave finds of that region also included bronze rings, see Patrushev & Khalikov 1982), because the local bronze culture obtained copper and tin from the nearby rich Uralian mineral deposits (Kuzminykh 1983, 11, 157 ff.). There is also no evidence that the items manufactured in Estonia were imported to north-western Russia because even fewer bronze finds are known there than on the eastern coast of the Baltic Sea. It is possible, however, that the items cast in the eastern Baltic region were taken back to the cultural centres of Scandinavia and the south-eastern coast of the Baltic Sea. The question of the function of the bronze rings, the casting of which was so important for the local fortified settlement sites remains, however.

C. F. Meinander (1954b, 60) claims that the bronze rings were not jewellery but bronze 'bars' recast from scrap metal. Indeed, the standardized appearance, similar thickness and size of the rings suggest that the amount of bronze they contained was more important than their probable use as jewellery. Mats P. Malmer (1992) estimates that a weighing system with standardized units of 103–107 g was used in Scandinavia

during the Bronze Age; the weights themselves were various types of items (e.g. stylized female figures). The rings manufactured at Estonian fortified settlement sites have not been studied in detail, but Latvian archaeologist Andrejs Vasks has analysed the early moulds uncovered at Brikuļi. The analysis showed that rings were cast in the following three sizes at this fortified settlement site in eastern Latvia: 5–6 cm, 9–12 cm, and 14–16 cm in diameter (Vasks 1994a). Obviously the rings were cast based on certain system with a ratio of 1:2:3, and thus it is likely that they were used as bronze bars.

Fig. 55. *Decorative pin of Härnev type from Kaali (AI 3544).*

The scrap metal which served as raw material for bronze work was imported from Scandinavia to Estonia, Latvia, and perhaps even south-western Finland (although only a few mould fragments have been found there), but it cannot be ruled out that the majority of the recast bronze bars were taken back to Scandinavia.[70] Some hoards, particularly in Gotland (e.g. Hansson 1927, pls. 42, 46–48), have revealed such rings but they are rare. The metal contained in them was likely used for manufacturing other items. It is known that eastern and central Sweden had a sharp increase in the number of hoards containing bronze items during the periods V–VI of the Bronze Age, and thus the demand for bronze must have increased considerably (Larsson 1986, 174 ff., fig. 103). The flourishing bronze work in the eastern Baltic region at the same time can likely be explained, to some extent, by this need for bronze, or at least it profited from the demand. However, one must also take into account that the items manufactured and based on Scandinavian or other patterns could have been intended for local use. Some examples include the Härnev-type decorative pins from Saaremaa Island (Fig. 55), together with their moulds from Asva, and Mälar-type axes with respective moulds from Ķivutkalns and Narkūnai (Graudonis 1989, pl. XLVII; Volkaitė-Kulikauskienė 1986, 33 ff.), but also simple socketed axes, spearheads, and other items. The possibility that those types of items were exchanged with Scandinavia or some other region also cannot be ruled out.

Thus, it may be that the role of Estonian bronze smiths and other Baltic fortified settlements was to recast items which were broken across the Baltic Sea into bronze bars and then trade some of them back across the sea. Perhaps the service paid for the metal that remained in circulation in the region. This indicates that there was a certain division of labour between the two coasts of the Baltic Sea, that a functional difference and interdependency, to use Sherratt's (1993) terminology, existed between the centre, which was located in the west, and the periphery, which was in the east. The issue will be explored at length in the last chapter.

The bronze exchange network ceased to exist in the middle of the first millennium BC, which marks the end of the Bronze Age, when iron

[70] The south-eastern coast of the Baltic Sea can be considered a cultural centre for Lithuanian bronze casting sites; it has revealed bronze moulds in only some places (see Sidrys & Luchtanas 1999, fig. 11) while the bronze rings, sometimes with traces of casting, are numerous (see Gaerte 1929, figs. 63: A, 63: C, 95; Engel 1935, pl. 125: a; Grigalavičienė 1995, figs. 103, 104: 16, 106: 9–10).

was introduced in northern Europe. The disappearance of the network was accompanied by the desertion of all the fortified settlements in Estonia. Many Latvian and Lithuanian settlement sites which had flourished thanks to bronze work also witnessed a recession. It must be stressed, though, that the contacts between the coastal areas of Estonia, Finland, and central Sweden were maintained even during the Pre-Roman Iron Age, and that bronze items and other goods (particularly iron) and ideas (see below, 5.4) continued to be exchanged. It seems that the manufacture of bronze bars for exchange had ceased, and the reason for that was most likely the introduction of iron.

Bronze work in the Pre-Roman and Roman Iron Ages

In contrast with the Late Bronze Age, there is little data about the manufacture of bronze in Estonia during the Pre-Roman and Roman Iron Ages. This is mainly because settlement sites have not undergone enough study. The presence of local moulds for casting bronze items (brooches, bracelets, decorative pins, temple ornaments, etc.) and their richness in both the (Late) Pre-Roman and the Roman Iron Age clearly indicate that bronze work was actively practised here even after the Bronze Age. The origin of most imported items suggests that bronze was obtained through exchange with southern tribes during the period under consideration. Obviously the importance of bronze in the form of scrap metal (i.e. broken items) cannot be ruled out, although no Early Iron Age hoards containing scrap metal have been uncovered in Estonia. The period witnessed a considerable increase in the quantities of bronze available and advancements in the technologies used to manufacture bronze items. The skill of decorating bronze jewellery (brooches, pendants) with enamel, which probably originated from what is now Poland or Belarus, was mastered in the Late Roman Iron Age (Jaanits *et al.* 1982, 241).

3.2.2. Iron work

Bronze casting, which was in full swing at the Late Bronze Age fortified settlement sites of Estonia, was not metallurgy in its true sense as only scrap metal was recast. True local metallurgy began only when the skills were acquired to produce metal from the local natural ore, which in Estonia was iron extracted from bog and lake ore.

Different development models have been proposed to explain the changeover to local iron production. One of the most well-accepted models is the four-stage scheme developed by Radomír Pleiner based on the Greek material (1969, 29 ff.). Pleiner claims that few iron items, which are imported and belong mostly to the elite, are in circulation during the first phase of the transition to local iron production, and that there are no traces of local metal working. The number and variety of iron items (including the first iron swords) increases in the second phase. The items appear to belong to the elite, and there are no traces of local iron production, though forging skills are probably known. Iron is locally produced during the third phase, i.e. weapons and tools are manufactured in many (small) places, and iron items begin to spread to other social strata. Iron items become common in the whole society during the fourth phase, at which point iron work has become a specialized handicraft; large iron work centres and smithies are established.

J. Alexander (1981, 57) applied basically the same scheme to his study on the British Isles, calling it the 'peaceful development model'. He claimed that the introduction of iron in the context of an armed conflict was slightly different.

First, iron items (mostly weapons) were obtained from the enemy, but not the technology to make them. Second, the iron manufacturing technology used by the enemy was acquired, weapons (and other items) were copied, and local workshops were established. Iron work technology became common and it was independently advanced during the third phase. Alexander claims that the peaceful development model was also different in that the iron technology was introduced to the group by specialists (the elite, or a particular group of people). In that case iron was manufactured using exactly the same technology as in the region where the technology originated (depending on the development phase of that area).

Jüri Peets (2003) has thoroughly studied ancient iron production techniques in Estonia. His scope of research includes all of the archaeological material related to ancient iron work, but most specifically focuses on the end of the prehistoric times as a result of the greater availability of the research material. The transition from bronze casting to iron production and the first phases of use and production of iron in Estonia need to be researched at length in the future.

The first iron items

Small awls, which were uncovered from the settlement layer of the Late Bronze Age Iru and Asva fortified settlement sites, are probably the oldest iron artefacts unearthed in Estonia so far (Lang 1996a, pl. VII: 9). The items are similar in their size and shape to the bronze awls found at the same locations but differ from those produced during later phases of the Iron Age (Fig. 72). Such awls are also known from other places in Estonia (e.g. the Iila, Muuksi, Uuri and Jäbara A graves; see Schmiedehelm 1955, fig. 5: 5; Vassar 1938b, fig. 23: 7), although their find contexts suggest that they date to the Early Pre-Roman Iron Age.

The first iron bracelets from Estonia, which were large and massive, date to the same period and were uncovered from the graves of Tandemägi at Võhma, Jäbara A, and some other locations (see below, Fig. 109: 6–7). The massive iron bracelets unearthed from the archaeological complexes probably belong to the beginning of the Pre-Roman Iron Age in Estonia, although parallels from neighbouring countries suggest they may date even to the Late Bronze Age (see Hjältner-Holdar 1993, 166). The oldest (i.e. from the Late Bronze Age or Early Pre-Roman Iron Age) iron items in Estonia include some decorative pins with spiral-, roll-, and disc-shaped heads, belt hooks with spiral heads, small curve-backed knives, larger straight-backed knives, an early sword of La Tène type (Jäbara), and at least some of the narrow-bladed looped socketed axes (that imitate the bronze celts) (see below and e.g. Jaanits *et al.* 1982, figs. 115, 123: 4, 127, 128: 11–12).

Without a doubt some of the items noted above were imported as finished products to Estonia. The massive iron bracelets, the La Tène type sword, and probably also the first iron decorative pins (along with some bronze items) indicate either central European (e.g. Kostrzewski 1958, 69, fig. 13) or Scandinavian (Hjältner-Holdar 1993, 147, 155) origin. The first iron artefacts in Latvia probably originated from central Europe or from the south-eastern region of the Baltic Sea (see Graudonis 1967, 102 f.). As for (northern) Finland, other trade routes were also important; the items originating from Ananyino Culture and the northern Caucasus (Salo 1984, 186, fig.) suggest eastern and south-eastern linking networks, which were already in existence during earlier times. It must also be noted that some pieces of iron slag have been uncovered from the cultural layers at the Iru and Asva fortified settlement sites, which suggests that local iron production may have begun by the end of the Bronze Age. The cultural layers at both sites contained more

recent deposits, however, and one cannot rule out that the pieces of iron slag are of later origin. Estonian Early Pre-Roman Iron Age sites contain types of items which seem to have been developed locally from import items, for example thin iron bracelets and simple crook-headed decorative iron pins (e.g. Rannamõisa III, Uuri; Fig. 91; e.g. Lang 1996a, pl. X: 2–4). The looped socketed axes and tenon axes (Figs. 74–75) were definitely manufactured locally; their distribution density is the highest in Estonia and on the southern coast of Finland, whereas such axes have been sporadically found in other places, too (see Salo 1984, 192, map). The above artefacts indicate that iron tools and jewellery were most likely manufactured in Estonia as early as the Early Pre-Roman Iron Age, although no direct evidence has yet been found (see Peets 2003, 51). It is estimated that at that time imported metal was used as the raw material for iron items,[71] i.e. there was local forging but not metallurgy.

The first iron-smelting sites and the development of local products

To produce iron one needs to obtain the ore, burn the coal, and smelt the iron in a special smelting furnace. There is no direct evidence about how ore (limonite) was obtained in Estonia during the Early Iron Age, whereas Lithuanian settlement layers have revealed large quantities of ore supplies (Stankus 2001). It is estimated that ore was obtained from bogs in the summer and lakes in the winter (*ibid.*). The local Estonian bog ore is rather rich in iron, ca. 38.5% (Peets 2003, tab. 1).

The best quality charcoal was obtained by burning recently cut wood in an oxygen-poor environment, such as in a special closed charcoal pit or in a covered pile. The charcoal pit (or pile) was filled with logs piled upright or placed in crosswise layers and covered with sod; an opening was left in the windward side to set the logs on fire. The burning process was regulated by opening and closing vents left in the sod layer (Peets 2003, 37 ff.).

A temperature of 1500 ºC had to be maintained for a sustained period in order to smelt iron, and a typical fire place was not suitable for such work. Thus, it was necessary to build furnaces that used charcoal as fuel. Such furnaces allowed the required temperatures to be met and the production of the proper amount of carbon monoxide necessary for the reduction of the ore into metal. The carbon monoxide reacts with the oxygen in the ore and reduces the ore to a purer metal. The reduction process is slow, and it is only possible when small pieces of ore and carbon monoxide are in contact over a long period, which required a furnace that had enough volume and height (Peets 2003, 43 ff.). Experimental iron smelting in many parts of the world, including Estonia, has shown that the furnaces built following archaeological models allowed the production of an amount of ore suitable for forging, varying between a few to a dozen kilograms at a time, over the course of 20–30 hours (see Peets 2003, 131 ff.).

The find material (ceramics) and the radiocarbon dates suggest that the oldest presently known iron smelting sites in Estonia date to the end of the Pre-Roman Iron Age (?) and the Early Roman Iron Age. The earliest smelting furnaces in Latvia and Lithuania date to the same period, whereas slightly earlier finds are known in Finland, Karelia, and Sweden (Peets 2003, 76 ff. and the references cited). Iron smelting sites have been studied at eight locations in northern, eastern, and southern Estonia: Rae, Jüri, Metsküla, Tindimurru, Puiato, Siksali, Kalatsova, and Olustvere; it may well be that some undated sites at Tartu and Päite, which have yielded primitive

[71] For example, a metallographic analysis of a looped socketed axe in Latvia indicated that the iron was not locally produced but probably originated from what is now Poland (Anteins 1976, 9 f.).

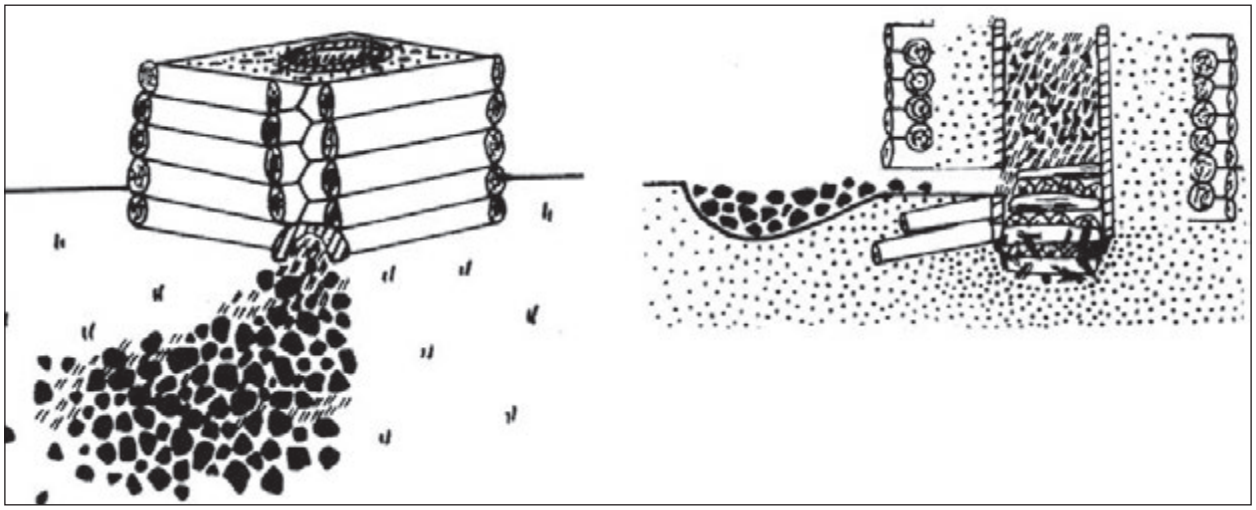

Fig. 56. *Reconstructions of the timber-cribbed furnaces from Metsküla and Tindimurru (after Peets 2003, fig. 19).*

furnace bases, might belong to the Early Iron Age.

It is assumed that there were two types of Early Iron Age smelting furnaces in Estonia (see Peets 2003). One of them was the timber-cribbed furnace, which has been thoroughly studied at Tindimurru and Metsküla (Fig. 56). Such furnaces were quadrangular log boxes (the side height ranged from 1.5 to 2.5 m) and were built in pits dug into the ground. In the middle of the furnace there was a 30–40 cm diameter shaft, and in the corner of the box there was a vent. Furnaces of the second type were clay facilities erected on the ground (e.g. Olustvere); at least some of them may have had bases made from large granite stones (Tartu and Päite, though not precisely dated). The latter have equivalents at several iron smelting sites in Latvia and Lithuania which were dated to the Roman Iron Age and the Migration Period (e.g. Spietiņi, Aukštadvaris, Bakšiai, and Kernavė; see Daiga 1964; Stankus 2001). The commonality of all the early iron furnaces in Estonia is the absence of clay tuyeres, which were introduced only in the Late Iron Age.

As noted, the presently known iron smelting sites of the Early (Roman) Iron Age are all located in northern, eastern, and southern Estonia. The geographic and chronological distribution of the sites is in harmony with the rest of the archaeological material, in particular with regard to the eastern and southern regions where the iron items pre-dating the Roman Iron Age are not so common. The reason why iron smelting sites of the period are unknown in central Estonia, which is rather rich in stone graves and iron items, is likely due to the current state of research; analysis of the distribution of known settlement sites also reflects this. On the other hand, it is unclear why iron smelting sites are unknown (with two exceptions at Rae and Jüri) in those regions of northern and western Estonia and the islands where iron items were common in graves by the Late Pre-Roman Iron Age. Most of the iron items recovered from the early *tarand*-graves in the above regions were definitely made locally.

Although the find material from Pre-Roman Iron Age graves in Estonia contains a considerable amount of imported items, on the whole it is

unique, and it is clearly different from the grave goods of other regions. In addition to the unique ceramics (including vessels decorated with cord and comb impressions), the find material is characterized by iron and bronze bracelets, shepherd's crook pins, decorative pins with roll and spiral heads, bronze temple ornaments, and iron knives; socketed axes and fragments of swords or battle knives also occur in some places. The forms of these items originated in other locations, but they were accepted, produced, and developed in Estonia. Besides the mentioned iron bracelets and decorative pins with roll heads, there emerged local forms of a shepherd's crook pin and temple ornaments, as well as some other items. The above cultural elements spread from the islands and from western and northern Estonia to inland Estonian regions, the eastern part of central Sweden, south-western Finland, and Ingria. It should be added that almost everywhere outside the core area, the items were less common and did not occur as complexes consisting of different components.

Thus, it is obvious that ironworking was already common in coastal Estonia by the Late Pre-Roman Iron Age. Peets (2003, 267 ff.) claims that the following period − the Roman Iron Age − was even more revolutionary in regard to the development and advancement of smithery. The important tools for smiths, such as the iron anvil, hammers of various sizes and purposes, tongs, files, and piercing iron were introduced during that period, at the latest. The following significant thermal and cold treating skills were mastered: hammering, bending, twisting, stretching, piercing, welding, hardening, tempering, riveting, and sharpening. Various types of items were introduced and disappeared over a short period of time. Cementation, layering techniques, and heat treatment after manufacturing were used to make cutting tools. The technological quality of smithery in Estonia was comparable to that of northern Europe.

Iron and the society

Bronze working during the Late Bronze Age (obtaining, recasting, and marketing of metal) favoured the co-habitation of large groups of people who worked together in fortified settlements. The spread of iron led to various changes. It resulted, at least in Estonia, in the desertion of fortified settlements as soon as the network of bronze exchange had disintegrated. The ore that was needed to produce iron could be obtained everywhere, and the earlier exchange networks and the division of labour were no longer practical. In Scandinavia the production of iron started to spread slightly earlier than in the regions to the east of the Baltic Sea (Hjältner-Holdar 1993), and it is possible that the collapse of the exchange system started from there.

As for the above-mentioned models concerning the spread of smithery in Europe, one can see that Pleiner's four-stage scheme can also be applied to Estonia. The first stage of this model covered the Late Bronze Age (period VI) and the beginning of the Pre-Roman Iron Age, whereas the second stage would have primarily covered the earlier period of the Pre-Roman Iron Age. Imported items, mostly jewellery, were characteristic of the archaeological material of the first stage. The second stage saw the emergence of the first early swords and evidence of local forging. The metal items from both the first and the second stage were found at the fortified settlements or stone graves, and they likely belonged to the elite. It is possible that the knowledge and skills necessary to work iron were acquired and developed in the former bronze work workshops.[72] The third stage, that is, local ironworking in various small centres, presumably started during the Late Pre-Roman Iron Age. The occurrence of

[72] Generally, ironworking skills were mastered according to the same scheme in Sweden (Hjältner-Holdar 1993), south-western Finland (Salo 1984, 192), Latvia, and Lithuania.

large quantities of iron items in graves indicates that the third stage began in the coastal areas of northern and western Estonia and on the islands; from there it spread rather quickly across mainland Estonia. The presently known iron smelting sites date to the Early Roman Iron Age, but it is only a question of time until sites that are some hundreds of years older will be found. Iron was already much more common during the third stage, but it was still largely linked to the elite, which by that time must have been a new, changed elite occupying different positions in society and living spaces. It should be added that the spread of ironworking was a peaceful process, i.e. it did not take place during time of any armed conflict, and it was not introduced by a migrant population. At present it is not known when the last or the fourth stage of the acquisition of ironworking skills commenced. Iron was rather common by the Roman Iron Age; however, there is no data to support the establishment of larger ironwork centres until the Late Iron Age.

Early Iron Age settlement units across Estonia were single households. It is a difficult and time-consuming work to obtain the bog ore, gather the wood and burn the charcoal, build the smelting furnace, and smelt the iron. Thus, it is unlikely that the men of a single household managed to do the job alone; several households probably teamed up or dependent labour was used. In both cases it was necessary to organize large groups (at least seasonally) and supervise many people, which resulted in the increasing importance and authority of the chiefs, but also better cooperation between communities. It is likely that the spread of ironworking brought about the emergence of the new elite in the Late Pre-Roman Iron Age. The new elite lived in hilltop settlements and placed rich goods in their graves. The graves of the time did not contain any forging tools; however, a Late Pre-Roman Iron Age grave at Uusküla contained a miniature charcoal spade, which has larger equivalents in the Celtic cultural area, and also in south-western Finland where they emerged some centuries later (see Lang 2000a, 159 and the literature cited, fig. 68: 1).

3.3. Ceramics

Pottery making is a branch of handicraft that we know a great deal about thanks to its preservation in the archaeological record. Potsherds are the most common and often the only artefact type that is found at Estonian sites and in particular at settlement sites. The forms of ceramics developed more slowly than those of metal items, but both chronological and chorological differences in them can still be noticed during the period under discussion.

3.3.1. Pottery making

The material necessary for pottery making – clay, sand, rock debris, and organic additives – was probably obtained near the settlement sites. The excavations of the Ilumäe II settlement site illuminated some aspects of the pottery making process. A pit 60 cm in diameter, which had been dug into the ground and filled with raw clay, was found at the site (Fig. 57). The clay was covered on top with burnt stone debris. Such pits may have been used for preparing the paste that was needed for pottery making. The paste was made by kneading stone debris with raw clay (the process was incomplete at Ilumäe). Several pits which had been dug down to the clay layer were found half a kilometre away from the site on the edge of a glint (within the Ilumäe IV settlement). They were dug during the Late Bronze and the Early Iron Ages and were probably used to obtain clay (Lang 2000a, 185, fig. 88). The ceramics were fired either in open fire places or in special fire pits. A hollow (75 x 50 cm), which was filled with charcoal and pieces of broken pottery, was found

near the pit that was used for kneading clay at the Ilumäe II settlement.

The Late Bronze and Early Iron Age pottery was hand-made without using a potter's wheel. The modelling technique of the period has not been systematically studied in Estonia, but presumably, as earlier, the coil technique was used (see Kriiska 1995; Kriiska & Lõhmus 2004; Kriiska *et al.* 2005). As for the fine-grained ceramics (e.g. curved-bottom carinate bowls), it is reasonable to assume that they were modelled on bronze vessels of a similar shape, which are known in Scandinavia and central Europe. The main techniques for finishing coarse-grained pottery included smoothing, striation, and textile impressions, and several techniques could be used on the same piece of pottery.[73] For example, the neck of a vessel can be smoothed, the middle part below the shoulder striated (vertically or at an angle), and one or both sides of the base can be covered with textile impressions. The inner surfaces of the vessels can also be striated. A vessel with textile impressions on its walls can have horizontal striations on its neck area. This is why Estonian Bronze Age and Pre-Roman Iron Age ceramics should not be called textile or striated ceramics. The custom of finishing the surfaces with textile impressions disappeared in northern and western Estonia during the middle of the Pre-Roman Iron Age but prevailed in southeastern Estonia until the advent of the Migration Period. It was customary to striate the surfaces of vessels in northern Estonia until at least the end of the Roman Iron Age, but the striations, if used, had become rather weak and barely noticeable by that time.

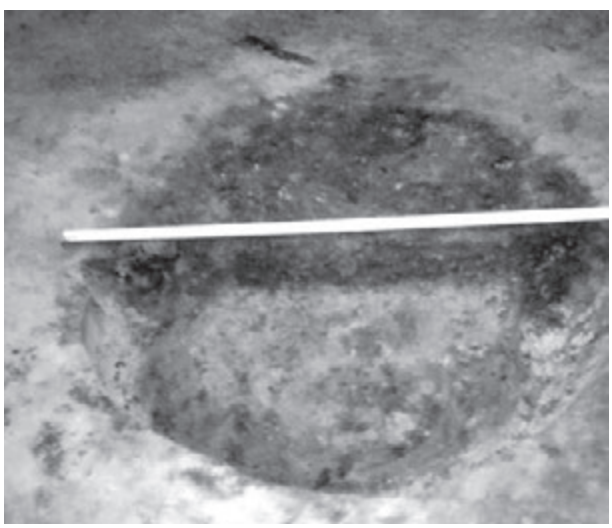

Fig. 57. *A pit with raw clay and burnt stone debris at the Ilumäe II settlement site (photo: V. Lang).*

In contrast with coarse-grained ceramics, the main finishing technique applied to fine-grained ceramics was careful smoothing, and even polishing at places. The vessels were sometimes smoothed more roughly but striation was rarely used. Two curved-bottom carinate bowls found at the Iru fortified settlement illustrate the use of striation; their neck area was smoothed and the body area below the carina was horizontally striated (Lang 1996a, pl. VI: 9).

The ornamentation of the clay vessels was rather diverse. The Late Bronze Age pottery in particular was richly decorated, while the Pre-Roman Iron Age witnessed a gradual decrease in the importance of decorated pottery. The Roman Iron Age pottery was rather poorly decorated, and the pottery of northern and western Estonia is considered to be of low quality and the worst looking pottery from the Estonian Metal Age, except for the Early Bronze Age. Only the upper part of the clay vessels were usually decorated (from the shoulder line to the rim) with an ornamental pattern, while the whole surface was rarely decorated. The ornamentation, modelling paste, and surface finishing of coarse-grained

[73] In addition to these three most common finishing techniques, ceramics that were covered with raw clay have been found at the Asva and Ridala fortified settlements on Saaremaa Island. Such finds are very rare and the items were probably imported; they will therefore not be discussed here.

ceramics were usually different from that of fine-grained ceramics. The most common pattern used on coarse-grained ceramics during the Late Bronze Age and the Early Pre-Roman Iron Age was rows or groups of circular pits. This pattern was rarely used in the later periods. In addition to the circular pits, various impressions were stamped on the surface of a vessel with the tip of a stick, a chip of wood, or a cord wrapped around a stick. Late Bronze Age fine-grained ceramics were decorated with zigzag and wavy lines, impressions stamped with a needle or a wound ring, and crosswise cuts. Late Pre-Roman Iron Age ceramics, the quality of which falls between the early coarse-grained and fine-grained ceramics, were usually decorated with cord impressions; comb impressions were locally used in north-western Estonia. Fine-grained ceramic objects were typically not decorated during the Late Roman Iron Age.

3.3.2. Styles of pottery

The only comprehensive treatment of Estonian Bronze and Early Iron Age pottery so far is by Vello Lõugas (1970a); he classified the pottery according to its finish (smoothed, striated, textile-impressed, or covered with raw clay) and type of decoration (cord and comb impressions). It is clearly impractical to use this kind of classification for drawing conclusions because Late Bronze Age and Pre-Roman Iron Age coarse-grained ceramics can be finished with up to three different techniques on the same pot. Thus, the term 'style of pottery' will be used below (for a more detailed treatment see section 5.2 below and Lavento 2001, 146–164). These styles are distinguished on the basis of the three main features of prehistoric pottery that archaeologists can observe without any special laboratory analysis: i.e. character of the modelling paste, surface finish, and decoration. A thorough overview will be provided below because during the past 35 years there has been a considerable increase in the amount of material available for research, but a comprehensive overview of Estonian Late Bronze Age and Early Iron Age pottery has not been compiled as of yet.[74] Estonian Late Bronze Age and Early Iron Age pottery can be divided into 10 different styles.

(A) Asva-style coarse-grained ceramics (Fig. 58). The style is named after the Asva fortified settlement site, which was the first and the richest find spot for such ceramics. Asva-style ceramics are characterized by coarse rock temper and roughly smoothed, striated, or textile-impressed surfaces. The shape of the vessels of this style is usually characterized either by a curved shoulder, carinate neck (turned inward), or S-shaped side profile; many vessels are bucket-shaped. Approximately two thirds of the pots are decorated; a row (or rows) of circular pits on the neck and/or on the carina are most common while differently shaped notches and impressions made by fingertips are less frequent. Only the upper parts of the pots are decorated.

In addition to Asva, all of the Estonian fortified settlements, many open settlements, and, to some extent, a few graves have revealed this style of ceramics. Most of the find spots are located in northern and western Estonia, but a few Asva-style vessels have also been uncovered at the Peedu hilltop site in south-eastern Estonia. It is obvious that the distribution map has been influenced by the research situation, which may be a reason why so few Late Bronze Age sites are known in inland regions. In the south, the distribution area of Asva-style coarse-grained pottery reached to northern and north-eastern Latvia; numerous finds of such pottery are known from the fortified settlement of Brikuļi and from

[74] For a description of the pottery of specific regions or periods see Moora, T. 1967; Laul 2001, 166–180; Lang 1991; 1996a; 2000a.

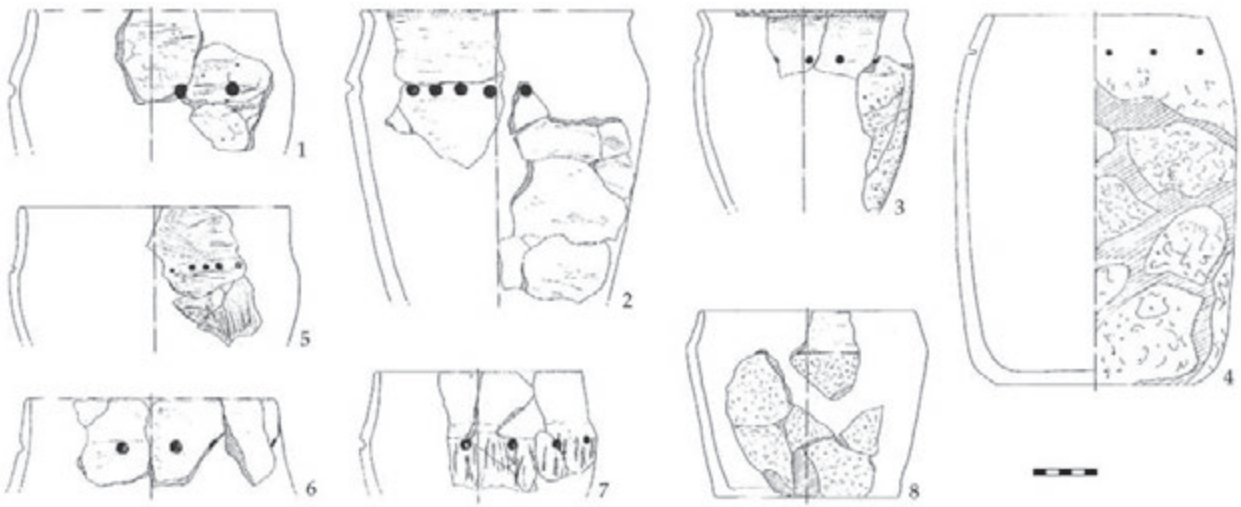

Fig. 58. *Asva-style coarse-grained pottery from Asva (AI 4366: 1381, 492, 1933, 1513, 1206, 682, 656, 1788; after Sperling 2006).*

several sites in the Daugava basin (Vasks 1991, pls. VI–VII, X–XIII). Asva-style coarse-grained ceramics are also known from south-western Finland (see Meinander 1969; Luoto 1984)[75] and the eastern part of central Sweden (especially from the Darsgärde group of sites, see Reisborg 1989). Close analogues and maybe even previous developmental stages are known from areas in the eastern European forest belt (Rozenfel'dt 1974).

Thus, this style of ceramics spread across large areas, and its core area was probably located in the coastal zone of northern and western Estonia and on Saaremaa Island. The radiocarbon dates and the associated artefacts indicate that all find spots date to the period from the end of the Early Bronze Age through the Late Bronze Age. The earliest dates for such pottery were obtained from the burnt layer of two potsherds found at the Joaorg settlement in Narva and suggest that they date from the 12th–11th (possibly the 10th) centuries BC (see 2.2.1). At present it is unknown whether such ceramics were also made at the beginning of the Pre-Roman Iron Age, but it seems that the desertion of fortified settlements brought about the disappearance of this style, at least in the core area.

(B) Asva-style fine-grained ceramics (Fig. 59). In addition to coarse-grained pottery, large numbers of vessels made from a fine-grained paste are known from Asva and other fortified sites, excluding Narva (see Fig. 145). This pottery style can be defined by the inclusion of fine sand (sometimes also some rock debris) in the modelling paste and carefully smoothed and even burnished surfaces. Both short bowls with more or less curved (or flat) bottoms and taller pots with flat bottoms are known, and the shape of the vessels is mostly carinate (cf. Jaanusson 1981, fig. 28). Vessels with handles or bosses are quite numerous. Approximately one third of all vessels of this style are decorated. Needle- or stick-impressions of different shapes and sizes, wavy or zigzag incised lines, impressions of wound rings and sometimes small-sized circular pits are the elements of decoration used on fine-grained Asva

[75] Bronze Age coarse-grained ceramics known from south-western Finland (also called Paimio ceramics) were not textile-impressed (Lavento 2001, 166).

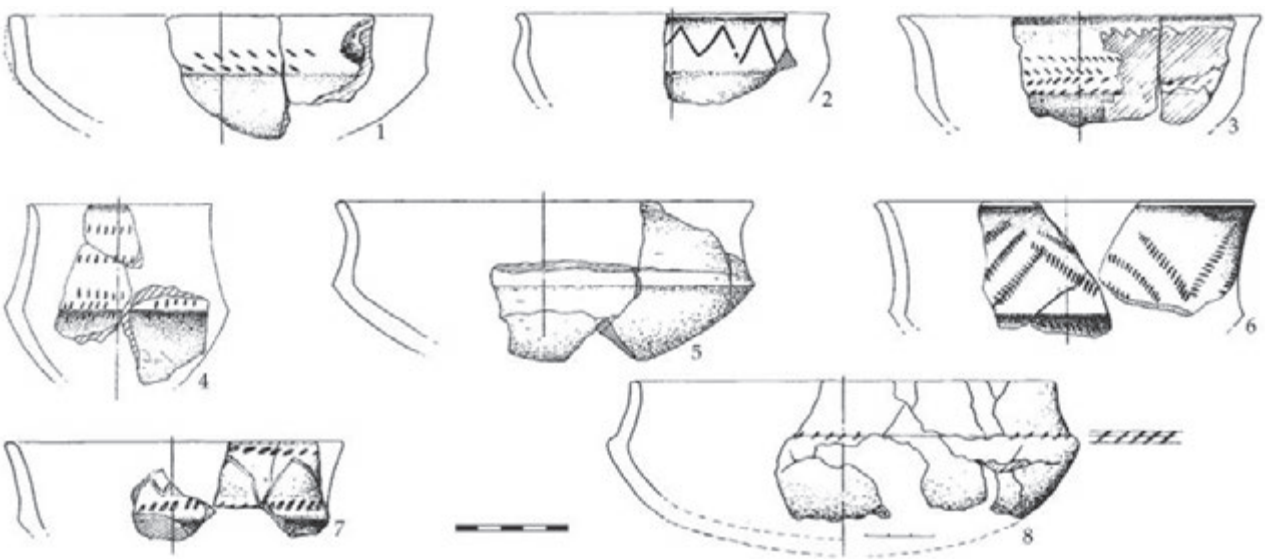

Fig. 59. *Asva-style fine-grained pottery from Asva (AI 3994: 442, 799/814; without number; 4366: 1540, 1351, 639/653, 1507/1909, 1483/1789; after Sperling 2006).*

ceramics. It can be assumed that such pottery was primarily used as more formal tableware.

In addition to enclosed settlements at Asva, Ridala, Kaali and Iru, this pottery style has only been reported from a few open settlements (Viimsi) and graves (Jaani at Väo, Lülle in Sõrve). In Latvia I know such pottery only from the ship-graves in Courland (Graudonis 1967, pl. XLII) and from the fortified site at Ķivutkalns (Graudonis 1989, pl. XXXVIII: 9–11); it is not common in Finland either (Meinander 1954b, pls. 21: b–c, 24: a–d; Luoto 1984, pls. VFD, VFE). Fine-grained pottery was more typical in both central Europe (the so-called Lusatian style) and Scandinavia (Jaanusson 1981). The origin of Estonian pottery of this style is difficult to establish without special studies, including technological and mineralogical analyses. It seems plausible, however, that the influences for making fine-grained ceramics of Asva style reached Estonia from several different directions. This has become evident from the work of Uwe Sperling (2006), who demonstrated that the details of the decoration motifs and the shape of handles and bosses can be traced to different areas of origin. In addition, there are several local traits not seen elsewhere: for instance, some fine-grained pots may have striated surfaces, while some coarse-grained pots may have been furnished with handles or bosses (Lang 1996a, pl. VI: 1, 9), or there are round-shaped pits (characteristic of local coarse-grained pottery) used for the decoration of fine-grained vessels. This means, in other words, that this particular style of fine-grained pottery was most likely created at fortified settlements in Estonia.

All datable fine-grained pottery of the Asva style come from Late Bronze Age contexts. It is interesting to notice that such pottery was not found during the excavations at Narva, which appears to date a little earlier (the turn of the Early and Late Bronze Ages) than the other fortified sites in Estonia. Therefore it seems reasonable to date the beginning of this pottery style to the 9th–8th centuries BC.

(C) Lüganuse-style pottery (Fig. 60). The name of this style comes from one of the Tark-Jaagu

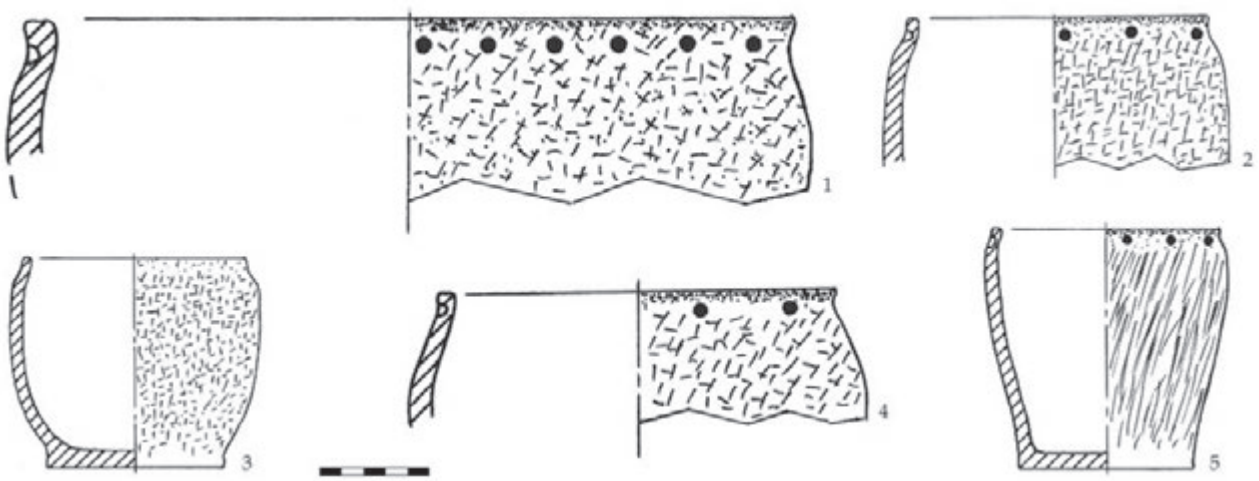

Fig. 60. *Lüganuse-style pottery from the settlement sites of Assaku (1) and Jüri (4), and stone-cist graves at Iru (2) and Rebala (3, 5) (AI 5030: 1; 4666: 4; 5229: 3; 4808: 7; 5229: 2; drawing: V. Lang).*

stone-cist graves at Lüganuse (north-eastern Estonia). The excavation of this site in the 1950s yielded, among the other grave goods, a clay pot. The modelling paste used to make this style of pottery contains sand and some small-sized rock debris; the surfaces can be either smoothed, striated or textile-impressed. All vessels have slightly curved bodies and constricted upper parts, the rims of which are turned sharply outwards. The only decoration motif is a row of round-shaped pits on a narrow strip below the outward turned rim.

Two pots of this style found at the settlement sites of Assaku and Altküla were AMS-dated to the 12th–9th centuries BC (Fig. 16: Altküla and Assaku 3; Kriiska *et al*. 2005, 14 f.). This style is obviously an occurrence parallel to the coarse-grained pottery of the Asva style, which was not common in Estonian settlement sites but was, instead, quite typical of the stone-cist graves in northern Estonia (Lang 1996a, 43, type BII:b, fig. 9: 1–7; see also Fig. 145). While the sherds found at settlement sites can originate from pots of various sizes, the vessels found in graves are quite uniform in dimensions (12–16 cm in diameter and 11–14 cm in height). Some Lüganuse-style vessels are known from Latvia: e.g. from the fortified site of Brikuļi and stone-cist grave IV at Bulļumuiža (Vasks 1991, figs. 4: 5, 6: 4; Ģinters 1931, pl. VIII: 6). Analogous pottery was also common in south-western Finland (Meinander 1954b, pl. 24: e) and in the eastern European forest belt (Rozenfel'dt 1974, fig. 35: 9; Bahder 1950, fig. 16: 1). As much as it can be proved by datable associated finds, typical Lüganuse style pottery belongs to the Late Bronze and Early Pre-Roman Iron Ages. Later, the Lüganuse-style lost its typical features and was transformed into new forms.

(D) Ilmandu-style pottery (Fig. 61). The name of this style comes from an early *tarand*-grave at Ilmandu (north-western Estonia), the excavation of which yielded pottery only of this kind. One of the characteristics of Ilmandu ware is very fine rock debris or sand in the modelling paste. The vessel surfaces are either slightly striated or smoothed (textile-impressions seldom occur) and they sometimes have a quite grainy appearance. The vessels' bodies have strongly curved shoulders, while the restricted upper parts usually have an S-shaped profile (with the rims turned outwards). The pots are decorated with stamped impressions (including twisted-cord)

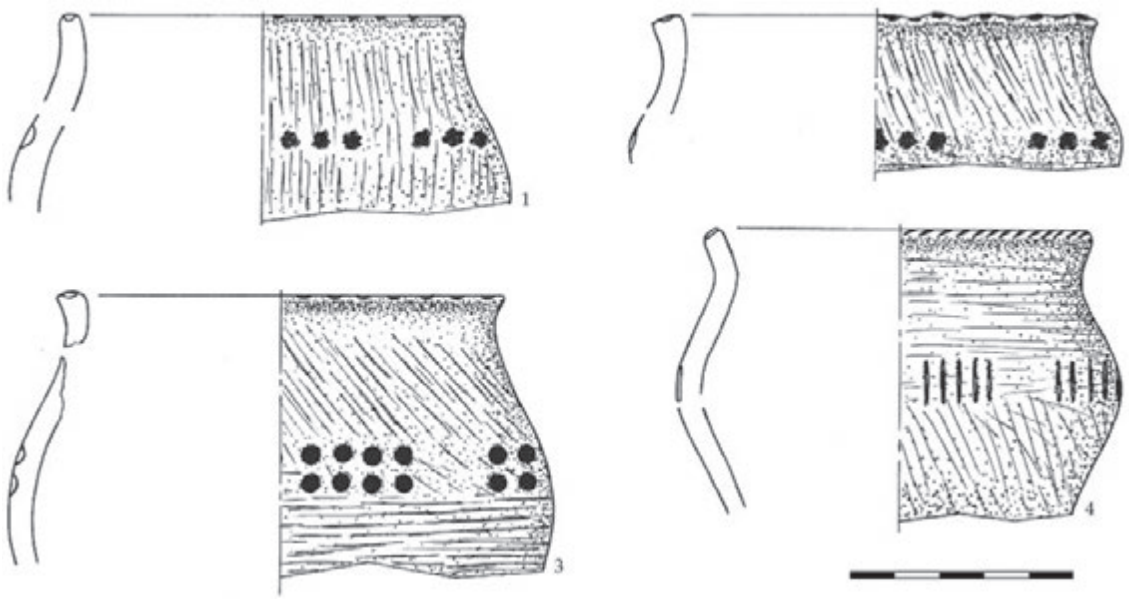

Fig. 61. *Ilmandu-style pottery from the* tarand*-grave at Ilmandu (AI 6009: 112/31/98, 67, 85/88/91/92/107, 41; drawing: V. Lang).*

of various sizes and shapes, circular pits, zigzag lines, and notches situated on both the rim and (in one or two rows and, as a rule, in separate groups) on the shoulder or neck of the vessels. These vessels served as both household and funeral ceramics; yet, the latter had much finer modelling paste and better surface finishes than the former.

Ilmandu ware began to develop along with the coarse-grained Asva-style pottery and it has been found both at Asva and Iru (Jaanits *et al.* 1982, 172, fig. 111). This type of pottery is reported from the open settlement site of Rannamõisa (next to Ilmandu village), the hilltop settlement of Alatskivi in eastern Estonia (Lang 1996a, fig. 13: 1; Aun 1974, fig. on p. 91), and from a number of stone-cist, cairn and early *tarand*-graves (e.g. Loona and Liiva-Putla on Saaremaa Island; Poanse in western Estonia; Klaukse at Uuri, Palmse, Tandemägi at Võhma, and Tõugu in northern Estonia; see Fig. 145). The associated finds and some radiocarbon analyses date this pottery style to the final Bronze Age and Early Pre-Roman Iron Age; single examples (e.g. Nava in eastern Estonia) may belong to the Late Pre-Roman Iron Age.[76]

Outside Estonia, the closest parallel to Ilmandu ware can be found in south-western Finland. The Finnish pottery is known as Morby type pottery, which is considered to have been developed from the earlier Paimio ware (Meinander 1969; Lavento 2001, 168). These two pottery styles are parallel developments on both sides of the Gulf of Finland: from Asva to Ilmandu, and from Paimio to Morby. The Morby style in Finland dates from the Late Bronze Age to the beginning of the Roman Iron Age (Edgren 1999, 325 f., fig.

[76] The earliest possible date, 2815±85 BP (calibrated value 1110–830 BC), was obtained from the charcoal sample taken from beneath the Ilmandu grave, but the grave and the ceramics probably date to a slightly later period. The latest dates were obtained from a clearance cairn at Ilmandu (one such sherd was found there), from Kalevipojasäng hilltop site at Alatskivi, and from Iru. Their respective dates were 2253±77, 2200±50, and 2165±40 BP; the calibrated values indicate the 4th–3rd centuries BC.

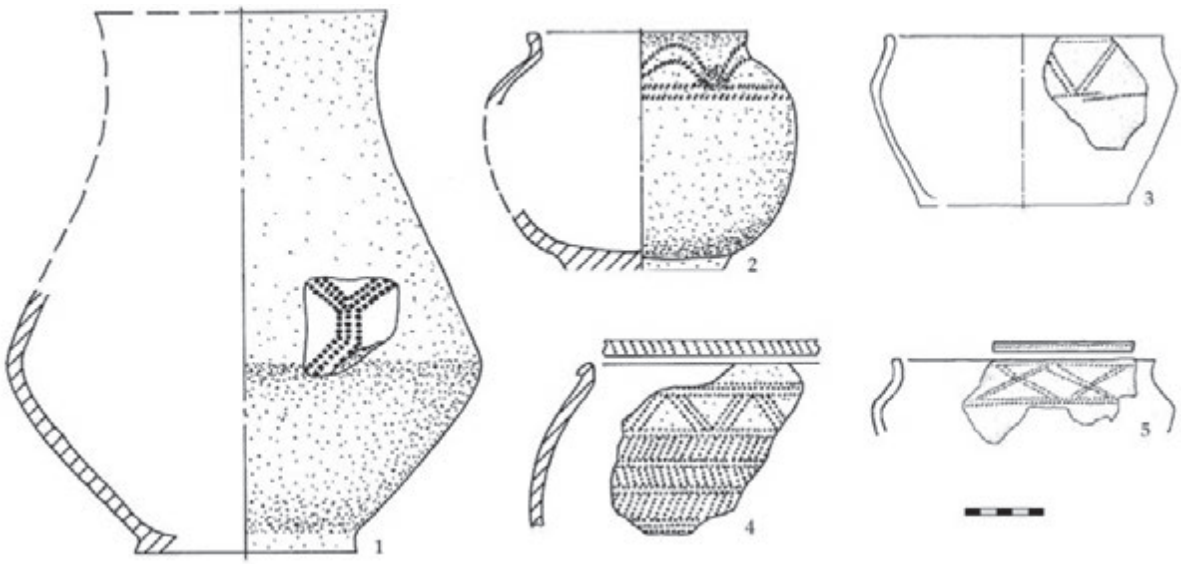

Fig. 62. *Cord- (2, 4–5) and Comb-Impressed (1, 3) Ceramics from Harku Mire (1), stone grave II at Lehmja-Loo (2), and* tarand*-graves at Rannamõisa (4) and Poanse (3, 5) (AI 3345; 4444: 270; AM 264; 483; drawing: V. Lang).*

7) or more narrowly – considering only the AMS dates made of carbonized organics from the potsherds – to the final Bronze Age and the Pre-Roman Iron Age (Asplund 2004, fig. 3). Similar ceramics have also been found in Latvia: e.g. at Brikuļi, Klangukalns, Mūkukalns, and Madalāni (Vasks 1991, figs. 5: 9–11, 7: 7, pls. V–VI, X–XI, XIV, XVI: 2, 4).

(E) Cord-Impressed Pottery (Fig. 62: 2, 4–5). Pottery with cord impressions, widely distributed over western and north-western Estonia (Fig. 145), can be characterized by the following features: sand or rock debris in the modelling paste, smoothed or slightly striated surfaces (in a few cases there are also textile-impressions on the bottom), sometimes the surfaces are grainy, sometimes quite burnished; the vessels are usually short bowls with strongly curved (sometimes carinate) shoulders; the constricted upper parts end with outward turned rims and the bottoms are mostly flat; the height of vessels is ca. 10–11 cm and the diameter 13–14 cm (occasionally as wide as 18 cm). Almost the only element of decoration is cord impressions; such impressions may form different patterns on both the neck (horizontal, zigzag or wavy bands of lines, triangular and trellis patterns) and on the rim; in rare cases there can also be either incised lines or twisted-cord impressions, while some vessels of this morphological type lack any decoration.

The core area for the production of Cord-Impressed Pottery was on the islands of Saaremaa and Muhu, and in western and north-western Estonia. Outside this area there are only few sites with such pottery known: some sites east of the Jägala River and one in southern Estonia on the shore of Lake Võrtsjärv. The majority of Cord-Impressed Pottery comes from either early *tarand*-graves or stone-cist graves; yet, in the latter case this pottery was always connected with later (and not original) burials. There are only single finds of pottery with cord decoration at settlement sites (e.g. Rannamõisa, Ilumäe I, and Iru). Pottery with analogous decoration but not completely similar morphology is known in what was previously East Prussia (western Masurien)

where it dates to the Late Pre-Roman Iron Age; it is also reported from the lower reaches of Oder River and Denmark, in contexts dated to the transitional period from the Bronze Age to the Iron Age (Engel 1935, pl. 143: d, e, g; Vifot 1933, 142 ff., figs. 1–4). It is not impossible that through developing the pottery style in question the local potters were influenced by pottery from south of the Baltic Sea; yet the main input into the creation of the ceramics was local. I do not know of any such pottery from the Lithuanian, Latvian or Finnish Pre-Roman Iron Ages.

There are two radiocarbon-dated sites which have yielded Cord-Impressed Pottery: a stone-cist grave at Muuksi (4th–3rd centuries BC) and the hilltop settlement of Iru (4th–2nd centuries BC). The finds associated with such pottery in early *tarand*-graves and late stone-cist graves belong mostly to the Late Pre-Roman Iron Age. Therefore one can suppose that Cord-Impressed Pottery was introduced approximately in the middle of the Pre-Roman Iron Age and that its most intensive period of use falls within the Late Pre-Roman period. No Cord-Impressed Pottery is known from Roman Iron Age contexts.

(F) Comb-Impressed Pottery (Fig. 62: 1, 3). The modelling paste, surface finish, and morphology of this pottery style are quite similar to those of Cord-Impressed Pottery. The decoration, however, is different; it consists of comb impressions forming different patterns on the neck: mostly horizontal, zigzag and wavy bands of lines, sometimes the rows of slanted imprints are separated with horizontal bands; the rims are quite often decorated, too.

Pottery with comb impressions has the narrowest distribution area. This pottery style is only known in north-western Estonia where it is reported from 13 stone graves, two settlement sites (Rannamõisa and Iru), and the Harku Mire. Outside this area I know of only one sherd with similar modelling paste and decoration from the fortified settlement of Vanhalinna at Lieto in south-western Finland (Luoto 1984, pl. VDA). A small collection of such pottery also comes from eastern central Sweden, from the Darsgärde complex, where it should belong to the period prior to ca. 200 BC (Reisborg 1989, 89, 101, fig. 3: 8–10). Some examples are known from the fortified settlements of the Early Metal Age on the upper reaches of the Dvina (Daugava) River, although they seem to represent slightly different vessel shapes (Stankevitch 1955, pl. XXI: 5). The most common finds associated with Comb-Impressed Pottery in Estonia (e.g. shepherd's crook pins) date to the Late Pre-Roman Iron Age.

The whole group of Comb-Impressed Ware is very uniform in both morphological and ornamental terms. Yet, there is still one vessel which differs remarkably from the rest of the group – the vessel from Harku Mire (Fig. 62: 1). This vessel has exact parallels in what was previously East Prussia (western Masurien) that date to the final Bronze and earlier Pre-Roman Iron Ages (Gaerte 1929, fig. 86: C; Engel 1935: pls. 111: a, 114: c). The Harku pot is undoubtedly imported from that region and one can suppose that the pottery style in question was developed in Estonia as a result of intense connections with the population on the south-eastern shores of the Baltic Sea. The Estonian Comb-Impressed Pottery differs from the Prussian ware in its morphology and partly also in decoration motifs which follow quite directly, however, the local Cord-Impressed Ceramics. In East Prussia, comb-impressed vessels are also known from the Late Pre-Roman Iron Age, and as they were developed on an earlier local basis there, parallel developments in some ceramic traditions there and in north-western Estonia can be seen. It is interesting to note that Comb-Impressed Pottery is not reported from the region between East Prussia and Estonia, i.e. Latvia and Lithuania. This pottery style most likely reached south-western Finland and eastern central Sweden via north-western Estonia.

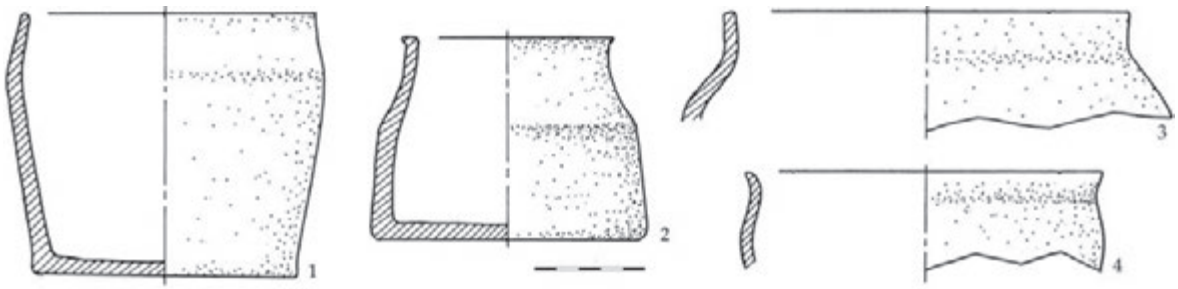

Fig. 63. *Nurmsi-style coarse-grained pottery from* tarand*-graves at Kurna IB (1), Nurmsi (2), Proosa (3), and Kurna IA (4) (AI 2486: 63b; AM 29: 301; TLM 17877: 33a; AM 29: 200a; drawing: V. Lang).*

(G) Nurmsi-style coarse-grained ceramics (Fig. 63). This style of ceramics dates back to the Roman Iron Age, and was first found in large quantities in the Nurmsi *tarand*-grave in central Estonia. Such ceramics can be characterized by modelling paste containing fine, medium, or even coarse debris and smoothed or weakly striated surfaces (without textile impressions). The vessels are round (sometimes also funnel-shaped or bucket-shaped) and undecorated.

Nurmsi-type coarse-grained ceramics have mostly been found in the Roman Iron Age *tarand*-graves of northern, central, and western Estonia and in a few excavated settlement sites or hill forts (e.g. Ilumäe II, Jägala). Morphologically the ceramics mostly evolved from earlier Lüganuse-style ceramics (see Moora, T. 1967, fig. 2: 3, 5, 7, 8). *Tarand*-graves in north-western Estonia and on Saaremaa Island containing a Late Roman Iron Age layer have yielded vessels the bodies of which are rounder and the inward turning concave neck area is wider than by those from the Nurmsi grave (e.g. Kurna I, Liiva-Putla, Võhma in Mustjala), and the surfaces are smoothed and have no decoration. Nurmsi-type coarse-grained ceramics is rather characterless, and that is why it is difficult to find parallels in neighbouring areas. This type of ceramics spread to the south as far as the north-western part of south-eastern Estonia (e.g. Jaagupi in Nõo). Nurmsi-style coarse-grained ceramics were probably made until the Migration Period. Because the style evolved from an earlier type of ceramics and datable finds are few, it is difficult to say when exactly Nurmsi-style coarse-grained ceramics were first developed, but it probably happened during the centuries around the turn of the era.

(H) Nurmsi-style fine-grained ceramics (Fig. 64). The previously mentioned Nurmsi grave also revealed large quantities of other type of ceramics, the modelling paste of which was fine-grained. The ceramics are characterized by the following: the modelling paste contains sand or fine rock debris, the surfaces are mostly levelled and smoothed or covered with weak striations, the profile is either carinate or rounded, and the neck part is inwardly concave or has an outward turned rim. Most vessels were not decorated, but some have small hollows of various shapes (sometimes circles) in rows, zigzags or groups on the shoulder or neck area, and there were cuts or small hollows on the rim.

This style of ceramics is mostly known from northern and central Estonia and a few Late Roman Iron Age graves on Saaremaa Island. The morphology and ornamentation of the Nurmsi-style fine-grained ceramics were influenced by the earlier Ilmandu-style ceramics and Cord- and Comb-Impressed Pottery. On Saaremaa Island, no ornamentation was used on this type of vessels. This suggests that the clay vessels of Saaremaa were made later, as both Late Roman and Migration Period ceramics were not decorated in Estonia. The Nurmsi-style fine-grained ceramics

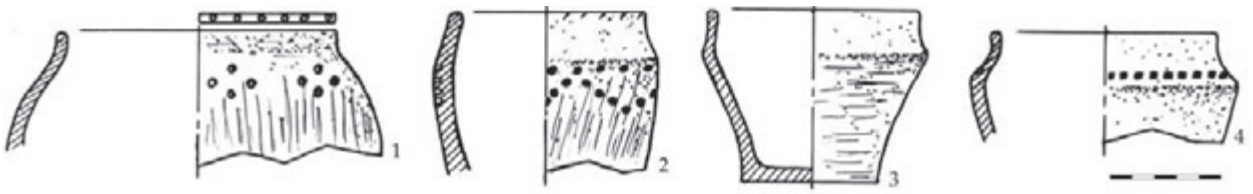

Fig. 64. *Nurmsi-style fine-grained pottery from the* tarand*-graves at Kurna IA (1), Lehmja-Loo I (2), and Nurmsi (3–4) (AM 29: 194a; AI 4408: 130; 2481: 94, 37; drawing: V. Lang).*

probably originated at a later date than the Nurmsi-style coarse-grained ceramics but likely disappeared at the same time. Unfortunately, precise and reliable dates are unavailable.

(I) Late Textile Ceramics (Fig. 65). The modelling paste of Late Textile Ceramics contained rock debris. The surfaces of the vessels were fully covered with textile-impressions or were covered as far up as the carina or the neck; textile impressions also sometimes occurred on the bottom. The walls of the vessels were thick and porous. The profile was either carinate and with a concave rim, or slightly rounded and with a straight upper part. The height of the vessels was usually 18–20 cm, but some vessels were taller.

The styles of ceramics described above were mostly characteristic of northern, central, and western Estonia and rarely occurred in the southern part of Estonia. The Late Textile Ceramics, on the contrary, only occurred in south-eastern Estonia and in its southern and eastern border areas outside Estonia (see Laul 2001, fig. 76; Kiristaja 2003, figs. 15–16). Such ceramics have been found in Roman Iron Age graves and more recently also at many open settlements. The morphology of the Late Textile Ceramics differs slightly from that of the Late Bronze Age Asva-style ceramics, which also included textile-impressed vessels: the carina of the former was higher while the profile of the vessels that had a straight upper part did not change; the pots were not decorated. The current state of research does not allow dating of the introduction of such ceramics because the Pre-Roman Iron Age sites in south-eastern Estonia and north-eastern Latvia have been poorly studied. Late Textile Ceramics were common in these two areas during the Roman Iron Age (Laul 2001, 171; Vasks 1991, 196) and seem to disappear during the Migration Period (as probably indicated by recent discoveries at the Hinniala hilltop settlement where no such pottery was found, see above, 2.2.2).[77]

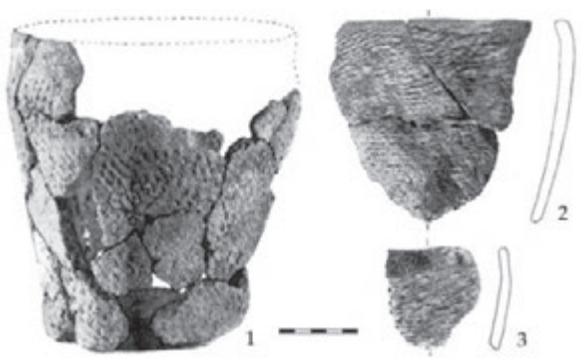

Fig. 65. *Late Textile Ceramics from the* tarand*-graves of Virunuka (AI 4262: 1018; 4161: 736, 552; after Laul 2001, figs. 68: 3, 69: 1–2).*

(K) Salenieki-style ceramics (Fig. 66). This style of ceramics was named for the Salenieki grave in northern Latvia, which was the first large find spot for such ceramics (Šnore 1935). The modelling paste of this type of ceramics contained a lot of sand and/or fine stone debris. The surfaces were smooth and sometimes even glossy.

[77] The few textile-impressed ceramics found at Middle and Late Iron Age hill forts in south-eastern Estonia may have originated from the Early Iron Age settlement layers.

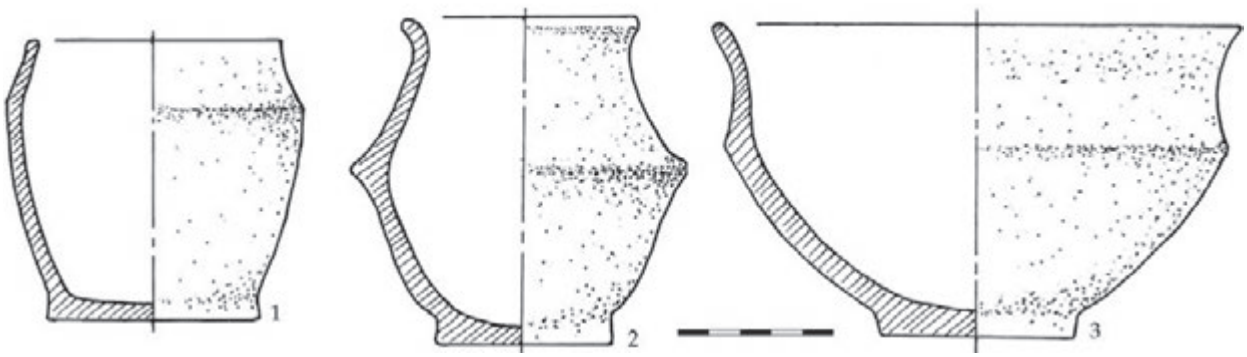

Fig. 66. *Salenieki-style pottery from the* tarand*-graves at Saha D (1–2) and Paali (3) (AM 49: 229, 230; AI 3235: 188; drawing: V. Lang).*

The walls were thin, and the profile was either carinate or had a concave or a slightly rounded straight upper part. The bottom was mostly flat but sometimes also curved, and a bottom ridge was sometimes present, too. The ceramics were not decorated.

Salenieki-style ceramics were common almost everywhere in Estonia, but the distribution is uneven in space and time. Such ceramics were first used in northern Latvia and south-eastern Estonia in the 3rd–4th centuries AD (Laul 2001, 180). They were probably in use due to influences from the south-eastern coast of the Baltic Sea and the Masurian Lakes (Moora 1938, 561). The ceramics spread from south-eastern Estonia to central Estonia, but probably not to the north. The Salenieki-style ceramics did not emerge in north-western or western Estonia before the middle of the 5th century AD and showed what were probably Gotlandic influences (see Lang 1991, 54 f.). Salenieki-style ceramics developed all over Estonia (in the south the style developed into Rõuge- and in the north and west into Iru-style fine-grained ceramics) but was uncommon in north-eastern Estonia until the Pre-Viking Age. The Salenieki-style ceramics occurred mostly in graves and to some extent also at settlements and hill forts that were used during the Migration Period (e.g. Ilumäe II, Iru).

3.4. Other forms of handicraft

3.4.1. Textiles

To date, no textile or cloth remains dating to the Bronze Age or Early Iron Age have been found. As a result, only indirect evidence such as textile impressions on pottery and the tools used to make textiles can be used in the study of cloth making.

Cloth making based on Textile Ceramics

Silvia Laul (1966), and more recently Jüri Peets (see Kriiska *et al.* 2005), have studied textile impressions on Estonian ceramics from the point of view of cloth making. They claim that in the case of the Late Neolithic and Bronze Age textile impressions, the textiles have been made primarily from plant fibres such as nettle, hemp, and bast fibre. It was long thought that woollen cloth was not used for the surface finishing of ceramics because the existing impressions were too deep and sharp (Laul 1966). However, new finds from Altküla settlement site indicate that a woollen cloth, made by the needle-netting technique, was used to make impressions on ceramics at the

beginning of the Late Bronze Age (Kriiska *et al.* 2005). Woollen cloth had to be damp to leave a clear impression on the clay. Peets suggests that a potter's mittened hand might have left the textile impression on the pottery when finishing the surface (*ibid.*).

The main cloth making technique was a tabby weave where the weft passes alternatively over and under the warp, and in the next row there is a warp above the weft and a weft above the warp (Fig. 67). Such a technique, along with the Early Textile Ceramics, was common in Estonia by the Late Neolithic. Late Bronze Age and Roman Iron Age ceramics indicate that rep weave, where the thick closely spaced wefts fully cover the thin warps, was used in addition to the tabby weave. Primitive braiding, where a double weft is braided around the warps, was also used to make textiles. As noted, needle-netting was known by the Late Bronze Age, at the latest. Similar cloth making techniques were also common in the eastern part of the European forest belt and in central Europe (see Laul 1966 and the literature cited).

It is not possible to verify if looms were used to make tabby weave, whereas it is clear that they were used to produce textiles made in the rep weave. Even weft without weaving errors indicates the use of a loom (Laul 1966, 100). On the other hand, direct evidence such as parts of looms have not been unearthed so far. However, it must be stressed that Textile Ceramics represent only a part of the cloth making process. It is evident that besides textiles made from plant fibres, woollen cloth was much more common than the direct evidence suggests. The only direct evidence for the use of woollen cloth is some Late Roman Iron Age textile fragments found on the brooches uncovered in the *tarand*-graves at Jaagupi and Virunuka and a fragment of woollen yarn in a small spiral tube fron Virunuka (Jüri Peets, personal communication). The importance of sheep rearing in northern and western Estonia throughout the Bronze and Early Iron Ages forms indirect evidence of the significance of wool in everyday life. The oldest linen fragments come from the Pilistvere hoard (6th century AD), but it is evident that flax had been used much earlier. For example, some finds from western Europe and the British Isles indicate flax growing as early as during the Bronze Age (Harding 2000, 145).

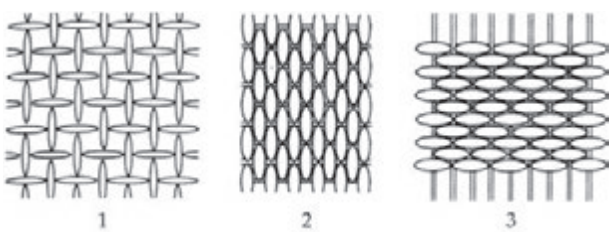

Fig. 67. *Binding schemes. 1 plain tabby (linen), 2–3 repp (after Kriiska* et al. *2005, fig. 10).*

Tools used for cloth making

Spindle whorls used for spinning yarn first appear in the Estonian archaeological material in large quantities only during the Middle Iron Age. However, some earlier finds of single whorls are also known. What are probably the oldest clay whorls were found in Lake Tamula and can be associated with the local Neolithic settlement site (Vedru 1999a, 94, fig. 3). Textile impressions in the rep weave on the surfaces of Early Textile Ceramics suggest the use of spindle whorls and looms during the Late Neolithic (Kriiska *et al.* 2005). As for some hemispherical spindle whorls found at Asva and Iru, it is not absolutely clear whether they belonged to the Late Bronze Age or to the Middle Iron Age layers. The Ridala single-layered Late Bronze Age settlement did not contain any similar items, and the finds from the Latvian and Lithuanian fortified settlements are also different.

The earliest precisely dated spindle whorls were recovered from stone graves, although whorls as grave goods were rare in Estonia throughout

Fig. 68. *Horn spindle whorl from the Tandemägi* tarand-*grave at Võhma (AI 5074A: 107).*

the Iron Age (see Vedru 1999a, tab. 8). The fragment of a sandstone spindle whorl found in stone-cist grave 71 at Muuksi (Vedru 1999a, 98) dates to the end of the Bronze Age or to the Pre-Roman Iron Age, while the fragment of a sandstone whorl uncovered in the Karuste grave on Saaremaa Island comes from the Late Pre-Roman Iron Age (Vassar 1956, fig. 36: 4) as does an ornamented horn spindle whorl unearthed from the Tandemägi *tarand*-grave at Võhma in northern Estonia (Fig. 68). Some hemispherical spindle whorls made of bone were also uncovered in the Roman Iron Age *tarand*-graves at Jäbara and Kohtla-Järve (Fig. 69; Schmiedehelm 1955, fig. 31: 19). It should also be kept in mind that cremation, which was at this time an established and common burial custom in Estonia, did not contribute to the preservation of organic grave goods.

Fig. 69. *Bone spindle whorls from* tarand-*grave B at Jäbara (AI 3172: 27, 565).*

Thus, spindle whorls appeared among grave goods in Estonia, similar to central and eastern Europe, only in the (Late) Pre-Roman Iron Age (see Salo 1968, 170). The earliest accurately dated spindle whorls were made from sandstone or horn and had a flat cross-section, whereas hemispherical bone whorls emerged not before the (Late) Roman Iron Age. It is noteworthy that no Dyakovo-type spindle whorls have been found in Estonia so far. This type of spindle whorls were popular at settlements in the Volga region, and their distribution area reached as far west as Lithuania (Michelbertas 1986, fig. 72).

The find material from Estonian, Latvian, and Lithuanian fortified settlements reveals that the *needles* that were likely used for cloth making in the Bronze Age were all made of bone. Some of the needles had no eyes and the yarn was attached to the thicker end of the needle (e.g. Indreko 1939, fig. 20: 3; Vassar 1955, fig. 41: 2; Lang 1996a, pl. VIII: 10). Some of the above needles were decorated, and they may have also been used as jewellery or for fastening clothes. The other needles had a slightly wider head with an eye (Indreko 1939, figs. 19: 3, 20: 1; Vassar 1955, fig. 41: 1). The few settlement finds of the later periods do not provide sufficient data to establish when metal sewing needles first made their appearance. An accompanying find, a bone decorative pin with

Fig. 70. *Iron sewing needles from the* tarand-*grave at Nurmsi (1) and stone-cist grave XIII at Iru (2), (AI 2486: 96a; 4810: 5).*

Fig. 71. *Bone awls from the Iru fortified settlement (AI 3428: 485, 1217; 3429: 619).*

a funnel-shaped head, and some central European parallels, suggest that an iron sewing needle found in stone-cist grave XIII at Iru can be dated to the Early Pre-Roman Iron Age (Fig. 70: 1). However, metal sewing needles became common only during the Roman Iron Age.[78] Iron and bronze sewing needles, with an eye in the widening part of the oval head, have been uncovered in some *tarand*-graves in northern and central Estonia (Fig. 70: 2; Spreckelsen 1927, fig. 94; Schmiedehelm 1955, figs. 19: 13, 27: 9; Vassar 1943, 141) but they were rare, and no such items have been found in the graves of south-eastern Estonia, for example. Few Roman Iron Age sewing needles are known from Latvia, but they were rather numerous in the region around the mouth of the Vistula River during the Pre-Roman Iron Age; they were also used as hair needles and for fastening clothes (Vassar 1943, 142).

Awls were also mostly made from bone until at least the end of the Bronze Age (Fig. 71), and some of them had a hole in the wider part of the head. Estonian fortified settlements and some stone-cist graves (Loona, Napa) have contained some bronze awls (Fig. 72: 1–3), and small iron awls have also been found at Iru and Asva (Vassar 1955, fig. 41: 10; Lang 1996a, pl. VII: 6–9). As noted, such small iron awls have been uncovered from some Early Pre-Roman Iron Age graves in northern Estonia (Fig. 72: 4; Schmiedehelm 1955, figs. 2: 2, 5: 5), and they have also been unearthed from early *tarand*-graves dating to the Late Pre-Roman Iron Age (Kurevere, Kõmsi II). By the Roman Iron Age iron awls had become much longer and obtained the shape of awls from later periods of the Iron Age (see Schmiedehelm 1955, fig. 14: 11; Laul 1962, fig. 5: 4). Awls, similar to sewing needles, mostly occur in northern Estonian *tarand*-graves, whereas in south-eastern Estonia only a single awl was recovered from the Jaagupi grave (Laul 2001, 163).

Fig. 72. *Bronze and iron awls from the Iru fortified settlement (1–3) and the cairn grave of Klaukse in Uuri (4), (AI 3428: 299; 3577: 19; 4051: 759; 3805: 50).*

3.4.2. Woodworking

It is clear that woodworking played an important role in everyday life, but wooden buildings and items have either not been preserved at all or only some fragments have survived. Slightly more is known about the houses and fortifications at the fortified settlements, which were discussed in the previous chapter. In addition, woodworking skills and tools were necessary to

[78] The iron sewing needle found in the Nava grave may date to the Late Pre-Roman Iron Age (like the shepherd's crook pins, sickle-knife, bronze temple ornament, and some of the ceramics found there), but the needle may also be of more recent origin as the grave also revealed slightly later finds.

Fig. 73. *Bronze spearheads from the fortified settlement of Iru (1) and Vissuvere (2), and socketed axes from Põhjaka (3), Vaivara (4), and the fortified settlement of Ridala (5) (AI 4051: 799; 3940; 3609; 3379; 4329: 681/1).*

make water and land vehicles (see below, 5.4.1), to build roads in wetland areas, to make everyday and household items and tools, and to clear forest.

The main woodworking tool was the *axe*. As with late shaft-hole stone axes, which were discussed above, bronze socketed axes also spread through Estonia during the Late Bronze Age. Five such axes have been found so far (Fig. 73: 3–5). These axes are rather small and light tools, weighing around 130–150 g (Jaanits *et al.* 1982, 151). Typologically the five axes can be divided into four types, which indicate the direction of various cultural ties. The small socketed axes found at Ridala and Jüri were probably the only axes locally cast, whereas the axe fragment uncovered at Toonoja originates from the Kama River basin, and the Põhjaka axe from the southern part of the Baltic region. The axe found at Vaivara in north-western Estonia is unique as it shares features characteristic of the axes made in the Mälar area and in the Kama region (Fig. 73: 4; Jaanits *et al.* 1982, 151).

The Pre-Roman Iron Age axes were modelled on the form of the Late Bronze Age socketed axes. More than 20 small socketed axes made of iron leaves rolled in a tube and with a loop for the handle in the upper part are known in Estonia (Fig. 74: 2). In addition to Estonia, such axes have been found in northern Latvia and southern Finland; some have also been found in Sweden and in the area between the Volga and the Oka Rivers (Jaanits *et al.* 1982, 191; distribution map: Salo 1984, 192). Such socketed axes with a loop were used until the (Early) Roman Iron Age, and their shape changed slightly during the Late Roman Iron Age and during the Migration Period (cf. Fig. 74: 1). Socketed axes and tenon axes were especially useful tools because the blade could be longitudinal or transverse with respect to the handle (see Viires 1960, 33). Axes with transverse blades were more suitable for hewing and smoothing surfaces, including the processing of hollow surfaces (tree-trunk boats, troughs, and beehives). Three shaft-hole axes with transverse blades (*resp*. hoes) have been uncovered

Fig. 74. *Iron socketed axes from Lehmja-Loo (AI 4444: 111, 64).*

in Estonia (Hannuste, Väike-Abja, and Otepää), which based on Latvian parallels date either to the Late Roman Iron Age or the Migration Period (Laul 2001, 163, fig. 67: 3).

Tenon or necked axes constitute another type of iron axe, the function of which was probably similar to that of the socketed axes (Fig. 75). An iron socketed axe found in the Vimose wetland in Denmark had a similar tenon fixed in its socket as that of the necked axes, indicating that both types of axes had a similar function (see Salo 1984, 194). Five tenon axes have been found in Estonia (Moora 1938, 508). The Late Pre-Roman Iron Age Malmsby hoard from Pernaja, in south-western Finland, contained eight tenon axes along with an iron socketed axe, spearheads, sickles, and scythes (Salo 1984, 191). Besides Estonia, Finland, and Karelia, only a few such axes are known from Latvia (in Courland and around the Daugava River; Šnore 1970, fig. 6: 4). Datable finds associated with tenon axes suggest that they were used during the Late Pre-Roman and Early Roman Iron Ages.

Another axe type − the shaft-hole axe with a narrow blade (Fig. 76) − reached Estonia from the south-east. These axes originated in the eastern European steppe and forest areas and were characteristic items of the Scythians from the 6th–4th centuries BC (Graudonis 1967, 144; Ciglis 2003, 118 ff.). About a dozen axes of this kind are known from Estonia, and most of them have been found in Late Pre-Roman and Early Roman Iron Age contexts (e.g. early *tarand*-graves at Võhma, Jäbara (C), Rebala, and the Kunda hoard). In addition to woodworking tools, shaft-hole axes with narrow blades could also be used as weapons. Eleven such axes have been found in Latvia, mostly in western and northern districts (Ciglis 2003), and four have been reported from Finland, but they have been dated to a later period (see Kivikoski 1973, fig. 882).[79]

Fig. 75. *Iron tenon axe from Viisu (AI 1218: 5; photo: K. Külljastinen).*

Knives were also important woodworking tools. They were universal tools that could be used for carving and cutting. Knives are one of the most common artefact types in the archaeological material of the period under discussion, particularly beginning in the Late Pre-Roman Iron

[79] The Finnish axes in question originate most likely also from the Early Iron Age (see Asplund, in print).

Fig. 76. *Iron shaft-hole axe from the Tandemägi* tarand*-grave at Võhma (AI 5074A: 37; drawing: V. Lang).*

Age when they were primarily made from iron.

Metal knives do not occur in the archaeological material from Late Bronze Age fortified settlements. The sites have yielded only knife-shaped bone items (Fig. 80: 12; Vassar 1939, fig. 53: 5; 1955, fig. 36: 6), which were used on soft materials (e.g. leather and clay). So-called decorated bronze razors have been uncovered in some stone-cist graves (Jõelähtme, Väo), but they did not serve as tools in the literal sense, and were more of a prestige item (Fig. 77). Curved bronze knives with a simple shape have been found as grave goods in the Jõelähtme, Kaseküla, and Kaarma (Sepa) stone-cist graves, but they are usually interpreted as razors.

Iron knives become common in the Estonian archaeological record only during the Late Pre-Roman Iron Age when they were placed into early *tarand*-graves as grave goods. The knives were clearly divided into several different types by their makers, which shows that they were adjusted to specific needs (Fig. 78). Rather long straight-bladed knives (with blades at least 20–30 cm in length), which could be used for forest clearing or fighting, formed one group. Probably the earliest ones come from the Jäbara A Early Pre-Roman Iron Age grave (Schmiedehelm 1955, fig. 6: 1) while the others date to the end of the Pre-Roman period (e.g. Kõmsi, Poanse, and Liiva-Putla). The most numerous group of knives were the common straight-back knives, which were present in the stone-cist graves (usually as grave goods of later burials) and in the early *tarand*-graves during the Pre-Roman Iron Age. The same form, with some variations, was also used during the Roman Iron Age. Knives with curved backs

Fig. 77. *Bronze razor from stone-cist grave IV at Väo (AI 5080: 39).*

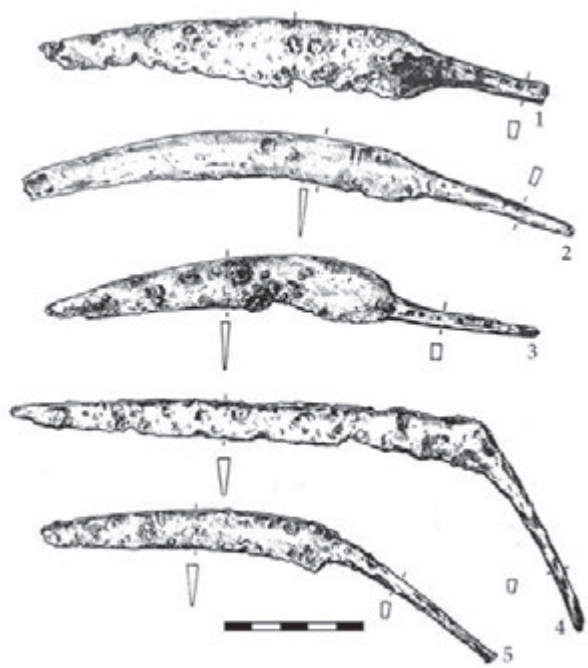

Fig. 78. *Iron knives from stone graves at Essu IV (1), Rohu (2), Nava (3), Jäbara B and C (4–5) (AM 86: 6; 233: 4; AI 3968: 75; 3172: 986; 2617: 39; after Laul & Tõnisson 1991, figs. 2–3, 5–6).*

Fig. 79. *Iron razors from grave XIII at Lagedi and grave D at Saha (AM 25: 100; 49: 208).*

of various lengths and shapes formed the third group. Some of these knives have been called sickle-knives and others scythe-knives (Laul & Tõnisson 1991). Such items were first used at the beginning of the Pre-Roman Iron Age (e.g. Väo, Hiiemägi at Kunda) and their form remained the same through the period. They were probably designed for cutting grain and perhaps also for cutting branches (e.g. to make fodder).

In addition to the above-mentioned types of knives, Estonian Roman Iron Age graves have contained other types, including disc-shaped knives. Only four such knives have been found in Estonia (all from north-eastern Estonia), and they represent a form that spread on the southern coast of the Baltic Sea during the Late Pre-Roman and Early Roman Iron Ages (Lang 2000a, 158, fig 67: 5). Thin-bladed iron razors were quite common in 3rd–5th century *tarand*-graves in northern and central Estonia (Fig. 79). It is not known if they were used only for shaving or if they also had other uses. The oldest spoon knife made from iron that is known in Estonia was uncovered from the Jäbara E grave (Schmiedehelm 1955, 103, fig. 26: 10) and dates to the Late Roman Iron Age. Spoon knives, which were characteristic of the eastern European forest belt and were not common in western Europe, retained their form through the present (Viires 1960, 40).

3.4.3. Bone working

Information about bone working is available only for the beginning of the period under discussion due to the find material recovered from the fortified settlements and stone-cist graves. There is a gap in knowledge with regard to the later periods because there is no settlement material. The selection of bone and horn items available was wide during the Late Bronze Age, ranging from tools to (hunting) weapons and jewellery. The standard of bone working was high during the Late Bronze Age and local Neolithic traditions were carried on and further elaborated. Estonian bone items are strikingly similar to the archaeological material from the fortified settlements of Latvia and north-eastern Lithuania.

Bone tools included swingles (*resp*. dented sickles), knives, awls, needles, and hoes (*resp.* ard blades) made from horn. Hunting tools included large and small barbed seal harpoons (Fig. 80: 1, 3, 8). There are no known equivalents to the large barbed harpoons found from Iru and Asva, while the small barbed harpoons were common in the eastern Baltic region (Graudonis 1989, pl. XVIII: 1–2, 4–7; Volkaitė-Kulikauskienė 1986, fig. 36: 1). Arrowheads made from bone, with or without barbs (Fig. 80: 6–7, 9–10), have been uncovered at all Estonian fortified settlements and at some hill-top settlements (e.g. Peedu). Spearheads made from large tubular bones (Fig. 80) are known in some places (Ridala and Lake Aheru). Both types of weapons, suitable for hunting and fighting, have numerous equivalents among the find

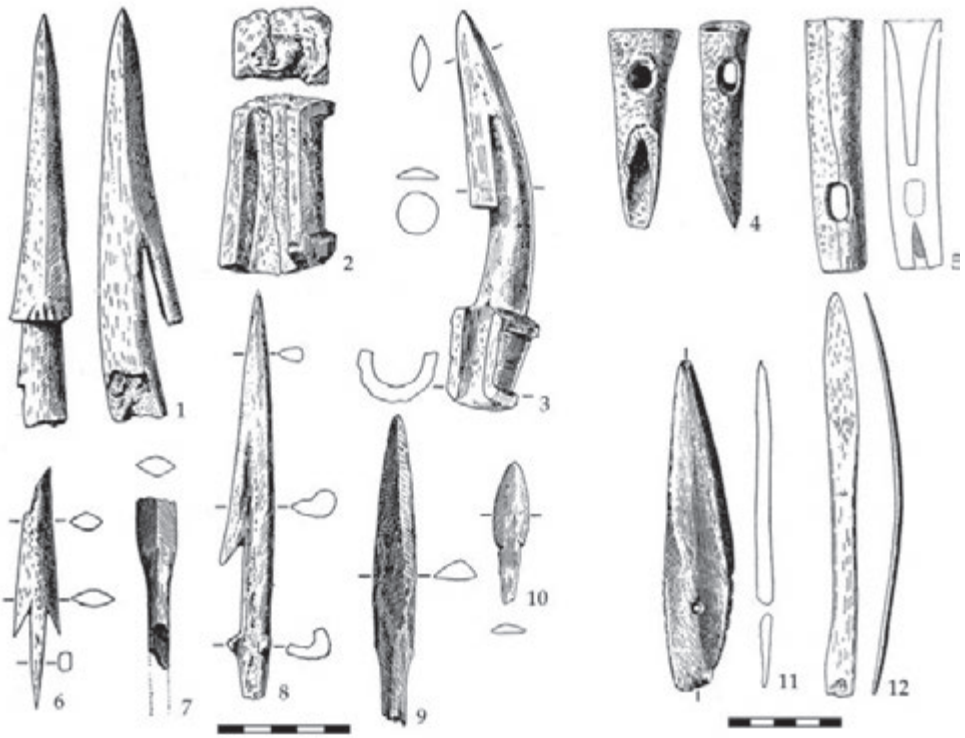

Fig. 80. *Bone and horn artefacts from the fortified settlements of Iru (3) and Asva (AI 4012: 113; 3658: 530; 4051: 236; 3994: 1182, 1178, 277, 1722, 580, 377, 703, 158, 1113; after Vassar 1955, figs. 35, 36: 1–2, 5–6).*

material from Latvian and Lithuanian fortified settlements (Graudonis 1989, pls. XVI–XVIII; LA, 1974, pl. 18; Grigalavičienė 1995, figs. 58, 62).[80]

Bone bridle-bits have been found at the fortified settlements of Asva (3) and Iru (1), and in a stone-cist grave at Proosa (1) (Fig. 48: 2–3). Similar items with small variations are also known from the fortified settlements along the Daugava River and in north-eastern Lithuania (Grigalavičienė 1995, fig. 100: 11; LA, 1974, pl. 19: 8; Vasks 1994a, pl. VII: 19–20). The bone bridle-bits were modelled on the respective bronze and iron bridle-bits, which were common across wide areas of Europe in the Late Bronze Age and at the beginning of the Iron Age. These bits prove that horses were used for drawing or riding purposes. The bone spoons found at Asva and Iru (Lang 1996a, pl. VIII: 5) and the knife handle made from tubular bone uncovered at Asva (Fig. 80: 5) have good equivalents in Latvia and Lithuania (Graudonis 1989, pls. XXVI: 6–7, XV; Grigalavičienė 1995, fig. 61). Double buttons made from bone found at Asva, Kaali (Fig. 81: 7–10), and in several places in Latvia and Lithuania, were modelled on the Scandinavian bronze buttons dating to the Late Bronze Age. One such amber button was obtained from the Loona stone-cist grave on Saaremaa Island.

The selection of jewellery was also wide, although most items were decorative pins. An especially diverse collection of decorative bone pins from an Estonian context were uncovered at

[80] Spearheads made from tubular bone occur in northern Germany even in Pre-Roman Iron Age contexts (Porath 1983, pl. 22: 10–12).

Asva (Fig. 81: 1–6). Single pins have also been found at Iru and Ridala (Lang 1996a, pl. VII: 11). Curved pins made from bone that were decorated with outlines, ridges, and grooves, and which have good equivalents from the fortified settlements in the southern part of the eastern Baltic region (LA, 1974, pl. 17: 2–9; Grigalavičienė 1995, figs. 92–96), imitate the bronze pins of southern Scandinavia and central Europe. Decorative pins with spade-shaped heads, which were mostly found in stone-cist graves, form a separate group (see below, Fig. 88). They developed from the central European Bronze Age pins (see Lang 1992). In Estonia, such pins were first and foremost grave goods (except for some pins found at Asva) but they have been found only in settlement layers in Latvia and Lithuania. A shepherd's crook pin made from bone, which was uncovered at Iru, is unique among other pins (Lang 1996a, pl. X: 7).

3.5. Conclusion

The most recent data indicates that significant developments in the source of subsistence economy were taking place by the end of the second millennium BC when the first known fields were established (e.g. Saha-Loo). This event coincides with an increased human impact on the environment as shown by the pollen diagrams, and the periods of strong impact were sustained for longer than before. Long-term use of ancient fields, extended phases of human impact, the erection of grave groups and the extent to which they were used, all reflect the stabilization of settlements, the economy, and social relations. The analysis of different land use systems showed that the transformation from extensive to more intensive land use occurred during the Late Bronze Age as a result of population growth and a shortage of arable land in northern and western Estonia. The process strongly regulated ownership relations in regard to arable land. The fields

Fig. 81. *Bone and horn artefacts from Asva. 1–6 decorative pins, 7–10 double buttons (AI 3658: 559, 552; 4366: 1656; 3307: 304; 3799: 351; without number; 4366: 1591, 132, 614, 663; after Jaanits* et al. *1982, fig. 99).*

that were originally cultivated with a crook ard and where barley, wheat, and oats were grown, gradually became objects of measurement, valuation, and taxation. Similar processes were also characteristic of regions of northern and northwestern Europe at the time, while central and southern Estonia witnessed such developments only during the Late Pre-Roman and Roman Iron Ages.

Most animal bones found at Estonian fortified settlements belong to domestic animals. Sheep/goat dominated the stock while cattle were slightly less common, followed by pig and horse. In this respect, northern and western Estonia was similar to Scandinavia where sheep/goats started

to dominate at that time, but differed slightly from the Daugava basin (where cattle rearing prevailed) and what is today north-eastern Lithuania (where pig rearing dominated). The composition of the stock remained similar, at least in northern Estonia, until the Roman Iron Age.

It was during the Late Bronze Age at the latest when local bronze casting became established. In Estonia, Latvia, and Lithuania bronze casting was practised only at the fortified settlements that were part of a large bronze trade network. Bronze casting involved the recasting of scrap metal obtained from Bronze Age cultural centres (especially Scandinavia). Mostly bronze rings, which were probably bronze bars, were produced. It is assumed that some bronze bars were exported back to the western coast of the Baltic Sea, which experienced a growing need for bronze during the Late Bronze Age. All the fortified settlement sites of Estonia were deserted when the bronze trade network disintegrated as a consequence of the spread of iron.

The first signs of local iron working − forging of imported metal − emerged at the beginning of the Pre-Roman Iron Age. Local iron working became more common during the Late Pre-Roman Iron Age when jewellery and tools made from iron were placed in large quantities in the graves in northern and western Estonia. Several hilltop settlements were established at that time, which points to the emergence of the new elite, the power of which was to some extent based on iron working. A number of iron smelting sites are known from the Roman Iron Age. Ironworking skills advanced considerably and reached the same level as that of the southern and western neighbours.

Once again after the Neolithic, styles of ceramics particular to Estonia emerged in the Late Bronze Age. An important development was the division of ceramics into two groups − coarse-grained everyday ceramics and well-finished fine-grained ceramics. Smoothed surfaces, striation, textile-impressions, and stamp impressions, such as circular pits and twisted cord, were characteristic of the coarse-grained ceramics. The surfaces of the fine-grained ceramics were usually carefully smoothed and completely different elements such as lines, cuts, and impressions of twisted rings, were used as decorations. The division of ceramics into coarse-grained and fine-grained ceramics became less evident at the beginning of the Iron Age (but did not completely disappear) while it was reinforced during the Late Roman Iron Age. Textile impressions were used in northern Estonian ceramics until the middle of the Pre-Roman Iron Age, whereas striated ceramics were used until the end of the Roman Iron Age; a more recent development of textile-impressed ceramics was used in southern Estonia probably until the Migration Period.

The textile-impressions on clay vessels suggest that cloth was made in tabby or rep weave, or by the needle-netting technique. Both looms and spindle whorls were used in the making of textiles. Clothes were made from nettle, hemp, or bast fibre, and woollen yarn was also used. The end of the period under discussion witnessed the use of flax in cloth making. The archaeological material reveals such tools as spindle whorls, needles, and awls made from iron, bone, and bronze, which were used for making cloth.

The find material from the settlements and graves provides a good overview of the development of axes and knives, which were the most important woodworking tools. Bone working played an important role, although most bone find material comes only from the Late Bronze Age fortified settlements. Bone and horn were used for making jewellery, tools, everyday items, and weapons. The items produced and used in Estonia were rather similar to the find material from the Latvian and Lithuanian fortified settlements.

Chapter 4

Graves and Burial Customs in the Late Bronze and Early Iron Ages

No burial sites definitively dated to the Early Bronze Age have been found in Estonia, but the transition to the Late Bronze Age brought about a fundamental change which can be seen through the emergence of above-ground stone graves. These graves were represented by only a single type at first − the stone-cist graves. Other forms of stone graves evolved over time, including ship graves, cairn graves, and several types of *tarand*-graves. It is impossible to present accurate figures regarding the number of each of the grave types because their nature often cannot be distinguished without archaeological excavations. In addition to the above-ground stone graves, there is some data about cemeteries with pit graves, however such graves are usually found by chance and not much is known about them.

The study of burial sites allows us to make conclusions about many aspects of ancient societies. The analysis of grave material provides information about the nature of religion, including attitudes about the afterlife and ritual communications between the living and the dead. Physical anthropology can provide observations about burial rites, the number of the deceased (including the size of the community and other inferences thereof), their age, gender, diet, and the diseases they suffered from. The grave finds also provide indirect information about the material culture, economy, and the dominant ideologies of the society. This chapter presents and analyses graves and burial customs, the results of which will be relevant in the last chapter.

4.1. Stone-cist graves

4.1.1. Distribution of stone-cist graves

Stone-cist graves are above-ground structures that have a stone cist (or several cists) in the middle and which are enclosed by one or several circular stone walls, filled with soil and stones and covered with a stone heap. More than 800 stone-cist graves have been found in Estonia, and they mostly occur in the coastal zone of northern Estonia and to a lesser extent in western Estonia and on the islands (Fig. 82). Such graves are rare in inland regions where they are more numerous only at the north-western foot of the Pandivere uplands near Tapa. The southernmost stone-cist

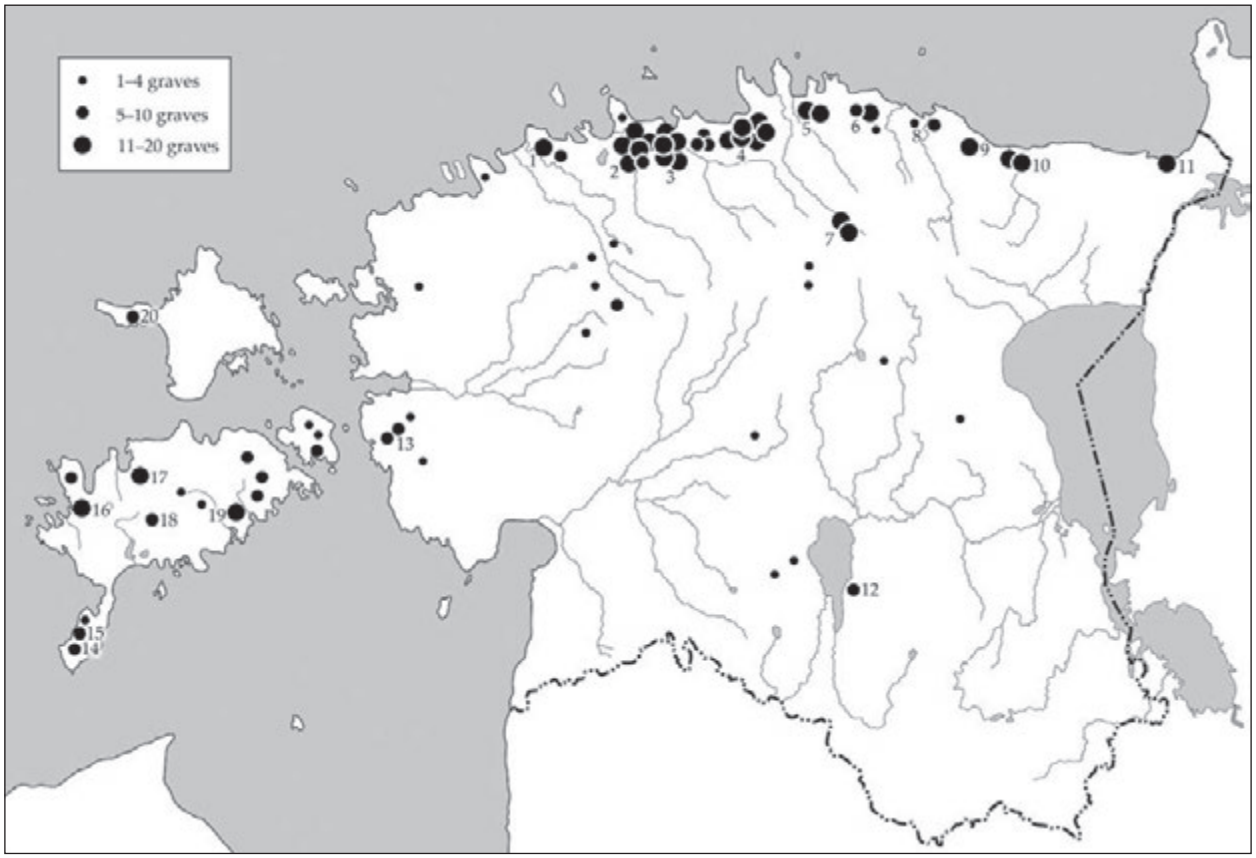

Fig. 82. *Distribution of stone-cist graves. Main grave groups mentioned in the text: 1 Rannamõisa–Ilmandu, 2 Väo–Iru–Proosa–Lagedi–Saha–Maardu–Rae–Kurna, 3 Rebala–Jõelähtme–Vandjala–Kostivere, 4 Sõitme–Muuksi–Uuri, 5 Vatku–Tõugu–Võhma–Palmse, 6 Vihula–Karula, 7 Moe–Prümli, 8 Kunda–Kelleraugu–Kuura, 9 Koila–Aseri–Tamme, 10 Napa–Lüganuse–Purtse–Jäbara, 11 Vaivara, 12 Vehendi, 13 Kaseküla–Ridase–Poanse, 14 Lülle, 15 Kaunispe, 16 Kurevere–Loona, 17 Võhma–Pidula, 18 Sepa, 19 Kahtla, 20 Kõpu.*

graves are located around Lake Võrtsjärv. A similar grave type is also common in northern Latvia, but the graves have been studied to only a limited extent there.

Around 130 Estonian stone-cist graves have been archaeologically studied, although only 80 of them have been more or less fully excavated (Margot Laneman, personal communication). Stone-cist graves are visible in the contemporary landscape as round heaps covered with sod that are ca. 10–15 m in diameter and up to 1.5 m in height. Stone cist-graves are usually found in groups where the burial sites are commonly located dozens of meters apart from each other (except e.g. at Jõelähtme where the graves were closer together); single graves occur rarely. The grave groups in Estonia contain 5–6 graves on average, but there are also groups with a strikingly large number of graves. For example, 36 graves were uncovered at Jõelähtme, where there were also additional graves that had been destroyed by road construction (Fig. 83). The largest group, with 85 graves, is Hundikangrud at Muuksi; other nearby grave groups are also relatively large.

Fig. 83. *Stone-cist graves at Jõelähtme (stone filling has been removed), view from east (photo: A. Kraut).*

4.1.2. Structure of stone-cist graves

Despite the clear and simple definition presented above, there are many variations and deviations from the 'rules' regarding the characteristics of stone-cist graves. The various types of grave constructions are discussed in more detail below.

Circular walls

In the early stages of the development of Estonian archaeology no attention was paid to the circular walls of stone-cist graves, and the cists themselves, which were known to contain burials, were the primary focus of excavations. This situation changed fundamentally with the excavations carried out by Artur Vassar at the end of the 1930s at Muuksi, where the graves were opened in their entirety. Vassar claimed that the circular wall was the boundary of the burial site; the first to be buried were laid into the cist or cists while later interments often also occurred outside of the cists, in the area between the cists and the circular wall. Thus, the latter served to separate the burial site from the rest of the world symbolically and ritualistically, whereas the cist was only one of many possible burial places (Vassar 1938b).

The construction of the circular walls differs in some respects. Graves with a circular wall made entirely from limestone slabs (a dry wall) mostly occur in northern and western Estonia. In addition, there are also graves where the foundation of the circular wall is made from granite stones while the dry wall built on the foundation is made from limestone slabs (e.g. Jõelähtme, Rebala, Väo, and Iru). In places where limestone does not occur naturally, circular walls were entirely made from granite (e.g. Vehendi in southern Estonia). Such circular walls also occur in areas with limestone subsoil (e.g. Kangru at Väo, Proosa), but it is not always clear whether or not the probable limestone wall on granite foundation has merely been destroyed. The outer side of grave walls was smooth and regularly shaped, and the inner side was linked to the inner stone filling of the grave in all cases. To date, only a single site is known where a stone-cist grave did not contain a circular wall – grave III of Lastekangrud at Rebala (Lang *et al.* 2001, fig. 5).

It is difficult to assess the exact height of the original circular walls because they have all collapsed to some extent. Excavations have revealed sections of walls that are up to 0.6–0.8 m in height; considering the extent of the collapse as determined by the surrounding rubble, one can assume that they were originally around 1 m in height, or perhaps even taller. The graves with a single wall are typically 8–12 m, and rarely more than 16–17 m, in diameter. The smallest stone-cist graves in Estonia were originally built for children, for example the Tandemägi II grave at Võhma, which was up to 2.5 m in diameter (Lang 2002, 128, fig. 47), and several similar graves at Jõelähtme (Kraut 1985). At graves with multiple walls the second circular wall averages 12–16 m in diameter. So far, only single graves with three and four circular walls have been found; the four circular walls of the Tark-Jaagu grave near Lüganuse were 5.3, 7.5, 12, and 14–15 m in diameter, respectively (Fig. 84). The published

Fig. 84. *Stone-cist grave of Tark-Jaagu at Lüganuse (after Jaanits* et al. *1982, fig. 118).*

data indicates that the stone-cist graves of northern Latvia had only a single stone wall, but there are cases where semicircles have been added to the original circular grave (e.g. grave No. 4 at Buļļumuiža; see Graudonis 1967, fig. 25). This custom became dominant in the sacred architecture of the early *tarand*-graves (see 5.3.1).

The observations made during excavations indicate that the walls of the multiple-wall graves were built either contemporaneously or with only short intervals between construction phases. However, in the case of some graves (e.g. Kangru II at Väo, and Iru VI) one can observe that the outer circular wall dates to a remarkably later period than the inner wall because the former had been piled on the ruins of the latter (Jaanits *et al.* 1982, 178). This indicates that the monumental burial sites were not fully established during one specific period, but that they could be improved or re-built several times, which was a common practice in the case of the *tarand*-graves.

Fig. 85. *Stone-cist grave I at Rebala, view from south-west (photo: V. Lang).*

Cists

The central structural element of the graves under discussion was the stone cist. Interment in the cist indicates primary and/or socially more significant burials. There are different kinds of cists. The most common cists have dry stone construction limestone walls (e.g. Jõelähtme, Rebala; Fig. 85). The bottoms of the cists were made from large limestone slabs, which could be placed either on the original ground surface or on the layer of stones. Cists with vertical limestone slabs for walls (Fig. 86) are three times less common than cists with piled walls, and such cists were usually erected directly on the ground (e.g. Loona, Tark-Jaagu at Lüganuse). Cists made from granite stones are even less common (e.g. Kaseküla). It was previously believed that the different construction styles of limestone cists reflected chronological differences, i.e. that the cists made from vertical limestone slabs were constructed earlier than the cists with piled walls (Lõugas 1970a, 48). More recent analysis has shown that the assumption was not valid because both construction styles occur contemporaneously throughout the time when the stone-cist graves were being built (Lang 1992, 20). It does seem, however, that the graves with cists built directly on the ground are generally earlier than the burial sites where the cists were erected on stone layers.

Each grave usually contains only a single cist, but multiple cist graves have also been found (Fig. 85). Graves with several cists are constructed in one of two styles; they can be either double or triple cists with a joint partition

located in the middle of the grave (e.g. Kangru IIIa at Väo, Muuksi 32 and 33, and Lõokese at Muuksi[81]), or have a central and a peripheral cist, or several peripheral cists located on the border of the grave (e.g. Kangru VIII at Väo, Lagedi X, Rebala I). Combinations of the two types also occur, for example, grave IV at Lagedi had a double central cist that was erected on the ground, and a peripheral cist had been built at a higher level, on a stone layer nearby. Grave A at Jäbara revealed both central and peripheral double cists. Secondary excavations at Muuksi showed that grave No. 5 in the Hundikangrud group had an interesting interior construction – in the middle of the grave there was a cist measuring 4.4 m in length, and a cist 2.4 m in length was located to the east, while two cists of the same size were located to the west (Vedru 1998, fig. 2). It may well be that this extraordinarily long central cist originally consisted of two separate and 'normal-sized' cists that had been joined endways, but the partition was probably removed during the unskilful initial excavations in 1925.[82] The cists in Estonian graves have a rather standard size – they are 2–2.5 m in length and slightly less than 1 m in width. Graves with an unusual number of cists also occur among the stone-cist graves of northern Latvia; for example, a grave with up to seven cists is located at Buļļumuiža (Graudonis 1967, 41 ff.).

The cists typically have a north–south orientation, slightly (up to 45º) angled on both directions. Cists with an east–west orientation are rare among Estonian graves (e.g. Iru I). The cists are usually covered with a layer of stones and they, as well as the circular walls, are not visible before excavations.

[81] An earlier cist was located crosswise under the triple cist at the Lõokese grave (see Spreckelsen 1926b).

[82] Two cists, located in the western sector, that have joined end walls but are not located on the same axis, seem to serve as evidence of this.

The area between the cist and the circular wall

The area between the cist(s) and the circular wall(s) was filled with irregular heaps of stone mixed with soil. A similar stone heap thinly covered the cist. Soil can be found between all of the grave stones, but it is unlikely that it was brought there at the time the grave was built. It may be that the soil was deposited there through natural processes, and the cultivation of the surrounding land and subsequent soil erosion might

Fig. 86. *Three reconstructed stone-cist graves at Muuksi, view from south (photo: A. Kraut).*

have favoured the process. Baulks and clearance cairns contain similar stone heaps mixed with soil, which was too valuable to be purposefully removed from the fields. The soil in the graves is slightly darker than the soil in the clearance cairns, but this is probably explained by the burials themselves, especially ashy cremations (which were often placed in the upper stone layers of a stone-cist grave at a later date, see below). The area between the cist(s) and the circular wall(s) was often used for burials, but that was not always the case. Sometimes additional cists were built for later burials, but usually they were placed in the grave without cists.

4.1.3. Burial in stone-cist graves

The typical structure of the stone-cist graves leaves the impression that they were individual burial places, but they almost always contain more than a single burial. That applies not only to the peripheral parts of the graves between the cist(s) and the circular wall, but also to the cists themselves, which rarely contain fewer than two or three skeletons. It is difficult to provide adequate statistical data for Estonia as a whole because most osteological material has not been analysed with current scientific methods, particularly the cremations. The situation also differs in various parts of the country and within grave groups. For instance, the 19 osteologically analysed graves on the lower reaches of the Pirita River revealed 67–69 inhumations, which is 3.6 burials per grave. Half of the graves contained cremated bones (often from several individuals), and thus the actual number of burials is slightly higher, that is, ca. 4–5 burials per grave (Lang 1996a, 354). Jaani stone-cist graves A and B at Väo contained an exceptionally large number of burials, including the bones of eight adults and 13 children. The five Lastekangrud graves at Rebala revealed 41 inhumations (cremated bones occurred in four complexes), including 23 children under the age of ten, out of whom 15 were infants (Kalman 1999; Lang *et al.* 2001, tab. 1). Twenty-three burials were discovered in the Kaseküla grave in western Estonia, and 20 of them belonged to children under five years of age (Kalman 2000a). At least 17 inhumations and several cremations were found in the area between the two circular walls in the Loona grave on Saaremaa Island (Fig. 87). The fully excavated and osteologically studied Muuksi graves have revealed more burials than the average (6–7) while the 36 stone-cist graves at Jõelähtme contained substantially fewer burials, only slightly less than two burials per grave.

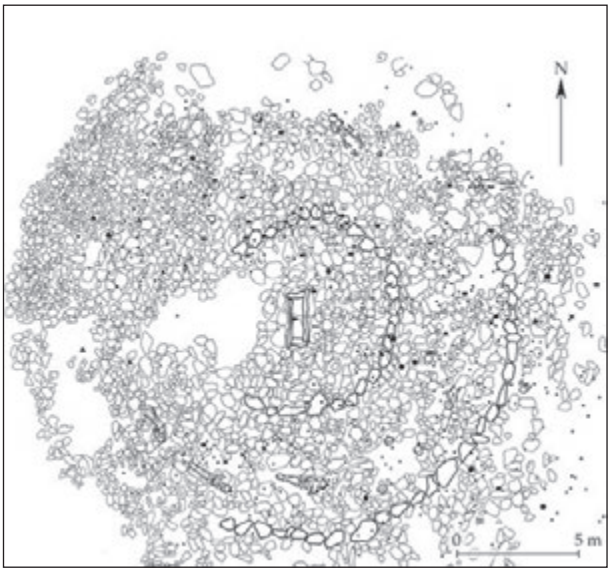

Fig. 87. *Stone-cist grave at Loona (after Jaanits* et al. *1982, pl. VII).*

Thus, the number of burials in Estonian stone-cist graves can vary from several to tens of burials. There seems to be a clear and logical relationship between the length of the use of the graves and the number of burials they contain. Graves with many burials often contain grave goods and/or sacrifices dating from the Late Bronze Age through the Pre-Roman Iron Age, and even

material dating to the Roman Iron Age (e.g. several Lagedi and Muuksi graves, Jaani at Väo, and Rebala), while the graves with fewer burials seem to originate from a more restricted time period. This relationship cannot be observed in the case of many graves that lack grave goods.

Inhumation is the most common form of burial in the case of Estonian stone-cist graves. They are especially common in the cists where cremations were rarely a part of the original burial.[83] Cremations are more common in the peripheral parts of the graves and in higher stone layers, proving that they are of later origin than the inhumations.[84] All the cists containing cremations had the same measurements as the cists used for inhumations. This, taken with the data regarding the later placement of cremations, leads to the conclusion that inhumation was initially believed to be the most proper method of burial in the case of the stone-cist graves. It is unclear why cremations occur in some cists, but it may reflect the influences of other burial traditions (e.g. pit or ship graves) or the social differences between the deceased. The number of cremations is slightly higher in northern Latvian stone-cist graves, and some of them even contain small cists specially designed for cremations (e.g. Buļļumuiža grave 3; see Graudonis 1967, fig. 24).

Uncremated bodies were placed in the grave in the extended position. In addition to full sets of skeletons, stone-cist graves can contain partial burials, where part of the human skeleton, and sometimes even single bones, have been placed in the grave, or where some parts of the skeleton have been removed. The excavation of grave No. 5 at Muuksi showed that some of the deceased had originally been placed outside the circular wall of the grave; they were taken to the grave only after the flesh had decayed, and thus the bones of a single individual could end up in different parts of the grave (Vedru 1998). Sometimes bones of different skeletons were deliberately mixed or exchanged. For example, the leg bones of one of the two adults in grave II of Rebala had been switched (the left foot had been put in the place of the right foot and vice versa), and the shinbone of the other one had been removed (Kalman 1999). The separate handling of the head and the body can be observed in several cases. The skulls were completely absent in the cists with cremations in grave IIA at Tõugu and grave III at Tandemägi, which suggests that the heads had been removed before cremation and were buried or handled separately (Kalman 2000b). Most of the skull of the female skeleton located in the secondary cist in grave I at Rebala had been removed (Lang *et al.* 2001). All these aspects of burial customs reflect the different rites performed before and during the burial, and they help to shed light on the religious practices of the time. It must be stressed that only few stone-cist graves (Tõugu IIA, Rebala I–V, Jõelähtme 1–36 [unpublished], Kaseküla, and Muuksi 5) have been thoroughly studied with current anthropological methods.

The most excellent examples of stone-cist graves containing burials outside of cist(s) include Loona I, where 17 burials had been placed parallel to and between the circular walls (Fig. 87). Similar to Loona, 10 inhumations were found in grave A at Jäbara that ran parallel to the presumed circular wall (it was not excavated); the upper layer also contained complexes of cremated bones

[83] So far, cremations have been discovered in the cists of nine stone-cist graves – Tõugu IIA, Tandemägi III, Iru I, Rebala II, Tark-Jaagu at Lüganuse (only some pieces of bone), Muuksi 3 and 4, and two graves at Kahtla. In some graves (Rebala III and V) the case may be that the cremated bones were placed in the grave later and then migrated over time within the cist.

[84] Sometimes cremations have been found under the cists, for example in the Napa graves, but these may date from a chronologically earlier burial site. Similar phenomenon also occurs in other places, e.g. under the Ilmandu III and Tõugu IIC early *tarand*-graves; they will be discussed below.

(Schmiedehelm 1955, 24 ff., fig. 4). However, normally it is rather difficult to record individual skeletons placed in the peripheral part of the grave because the bones there are scattered and mixed, making it hard to distinguish individual burials. Sometimes the bones of later burials can be found in a single 'nest' or 'bone bed'; for example, nine burials of infants and a burial of a 9–10-year-old child were found together outside of the cist in grave II at Rebala (Lang *et al.* 2001, 40). In the case of cremations, calcined bones are usually located in a nest, but sometimes pieces of bone were scattered over a larger area.

4.1.4. Grave goods

The Estonian stone-cist graves do not contain many grave goods. Approximately one in three graves have cist(s) that contain finds that can be identified and dated, whereas finds are two times more frequent in the burials outside the cists. Burials outside of cists are of later origin than those within the cist, which indicates that burying with grave goods became more common over time. This generalization is not valid in every single case, however, because there are cist burials that have rich grave goods and which date from the same period as the other stone-cist burials that contain no grave goods (e.g. Jõelähtme). Only the artefacts found in the cists of the stone-cist graves will be discussed below because the much later finds of the burials outside the cists largely coincide with the material from the early *tarand*-graves. Most grave goods are ornaments, devices used for fastening clothes, small tools or toilet articles; big tools and weapons are found only rarely.

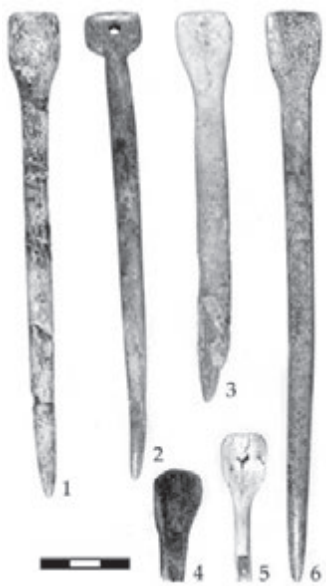

Fig. 88. *Spade headed bone pins from the stone-cist graves of Lehmja-Loo (1), Jõelähtme (2), Lüganuse (3, 5), Loona (4), and Muuksi (6) (AI 4444: 353; 3892; 4099: 1; 4210: 1360; 4099: 2; 3454).*

Ornaments

Bone pins with spade-shaped heads are the most common form of ornament found in the stone-cist graves (Fig. 88). More than 20 such pins are known, and their main distribution area is in northern Estonia from Iru to Muuksi (15 pins); five pins were found in the Lüganuse and Napa graves in north-eastern Estonia, while only a single pin comes from Saaremaa Island (Loona). In addition, some pins of this type were found at the fortified settlement of Asva. As noted (see section 3.4.3), parallels to the Estonian bone pins with spade-shaped heads can be found at the fortified settlements of Latvia and Lithuania, but they do not occur in the grave material there.[85] The grave goods accompanying the Estonian pins with spade-shaped heads help to date the items to the Late Bronze Age and probably through the beginning of the Pre-Roman Iron Age (Lang 1992). The osteologically distinguished skeletons indicate that both the pins with spade-shaped

[85] With the exception of only the Ķivutkalns Early Bronze Age cemetery with pit graves where more than 30 bone pins with a widening head were found (Denisova *et al.* 1985, figs. 33–34). The pins reveal some differences compared to the Estonian ones as their heads are rather round and usually have a bored hole or holes, which is rarer in Estonia. Thus, they cannot be directly associated with the Estonian pins, but they can be regarded as a precursor to them.

heads and other bone pins were definitely grave goods of males and older children or juveniles; they may have also been placed in female burials, but they have not been found in any burial identified as definitely female.[86]

In addition to bone pins with spade-shaped heads, the stone-cist graves have also contained, in smaller numbers, differently shaped decorative pins including ones with triangular widening heads, pins that do not have a separately designed head (Kraut 1985, pl. VI: 1–4), and bone pins with widening funnel-shaped heads that have parallels to finds from Asva. The funnel-shaped pins were probably modelled on the respective metal pins that spread in Scandinavia and central Europe at the end of the Bronze Age and the beginning of the Pre-Roman Iron Age (Baudou 1960, 83; Nylén 1972, 14 f., fig. 7).

Some bronze decorative pins have also been found; one of them was uncovered at Jõelähtme in grave 25, in which a 9–10-year-old child was buried (Kraut 1985, pl. V: 9), but unfortunately the upper part of the pin was not present. The other is a shepherd's crook pin from a Kaunispe grave, which was found in a cremation and was accompanied by a neck-ring dating to the beginning of the Pre-Roman Iron Age, a temple-ornament with a spiral in the middle and spoon-shaped ends, and a spiral bracelet. Unfortunately, it is not clear whether these items were part of the original or a later burial, or if the items were even grave goods in the first place (see Lang 1996a, 297). The head of a bronze shepherd's crook pin was also found in a later burial at a Kõpu grave, while the cist of another Kõpu grave contained an iron shepherd's crook pin (Lõugas 1984). The shepherd's crook pins became common grave goods only in early *tarand*-graves of the Late Pre-Roman Iron Age (see below).

Plain spiral temple ornaments made from bronze are unique forms of ornaments (Fig. 89). Ten such items have been found in the following six burial complexes: at Jõelähtme (in two graves), Napa, Lehmja-Loo (in an inhumation burial under stone grave II), and at Muuksi and Tamme. Thus, the distribution area of temple ornaments coincides with the distribution area of the bone pins with spade-shaped heads, and they have been found together in four cases. The finds from Lehmja-Loo, Muuksi, and Jõelähtme suggest that the ornaments were worn in pairs on the temples. I do not know any exactly similar temple ornaments from the neighbouring areas of Estonia (some Latvian and Lithuanian items have distinctive features, see e.g. LA, 1974, pls. 20: 12, 21: 10), but accurate analogues can be found further eastwards in the Sosnitski Culture area from the 11th–9th centuries BC (Epokha bronzy, 1978, 112, fig. 52: 14). The Estonian find context and the parallels date the ornaments to the Late Bronze Age; however, the spiral temple ornaments were further developed in the southern parts of the Baltic region in the following centuries.[87] The cist of grave 9 at Jõelähtme contained, in addition to

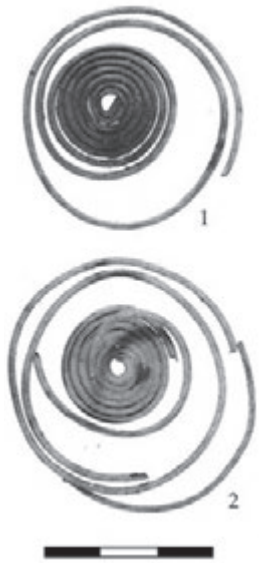

Fig. 89. *Plain spiral temple ornaments from stone grave II at Lehmja-Loo (AI 4444: 330).*

[86] Graves 1 and 2 at Jõelähtme and grave II at Lagedi contained bone pins that belonged only to adult males, and graves 12 and 13 at Jõelähtme contained only the remains of children and juveniles. Graves 9 and 34 at Jõelähtme contained the remains of females, males, juveniles, and children. Napa IV and one of the Lüganuse stone-cist graves also belonged to males.

[87] For Lazdiņi temple ornaments in Latvia see Šnore 1970, fig. 5: 14, and for Egliškiai ornaments in Lithuania see Grigalavičienė 1979, fig. 28. The Late Pre-Roman Iron Age temple ornament found in the Võhma *tarand-*

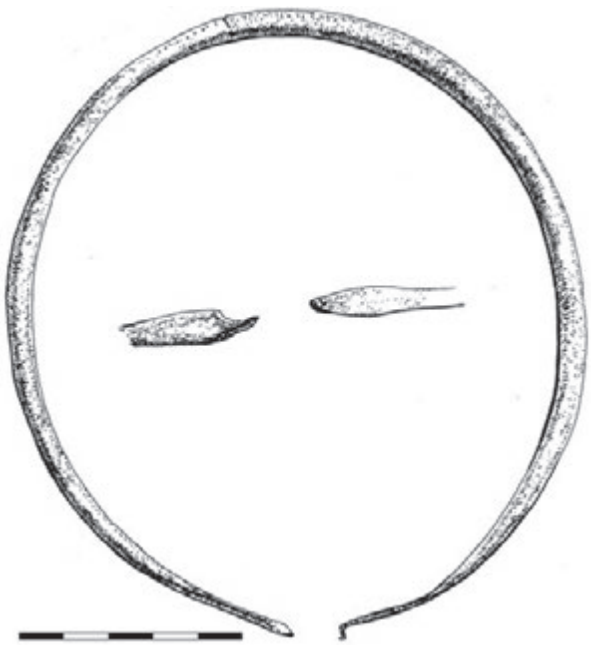

Fig. 90. *Bräcksta-type neck-ring from stone-grave II at Lehmja-Loo (AI 4444: 33).*

In addition to plain spiral temple ornaments, a Lüganuse grave has also yielded two conical spiral temple ornaments (Schmiedehelm 1955, fig. 2: 6), which represent the type common in central Sweden and Gotland in the end of the Late Bronze and beginning of the Pre-Roman Iron Age (Nylén 1961).

Bräcksta-type neck-rings with end plates are the only type of neck-rings found in the stone-cist graves (Fig. 90). In addition to the stone-cist graves at Jäbara A and Kaunispe, neck-rings have also been found in some early *tarand*-graves (e.g. Tandemägi IV and Kõmsi II), and can thus be considered as a link between the two types of graves. The neck-rings date to the early Pre-Roman Iron Age, and were probably originally developed in the Lake Mälar area and spread mostly through the coastal areas of central Sweden, south-western Finland, and Estonia (Moberg 1941, 92; Stjernquist 1956; Meinander 1969; Lang 1996a, 286 f.). The neck-rings from Tandemägi were the

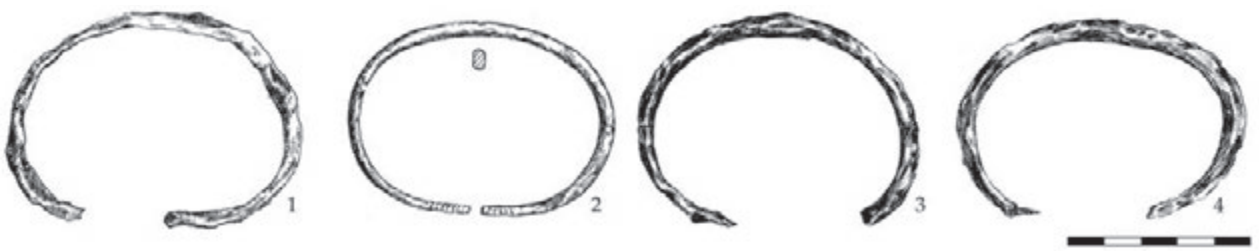

Fig. 91. *Bronze (2) and iron (1, 3–4) bracelets from the cairn grave of Klaukse at Uuri (AI 3805: 63, 66, 5, 65).*

temple ornaments, the remains of a woman over 50 years in age and the remains of a 12–13-year-old and a small child, while grave 13 revealed the remains of two children (aged 7–9 and 3–5) and an infant. The graves at Muuksi and Lehmja-Loo contained the skeletons of adults. Therefore, it can be assumed that the temple ornaments were worn by women and girls.

grave on Saaremaa Island is similar to the Egliškiai ornaments (see Fig. 113: 8).

grave goods of adult males.

The bracelets found in stone-cist (and early cairn) graves are made from bronze or iron (Fig. 91). The bronze bracelets found in grave A at Jäbara and grave 15 at Jõelähtme have a round cross-section and slightly faceted ends. The ends of the rings from Jäbara are decorated with transverse grooves while at Jõelähtme they were left undecorated. A precise equivalent to the Jäbara bracelet was found in the Klaukse cairn grave at Uuri (Fig. 91: 2) while the specimen from

Fig. 92. *Bronze buttons from stone-cist graves at Jõelähtme (AI 5306: 26, 93, 31).*

Fig. 93. *Amber buttons from stone graves at Kurevere (1) and Loona (2–3) (AI 4780: 127; 4210: 1399, 1421).*

Jõelähtme, which was a grave good of a 4–5-year-old child, is unique in Estonia. To date, iron bracelets have been found in only a single stone-cist grave (Jäbara A), which revealed an undecorated bracelet with a round cross-section and a widening arch in the middle. Iron bracelets are much more numerous in Estonian early *tarand*-graves (see below).

So far, small bronze double-buttons (2) and spindle-shaped bronze buttons (3) have been found only at Jõelähtme, and the items had been imported from southern Scandinavia (Fig. 92). Their typological characteristics indicate that the buttons represent the form used during period IV rather than V (see Baudou 1960, 88 ff.). Some bronze double-buttons dating to period III have been found in Finland (Salo 1984, 144), but those kinds of items do not occur among the Latvian and Lithuanian material. The bronze double buttons and spindle-shaped bronze buttons probably only occurred in children's burials.[88]

In addition to the imported bronze buttons, some amber buttons have also been found in Estonia. For example, the Loona grave on Saaremaa Island revealed an amber double-button (Fig. 93: 3) which had been modelled on the Scandinavian bronze buttons with punch-like protrusions common in period IV (see Baudou 1960, 87, pl. XVIII, map 47). A number of similar buttons modelled on the Scandinavian examples have been found at Estonian, Latvian, and Lithuanian fortified settlements. Child burials at Loona, Kurevere, and in grave 28 at Jõelähtme contained amber buttons that had the shape of a four-pointed star with a borehole in the middle (Fig. 93: 1–2). Loona also revealed a nine-pointed amber star which is similar to a star found in the Striķi grave in Latvia (LA, 1974, pl. 16: 7). Amber items are rather rare in stone-cist graves, and in addition to the items already mentioned, an amber fragment was found in the Loona grave. Bone models for the four-pointed buttons can be found in period IV of the Danish Bronze Age (Baudou 1960, 91, pl. 18, map 51), but they were used in Estonia by the early Pre-Roman Iron Age (e.g. Kurevere).

Fig. 94. *Disc-shaped decorative mounts from the stone graves at Iru VI (1), Liiva-Putla (2), and Kurevere (3) (AI 4806: 2; 4339:208; 4780: 44).*

[88] Graves 11, 13, and 36 of Jõelähtme contained only bones of children (under 10 years), while graves 9 and 12 contained the remains of older people in addition to children's burials.

The bronze disc-shaped decorative mount found in the cist of grave IV at Iru should also be mentioned here; it has good equivalents in the early *tarand*-graves at Kurevere and Liiva-Putla (Fig. 94). It can be assumed that such decorative mounts originated in the northern parts of central Europe where they have been found in the early La Tène contexts (Hässler 1977, 106, pl. 68: 6f).

Tools and everyday items

There are seven bronze razors found in stone-cist graves. The decorated razors with straight-backs and spiral-headed handles found in Kangru grave IV at Väo (Fig. 77) and in grave 7 at Jõelähtme (Fig. 95: 1) represent southern Scandinavian import items from period (IV?)–V of the Bronze Age (cf. Baudou 1960, 34 f.). A small undecorated razor with an atypical shape was found in the Sepa stone grave near Kaarma on Saaremaa Island, and another similar item was found in the cist of grave 18 at Jõelähtme. In addition, fragments of razors with concave backs were uncovered at Kaseküla and in some of the graves at Jõelähtme; these were also of Scandinavian origin. East of the Baltic Sea, three more bronze razor fragments have been discovered in the Reznes grave in Latvia, and some were also found in Finland (LA, 1974, pl. 20: 13–15; Meinander 1954b, pl. 12; Pohjakallio 1978, fig. 12: 2); it seems that razors did not spread into Lithuania. The Jõelähtme razors were found in cists containing male burials, while grave 33 contained only the remains of an 8–9-year-old child and an infant.

Fig. 95. *Razor and tweezers from stone-cist grave No. 7 at Jõelähtme (AI 5306: 21, 20).*

Iron knives are rare in the original stone-cist grave burials. One small knife with a convex back was found on the bottom of the central cist of Jaani stone-cist grave A at Väo, and a clearance or a battle knife was also recovered from grave A at Jäbara. Knives with convex backs became common in Estonia only in the Late Pre-Roman Iron Age (see above, 3.4.2), but numerous equivalents to the items can be found in Scandinavia, central Europe, and in the eastern European forest belt starting around the turn of the Bronze and Iron Ages (see Lang 1996a, 136 and the literature cited). A knife from the same period was recently discovered in an early Hiiemägi *tarand*-grave at Kunda.

The tweezers found at Moe and in grave 7 at Jõelähtme are also import items from Scandinavia, and they date either to period IV or V. The Lülle ship grave and the Tehumardi hoard both contained a pair of Bronze Age tweezers, and few such items have been found in other countries on the eastern shore of the Baltic Sea. The tweezers from Jõelähtme were found together with a razor with a spiral-headed handle in the burial of a 30–35-year-old man.

A number of stone-cist graves, cairn graves, and *tarand*-graves have revealed bronze and iron awls. Most of the awls were small, only 3–5 cm in length, but a 9 cm long bronze awl was found at Loona. Outside of graves, many early bronze and iron awls have been found at Estonian fortified settlements (Fig. 72). In addition to awls, an iron needle was found in the cist of grave XIII at Iru (Fig. 70: 1), and a secondary burial in grave IV at Lagedi revealed another similar item.

A unique find in the Estonian stone-cist graves is a bone bridle-bit; a fragment of one such bar

was found at stone-cist grave of Proosa (Deemant 1980, pl. IV: 1). This kind of bridle-bits has mostly been found at Late Bronze Age fortified settlements (see above, 2.2.1).

Weapons

The only definitively identified weapon from Estonian stone-cist graves is a sword of the early La Tène type, which was found together with a massive iron bracelet during ploughing on the edge of grave A at Jäbara (Fig. 96: 2; Schmiedehelm 1955, 24). It is possible that the weapon does not originate from the cist burial, and it likely comes from a later burial, of which there were many at this grave. A big clearance or a battle knife (Fig. 96: 1) found in a cist burial of the same grave can also be interpreted as a weapon. It also cannot be ruled out that the only intact bronze sword in Estonia was originally from a stone-cist grave; it was found when some stone-cist graves were destroyed in the area surrounding Vajangu (see Lang & Jonuks 2001).

Stone items

The cists of some stone-cist graves have revealed flint artefacts and flakes of quartz with traces of processing. Flint scrapers were uncovered from the Napa III grave (Schmiedehelm 1955, fig. 2: 7), Sepa grave at Kaarma and grave 21 at Jõelähtme (Kraut 1985, pl. VI: 9). In addition, several pieces of flint and quartz were found in the Muuksi graves (e.g. Vassar 1938b, 359), and one item of quartz was uncovered in the cist of grave IIA at Tõugu (Lang 2000a, 99).

Fig. 96. *Iron knife and sword from stone-cist grave A at Jäbara (AI 2570: 6, 33).*

Ceramics

Ceramics usually occur in stone-cist graves, including in cists, as small sherds. As a result, it is usually impossible to distinguish whether the sherds were grave goods or the remains of rites performed on the grave. It should be noted that most ceramic finds can probably be associated with later burials, and in particular with cremations; graves with numerous later burials are rich in ceramics (e.g. Loona and Muuksi) while there are not many ceramic items or they are absent completely in graves with few later burials (e.g. Jõelähtme). Most of the ceramics are found outside the cists, which also supports the claim that the ceramics were linked to the later burials. Clay vessels are rather rare in cists and besides some exceptions they represent a single type of pottery − the Lüganuse-style of ceramics (see 3.3.2).

As for exceptional ceramic types, two Late Bronze Age clay vessels were found in the inner circle of the Kurevere stone-cist or cairn grave. One vessel was a small bowl with a sharply curved shoulder and represents an example of the Asva-style fine-grained pottery; a similar vessel was also found in the Jaani stone-cist grave at Väo, but it was located outside the cist (Lang 1996a, fig. 50: 3). The other vessel found at Kurevere was a large pot with a concave neck and pit decoration (Asva-style coarse-grained pottery). Cists of two Lagedi graves also contained sherds

of Asva-type coarse-grained pottery which were decorated with twisted cord impressions.

A unique clay vessel in the Estonian context was found in the cist of grave III at Rebala; its sharply profiled neck area was decorated with three rows of vertical stripes (Lõugas 1983, pl. V: 2). No precise equivalents to this vessel have been found.

To sum up, grave goods from stone-cist graves indicate the presence of two cultural components. The first one can be called the local tradition, which is represented by bone pins of various types, plain spiral temple ornaments, flint and quartz finds, and Lüganuse-style ceramics. These grave goods were characteristic of the burials of both males and females, and both adults and children; they have good equivalents in northern Latvia and on the lower reaches of the Daugava River. The second component can be called the layer of western tradition because it contains imported items from Scandinavia, including what is present-day Denmark, southern and central Sweden, and also central Europe in a few cases. The finds typical of the second layer consist of bronze razors, tweezers, buttons and spindle-shaped buttons, and Bräcksta-type neck-rings. It is surprising that the items belonging to this group occurred only in the burials of males and children, in the case of the osteologically distinguished burials. The items from male burials seem to have been status symbols (neck-rings, razors, and tweezers). The items accompanying children were usually small bronze buttons and spindle-shaped buttons, but bronze bracelets and decorative pins have also been found. The imported items in children's burials and small stone-cist graves built for children in several places in Estonia indicate that some children had a higher social status, or they at least received special attention during burial, because import items are rather rare in the graves of adults, and a large proportion of children were not buried in stone graves at all.

Both cultural components should be treated as a whole in a single cultural context that was characteristic of the society that established stone-cist graves mainly in northern and western Estonia. The items of both traditions co-occur in the same grave at Jõelähtme and in some other locations. The items from the western tradition were the models for the items of the local tradition, including decorative pins or buttons (not to mention weapons and tools which were found in locations outside the graves). The form of the stone-cist graves themselves also represents what was originally a foreign tradition.

4.1.5. The age and origin of the stone-cist graves

The overview of grave goods has shown that graves dated through association with the cist finds belong to the period covering the entire Late Bronze Age and the Early Pre-Roman Iron Age (1100–200 BC). Iron shepherd's crook pins are the latest finds according to the current data;

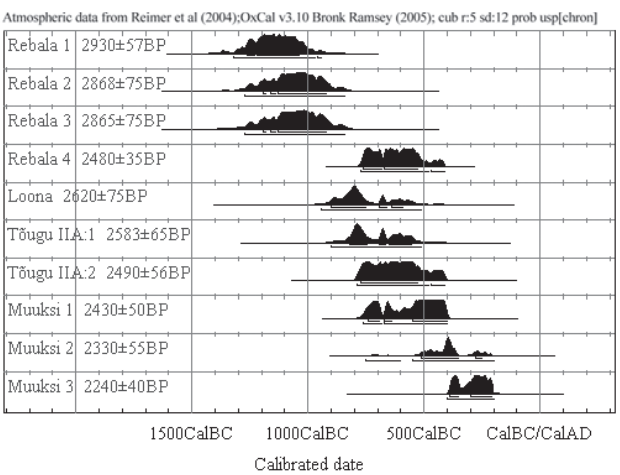

Fig. 97. *Radiocarbon dates from stone-cist graves. Dates of Rebala 4, Loona, and Muuksi 1–2 are for human bones, the rest being for charcoal beneath the graves.*

they have been clearly identified in their original position only in the case of the secondary cist at Pihla II grave in Kõpu. Shepherd's crook pins became common finds in (*tarand*)-graves dating to the Late Pre-Roman Iron Age, indicating that stone-cist graves were no longer being constructed at that time, with the exception of a few peripheral areas.

However, there are still some problems establishing the likely origin date for stone-cist graves. Charcoal samples, probably from the burning of vegetation, were obtained from under graves I–III at Rebala and between the lower stones of these graves, and they indicated a slightly older age, i.e. 12th–10th centuries BC (Fig. 97: Rebala 1–3). One of the burials found in the Rebala cist grave I was AMS-dated to 8th–6th centuries BC (Fig. 97: Rebala 4). Unfortunately, it is impossible to verify whether the analysed human bone had been placed in the grave immediately after the grave was built, or if it originates from some other later secondary burial.[89] The Lüganuse-style ceramics found in the cists of graves I and III at Rebala do not rule out an earlier date; the AMS-date of the burnt layer taken from a clay vessel from Altküla, which belongs to the same style coincides with the charcoal samples taken under the graves. The spade-headed bone pins may be older than has been assumed up to now (cf. Lang 1992) because, on the one hand, the items were dated only on the basis of the associated finds, including the above-mentioned ceramic finds[90] and, on the other hand, the original forms of the ornaments date to the Middle Bronze Age. Previously, the Rebala graves as a whole were dated to the Pre-Roman Iron Age (Lõugas 1983) or only to its earlier period (Lang 1996a, 295). The dates of the pieces of charcoal obtained under the graves suggest that the Rebala graves may be the oldest known stone-cist graves in Estonia.

Interestingly, the oldest dated graves in Estonia contain grave goods of the local tradition and no imported items. It has long been thought that the Estonian stone-cist graves had been modelled on the respective Scandinavian grave form that spread from central Sweden to Finnish coastal areas, and from there reaching northern and western Estonia (Meinander 1954b, 118 ff.; Moora 1956, 73 ff.; Jaanits *et al.* 1982, 161). The imported items from periods IV–V that were found in the graves seem to support the claim. However, it should be pointed out that the Scandinavian models were built several hundred years earlier than the respective Estonian stone-cist graves, and cremation was the dominant burial custom in Scandinavia and Finland at the beginning of the Late Bronze Age when such graves presumably reached Estonia. Gotland seems to be an exception because inhumations there were placed in the cists of the stone-cist graves even at the turn of the Early and Late Bronze Age (Burenhult 1991, 79, fig. 58). It could well be that the building of stone-cist graves started in Estonia much earlier, and that some of the burials without grave goods actually date to the Early (i.e. Middle) Bronze Age. This would explain the similar constructions of the graves and the fact that the grave form was adopted in Estonia together with the custom of inhumation. The Rebala graves seem to fill the gap, and the changes may have originated in Gotland.

On the other hand, one cannot dismiss the possibility that the grave form reached Estonia by way of a different path because the tradition of stone-cist graves had been introduced on the eastern coast of the Baltic Sea before the Late Bronze Age. The Reznes- and Kalnieši-type barrows on the lower reaches of the Daugava River were long considered to be the oldest above-ground stone-cist graves in the eastern

[89] Grave I at Rebala was also used and rebuilt during a later period (see Lõugas 1983; Lang *et al.* 2001).

[90] The radiocarbon date of the cist burial from grave I at Rebala may also be relevant for the spade-headed bone pin found in the cist.

Baltic region (see Graudonis 1967, 31 ff.). These graves, made from soil and stones, are 20–25 m in diameter and approximately 2–3 m in height. The cists built for inhumations and cremations are located in several different layers (the oldest cist is located in the middle of the barrow in the lower layer); so far, no circular walls have been found. The graves may contain a number of burials; for example, the lower part of barrow 2 at Reznes contained 87 inhumations, the central strata yielded 203 nests of cremated bones, and there were many cremations and inhumations in the upper layers as well. The grave goods (flint items, bronze razors, bronze and amber buttons, tweezers, and awls) suggest that the earliest Reznes graves were established in Montelius period III of the Bronze Age, and that they were used through the end of the Bronze Age. The burial custom changed twice during the Bronze Age: the original inhumation custom was replaced by cremations at the beginning of the Late Bronze Age, and at the end of the Bronze Age there was a revival in the custom of inhumations. It is assumed that the Reznes- and Kalnieši-type barrows originated either in eastern Prussia (Moora 1956, 65; Graudonis 1967, 138) or in southern Scandinavia (Lõugas 1985, 53).

The tradition of building barrows with stone constructions in the coastal areas of present-day western Lithuania also originated in period III of the Bronze Age (e.g. Šlažiai, Pietariai). These graves are enclosed by concentric circular walls and contain both inhumations and cremations. The barrows are similar to the barrows found in the Samland-Natangen region in eastern Prussia, which are characterized by concentric stone walls, graves lined with stones, and collective burials (see Engel 1935, pls. 54–72).

The tradition of stone-cist graves in the Baltic region seems to be even older, however. An overview of the Pukuļi graves in western Latvia that were excavated 25 years ago was published recently (Vasks 2000). Pukuļi contained 14 graves, but some of them had been destroyed when gravel was obtained from the site. The graves were similar in construction – the stone constructions were covered with a barrow made from soil that was up to 70 cm in height. The graves were about 10–13 m in diameter and 0.6–1.2 m in height. Thirteen excavated graves contained cremations, and bones usually occurred in nests. The cremations were placed in holes that had been dug into the earthen barrows and thus, they were later than the graves. Stone-cists of various sizes and shapes designed for inhumations (uncremated bones have not survived) were discovered above ground. Areas within the stone heap that are devoid of stones sometimes marked the locations of burials. Most central burials had a north–south orientation, though one burial had an east–west orientation. The whole grave group revealed only a single find – a spiral bracelet characteristic of the Early Bronze Age was found in barrow No. 14. The stratigraphy of the burials is important in respect to dating – inhumations were located in the lower layers while cremations occurred in the upper layers (only in a single case a cremation was found in the lower original layer). The custom of cremations became more widespread only during period III, and thus the graves (with a single exception) are dated to the preceding period. Two radiocarbon dates were also obtained from the grave group. One of them was too old to be correct (4000±50 BP), but the second complemented other chronological observations (3370±40 BP; calibrated value ca. 1700–1100 BC), (see Vasks 2000). No similar graves dating to such an early period have been found in other parts of Latvia.

Two important points should be highlighted. First, the general layout of the Pukuļi graves is strikingly similar to the later stone-cist graves in northern Latvia and northern and western Estonia. Second, the choice of grave goods in the temporally closer Reznes and Kalnieši barrows is similar to that of many Estonian stone-cist

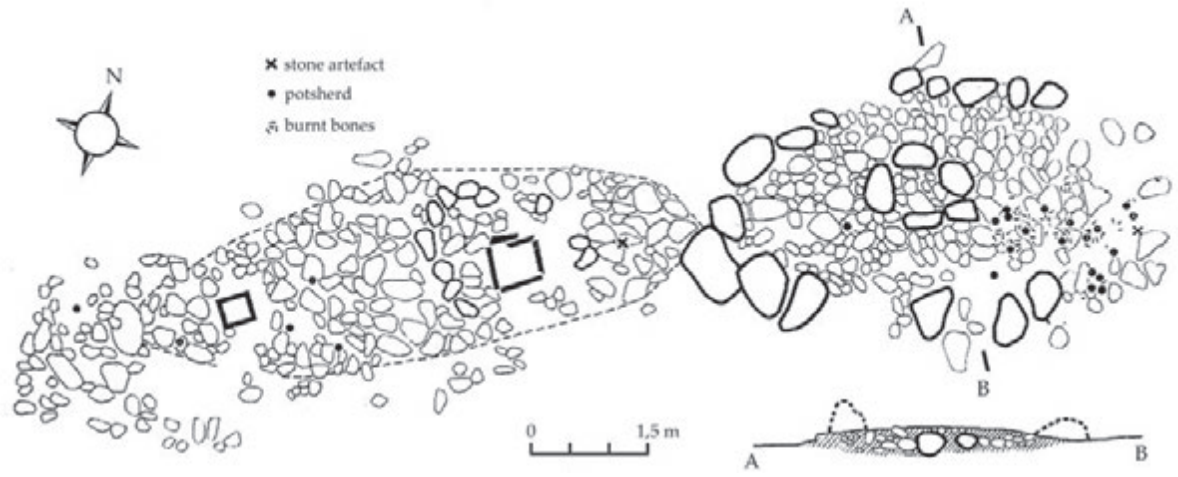

Fig. 98. *Ship graves at Lülle in Sõrve (after Lõugas 1970b).*

graves. Therefore, it may be that the grave tradition reached Estonia not only from the north and the west, but also from the south through parts of present-day Latvia during the time when the custom of inhumations was predominant, i.e. before or at the beginning of period III, at the latest. The find assemblages from fortified settlements, among other things, shows that northern and western Estonia had close contacts with people on the lower reaches of the Daugava River throughout the (Late) Bronze Age, which could explain the similar character of the grave goods found in both places. The building of stone-cist graves and burial customs in Estonia and northern Latvia started to develop differently in the Late Bronze Age, and therefore, unlike all of the neighbouring areas, cremations were not adopted here.

4.2. Ship graves

Ship graves have been found in Estonia at Lülle on the Sõrve peninsula (Saaremaa Island) and at Väo near Tallinn. Two graves with south-west–north-east orientations that followed each other (the stern of the first to the bow of the following) were excavated at Lülle by Lõugas in 1967 (Fig. 98; Lõugas 1970b). All of the edge stones (lining the grave) of the south-westernmost ship (7.5 m in length) had been removed except one, but its inner stone filling was intact. The ship contained two cists made from vertical limestone slabs. One cist was located in the fore and the other in the aft; both had been designed for cremations (side length 30–50 cm). The cist in the fore of the ship contained 1460 g of cremated bone, but it did not contain any grave goods. The cremation in the second cist was accompanied by a bronze arrowhead, tweezers, a bronze fragment, and a carinate-shaped bowl with a handle (Lõugas 1970b, fig. 5). The edge stones and a stem stone from the other grave had mostly survived, but one edge of the ship had been destroyed, and the cist built of granite stones (45 x 60 cm) had been emptied. Striated potsherds and pieces of burnt stone (which had probably originally been placed in the cist) were found near the cist, and a grinding stone and a blank for a stone axe were found farther away. The researcher dated the establishment of the graves to the turn of periods IV and V of the Bronze Age, that is, ca. 900 BC.

The Jaani ship grave at Väo was buried under the ruins of an Early Pre-Roman Iron Age stone-

Fig. 99. *Ship grave and two stone-cist graves (A and B) at Väo (after Lang 1996a, fig. 49). 1 granite stone, 2 limestone slab, 3 stone cists, 4 altitude, 5 pottery, 6 metal artefact, 7 uncremated bones, 8 cremated bones.*

cist grave (Fig. 99; Lang 1983; 1996a, 134 ff.). The pointed-oval structure, 10.6 m in length, had a south-west–north-east orientation as did the Lülle graves. The edges were made from large granite stones, and the grave had a limestone filling. The 60 x 50 cm cist was also made of granite stones, but had been emptied and destroyed before archaeological investigations. The few finds obtained from the ship included pieces of partially cremated human bones and pieces of uncremated animal bones, a small number of fragile potsherds, and a piece of bronze-tin.

It is believed that the Bronze Age ship graves originated in Gotland where they were built mainly during the Late Bronze Age and, to some extent, also at the beginning of the Pre-Roman Iron Age (e.g. Capelle 1986). Some ship graves dating to the Late Bronze Age or the beginning of the Iron Age have been found to the east of the Baltic Sea, including Åland, south-western Finland, Estonia, and Courland in Latvia. More than a dozen ship graves have been found in Åland, but some of them date to the Late Iron Age (Grönros 1980). Only a small number of ship grave sites have been found in south-western Finland, but they have not been accurately dated due to a lack of finds (*ibid.*). Nine ship graves have been found in five places in northern Courland, and some of them had been excavated in earlier times. The excavated graves contained cremations in urns, stone-cists, or in the ground, but no datable items other than some ceramic

finds were obtained (there is data about a knife or sword that was lost, however). E. Šturms (1931) dated the ship graves of Courland to 950–750 BC, and J. Graudonis, who analysed the graves later, seems to agree with him (1967, 73).

It should be noted that ship graves were exceptional everywhere to the east of the Baltic Sea, and they did not take root in local burial customs. In addition to the grave form, the respective grave goods associated with such burials also remained foreign to the locals. This can be observed in the case of the ceramics found in the ship graves of Courland, which are unique in Latvia (see Graudonis 1967, pl. XLII). The carinate bowl with a handle from the Lülle grave is not completely foreign in the Estonian cultural context because similar vessels also occur at the fortified settlements on Saaremaa Island, but the bronze items are unfamiliar. The pot with striated surfaces found in one of the Lülle graves is definitely a local product. The new grave form and grave goods indicate that the first ship graves in Estonia and Latvia were established by people who arrived there from across the Baltic Sea. The local clay vessel in the Lülle grave can be explained by the influences of the region where the colonists resettled.

4.3. Cairn graves

Cairn graves have been found in several places in northern and western Estonia, but they can only be definitively identified through excavations because their appearance on the landscape is identical to that of stone-cist graves. It is also rather difficult to distinguish cairn graves among the previously excavated sites. In the case of 19th- and early 20th-century excavations one can never be sure whether the excavated sites were badly-preserved stone-cist graves, where the collapsed walls or bottoms of the cists were neglected due to the inexperience of the excavators, or if they were in fact cairn graves. Thus, some of the previously discussed examples of cairn graves at Lagedi, Kurna, and Muuksi (Vassar 1966a) may represent an incorrect interpretation of the grave type based on the scarce data available. On the other hand, there is also more convincing evidence for the existence of the cairn graves, which will be presented below. Here, cairn graves will be divided into two groups based on their construction – graves without any definite and clear circular wall and graves with circular walls.

4.3.1. Cairn graves without circular walls

Grave II at Palmse in Lääne-Viru County belongs to the first group (Fig. 100; Lang 2000c). This grave was 4.5–5 m in diameter and 40–50 cm higher than the surrounding ground level. It was impossible to distinguish any constructions in the upper layers, and only the lower layer revealed the character of the site. The stone heap was mainly made from granite stones and limestone was rather rare. However, there was a clear pattern in the position of both types of stones. The limestone slabs were concentrated in the middle of the grave around a circular or oval area 130–160 cm in diameter while the granite stones had been piled around the limestone core, forming a circle or a circular bank. Thus, it was a stone grave with a circular construction in the middle. Unlike the Estonian stone-cist graves, the stone circle was not an orderly structure. Yet, it was undoubtedly present as the symbolic structure, and it separated the limestone core from the granite stone bank.

Grave II at Palmse contained mostly inhumations; only 6 g of bone out of 240 g had been cremated. Pieces of bone were scattered over the grave, and there were no dense bone nests. The grave contained the burial of a 5–7-year-old child,

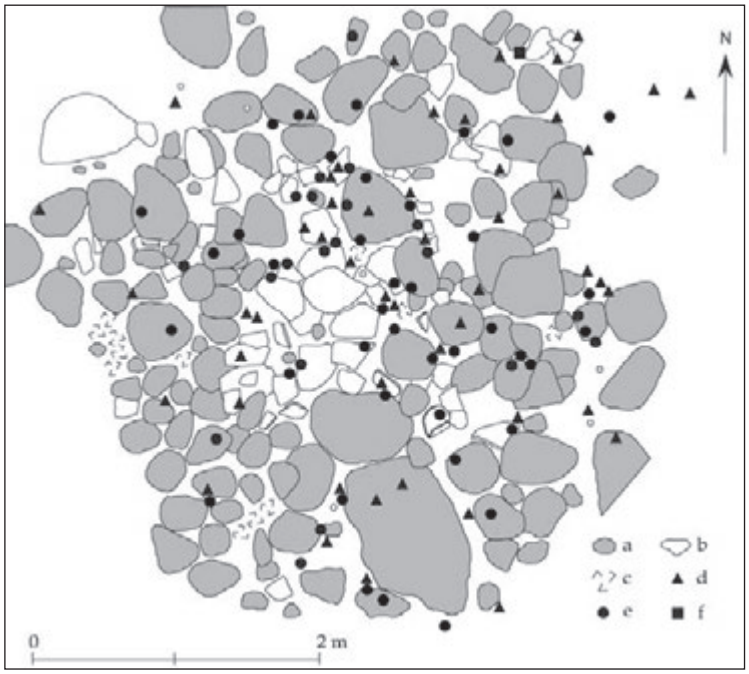

Fig. 100. *Cairn grave at Palmse (after Lang 2000a, fig. 71). a granite stone, b limestone slab, c shingle, d pottery, e bones, f iron slags.*

and pieces of skull were found in almost all areas of the grave. Most bones obtained from the grave were animal bones (cattle, goat or sheep, and perhaps also horse and pig). Other than a piece of iron slag, grave II at Palmse contained only ceramics; 114 potsherds in total were found, and they were mostly striated and smoothed, but a single sherd was probably textile-impressed. The fragments are from at least four different vessels, but only one of them could be distinguished – it was an Ilmandu-style vessel from the Early Pre-Roman Iron Age.[91]

The stone grave with the most similar construction to that of grave II at Palmse is located at Nehatu near Iru, and was excavated by Artur Vassar in 1936. The burial site at Nehatu was 10–10.5 m in diameter, that is, twice as big as grave II at Palmse; its middle part was constructed from limestone slabs surrounded by granite stones that encircled the limestone core. The grave contained mostly cremations and some inhumations, but the material has not been osteologically studied. The site revealed a number of animal bones (cattle, horse, goat/sheep). Grave goods included a bone pin, some ceramic finds, a bronze ringlet, and some whetstones. Vassar (1936) interpreted the Nehatu grave as a Middle Iron Age stone grave without constructions. Lõugas (1970a, 51 f.), however, claimed that it was a badly-preserved stone-cist grave established at the end of the Pre-Roman Iron Age. The bone pin and ceramic finds suggest that the grave dates to the Early Pre-Roman Iron Age at the latest.

A similar grave was found at Randvere on Saaremaa Island in 1940. The grave ruin consisted mainly of limestone and was 5.25–7 m in diameter. Most burials were inhumations (cremated bones occurred rarely). The excavation report also mentions the presence of animal bones and teeth (Schmiedehelm 1940). The find material (cord-decorated pottery, a shepherd's crook pin, a sickle-knife, some cobbles, and a whetstone) allows the grave to be dated to the late period of the Pre-Roman Iron Age.

4.3.2. Cairn graves with circular walls

A grave located on the lands of the Mikuri farm at Adila serves as an example of the cairns from the second group; Tallgren (1922, 86 ff.) excavated this grave in 1921 (Fig. 101). The grave was

[91] The find assemblage from the cairn graves is similar to that of the early *tarand*-graves, and will therefore be considered in more detail below.

surrounded by two concentric circular walls 19 and 10 m in diameter, respectively. Cremated and uncremated bones, together with the other finds, were mostly located in the area enclosed by the inner circular wall. An iron shepherd's crook pin and cord-decorated pottery indicate that the grave was established in the Late Pre-Roman Iron Age, but a number of finds (spiral finger-rings, a bracelet, and some beads) belong to a later period, the Late Roman Iron Age.

Vassar excavated another cairn grave with circular stone walls on the lands of the Klaukse farm in the village of Uuri in 1939. The grave contained three concentric stone walls, but it lacked a cist. At least 11 inhumations were uncovered, but no cremated bones were found. The grave goods (iron bracelets, simple roll- and spiral-headed decorative pins, a bronze bracelet, and ceramics, including Ilmandu-style ceramics) date the burial site to the earlier or middle part of the Pre-Roman Iron Age. There are also some other examples of this grave type. Lõugas excavated the Ussimätta stone-grave in the village of Mäla on Muhu Island in 1983–1985 (Lõugas 1986). In addition to four *tarands*, the site also revealed a round grave enclosed by two circular walls, but no traces of a cist were found. The middle part of the grave had been destroyed, but it contained a 1.55-m boulder, which probably had served as the tomb stone of the middle burial. All of the burials were cremations. No grave goods were obtained from the grave with stone circles, and the *tarands* were likely established in the Late Pre-Roman Iron Age.

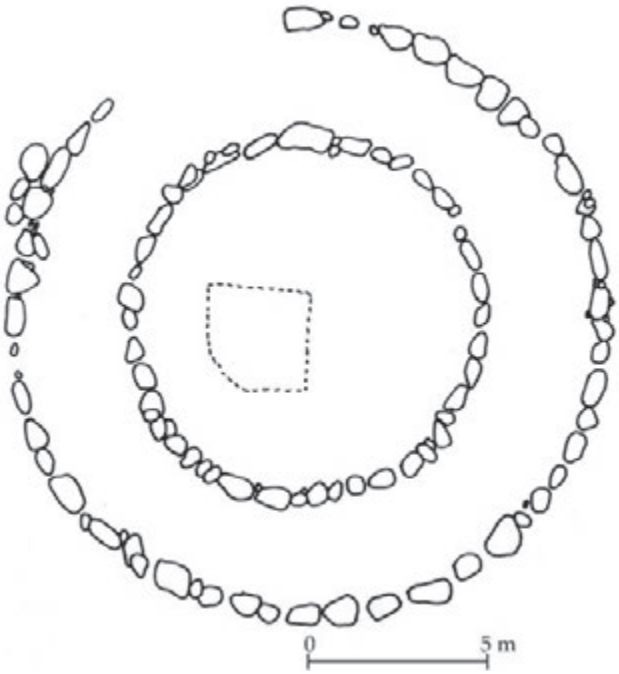

Fig. 101. *Cairn grave at Adila (after Tallgren 1922, fig. 18).*

4.3.3. The age, distribution, and origin of cairn graves

All of the presently known cairn graves are located in northern and western Estonia and on the islands, but they may occur also in other places where the graves have not yet been excavated. The grave goods indicate that the earliest cairn graves date to the Early Pre-Roman Iron Age, but they were also built in the Roman Iron Age, the Middle Iron Age, and even in the last centuries of prehistoric times (Lang 2000c). Both types of cairn graves originated more or less at the same time, but the custom of building circular walls probably disappeared after the Pre-Roman Iron Age. As a result, the grave form itself is not enough to precisely date the cairn graves in every single case; one also needs some find material.

Palmse- and Adila-type graves have parallels outside Estonia, particularly in south-western Finland and eastern Sweden. *Raunio*-graves were erected in Finland in the Late Bronze Age and in the Pre-Roman and Roman Iron Ages; some have no interior constructions while others have a circular wall located around the edge or in the grave. The graves contained both cremations and inhumations, and there were few grave

goods, which is characteristic of the era (Salo 1984, 203; 1987; Lähdesmäki 1987). Stone graves without inner constructions also occurred in the coastal areas of eastern Sweden, Öland, Gotland, several places in inland Sweden, and in Norway during the Late Bronze Age and Early Iron Age; the graves were either round, triangular, quadrangular, or oval, and there was sometimes a stone wall around the edge of the grave. Many cairns were repeatedly re-built, and only some of them contained burials. One might assume that the cairn graves were not ordinary burial sites but rather places where rituals were repeatedly performed; sometimes a limited amount of bones were placed in the graves during the rituals (Bolin 1998). This practice applies to Estonian stone graves as well.

Despite good analogues in Finland and Sweden, the cairn graves may have developed locally in parallel with the stone-cist graves. The grave goods also indicate a local origin because they do not include any imported items, and the metal artefacts and ceramic finds have equivalents in other Estonian graves. Previous explanations of the evolution of the cairn graves, claiming that the graves were a degenerated form of the stone-

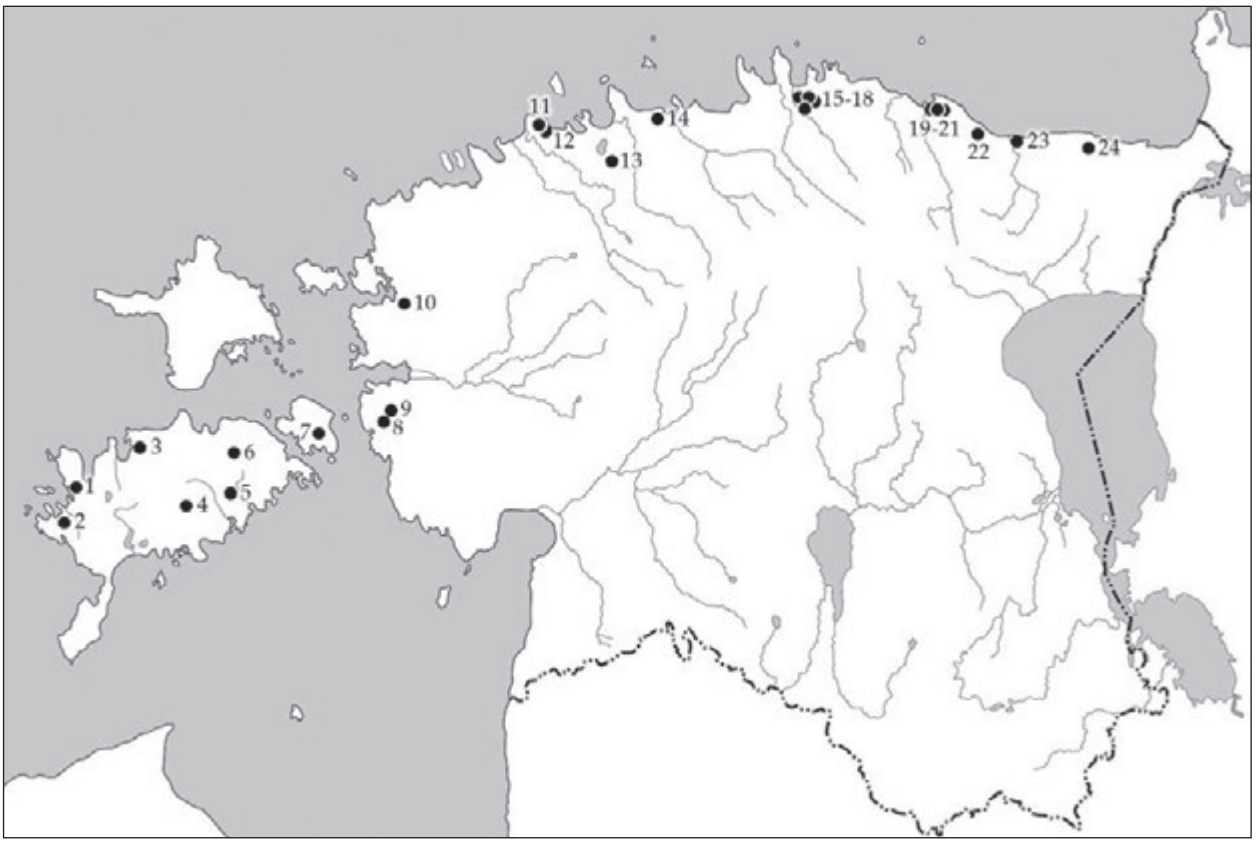

Fig. 102. *Archaeologically investigated early* tarand*-graves. 1 Kurevere, 2 Lümanda (Punapea), 3 Võhma in Mustjala, 4 Liiva-Putla, 5 Tõnija, 6 Kuninguste, 7 Mäla, 8 Kõmsi I–II, 9 Poanse I–II, 10 Taebla, 11 Ilmandu III, 12 Rannamõisa III, 13 Kurna II, 14 Presti in Rebala, 15 Uusküla II, 16 Võhma X, 17 Tandemägi at Võhma, 18 Tõugu II, 19 Hiiemägi at Kunda, 20 Kuura, 21 Iila, 22 Aseri, 23 Jäbara C, 24 Toila.*

cist graves (first the cist was abandoned, and then the circular walls disappeared; see Vassar 1956; 1966a; Laul 1985), are probably not valid because the grave types were constructed and used during the same period, or at least in the Early Pre-Roman Iron Age (for a more detailed treatment see Lang 2000c).

4.4. Early *tarand*-graves

Early *tarand*-graves form a peculiar and diverse group among the Estonian stone graves. *Tarands* are quadrangular stone enclosures for burials built on the ground, with the straight flat sides of the walls facing outwards. The number of *tarands* in the grave can vary from one to a few dozen, and if there is more than a single *tarand* they are joined together. Each of the four flat sides of the *tarand* walls face outwards only in the case of the first-built *tarand* while the *tarands* established later have only two or three flat sides because the outer walls of the already existing *tarands* formed the walls of the new *tarands*. The consideration of this circumstance allows one to establish the sequence in the building of multi-*tarand* graves. Similarly to the previously-discussed stone-cist graves, ship graves, and cairn graves, early *tarand*-graves occur mostly in the coastal areas of northern and western Estonia and on the islands. Twenty-six early *tarand*-graves have been partially or fully excavated in Estonia (Fig. 102). Similar graves also occur in south-western Finland, the eastern part of central Sweden, and in northern Latvia and Courland (see below). Four sub-groups of early *tarand*-graves can be distinguished on the basis of their construction and general layout. The classification that follows is useful only for the analysis of the construction details of the graves, and it should be kept in mind that in other respects the whole group shares common chronological developments in terms of burial customs and grave goods. Early *tarand*-graves form a separate group of (*tarand*-) graves which is rather heterogeneous in regard to their construction but homogenous in all the other aspects.

4.4.1. Kurevere-type graves

The Kurevere-type early *tarand*-graves are characterized by small, irregular, and carelessly built *tarands* located adjacent to round (stone-cist or cairn) graves; cists or cist-like constructions can

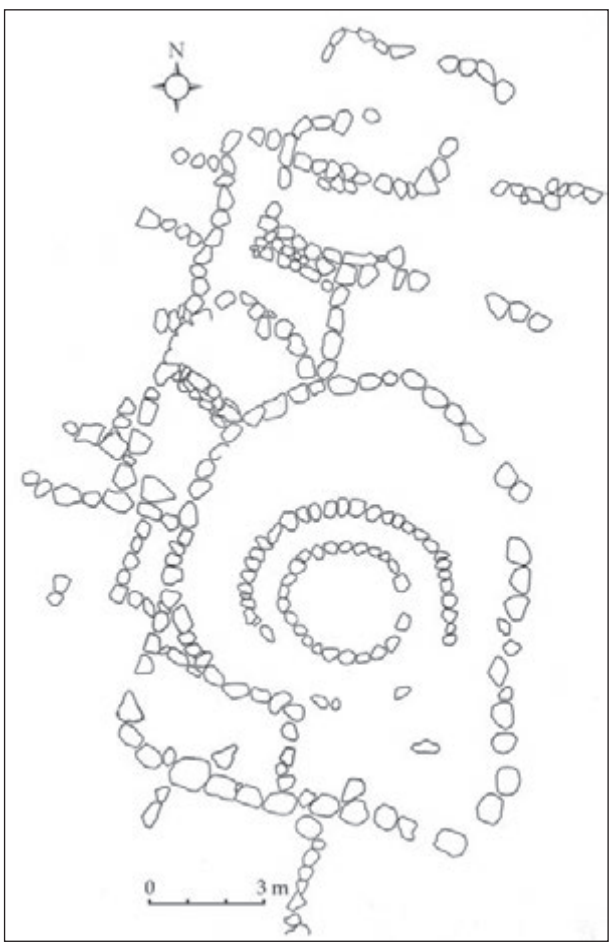

Fig. 103. *Early* tarand*-grave at Kurevere (after Vaab 2003).*

occur within or between the *tarands*. The *tarands* are joined so that they form different patterns; several rows of adjoined enclosures resemble a honeycomb.

The Kurevere grave on Saaremaa Island serves as a good example (Fig. 103; Lõugas 1976b; 1977; Vaab 2003). The central and earliest part of the burial site was a large stone-cist or cairn grave enclosed by three concentric circular walls. It is not clear whether the grave contained a cist because the excavation data is contradictory; none of the pictures taken during the excavations show a cist. This Late Bronze Age round grave was later enclosed from the south, west, and north by at least 20 small and irregularly joined *tarands*. The grave contained primarily inhumations, but there were also many cremated bones, mostly in the upper layer of the round grave and south of it. It was impossible to observe the position of intact skeletons in the Kurevere grave, and the number of burials cannot be distinguished because the remains have not been analysed. The Kurevere find material is rich in various artefacts dating from the beginning to the end of the Pre-Roman Iron Age, including imported items.

Burial sites with identical construction, where quadrangular *tarands* are connected with the round grave, also occur in other places, for example, the Mäla grave on Muhu Island (Lõugas 1986), and the graves of Punapea at Lümanda and Võhma at Mustjala, both on Saaremaa Island (Jaanits *et al.* 1982, fig. 139; Lõugas 1988; 1989). Grave C at Jäbara in Ida-Viru County, which dates to the end of the Pre-Roman Iron Age, probably also belongs to this group (Fig. 117). Its western portion, which was largely destroyed, consisted of a stone-cist grave and some wall ruins (Schmiedehelm 1955, 61 ff.). It is difficult to more precisely describe the grave because most of its constructions had not been survived.

Grave II at Tõugu in Lääne-Viru County presents a completely different example of the manner in which early *tarand*-graves were connected to stone-cist graves (Fig. 104; Lang 2000a, 93 ff.). Stone-cist grave IIA was the initial construction at the burial site; charcoal samples taken from under the lower stones of the grave indicate that it was established in the 8th–6th centuries BC

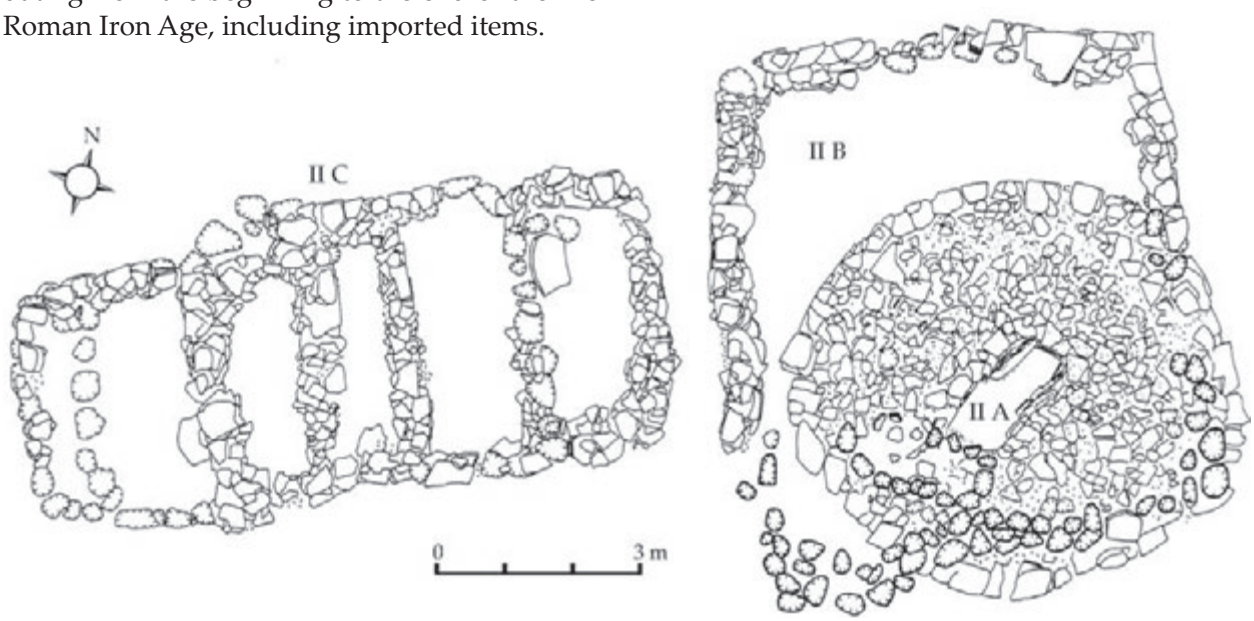

Fig. 104. *Early* tarand*-graves IIB and IIC, and stone-cist grave IIA at Tõugu (after Lang 2000a, fig. 30).*

(Fig. 97). Unlike Kurevere and some other graves, it was a classical stone-cist grave with a central cist. Grave IIC consisted of five *tarands* and was built later at a nearby location (it belongs to the group of Poanse-type graves), and a large single-*tarand*-grave (IIB) was erected on top of the stone-cist grave (and not beside it, as is found on the islands) in the Late Pre-Roman Iron Age. Grave II at Tõugu will be discussed along with the other groups of early *tarand*-graves, as well.

4.4.2. Kõmsi-type graves

The Kõmsi-type graves are characterized by the co-occurrence of cists and *tarands* of various sizes that are arranged irregularly in several rows. The group is rather diverse, and each grave is slightly different.

The remains of what is presumably the earliest grave of this type were excavated at Ilmandu near Tallinn in 1994 (Fig. 105; Lang 1995c). Part

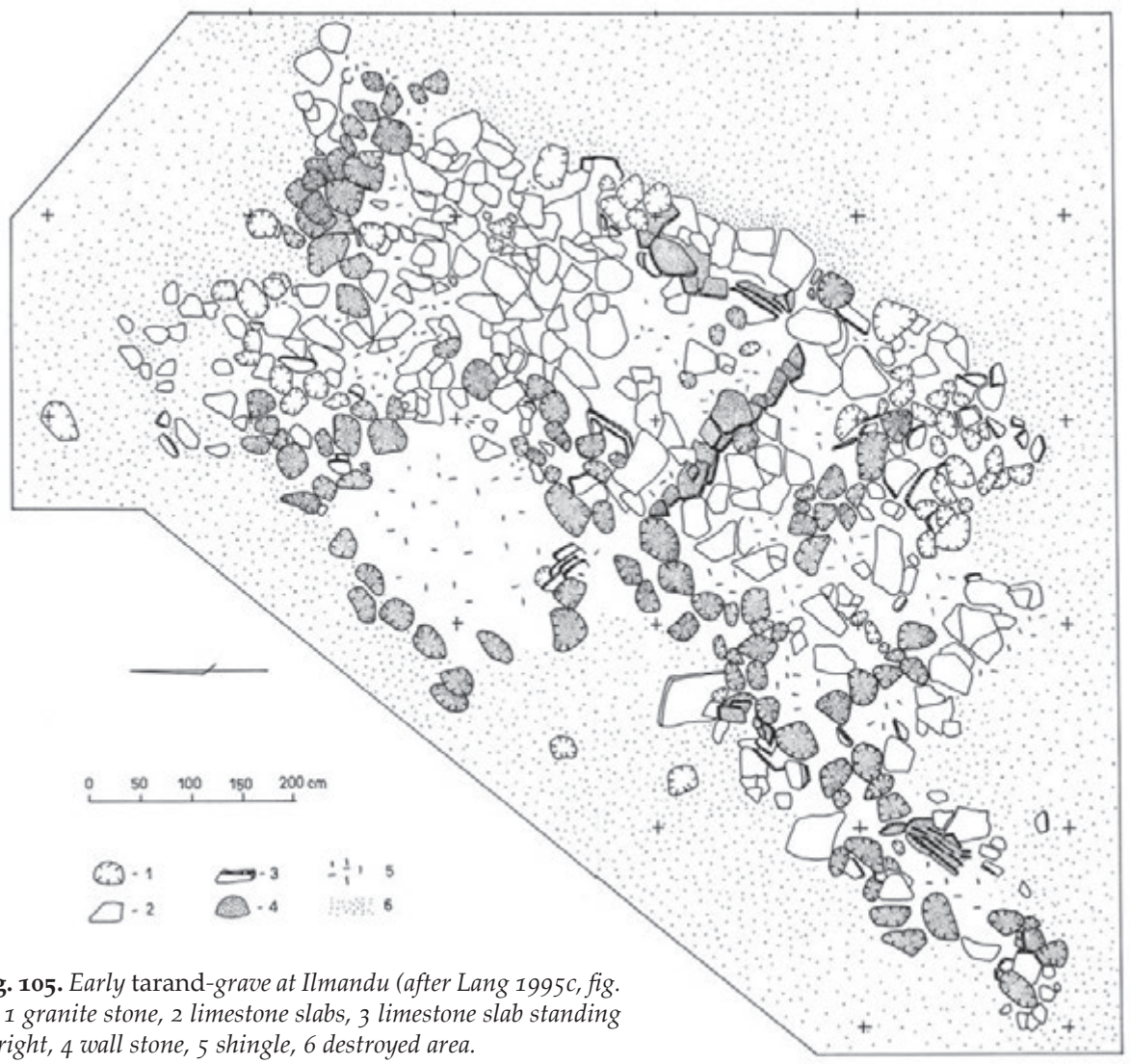

Fig. 105. *Early* tarand*-grave at Ilmandu (after Lang 1995c, fig. 2). 1 granite stone, 2 limestone slabs, 3 limestone slab standing upright, 4 wall stone, 5 shingle, 6 destroyed area.*

of grave III at Ilmandu, which was located 12 m away from the large stone-cist grave (II), had been destroyed, and only six original *tarands* and two cists had survived. All the grave structures were oriented north-east–south-west, and they were arranged irregularly in several rows. The measurements of the *tarands* (some of them could also be called cists) ranged from ca. 1.1 x 2.8 m to 5 x 2.3 m. The cists appeared to have been carelessly built, and they resembled burial places lined with stones. Most graves contained inhumations and usually lacked grave goods. However, six burials contained broken clay vessels (Ilmandu-style ceramics), and the burial located in the corner of the largest *tarand* revealed a fragment of a temple ornament with spoon-shaped ends in addition to ceramics. The excavated portion of the Ilmandu grave contained the remains of at least 17–18 burials,[92] some of which were rather well preserved in their original positions. In addition to human bones, animal bones also occurred, including cattle, goat/sheep, horse, pig, hare, and some bird and fish bones.

A 5–10-cm layer of dark soil was found under the stones of the Ilmandu grave, and it contained pieces of charcoal and slightly calcined bone scattered across the surface of the layer. This layer may represent an earlier burial site pre-dating the *tarand*-grave. The radiocarbon analysis of the charcoal pieces dated that layer to 2815±85 BP (12th–9th centuries BC; Ua-10432). This date is the lower limit for the establishment of the early *tarand*-grave here, but it is possible that it was built some centuries later. The location was adapted for burials at an even later time. Part of the wall made from large granite stones, which was probably the wall of the later *tarand*-grave, had survived in the north-eastern edge of the studied area. Cremated and uncremated bones and Late Roman Iron Age grave goods were found nearby (Lang 1995c, 429, pl. XII).

Another representative of the Kõmsi-type grave – grave III at Rannamõisa – was located only 700 m from grave III at Ilmandu (see Spreckelsen 1926a; Lang 1987b). It consisted of 21 cists and 3 *tarands*. The grave contained inhumations, mostly without grave goods. However, the grave did contain some items dating to the middle or the second half of the Pre-Roman Iron Age (iron and bronze bracelets, tweezers, and some Cord-Impressed Ware), suggesting that it post-dates the Ilmandu grave.

Grave II at Kõmsi in western Estonia is the most representative grave of this type (Fig. 106; Lõugas 1972a; Aasala 2002). The burial mound was 35 m in length and 15–16 m in width and contained at least 19 *tarands* of various sizes; the number of *tarands* may have been even greater (one edge of the grave had been destroyed). Two *tarands* in the middle of the grave were much larger than the other enclosures (*tarands* A and B, 9–9.3 m in length and 4.5–5.5 m in width), and 7–8 smaller *tarands* were located in 2–3 rows on both sides of these large *tarands* (some were as large as regular cists). *Tarand* A had been built first since it was the only enclosure with all straight walls facing outwards while *tarand* B was erected following A. The walls of the *tarands* were made from large pieces of granite and limestone, their inner filling consisted of small stones, and the bottoms of some *tarands* had limestone pavement. The enclosures contained both inhumations and cremations, though cremation was a later burial custom. The cremated bones were located in small and large nests, but had also been scattered across the grave; the bones of the inhumations were mixed, and the original position of individual burials could only be determined in some instances. The remains have not yet been osteologically analysed.

The grave goods from grave II at Kõmsi are particularly rich and include neck-rings, bracelets,

[92] The human bones have not been osteologically studied, and thus the actual number of burials might be greater than the number recorded during the excavations.

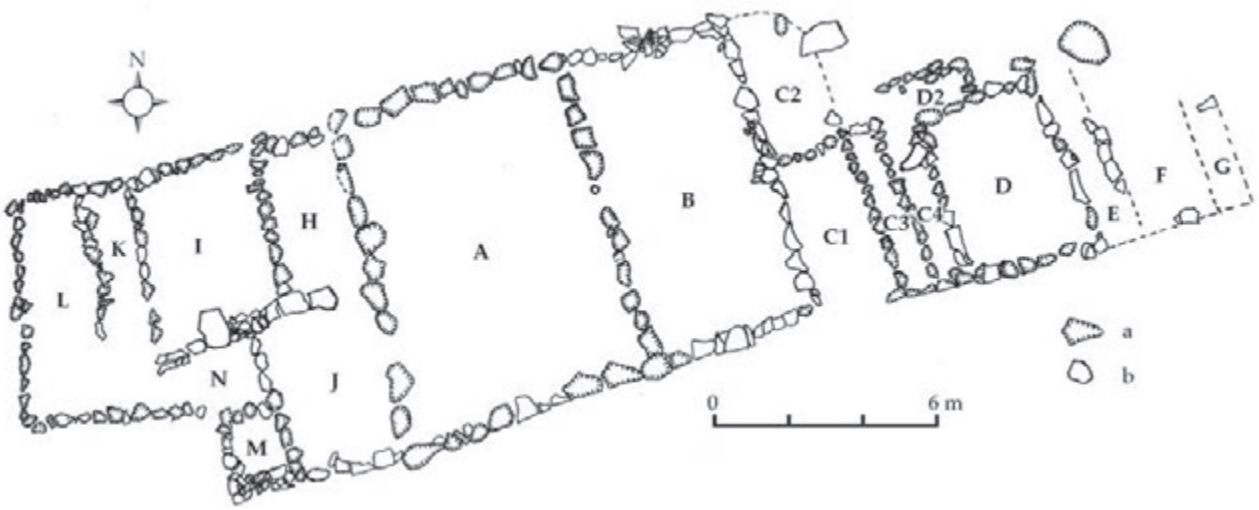

Fig. 106. *Early* tarand*-grave II at Kõmsi (after Aasala 2002). a granite stone, b limestone slab.*

various temple ornaments, decorative pins (especially shepherd's crook pins), finger-rings, decorative mounts, pendants, fragments of large (battle) knives and single-edged swords, socketed and shaft-hole axes with narrow blades, knives, tweezers, and spirals. A number of items originate form the area between the Volga and the Oka Rivers in the eastern European forest belt. These items suggest that grave II at Kõmsi was established at the beginning of the Pre-Roman Iron Age and that it was used until the turn of the era. The earlier Kõmsi *tarands* contained a wide range of grave goods, including many imported items, while the find material from the later *tarands* was less diverse (mainly shepherd's crook pins, bronze bracelets, and finger-rings; imported items were rare).

Grave IV on Tandemägi at Võhma (Lääne-Viru) had three *tarands* and rich grave goods, and can be classified as a Kõmsi-type early *tarand*-grave (see Lang 2000a, 130 ff., fig. 49),[93] as can the badly-destroyed grave X at Võhma, which was located nearby (Ots *et al.* 2003). Grave X at Võhma contained inhumations without grave goods or with only ceramics, similar to grave III at Ilmandu. The Iila grave in Ida-Viru County (Schmiedehelm 1955, fig. 38) and the lower layer of the Tuulingumägi grave at Tõnija on Saaremaa Island (Mägi 1998; 1999) probably also belong to the same group. The excavation of a similar grave on Hiiemägi at Kunda started in 2004, and the presently excavated *tarands* contained, with some exceptions, inhumations without grave goods. The ^{14}C method dated one of the skeletons to 2430±35 BP (Poz-10801; calibrated value 730–410 BC). Three small iron pins with disc-shaped heads found in a burial verify this date (see below, 4.4.6).[94]

4.4.3. Poanse-type graves

Poanse-type graves are characterized by similarly shaped and sized *tarands* all arranged in a

[93] Grave IV at Tandemägi contained 50 inhumations and five cremations despite the small number of *tarands* (Kalman 2000d).

[94] I am grateful to Marge Konsa and Tõnno Jonuks, the leaders of the excavations at Kunda, for this information.

single straight row; single cist-like constructions are also occasionally present. The site at Poanse revealed two graves of this type, which will be described in more detail as both of them have been archaeologically and osteologically well studied (see Mandel 1978; 2000; Kalman 2000a).

Grave I consisted of a row of six east–west oriented *tarands* constructed mainly of granite stones and surfaced with limestone slabs; the seventh *tarand*, which is questionable in some respects, had been built crosswise against the end walls of the *tarands* located in the southern part of the grave (Fig. 107). The first-built *tarand* (No. 1), which was twice as big as the rest of the *tarands* (4.8 x 4 m), was located in the middle of the grave. A double burial found in the middle of the grave contained a young man and a woman who had been buried in opposite directions (with the head of the female burial lying eastwards) and one on top of the other. The northern part of the *tarand* revealed the burial of a 15–18-year-old male. The grave goods associated with the female from the double burial included two massive iron bracelets, a fragment of an iron knife, and a cattle tooth, whereas the male burial contained a single iron bracelet. The burial of the 15–18-year-old male contained a temple ornament with a spiral middle section and spoon-shaped ends. In addition, the bones of a person over 50 years in age were found in the central *tarand* 1. *Tarand* No. 2 (4.5 x 1.5 m) contained the burial of a 16–22-year-old female facing east (and a temple ornament as the only grave good), and the mixed bones of a man of the same age. In addition to the mentioned burials, the remains of eight people were found in the area overlapping *tarands* 1 and 2, including four infants, three children, and a 7-month-old fetus. *Tarand* 3 contained the skeleton of a 50-year-old woman facing the east, and many potsherds nearby. In addition, the remains of four children of various ages were unearthed. *Tarand* 4 revealed the burials of two 40–50-year-old men facing west. One of them was accompanied by an iron shepherd's crook pin and the grave goods associated with the other included a narrow bronze bracelet and a knife fragment. Besides the two male burials, the *tarand* contained the mixed bones of three adults and two children. Many mixed bones were found in the fifth *tarand* (*tarands* 5 and 6 were slightly shorter in length than the other *tarands*, measuring 3.9 and 3.2 m, respectively). It was possible to identify the remains of a 30-year-old female buried with head pointing to the east, the remains of a burial with a western orientation, and the remains of an

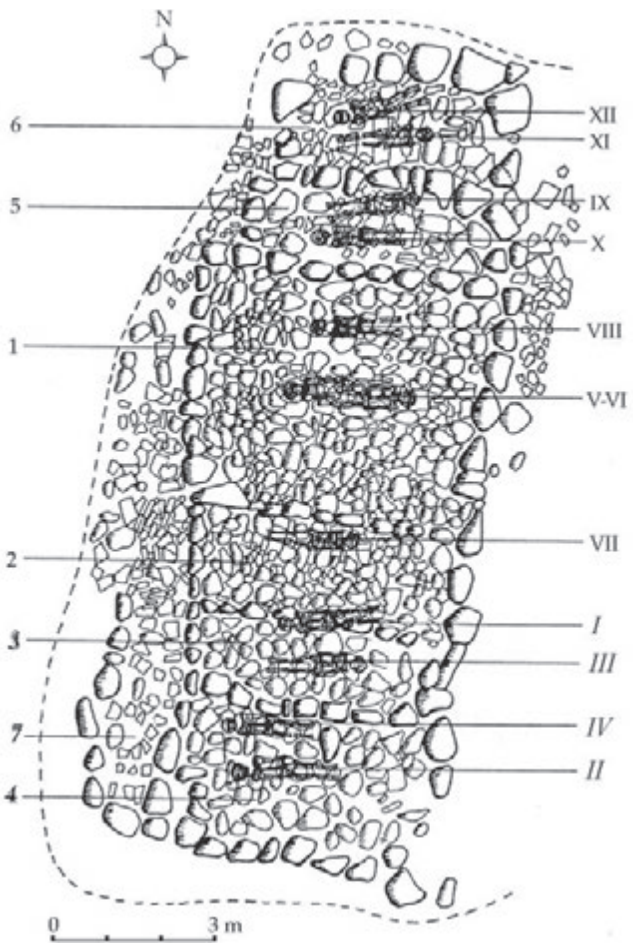

Fig. 107. *Early* tarand*-grave I at Poanse (after Mandel 2000, fig. 2). Only the more intact skeletons are indicated.*

infant and four persons of various ages. *Tarand* 6 contained two 40–50-year-old persons; a woman facing east, and a man facing west. The woman was accompanied by an iron sickle. *Tarand* 7, which resembled a cist (3.5 x 1 m), contained the burial of a juvenile without grave goods. Besides the burials that were located on the limestone pavements of the *tarands*, the remains of at least seven burials were discovered between the upper stones. Some of the bones found in the upper layer belonged to the burials of the lower layers. A total of 46 burials were identified in grave I.

Grave II at Poanse was constructed in a similar manner as grave I (Mandel 2000, fig. 4). It consisted of two *tarands* of more or less the same size (4.3 x 2–2.8 m). The almost intact burial of a 50-year-old man accompanied by a knife was unearthed in the northern part of the first *tarand*. Many uncremated bones, together with a fragment of a bracelet and a spearhead, were found in the southern part of this enclosure. Altogether, 12 persons of various ages were identified in *tarand* 1. Twelve individuals were also distinguished among the large amount of bones from *tarand* 2, representing all age groups and both sexes. In addition to the *tarands*, the remains of 11 people (including all age groups) were found outside the walls of the grave, concentrated in the area to the south of the grave.

The human burials of both *tarand*-graves contained some animal bones, as well. The most frequent species was mountain hare, but sheep/goat, cattle, pig, horse, dog, and bird bones (including chicken) were also found.

The grave goods date the use of grave I at Poanse to the middle of the Pre-Roman Iron Age through the turn of the era. Grave II at Poanse was established at the end of the Pre-Roman Iron Age and was used for a shorter period than grave I.

Grave IIC at Tõugu, consisting of five *tarands*, has also been thoroughly studied (Fig. 104; Lang 2000a, 93 ff.; Kalman 2000b; Maldre 2000a). This grave was located only one meter away from single-*tarand*-grave IIB, which was built on top of stone-cist grave IIA. The grave was made mostly from limestone and had a north-north-west–south-south-east orientation. The *tarands* were more or less of the same size and contained inhumations without grave goods (16 persons representing all age groups and both sexes). Only one *tarand* revealed grave goods, which consisted of a bronze bracelet with bent-back ends and a piece of a bronze ring. Approximately 60 g of calcined skull fragments were obtained from the surface layer of the *tarands* located in the western part of the grave. While 180 g of slightly calcined bones were found under the easternmost *tarands*, no fragments of skull were found there. An interesting find with a ritual meaning was the human sacrifice found under the north-north-eastern cornerstone of the middle *tarand*: part of the skull of an adult had been interred there together with some animal bones (cattle lumbar vertebra, sheep or goat rib, and a sheep tooth). Another human sacrifice was discovered under the cornerstone of grave IIB, located nearby (see below, 4.4.4).

Poanse-type early *tarand*-graves have been found in other locations, too. The Toila grave in Ida-Viru County revealed traces of earlier cremations under *tarands* containing Late Pre-Roman Iron Age inhumations (Schmiedehelm 1955, 49 ff., pl. III). The five-*tarand*-grave at Liiva-Putla on Saaremaa Island (Kungla 1967) was used for burials in the Pre-Roman Iron Age and at the end of the Roman Iron Age. A Poanse-type grave was also studied at Lazdiņi in Courland (see Šnore 1970). At Lazdiņi, rows of stones ran through the east–west oriented stone grave which was 42 m in length and 10–20 m in width, but which lacked end walls. The rectangular portions of the grave were more or less of the same size, ranging from 2.5–4 m in length and 1.5–2 m in width. The eastern part of the grave contained inhumations while the western part revealed mostly cremated

bones. The rather rich find material allows the establishment of the Lazdiņi grave to be dated to the Late Pre-Roman Iron Age, though it was also used during the Roman Iron Age.

4.4.4. Early single-*tarand*-graves

Besides *tarand*-graves consisting of numerous *tarands*, there are also graves that have only one large enclosure, called early single-*tarand*-graves. The first *tarand*-grave of this type that was archaeologically investigated is Kõmsi I, located 50 m north-west of Kõmsi II (Lõugas 1972a; Aasala 2002). The *tarand* measured ca. 8 x 6.5 m, and its limestone walls rested on a foundation of granite stones. The inner filling consisted of both limestone and granite, and the bottom of the grave had a pavement of granite stones. The grave contained mostly inhumations, but several cremations were also found; some pieces of bone were highly cremated, and others were less so. No intact burials were found, and it is impossible to accurately describe the number and character of the burials because the bone material has not yet been analysed. However, it can be observed that most burials were concentrated in the middle of the *tarand* where the bottom had been surfaced with much smaller stones than in places that did not contain any burials. The find material was rather modest and consisted mainly of shepherd's crook pins, bronze bracelets, fingerrings, iron knives, and ceramics; some imported items were also found (a sword fragment and a decorative mount). The grave goods date grave I at Kõmsi to the Late Pre-Roman Iron Age.

Grave IIB at Tõugu was also a single-*tarand*-grave (Fig. 104), which was of approximately the same size as Kõmsi I (7–8.1 x 6.4–6.9 m; sides had a north-north-west–south-south-east orientation). The walls of the *tarand* were of a limestone slab dry wall construction resting on a foundation of granite stones, but the inner filling consisted mostly of limestone. A cist made from granite stones was found in the southern sector of the grave (1.8 x 0.55 m), and it contained the burial of a 2-year-old child who had probably died of a severe ear disease (Kalman 2000b). The *tarand* contained only inhumations, but the bones were mixed, and it was impossible to fix any burial in its original position. The skull of an infant was an exception; it was found under the north-north-eastern cornerstone of the *tarand*, and it can be interpreted as a ritual human sacrifice performed during the establishment of the grave. Besides the child and infant burials, seven persons were identified among the rest of the bones found in the grave, including a 5–10-year-old child, two juveniles, two adults, and two elderly persons. The *tarands* and their ruins revealed many animal bones, including sheep/goat, cattle, pig, horse, and dog. In addition, hare, seal, and bird bones were found, including the bones of at least 4–5 chickens (Maldre 2000a). There were few grave goods: some potsherds, a fragment of a spiral bracelet, some fragments of iron knives, and some traces of a bronze temple ornament that was found on the skull of an elderly person. A charcoal sample obtained from under the lower stones yielded a date of 2004±99 BP (Tln-1885), making the calibrated date of grave IIB at Tõugu 170 BC – AD 80.

Another large single-*tarand*-grave is the Kuninguste grave on Saaremaa Island, which measured 7 x 6.4 m (Lõugas 1974). In addition to large graves, there are also smaller ones, such as the Kuura grave in Ida-Viru County with a ca. 4 m side length, which had a built-in cist (Schmiedehelm 1955, 29, fig. 7). The grave contained both inhumations and cremations. The grave goods (a shepherd's crook pin and some knives) date the site to the Late Pre-Roman Iron Age. The Taebla grave in western Estonia had been established beside a large granite stone. Two or three skeletons were found in the *tarand*, and one was found outside the walls; the grave

also contained a bronze bracelet and some Cord-Impressed Ware (Mandel 1982). There are several small single-*tarand*-graves (typically measuring 2–3 x 4–5 m) in the Finnish coastal areas that are dated, on the basis of the find material only, to the Early Roman Iron Age (Rajakalmisto, Savenmäki, and Koskenhaka; see Salo 1968; 1970). It seems that early single-*tarand*-graves do not occur in Latvia.

In the case of single-*tarand*-graves it is sometimes unclear whether they had been designed as single enclosures, or if there had been a plan to add other enclosures later, which for some reason did not materialize. For example, large and square *tarands* were the earliest at the Kõmsi II, Poanse I, and Toila graves, which were complemented by the later addition of several small enclosures.[95] Grave II at Uusküla in Lääne-Viru County is an interesting example (Fig. 108; Lang 2000a, 147 ff.). The first structure at the burial site was a more or less square *tarand* A, which is presently the largest one known in Estonia, measuring 9.4 x 8.4 m. A narrow *tarand* B, only 2.3–2.7 m in width, was added to *tarand* A some time later. The grave contained mainly cremations (at least 23 burials), but some inhumations (4) were also found (Kalman 2000c); the burials with highly cremated bones may have been added to the grave as late as the Viking Age. The grave goods (shepherd's crook pins, knives, a bracelet, and some ceramic finds) date the grave to the Late Pre-Roman Iron Age.

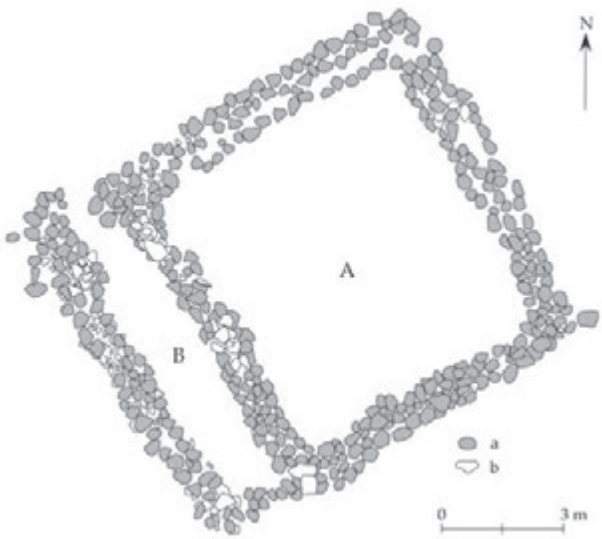

Fig. 108. *Early* tarand*-grave II at Uusküla (after Lang 2000a, fig. 60). a granite stone, b limestone slab.*

[95] However, the largest *tarand* in grave IV on Tandemägi at Võhma was erected later than other two *tarands* (see Lang 2000a, 131).

4.4.5. Burials in early *tarand*-graves

As noted, early *tarand*-graves were used for both inhumations and cremations, and both burial customs often co-occur. However, based on the find material one can observe that inhumation was the original and most common burial custom in all the graves that were established at the beginning of the Pre-Roman Iron Age. Cremation was a later tradition, which mostly occurs in *tarands* constructed later, or in the upper mixed layers. The grave goods indicate that cremation became more common during the Late Pre-Roman Iron Age, but that inhumation did not disappear completely at that time. Inhumation prevailed in some regions, including at the Tõugu, Võhma, Kuura, and Toila graves in Virumaa, and also in some parts of western Estonia (e.g. Taebla) even through the end of the Pre-Roman Iron Age.

Inhumations

The inhumations that were preserved in their original positions had been buried longitudinally in the extended position. If the longitudinal axes of the *tarands* have a north–south orientation

(or slightly angled in both directions), then the heads of the burials are pointing northwards. For example, all the distinguishable male and female burials from grave IIC at Tõugu (including a man buried on top of a woman in *tarand* 2) faced north-north-west. The Poanse graves present an interesting exception. First, the *tarands* had an east–west orientation, and second, males and females had been buried in opposite directions; the males faced west while the females faced east. Unfortunately, the number of osteologically studied *tarand*-graves in Estonia is too small to say how exceptional burials in the opposite direction were at that time. Burial in the opposite direction was observed in some earlier stone-cist graves,[96] but was clearly not a common tradition because most burials had the same orientation. As the *tarands* of Kurevere- and Kõmsi-type graves often have various orientations, the burials there have various orientations, too (for example, burials facing south and east occur at Kurevere).

If there are numerous burials in a *tarand*, then they are usually located next to each other with small spaces between them. Double burials of a male and female (e.g. Poanse II:1 and Tõugu IIC:2 *tarands*) are exceptional in that respect. A peculiar triple burial was found in grave IV on Tandemägi at Võhma where a man and two women had been placed in a single row so that the head of each person was on the lap of the person lying below him or her (Moora 1974; Kalman 2000d). The burials may be concentrated only in the middle part of large *tarands* (Uusküla II:A and Kõmsi I, II:A–B), leaving the edges almost empty. This indicates that the reasons for establishing new *tarands* can not be explained by the exhaustion of the capacity of the old *tarands*.

Inhumations in their original position are rare in the early *tarand*-graves. Even the uncremated bones are mixed to an extent that does not allow distinguishing individuals without osteological analysis. The mixing of bones may be partly explained by secondary burials and later disturbance of the grave. On the other hand, all the studied graves contained partial burials, that is, burials where only some of the bones of an individual are present in the grave. This custom could be observed in the early stone-cist and cairn graves, and can be explained by ritual peculiarities, including secondary reburials. Mixing or not mixing the bones of earlier burials might have reflected a certain ritual act. For example, the earliest burials with the richest grave goods were preserved in their original position in the *tarand* of grave IV on Tandemägi at Võhma, despite the later secondary burials and mixing of bones elsewhere in the *tarand*. The initial burials were two males with a small child lying between them. It seems that the earliest burials at the Poanse graves have also survived in their original positions, although all the *tarands* contained many (partial) burials with mixed bones.

Children were usually buried together with the adults, but there is evidence that sometimes they were interred in a separate place. For example, most child burials were concentrated in the southern and eastern sectors of *tarand* I in grave IV on Tandemägi at Võhma, and there were also child burials located to the east, outside of the *tarand*. One of the *tarands* in grave IIC at Tõugu was the resting place of only minors. The same applies to the stone-cists graves of Kaseküla and Rebala II where many children were buried outside the cist (Kalman 2000a, b, d; Lang *et al.* 2001). The unusually high number of child burials in certain parts of the grave could be associated with diseases and accidents that occurred in the community, but there may have also been some other reason that remains unknown.

The study of grave II at Tõugu provides some data about the specific rituals performed during the burial. Human sacrifices were found under

[96] For example, Lagedi II, and Iru I and XVIII (Lang 1996a).

the north-north-eastern cornerstone of *tarands* IIC:3 and IIB (see above). *Tarand* IIC:3 contained, among other burials, a 6–8-year-old child with six parallel cuts on its skull. This would indicate that the child had likely been scalped, which is at present a unique case in Estonia. Traces of the different handling of the body and the head have been found in many burials, including burials in stone-cist graves (see above).

Cremations

Bodies could have been cremated in intense heat for a short period of time, or less intense heat for a longer period. Weakly cremated bones prevail in Estonian early *tarand*-graves. Highly calcined bones occur in a few places, for example at Võhma near Mustjala, grave IV at Tandemägi, and grave II at Uusküla; the bones from the latter may originate from the Viking Age as indicated by some radiocarbon dates. Cremated bones are usually found in small or large nests in the graves, but many bones are also found scattered between the stones. In many instances one nest of calcined bones may contain the remains of several individuals, which was the case in grave II at Uusküla (Kalman 2000c). Therefore, the bodies were either cremated together or buried together, or both. Based on analysis of the remains it is clear that only some of the bones from cremations were placed in the grave because the amount of the cremated bones is too small in comparison to the minimum number of identified individuals. Many bones without transverse cracks or warps indicate secondary reburials after the flesh had decayed (e.g. grave IV at Tandemägi, see Kalman 2000d). Thus, at least some of the deceased were cremated and buried in the grave long after the time of their death.

The differential handling of the head and body can be associated with partial burial, which could also be observed in the burials in stone-cist graves. Pieces of skull constituted 59% of the bones in grave IV on Tandemägi at Võhma, as opposed to the more typical 20%, indicating that primarily skulls and not whole bodies were cremated. The same applies to the Tuulingumägi grave at Tõnija where pieces of skull constituted 74% of the cremated bones, as well as at stone-cist grave V at Muuksi (75%), and the western part of grave IIC at Tõugu where the surface layers contained only pieces of cremated skull. On the other hand, no pieces of cremated skull were found under the eastern part of grave IIC at Tõugu or in the cist of grave IIA (Kalman 2000b, d). Thus, it becomes clear that the differential handling of the head and the body was a ritual practised by the societies that buried their dead in stone-cist and *tarand*-graves.

4.4.6. Grave goods

The grave goods of early *tarand*-graves are much richer and more diverse than those of the stone-cist graves. However, burials without any grave goods or with only a few items also dominate in some of the graves under discussion, for example Ilmandu III and Tõugu II. Graves with rich finds sometimes contain burials or even *tarands* where the accompanying finds are poor or absent altogether. The general trend is that the burials dating to the early part of the Pre-Roman Iron Age contain few grave goods, but the items they do contain are rare and non-local. The number of grave finds sharply increases during the Late Pre-Roman Iron Age; they are more common items and represent mass production, but imported goods were still present.

It must be stressed that it is difficult to date the finds due to the nature of the burial custom; some burials were placed in previously established *tarands* centuries later, and thus bones and grave goods of various periods are mixed. There are few circumstances where one can be assured

that a site is a closed find complex that has not experienced any mixing. The comparison of various *tarands* and graves and the respective find assemblages from the neighbouring countries can provide some fixed points of comparison and dating.

Ornaments

As with some stone-cist graves, certain *tarand*-graves have revealed Bräcksta-type *neck-rings*. The rings found in grave IV on Tandemägi at Võhma (Fig. 109: 1–2) were identical to the rings found in grave A at Jäbara, but the neck-rings from grave II at Kõmsi (2 items; Fig. 110) differed in that they had larger end plates and different closure mechanisms. The neck-rings accompanied male burials, at least at Tandemägi, and they provide the chronological link between the Estonian stone-cist graves and the early *tarand*-graves. However, neck-rings are generally rare in *tarand*-graves.[97]

The range of *bracelets* that have been found is slightly more varied. Four bronze bracelets with a round cross-section and grooved ends were found together with neck-rings in the male burial at Tandemägi mentioned above (Fig. 109: 3–5). The bracelets were identical to the bracelets found in grave A at Jäbara and the Klaukse cairn grave at Uuri. Other early *tarand*-graves have not revealed such bracelets. Bronze bracelets with a plane-convex or ribbon-like cross-section are much more numerous, especially on the islands and in western Estonia[98] where the accompanying finds have dated them to the Late Pre-Roman Iron Age. The bracelets are usually found as fragments in the early *tarand*-graves, and they accompany later burials in stone-cist graves. It is often unclear whether the fragments originate from bracelets with open ends or from spiral bracelets. One spiral bracelet was found in grave II at

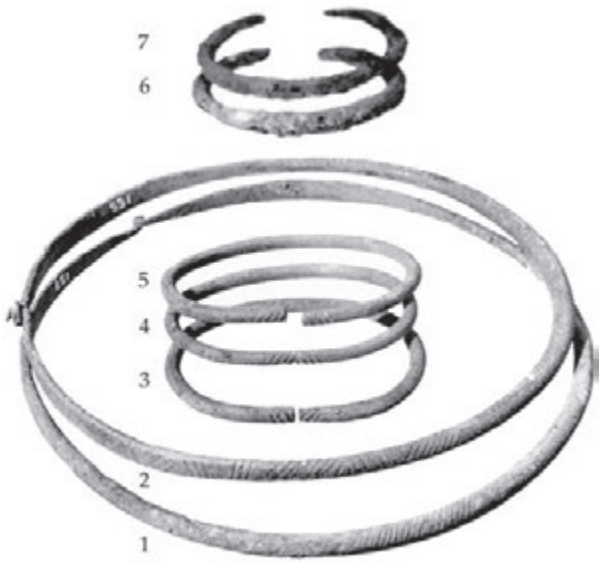

Fig. 109. *Neck-rings of bronze (1–2) and bracelets of bronze (3–5) and iron (6–7) from the Tandemägi* tarand*-grave at Võhma (AI 5074).*

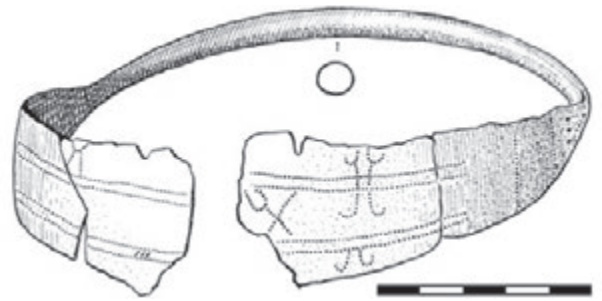

Fig. 110. *Neck-ring from the Kõmsi II* tarand*-grave (AM 449: 229; after Jaanits* et al. *1982, fig. 124).*

[97] What was presumably an iron neck-ring comes from the Nava grave in eastern Estonia. Unfortunately it is badly preserved and cannot be typologically distinguished.

[98] Grave II at Kõmsi revealed what is probably the largest amount of plain bronze bracelets known from one grave – 32 more or less intact items and many fragments were found (Aasala 2002, 23). The number of bracelets ranges from a few to a dozen of items in other places.

Kõmsi and a fragment of another was obtained in grave IIB at Tõugu.

A narrow bracelet with a rectangular cross-section that had sharpened and bent-back ends was uncovered in *tarand* IIC:4 at Tõugu, and it has rather similar equivalents in the material from grave II at Lehmja-Loo. Such bracelets were common in western Europe in the (Early) Pre-Roman Iron Age (Reinbacher 1963, figs. A514:f, A151:c). A bracelet with a similar cross-section but with blunt ends was found in the western part of grave C at Jäbara (Schmiedehelm 1955, fig. 9: 9). Other than an item from grave I at Kõmsi, the Jäbara bracelet is one of the earliest examples of serial bracelets. This style became common only in the Early Roman Iron Age, but there are equivalents dating to the Pre-Roman Iron Age (or even earlier) in Sweden and central Europe (see Bennett 1975, 65 ff.; Müller-Karpe 1959, in the Feldgeding grave).

Iron bracelets with round cross-sections can be divided into two groups. Massive bracelets are older and rarer, and have been found in stone-cist grave A at Jäbara and the Klaukse cairn grave at Uuri. Two massive bracelets accompanied the male burial in grave IV at Tandemägi (Fig. 109: 6–7), and one of them was decorated with transverse cuts on the arch. Three bracelets found at Poanse, where they were included in both male and female burials, were rather similar to the Tandemägi finds (Mandel 2000, 100, figs. 12–14). The second group is more numerous, and it consists of much thinner bracelets that can be found in early *tarand*-graves and later burials in stone-cist graves, where they usually occur together with finds dating to the second half of the Pre-Roman Iron Age (Kõmsi, Kurevere, and Mäla). The massive bracelets of the first group probably originated in what is now Poland or eastern Germany (see above, 3.2.2), but quickly began to be produced locally in Estonia. So far, bracelets of both groups (36 items in total) have been found at 19 places in Estonia, and their distribution area covers mainly the coastal zone of northern and western Estonia and the islands. Some iron bracelets also occur in south-western Finland, the eastern part of central Sweden, and in Ingria, but they are most common in Estonia.

Finger-rings are rather uncommon in early *tarand*-graves, and they occur only in the latest contexts dating to the end of the Pre-Roman Iron Age and the beginning of the Roman Iron Age. Plain finger-rings with open ends are most

Fig. 111. *Decorative pins of iron (4–5) and bronze from the Pre-Roman Iron Age. 1 Kogula, 2, 6 Saaremaa Island, 3* tarand*-grave of Tandemägi at Võhma, 4 stone grave II at Lehmja-Loo, 5 stone grave at Paju-Rehe, 7 southern Tartu County (AI K29:2; K84: 1; 5074: 141; 4444: 232; 4395; K84: 1; 3526; after Jaanits* et al. *1982, fig. 123).*

numerous at Kõmsi (24 items from two graves) while they are less common in other places. The first plain spiral finger-rings emerged at the end of the period when early *tarand*-graves were used (e.g. Kõmsi and Tandemägi IV).

There is a wide range of *decorative pins* from early *tarand*-graves. In addition to neck-rings and bracelets, one of the previously mentioned male burials in grave IV on Tandemägi contained a decorative pin with a loop- or roll-shaped head (Fig. 111: 3); similar pins were found at Rebala (Presti) and in grave II at Lehmja-Loo near Tallinn (Fig. 111: 4). The pins found in the Klaukse grave at Uuri and at the Iru hill fort have a simple shape.[99] Two roll-headed bronze pins with peculiar shapes were found in the western part of grave C at Jäbara, and they can be classified into this same group (Schmiedehelm 1955, fig. 9: 1, 3). The roll-headed decorative pin found at Kogula on Saaremaa Island has a swan-neck stem, which is unusual in Estonia (Fig. 111: 1). Loop- or roll-headed decorative pins were modelled on the forms spreading across central Europe by the Late Bronze Age and Early Pre-Roman Iron Age, and were used in Estonia until the emergence of the shepherd's crook pins. The same applies to some pins with ring-shaped heads turned sideways found in grave C at Jäbara, Tamsa in southern Estonia, and Leedu in central Estonia (*ibid*., 38 ff., fig. 9: 2, 4; see also Šturms 1935, 271 ff.; Moora 1938, 172).

Some graves in western and north-western Estonia have contained spiral-headed decorative pins that can be divided into two groups. The bronze pins found on Saaremaa Island as isolated finds, and at the Võhma grave near Mustjala, have a head that is conical in the middle (Fig. 111: 2). Such pins were common in western Lithuanian stone-circle graves in the Late Pre-Roman Iron Age, and they formed a stylistically uniform set along with conical-spiral temple ornaments (e.g. Grigalavičienė 1979, figs. 25, 28; 1995, fig. 105). It is noteworthy that the same Võhma grave contained a temple ornament with a conically spiral middle part (Fig. 113: 9). On the other hand, the iron pins found at Kurevere, grave II at Kõmsi, and grave II at Kurna have plain spiral heads. A similar item was found in the Penttala grave in Finland together with some other artefacts characteristic of the Estonian Late Pre-Roman Iron Age (a shepherd's crook pin, a socketed axe, and an iron bracelet; see Salo 1968, 98; cf. Meinander 1969, 46). The pins were found in the earliest *tarands* both in Kurevere and Kõmsi, but it is unclear whether they are associated with the original or later burials.[100] Estonian spiral-headed pins represent a later form of the ornament common in northern and central Europe during the Bronze Age.

Iron and bronze shepherd's crook pins are the most typical and numerous finds of all ornaments in Estonian early *tarand*-graves (Fig. 111: 5–6). Dozens of shepherd's crook pins occur in larger burial sites, and their absence in a grave can indicate a different date or some social differentiation.[101] The preserved and analysed burial complexes indicate that both men and

[99] Exact equivalents to the Uuri and Iru pins were found at the Ķivutkalns and Mūkukalns fortified settlements on the lower reaches of the Daugava River (LA, 1974, pl. 20: 2, 4).

[100] The Täby cairn grave in central Sweden contained an iron decorative pin with a plain spiral head along with a Bräcksta-type neck-ring and two massive iron bracelets (Modin 1966). This set of grave goods suggests that the decorative pins originate from the earlier period of the Pre-Roman Iron Age. It may be that the decorative pins with plain spiral heads reached Estonia as a result of contacts with the eastern part of central Sweden (perhaps via south-western Finland).

[101] For example, no shepherd's crook pins were found in the Late Pre-Roman Iron Age grave IIB at Tõugu, whereas 15 pins were present in grave IV on Tandemägi, which is located about one kilometre away. This can probably be explained by social rather than chronological differences because the Tõugu find assemblage was poor, and the osteological analysis showed that the diet and health of the deceased was

women wore the pins, and that they could be worn in pairs or separately. For example, the male burial in grave I of *tarand* 4 at Poanse contained only a single pin, while the triple burials placed partially on top of each other in grave IV on Tandemägi revealed two pins each (Mandel 2000; Moora 1974). It seems that the form of shepherd's crook pins reached Estonia from what is now the Ukraine and Belarus during the middle of the Pre-Roman Iron Age; some other cultural influences also originated from the same place at the same time. The decorative pins spread mostly into the northern and western regions of Estonia during the Late Pre-Roman Iron Age, but they also occur in inland regions (e.g. Nava and Tamsa). Such pins constituted a popular type of jewellery through the Early Roman Iron Age, but were also still in use centuries later. A number of shepherd's crook pins have been found in Latvia and Lithuania, but their chronological context is uncertain and it cannot be said that they are definitely associated with the Pre-Roman Iron Age. Few pins have been found in Finland, and those that have seem to also date to the period following the turn of the era (Salo 1968, 98 f.). Some shepherd's crook pins were also found in the eastern part of central Sweden (Darsgärde).[102]

In addition to the previously discussed decorative pins, some rather exceptional items have been found in the early *tarand*-graves. For example, *tarand* B at grave II in Kõmsi contained a bi-metal decorative pin with a slotted head (bronze head and iron stem) which originated from the upper reaches of the Volga, Oka and Dnieper Rivers. A similar pin was found in Lithuania, one in Uppland County in Sweden, and one in the 5th–3rd-century layer of the Novyje Bateki hill fort in Belarus (Ginters 1976). Another bi-metal decorative pin, with its head forming three spirals (Fig. 113: 5), probably also originates from the upper Volga, Oka, Dnieper region; similar items were already being made there in the first half of the first millennium BC (see Patrushev 1984). This pin was found in the Liiva-Putla *tarand*-grave. The Hiiemägi *tarand*-grave at Kunda revealed three small iron decorative pins with disc-shaped heads, which so far are unique in Estonia; they originate either from central Europe or Scandinavia and date to the beginning of the Pre-Roman Iron Age (Müller 1985, 52, pls. 70: 14, 90: 7, 103: 34; Nybruget & Martens 1997, fig. 2: c).

The Pre-Roman Iron Age *temple ornaments* can be divided into two groups. The most widespread temple ornaments were ornaments with a spiral middle part and spoon-shaped ends (Fig. 112); to date, approximately 35 items have been found at dozens of sites. Their distribution area covers mainly western and north-western Estonia, but they also occur in the inland regions and to some extent in north-eastern Estonia (see Lõugas 1991, 69 ff., fig. 1). Such ornaments have been found at seven locations in Latvia and one

Fig. 112. *Bronze temple ornaments with a spiral middle part and spoon-shaped ends from Mustjala and Tõnija on the Saaremaa Island (AI K55; K84: 10).*

much worse than that of the people who had settled Tandemägi (see below 5.1.3 and Lang 2000a, 208 ff.).

[102] The layer at Darsgärde settlement site containing a shepherd's crook pin was radiocarbon dated to the 3rd–1st centuries BC (Ambrosiani 1964, 11; Reisborg 1989, 101).

in Lithuania, but they are not known to occur in Finland. Shepherd's crook pins and Cord-Impressed Ware dating to the second half of the Pre-Roman Iron Age are the most common finds accompanying temple ornaments with spoon-shaped ends in Estonian graves. However, some finds, such as the items from grave IV on Tandemägi, Kaunispe, grave III at Ilmandu, and grave I at Poanse, indicate that such temple ornaments may have been used in Estonia as early as the first half of the Pre-Roman Iron Age. The Poanse find material suggests that the temple ornaments with spoon-shaped ends were mainly male ornaments (in one case an ornament could also have belonged to a woman). The ornaments were modelled on the Late Bronze Age temple ornaments with a spiral middle part and spiral ends, which occur in the Mari (mainly male burials) and Caucasus regions, and in southern and central Europe; the two geographically closest finds were uncovered in Lithuania. Lõugas (1991) claimed that the ornament type with spiral ends was redesigned into a variant with end-plates in the Estonian and Latvian areas settled by the Finnic tribes because, unlike in southern Europe, the spiral motif did not carry a significant symbolic meaning there.

Fig. 113. *Various ornaments from early* tarand*-graves. 1–3, 9 Kurevere, 4–5, 7 Liiva-Putla, 6, 8 Võhma in Mustjala (AI 4780: 249, 105, 24; 4339: 532, 465; 4780: 34; 4339: 402; 5751: 212; 5751: 180).*

The Kõmsi-type temple ornaments form the second and much smaller group; they have similar spoon-shaped bent-back ends that are joined together by a long loop (Fig. 113: 6). To date, three ornaments have been found in grave II at Kõmsi and one in the Kurevere grave; there are no known parallels (Lõugas 1991). It is believed that the Kõmsi-type temple ornaments were modelled on the ornaments with inward-bent spiral ends joined with a loop, which were common in Europe, including the Volga region (*op. cit.*, fig. 4).

The Ananyino-type *mounts* made from two round plates (Fig. 113: 1), which occurred in grave II at Kõmsi and the Kurevere grave in Estonia, were also previously interpreted as temple ornaments. Recent data indicates that the ornaments served as decorative mounts for belts and head bands (Lõugas 1991, 71). Early *tarand*-graves on the islands and the western part of the mainland revealed several other decorative mounts and pendants originating mostly from farther east, from the Volga–Oka region (Fig. 113: 2–4, 7–8; see also Lõugas 1972a, fig. 5: 2, 3; 1989, fig. 3; Mandel 1993, 70), which can be dated to the (Late) Pre-Roman Iron Age. However, these types remained foreign in the local Estonian cultural context.

Tools and everyday items

Knives of various shapes were the most common tools and they occur in most early *tarand*-graves. However, knives do not occur in the earliest *tarand*-graves dating to the earlier part of the Pre-Roman Iron Age (e.g. Ilmandu and Rannamõisa), except grave IIC at Tõugu and Hiiemägi at Kunda. Everyday items, such as knives, socketed axes with iron loops, narrow-bladed axes, awls, needles, and spindle whorls found in graves were previously discussed (3.4.1 and 3.4.2).

When discussing large tools, the only iron sickle found in the early *tarands* should be noted; it accompanied an elderly woman in the Poanse grave I (Mandel 2000, fig. 15). No precise equivalent has been found in Estonia or in neighbouring areas, but similar tools do occur in Roman Iron Age contexts. Large knives with curved backs could also have served as sickles; they were especially common in the Liiva-Putla grave where they and iron shepherd's crook pins served as grave goods in several burials.[103]

Bronze and iron tweezers are rare grave goods in early *tarand*-graves. Grave III at Rannamõisa contained simple iron tweezers, and grave I at Kõmsi revealed unique bronze tweezers (Fig. 114).

Fig. 114. *Bronze tweezers from* tarand*-grave II at Kõmsi (AM 449: 226; after Lõugas 1972a, fig. 5: 5).*

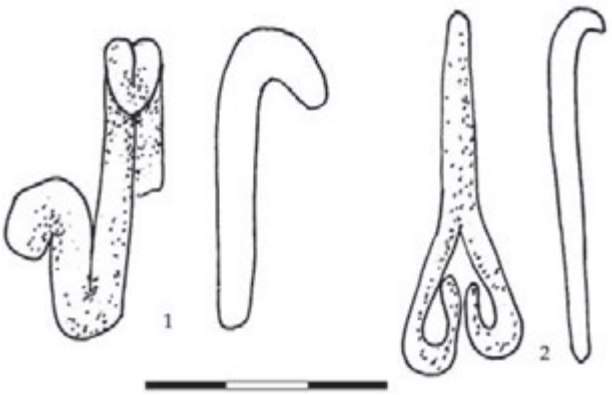

Fig. 115. *Iron belt hooks from the graves at Kurevere and Võhma at Mustjala (AI 4780: 104; 5751: 154).*

Some belt fragments found in the Estonian early *tarand*-graves are of interest. An iron belt hook with outward turned spiral ends was found at Kurevere (Fig. 115: 1); it was modelled on similar bronze items common in central Europe and the southern Baltic region during the Late Bronze Age. This type of belt hook was used, with some modifications, until the Early Pre-Roman Iron Age; the hooks have been found in several places in Scandinavia, in particular on Bornholm Island and in western Sweden (Nybruget & Martens 1997, fig. 2: b; Becker 1993, 8; Fredsjö 1952, fig. 16: e; Petersen 1929, pl. 25n). Another iron belt hook, found in the Võhma grave near Mustjala, differs from the one found at Kurevere in that its spiral ends are turned inward (Fig. 115: 2); however, the hook should date to the same period as the Kurevere find because belt hooks dating to the Late Pre-Roman Iron Age have an entirely different style than the Kurevere and Bornholm examples.

Belt buckles are rather rare in early *tarand*-graves, but several are known. The Võhma grave at Mustjala contained two round iron buckles with a tongue, and similar iron rings have

[103] Collections of grave goods consisting of shepherd's crook pins and sickle- or scythe-knives also occur at other sites in Estonia, including Toila, Aseri, Randvere, and Tamsa (see Laul 2001, 124).

been found in several other places, as well (e.g. Kõmsi). An intact buckle was found in grave III at Ilmandu, and another was found in the Kelleraugu grave in Virumaa (Schmiedehelm 1955, fig. 8: 4).

Weapons

Weapons are found infrequently in the early *tarand*-graves, and they all occur in burials dating to the Late Pre-Roman Iron Age. In addition to some narrow-bladed axes that could have been used as both tools and weapons (Fig. 76), only a small number of spearheads have been found. Unfortunately, the fragment found at Kurevere cannot be identified, but the socketed spearhead from grave II at Poanse (see Mandel 2000, fig. 18) represents the type that emerged in central and northern Europe in the (Late) Pre-Roman Iron Age and was used until the Early Roman Iron Age (Moora 1938, 516; Salo 1968, 137). Fragments of single-edged swords (or large battle knives) have been found in the Kurevere, Kõmsi I and II, and Liiva-Putla graves. It is impossible to present precise comparative data in the case of these small fragments, however. In addition, *tarand* E at Kõmsi II revealed an iron arrowhead, which is the only item of its kind from an Estonian early *tarand*-grave.

Ceramics

Many potsherds have been found in Estonian early *tarand*-graves. Careful observation of the position of the ceramic finds in the graves indicates that pottery served two functions in the burial customs. First, ceramics were used as grave goods accompanying the deceased. This custom had already been practised at some stone-cist graves (Lüganuse-style ceramics in the cists at Lüganuse and graves I and III at Rebala). Pottery as a grave good in *tarand*-graves is only known in the earliest contexts. Second, ceramics could end up in a grave as the result of some rite, such as the burial meal, bringing cremated bones to the grave in a clay vessel, or some other rites. Most of the ceramics discussed here served the second function. In that case, single potsherds or clusters of sherds are scattered across the grave and cannot be associated with any one burial in particular. The same may also apply to ceramics that had been left on the walls of the *tarands* or nearby (Uusküla II and Tõugu IIC, see Lang 2000a, 117, 156); the same custom was observed in some places in grave II at Kõmsi, grave II at Poanse (see Aasala 2002; Mandel 2000, 99) and also in some stone-cist graves (e.g. Lastekangrud in Rebala).

Fully excavated graves containing thoroughly studied ceramic finds indicate that sometimes only a single or a few sherds of a ceramic vessel ended up in a grave (e.g. grave II at Tõugu and Tandemägi at Võhma; see Lang 2000a, 117, 134). It is possible that a fragment was found by chance in the vicinity of the grave (as remains of an earlier site, for instance) and then placed within the grave boundaries, but one cannot rule out that it was placed there purposefully during the original burial. Excavations have also shown that the sherds from one and the same vessel are sometimes located far away (5–10 m) from each other within the boundaries of the grave, indicating that some of the vessels were purposefully smashed and then scattered all over the grave. Thus, the location of the potsherds in the graves reflects various rites, but unfortunately there are not enough *tarand*-graves with thoroughly studied ceramic finds in Estonia to make further generalizations.

To date, pottery definitely used as grave goods is known only from grave III at Ilmandu (Lang 1995c). This is exclusively Ilmandu-style ceramics, which dates to the end of the Bronze Age and the Early Pre-Roman Iron Age (see above,

3.3.2 and Fig. 61). In other graves (e.g. Võhma at Mustjala and Kurevere) this style of ceramics occurs as scattered over larger areas.

The most typical ceramic finds from early *tarand*-graves are Cord-Impressed Ceramics, especially in north-western and western Estonia and on the islands (Fig. 62: 2, 4–5). These ceramics were not included as grave goods, but played some part in the burial process. Cord-decorated potsherds occur at all sites in that region where there is a Late Pre-Roman Iron Age layer (i.e. shepherd's crook pins and thin bronze and iron bracelets). Comb-Impressed Ware forms the third style of ceramics (Fig. 62: 1, 3), and can be found in only some *tarand*-graves located in north-western Estonia and in the later burials at stone-cist graves. Cord- and Comb-Impressed Wares co-occur in some graves (Lehmja-Loo II, Presti at Rebala, Kurna III, and Rannamõisa II), suggesting that both types of ceramics were contemporaneously used in north-western Estonian burial customs.

Besides the three main styles of ceramics, the early *tarand*-graves also contain some imported single vessels, which remained foreign in the local cultural context. The vessels originate from the western or southern coast of the Baltic Sea (see Lang 1996a, 302; 2000a, 119). In addition, some miniature clay vessels that differ from the other ceramic finds were found at some sites. The small cups uncovered in the Tandemägi, Loona, and Toila graves are only 4–5 cm in height, and some of them are decorated with a zigzag or grid pattern. Miniature ceramics were especially popular beginning in the Roman Iron Age in the graves of stone construction located on the south-eastern coast of the Baltic Sea (western Lithuania and eastern Prussia, see e.g. Michelbertas 1968a, fig. 6; 1968b, fig. 3), but they also occurred earlier in the Pre-Roman Iron Age barrows with stone circles in the same region (Moora 1938, 562 ff.).

4.4.7. The age and origin of the early *tarand*-graves

The grave goods found in early *tarand*-graves date them to the Pre-Roman Iron Age. The oldest burials with grave goods that can be more precisely identified originate from the Early Pre-Roman Iron Age, i.e. the 5th–3rd centuries BC. The oldest group of grave goods found consists of Bräcksta-type neck-rings, bronze bracelets with round cross-sections, massive iron bracelets, decorative pins with loop- and roll-shaped ends, Ilmandu-style ceramics, and some imported single items. However, most grave goods date to the Late Pre-Roman Iron Age, i.e. the last quarter of the first millennium BC and the first century AD. That group consists mainly of shepherd's crook pins, thin bronze and iron bracelets, temple ornaments, Cord- and Comb-Impressed Wares, and some imported items. Based on these finds, it is difficult to assess how long the early *tarand*-graves were used. On the other hand, no Early Roman Iron Age fibulae have been found in the early *tarand*-graves, and thus it may be that the graves were no longer in use at the time when the fibulae appeared in the late first century AD.

As noted, there are several cases where all or most of the deceased in a grave have been buried without any datable grave goods, especially in northern Estonia. These graves can only be radiocarbon dated. The date obtained from beneath grave III at Ilmandu (12th–9th centuries BC) is probably a few centuries earlier than the *tarands*, but this cannot be asserted with certainty. The radiocarbon date from a skeleton found in a Hiiemägi grave at Kunda is a better fixed point; its calibrated value dates it to the 8th–5th centuries BC. Thus, one can claim that the graves without grave goods are the earliest group of *tarand*-graves in Estonia, and that they date to the Late Bronze Age and/or the very beginning of the Pre-Roman Iron Age. Burials with Ilmandu-style clay

vessels as the only grave good can probably also be dated, more or less, to the same period.

Therefore, the early *tarand*-graves can be divided into the three following chronological stages based on the character (or absence) of the grave goods: (i) graves without grave goods or with a clay vessel dating to ca. 8th–5th centuries BC, (ii) graves with grave goods dating to 5th–3rd centuries BC, and (iii) graves with grave goods dating from the 3rd century BC to 1st century AD. So far, the earliest dates are characteristic of the Kõmsi-type graves that contain mostly small cist-like *tarands* (Hiiemägi at Kunda, Ilmandu III, and probably also Rannamõisa III). Graves with one or two large original *tarands* that were later joined with smaller *tarands* seem to have been established at a slightly later time, i.e. at the beginning of the Pre-Roman Iron Age (Kõmsi II). The first *tarands* of the Kurevere-type graves are probably no older than the Early Pre-Roman Iron Age, whereas the round graves adjacent to them can contain items or ceramics of Late Bronze Age character (Kurevere and Võhma near Mustjala).

The Poanse-type graves arranged in a single straight row may have also emerged at the beginning of the Pre-Roman Iron Age (e.g. Tõugu IIC with its inhumations and no grave goods). The other respective graves originate either from the middle (Poanse II) or the second half of the period (Toila and Uusküla II). However, the Liiva-Putla grave on Saaremaa Island contained some items that can be dated to as early as the beginning of the period. It is also unclear when the large and regular *tarands* that do not fit well into the Pre-Roman Iron Age cultural context were actually established at Liiva-Putla. It is possible that the Liiva-Putla enclosures were built only in the Late Roman Iron Age, like similar *tarands* at Tõnija or Ilmandu, and that the oldest finds originate from the earlier burial site located in the same place. However, it was impossible to observe the precise structure of that burial site during the excavations.

The single-*tarand*-graves form the latest group of graves because all of the presently studied sites date only to the Late Pre-Roman Iron Age.

So far, no exact or contemporaneous parallels to the earliest Estonian graves consisting of irregularly placed enclosures or small *tarands* have been found anywhere, and thus they can be interpreted as locally developed grave forms. There are also no exact equivalents to the honeycomb-like *tarands* (e.g. Kurevere- and Kõmsi-type graves), but some graves where *tarands* were arranged in two rows were studied in Sweden and Finland (Gärtuna, see Bennett 1975; Kroggårdsmalmen and Penttala, see Salo 1968, figs. 6, 72). These parallels date to different periods: the first dates to the turn of the Bronze and Iron Ages while the second and third date to the Early Roman Iron Age.

Based on construction details, good parallels to the Poanse-type graves have been found in the eastern part of central Sweden (Alby and Hallunda; see Bennett 1975) and in south-western Finland (Dåvits; Meinander 1969). Moreover, the commonalities are not limited just to building methods: the character of grave goods is also similar, as the graves contain either burials without grave goods or items similar to the ones found in Estonia dating to the end of the Bronze Age and the Early Pre-Roman Iron Age (Bräcksta-type neck-rings, decorative pins with spiral heads, and bracelets). However, the corresponding Estonian grave goods were found not in the Poanse-type graves but in Kõmsi-type graves, but this should not carry significant meaning because of the uniform development of burial customs in all the sub-groups of the early *tarand*-graves. It seems that graves with *tarands* arranged in a single row evolved in the Estonian, Finnish, and central Swedish coastal areas as a result of close interactions, and thus it is difficult to establish where exactly a certain innovation originated. Such graves spread southwards to what is now Courland (Lazdiņi and Strazde)

only in the Late Pre-Roman Iron Age, reaching northern Latvia (Salenieki) even later, at the end of the Early Roman Iron Age (Vasks 2006 and personal communication).

A burial site similar and contemporaneous to the Kurevere-type graves was found at Uotinperä near Nakkila in western Finland where several quadrangular, oval, or irregular stone constructions had been erected beside a round cairn previously established in period IV of the Bronze Age. The idea of a *tarand* as a quadrangular burial site had not been clearly developed in western Finland at that time, but the general layout of the grave had some similarities to the Kurevere-type graves. The constructions at Uotinperä contained both cremations and inhumations, mostly without grave goods (some burials contained nests of potsherds and one burial was accompanied by a fragment of a bronze knife), and that is why the period of use for the site is unclear (Salo 1970, 54 ff., fig. 59). It is definitely a Late Bronze Age burial site, however, which seems to have some equivalents in the Lake Mälar area in Sweden (see Ambrosiani 1964, 60, figs. 25–27). Other similar graves in south-western Finland are of much later origin. For example, an Early Roman Iron Age grave consisting of a round grave with cists and *tarands* erected on two sides was excavated at Savenmäki near Laitila (Salo 1968, 22 ff., fig. 13). The Koskenhaka grave group in the parish of Piikkiö has a similar construction (a round grave with *tarands* and cists) and date (*op. cit.*, 61 ff., fig. 63). One part of the above-noted Kroggårdsmalmen grave could also have originally contained a round structure. Future research in Finland may reveal graves dating to the intervening period, that is, the Pre-Roman Iron Age, which consisted of a round cairn with *tarands* erected beside it.

The great similarity between the Kurevere-type graves and the graves with stone constructions common in western Lithuania (e.g. Kurmaičiai, Senkiai, Lazdininkiai, Tūbausiai; see Kulikauskas 1968; Michelbertas 1968b; Butėnienė 1968; Rimantienė 1968) cannot be overlooked. The western Lithuanian graves consist of barrows enclosed by stone circles with adjacent round, oval, and quadrangular enclosures. However, the graves in western Lithuania are of much later origin than the ones found on the Estonian islands; the Lithuanian barrows date mostly to the Pre-Roman Iron Age while the adjacent stone constructions date only to the end of the Pre-Roman Iron Age, Roman Iron Age, and the Migration Period. Some grave finds (conical spiral-headed decorative pins and temple ornaments) verify direct contacts between the Estonian islands and western Lithuania, and it is rather likely that the grave type found on the south-eastern coast of the Baltic Sea developed as a result of certain northern influences. Other similarities between the culture of the above region and the culture of the *tarand*-grave region during the Roman Iron Age can be observed in the archaeological record (see Banytė-Rowell & Bitner-Wróblewska 2005).

No equivalents to the large Late Pre-Roman Iron Age single-*tarand*-graves have been found in neighbouring countries. However, a number of small *tarands,* usually designed for single burials, occur in the coastal zone of western Finland; the earliest burials there date to the Late Bronze Age (Rieskaronmäki grave 87, see Salo 1970, fig. 27) while the rest mostly date to the Early Roman Iron Age (several Rajakalmisto graves, see Salo 1970, 85 ff.). However, the burial customs and grave goods differ from the Estonian single-*tarand*-graves, and thus direct influences are unlikely.

In conclusion, the early *tarand*-grave is a grave form with several variations that developed during the Late Bronze Age and the beginning of the Pre-Roman Iron Age in the coastal zones of northern and western Estonia, south-western and western Finland, and central Sweden. Similarities in graves, burial customs, and some grave goods

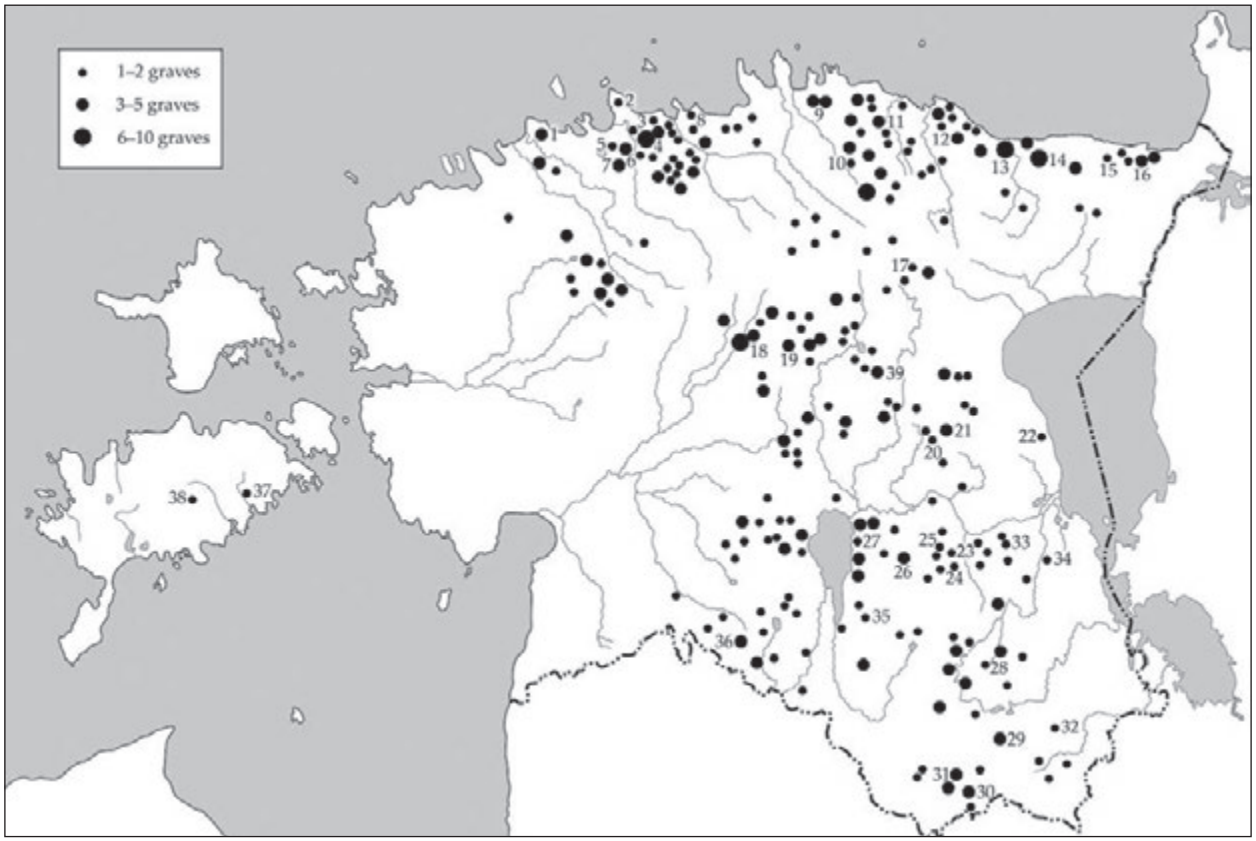

Fig. 116. *Distribution of* tarand*-graves in the Roman Iron Age. Sites mentioned in the text: 1 Ilmandu and Rannamõisa, 2 Viimsi, 3 Proosa, 4 Lagedi and Saha, 5 Mõigu, 6 Lehmja-Loo, 7 Kurna, 8 Valkla (*bauta*-stone graves), 9 Tõugu, Võhma and Palmse, 10 Ojaveski, 11 Essu, 12 Pada, 13 Liimala (hoard), Purtse-Matka and Jäbara, 14 Kohtla-Järve, 15 Toila, 16 Türsamäe, 17 Triigi, 18 Nurmsi, 19 Tarbja, 20 Nava, 21 Kõrenduse, 22 Lahepera, 23 Kambja, 24 Paali, 25 Unipiha, 26 Jaagupi, 27 Verevi (Läätsa and Sandimardi), 28 Põlgaste, 29 Hannuste, 30 Sadrametsa, 31 Virunuka, 32 Loosi, 33 Mäletjärve, 34 Kõnnu, 35 Aakre, 36 Ülpre, 37 Tõnija, 38 Liiva-Putla, 39 Ripuka.*

indicate close contacts between the inhabitants of these areas. These contacts extended beyond mere communication and ultimately influenced religion, ideology, and the symbolic interpretation of the landscape. The contacts were particularly close during the Late Bronze and Early Pre-Roman Iron Ages, following which, interaction likely became less regular while the contacts between the islands and western Estonia with western Latvia and western Lithuania became more important. During this time, Estonia also had contact with regions to the east, in the area of the Volga and Oka Rivers. The distant contacts that western Estonia and the islands had with the lands across the sea and forests almost completely broke off for some time at the end of the Pre-Roman Iron Age.

4.5. Typical *tarand*-graves

Typical or classically joined *tarand*-graves most likely developed from the Poanse-type early *tarand*-graves where *tarands* are located next

Fig. 117. Tarand-*grave C at Jäbara (after Schmiedehelm 1955, pl. IV). 1 limestone wall, 2 granite stone, 3 shingle, 4 metal artefact, 5 pottery.*

to each other in a straight row. The individual *tarands* usually have a north–south orientation, and a row of *tarands* often consists of more than a dozen enclosures that are arranged on an east–west axis. The *tarands* of the Poanse-type graves were rather small and designed for only a few, or a single inhumation (although they almost always also contain later burials), whereas in the Early Roman Iron Age *tarands* became larger and were probably originally designed for collective burials; following this, only cremations were placed in the *tarands*. Typical Roman Iron Age *tarand*-graves are usually monumental; they are up to several dozen or even 100 m in length and 20 or 30 m in width, and usually rise 1–1.5 m above the surrounding ground.

Unlike the early *tarand*-graves, typical *tarand*-graves represent a uniform grave form. Nevertheless, there are local differences within their distribution area (mainly Estonia and northern Latvia). Thus, the following overview will discuss the typical *tarand*-graves by regions (Fig. 116).

4.5.1. North-eastern Estonia

The excavations carried out by Marta Schmiedehelm at Jäbara had a great influence on the study of Early Iron Age grave forms found in Estonia (Schmiedehelm 1955). Jäbara complex consists of seven graves located in a single row which is 300 m in length; the eighth grave (stone-cist grave A) was located slightly to the side of this row. Three *tarand*-graves were excavated, and grave C was determined to be the oldest.

Grave C at Jäbara (Fig. 117; Schmiedehelm 1955, 61 ff.) was 34 m in length, 15 m in width, up to 1.6 m in height, and was oriented in a north-east–south-west direction. The south-western part of the grave revealed the remains of what is probably a Kurevere-type early *tarand*-grave (see above). In the middle and eastern parts of the grave there was a *tarand*-grave that originally consisted of at least five different groups of *tarands*, indicating that the typical *tarand*-grave had not been fully developed there; thus, this grave can be interpreted as a transitional form.

Most *tarands* contained uniform find complexes (eye fibulae, knob-ended and spiral bracelets, closed and spiral finger-rings; 25 different types of items altogether) that were dated to the 2nd century, but the westernmost *tarand* (I) revealed only a knife and fragments of spiral bracelets. It may be that originally *tarand* I was joined to the earlier constructions located in the south-western part of the grave. The grave contained inhumations, and several burials were also found under the stone bottom of the grave.

Grave B at Jäbara, which was 43 m in length and 17–18 m in width, represents a burial site with classically joined *tarands* (Schmiedehelm 1955, 74 ff., pl. VII). At least eight *tarands* were discovered in the south-west–north-east row during the excavations, but half of them were badly preserved. The *tarands* were regular and had more or less the same measurements (ca. 6.5 x 3 m). The grave contained both cremated and uncremated bones, but it was impossible to distinguish individual burials. *Tarands* I–III, to the east, contained similar grave goods as grave C, including eye fibulae, knob-ended and spiral bracelets, closed finger-rings, and shepherd's crook pins, which mostly date to the 2nd century. *Tarands* IV–VI were well-preserved; the middle *tarand* (V) was the earliest of them. The grave goods of these three *tarands* were slightly different than the items found in the easternmost *tarands* and included head-shield fibulae, various glass beads, and massive serial armbands, which are characteristic of the 3rd century. The finds from *tarands* VII–VIII were similar to the finds from the previously described *tarands*, but they also included some newer items such as a crossbow fibula with a tendril foot, which emerged in the 4th century; this type of fibula occurred mostly in *tarand* VIII. The burial customs during the time when the grave was used were the following: inhumation dominated in the 2nd century, but cremation also occurred, whereas cremation became dominant at the turn of the 2nd and 3rd century.

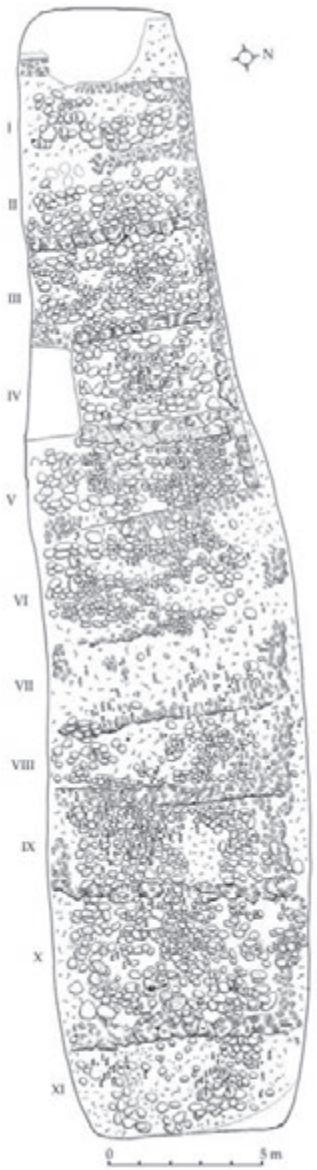

Fig. 118. Tarand-*grave at Pada (after Schmiedehelm 1955, pl. X).*

Grave E at Jäbara was located in the middle of the grave group, and it consisted of only a single *tarand* which was more or less square (Schmiedehelm 1955, 90 ff., fig. 21). This grave may not have originally been a single-*tarand*-grave; it was probably a part of a multi-*tarand* grave because the straight side of one side wall faced inwards rather than outwards. Most burials were cremations, and highly cremated bones dominated. The find material was exceptionally rich both quantitatively (more than 500 index numbers of finds) and qualitatively (46 different types of items). The grave had been established by the end of the 2nd century, but most find material dates to the 3rd–4th centuries, including head-shield-, profiled-, disc-shaped-, and crossbow fibulae, neck-rings with mushroom-shaped ends, many bracelets and finger-rings, decorative pins, and mounts; the grave also contained the rims of some drink-

ing horns, parts of shields, and a battle knife, but these items date to the turn of the Roman Iron Age and the Migration Period.

The *Pada grave* is one of the best preserved graves in north-eastern Estonia that has been fully excavated; it was 37 m in length, 5–9 m in width, and was oriented along an east–west axis (Fig. 118; Schmiedehelm 1955, 111 ff.). The grave contained at least 10 *tarands*. The walls of the *tarands* were made of limestone and the inner filling consisted of granite stones. The middle and western parts of the grave (*tarands* III and VI) were built first, and they contained inhumations, cremations, and grave goods dating to the 2nd century. Additional *tarands* were built in the area between the first-built *tarands* and on two sides of both of them during the 3rd century, whereas all parts of the grave were used as late as the 4th century. All the burials containing 3rd–4th century grave goods had been cremated, usually in intense and continuous fire. Single 5th–6th century burials were discovered on the edges of the grave, and inhumation was common at that time.

Several other typical *tarand*-graves (e.g. Kohtla-Järve I and II, Türsamäe, and Ojaveski; see Schmiedehelm 1955, 128–160) have been excavated in north-eastern Estonia, but they do not add any significant data to the discussion of grave material.

4.5.2 North-western Estonia

The area surrounding what is now Tallinn contains few typical *tarand*-graves. These graves date to a later period as compared to the respective graves in north-eastern Estonia, and contain only a small number of joined *tarands*. Another grave type − the single-*tarand*-grave − became characteristic of this region, and will be discussed below (4.6).

A typical *tarand*-grave was excavated at *Mõigu*, which is located near the middle reaches of the Pirita River (Fig. 119; Tamla 1977). The upper part of the Mõigu *grave* had been disturbed by ploughing, and archaeologists could study only the bottom of the grave. Excavations revealed a grave consisting of three *tarands*; the *tarands* had been built from east to west, and the first two were made from limestone while the third *tarand* had granite walls. All of the *tarands* were filled with granite stones. However, the burial customs practised at each *tarand* differed. The deceased had been cremated on the spot in case of eastern *tarand*. Central *tarand* also contained cremations but the deceased had been cremated away from the grave, and uncremated bones were dominant in western *tarand*. The graves contained many artefacts which mostly dated to the 3rd century, but there were also single examples of 5th–7th century items; the grave contained no artefacts specifically characteristic of the 4th or the beginning of the 5th century.

The Mõigu grave is contemporaneous with *grave XIII at Lagedi*, which was excavated at the beginning of the 20th century (Spreckelsen 1927, 32 ff.). The excavation revealed no structural details, but it may be a joined *tarand*-grave considering the general layout, find material, and the unsatisfactory excavation techniques used at the time (which probably did not allow for the recognition of the inner walls). The find material can be divided into various chronological periods, and it differs from that found at most *tarand*-graves located around Tallinn, resembling only that of the Mõigu grave. The earliest use of the grave dates to the 3rd century while the later finds belong to the 7th century and to the 12th–13th centuries. The grave did not reveal any 4th–5th-century find material.

Grave D at Saha, which consisted of two joined *tarands*, was located in the same group with two stone-cist graves and a single-*tarand*-grave (Spreckelsen 1907). Both *tarands* had more or less the same measurements, 5 x 8 m, and they contained primarily inhumations; few cremated

Fig. 119. Tarand-*grave at Mõigu, view from south-east (photo: R. Kärner).*

bones were found. The bones from the inhumations were mixed to the extent that it was possible to fix the original position of only three burials. The grave contained 200 finds classified as grave goods, which could be divided into 37 different artefact types. This includes imported items made from precious metals, including artefacts of Scandinavian origin, which are rather rare in the Estonian Roman Iron Age context. Grave D at Saha was used during the 4th century and in the first half of the 5th century.

Two *tarand*-graves were excavated at *Viimsi* (Lang 1993; 1996a, 148–174). The first grave had been previously destroyed, and only the bottom-most stones had survived. Originally the grave probably consisted of four *tarands*, each measuring ca. 5.5 x 2 m. The grave contained both cremations and inhumations, including at least 21 cremations and 11 inhumations (Kalling 1993). It was impossible to fix the original position of any of the burials except part of a burial (the skull) located on the edge of the grave. The finds included 31 different types of items. The material is characteristic of the Estonian context, and only a few unique items were found. Grave I at Viimsi dates to the second half of the 4th century and to the 5th century. It is the latest known joined *tarand*-grave found in Estonia as a whole.

Grave II at Viimsi was located 40 m away from grave I. It was much smaller than the latter, and its find material was poor. Grave II consisted of two *tarands*; one of them was almost square (4 x 4 m) in shape, and the other was only 1.2 m in width. The grave contained both cremated and uncremated bones, which originated from one cremation and from two inhumations (Kalling 1993). There was little find material (a fibula, a bracelet, a knife, and some ceramics). Grave II dates to the same period as grave I.

Therefore, we can ascertain that typical or classically joined *tarands* emerged in north-western Estonia at the beginning of the 3rd century and that they were used through the end of the 5th century. *Tarands* were built in north-western Estonia even during the second half of the 4th century and perhaps even at the beginning of the 5th century (Viimsi I). It is notable because no new *tarands* were erected in north-eastern Estonia from the 4th century onwards, and burials after this time were placed in the previously built constructions. Another difference was that cremation did not become dominant in north-western Estonia in the 3rd–4th centuries, and inhumation was practised in all centuries. As noted, typical *tarands* represented a rare grave form in north-western Estonia.

4.5.3. Central Estonia

Many graves dating to the Roman Iron Age have been found in central Estonia, but presently they have been studied to only a limited extent. To date, only three *tarand*-graves have been fully excavated, but there is also some data from amateur or small-scale excavations. Two graves out of three (Nurmsi and Tarbja) were in a satisfactory state prior to their excavation, while the third (Kõrenduse) was badly damaged.

The *Nurmsi grave* (called Kirikumägi) was located in Järva County; it was up to 57 m in length, 12–17 m in width, and 0.5 m in height (Vassar 1943; Lätti 2005). The grave consisted of 12 north–south oriented *tarands* arranged in a row and forming an east–west chain. The westernmost *tarands* contained primarily cremations, whereas the central and easternmost *tarands* revealed inhumations. Dating of the *tarands* suggests that inhumation dominated during the 2nd century and that cremation prevailed during the 3rd–4th centuries, similar to the case in north-eastern Estonia. It was not possible to distinguish individual burial complexes. Artur Vassar, who thoroughly studied the grave, claims that most burials were purposefully mixed (i.e. the mixing cannot be explained only by the adding later burials, as previously thought), and that the aim of the builders was to erect a collective burial place without differences between the individual burials. The grave also contained animal bones, mostly from domestic animals (horse, cattle, goat/sheep, pig, dog, and goose). Metal items occurred with human bones, indicating that they could be associated with the burials. Ceramics, on the contrary, were found mostly in the peripheral parts of the grave. The grave goods from the Nurmsi grave consisted mostly of ornaments, tools were rare, and no weapons were found. The grave goods were plentiful and totalled 800 index numbers of finds; ceramics and whet- and grinding stones formed one fourth of the grave goods.

The finds suggest that the Nurmsi grave was established in the mid-2nd century AD, and that it was used until the second half of the 5th century. There were also several items that date to the second half of the 6th century and to the end of prehistoric times. These items could have originated from later sacrifices as opposed to burials. Vassar claims that the Nurmsi grave originally consisted of two separate parts, each of them containing two *tarands* (cf. the Pada grave). Additional *tarands* were built later, and a uniform linked structure was formed. The construction of

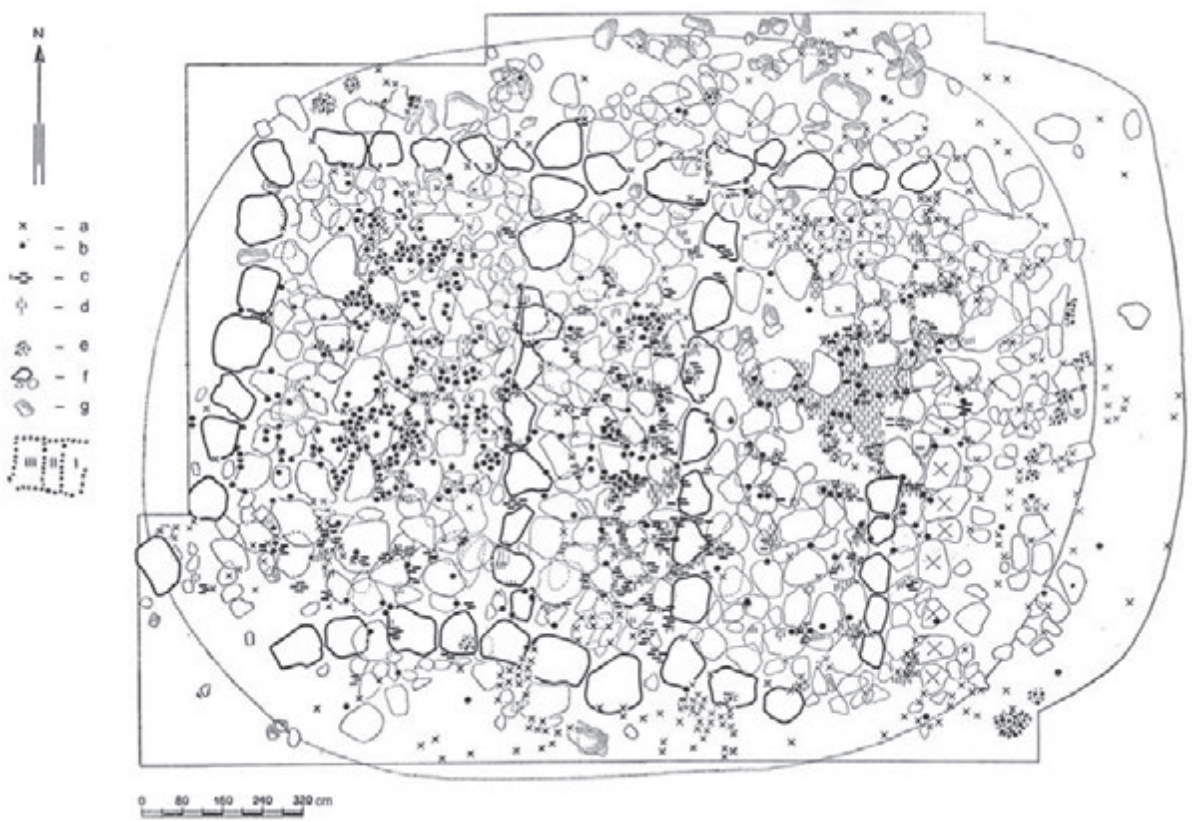

Fig. 120. Tarand-*grave at Tarbja (after Moora, T. 1967, pl. I). a pottery, b other artefacts, c cremated bones, d weakly cremated or uncremated bones, e pieces of charcoal, f granite stones, g limestone slabs.*

the grave took place over a span of 200 years, i.e. from AD 150 to 350, and the *tarands* were used for another 150 years after that. The term of use for each of the *tarands* varied, but did not exceed two centuries. Based on their construction and chronology Vassar concludes that the *tarands* were built in pairs, but it is difficult to verify or refute his claim considering the wide chronological span of the find material.

The *Tarbja (Kalamehe) grave* near Paide (Fig. 120; Moora, T. 1967) was established on an earlier occupation layer; a 20 cm thick humus layer containing charcoal and some ceramics (including Corded Ware and Bronze Age ceramics) was found under the stones. The grave was composed of three *tarands*, and the easternmost (I) had been erected first. The grave was extended westwards where *tarands* II and III were built in succession. An extensive area covered with stones was situated east of *tarand* I, but it was not possible to distinguish any definitive structural remains there. The walls of the *tarands* were built with large granite stones and smaller granite stones were used as the inner filling. Poorly cremated bones dominated in *tarand* I, but uncremated bones occurred, as well. *Tarand* II revealed primarily highly cremated bones, and *tarand* III was rich in finds but contained few bones, which were either poorly cremated or uncremated. The find material was abundant, including 422 intact items and fragments, and many ceramic finds. These artefacts indicate that the Kalamehe grave

at Tarbja was established in the second half of the 3rd century, though most grave goods dated to the 4th century and the first half of the 5th century.

The first grave in the Vooremaa region of central Estonia to be partly excavated was at Nava in 1945–1946. The *grave at Nava* is situated on a drumlin located between Lake Pikkjärv and Lake Prossa. It is unclear what kind of constructions were uncovered because no excavation drawing has survived. Two burial layers were found at Nava. The earliest burials were four inhumations located in the sand under the grave. The burials were accompanied by iron shepherd's crook pins and other items dating to the Pre-Roman Iron Age.[104] A *tarand*-grave had been erected over the inhumations, and was comprised of at least two *tarands*, which contained only cremations. The find material was poor and rather characterless, including some spiral finger-rings and plain bracelets, knives, and ceramics; no fibulae were uncovered. The finds dated from the 2nd through 5th centuries.

The Kõrenduse *grave* near Palamuse was badly damaged as a result of gravel digging nearby, and only an area measuring ca. 250 m² was left untouched (Lavi 1978). Traces of what was probably a Neolithic settlement (it was not precisely dated) were found in several places under the grave. The grave revealed remains of seven *tarands* with granite stone walls; the *tarands* were arranged in several rows. Such an arrangement is unusual for typical *tarand*-graves, but it is characteristic of the early *tarand*-graves. The grave contained mostly cremations. Three hundred and eighty index numbers of finds were found, out of which ceramics were the most common. Other finds included a head-shield fibula, three profiled fibulae, an iron crossbow fibula, two disc-shaped fibulae, a star-footed fibula, and various bracelets, but the grave contained none of the beads, spiral finger-rings, or bronze spirals which are characteristic of the typical *tarand*-graves. The metal items date from the end of the 2nd century to the 5th century, but some single items also date to the end of prehistoric times.

In conclusion, the presently excavated *tarand*-graves indicate that the typical *tarand*-grave emerged in central Estonia in the middle of the 2nd century, and that it was used until the 4th–5th centuries, as was the case in northern Estonia. The general development of the burial customs is also similar to northern Estonia where inhumation was dominant until the beginning of the 3rd century when cremation became prevalent. Unlike the graves around Paide and Peetri which were well-developed and rich in finds (Nurmsi and Tarbja), the Vooremaa graves had either a primitive architecture (Nava and Kõrenduse) or contained few artefacts (Lahepera). The excavated graves suggest that Vooremaa was on the periphery in regard to the *tarand*-graves while the Paide–Peetri area was a centre that had close contacts with north-eastern, and to a lesser extent with north-western Estonia.

4.5.4. South-eastern Estonia

The *tarand*-graves of south-eastern Estonia form two large groups. One group is located to the south of the Emajõgi River in the area around Nõo, Kanepi and Kambja, i.e. in the Otepää uplands and areas bordering it (e.g. the Jaagupi, Unipiha, Kambja, and Paali graves). The other

[104] A structure resembling a cist made of granite stones was found under the stone layer of the grave, and part of an irregularly arched wall was discovered nearby. It has been suggested that the Nava grave was a transitional form between the stone-cist and *tarand*-grave (Jaanits *et al.* 1982, 210). The exact architecture of the constructions is nevertheless questionable and remains incompletely studied; the photos of the excavation do not allow for any definite conclusions to be made. The Nava grave can be classified in the same group as other Estonian stone graves that have revealed early pit graves beneath the stone constructions (see below, 4.9).

smaller group is located south- and south-west of Võru in the area of the Haanja uplands (e.g. the Virunuka, Sadrametsa, Hannuste, and Loosi graves). The Võru–Hargla primeval valley zone, with its infertile sandy soils, lies between the two groups. There is a third large grave group located in northern Latvia (e.g. Salenieki), which has much in common with south-eastern Estonian *tarand*-graves.

The *Jaagupi tarand*-grave is the only fully excavated typical *tarand*-grave belonging to the first group (see Laul 1962; 2001, 44 ff.). The burial site is not located in the middle of modern fields, which is characteristic of northern Estonia, but on the borderline between agricultural land and forests on the edge of the Voika Spring valley. Many other south-eastern Estonian *tarand*-graves are also located on the border of various (contemporary) eco-zones. The Jaagupi grave was 55 m in length, up to 19 m in width, and rather low in height. Similar to several other *tarand*-graves, the ground surface beneath the grave had been cleaned with fire before construction. It was not possible to distinguish the exact number of *tarands* because part of the grave had been badly damaged. The grave probably consisted of approximately one dozen *tarands*, though only six had been well-preserved. The construction of the grave was simple: its length ran from west to east, the *tarands* were built of large granite stones, and the filling of the lower layer consisted of large stones which had been covered with smaller stones.

The Jaagupi grave contained mostly cremations with few exceptions. The deceased had been placed primarily in the middle of the *tarands*, but several burials were also found near the edges of the enclosures. Pieces of cremated bone had been scattered between the grave stones, as was typical. Bone nests consisting of pieces of bone and grave goods also occurred in some places. Some of the deceased had been interred into the original ground beneath the grave, but it is not clear whether they were placed there before or after the *tarands* were established. However, the excavations showed that the walls and lower inner filling of the *tarands* pre-dated the burials as no burials were found under the wall stones, and the last built *tarand* contained neither bones nor grave goods.

More than 800 index numbers of finds were excavated from the grave. Some metal items had been heated in a fire; they probably accompanied the dead onto the pyre. The other grave goods revealed no traces of fire and had been placed in the grave after the cremation. Most items had been purposefully destroyed, which was common in Estonia. The diverse find material (32 different types of items) indicates that the Jaagupi *tarand*-grave was established during the 3rd century, and was also used in the 4th and mid-5th centuries.

The most representative complex of *tarand*-graves in the area surrounding the Haanja uplands was studied at Virunuka (Laul 1965; 2001, 65 ff.). The *Virunuka graves* are located 24 km south-west of Võru on a small cape between the Mustjõgi River and its tributary, the Pärlijõgi River, on Viru village lands. This land borders forests and agricultural land, similar to the setting at the Jaagupi grave. The grave group consisted of five graves arranged in a single east–west row, with the exception of grave III (Fig. 121). The burial places had been established on sandy land covered with forests, and the area had been cleared with fire prior to the construction of the graves.

Grave I at Virunuka was the westernmost grave (diameter 14.5 m), and it consisted of two *tarands*. The westernmost *tarand* had been erected first, and it was enclosed on three sides by additional walls at a later date. The second *tarand*, which was slightly longer than the first, was erected on the eastern side following the building of the addition walls of the first *tarand*. Its eastern longitudinal side also had a double wall. The filling of the

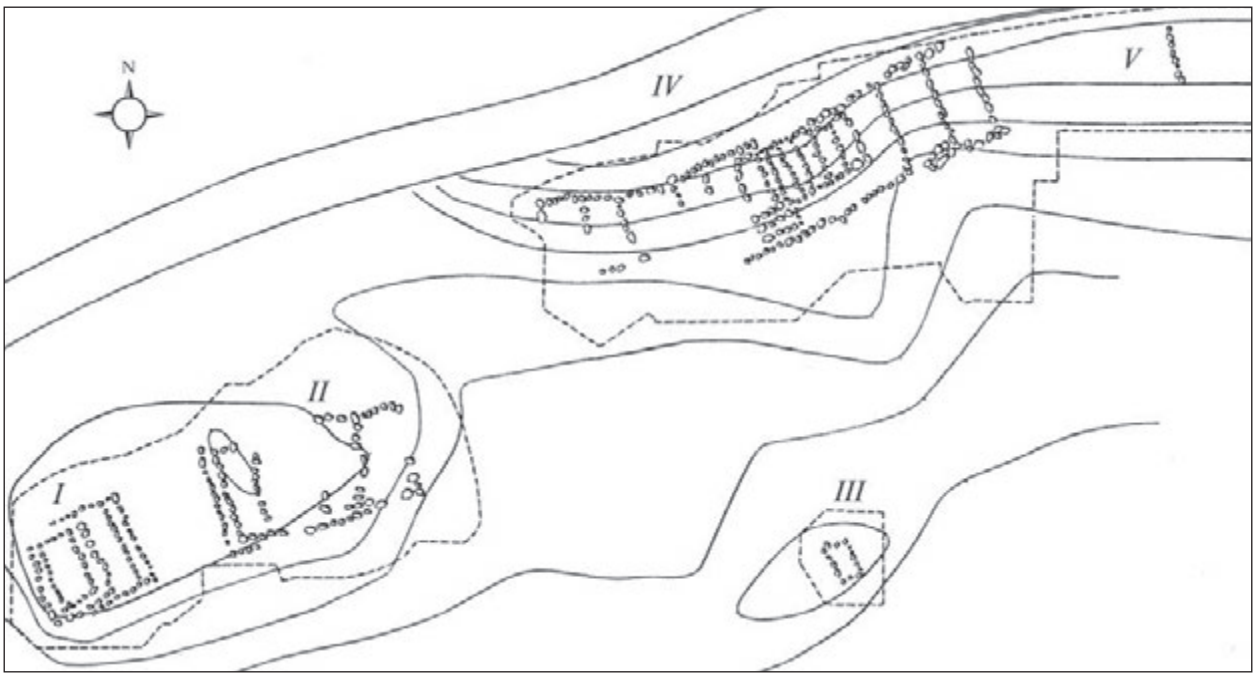

Fig. 121. Tarand-*graves at Virunuka (after Laul 2001, fig. 18).*

tarands (in all the Virunuka graves) consisted of a single layer of large granite stones. The deceased had been placed between the large stones and covered with soil and small stones. The grave was encircled by a layer of small stones (similar to the stones that covered the burials in the *tarands*). Grave I contained only highly cremated bones. Bones were found both in the *tarands* and between the inner and outer walls.

Grave II at Virunuka (24 x 20 m) consisted of four *tarands*, which had the same orientation as grave I. The second *tarand* in the western part of the grave was the earliest; additional two *tarands* were added on its east side, and one *tarand* was built on its west side. The *tarands* contained only poorly cremated bones. In the outer ruins, bones occurred only in some places. Grave III was located 42 m south-east of grave II and contained only a single *tarand* with few burials. It may be that the construction of grave III was never completed.

Measuring 63.5 m in length, 20–30 m in width, and containing 14 *tarands*, grave IV at Virunuka was the largest. Six *tarands* in the middle of the grave, which were much smaller than the rest, formed the original grave. Larger *tarands* were added to the east and west over time. The small *tarands* contained poorly cremated bones, and the large *tarands* contained highly cremated bones. The three easternmost and youngest *tarands* contained many bones but few grave goods.

Grave V was located to the east of the other *tarand*-graves and did not have any clearly defined enclosures. Burials had only been placed within in a defined area in the middle of the stone heap.

Numerous artefacts were recovered from the Virunuka graves; five graves alone revealed 2271 index numbers of finds. The largest grave (IV) was especially rich in finds. The artefacts recovered indicate that the first graves were established in the 2nd century and that the site was in

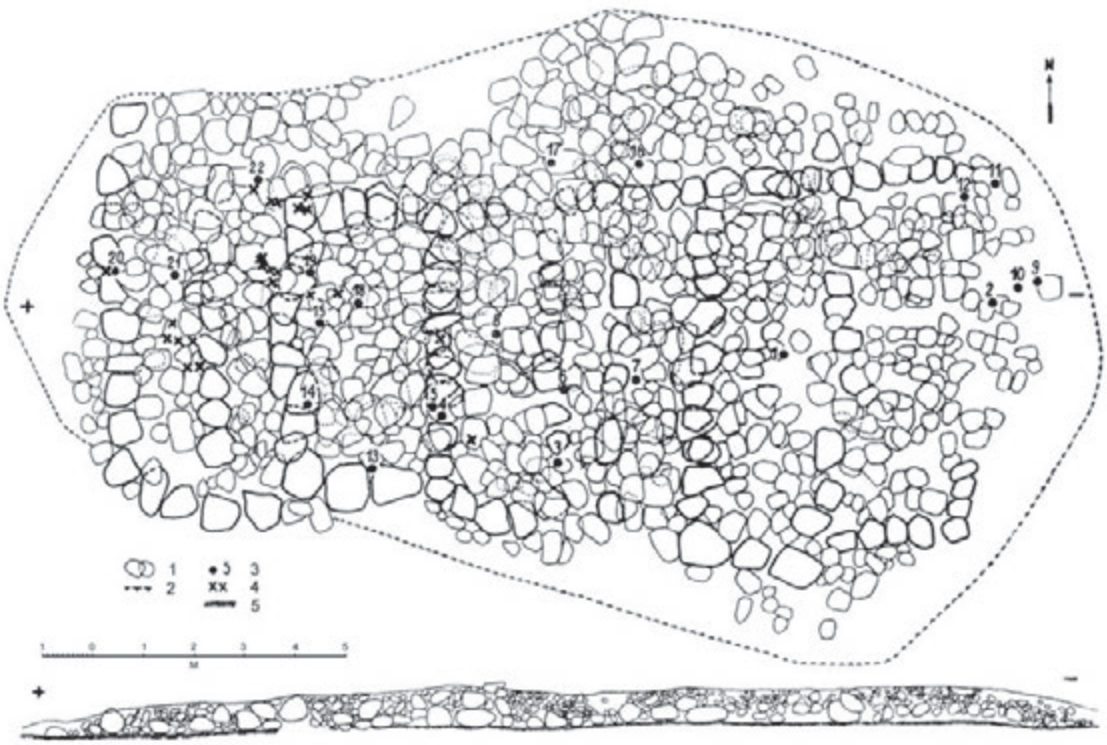

Fig. 122. Tarand-*grave at Ülpre (after Vassar 1956, fig. 40). 1 stones, 2 excavated area, 3 find, 4 cremated bones, 5 bedrock (in the profile).*

use until the 6th century. The earliest *tarands* were *tarand* II in grave II, which was erected during the 2nd century, and small tarands VII–IX in grave IV, which were built in the middle of the 2nd century. Grave V is the most recent and was built at the turn of the 4th and 5th centuries.

4.5.5. South-western Estonia

Many *tarand*-graves have been found in south-western Estonia, but only a few of them have been excavated. The *Ülpre* grave group near Karksi-Nuia is a typical example (Fig. 122; Vassar 1956). This group consisted of five graves, one of which may be a stone-cist grave as it was round, but the others are most likely *tarand*-graves. The one grave excavated at Ülpre was up to 21.5 m in length, 11.5 m in width, and 60–75 cm in height. Both the walls and infill stones were granite, making it difficult to clearly distinguish the walls in the heap. There were two oldest, original *tarands* and new *tarands* were added to the west of both of them over time so that they formed a long chain. Few bones were found in the grave (only in the westernmost *tarands*), and they had all been cremated. Vassar (1956) has argued that the eastern part of the grave contained inhumations, which were placed higher up, perhaps on the top of grave stones, so that the bones decayed completely. It is difficult to verify his claim, because some evidence of this practice should have survived, as it has at other inhumation graves. On the other hand, Vassar also admits that the character of cultural layer indicates that the number of burials could not have been large. There were

extremely few finds (22 items), including some artefacts that date to a later period. Only 11 potsherds were unearthed; the ornaments recovered included a piece of a neck-ring, three bracelets, and two beads covered with gold leaf dating to the 3rd or 4th century.

A lack of finds is not surprising in the case of the Ülpre grave because graves with few finds are common and the presence of a rich *tarand*-grave nearby cannot be ruled out. What is surprising, however, is the lack of burials in such a large grave; several *tarands* contained no bones at all. The last-built *tarand* in the Jaagupi grave did not reveal any bones or artefacts, either, but this can be explained by the fact that the grave was no longer used by the time the *tarand* was completed. In contrast to Jaagupi, the earliest *tarands* at Ülpre contained no burials, and bones occurred only in the latest constructions. The Ülpre grave suggests that such large and impressive constructions were, first and foremost, monuments. Their main function was not to house the dead, but rather to serve as ritual and cult places. The deposition of bones during rituals likely contributed some amount of human bone at these monumental graves.

4.5.6. Western Estonia and the islands

Many early *tarand*-graves are located in western Estonia and on the islands, but there are exceptionally few typical *tarand*-graves in the region. The lack of known typical *tarand*-graves cannot be explained by the state of research because a number of graves have been excavated in the area, and archaeologists have purposefully looked for typical *tarand*-graves, or at least burial places containing Roman Iron Age finds. To date, typical *tarand*-graves have been found in only

Fig. 123. Tarand-*grave at Tuulingumägi in Tõnija (after Mägi 2005, fig. 5). 1 wall stone, 2 post hole.*

two places on Saaremaa Island, and in both cases they were linked to earlier burial layers.

A good example is the *Liiva-Putla grave*, which consisted of five *tarands* and was the first archaeologically studied *tarand*-grave on Saaremaa Island (Kungla 1967). It was probably constructed at the beginning of the Pre-Roman Iron Age, but it revealed a number of items (spiral finger-rings, bracelets, but no fibulae) dating to the Late Roman Iron Age or even the Migration Period; one group of finds dated to the Late Iron Age. As noted above, it may be that the large Liiva-Putla *tarands* (ca. 2.5–4.8 x 5.9–6.2 m) were established only in connection with the Late Roman Iron Age burials. A large amount of cremated and well-mixed bones found between or under the lower infill stones probably originated from the early burial site which was rebuilt in the Late Roman Iron Age; the Late Roman Iron Age cremation burials were located in the upper stone layers. This was exactly the case at the *Tuulingumägi grave at Tõnija* (Fig. 123). The latter was originally built by the second half of the Pre-Roman Iron Age, and it consisted of small *tarands*. The big and impressive *tarand* walls, which were found during the excavations, had been erected on this

earlier grave layer (Mägi 1998; 1999; 2005). The Tõnija Late Roman Iron Age grave consisted of four *tarands*, each measuring ca. 6 x 2 m. The first-built *tarand* (IV) contained few human but many animal bones. There were no burials in the most recent *tarand* (I), whereas the other *tarands* were built in the intervening period and contained many burials. The large *tarands* of the Tõnija grave were built in the (3rd) 4th–5th centuries and the latest finds from them date to the 7th–8th centuries.

4.5.7. Typical *tarand*-graves: conclusion

As noted, the typical *tarand*-graves evolved from the Poanse-type early *tarand*-graves. The development took place in north-eastern Estonia where some Late Pre-Roman Iron Age graves (Uusküla II and Toila) seem to represent a transitional form between graves with small and large *tarands*. In addition to the size of the *tarands*, the burial customs also changed during the transition in grave forms: *tarands* designed initially for single burials were replaced over time with chambers designed for collective burials, and cremation replaced inhumation. In north-eastern Estonia the transitional period lasted until the 2nd century AD, i.e. the layout and burial customs (both inhumations and cremations occurred) varied across three or four centuries. The layout of the typical *tarand*-grave became stable during the 2nd century, and cremation became dominant in the 3rd century. No new *tarands* were erected in north-eastern Estonia after the year 300, but the previously built chambers were used over the next century and a half (Schmiedehelm 1955, 206).

The form of the typical *tarand*-grave probably spread from north-eastern Estonia to north-western Estonia only in the 3rd century. The tradition of building typical *tarand*-graves was a weak but long-standing custom in the region: grave I at Viimsi may have been established after the middle of the 4th century, and it was used at least through the end of the 5th century. Single-*tarand*-graves were much more wide-spread in north-western Estonia (see below).

The custom of building typical *tarand*-graves reached western Estonia and the islands even later; the finds from Liiva-Putla and Tuulingumägi in Tõnija indicate that this process occurred in the 3rd or 4th century. Typical *tarand*-graves were erected over a short period as different burial customs began to emerge in the region during the Migration Period.

Typical *tarand*-graves emerged in central and south-eastern Estonia much earlier than in north-western and western Estonia, i.e. in the middle or second half of the 2nd century. Most find assemblages from the region date to the 3rd and 4th centuries, but no new *tarands* were built in the 4th century; previously built parts of the graves were used for some time after their original construction. To date, the Roman Iron Age of south-western Estonia has only been studied to a limited extent, but it seems that typical *tarand*-graves reached south-western Estonia around the 3rd century at the latest. The *tarand*-graves of northern and north-eastern Latvia evolved during the 2nd century, as did the graves of south-eastern Estonia, and were used until the 4th and 5th centuries.

The layout, burial customs, and several types of grave goods (see below) characteristic of the typical *tarand*-graves spread quickly (over the course of 50 years) from north-eastern Estonia to central and south-eastern Estonia. It took much longer for the same phenomena to be adopted in north-western and south-western Estonia, and only weak influences can be seen in western Estonia and on the islands. The process may reflect the communication networks of the time because the links between north-eastern and central Estonia were much closer than the links between north-eastern and north-western Estonia.

4.6. Single-*tarand*-graves

A grave form called single-*tarand*-graves evolved in north-western Estonia where the tradition of typical *tarand*-graves remained rather weak in the Late Roman Iron Age (Lang 1987b). Single-*tarand*-graves were first studied at Lagedi and Kurna. *Grave I at Kurna* consisted of two separate *tarands*, IA and IB (Friedenthal 1911). The graves were constructed with large granite stones and filled with smaller stones and soil. Inhumation was dominant in grave IA (8.6 x 5.5 m), whereas grave IB (6 m in width) contained mostly cremations. Both graves were more or less contemporaneous and had been established around the year 300, but they were also used in the 7th and 8th centuries; there was a break in use during the 6th century.

Twelve stone-cists and four *tarand*-graves at *Lagedi* were excavated at the beginning of the 20th century; graves XIV:C, XV:B, and XV:C were single-*tarand*-graves (Spreckelsen 1927, 44 ff.). Grave XIV:C was a limestone heap measuring 4 x 4 m (no walls could be distinguished). It contained mostly cremations. The find material did not include any fibulae, but the rest of the material was similar to that of the other single-*tarand*-graves. Grave XV:B had a north–south orientation, measured 6 x 4.75 m, and contained inhumations (Fig. 124). Both the walls and infill stones were limestone. The rich find material dates to the 4th–5th centuries, but some items also belong to the 7th–8th centuries. The remains of the other single-*tarand* (XV:C) were found 1 m away from the grave described above. It was quadrangular in shape and had, to a large extent, been damaged by ploughing. The *tarand* contained inhumations, and the find material was poor.

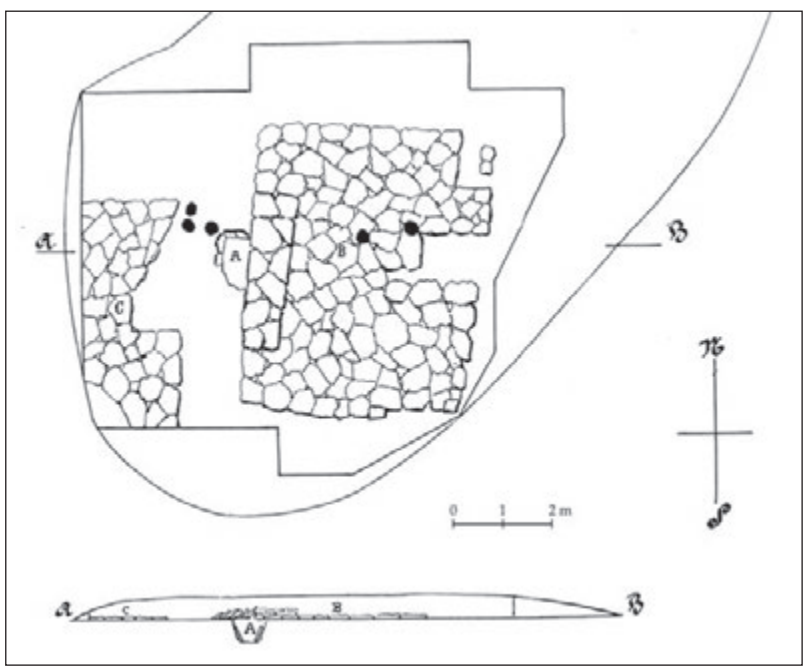

Fig. 124. *Single-*tarand*-graves XV: B and C at Lagedi (after Spreckelsen 1927, pl. 8).*

Grave I at Lehmja-Loo (excavated by V. Lõugas in 1967–1968) measured 6.75 x 5 m. The walls of the *tarand* were made from limestone, and the infill stones were granite. The grave contained mostly cremations, but some inhumations were found in the upper layers. The find material was rich and dated primarily to 300–450 AD, but some items originated from the 7th–8th centuries. Grave IV was probably a single-*tarand*-grave, too; unfortunately, only a thin bottom layer had survived.

The *Proosa* grave group on the right bank of the Pirita River contained a single-*tarand*-grave along with earlier stone-cist graves and a later stone grave without additional constructions such as walls or cists (Deemant 1981; 1982). The length of the single-*tarand*-grave was 7.35 m,

but a portion of the grave had been damaged by a line of trenches. The grave contained cremations, and uncremated bones were found only in one corner. Highly burnt stones suggest that some of the deceased had been cremated in the grave. The find material was abundant (33 different types of artefacts) and also contained some unique items and some made of precious metals (two golden finger-rings were found, among other things), but few ceramics. Many imported items were found (golden rings, some fibulae, an enamelled pendant, and a drinking horn), but this is only a fraction of the richness that reached the Proosa area during the Migration Period. The term of use for the Proosa *tarand*-grave spanned from ca. AD 300 to 450, and burials were placed in the nearby stone grave without constructions at a later date.

In addition to the graves discussed above, several similar graves (at least 14, possibly more) have been found in north-western Estonia (Lang 1987b). It was previously thought that these graves were typical *tarand*-graves and that the construction work had simply ceased after the first *tarand* was finished (Vassar 1966a, 197). The Kurna and Lagedi graves can indeed leave an impression of unfinished *tarands* where the spaces between the separate enclosures are unfilled. The unfinished graves were explained by the age of the respective *tarands* of north-western Estonia (none were established before AD 300) and the disappearance of the custom of building *tarands* soon after the first *tarands* had been completed. The large and separate graves at Proosa and Lehmja-Loo I, however, leave no doubt that the graves had been originally designed as single-*tarand*-graves. Moreover, grave I at Viimsi clearly demonstrates that the custom of erecting joined *tarands* had not disappeared in north-western Estonia even by the second half of the 4th century. Thus, two different types of *tarand*-graves were used in parallel in that part of Estonia during that time.

The single-*tarand*-graves of north-western Estonia[105] cannot be directly associated with the early single-*tarand*-graves occurring among the Estonian Pre-Roman Iron Age graves because no such burial places dating to the intervening period, i.e. the 2nd or 3rd century, have been found. However, similar equivalents occur across the Gulf of Finland. A group of quadrangular graves made from granite stones can be found in a small area of south-western Finland; they measure 6.2–8.7 x 5–6 m, and do not contain very many infill stones. The graves contain cremations (many, usually), and the grave goods date to the Late Roman Iron Age (mostly from the 4th century onward) and to the Migration Period (Keskitalo 1979). The Finnish graves had some peculiarities in comparison with Estonian ones (the inner filling did not reach to the top of the edge walls), and they have not even been labelled as *tarand*-graves there, but there were more commonalities in the burial custom and character of the grave goods than differences. It is highly likely that the late single-*tarand*-graves evolved contemporaneously on the opposite coasts of the Gulf of Finland as the result of mutual interaction. Joined *tarand*-graves and late stone-cist and cairn

[105] Some single-*tarand*-graves have also been found outside north-western Estonia; for example, grave E at Jäbara, though it probably was the only preserved *tarand* from a large joined grave. Grave III at Virunuka in south-eastern Estonia was one of the latest graves of the grave group, and its few burials and finds suggest that indeed no new *tarands* were built there due to the gradual disappearance of the custom of erecting *tarand*-graves. It seems that grave I at Mäletjärve in south-eastern Estonia was also a single-*tarand*-grave (Laul 2001, 84 ff., fig. 32), but an edge of the burial site had been destroyed. The structure found in Mäletjärve was huge: one side of the *tarand* was 10 m long, and the other side was likely even longer. No known Roman Iron Age *tarands* are so large, and that is why it is possible that some partitions were neglected during the excavations (some excavation plans have not been preserved). The large grave contained few burials and finds and they dated to the second half of the 3rd century.

graves (which were also used during the Roman Iron Age) influenced the formation process of single *tarand*-graves in north-western Estonia, if not elsewhere (see Lang 1987b, 202 ff.).

4.7. Grave goods from typical and single-*tarand*-graves

The Estonian Roman Iron Age grave goods are more numerous and diverse than in the previous periods, primarily in the categories of ornaments, small tools, and everyday items. Big tools and weapons are as rare as in earlier periods, and the ceramic finds from the north-eastern Estonian graves are poor. Most Estonian Roman Iron Age grave goods are characteristic of the eastern Baltic region, eastern Prussia, or even central and northern Europe in the broader sense; they reached Estonia by sea directly from the south-eastern coast of the Baltic Sea or over roads through the Baltic region.

Roman Iron Age find material, most of which can be found in *tarand*-graves, has caught the attention of researchers since the beginning of archaeology as a science in Estonia. The material was systematically studied and dated by such researchers as Harri Moora (1938), Marta Schmiedehelm (1955), Artur Vassar (1943), and Silva Laul (2001). However, it should be kept in mind that their research on the origin and dates of the various types of items was primarily based on descriptions of the material culture of the south-eastern coast of the Baltic Sea published at the beginning of the twentieth century (e.g. Tischler & Kempke 1902; Gaerte 1929; Almgren 1923). Polish and Lithuanian authors have published a number of new analyses based on well-dated burial complexes (where coins occur quite often) in the recent decades and revised the dates of earlier researchers to some extent (e.g. Nowakowski 1996; 1998; Bitner-Wróblewska 2001; see also Michelbertas 1986). Two things should be mentioned in regard to the revised data. First, the results of these studies are only now being consistently used in Estonian treatments of the Roman Iron Age (e.g. Rohtla 2005), and there is still a great deal of time-consuming work to be done. Second, the term of use of various items differs by region, and thus the dates for Estonian equivalents depend on exactly where the artefacts originated, which can be difficult to establish. The peculiarity of the burial custom typical to the *tarand*-graves (closed complexes of artefacts are absent or rare) does not allow precise dating of the types of artefacts in the Estonian material. Accurate and time-limited dates for the respective models found outside Estonia are of little help in studying the local or locally modified types of items. Most grave goods found in *tarand*-graves are locally made or modified, and thus it is difficult to establish whether and to what extent their period of use differed from that of the same items in their original contexts.

Fibulae

Fibulae were completely novel fasteners and ornaments that started to spread in Estonia (except western Estonia and the islands) at the beginning of the Roman Iron Age. The oldest fibulae in Estonia are *eye fibulae* of the main series and eye fibulae of the Prussian series (Fig. 125: 1–2). The eye fibulae of the main series found on the south-eastern coast of the Baltic Sea date to the second half of the 1st century, and the eye fibulae of the Prussian series date to the end of the 1st century and the 2nd century (Nowakowski 1998, 46 ff.). The eye fibulae of the main series occur mostly in north-eastern Estonia (ca. 20 items) and are less common in central and south-eastern parts of the country (2), in northern Latvia, and in south-western Finland. These items indicate direct contacts between the north-eastern coast of Estonia and the area around the mouth of the

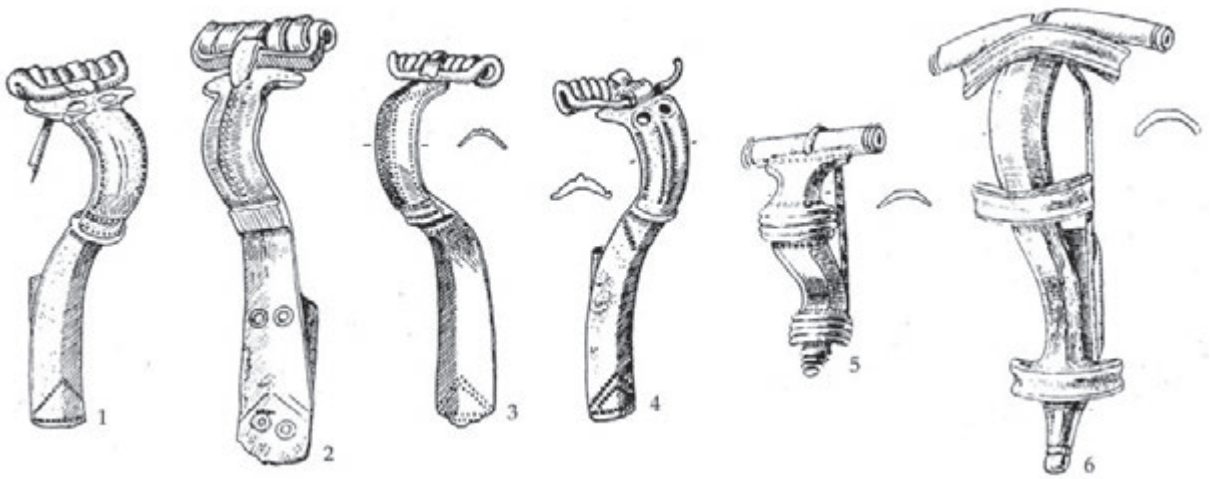

Fig. 125. *Eye fibulae from grave C (1–4) and cross-ribbed fibulae (5–6) from grave B at Jäbara (AI 2617: 95, 98, 128, 147; 3172: 869, 888; after Schmiedehelm 1955, figs. 13: 4, 6; 14: 6–7; 18: 1, 5).*

Vistula River (Schmiedehelm 1931; Moora 1938, 57 ff., map VI). Eye fibulae of the Prussian series are twice as common in Estonia as eye fibulae of the main series, and although they are also more wide-spread in the neighbouring countries, there are so far no eye fibulae of the main or Prussian series found in north-western Estonia. Eye fibulae of the Estonian series that evolved from the eye fibulae of the main series form the largest group of eye fibulae in Estonia (Figs. 125: 3–4, 126: 3). Such fibulae occur mostly in the north-eastern part of the country, and they are less common in central and north-western Estonia (see Schmiedehelm 1955, fig. 56); only a single item has been found in south-eastern Estonia (Laul 2001, 92). So far approximately 100 eye fibulae of the Estonian series have been found; dating of the Piilsi hoard suggests that they were used until the 5th century, which is quite a long period of use (Moora 1938, 60). Eye fibulae from the 4th–5th-centuries are much larger than the previous fibulae. In addition to Estonia, only four similar fibulae have been found in northern Latvia, two in south-western Finland, one in Sweden, and several in Russia, including the items found around Kiev (Moora 1938, 59 ff.).

Several types of early *strongly profiled fibulae* date to the 2nd century and into to the 3rd century; head-shield fibulae (Fig. 126: 2) form the most numerous subgroup. The local forms of these types of fibulae likely date to the 3rd or 4th century (Moora 1938, 70 ff.; Laul 2001, 95 ff.). Head-shield fibulae (over 50 in total) spread rather evenly across the area of *tarand*-graves, but they are slightly more common in northern Estonia.

Cross-ribbed fibulae that evolved from the profiled fibulae form a rather large group (Fig. 125: 5–6); 160 of these fibulae have been found in south-eastern Estonia (Laul 2001, 103), and ca. 50 fibulae were uncovered in northern and central Estonia. Cross-ribbed fibulae originated in the Masurian region where their initial form was in place by AD 200, or at the beginning of the 3rd century (Moora 1938, 85). Moora divided the cross-ribbed fibulae found in Estonia into two groups − a northern Estonian series and southern Estonian / northern Latvian series. Cross-ribbed fibulae of the northern Estonian series occur mainly in northern Estonia, and they can be classified into two chronological groups; the latest items (large and often hollow) date to the 4th century (*ibid.*, 86–88). Türsamäe-type fibulae

Fig. 126. *Fibula of Türsamäe type (1) and head-shield fibula (2) from the* tarand*-grave at Türsamäe, and eye fibula (3) from the grave at Pada (AI 2012: I6, I10; 2655: 182; after Jaanits* et al. *1982, fig. 153: 1–3).*

decorated with enamel also represent one of the latest developmental forms of northern Estonian cross-ribbed fibulae (Fig. 126: 1); the items were found in five Virumaa graves and probably date to the 4th or the beginning of the 5th century (Schmiedehelm 1955, 94 ff.). Laul (2001, 103) distinguished two variants in the second group of cross-ribbed fibulae: one variant was more characteristic of southern Estonia while the other was more common in northern Latvia, and both were likely in use during the 3rd and 4th centuries.

Disc fibulae and penannular brooches were modelled on the respective provincial Roman

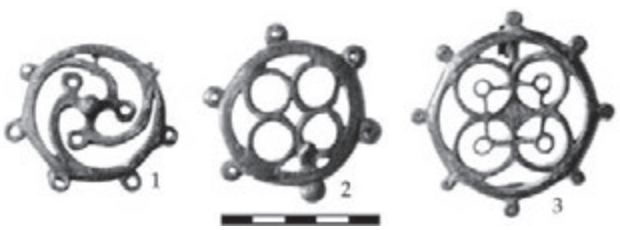

Fig. 127. *Disc fibulae from northern Estonian graves at Pada, Türsamäe and Ripuka (AI 2655: 358; 2012: II13, 618; after Jaanits* et al. *1982, fig. 153: 4–6).*

items; enamel decorations are common on these artefacts. *Disc fibulae* in their many variations occur mostly in north-eastern and south-eastern Estonia (Figs. 127–128). Small disc fibulae with intricate knob decorations along the edges are characteristic of south-eastern Estonia (Laul 2001, 110). Disc fibulae common in other parts of Estonia were frequently large and had smooth or sparse knob decorations along their edges; both types of fibulae also had a different slotted middle section design. Forty-six disc fibulae have been found in south-eastern Estonia and ca. 30 fibulae were found in northern Estonia (Laul 2001, 108; Vassar 1943). Disc fibulae were created over a long period of time, i.e. either from the 3rd to the 5th century or from the 4th to the 5th century (Tallgren 1922, 102; Laul 2001, 114).

Early *penannular brooches* decorated with knobs and bow extensions were common in northern Estonia (dozens of items have been found), but they originated in the Masuria lake region (Schmiedehelm 1955, fig. 15: 1; Moora 1938, 110 ff.). The first brooches were made in Masuria by the turn of the 2nd and 3rd centuries (*ibid*.; Nowakowski 1998, 59), while the brooches typical of Estonia date mostly to the 4th and 5th centuries.

Symmetrical fibulae can be found in small numbers across Estonia, including on Saaremaa Island, and their form evolved from the 3rdcentury fibula with triangular feet. *Fibulae with triangular feet* are even less common in Estonia than symmetrical fibulae; they have been found only at Nurmsi and Jäbara (Moora 1938, 78). Symmetrical fibulae were used in the 3rd and 4th centuries.

Crossbow fibulae form the largest group of fibulae; to date, 330 items have been found, including sub-types dating to the early Migration Period. Crossbow fibulae have many variations, and they were common across wide areas of central and northern Europe during the Late Roman Iron Age. The following overview is based on the

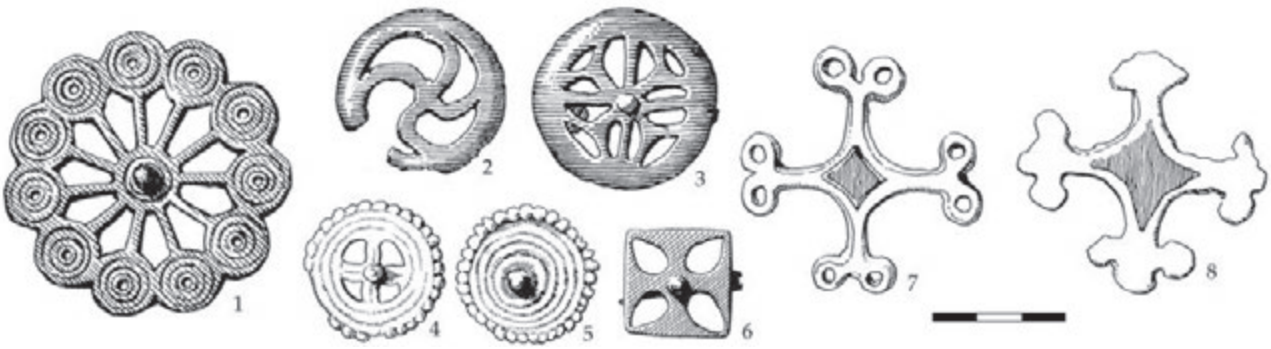

Fig. 128. *Disc fibulae from south-eastern Estonian graves at Kõnnu (1), Jaagupi (2–3), Virunuka (4–5, 7–8) and Aakre (6) (AI 4474: 15; 1702: 33; 3236: 250; 4262: 303, 30; 2011: 2; 4262: 804, 613; after Laul 2001, fig. 41).*

results of a recent study of Estonian crossbow fibulae compiled by Mari-Liis Rohtla (see Rohtla 2005 and the literature cited).

Crossbow fibulae with tendril feet (21 items) are the earliest crossbow fibulae and they spread mostly into the northern Estonian coastal areas and to a lesser extent into the inland regions (Fig. 129: 1). The respective models found on the south-eastern coast of the Baltic Sea date to the 2nd century, whereas the Estonian brooches (large in size) date from the 3rd to the 4th or 5th centuries. The most popular fibulae were crossbow fibulae with tendril feet and head knobs (137 in number; Fig. 129: 2); half of the artefacts in this category were found in north-eastern Estonia and a portion in north-western Estonia. Fibulae with profiled head knobs are rare, and date to the 3rd century, whereas fibulae with wire-wrapped head knobs, which are a local production, date to the period after the turn of the 3rd and 4th centuries. *Crossbow fibulae with ring decorations* were widespread (three variants, 76 items altogether), and the earliest Estonian examples date to the end of the 3rd century (in eastern Prussia they belong

Fig. 129. *Cross-bow fibulae with tendril feet from the* tarand*-graves of Lehmja-Loo (1), Jäbara (2) and Türsamäe (3–4) (AI 4408: 400; 2834: 8; 2012: II20, 19; after Rohtla 2005, fig. 3).*

to the turn of the 2nd and 3rd centuries), and the latest examples come from the late 5th and early 6th century (Figs. 129: 3–4, 130). The fibulae were primarily used as grave goods in northern Estonia and to a lesser extent in south-eastern and western Estonia. *Simple crossbow fibulae with cast needlecases* occur across Estonia (55 items), but they are more common in northern and western Estonia (Fig. 131). They were used mainly during the 4th–5th centuries, as were the *crossbow fibulae with triangular feet*. Crossbow fibulae with triangular feet are a diverse group; some items have precise equivalents in Lithuania. All 17 of the known Estonian fibulae come from the north. *Crossbow fibulae with star- and spade-shaped feet* (Fig. 131: 3–4) have been found mostly in north-eastern, south-eastern, and western Estonia, single items also occur in other parts of the country (18 artefacts altogether). The respective fibulae were first made in Samland by the 4th century, but the Estonian items date to the 5th and 6th centuries. *Crossbow fibulae with animal heads on the feet* (5 items) form the last group; all the items were likely imported from the southern Baltic region (present-day Lithuania). This style of fibulae was popular in the southern Baltic region from the 4th century through the 5th–6th and possibly even 9th–10th centuries. The items remained unfamiliar in the Estonian cultural context.

In addition to the above types of fibulae, a number of differently-shaped fibulae have been found in Estonia, but they are usually single items imported from various countries.

Decorative pins

Shepherd's crook pins made from bronze and iron were still worn in the Roman Iron Age, but not in as great numbers as previously. Shepherd's crook pins occur sporadically across Estonia, and it is impossible to date them accurately in every case. Silvia Laul (2001, 128) claims that, based on their

Fig. 130. *Crossbow fibula with ring decorations from the* tarand*-grave at Paali (AI 3235: 239, 240; after Rohtla 2005, fig. 6).*

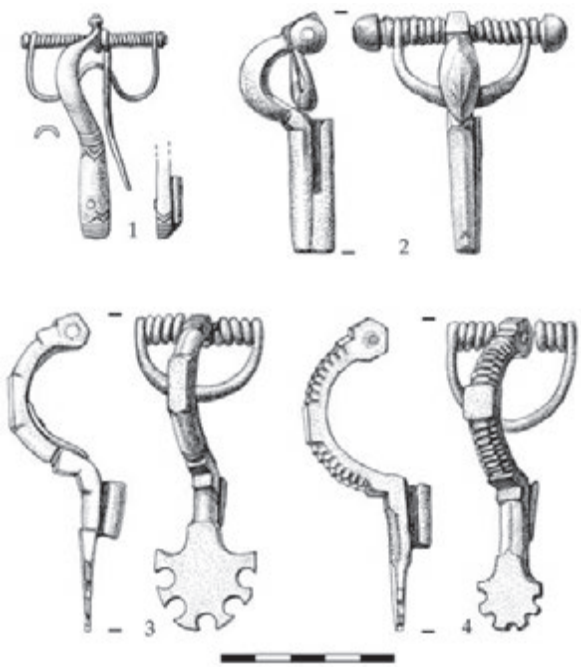

Fig. 131. *Crossbow fibulae with cast needlecases from the graves at Nurmsi (1), Kirimäe (2), Jäbara (3), and Virunuka (4) (AI 2533: 109b; 2509: 5; 3172: 77; 4262: 1029; after Rohtla 2005, fig. 8).*

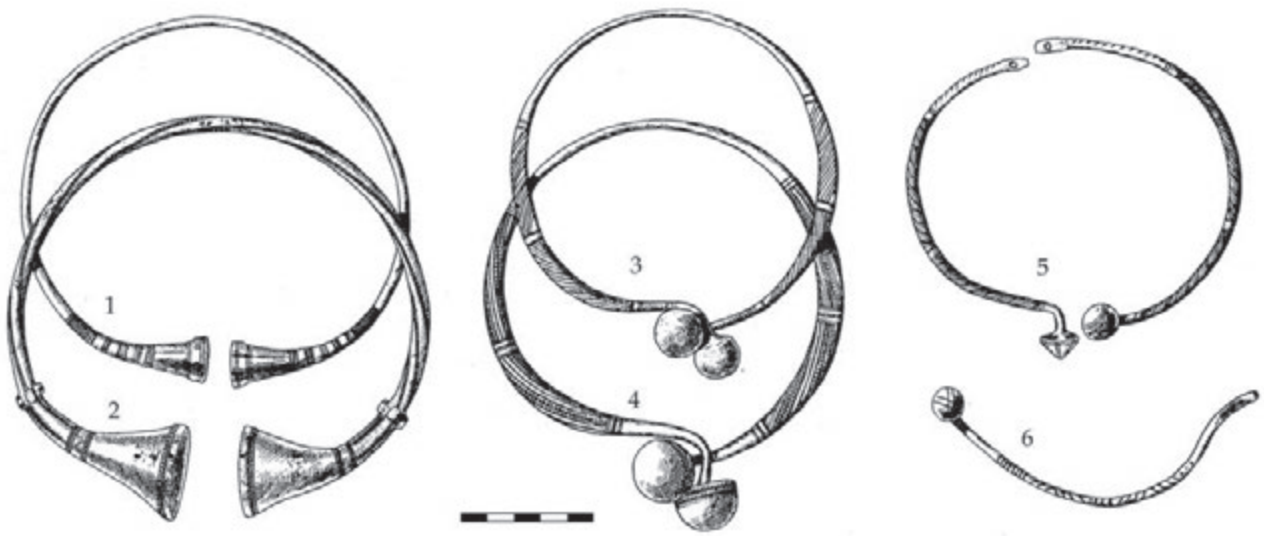

Fig. 132. *Neck-rings from the Mustmätta hoard (AI 3890: 4, 1, 12, 9, 14, 15; after Schmiedehelm 1955, fig. 45).*

typological characteristics (an oblong head widening in the upper part) and occurrence in the late *tarands* of the Virunuka graves, this form of the shepherd's crook pin cannot be associated with the earlier pins and that they were introduced to Estonia at the end of the Roman Iron Age. This style of shepherd's crook pin is common in Latvia, Lithuania, and in northern Belarus (i.e. in the distribution area of the Striated Ware Culture).

The small number of Estonian shepherd's crook pins dating to the Roman Iron Age can be explained by the disappearing custom of wearing decorative pins. Shepherd's crook pins are rare in the Estonian typical *tarand*-graves compared to the barrows of Latvia and Lithuania where various types of decorative pins were common grave goods. The few pins with reel-shaped, profiled, wheel- or rosette-shaped heads found in Estonia were all imported from the southern Baltic region (e.g. Schmiedehelm 1955, fig. 15: 2, 25: 6, 36: 2–3; Laul 2001, fig. 52). Decorative pins became more common only at the end of the Roman Iron Age and in the Migration Period (on pins with conical and triangular heads see Moora 1938, 200 ff.; Laul 2001, 130).

Neck-rings

Neck-rings became increasingly popular during the Roman Iron Age in the same area where typical *tarand*-graves are located. *Neck-rings with trumpet-shaped ends* formed an early type of neck-ring, which reached Estonia from western Latvia, western Lithuania, or eastern Prussia around the 2nd century. Dozens of neck-rings with trumpet-shaped ends, both thin and massive, have been found; three fourths were found in northern Estonia, and the rest were uncovered in southern Estonia, whereas no neck-rings have been found in the central part of the country. The Mustmätta hoard contained eight neck-rings with trumpet-shaped ends (Fig. 132: 1–2), and the Liimala and Kiiu hoards each contained one neck-ring (Schmiedehelm 1955, 161 ff.). Neck-rings with trumpet-shaped ends were used in Estonia through the beginning of the 4th century, as was the case in the southern Baltic region (*ibid*.). The period of use and distribution area of *neck-rings with loop-shaped ends with three plaited wires* is similar to that of the neck-rings with trumpet-shaped ends. Neck-rings with loop-shaped

ends are a form of ornament characteristic of the eastern Baltic region, and about one dozen such items have been found in Estonia (Moora 1938, 273 ff.; Laul 2001, 133).

Over 50 *neck-rings with mushroom-shaped ends* have been uncovered, primarily in northern and central Estonia (Fig. 132: 3–6), and hundreds of neck-rings of this type have been found in Latvia and Lithuania. Neck-rings with mushroom-shaped ends emerged by the Pre-Roman Iron Age and reached the eastern Baltic region at the end of the 2nd century. Neck-rings in their many variations were used until the 4th or even the 5th century in some places (Moora 1938, 278–299). *Neck-rings with winded bows and hook or case shutters* represent a type of ornament that was common in central and northern Europe; in the Baltic region they can be divided into several subtypes. In some cases the neck-rings were decorated with enamel (e.g. Kurna, Saha, Jaagupi, and Virunuka). These rings date to the 4th or the 5th century, but their eastern Prussian and western Lithuanian equivalents date to a slightly earlier period (Moora 1938, 321).

The above neck-rings represent the cultural traditions of the southern Baltic region, whereas *neck-rings with alternate ridged end-plates* represent a Germanic form (Fig. 133). These rings reached the Finnish, Estonian, and northern Latvian area of *tarand*-graves through Scandinavia during the Late Roman Iron Age (Moora 1938, 299 ff.). Seventeen of these rings have been found, mostly in northern Estonia, and the accompanying finds suggest that they date to the 4th century and the first half of the 5th century (Lang 1996a, 153). This type of neck-ring remained foreign to the Latvian and Lithuanian areas. *Neck-rings with alternate and thickening ends* date to the end of the Roman Iron Age and to the Migration Period. Moora claims (1938, 322) that this style of neck-ring replaced the neck-rings with mushroom-shaped ends that disappeared in the 5th century. Neck-rings with alternate and thickening ends

Fig. 133. *Neck-ring from Lehmja-Loo (AI 4539: 8).*

reached Estonia from the southern Baltic region, and they occur in all parts of the country, including western Estonia and Saaremaa Island.

Bronze spirals, *beads* made from bronze, glass, clay and amber, and *pendants* of various shapes indicate that many other neck ornaments were worn in addition to neck-rings. The styles of these ornaments were borrowed from southern neighbours, and they were used across the distribution area of the typical *tarand*-graves in the Late Roman Iron Age (Moora 1938, 348 ff; Laul 2001, 135 ff.).

Bracelets

Typical *tarand*-graves contain a wide selection of bracelets. As noted, plain narrow *bronze bracelets with a band-like or hollow-convex cross-section* became rather common in *tarand*-graves dating to the Late Pre-Roman Iron Age, but were also worn in the Roman Iron Age. Thin *serial armbands* were also first made during the Pre-Roman Iron Age, but they are most frequently found in graves dating to the 1st or 2nd centuries (Fig. 134: 2). Serial armbands only occur in the distribution area of the *tarand*-graves in Estonia and Latvia

Fig. 134. *Knob-ended bracelet from the* tarand*-grave of Pada (1) and serial bracelets from the* tarand*-grave Triigi (2) (AI 2655; 2013; after Jaanits* et al. *1982, fig. 149: 5–6).*

(Schmiedehelm 1955, 67). Serial armbands were also worn during the Late Roman Iron Age, but they became more massive at that time. *Knob-ended bracelets* form the third group of Early Roman Iron Age bracelets (Fig. 134: 1; Schmiedehelm 1955, 65 ff.), and they spread mostly throughout north-eastern Estonia, as did the eye fibulae of the main series. Knob-ended bracelets, which were popular ornaments around the lower reaches of the Vistula River, probably reached northern Estonia from there along with the fibulae (*ibid.*). Spiral bracelets likely date to the Bronze Age; they were common ornaments at the time, but the items remained part of the Iron Age set of ornaments only in the countries located on the eastern coast of the Baltic Sea, particularly Latvia, western Lithuania, and eastern Prussia. They were less common in Estonia and Finland (Moora 1938, 445 ff.).

Fig. 135. *Bracelets from the* tarand*-graves of Saha D and Proosa (AM 49: 58; TLM 17877: 46).*

A small number of *bracelets with a band-like cross-section of the bow and a round cross-section of the ends* date to the 2nd or 3rd century. Such bracelets were common in the area of the Latvian and Lithuanian barrow cemeteries; the items found in Estonia may also have originated in that region (Moora 1938, 375 ff.). *Bracelets with a round cross-section* date to the same period, and they occur with some exceptions only in southern parts of Estonia, but they were rather popular in the southern Baltic region (Moora 1938, 381; Laul 2001, 154 f.). *Bracelets with hexahedral or octahedral cross-sections* developed from the bracelets with round cross-sections in the southern Baltic region, and they became popular all over the eastern Baltic region during the Late Roman Iron Age. That type of bracelet spread mostly throughout northern and south-eastern Estonia (Moora 1938, 390 ff.; map IX).

Bracelets with hollow or plano-convex cross-sections were the most widely used bracelets in the area of Estonian, Finnish, and Latvian *tarand*-graves (Fig. 135); they are divided into several sub-types based on their width and other details (see Moora 1938, 408 ff.; Laul 2001, 147 ff.). Most bracelets are decorated either fully or only at their ends with transverse ridges, eyes, and dotted lines. Bracelets with hollow- or plano-convex cross-sections emerged in the 2nd or 3rd century, and they remained a popular type of ornament until the Middle Iron Age.

Finger-rings

Finger-rings are rare in early *tarand*-graves, and they occurred only in the latest layers, however they became common finds in the typical *tarand*-graves, particularly in northern and central

Fig. 136. *Closed finger-rings from the stone grave at Iru (AI 4128: 44, 39).*

Estonia. Closed finger-rings with plano- or hollow-convex (*resp.* triangular) cross-sections are the earliest types of finger-rings and were developed from central European forms dating to the Pre-Roman Iron Age (Fig. 136; Moora 1938, 455 ff.). In addition to the south-eastern coast of the Baltic Sea, the finger-rings also occur in the area of *tarand*-graves in the eastern Baltic region, and in particular in north-eastern Estonia (over 300 items). Closed finger-rings with plano- or hollow-convex cross-sections emerged in that area in the 2nd century (Schmiedehelm 1955, 81 ff.), and they were definitely also produced in the 3rd century (reaching north-western Estonia at that time) and perhaps even during the 4th century in some areas.

Spiral finger-rings (Fig. 137) were the most common finger ornaments and northern and central Estonian *tarand*-graves have revealed tens and even hundreds of such rings (e.g. Jäbara B, Pada, and Nurmsi), but they were less common in southern Estonia (see Lang & Ligi 1991, tab. 3). Spiral finger-rings appeared around the 3rd century, and they were common until the end of the Roman Iron Age; their numbers decreased considerably during the Migration Period (see Lang 1996a, 127).

Fig. 138. *Spiral finger-ring from* tarand*-grave I at Lehmja-Loo (AI 4408: 472).*

In addition to closed and spiral finger-rings, some other types of rings occur in limited numbers in the graves, such as finger-rings with volutes and finger-rings with longitudinally ridged middle-shield or end-plates (Fig. 138). The latter are similar to neck-rings with ridged end-plates, which also reached northern Estonia from Scandinavia (see Lang 1996a, 176 ff.). Closed and spiral finger-rings date to the 4th and 5th century.

Tools, parts of belts and weapons

Unlike ornaments, tools are rare in typical *tarand*-graves. *Knives* (Fig. 139: 2–4) occur most often, and early graves contain primarily knives with straight or curved backs and sickle- or scythe-knives. Differently shaped *crooked knives* with straight, spiral-ended, or tortured tangs form a unique group (Fig. 79). These kinds of

Fig. 137. *Finger-rings from* tarand*-grave I at Viimsi (AI 5914: 109, 52, 202, 117b, 191, 261).*

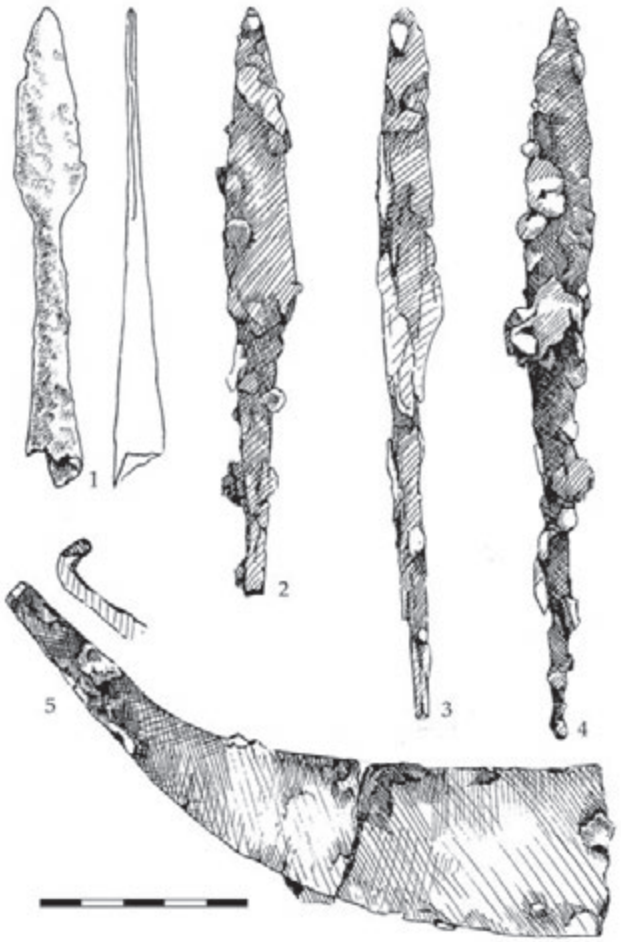

Fig. 139. *Spearhead (1), knives (2–4) and a fragment of a scythe (5) from* tarand*-grave I at Viimsi (AI 5914: 127, 239, 253, 213, 216).*

knives reached Estonia from Scandinavia or the south-eastern coast of the Baltic Sea at the beginning of the Late Roman Iron Age (Vassar 1943). Crooked knives remained relatively foreign to what is now Lithuania, Latvia, Finland,[106] and southern Estonia, but they are rather numerous (more than 100) in northern and central Estonia.

[106] Only few crooked knives have been found in the Roman Iron Age and Middle Iron Age contexts in Latvia and Finland (LA, 1974, pls. 31: 6, 37: 22–23; Kivikoski 1973, figs. 173, 365).

Fig. 140. *Scissors from* tarand*-grave I at Lehmja-Loo (AI 4408: 315).*

Crooked knives were used in Estonia even as late as the Migration Period (Lang 1996a, 192). Such knives occur in both male and female burials in their region of origin, and thus the previous interpretation that they were used as razors is not entirely valid; the knives were probably multi-functional cutting tools (Vassar 1943).

Some sites across Estonia have revealed single *axes* that represent a later form of socketed axes (see above, Fig. 74). The *iron hoe* found in the Hannuste grave is a unique find in Estonia, but was common in western Latvia particularly during the Middle Iron Age (Laul 2001, 163). *Scissors* occur infrequently (Kambja, Liiva-Putla and Lehmja-Loo; Fig. 140) while *needles, awls, spindle whorls,* and *tweezers* are slightly more common finds. Oblong-oval *whetstones* with bored holes have been found at several sites (Fig. 141). Only single examples are know of iron or bone *combs* (Jäbara E and Toila II; Schmiedehelm 1955, fig. 26: 8), *crucibles* (Põlgaste), and *fire striking stones* (Sandimärdi at Verevi and Virunuka). Single graves have contained *drinking horn mounts* made from bronze, and these date to the Migration Period (e.g. Jäbara E, Ojaveski, and Kohtla-Järve II, Schmiedehelm 1955, fig. 24: 5–6).

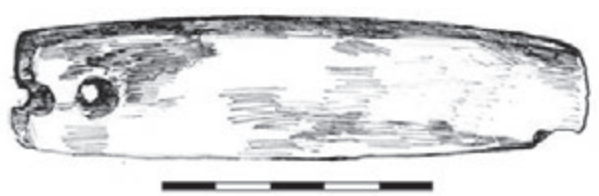

Fig. 141. *Whetstone from* tarand*-grave I at Lehmja-Loo (AI 4408: 478).*

Parts of belts are uncommon in Estonian typical *tarand*-graves as they also were in early *tarand*-graves, and the same applies to the southern Baltic region. Single *buckles* occur only among the latest finds and represent the forms typical to the Migration Period. Differently shaped *strap tags* are slightly more common than buckles; they were mostly imported from the south-eastern coast of the Baltic Sea.

Weapons are also rare in *tarand*-graves, and they occur only in those parts of graves that date to the end of the Roman Iron Age and the Migration Period. *Spearheads* are the most common weapons in *tarand*-graves (e.g. Virunuka, Viimsi, Mõigu, and Proosa; Fig. 139: 1), but *fragments of shields* also occur in single cases (Jäbara E; Schmiedehelm 1955, fig. 26: 2–3).

Ceramics

Ceramic finds occur disproportionately in typical and single-*tarand*-graves. North-eastern Estonian graves with rich grave goods contain no ceramics or only a small number of potsherds. The same applies to the 3rd century graves in north-western Estonia, whereas 4th–5th century single-*tarand*-graves and joined *tarand*-graves contain abundant ceramic finds. *Tarand*-graves located in central Estonia and particularly in south-eastern Estonia are rich in pottery. Saaremaa Island graves that date to the end of the Roman Iron Age also contain some ceramics. The ceramics occur as potsherds scattered all over the site, indicating that pottery was used in various rites during or after burials, but were no longer used as grave goods, which was an earlier burial custom.

The following two main types of ceramics can be distinguished among the ceramic finds of all the regions: large pots with coarse-grained rock temper (e.g. Nurmsi-style coarse-grained ceramics and Late Textile Ceramics) and fine-grained pottery with carefully finished surfaces (Nurmsi-style fine-grained ceramics and Salenieki-style ceramics). Ceramics were discussed in more detail previously (3.3).

4.8. *Bauta*-stone graves

The *bauta*-stone graves, or graves with standing stones, located in Valkla are a unique grave form in the Estonian context. The graves were located on the coastal plain near the glint, 170 m from the sea coast and 6.7 m above sea level. Four cremations were uncovered during the archaeological excavations carried out in 1937 (Saadre 1938). One cremation was located in a small stone circle while the other burials had been marked with standing stones 1–1.5 m in height (Fig. 142). One of the burials marked with standing stones had been destroyed, but the other burials revealed metal items in addition to cremated bones. A knife, a closed finger-ring, a fragment of a bronze

Fig. 142. Bauta-*stone grave at Valkla (after Saadre 1938, fig. 2). a find, b cremated bones.*

ring, and a piece of bronze were found in one burial while another contained a knife, a bronze decorative pin, an awl, a closed finger-ring, and a piece of bronze. The bones were highly cremated, and they had been cleaned before they were placed in the grave. These grave goods date to the 3rd century.

Vassar (1966b) aimed to show that the Valkla graves represented a wide-spread Estonian grave type. However, his comparison to the standing stones of the Lülle ship graves and the finds from Kiiu and Kirimäe originate from different types of graves or were investigated by amateurs, and thus his observations are not convincing. The Valkla *bauta*-stones represent, without any doubt, a separate grave form which is so far unique in Estonia, but which is common in many places in Sweden (Stenberger 1977, 259).

4.9. Pit graves

The analysis of above-ground stone graves dating to the Bronze and Early Iron Ages indicates that only a portion of the population from that period was buried in such graves. Cemeteries with pit graves may have served as alternative burial places. Unfortunately, there is little data concerning pit graves despite the fact that they were used during all of the archaeological periods discussed in this study. It is impossible to find pit cemeteries by visual inspection of the landscape alone, and so far they have only been discovered by chance during archaeological or other kinds of excavations.

It seems that one burial custom involved placing the cremated remains of the deceased in pits, urns, or on the ground. The Põlgaste grave in south-eastern Estonia provided evidence of cremations placed in pits (Laul 2001, 27). A layer containing charcoal and cremated bones, which was 5 cm in thickness, was found approximately one half meter beneath the *tarand*-grave at Põlgaste. No grave goods were found, but the burial was radiocarbon dated to the turn of the Early and Late Bronze Ages (2900±120 BP; the calibrated value is 1260–920 BC; Laul 2001, 27). Cremations in urns are rare; nevertheless, some such burials have been found at Ruusa, Antsla, and Kuigatsi in southern Estonia (Lillak 2006). The excavations of stone graves at Vehendi, Tsiistre, Ilmandu, and Tõugu have revealed cremations that were placed either on the original ground or in the upper layers of soil beneath the stones. The radiocarbon dates obtained at Vehendi and Tsiistre indicate the end of the Bronze Age and the Pre-Roman Iron Age, i.e. 2315±90 BP (520–200 BC) and 2460±50 BP (759–411 BC) respectively, for use of the pit graves (Laul 2001, 31; Konsa 2003, 146). A layer containing cremated bones was discovered under grave III at Ilmandu and an associated charcoal sample dated to an even earlier period, i.e. the 12th–9th centuries BC (see above). The scattered cremations found under grave II at Tõugu likely date to the Early Pre-Roman Iron Age or the preceding centuries. Cremated bones were also found under the Toila stone grave (Schmiedehelm 1955, 51).

There is also some information about inhumations in pit graves. A good example is a Late Bronze Age burial with plain spiral temple ornaments found under grave II at Lehmja-Loo (see Lõugas 1991, 66, fig. 2). The Tamsa grave in southern Estonia can be dated to the Late Pre-Roman Iron Age, although the skeletons were not found in their original positions. Shepherd's crook pins made from iron were the most common finds at Tamsa. It may be that inhumations in pit graves had been placed under the Nava stone grave containing cremations; the following items were found nearby: shepherd's crook pins, a temple ornament with a spiral middle part and spoon-shaped ends, a socketed axe with a loop, a sickle-knife, and fragments of other types of knives. Badly-preserved inhumations, together with an iron knife and a flint flake, were found under the

stones of *tarand*-grave C at Jäbara (Schmiedehelm 1955, 62). Several temple ornaments with spoon-shaped ends found on Saaremaa Island may also indicate the presence of ancient inhumation burials (Jaanits *et al.* 1982, 184).

Pit graves with either cremations or inhumations have been discovered and researched to a greater extent in Latvia, eastern Lithuania, and neighbouring areas to the east. The Ķivutkalns Early Bronze Age cemetery near the lower reaches of the Daugava River is a unique burial place which is located on the hill under the Ķivutkalns fortified settlement layer (Denisova *et al.* 1985). Some other pit graves with stone constructions are worth mentioning. One hundred and ten graves at the Raganukalns cemetery were archaeologically studied, and archaeologists found both cremations and inhumations, but no grave goods. Some burials had been placed in stone-cists while other graves contained only single stones. This burial place has been dated to different periods; it was probably established by the Bronze Age, but was also used at the beginning of the Pre-Roman Iron Age (Graudonis 1967, 64 ff.). A similar burial place was discovered at Kernavė in Lithuania (Luchtanas 1992). The cremation burials had been placed either in clay urns, between the stones, or simply in pits. The Lankiškės pit grave cemetery with cremations was found in present-day Belarus near the Lithuanian border (Kulikauskas *et al.* 1961, 125 f.). The surface area of the excavation was 3600 m², but only 81 sparsely distributed graves were located within this area, and most burials contained no grave goods. The cremated bones had been gathered from the fire place and placed in pits that were 30–50 cm in depth. Some graves also revealed fire places, stones, and possibly even a stone circle. Two inhumations were also found. Striated ceramics were the most common grave goods (including some miniature clay vessels), but some shaft-hole stone axes, flint flakes, and a bronze finger-ring were also found. The Kernavė and Lankiškės cemeteries date to the Pre-Roman Iron Age, and other similar burial places have been found within the Striated Ware Culture area.

It can be estimated that pit graves with cremations and inhumations were rather common in Estonia, as they were in neighbouring areas to the south and south-east. So far, this kind of burial has been found under later graves, suggesting that the burial custom might pre-date the stone graves. It is likely that burial in pit graves or on the ground was practised in parallel with burial in stone graves; however, there is no direct evidence to support the claim. Nevertheless, data regarding cemeteries with pit graves gives us a better picture of the diversity of Bronze and Early Iron Age burial customs.

4.10. Conclusion

Above-ground stone graves are the main Late Bronze and Early Iron Age grave forms that have been archaeologically studied in Estonia. The grave forms originated locally and developed further during the period under discussion, though in some cases the influence of neighbouring areas can be observed. It is probably not an exaggeration to claim that influences in sacred architecture and burial customs spread from Estonia to the north and south during some periods. Close contacts between the people of various regions were not limited only to trade but also entered the realm of mental culture. Besides substantial social and cultural impacts, there were also marginal impacts that remained foreign to the local cultural context. For example, ship graves, *bauta*-stone graves, and a number of imported items were neither widely accepted nor developed further. The problem of how to interpret these developments within the context of a culture will be discussed in the next chapter.

The development of above-ground monumental burial places first started with the establishment of stone-cist graves in the coastal areas of northern and western Estonia and the islands at the turn of the Early and Late Bronze Ages. Contacts with the north, west, and south may have influenced the construction work. Stone-cist graves were erected until the Early Pre-Roman Iron Age (incl.), but later burials and sacrifices were placed in the graves until the Roman Iron Age, in some places. A single grave type was characteristic of the first developmental phase of the stone graves (Late Bronze Age), although there were several variations of stone-cist graves. As noted, the innovative tradition of ship graves did not take root in Estonia.

A new grave type emerged alongside the stone-cist graves at the end of the Bronze Age, and influenced the development of sacred architecture over the next 1000 years. The first early *tarand*-graves consisted of both cists and small cist-like *tarands* which had been originally designed for individual burials, similar to the cists in the stone-cist graves. Thus, it seems that those researchers who claim that *tarands* evolved when cists were made larger are correct. *Tarand*-graves likely developed from stone-cist graves that consisted of several cists. That *tarand*-graves were used in parallel with stone-cist graves over several centuries can be established by a number of grave goods that coincide typologically and chronologically. Several types of early *tarand*-graves, late stone-cist graves, and cairn graves, which developed in parallel, indicate that burial customs were diverse, in particular during the Early Pre-Roman Iron Age. Early *tarand*-graves became dominant at the end of the period, but burials were also placed in cairn graves, and in some stone-cist graves. It should be stressed that the tradition of stone graves developed mostly in northern and western Estonia and on the islands prior to the turn of the era, but there were also some exceptions.

The form of the typical *tarand*-grave developed from a particular type of early *tarand*-grave in north-eastern Estonia during the Early Roman Iron Age; it spread quickly to central and south-eastern Estonia and gradually reached the north-western and south-western regions and even the islands. Typical *tarand*-graves were the first above-ground stone graves in large areas of the country. However, the spread of the grave form does not reflect migration, but rather was the result of the spread of religious beliefs and ideology. In addition to the new burial custom, innovations also took place in lifestyle, clothing, and tools.

A number of discoveries indicate that cemeteries with pit graves were used for both cremation and inhumation burials in all parts of Estonia; there is also data about burials in urns. Although pit graves pre-dated stone graves in some areas, both types of graves might have been used concurrently during a particular stretch of time. Unfortunately, pit graves are difficult to discover, and have thus not been thoroughly studied so far.

Chapter 5

People, Society, and Culture in the Late Bronze and Early Iron Ages

The previous chapters dealt with Late Bronze and Early Iron Age types of settlement sites, settlement patterns, agriculture, handicraft, burial customs, and grave forms. This final chapter will focus on the people of the time. People have left traces in the archaeological record either in the form of human remains found in graves or through various activities and constructions. Dwellings, fields, graves, and various items were all created by people, and are the direct remains of human activity in the archaeological record. However, the present chapter discusses such phenomena that usually do not leave behind concrete material traces. Humans are social beings, and thus it is necessary to analyse first the social organization that the people of the time established for themselves to work and live in. Though social relations are non-material in their essence, they are rather real; they can be archaeologically studied by making generalizations about human social behaviour, which can be established through site investigations and analysis (Wason 1994). Besides social relations, culture is an important and inseparable part of human existence. The reflection of culture in material objects was already discussed above, but here some more general aspects will be dealt with, including cultural explosion, cultural contacts, interpretation of culture, and both artistic thinking and expression. Religion has also played an important role in the development of culture. Religious behaviour can manifest itself in material objects similar to culture as a whole, and through these manifestations something about the content and nature of religion can be recovered.

5.1. People and society based on settlement and grave finds

5.1.1. Individual

Biological data about the people of the Late Bronze and Early Iron Ages is scarce, and there are several reasons for this. First, cremation burials were common over a long period of time, which does not allow investigation and data recovery regarding many topics. Second, stone-cist and early *tarand*-graves with inhumations rarely reveal intact skeletons: the bones of various burials are mixed or the graves contain only partial burials. Third, unfortunately archaeologists excavating the graves have sometimes neglected

the actual human remains and have focused on the grave constructions and goods. Thus, the bones found in the graves have not been documented precisely enough (in particular single or mixed bones), which makes their osteological analysis more difficult. Different generations of anthropologists have concentrated on different characteristics ranging from establishing the sex and age, measuring the body height and anatomy of the skull to estimating the health, diet, and pathologies of the people of the time (see the work of Adolf Friedenthal, Karin Mark, Leiu Heapost, Raili Allmäe, Ken Kalling, and Jonathan Kalman). The anthropological material of many graves needs to be studied thoroughly, and thus the following overview cannot present systematic, exhaustive, or statistically reasoned knowledge about Bronze and Early Iron Age populations; the overview consists of single observations from various regions and across centuries.

There is little data to calculate the average height of people who lived in the Late Bronze Age and at the beginning of the Iron Age. Available data suggests that the figures were similar to the contemporary ones: an adult of the time was likely 160–190 cm in height. The people buried in the northern Estonian stone-cist graves were of strong build, often tall and muscular. Their skulls were large, faces narrow, noses of average width or narrow, and chins wide and powerful; Friedenthal claimed that they were representatives of the so-called northern race, and that the people with the closest anthropological characteristics inhabited Scandinavia and the lower reaches of the Vistula River (Friedenthal 1931, 30 ff.).

The health of the people was generally satisfactory. However, all the analysed graves have revealed substantial traces of various diseases and pathologies. The young adults buried in the Rebala stone-cist graves suffered from several infections and spinal diseases, which today are common in old age, but in this case they indicate heavy labour (Kalman 1999). The people buried in grave II at Tõugu and grave IV on Tandemägi at Võhma suffered from scurvy, arthritis, enamel hypoplasia and dental caries, and fractures were also frequent (Kalman 2000b–d). Scurvy results from a lack of vitamin C, which can be found in fresh fruit and raw plants. It is not surprising that scurvy was common at the time because fresh fruit can be consumed in Estonia only during a short period of time each year, and cooked food was characteristic of the early permanent agricultural settlements. Enamel hypoplasia can be caused by childhood diseases (at the time when teeth grow) and lack of nutrients, which causes stress. It is known that the diet of early farming societies was poorer in the quality and quantity of food than that of the hunter-fisher-gatherers. Twenty-eight percent of the people buried in the Tõugu grave II suffered from enamel hypoplasia, whereas the respective figure for the Tandemägi IV grave was only 5.1%.

The spread of dental caries is also associated with the transition to a farming society because the disease results from sugar, especially saccharin, found in plants like cereals that are used for food. The proportion of teeth affected by dental caries varies from 2.4 to 3.5% in the presently studied graves at Tõugu, Tandemägi, Rebala, and Poanse, whereas the figure for the Tõnija grave, which dates to a much later period, was 6.8% (Kalman 1997). The rather low percentages suggest that cereals were used for food, but that people were not fully dependant on cereals yet (Kalman 2000a). The chronology of the above graves indicates that dental caries became more common over time.

As for fractures, it should be noted that most accidents occurred during everyday activities and were not the result of violent interactions (Kalman 2000b). There are some rare exceptions at Tõugu, Rebala, Muuksi, and Poanse, however, that indicate interpersonal acts of violence. For example, the shinbone of a 15-year-old in

one of the Muuksi graves had been cut so that it caused a long-term abscess (Friedenthal 1931, 32). An individual found in grave IIC at Tõugu had fractures near the left eyebrow and in the middle of the right elbow, and the skull of a 6–8-year-old child had traces of scalping (Kalman 2000b). The act of scalping needs not to be associated with violence because it may be explained by certain post-mortem cultural traditions (*resp.* rites). The elbow bones of the individual uncovered at Tõugu were well healed, which indicates that skills necessary to take care of the wound were known, while the man with a similar injury found in grave II at Poanse had developed a malunion of the elbow bones. The people buried in grave II at Poanse had sustained other injuries too, and some of them resulted in death (Kalman 2000a). A deep cut in the thighbone recovered from a Rebala stone-cist grave indicated that the person had died of the injury (Kalman 1999).

Palaeodemographic calculations show that the average life expectancy of the people buried in the stone-cist and early *tarand*-graves ranged from 20–25 years (Kalman 2000a–c).

5.1.2. Community

As noted above (2.2.1), Late Bronze Age fortified settlements consisted of several families and the estimated number of members in a typical community ranged between 30 and 50. Open settlements dating to the same or a later period have not been studied enough to estimate community sizes. It can be claimed that open settlements were usually small sites with a thin cultural layer, and thus the settlements must have been relatively small. Grave material is used to estimate the size of the settlement units, whereas the assumption is that members of the same community were buried in the same grave (or in a grave group).

The size of a community can be calculated based on the number of burials per grave, length of time that the grave was used, and the coefficient of mortality.[107] The coefficient of mortality in the Late Bronze and Early Iron Ages was 40–50‰, depending on the average life expectancy (20–25 years). Inadequate data (not all the graves of the each grave group were excavated, bone analyses are inadequate, or it is difficult to establish the time when the grave was used due to the absence of grave goods) does not always allow estimation of the size of a community that was buried in a stone-cist grave. The fully excavated and osteologically studied Jõelähtme graves revealed that at least 68 people had been buried there over a period of four or five centuries, and thus it can be estimated that the community consisted of three or four (3.4–4.25) members.[108] The five graves of the Lastekangrud in Rebala consisted of 41 inhumation burials (Lang *et al.* 2001, tab. 1); ca. five burials should be added to the figure (based on the average number of preserved burials in the cists) because the sixth grave had been destroyed. Unfortunately, it is impossible to accurately establish the term of use of the Rebala graves. If one estimated that the graves were used for 150–300 years, then the size of the community would be four to eight persons.[109]

Based on the data of these and the other fully excavated groups of stone-cist graves (Iru, Väo,

[107] The simplified formula for calculating the size of a community is the following: S = N: (M·T); S stands for the size of the community, N the number of burials in a grave, M the coefficient of mortality, and T the term of use of the grave in years (Lang & Ligi 1991).

[108] Some of the Jõelähtme graves had been destroyed previously as a result of road work, and thus the community could have been slightly larger, but it definitely did not exceed 4–5 persons.

[109] It must be noted that the age structure of the community buried in the Rebala graves differs significantly from the average; the number of children and young adults was large, while few older adults were found in the graves. The average life expectancy at birth for this grave group was only 13.3 years (Lang *et al.* 2001, 45).

and Kuristiku), one can estimate that on the average four or five graves were built per grave group over a century, i.e. one per generation (Lang & Ligi 1991; Lang 1995d). Thus, every generation of the respective settlement unit established a new stone-cist grave. Jõelähtme is the only exception because at least two graves were built per generation there. The inconsistency can be explained in two ways: two communities buried their dead in the grave group, or a different burial custom was practised there. It may well be that the burial custom differed because 15 graves out of 36 contained only the burials of infants, children, or adolescents, and thus the burials do not reflect the principle of generation, according to which each grave should also contain burials of fertile adults (or even older people). The remaining 21 graves would be expected to include the burials of 21 generations, or four to five centuries, depending on the average life expectancy. That is more or less consistent with the burial customs common in other parts of Estonia. In addition to the different burial custom, one should also keep in mind other differences between the Jõelähtme grave group (usually small low graves located close to each other) and the other Estonian groups of stone-cist graves where the number of graves is much smaller, and the graves are more scattered.[110]

Palaeodemographic data concerning early *tarand*-graves is not more complete than that for stone-cist graves; the osteological material from many large burial sites has not been analysed at all, and the number of *tarand*-graves studied with modern anthropological methods is smaller than that of corresponding stone-cist graves. It may be that grave I at Poanse, with seven *tarands*, and grave II with two *tarands*, were used by a community consisting of four to six members (depending on the term of use of the graves), but the community could also have been slightly larger, considering the under-representation of child burials (Kalman 2000a, 34 f.). The Tandemägi grave at Võhma consisted of three *tarands* and was used by a community of approximately six individuals in the Late Pre-Roman Iron Age (Lang 2000a, 206). Some other early *tarand*-graves have revealed so few burials that the numbers are too small even for a nuclear family, considering the term of use of the graves (e.g. Uusküla II, Tõugu IIB and IIC, Ilmandu III).

Therefore, it can be claimed that the burials found in stone-cist graves and early *tarand*-graves belonged to communities with four to six members. On the other hand, it is unlikely that the settlement units were such small communities because they would have lacked viability. A settlement unit was probably slightly larger, but only some of the people were buried in stone graves; they may have belonged to a nuclear family owning the surrounding land. This may reflect an elite background for above-ground stone graves.

So far, graves I and II at Viimsi and Tuulingumägi at Tõnija are the only Roman Iron Age classically joined *tarand*-graves that have been osteologically studied. Grave I at Viimsi revealed at least 21 cremations and 11 inhumations, but roughly the same number of child burials should be added to the figure (osteological analysis distinguished the bones of only two children). The term of use of the grave (ca. 150 years) suggests that the community that used the grave consisted of approximately eight to ten members (Kalling 1993; Lang 1993, 56). Grave II at Viimsi contained two *tarands* but revealed only three individuals, one of whom had been cremated (Kalling 1993). Thirty-two burials were found in the Tõnija grave, most in the *tarands* dating to the (3rd) 4th–5th centuries (Kalman 1997; Mägi 1999); the size of the community at the time could have been up to five people.

[110] As for the Estonian graves, only Tandemägi at Võhma (see Lang 2000a, figs. 46–47) and Hundikangrud at Muuksi (85 graves; see Vassar 1938b, figs. 2–3) have a layout similar to Jõelähtme.

As the scarce data suggests, the custom to bury only the members of the nuclear family in stone graves (and sometimes only some of them) was also practised during the Roman Iron Age. I obtained the same results 16 years ago when estimating the size of the communities who buried their dead in Estonian *tarand*-graves, based on the amount of certain grave goods (brooches, bracelets, and finger-rings). The results were later compared to western Lithuanian burial sites that are culturally similar to the Estonian sites (see e.g. Banytė-Rowell & Bitner-Wróblewska 2005), but where in addition to the grave goods the total number of burials had also been established (see Lang & Ligi 1991; Lang 1995d; 1996a). The results indicated that a *tarand*-grave was used by a community of seven to thirteen people. Calculations based on osteological data correlate with calculations based on grave goods, and they indicate that the size of the communities who buried their dead in the same grave doubled during the Roman Iron Age. This can be explained in two ways: two families buried their dead in the same grave during the Roman Iron Age, or the category of community members who were allowed to be buried in the graves expanded. The first explanation is not likely because it is difficult to believe that two settlement units (and not three or four) started to bury their dead in *tarand*-graves in all parts of Estonia at the same time.

5.1.3. Social structure of the settlement pattern

The Late Bronze and Early Iron Age settlement pattern consisted mainly of small settlement units where a group of people were closely linked. The core of the group was probably a nuclear family, and other members of the group may have had kinship relations to the nuclear family. These kinds of settlement units could be called farms, and the respective human groups could be called extended families. As for the extended families, one should keep in mind that co-habitation of three generations was rare and short-term, considering the short average life expectancy.[111] In addition, there may have been other members of the group in a farm who did not have kinship ties to the nuclear family.

Comparisons of the osteological material and grave goods obtained from graves located close together provide primary information about social interactions between neighbouring communities. So far, data from only a few examples of neighbouring Estonian communities exists, for example Tõugu and Tandemägi in northern Estonia, Poanse I and Poanse II in western Estonia,[112] the graves located near the lower and middle reaches of the Pirita River in north-western Estonia, Jäbara B, C, and E, Kohtla-Järve I and II in north-eastern Estonia, and Virunuka I–V in south-eastern Estonia.

When comparing the health of the neighbouring settlement units who buried their dead in the Tõugu (II) and Tandemägi (IV) graves respectively (see Lang 2000a, 209), it can be observed that scurvy, which results from an unbalanced diet, occurred only at Tõugu. Enamel hypoplasia was also 5.5 times more common at Tõugu than Tandemägi, indicating that the inhabitants of Tõugu were less healthy than the inhabitants of Tandemägi because food was more scarce and unbalanced there. Arthritis and traces of violence

[111] Based on his studies of the graves from the Lusatian Culture in central Europe, Jan Dabrowski (1989) concluded that each family consisted of 4.3–6.6 members on the average, including two fertile adults and two living children, whereas each fifth family had three living children, and only every tenth family had a grandparent.

[112] The other pair of western Estonian graves – Kõmsi I and II – are not suitable for comparison because their terms of use overlap only partly, the graves represent different types of early *tarand*-graves, and the number of burials varies too greatly.

could be observed at Tõugu while they did not occur at Tandemägi, although twice as many people are buried there than at Tõugu. Considering the above, it is not surprising that only two persons older than 45 years of age had been buried in the Tõugu grave (8% of the total number of burials) while 12 older people were found in the Tandemägi grave (24%), and thus three times more people reached old age at Tandemägi than at Tõugu. It also explains, perhaps, the richness of the grave goods found in Tandemägi as compared to Tõugu: Tandemägi revealed 53 artefacts (including pottery) representing 16 different types of items, whereas only 27 items of 10 different types were found at Tõugu. Thus, the community that buried their dead in grave IV at Tandemägi was much wealthier, and the diet and health of the people was better than that of the neighbouring farm, Tõugu. There is reason to believe that economic well-being can be directly associated with a higher social status in Late Bronze and Early Iron Age societies.

Similar differences can be observed between graves I and II at Poanse (see Kalman 2000a). Defects associated with enamel hypoplasia were four times more frequent in grave II than in grave I (66.7 and 16.4% of all teeth respectively), which indicates that the people buried in grave II experienced nutritional stress during childhood. Unfortunately, there is no data about the state of health of the communities, except the fact that signs of violence could be observed only in the people buried in grave II. Age structure at death was rather similar in the case of both communities. Grave I contained more types of grave goods than grave II, 12 and 8 items respectively. Thus, the state of health of the wealthier population of Poanse was better than that of the poorer population, but the differences are less noticeable than in the case of Tõugu and Tandemägi.

No osteological analysis is available for the other communities noted above, and thus conclusions are based on the analysis of grave goods alone. The number of different artefact types in the grave (NAT) indicates the ability of the community to produce and/or obtain material wealth (Hedeager 1992, 103 ff.; Lang 1996a, 460).[113] Differences in the NAT of graves that are contemporaneous and originate from a similar cultural context suggest socio-economic differences between the communities. If the term of use or the cultural context of the graves differs, then one should consider that differences in NAT could reflect different burial customs, that is, differences in the number and quality of grave goods.

Iru is the only grave group of Late Bronze and Early Pre-Roman Iron Age stone-cist graves near the lower reaches of the Pirita River (see Lang 1996a, 465 ff.) that has a much higher NAT (11), including imported items, compared to the other nearby grave groups (with NATs between 1–6; Fig. 143). The NAT of three graves in the same area – Viimsi I, Proosa, and Saha D – ranges from 31 to 37 in the Late Roman Iron Age, while the respective figure for the rest of the graves/grave groups of the same period is less than 16 (average 6.7; Fig. 144). There were two much richer than average graves from the last centuries of the Roman Iron Age with NATs of 30 and 32 along the middle reaches of the Pirita River (Kurna IA and Lehmja-Loo I), whereas the respective figures for the rest of the studied graves are between 6 and 15. Grave C at Jäbara, located in north-eastern Estonia and dating to the Early Roman Iron Age, revealed 25 different types of artefacts while *tarands* I–III from grave B, which date to the same period, contained only 11

[113] Unlike Lotte Hedeager (1992), my calculations are based not on the different types of artefacts per burial but rather on the number per cemetery, i.e. per a *tarand*-grave or a group of stone-cist graves. The reason for this is the high number of mixed burials in Estonian graves where it is difficult to distinguish single complexes. The approach also allows analysis of the interactions between settlement units (i.e. farms).

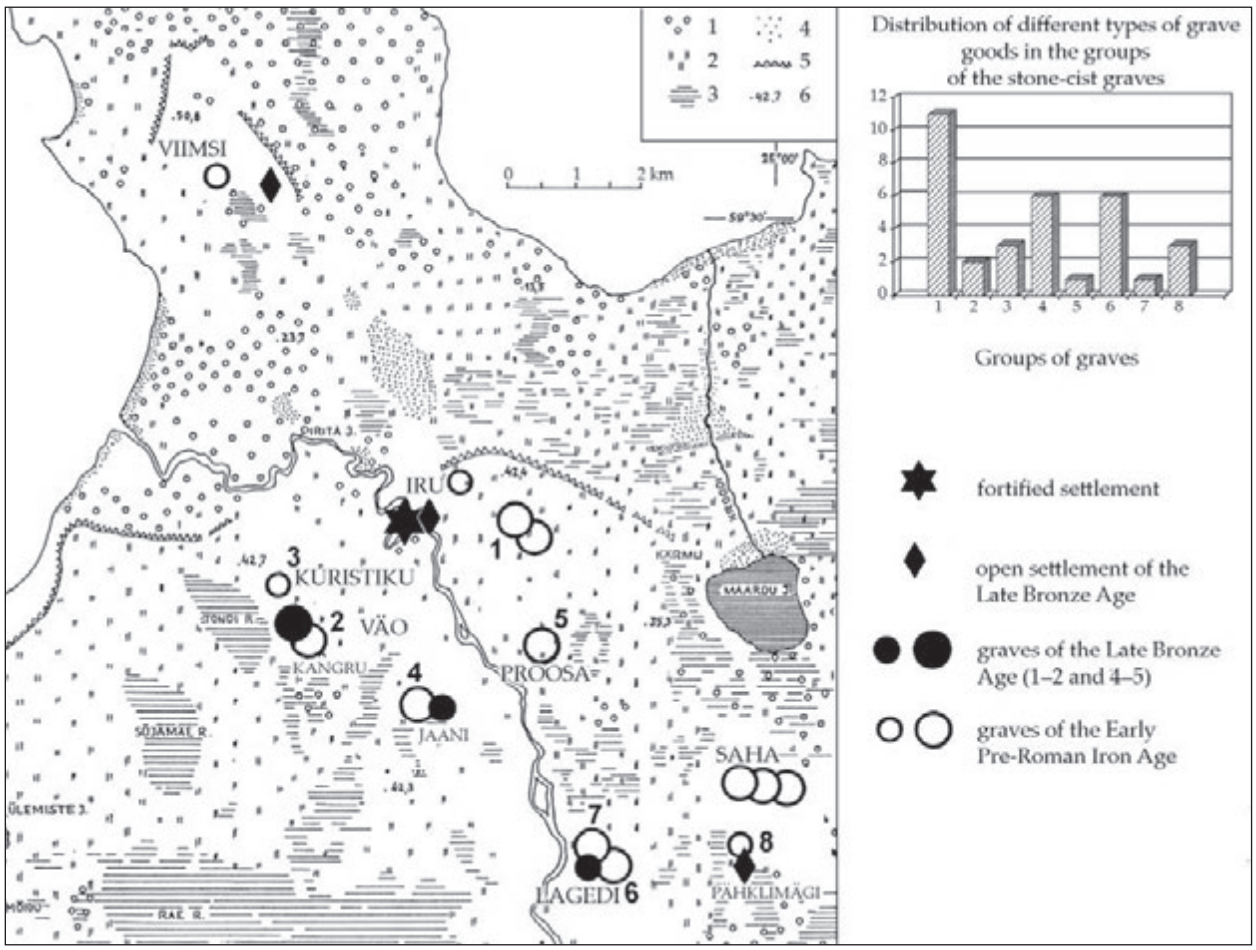

Fig. 143. *Dominant farm system on the lower reaches of the Pirita River in the Late Bronze / Early Pre-Roman Iron Ages. 1 woodland, 2 pastures and* loo *areas, 3 low-lying lands and mires, 4 sandy areas, 5 limestone glint, 6 altitude.*

types of artefacts. The part of grave B at Jäbara that dates to the Late Roman Iron Age (*tarands* IV–VIII) revealed 27 types of artefacts, whereas grave E of the same period contained 46 types of artefacts. It seems that the community that used grave B during the Roman Iron Age was rather poor and that wealthier communities used graves C and E until the beginning of the 3rd century and after, respectively. The number and types of grave goods increased over time. The household that used grave I at Kohtla-Järve had better opportunities to obtain various items than the community of the nearby grave II (NATs of 33 and 19 respectively). The NAT for graves in the Virunuka grave group in south-eastern Estonia was as follows: grave I – 20, grave II – 25, grave III – 2, grave IV – 34, and grave V – 9. Thus, here there was also only a single wealthy household among several poorer ones.

This overview indicates that over the 1500-year period of the Late Bronze and Early Iron Ages there were always settlement units of different wealth and social status. An elite grave or grave group is usually surrounded by poorer

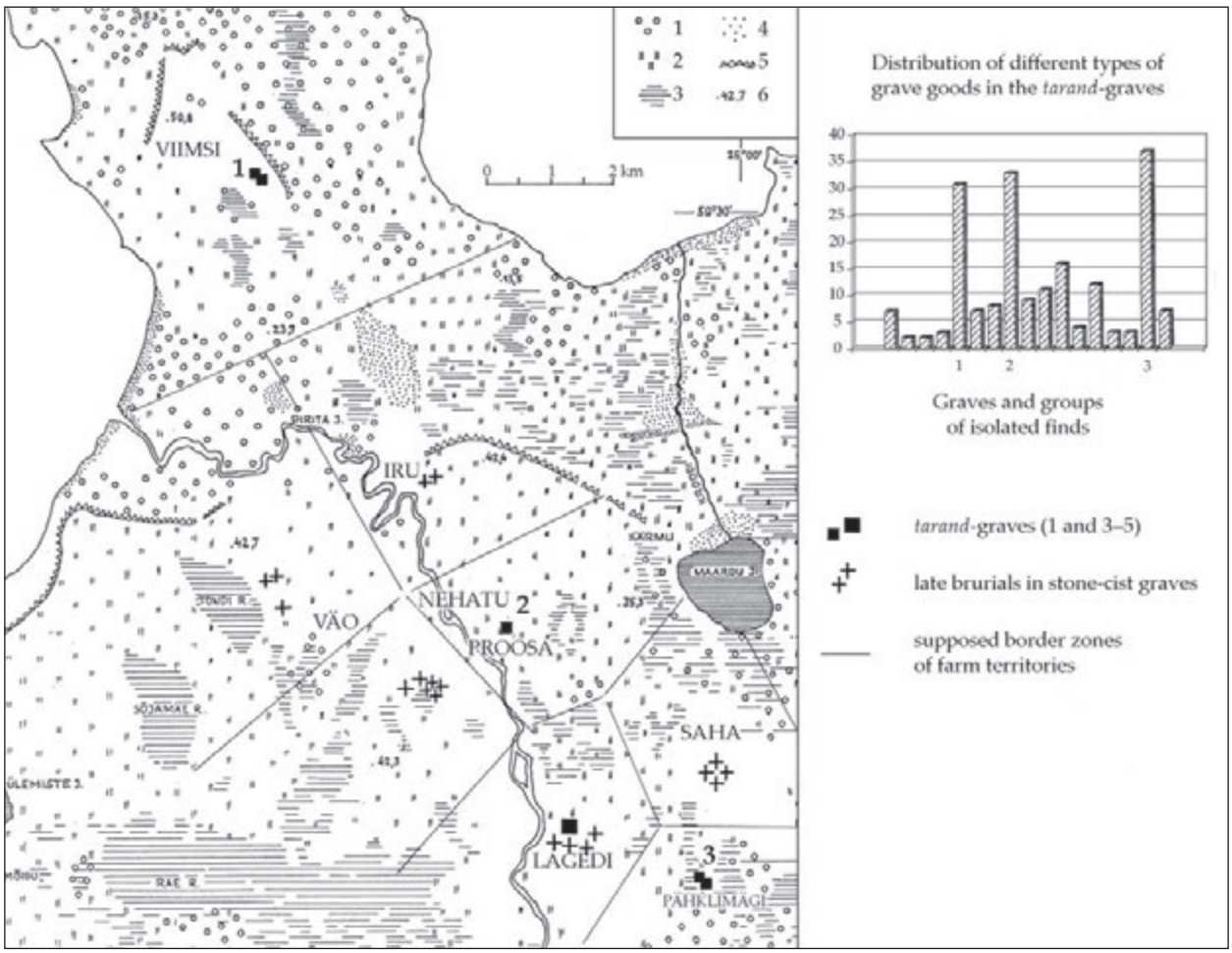

Fig. 144. *Distribution of dominant farm systems in the same area as Fig. 143 in the Late Roman Iron Age.*

and simpler graves in the landscape, meaning that elite graves of neighbouring settlement units were never located adjacent to each other, but were separated by simpler graves. This structure suggests small autonomous units where a dominant farm differed from economically and socially uniform farms (see Lang 1996a, 465 ff.). Higher social status and wealth could have resulted from many factors, such as higher biological productivity resulting in a larger work force and output, privileged access to strategic resources (e.g. ability to obtain bronze and iron) and tradeable products, and the concentration of the surplus product (in the form of duties/contributions) of the common farms in the hands of the dominating centre of power. Section 3.1.4 claimed that the development of early block-shaped fields during the transition from the Bronze Age to the Iron Age led to the measuring and evaluation of arable land, and thus it could be taxed, lending support to the above.

Dominant farm systems first appeared in the Late Bronze Age and at the beginning of the Pre-Roman Iron Age in coastal areas that were

already densely populated due to the presence of soils suitable for primitive farming. The dominant farm system spread across Estonia during the Pre-Roman and Roman Iron Ages. Dates from more well-researched areas suggest that the dominant farm systems were rather extensive in the first millennium BC, i.e. around 100–200 km². The units became smaller by the Late Roman Iron Age, covering ca. 40–60 km² (Figs. 143–144). The size and socio-economic character of the dominating farm systems was similar both to those groups of villages, listed in the 13th-century account book *Liber Census Daniae* (see Johansen 1933), that had a common denominator of ploughlands, and to the Middle Age territorial units (Est. *vakused*) that were under the same jurisdiction and that paid joint taxes to the landlords (see Lang 2002a–b).[114]

In conclusion, a social order where people were divided into three unequal groups emerged in the Late Bronze Age and developed further in the Early Iron Age. The owners of the dominant farms and hilltop settlements had the highest status, and the stone graves designed for them were furnished with rich and valuable items. The second group consisted of people who buried their dead in the above-ground stone graves where the grave goods were rather modest or absent altogether. People with the lowest status formed the third group, which must have been rather large based on palaeodemographic calculations. The members of the third group did not erect any stone graves; they buried their dead in some other fashion, for example placed the deceased in earthen graves or scattered their ashes on the earth, or did not bury the dead at all. From the Late Bronze Age onwards it is possible to trace the emergence of a stratified society, and settlement hierarchy also started to develop in the landscape at the same time. The emergence of more or less inherited power facilitated the development of the hierarchical settlement pattern where there are qualitative, i.e. functional and status-related differences between the settlement units (e.g. common farms versus hilltop farms). Development of the concept of private ownership of (arable) land was a significant precondition for inherited power; as noted above, private ownership emerged in the Late Bronze Age in Estonia (see Lang 1996a, 500; 2002a).

5.2. Society and culture

People belonging to different social strata and groups had slightly different relationships with (material) culture. The study of cultural styles and their possible links to social groups provides an insight in the issue.

There is no uniform and clear definition of the term 'style' within the discipline of archaeology, and the term and its associations with archaeological cultures or social groups has been understood differently at various times and by different scholars.[115] Style can be defined broadly as a collection of technological and artistic understandings and rules that influence the senses of an artist in its broadest sense. The understanding of where from and how an artist or a craftsman draws his or her inspiration, i.e. what the relationship is between active creative work (including the creator's unpredictable 'cultural explosion' in the sense of Juri Lotman (2001)) and a passive following of cultural traditions of the time (i.e. consistency of small slow changes) is difficult to explore and depends on how archaeological information is interpreted. Elements and

[114] It may be that the associations were called *kunta* (*kunda, kond*) at the time, which in Estonian denoted both the population and territorial unit after the turn of the era at the latest (Sutrop 2002, 27), but probably even earlier.

[115] For a recent exhaustive overview of the treatment of style in archaeology (in particular in regard to ceramics) see Lavento 2001, 146–164.

parameters of style can be described, but they cannot be accurately measured; nevertheless, various styles are easy to distinguish when one is familiar enough with the material. A variety of approaches have highlighted different aspects and associations of style, such as its artistic manifestation, chronological development, links between general elements of design and social groups, their active or passive role in social communication and interaction, and the relationship between individualism and collectivism in the creative process (Lavento 2001, 148 ff. and the literature cited). Only the essence, chronology, and spread of styles of ceramics and ornaments and their possible associations with social groups will be discussed below.

5.2.1. Ceramic styles

Late Bronze and Early Iron Age styles of ceramics were discussed in detail in section 3.3.2. The following 10 styles of ceramics dating to the period under discussion can be distinguished in Estonia: (A) Asva-style coarse-grained and (B) Asva-style fine-grained ceramics, (C) Lüganuse-style ceramics, (D) Ilmandu-style ceramics, (E) Cord-Impressed Ware, (F) Comb-Impressed Ware, (G) Nurmsi-style coarse-grained and (H) Nurmsi-style fine-grained ceramics, (I) Late Textile Ceramics, and (K) Salenieki-style ceramics. The distribution area of some styles of ceramics is rather wide (e.g. Late Textile Ceramics) while other styles are local in their distribution (Comb-Impressed Ware). These peculiarities indicate hierarchy and varying levels of abstraction, which are characteristics of style. The levels can be treated differently, but usually they range from the personal level (individual craftsman) to a defined social group (e.g. family, closely linked craftsmen, or a certain community) and vague associations (at the technological and functional level or language group) (see Lavento 2001, 155 ff.).

The Late Bronze Age witnessed a very significant change in the character of ceramics compared to earlier centuries − the ceramics can be divided into the following two large groups of different quality (temper and finish level): coarse- and fine-grained ceramics. The division can be first and most clearly observed in the Asva-style coarse- and fine-grained ceramics that occur in the material of fortified settlements; differences in the quality of pottery stabilized to some extent later, but they never disappear completely. Lüganuse-style and Ilmandu-style ceramics reflected differences in the quality and size of household and funerary pottery. Fine-grained ceramics included Cord- and Comb-Impressed Wares, Nurmsi-style fine-grained ceramics (although their rock temper is coarser than that of Asva-style fine-grained ceramics), and Salenieki-style ceramics. Late Textile Ceramics and Nurmsi-style coarse-grained ceramics continued the tradition of coarse-grained ceramics.

The peculiarities probably resulted from both social and cultural reasons. It has at various times been believed that Estonian coarse-grained pottery was used for cooking and preserving food, whereas fine-grained bowls were used for serving food and drinks. There is no reason to question these assumptions about functional differences.[116] The split of ceramic styles into two groups based on function, which occurred in the Late Bronze Age, indicates a culturally important phenomenon − the need to pay more attention to table manners. It is highly likely that people ate together from a large communal pot in earlier times, and the appearance of small bowls and dishes suggests that eating became

[116] The burnt layer that results from cooking occurs only on coarse-grained ceramics, while fine-grained ceramics were probably unsuitable for cooking in the first place.

a more individual activity.[117] The Late Bronze and Iron Age custom of placing small and finely made dishes (e.g. Lüganuse-style and Ilmandu-style) in single burials reflects the same phenomenon; the presence of a personal eating or drinking vessel could have symbolized the social status and group membership of the deceased. The bone spoons found at Asva and Iru indicate the significance of eating customs, at least in the upper strata, considering that spoons were usually made from wood both in earlier and later periods.

Fine-grained ceramics occur mostly in the material from fortified settlements and graves, which are associated with groups that have high social status, and thus it is likely that the change in table manners affected first and primarily the elite. Only a few open settlements have revealed a small amount of fine-grained ceramics, for example some ceramics were found at Viimsi, Rannamõisa and Ilumäe II. Some of these open settlements may, however, be associated with elite families. The open settlement of Ilumäe II was located next to the Kõvermäe *tarand*-grave, and it is highly likely that the community who used the grave lived there. Only seven potsherds out of 580 that were uncovered during the excavations were fine-grained ceramics (Lang 2000a, 181). The settlements of Viimsi and Rannamõisa were also located near stone graves of the same period. Most ceramics obtained from the cultural layer of open settlements, and surface finds, represent coarse-grained ceramics.

As for the development of table manners, it seems that the main utensil was the spoon. It is not likely that knives had a special status in table manners before iron knives became common in the Late Pre-Roman Iron Age. Bone and wooden knives, however, were probably used for cutting solid food in earlier times, which was still common in some parts of Estonia even in the modern period (Moora 1980, 89, fig. 23: b–e). Some bronze and iron cutting tools were perhaps also used.

The division of ceramics into two different qualitative groups, which probably reflected the change in table manners during the Late Bronze Age, resulted from close interaction between Estonian, Scandinavian, and probably also central European populations. That kind of clear split cannot be observed in southern Latvia, Lithuania, or the eastern European forest belt during the first millennium BC, although some Latvian fortified settlements and graves have revealed, in addition to coarse-grained ceramics, small vessels with smoother surfaces and fine rock temper that might have served as eating and drinking vessels (see Vasks 1991). In addition, some bone spoons similar to the ones found at Asva and Iru were uncovered at some Latvian fortified settlements (Graudonis 1989, pl. XXVI: 6–7). It seems that Lithuanian large domestic pottery, and what were probably small eating and drinking vessels, were made from a rather uniform coarse temper, except some fine-grained jugs with polished surfaces found in some western Lithuanian barrows (Grigalavičienė 1995, 202 ff.). Differences in the character of ceramics and table manners that can be observed within the eastern Baltic region seem to correlate with the above-mentioned differences in the composition of animal stock and respective eating habits (see 3.1.3), but it is difficult to verify this claim.

Different styles of ceramics allow for an analysis of some other aspects of social relations. Fine-

[117] This is an interesting development because Estonian peasant families ate from the communal pot until the beginning of the 20th century (Moora 1980, 89). Common food containers were used even in the courts of the western European principalities until the Renaissance, although other kinds of dishes were also placed on the table at times (Elias 2005). Fine- and coarse-grained ceramics were used contemporaneously in Estonia until the Late Iron Age, and the differences in the quality of pottery disappeared only when wheel-thrown pottery became common at the end of prehistoric times. Did the table manners of the social elite disappear when Estonia was conquered and the people were relegated to a lower social status?

grained ceramics suggest the emergence of an upper class, and the geographic distribution of ceramic styles indicates cohesive local populations. All groups of coarse-grained ceramics have a rather wide distribution area, which covers not only parts of Estonia but also some neighbouring areas, whereas groups of fine-grained ceramics are much more local in their nature. For example, Asva-style fine-grained ceramics spread only in north-western Estonia and on Saaremaa Island, Cord-Impressed Ware was common in north-western and western Estonia (including the islands), and Comb-Impressed Ware spread only in north-western Estonia. Salenieki-style fine-grained ceramics first formed a clearly defined style in northern Latvia and south-eastern Estonia, after which it spread northwards and reached northern Estonia at the end of the Roman Iron Age or at the beginning of the Migration Period. On the other hand, there are regions where pottery seems to be absent during certain periods. That was the case in western Estonia and on the islands in the Early Roman Iron Age, but the same phenomenon applies to other finds and graves of the area. The gradual disappearance of ceramics as grave goods in north-eastern Estonia beginning in the Late Pre-Roman Iron Age seems strange because the rest of find assemblage became richer in that region. However, it is necessary to analyse the style groups of ornaments (and clothing) before the issue can be discussed in greater detail.

5.2.2. Ornament styles

(1) The Late Bronze Age style. There is not much data available about Late Bronze Age ornaments and other items that were worn on or were a part of the clothing because most stone-cist graves do not contain any grave goods in the first place. These kinds of items are also rare in graves with grave goods. However, there were some exceptions such as bone decorative pins, in particular pins with spade-shaped heads, and bronze spiral (mostly plain spiral) temple ornaments. Their distribution areas overlap (mainly in northern and north-eastern Estonia and on Saaremaa Island; Fig. 146), and bone pins and temple ornaments were found together in the same grave in four cases. As noted above (4.1.4), bone pins usually accompanied male burials while temple ornaments were found in female burials (in addition, both kinds of ornaments were found in graves of juveniles of unidentifiable sex). However, it is likely that women also wore bone pins in some cases. It should be noted that bone pins were found in the male, female, and child graves of the Middle Bronze Age at Ķivutkalns cemetery located along the lower reaches of the Daugava River, but they were much more common in male graves.[118]

The function of temple ornaments is clear – women and children (probably girls) wore the ornaments on both temples as decorations. The function of bone pins is unclear, but they might have been used either for fastening clothes or hair. Excavations at the Ķivutkalns cemetery revealed that the bone pins were located in the breast or shoulder area (Denisova *et al.* 1985), thus supporting the former interpretation.[119] However, one cannot exclude the latter possibility either; bone pins were mainly used by men and boys, and they could have been used for fastening hair, which served to decorate the head in a manner similar to the temple ornaments used by females. There is no data about the nature of the clothing of the Late Bronze Age in Estonia or the need to

[118] Bone pins were found in 45 burials, including 25 male, 12 female, and eight child burials (Denisova *et al.* 1985, tab. 6).

[119] Both bad preservation of skeletal material and inadequate documentation during archaeological excavations are responsible for the lack of data regarding the exact location of bone pins in Estonian stone-cist graves.

fasten clothes, but several razors (a bone pin and a bronze razor were found together in the cist of Kangru grave IV in Väo) and tweezers may indicate that at least some men practised the removal of facial hair. It may be that the attempt to take care of one's head (and appearance in general) while alive was the reason that the skull was sometimes handled differently than other body parts during burial rites (see 4.1.3 and 4.4.5).

Most bone pins have been found in elite grave groups (e.g. Iru, Väo, Lehmja-Loo, Jõelähtme, Muuksi, and Lüganuse) and at fortified settlements. The plain spiral temple ornaments have also been found in elite grave groups, but they have not been found at settlements so far. Thus, it can be estimated that the people who used these kinds of decorative items had a high social status. Lüganuse-style ceramics can be associated with the elite social group, although its distribution area is slightly wider; fortified settlements (and at least two graves) can be associated with Asva-style fine- or coarse-grained ceramics.

(2) The Early Pre-Roman style. A typical set of Early Pre-Roman Iron Age ornaments consisted of a Bräcksta-type neck-ring, iron or bronze bracelets with round cross-sections, and a bronze or iron decorative pin with roll- or loop-shaped head. The set was worn, with some variations, in limited areas in the coastal zone of Estonia (Fig. 146), south-western Finland, and central Sweden. The set has been found in the following places in Estonia: stone-cist grave A at Jäbara, early *tarand*-grave of Tandemägi at Võhma (two) and Kõmsi II (two), Lehmja-Loo II and Kaunispe stone graves; incomplete sets (without a neck-ring or a decorative pin) were uncovered at a number of graves in northern and western Estonia (see Lang 1996a, 285 ff.) and in the Valgovitsy grave in Ingria (Ryabinin 1987). Both sets found at Tandemägi belonged to men; there is no data available about the other sets of ornaments. It seems that incomplete sets without the Bräcksta-type neck-ring probably date to the middle of the Pre-Roman Iron Age, and they might have belonged to either men or women (Poanse I).

The sets of ornaments were found in elite graves, and it is the first time when they are rather complete: the neck, chest, and arms were all decorated. Ilmandu-style ceramics can be associated with the ornaments in regard to their time of use and distribution area (Ilmandu-style ceramics were more wide-spread, and they also occurred in graves without any grave goods, though); Morby-type ceramics were in similar position in Finland (Meinander 1969, 40 ff.). It can be estimated that the elite used the decorative ornaments and fine ceramics to express their links with the chiefs of the same status who lived across the sea.

(3) The Late Pre-Roman style. During the Late Pre-Roman Iron Age the style of personal ornamentation consisted of iron shepherd's crook pins (usually two), thin iron and bronze bracelets, several types of temple ornaments, and iron knives; instead of, or in addition to, shepherd's crook pins, other types of decorative pins may also occur during this period. The style was popular on the islands and mainland western and northern Estonia, but in southern Estonia this set of ornaments has only been found at two sites (Nava and Tamsa) dating to the Late Pre-Roman Iron Age (Fig. 146). No parallels have been found in the neighbouring countries. It can be observed that shepherd's crook pins occur in pairs, suggesting that they were being worn as breast ornaments in Estonia by that time, but were not used as chain-holders until later. Neck-rings disappeared from use except a single item found in Nava. It is clear that both men and women used the ornaments in the same manner. However, there is at least one variation of the set that was likely worn only by men, and it consisted of iron shepherd's crook pins and large (battle) knives (e.g. Liiva-Putla, Kõmsi I and II, Kuura, and Aseri).

Cord-Impressed Ware (but only on the islands and western and north-western Estonia as far

east as the Jägala River) and Comb-Impressed Ware (only in north-western Estonia) can be associated with the Late Pre-Roman ornament style. Ilmandu-style ceramics can also be connected with this style in some places (e.g. Liiva-Putla, Poanse, Loona, and Nava). Ceramic finds begin to disappear from the north-eastern Estonian archaeological material during the Late Pre-Roman Iron Age.

(4) The Roman Iron Age style. It is difficult to present an overview of the Roman Iron Age because the number of artefacts is large, and it is impossible to distinguish individual complexes of ornaments due to the mixing of burials. It is significant that the style of ornamentation changed almost completely in most parts of Estonia in the Early Roman Iron Age (Fig. 146): some earlier components disappeared, and some new components emerged. It can be estimated that the change in ornamentation was accompanied by at least a slight change in the earlier style of clothing. The changes will be discussed at the 'country' level because regional differences were already discussed in the analysis of the find material of the typical *tarand*-graves (see above, 4.7).

Changes in the style of ornamentation can be observed as first occurring in north-eastern Estonia during the late 1st century and the early 2nd century AD. Fibula became the newest form of ornament; eye-fibula emerged first and other types followed later. Finger-rings, closed in form at first, were another novel type of ornamentation; spiral finger-rings became common in the 3rd century. Bracelets represent the continuation of an earlier tradition, but their number and types increased substantially. It may be that different meanings were signalled by wearing a single or multiple bracelets. Neck-rings re-appeared, and they became increasingly numerous over the period; necklaces with bronze spirals, beads, and several pendants emerged. On the other hand, decorative pins became less common (except on the islands). Bronze and iron shepherd's crook pins occurred almost everywhere, but they were rare compared to other types of ornaments, particularly in comparison with the number of items found in the sand barrow area of southern neighbours. Decorative pins became more common only in the Late Roman Iron Age, but other types than shepherd's crook pins were used at that time.

In addition to sets of ornaments, knives, in particular curved knives with bent-back tangs, were rather common tools. Other tools were rare in the Roman Iron Age.

Differences in ceramic styles can probably be associated with regional differences in the Roman Iron Age sets of ornaments (see 4.7). There was a marked contrast between the styles of ornamentation and clothing of south-eastern Estonia on the one hand and north-eastern, north-western, and central Estonia on the other, similar to the differences in the ceramics of the respective regions. Late Textile Ceramics and Salenieki-style ceramics spread in south-eastern Estonia, both Nurmsi-styles occurred in central and north-western Estonia, whereas pottery from north-eastern Estonia remains almost unknown. There is not much data about the styles of ornamentation and ceramics of the islands and western Estonia that pre-dates the Late Roman Iron Age. When the form of typical *tarand*-graves became standard on Saaremaa Island, the grave goods (respectively style of ornamentation) differed from other parts of Estonia; bracelets, finger-rings, and decorative pins were the most common ornaments. Fibulae probably emerged on the islands and in western Estonia only during the Migration Period, but they can be associated with other grave forms. The ceramics of Saaremaa Island represent a specific variation of Nurmsi-style ceramics.

Due to the burial custom characteristic of the *tarand*-graves (mixed burials), it is not possible to establish the appearance of ornament sets

worn individually: whether every burial was furnished with a fibula, finger-ring, and bracelets or if there were, besides burials with complete sets, also burials with single pieces of the set, or burials without any ornaments. It is likely that some burials did not contain any ornaments; this would correlate with the estimated three social strata that can be identified based on other sources of data. The comparison of the proportion of single types of items in single graves and regions provides some information, which serves to highlight regional differences, as well. The proportion of fibulae to bracelets and finger-rings was the following in the various Estonian regions (number of fibulae = 100%): 100–123–322 in north-eastern Estonia, 100–137–258 in north-western Estonia, 100–136–452 in central Estonia, and 100–77–65 in south-eastern Estonia (see Lang & Ligi 1991, tab. 3). With other words, bracelets were 1.2–1.4 times more frequent than fibulae in north-eastern, north-western, and central Estonia, and finger-rings were 2.6–4.5 times more common than fibulae in the same region, whereas fibulae outnumbered bracelets and finger-rings in south-eastern Estonia. This is the most significant difference between the above regions, not to mention the differences in the actual types of items and their frequency. The proportion of fibulae to bracelets and finger-rings is the following in western Latvia and western Lithuania, which are culturally close regions: 100–172–83% (Lang & Ligi 1991, tab. 4). Thus, the regions are similar to northern and central Estonia in respect to fibulae and bracelets, and are similar to south-eastern Estonia in regard to finger-rings. Fibulae are almost completely absent in the barrow region of southern Latvia (see Šnore 1993), which is unique compared to other regions in the eastern Baltic. It should be noted that the individual components of the sets of ornamentation (fibulae, bracelets, neck-rings, and finger-rings) were similar across the eastern Baltic region, but the sets they formed were unique.

5.2.3. Style groups and social groups

As noted, ceramic and ornament styles coincide to a large extent in regard to their period of use and distribution area. One can see areas that overlap to a greater or lesser extent on the map; respective ceramic styles cover larger areas than ornaments in places, and sometimes ornaments have been found in places where no ceramics have been found so far. It might seem at first glance that most parts of Estonia were uninhabited, and that the settlements were few and scattered. However, other evidence indicates that this was not the case; different types of sites, isolated finds, and pollen diagrams indicate that most of Estonia had been settled by the end of the Roman Iron Age at the latest. The map cannot be explained by gaps in the archaeological research alone, although it is clear that new significant finds may appear on the map in the future.

Thus, micro-regions with peculiar styles of ornaments and ceramics appear against the background of a low population density, which increases gradually over time (Figs. 145–146). Style group 1/ABC (for designation of ornament and ceramic styles see above) appears first at the end of the Late Bronze Age around Tallinn (as far east as Muuksi), near the lower reaches of the Purtse River, and in two places on Saaremaa Island: Asva on the eastern coast and Loona[120] and Kurevere on the western coast. New style group 2/D spread into the same areas, i.e. around Tallinn (extending slightly more to the west), near the lower reaches of the Purtse River, and on Saaremaa Island (no longer at Asva, but on the western coast, and shifting northwards as far as Võhma at Mustjala) during the Early Pre-

[120] Corresponding ceramics were not found at Loona, but a bone pin was uncovered.

Fig. 145. *Distribution of some ceramic styles in the Late Bronze and Pre-Roman Iron Ages. a Asva-style fine-grained pottery, b Lüganuse style, c Ilmandu style, d Cord-Impressed Ware.*

Roman Iron Age. Some additional centres also emerged: the area between Vihasoo and Palmse in northern Estonia, the area surrounding Kõmsi and Poanse on the western coast, and Kaunispe on the Sõrve peninsula on Saaremaa Island. Style group 3/EF(D) developed further in the following regions: the areas surrounding Tallinn (spreading further inland), the lower reaches of the Purtse River (extending north-west as far as Kelleraugu and Kuura), the area around Vihasoo and Palmse, western Estonian coastal areas (extending as far north as the Gulf of Haapsalu) and on Saaremaa Island (covering almost the whole island, including the Sõrve peninsula and Muhu Island). It is the first time when clearly recognizable centres emerge in eastern (the Nava grave[121]) and southern Estonia (around Tamsa). Even more profound changes can be observed when style groups 4/GH(K) and 4/IK were in use during the Roman Iron Age. The lower and middle reaches of the Pirita River became important in the surroundings of Tallinn, but the coastal areas (except the Viimsi peninsula) were left out, and the centre shifted slightly southwards. The Vihasoo–Palmse area was still significant, but finds have been scarce there. The area with many

[121] A hilltop settlement had been established at Peatskivi near Nava by the end of the previous period (Kalevipojasäng of Alatskivi), and it revealed Ilmandu-style ceramics.

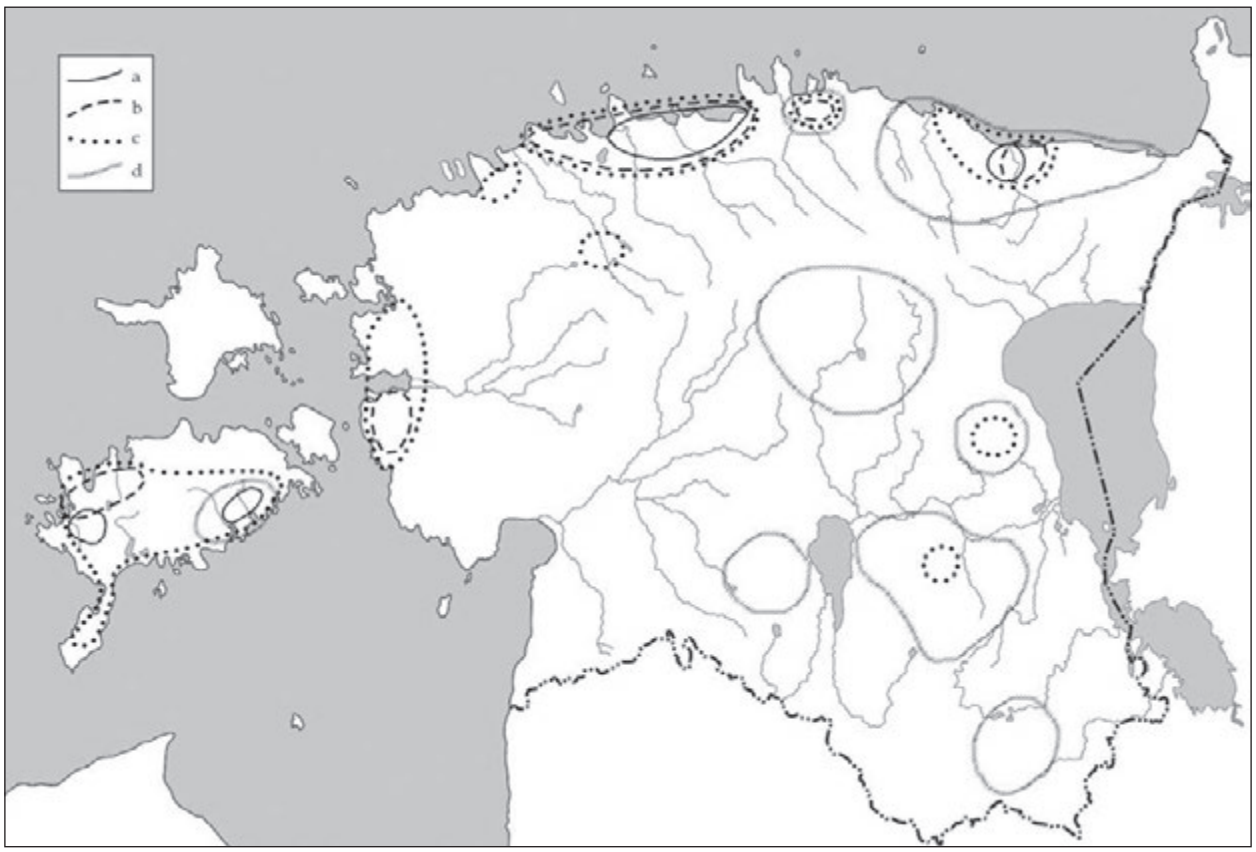

Fig. 146. *Distribution of ornament styles in the Late Bronze and Early Iron Ages. a Late Bronze Age, b Early Pre-Roman Iron Age, c Late Pre-Roman Iron Age, d Roman Iron Age.*

graves along the lower reaches of the Purtse River is 10 times larger than previously; an additional group located in the Pandivere uplands is also included in this area. Western Estonia and Saaremaa Island do not reveal any such developments, and new and small centres appeared there only at the end of the Roman Iron Age. A new and powerful core emerged around Paide in central Estonia, and the centre extended to the surroundings of the earlier Nava (Kõrenduse). An extensive area of rich graves developed in southeastern Estonia around the Pre-Roman Iron Age Tamsa burial site; a new area that became important is located in the Haanja uplands. The establishment of graves can also be observed in southwestern Estonia, but they are rather poor in finds and do not fully represent the styles under discussion.

What can be concluded from the above developments? Clearly defined styles of ornaments can be associated with families of the highest social status (styles 1, 2, and probably also 3) or people belonging to the upper or middle social strata (4). Chronologically the former variation dates to an earlier period and the latter to a later period, that is, the middle stratum became part of the cultural communication much later than the highest stratum. People with high social status played an active and innovative role in the development of cultural styles. Style groups 1 and 2 were small,

suggesting that the ornaments served as tools of communication within the group, and they seem to reflect the wish to keep social distance from the lower strata in the Late Bronze and Early Pre-Roman Iron Ages. It may be that some system of taboos forbade the lower strata from wearing specific kinds of ornaments. The situation probably changed in the Late Pre-Roman Iron Age, so that the previously dominant chiefs either accepted the middle stratum to a greater degree or a new elite emerged. It can be observed that the circle of people who buried their dead in the *tarand*-graves widened during the Roman Iron Age, and in addition to the upper stratum, owners of common farms also appeared (but in graves with poorer grave goods). The remainder of the population was buried in some other way. Representatives of various social strata, with their ornaments and other grave goods, cannot be distinguished in the typical *tarand*-graves, which was probably intentional because the cremations are also mixed.

It seems that the elite played a significant part in the development of various styles of ceramics, in particular when considering the styles that were modelled on foreign forms (e.g. Asva-style fine-grained ceramics, Cord- and Comb-Impressed wares, and Salenieki-style ceramics). Powerful chiefs could travel to foreign places and bring back new ideas, women who could make pottery, or some ceramic items. Foreign forms were merged with the local traditions, and thus unique styles emerged. Close contacts, including marital networks, determined the way a new style spread to other parts of the country. Interaction between the chiefs of various regions could have had a similar influence on the development of ceramics as it had on ornaments. As noted, the introduction of fine-grained ceramics brought about a significant change in table manners, which affected first and foremost the upper stratum and likely spread through interactions between chiefs.

Thus, ornaments and certain styles of ceramics played a significant role in everyday communication and interaction between communities. The use of certain styles indicated group membership and social status. Groups with high social status must have had several means to prohibit the lower strata from using their symbols, which was a precondition for the symbolic meaning of the style. There are several possibilities for interpreting the change in the style of ornaments (e.g. from 2 to 3), in particular the much wider social base of people using ornaments than before. It is possible that there was a social crisis, and the old elite had to allow the owners of common farms to use their symbols. Another and more likely interpretation is that the crisis was solved with the emergence of a new elite whose power and wealth was not based on the Late Bronze and Early Pre-Roman Iron Age system of trading prestigious items (bronze processing) but on local iron production. The new elite may have been a larger group with the ability to place much more valuable and richer grave goods in graves than the previous elite to assert themselves.

Artur Vassar (1956) studied a similar issue half a century ago; he observed that areas with rich grave groups were located beside poorer areas or peripheries. Vassar claimed that the appearance of rich graves reflected population increases, the rapid development of handicrafts and trade, and the development of compact tribal centres that had an influence on the neighbouring areas. Vassar estimated that the centres where specific cultural peculiarities developed became the core of, and the basis of forming, later territorial units, i.e. the ancient counties. Actually, there are no Estonian regions where all or most graves contain rich grave goods or where all graves are poor; there are poorer graves beside rich graves in all parts of Estonia. It may be that rich and significant graves will be uncovered in regions that were considered poor and peripheral previously, which was the case in the Haanja

uplands where rich grave goods were discovered some time after Vassar's article was published (e.g.Virunuka, Sadrametsa). Richness and poorness are relative and depend on the context and time. I approached the ornaments, styles of ceramics, and respective communication from the viewpoint of a 1500-year period, and thus the results on the map differ considerably from the figure presented by Vassar (1956, fig. 43).

On the other hand, Vassar was right to some extent when he associated regions with rich grave goods with later territorial units. The connection between grave goods and territorial units can be viewed slightly differently, however. It may be that certain territorial units had formed in places where the emergence of the elite can be observed based on the above differences in style (and where the graves were also richer than in other areas). Yet, the territorial units did not develop in a later period, but they appeared at the same time when chiefs appeared who asserted themselves through the various elements of style. This phenomenon did not occur only in the Roman Iron Age, but it was characteristic of the whole period under discussion. Social groups were not static, their size and location changed continuously. The dominant farm system was the core of the territorial unit, but their form and structure cannot be established based on the available archaeological record. Only the change in the size and location of the units over centuries can be observed with a degree of certainty.

5.3. Society and religion

Religion is a cultural phenomenon the essence and content of which cannot be distinguished based on the archaeological record alone. One should keep in mind, though, that the nature, thoughts, and feelings of ancient people were much more closely connected to religion than presently, and the link was maybe even stronger than contemporary people acknowledge; the ancient man was *homo religiosus*.

5.3.1. Sites associated with religion

It can be claimed that most of the known Bronze and Early Iron Age sites are in some way associated with religion. In addition to graves, structures of which were erected and used on the basis of religious beliefs, the layout and orientation of the dwellings of the time (e.g. the location of the fire place, front and back sides of the structure, and men's and women's living quarters) may have been based on certain beliefs, preconceptions, and symbolic meanings. The same applies to ancient fields and cultivation, which were closely linked to the cult of fertility. The scope of the present work does not allow concentration on such details, however, and thus only sites that are presumed to be more directly linked to religion and cult rituals will be discussed. The Bronze and Early Iron Age sites that will be dealt with include stone graves, cup-marked stones, enclosed cult sites, and hoards.

Stone graves and their surroundings

All the Estonian Late Bronze and Early Iron Age stone graves can generally be classified as cult sites (cf. Kaliff 1997). Only chosen members of the society were buried in stone graves, indicating that they were not ordinary burial places. Graves have always had distinct elements such as circular walls, cists, *tarands*, or a boat-shaped layout that reflect the beliefs about the world of the dead that were dominant at the time. The specific layout and structure of the graves may have carried a symbolic meaning. It is possible that stone-cist graves mirrored either round-

bottomed dwellings (they can be interpreted as symbolic houses of the dead, see Vassar 1943) or cosmic symbolism, i.e. the world order consisting of three spheres – the heavens, earth, and underworld (Lang 1999c). Typical *tarand*-graves and single-*tarand*-graves can also be interpreted as symbolic houses of the dead (Vassar 1943) because their layout was similar to the corner-jointed constructions erected for the living, and people may have believed that the souls of their deceased relatives could live together somewhere nearby. The symbolic associations are speculative, but they nevertheless help to better understand what kind of meanings people of the time may have attributed to graves.

A great deal of time and labour was needed to erect the graves (the easiest option would have been to take the deceased away or simply bury them in the ground), and many graves were rebuilt long after their original construction. The manipulations of dead bodies (partial burials, removal of flesh from the bones before cremation, separate handling of the body and head, and a possible skull cult) constitute irrational burial customs from a modern perspective. Items placed in burials also reflected beliefs associated with life after death. The above-listed manipulations were previously discussed but it is necessary to deal with one more specific phenomenon, i.e. the joining of graves. Joined graves are burial places where one side of an earlier grave is used to erect a new grave.

Late Bronze Age stone-cist graves were typically built separately in Estonia. The amount of space between graves varied, and in some cases no space was left between graves, but each grave was built as a separate structure in principle. There are also a number of graves where additional cists have been added to the original or central cist, but such additions always occur within the same grave. Jaani at Väo is probably one of the rare examples of joined stone-cist graves: stone-cist grave A was fitted between what was originally a separate ship grave[122] and stone-cist grave B, but it was impossible to make the added grave round due to the lack of space, and thus it was joined with grave B so that it formed a semicircle (Fig. 99). The Jõelähtme cemetery also contained two small stone-cist graves that had been joined together. Good examples of joined stone-cist graves can be found at Buļļumuiža in northern Latvia where semicircles were added to the initially round grave, and each of them contained one or more joined cists (Graudonis 1967, fig. 25). Only a small difference separates the Buļļumuiža-type stone-cist graves from the Kurevere-type early *tarand*-graves.

The joining of grave structures was characteristic of *tarand*-graves from the beginning. Small cist-like structures were joined together in the earliest Estonian *tarand*-graves (Hiiemägi at Kunda and Rannamõisa III; see Kriiska & Tvauri 2007, fig. on p. 121; Lang 1987b, fig. 3), but the structures soon became larger. It is difficult to determine whether the joining of grave structures originated in the tradition of the stone-cist graves and the custom was then adopted by the developers of the early *tarand*-graves, or if the joined stone-cist graves reflect the influences that early *tarand*-graves had on the re-building of the cist graves in the later period. What is clear is that the process occurred at the turn of the Bronze and Iron Ages. The dates of the early *tarand*-graves of western Finland and the eastern part of central Sweden (see 4.4.7) indicate that the earliest joined graves in that region date more or less to the same period; the tradition reached the coastal areas of western Lithuania only at the end of the Pre-Roman Iron Age.

Thus, the tradition began when some stone-cist graves were re-built by adding new circular

[122] Many ship graves of Gotland are joined together (similar to the Lülle graves on Saaremaa Island and those in Courland), but the aim was probably different because the boats following each other symbolized a fleet at sea.

walls and cists to the graves, and by the end of the Bronze Age the trend was to join new graves to the old graves. The development resulted in large, compact, and monumental graves that were continuously used over many centuries; it differed from the previous custom where a single grave monument was actively used for a rather short period, and was then left aside after some re-building and reuse, while a new monument was erected beside the old one.[123] However, stone graves still served as cult structures where various rituals were performed. Some graves were re-built and new burials were added to graves as part of the rites.

How should the trend towards the joining of graves be interpreted? We must consider that the establishment of a grave is an act of creation that starts a new tradition which is accompanied by a respective creation legend. It may be that the history of a certain family could be traced through the founder of the family, who was buried in the first central cist, and that the genealogical history of the family could have been recited near the same grave or grave group during religious festivities. Memory, remembering the past, and thus its acceptance by a certain social group were certainly important aspects of the monumental grave structures. The aim of the rituals performed on graves was to reproduce the past, remember the dead, reinforce certain interpretations of the past, shape one's memory, and thus shape one's social identity (see Burke 2003 and the literature cited). It was considered impossible during the first 500 years of the tradition of stone graves that the new generations would join the graves directly to the earlier graves belonging to their ancestors. One can assume that the structure as a whole was so important that it had to be preserved and reproduced; the circle with a cist in the middle could have been regarded as a symbol of the sun. The probable cult of the sun could have gradually disappeared over time while the social and religious need to express one's descent from the ancestor might have strengthened; previous tensions (population increase and stress due to the lack of arable land) in the society could have influenced the process. Joining graves became a social and religious tradition later, and it spread to the farming societies surrounding the Baltic Sea.[124] The trend may also be associated to some extent with the developments in grave building that spread across Europe during the transitional period from the Early Bronze Age to the Late Bronze Age where formerly single graves developed into cemeteries (burial fields). The communities that established cemeteries (*tarand*-graves in the Estonian context) were rather small, and thus the respective burial places were also small in their surface area as compared to the large burial fields of central Europe. Cemeteries may have reflected the idea that the living and the dead belonged to the same community (e.g. a village or a single family).

Only recently have researchers begun to address the question of whether special cult sites were located near the early stone graves. Early archaeological research focused on the central parts of the stone graves, followed by research on entire graves and grave groups, but no attention was paid to the areas surrounding the graves. Nevertheless, early excavations also yielded some intriguing material at times. For example, a fire place that measured 1.2 x 0.8 m and was up to 70 cm in depth was discovered

[123] Once established a grave could have been rebuilt, and new burials could have been added to it centuries later, but these possibilities are insignificant here.

[124] It should be noted that the custom of joining graves was unfamiliar to the southern Latvian and northern Lithuanian area of sand barrows except in single cases during the Roman Iron Age Žemaitian cemeteries (see Michelbertas 1986, figs. 5–6), which can be explained by the influence of western Lithuanian cemeteries with stone circles. As noted above, those regions had also some other peculiarities compared to the area of the *tarand*-graves.

under the north-western corner of Kõmsi single-*tarand*-grave I. The fire place, which was filled with burnt cobble stones, had been buried under the collapsed wall of the grave, and thus both structures may date to the same period. The fire place revealed no artefacts other than a few potsherds (Aasala 2002). The grave contained both inhumations and cremations, but there is no evidence to suggest that the cremations and the fire place were linked. At the Late Bronze Age stone-cist grave IIA at Tõugu a post-hole was dug by the outer side of the circular wall; if extended beyond the cist, the post-hole would lie along the north-north-eastern orientation of the longitudinal axis of the central cist. The charcoal sample obtained from the post-hole dated to the same period as the grave, and thus the hole could be associated with a post that had once been erected near the grave, probably for some religious purposes (Lang 2000a, 99).

What was probably a two-layered cult site was discovered on a slope near the Pre-Roman and Roman Iron Age *tarand*-graves of Tuulingumägi at Tõnija on Saaremaa Island (see Mägi 2001; 2005; Mägi & Mägi 2002). A stone platform measuring 8 x 7 m (originally it was larger) and enclosed by a wall made from large stones was unearthed in the upper layer. A number of burnt stones were found near the wall. Five round pits lined with limestone slabs were found in the platform; the pits were located 0.5–1 m apart, were 70–80 cm in depth, and over 1 m in diameter. The pits that had been filled by the collapsed soil and stones revealed single pieces of human skull, animal bones, and some potsherds; the burnt layer in the upper part of the pits suggested that a wooden structure, destroyed by fire, had been located on the platform. Seven pits dug into the natural soil were found in the lower layer under the stone platform; those pits were 80–120 cm in diameter and 20 cm in depth, and they had once probably served as post-holes for thick posts. The fireplace and a group of large boulders found near the post-holes were also associated with the lower layer. Only few animal bones and Pre-Roman Iron Age ceramics were uncovered in the layer beneath the stone platform.

The data above indicates that, in addition to Late Bronze and Pre-Roman Iron Age stone graves, there could have also been special cult sites in Estonia. Fire places with burnt cobble-stones, vertical posts (probably part of some structure), a stone base or platform, and probably also boulders and pits lined with limestone,[125] could have been parts of the cult sites.

The large number of densely located stone-cist graves around Lake Kahala can also be explained by some religious custom. The largest group (85 graves) is called Hundikangrud at Muuksi, and the other groups are only a few hundred meters apart from each other (Lang 1996a, fig. 121); in addition, there is evidence that the Muuksi promontory hill fort that is located nearby was used at the same time. So high concentrations of stone graves are unique in Estonia, and the density of graves here does not fit into the overall settlement pattern. The large number of graves and burials could have resulted from the practice of bringing the dead of other areas to the sacred site. Naturally, this assumption cannot be verified.

Cup-marked stones

Cup-marked stones (previously called 'cult stones with small cup-marks') are stones or boulders with one or several round or oval-round cup marks that are 3–10 (usually 4–7) cm in diameter and 0.5–5 (mostly not more than 2–3) cm in depth (Tvauri 1997, 11). The number of cup-marks per stone can vary considerably from one cup mark

[125] It should be noted that the post-holes at Tõnija may also originate from a later period, i.e. from the time when windmills were built at the same location. However, the present study follows the interpretation of Marika Mägi who excavated the site.

Fig. 147. *Cup-marked stone at Assaku (photo: A. Kriiska).*

to as many 405, in the Estonian context (Fig. 147). Cup-marked stones with a small number of cup-marks are frequent, and the more cup-marks a stone has the more unusual it is (*op.cit.*, fig. 12).[126] The cup-marks are usually carved on the top or sloping surface of stones, and sometimes the marks occur on the vertical or even overhanging surfaces of the stones. The location of some of the cup-marks rules out the possibility that sacrifices were placed in the hollows.

So far, around 1750 cup-marked stones have been found in Estonia, but they are distributed unevenly across the country (Fig. 148). The concentration of cup-marked stones is the highest in ancient Rävala, Harju, and Viru districts in northern Estonia; their concentration decreases from the north to the south, and there are only a few stones known in southern Estonia. Several cup-marked stones occur on Saaremaa Island and on mainland western Estonia. Only five cup-marked stones have been uncovered in neighbouring Latvia, ca. 50 in Lithuania, 20 in the Novgorod region, and more than 350 in southern Finland (see Tvauri 1997, 22 f. and the literature cited). The above regions form only a small part of the almost world-wide tradition of cup-marked stones.

The tradition of cup-marked stones reached the eastern coast of the Baltic Sea from Scandinavia where people had begun to carve hollows into stones and cliffs by the Neolithic, but the culmination of the tradition was during the Bronze Age. There is no known method of accurately dating the Estonian cup-marks. Vello Lõugas (1972b)

[126] Andres Tvauri, who has dealt with the stones, claims that up to 36.5% of the Estonian cup-marked stones have 1–3 hollows, whereas only 11 stones have more than 100 hollows (Tvauri 1997, 24).

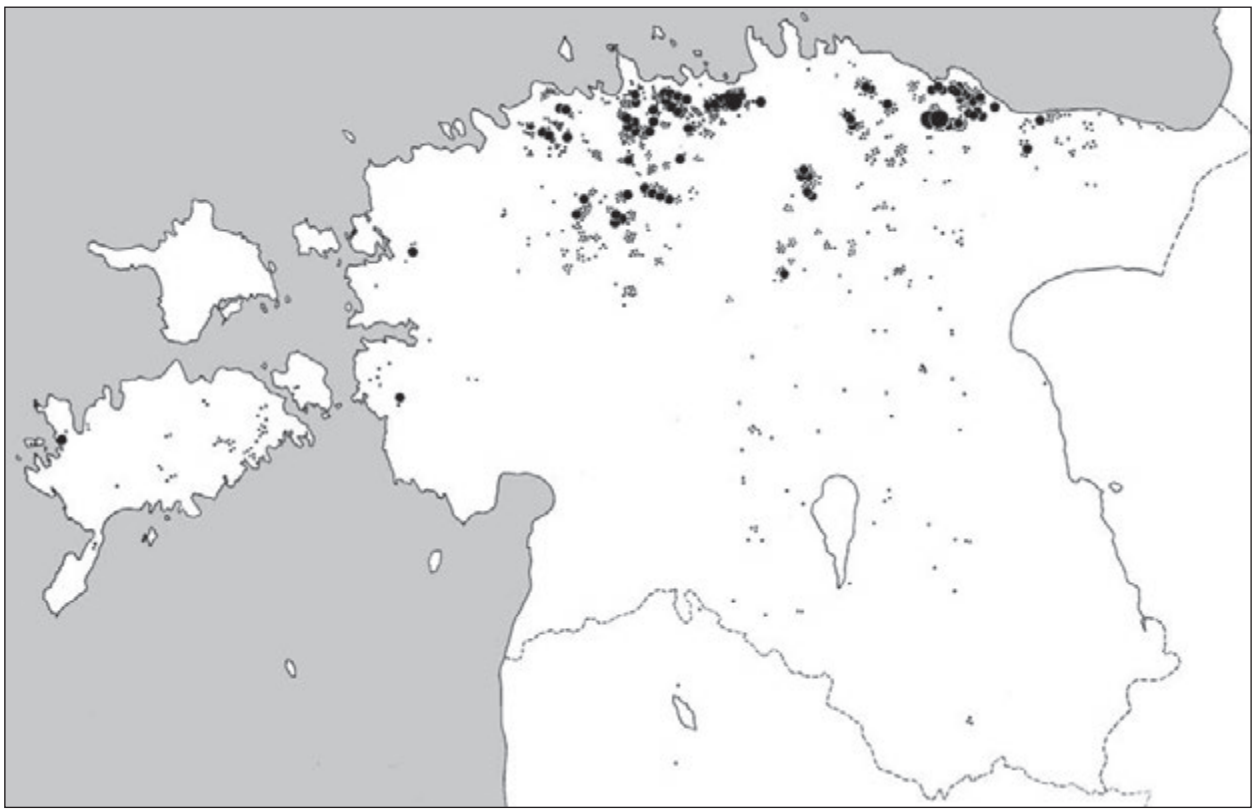

Fig. 148. *Distribution of cup-marked stones (after Tvauri 1997, fig. 4).*

observed that cup-marked stones occur more or less in the same areas as stone-cist graves. Thus, it was estimated that the stones and the graves date to the same period. Later researchers (e.g. Tvauri 1997) have observed that cup-marked stones can also occur near some other types of graves, in particular near *tarand*-graves, and therefore they estimated that the custom of cup-marks continued after the turn of the era. On the other hand, there are numerous settlement areas with stone-cist graves where cup-marked stones are absent, and vice versa. The Estonian cup-marked stones differ from the Scandinavian stones and cliffs with cup-marks, which are located near graves and sometimes even inside of them (Bengtsson 1999, 317); thus it is questionable whether the age of the Estonian stones can be associated with the stone graves (see Lang 1997). The few excavations carried out near the cup-marked stones have yielded no data useful to date the cup-marks. The chronology of the land upheaval is of no use because there are only few stones located in the lower lands, and the lower limit of the date would be around the turn of the Bronze and the Iron Ages (Tvauri 1997, 39), which researchers have never questioned. A rather large proportion of Finnish cup-marked stones occur in areas that rose from the sea during the Pre-Roman Iron Age or even as late as the end of the Roman Iron Age (*ibid.*).

The tradition reached Estonia from the western coast of the Baltic Sea, and thus there is no better solution presently than to date the beginning of the tradition of cup-marked stones in Estonia

to the culmination period of cultural contacts between the two regions, that is, the Late Bronze Age and the Early Pre-Roman Iron Age. Links with the west weakened considerably beginning in the middle of the Pre-Roman Iron Age. It is impossible to establish how long the tradition carried on for in Estonia as a result of momentum, but the tradition was probably kept alive for several centuries.[127]

Researchers have argued about the original meaning of the cup-marks for a long time, but the hollows have been associated with an ancestor cult and fertility in general. Scandinavian rock carvings depict thousands of male figures and only a few female figures, and it is assumed that the hollows represent either female sexual characteristics (if a woman is depicted in the first place), or a woman or a goddess herself (if she is not depicted[128]) (Bengtsson 1999). Did the Estonian cup-marks bear the same meaning according to which the local cup-marked stones would represent women who were not allowed to be depicted? Perhaps the hollows represented goddesses or fairies who were nearby but invisible. Female sexual characteristics are closely linked to the cult of fertility and the magic associated with it, but the goal of the fertility rites remains unknown. Tvauri (1997), who highlights the relationship between cup-marked stones and prehistoric agricultural areas, associates the magic primarily with the ritualistic fertilization of the arable land. However, the relationship between cup-marked stones and ancient fields in the landscape is as questionable as the relationship between cup-marked stones and stone graves: cup-marked stones occur in areas suitable for farming, but as of yet almost no stones have been found near definitively dated field remains of the period.[129] Cup marked stones can definitely be associated with agriculture, but for a different reason: only those communities that depended on agriculture for the well-being of both their families and culture carved hollows into stones. In other words, there need not have been a direct link between cup-marked stones and fields (or stone graves); cup-marked stones may have merely formed a part of the culture of the people who cultivated the fields and erected the stone graves.

The location of Estonian cup-marked stones is not as clearly linked to stone graves as such stones are in Scandinavia, and thus the original meaning of the round hollows could have been slightly different in Estonia than in Scandinavia. However, it seems that the eternal idea of fertility and rebirth associated with femininity could explain why hollows were also carved into the stones on the eastern coast of the Baltic Sea. Estonian folklore speaks about a number of female supernatural creatures that people believed in and whose power they feared; *Germania* by Tacitus mentions that the cult of the mother of the gods was practised by the *Aesti* living on the eastern coast of the Baltic Sea (see Arukask 1999). If one assumes that the term *Aesti* was used not for an ethnically uniform people, but denoted all the inhabitants of the eastern

[127] For example, the tradition of making cup-marked stones was kept alive in the Savo region of Finland as late as the 7th–8th centuries (Tvauri 1997, 39).

[128] Some Swedish researchers have referred to a portion of *Germania* by Tacitus that describes the cult of the goddess Nerthus who people were not allowed to see or depict, which was common among the northern Germanic peoples (see Burenhult 1991, 211).

[129] The location of cup-marked stones in *contemporary* fields, meadows, and pastures is not a convincing argument that the stones were linked to the Bronze and Early Pre-Roman Iron Age fields because many fields were deserted, particularly in the *loo* areas of northern Estonia (because they were exhausted), starting in the Late Pre-Roman Iron Age, and one can observe that settlements (and fields) shifted to other areas. It seems that most of the contemporary arable land was cleared only in the Roman Iron Age and after, whereas the fields located in *loo* areas were mainly used as pastures and meadows.

coast of the Baltic Sea whose culture shared more commonalities than differences (clothing, ornaments, burial customs, religion, and agriculture) (see Banytė-Rowell & Bitner-Wróblewska 2005; Karaliūnas 2003), then one can claim that what Tacitus wrote also indirectly applies to ancestors of Estonians.

Enclosed cult sites

The section dealing with enclosed settlements (2.2) discussed a group of sites that can be more or less associated with cult activities. These sites include the settlement site with a circular rampart made from large stones located around the meteorite crater of Kaali, sites with two (Võhma, Pidula) or single (e.g. Päälda, Massu, and Lipa) circular ramparts, and probably also promontory forts enclosed by semi-circular ramparts in several places (e.g. Salevere and Võnnumägi). It is difficult to estimate what kind of rites and cult rituals were performed at the sites due to the presently limited extent of the archaeological excavations. The cult object at Kaali was clearly the sacred lake that had formed as the result of supernatural powers that were literally extraterrestrial, but there is no evidence about sacrifices placed in the lake (there was a silver hoard found in the cultural layer of the settlement). Chips and flakes of quartz are the material remains of the activities carried out in Võhma near Mustjala. The promontory forts of Võnnumägi and Muuksi were probably not continuously settled, unlike the Lipa settlement enclosed by a circular rampart, which has yielded many ceramic finds. Most of the mentioned sites are located on the agricultural landscape, and ancient field remains dating probably to the same period as the sites have been found nearby in some cases (Võhma, Pidula, and Salevere); pollen diagrams have also provided evidence that the land was cultivated at the time the settlements were occupied (e.g. Muuksi, Võnnumägi). Additionally, stone graves from the same period have been found near all probable enclosed cult sites except Lipa and Võnnumägi.

Hoards

Hoards hidden in the ground or in waterbodies are important sources of data for the study of ancient religion in the regions to the west and south of the Baltic Sea. Only a few hoards dating to the Late Bronze or Early Iron Ages have been found in Estonia and other countries located on the eastern coast of the Baltic Sea. This seems to indicate that there were significant religious idiosyncrasies or that the cult rites have not left similar material traces everywhere.

The one known Estonian hoard dating to the Late Bronze Age was uncovered at Tehumardi

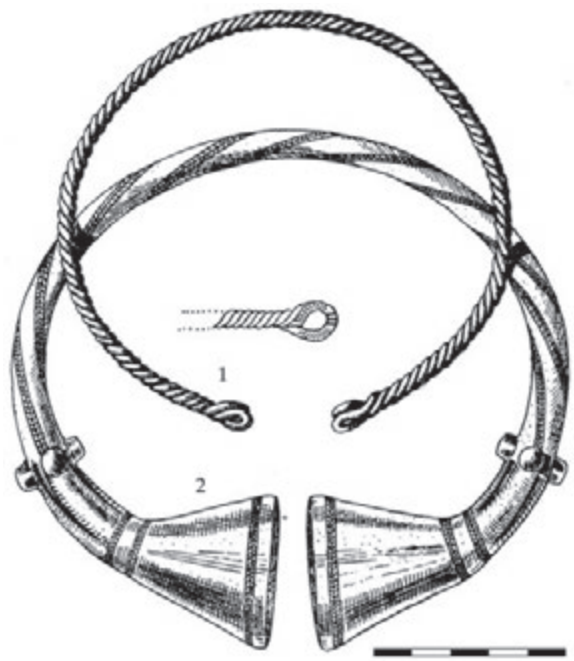

Fig. 149. *Neck-rings from the Liimala hoard (AI 3774: 1–2; after Schmiedehelm 1955, fig. 46).*

on the Sõrve peninsula of Saaremaa Island, but it contained only scrap metal in the form of broken bronze items, and thus the hoard provided no clues about the religion of the time. So far, no definite Pre-Roman Iron Age hoards have been discovered, but the imported clay vessel found in the mire of Harku could have been part of a hoard. There is data about three Late Roman Iron Age hoards (Mustmätta and Liimala in the Purtse River valley in north-eastern Estonia (Figs. 132, 149), and Metsküla near Viljandi) that contained only bronze neck-rings of various types (16, two, and two items respectively). The fourth hoard dating to the same period was found at Kiiu near Kuusalu and included three neck-rings, a fibula, and a finger-ring. The Mustmätta and Liimala hoards were uncovered in fields, the Metsküla hoard was found in a field ditch, and the Kiiu hoard had been hidden under a large stone. In addition, a silver neck-ring, two bracelets, and a finger-ring were obtained from the settlement of Kaali, and a 3rd century hoard consisting of four Roman copper sesterces was found on the Juminda peninsula (but the latter was not necessarily associated with cult rites; see below, Fig. 153).

The neck-rings of the Kiiu and some other hoards are identical to the grave goods from typical *tarand*-graves, whereas some of the neck-rings found in the Mustmätta, Liimala, and Metsküla hoards are strikingly massive (weighing up to 1.9 kg). These neck-rings have thickening trumpet-shaped ends, and the particularly massive item found at Metsküla has bent-back ends resembling to some extent eastern Prussian forms dating to the Late Pre-Roman Iron Age (Fig. 150). It is likely that neck-rings of this size were not part of the everyday set of ornaments, and they could have been specially made for cult rituals or for sacrificing to gods. The content of a number of Scandinavian hoards suggests that neck-rings had developed a certain ritualistic meaning by the Bronze Age; figures of goddesses decorated

Fig. 150. *Neck-ring from the Metsküla hoard (AI 2513: 88; photo: P. Kraas).*

with neck-rings were also rather common there (e.g. Burenhult 1991, fig. 150).

A different kind of sacrifice emerged during the Roman Iron Age (or even in the Late Pre-Roman Iron Age), at the latest. This sacrifice involved iron weapons (mostly spearheads and swords or large knives infrequently) and big tools (axes, sickles) that were placed in the same location in a body of water (or a bog) over a long period of time. This kind of sacrifice was practised near the later Alulinn settlement site and hill fort (around 100 items were found in a 2 x 2 m area that was 30–40 cm in depth; Fig. 151), in the Kunda bog (16 items), in Igavere (six items), and at an unknown findspot probably located in north-eastern Estonia (80 items) (Tamla 1995). Sacrifice in the above places continued even after the Roman Iron Age, and this is why these hoards have been usually discussed in the treatments of the Middle Iron Age (e.g. Jaanits *et al.* 1982).

Contemporaneous equivalents to both of the above-mentioned types of hoards can be found in Sweden and Denmark. Hoards containing ornaments made from precious metals (often gold) emerged in Sweden (again after the Late Bronze Age) beginning in the 2nd century, and they were

Fig. 151. *Weapons and tools from the Alulinn hoard (AI 1156; photo: J. Kool).*

common during the 3rd–4th centuries; hoards of Roman coins occurred mostly in the 1st and 2nd century (Stenberger 1977, 290 ff.). Sacrificial sites located in wetlands were particularly characteristic of Denmark, but they also occurred in Sweden. The sites have revealed human and animal sacrifices along with various furnishings ranging from wooden items and ceramics to weapons, tools, ornaments made from precious metals, and even fully equipped battle ships (Stenberger 1977, 295 ff.; Jensen 1982, 279 ff.). The bog sacrifices can be divided into military and civil (or mixed) sacrifices based on their nature, and into single acts and long-term continuous practices based on their dates (Jensen 1982, 279).[130] Ceramic finds dominate among the civil finds in Denmark and Sweden, and thus it can be estimated that the Harku bog find was also a similar sacrifice, although it seems to date to a slightly earlier period than most Scandinavian equivalents.

Several Late Bronze Age hoards consisting of both ornaments and weapons have been found in Finnish coastal areas. Besides the finds obtained from dry land, some weapons sacrificed into water have also been uncovered (Salo 1984, 143). An Early Pre-Roman Iron Age hoard that had likely been placed in water was found at Panelia. It contained three Bräcksta-type neck-rings and can be associated with the cult of a Scandinavian-type goddess (Salo 1984, 191). The Malmsby hoard, containing 22 iron items, dates to the end of the Pre-Roman Iron Age or the beginning of the Roman Iron Age, and it has been interpreted as the wealth of some tradesman or smith (op. cit., 191 f.). The findspot was on the coastal plain near a bay (Salo 1968, 83), and the sacrifice may have originally been placed in a wetland. No definite Roman Iron Age hoards have been uncovered in Finland, but single golden ornaments found in various places (in particular two neck-rings from Nousiainen) suggest the above Swedish tradition. At least six Bronze Age hoards have been unearthed in Latvia: some of the hoards (in particular Staldzene) consisted of broken items that can be interpreted as scrap metal, while others contained weapons, tools, and some ornaments. So far, no Pre-Roman Iron Age hoards have been found there, and Roman Iron Age hoards contain only Roman coins (there are data regarding 130 coins from 22 findspots) (Urtāns 1977).

[130] Single sacrifices could have been placed in the same place at different times over a long period (thus leaving an expression of long-term continuous practices). For example, three sacrifices dating to different periods were discovered at Illerup; two of them dated to ca. AD 200 and one to 400. Two or three single sacrifices were made at Nydam during the 4th or 5th century (Jensen 1982, 279).

5.3.2. Main features of religion

The following can be claimed about Late Bronze and Early Iron Age religion based on archaeological finds:

(1) Above-ground stone graves seem to have been the focus of religious practices; their building, re-building, constructional peculiarities, and burial customs reflect religious beliefs of the time.

(2) There may have been additional cult sites with fire places, posts, large stones, platforms, and holes lined with stones near stone graves.

(3) Certain religious practices (ceremonial gatherings and festivities) were performed in some early ring forts and at promontory hill forts; certain spectacular places in the landscape (e.g. cliff edges in northern Estonia) could also have been considered sacred.

(4) Certain rites associated with the magic of fertility were performed near cup-marked stones.

(5) People sacrificed hoards of ornaments, probably to a goddess, which were placed in arable land (fertility cult), whereas weapons and tools were deposited in sacred places in the wetlands.

The practices and rites described above underwent changes over the course of 1500 years. It seems that graves and their surroundings were the focus of religious activity during the Late Bronze and Pre-Roman Iron Ages, but rites were also practised near cup-marked stones. When comparing the amount of time that the ancient people spent on establishing stone graves, and the time spent on carving hollows into stones, it becomes clear that rather modest attention was paid to cup-marked stones. Another possibility is that cup-marked stones, being more numerous and common than stone graves were the material remains of the religious practices of the common people, whereas stone graves were associated only with the upper strata.[131] Enclosures with ramparts (Võnnumägi) that can be interpreted, perhaps, as enclosed sacred groves emerged around the 4th–3rd centuries BC, and ring forts where slightly different rituals were probably performed appeared somewhat later (except the previously-established unique site at Kaali). An even more significant change in religious practices occurred at the turn of the era when weapons and tools were sacrificed into wetlands; sacrifices of ornaments placed in fields emerged most likely somewhat later. Although only few sacrifices of this kind have been uncovered to date, it still seems that stone graves could have started to lose their significance in religious practices and rites by the (Late) Roman Iron Age. This change culminated in the 4th century when no new *tarands* were erected, and soon after no new burials were placed in older *tarand*-graves either.

The available archaeological evidence is not enough to establish the nature of Late Bronze and Early Iron Age religion. Ancestor cults together with a cult of fertility probably prevailed in the area of stone graves. Tõnno Jonuks (2003; 2005) claims that the shift to cremation burials reflects the spread of the idea of a communal soul that consisted of all the souls of the ancestors. As noted, most people could have been cremated; the cremated bones were probably placed on the ground, and thus they have not been preserved. Stone-cist graves appear against the background of the tradition of cremation, and Jonuks estimates that they reflect a different religious and social system, that of *sacred kingship*. By sacred kingship he means the social system in which rather small and autonomous units were ruled by (divine) chiefs or kings, who besides their social

[131] The observation (Lang 1996a) that most Estonian cup-marked stones occur in areas between the settlement units marked with stone graves, i.e. in the border areas that might have been settled by people with a lower social status, fits the interpretation well.

and military power were also religious leaders. Both men and women could be kings. The areas ruled by kings were small, and thus they can be compared with small chiefs or even heads of families. The cultic role of the king became obvious during calendar festivities and particularly during times of crisis. Taxes were collected and gifts from the king were presented to some people to link them more closely to the king during the festivities. The death of the king, his/her burial place, and genealogies played a significant part in the sacred kingship. Therefore, Jonuks estimates that the kings of the time were buried in the central cists of the Estonian stone-cist graves.

However, it seems that placing the sacred kingship on the same level as common heads of families devalues the concept.[132] Previous chapters have discussed the division of Late Bronze and Early Iron Age society into three different status groups, and the territorial concentration of smaller farms around dominating farms. It seems that the idea of sacred kingship fits better with the concept of ancient territorial units (*vakused*) and the single dominating farm; an important social aspect of the *vakus* concept was the collection of certain taxes from the whole area, and some medieval sources indicate that organizing feasts and establishing the rule of law were also of importance. Therefore, only those people who were the leaders of the territorial units could have been regarded as kings, and thus, not all stone-cist graves would have contained the burials of kings; the graves were the burial places of not only kings but of the whole elite. It is also more likely that burials containing grave goods of the above-distinguished style groups belonged to kings.

Jonuks (2003; 2005) estimates that sacred kingship was preserved through the time of early and typical *tarand*-graves, but that it was no longer considered important to distinguish the burial of a king from the other members of his/her family by establishing a separate cist; the custom can be easily observed during the Roman Iron Age when the mixing of single burials was common everywhere. This development may have reinforced the idea of the communal soul, and joined graves may be the material reflection of that idea in sacred architecture.

A different religious system spread outside the distribution area of stone graves, particularly in central and southern Estonia, in the first millennium BC. This system was influenced strongly by its earlier Neolithic roots, and did not involve the cult of a powerful ancestor (sacred king), except in some areas of stone graves. The main burial custom most likely included scattered above-ground or pit cremations, which were also practised by the common people in northern and western Estonia (Jonuks 2003, 65).

People had begun to believe in the existence of a supernatural force in the Stone Age, but the belief in a supernatural deity emerged beginning in the Late Neolithic and Bronze Age (Kulmar 1994). This claim is supported by other studies on the emergence of Ukko and Taarapita, the personified and anthropomorphic gods of thunder, rain and fertility in the Finno-Ugric linguistic area (see Salo 1990; Sutrop 2002). Jonuks (2003, 64; 2007) does not rule out that cults of supernatural deities were also practised in places other than stone graves. Such places could have included either some spectacular locations in the landscape (e.g. a forge, limestone glint, hill, or a meaningful waterbody), or in special groves that were established for that purpose. For example, several stone graves indicate that people might have started to regard Hiiemägi Hill in Kunda as sacred at the turn of the Bronze and Iron Ages, at the latest. Early Pre-Roman Iron Age hill site Võnnumägi at Keava could have been a cult site enclosed by a rampart. There are other similar

[132] For criticism of the concept of the sacred kingship and Jonuks' application of the latter see also Laneman 2007.

examples, but it is always difficult to determine when places obtained their cult function.

5.4. Trade and cultural contacts

A society or a culture cannot develop in isolation. Thus, contacts with near and faraway neighbours are not only necessary, but also natural. It is clear that contacts with other peoples and cultures were established continuously throughout time, that is, communication was the rule and it was exceptional not to communicate. Some extreme authoritarian power might have forbidden communication, but there is no reason to assume that this was the case in the Baltic Sea area during the Late Bronze and Early Iron Ages. It was not, however, a chaotic Brownian-type of motion because various communities and routes dominated the communication between tribes at various times. There is no reason to assume that each individual was free to communicate with his/her near and faraway neighbours on his/her own terms because it is likely that there were certain rules established by the elite that directed such interactions. Advancement of the skills necessary to make and use vehicles, particularly water vehicles, influenced the frequency and character of communication.

5.4.1. Vehicles

Archaeological data suggests that people living in the Estonian coastal areas had acquired the skills necessary to make vehicles suitable for seafaring by the Late Mesolithic;[133] these water vehicles were probably leather boats with wooden frames which allowed travel to rather faraway islands, as well as seal hunting (see Mäss 1996, 40). Tree-trunk boats, such as dugouts, were used on inland waterways during the Stone Age and even later. The close contacts between the coastal areas of the Baltic Sea, as visible through the archaeological record, indicate that seafaring intensified during the Late Bronze Age. The skills necessary to build boats suitable for seafaring had probably also improved by that time, but the boats may still have been leather boats with wooden frames (*op. cit.*, 52). It is likely that the water vehicles built in Estonian coastal areas were rather similar to vehicles used to the west of the Baltic Sea that were depicted on rock carvings in many places. Unfortunately, it is difficult to estimate whether the innovations in boat building made in countries located on the southern coast of the Baltic Sea in the Pre-Roman and Roman Iron Ages (plank boats at first, but later also clinker-planked boats) reached Estonia or not because no boat finds of that age have been uncovered so far. Vello Mäss, who has studied the history of seafaring in Estonia, doubts that such innovations had reached Estonia (*op. cit.*, 57), but the level of development in other economic activities (metalworking and agriculture) indicates that the skills and tools necessary to make that kind of boat were present. It should be noted that piles of stones mixed with burnt remains, discovered in the northern Estonian coastal areas, may be seamarks (navigation aids) that date from the Late Bronze to the Roman Iron Age (Vedru 2002) and suggest organized seafaring. Boat rivets that provide direct evidence of the use of clinker-planked boats appear in the Estonian archaeological material (in the graves) of the 7th–8th centuries.

[133] For example, 80 km of open sea separated the settlements of the seal hunters of Kõpu, located on Hiiumaa Island, from the mainland during the Late Mesolithic. It would have been impossible to reach Kõpu from the mainland without a good sea boat (Mäss 1996, 40). Several other Estonian islands located in the Baltic Sea such as Saaremaa and Ruhnu were settled in the Late Mesolithic, as well (Kriiska 2002c).

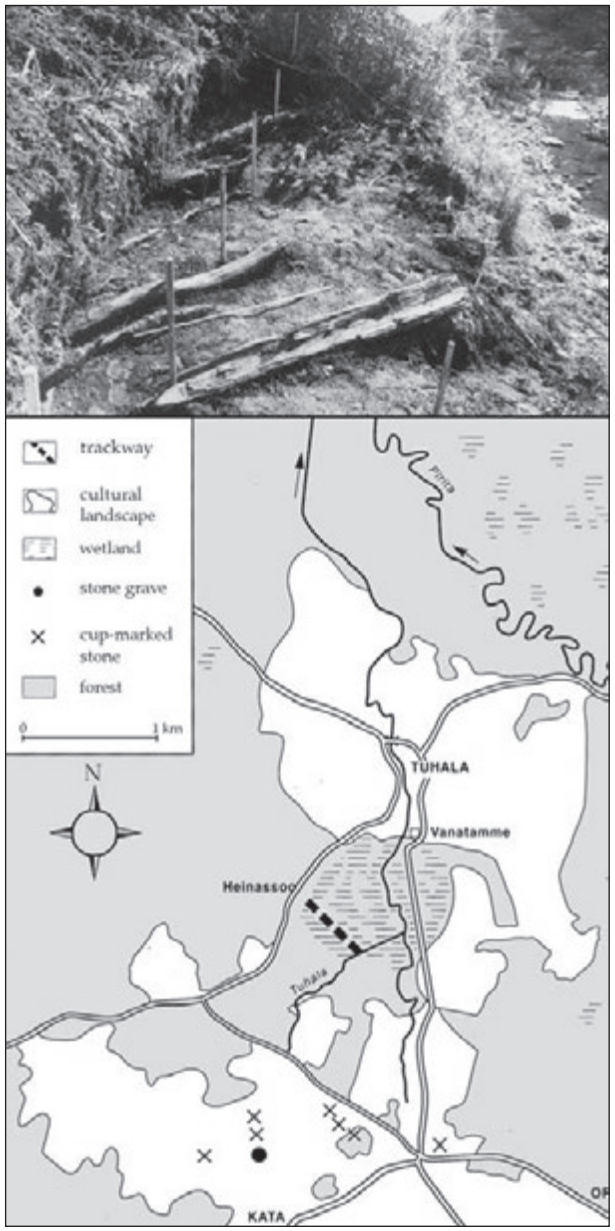

Fig. 152. *Trackway in the bog of Heinassoo at Kata (after Lavi 2000).*

Drags and sledges were probably the main vehicles used on dry land all year round (see Viires 1980, 10 f.). Ants Viires estimates that wheeled vehicles were used in what is now Estonia beginning in the Late Bronze Age at the latest (*op.cit.*, 117), but archaeological find material contains no direct evidence of the use of them. Long winters with deep snow did not favour the rapid spread of wheeled vehicles or the development of a network of summer roads. Sledges were used for long-distance transport in winter even as late as the nineteenth century (*ibid*.). The introduction of the wheel in Scandinavia and on the southern coast of the Baltic Sea by the Bronze Age supports Viires' idea. Vocabulary related to wheeled vehicles suggests early Baltic (Indo-European) loan words. Such words include *ratas* 'wheel', *telg/ass* 'axle', and *sild* 'bridge'; the latter originally signified any road adapted for use by (wheeled) vehicles, including sections of road surfaced with stones or wood in swampy areas (see Viires 1980, 118 f.). Presently the earliest trackway known in Estonia, which was 600 m in length and made from pine and birch logs, was discovered in Heinassoo bog near Kata in Harju County (Fig. 152). Based on a radiocarbon sample it dates to the Roman Iron Age (Lavi 2000). A group of bone bridle-bits (Iru, Asva, and Proosa) indicate that horses could have been used as draught animals (and/or riding horses) since at least the Late Bronze Age.

Therefore, it can be claimed that vehicles had developed in what is now Estonia to the extent that allowed the local people to travel in any direction both by dry land and water by the Late Bronze and Early Iron Ages.

5.4.2. The direction and nature of contacts

There is reason to claim that the exchange and movement of goods from one place to another in the Early Bronze Age was based on the principles of reciprocity and gift exchange partnerships. There is no doubt that similar gift exchanges of

prestige items continued during the Late Bronze and Early Iron Ages; this is proposed not only because the custom is still practised today, but because there is archaeological evidence to support the claim. It may be that a number of items that were foreign or look luxury found their way to Estonia through (multiple) acts of giving. A large number of similar items in the archaeological material should, on the other hand, indicate organized trade where, for example, a shipment of products made in the same workshop changed ownership. Organized trade emerged in Estonia and other eastern Baltic countries during the Late Bronze Age when substantial amounts of bronze rings made at the fortified settlements (including bronze bars) were put into circulation across a wide area, and far from their place of manufacture. Goods may have also moved short distances through redistribution that was directed by societal leaders; goods (material items) moved in one direction while something else of value such as services, obligations, and duties could have moved in another direction.

Only the direction of contacts at various periods will be analysed below because it is almost impossible to distinguish how exactly a particular foreign item reached Estonia. The ways that goods moved and the phenomena that accompanied exchange will be also discussed.

Late Bronze Age

Scandinavia was clearly the dominant focus of foreign communication in the Late Bronze Age, and most Estonian bronze items of the time came from there. Eduards Šturms (1935) was the first to point out that the eastern Baltic area stretching from the Daugava River as far as south-western Finland, fell within the sphere of influence of the Nordic Bronze Age culture during the period under discussion. Later finds have only reinforced the claim. As shown in Chapter 1, the western coast of the Baltic Sea attracted local tribes by the end of the Stone Age, in particular during the Early Bronze Age, and the region became increasingly attractive in the later periods. Sea routes from northern Estonia probably passed through the waters of south-western Finland, and it can be estimated that there was a direct route between the islands of Saaremaa and Gotland. Estonian archaeological material reveals no data about water vehicles, but there is no doubt that such vehicles existed in Estonia because it is not likely that Scandinavians alone were responsible for the entirety of the bronze trade around the Baltic Sea and along the Daugava River. In addition, eastern influences (from Estonia or south-western Finland) can be observed in central Sweden (e. g. the Darsgärde complex) at that time.

The influence of the Nordic Bronze Age culture can be seen first and foremost in a number of bronze items that have been found at Estonian fortified settlements, graves, and as isolated finds. This includes imported artefacts and ones that were modelled on the general style of northern Europe and partly also central Europe, and some items also reflect the traditions of other faraway eastern lands (e.g. the Vaivara axe, see Fig. 73: 4). Different materials such as bone, horn, and sometimes amber (double-buttons and decorative pins) may have been used to create items modelled on foreign examples. Some Scandinavian-type artefacts were definitely made in the regions located on the eastern coast of the Baltic Sea. Imported items included weapons (some spearheads), ornaments (the belt ornament from Tuula, and buttons), and tools and everyday items (the Raasiku sickle, a number of razors in stone-cist graves, and some tweezers). A group of stone axes (rhomboid and with recurved butts) also indicate contacts with western neighbours.

Other contacts also influenced the development of ceramics. There are not many imported

items known,[134] though foreign influences were applied to local ceramics, and thus a new unique style was created (Sperling 2006). It is sometimes unclear from which direction one or another element of form, rock temper, finish, or ornamentation was originally from. For example, Asva-style fine-grained ceramics have equivalents in both Scandinavia and in the Lusatian region of central Europe (Lang 1991). Ceramics covered with wet clay (rusticated ware) present another example; they comprise a small group and occur only at Asva and Ridala in Estonia. This style was common in what is now eastern Germany and Poland, but it also occurred in Denmark, eastern Sweden, Åland, south-western Finland (see Gustavsson 1997), and western Latvia (Vasks 1991, 30 f.). Both types of ceramics originated in central Europe, but it is difficult to establish from which direction the tradition reached Estonia because there were also strong impulses from central Europe in Scandinavia. One cannot rule out that influences came from both directions because some groups of people were rather mobile due to active communication and the bronze trade. The fact that Latvian and Lithuanian sites dating to the Late Bronze Age have revealed almost no fine-grained ceramics, suggests that western influences dominated in ceramics-related contacts in Estonia and south-western Finland.[135] In addition, clear and strong eastern influences can be observed in the ceramics of the Darsgärde region located in the eastern part of central Sweden (Reisborg 1989), and it is even possible that people from Estonia or south-western Finland migrated there.

Several other sites also indicate contacts with Scandinavia. For example, Gotland-style ship graves occur at Lülle on Saaremaa Island, at Väo near Tallinn, and in Courland in Latvia. Unlike the Estonian stone-cist graves that were also originally foreign, the tradition of ship graves did not take root east of the Baltic Sea. Cup-marked stones also indicate close contacts with Scandinavia, although the custom of carving round hollows into stones and boulders was common across wide areas of Europe. Stone graves and cup-marked stones reflect much deeper impacts on the religious beliefs of the local people (a cult of ancestors and fertility) than mere trade contacts.

It is unclear whether Estonian Late Bronze Age ceramics reflect direct or indirect central European influences, but there is other evidence that indicates probable contacts with that region. First, five-cornered stone axes should be mentioned; in addition to central Europe, they occur everywhere on the eastern coast of the Baltic Sea, including Finland (see Chapter 1). The axes do not necessitate direct contacts because the items could have moved through repeated acts of exchange, but they still indicate indirect contacts. A Hallstatt sword is the only weapon made by the central European weapon smiths that is known to have reached Estonia; the item is a Gundlingen type sword dating to the Hallstatt period C, and it was found near Vajangu in northern Estonia approximately a couple of centuries ago (Lang & Jonuks 2001). As with the axes, it cannot be ruled out that the sword reached Estonia through Scandinavia where that type of weapon was used around Mälar Lake, in Gotland, and Öland, i.e. in areas that also had close contacts with Estonia. No Late Bronze Age swords have been found in

[134] It may be that some single vessels which have no equivalents among local ceramics, but do in other places, could have been imported. For example, the previously mentioned pot with perforated walls from Asva and the miniature vessel with a bottom cavity from Ridala indicate central European origins (Sperling 2006). There are also other examples.

[135] It is significant that clay vessels with perforated walls found at fortified settlements in the Daugava basin have good equivalents in what is now Poland (Sperling 2006) and may indicate direct contacts between the eastern part of central Europe and the eastern coast of the Baltic Sea. Therefore, it is strange that no central European-style fine-grained ceramics have been found in Latvia or Lithuania so far.

Latvia and Lithuania to date. Several new types of ornaments such as massive iron bracelets, decorative pins with spiral-, roll-, and disc-shaped heads reached Estonia through central Europe at the turn of the Bronze and Iron Ages.

Contacts between Estonia and the tribes living in the forest belt of eastern Europe were weak during the Late Bronze Age compared to contacts with Scandinavia. At least one bronze axe found in Estonia (at Toonoja in south-western Estonia) originated from the Kama River area. Striking similarities in the finish of coarse-grained ceramics (striations and textile impressions) and in morphology and ornamentation (pits and impressions of twisted cord) indicate contacts between Estonia and eastern regions (see Lang 1991, 49). It is geographically reasonable to believe that Estonia had close contacts with south-western and southern Finland, although archaeological record provides no evidence of this other than some commonalities in grave building and ceramics.

Archaeological evidence of the time suggests weak contacts between Estonia and the southern part of the eastern Baltic region. Late Bronze Age ceramics from southern Latvia and Lithuania differed from the Estonian ceramics of the time; striation was the only type of finish common to all the areas. Five-cornered axes and a long and heavy bronze socketed axe found at Põhjaka (south-western Estonia; Fig. 73: 3) suggest contacts with people living south of Estonia (see Jaanits *et al.* 1982, 151). There are a number of commonalities in bone and horn items from these areas, too.

Pre-Roman Iron Age

The same network of contacts that was typical of the previous centuries, i.e. active communication between the coastal areas of Estonia, south-western Finland, and central Sweden, probably characterized the beginning of the Pre-Roman Iron Age. Early *tarand*-graves and cairn graves that developed at the turn of the Bronze and Iron Ages were the new common grave forms, indicating contacts between the above regions. Archaeological record also provides examples of similar find complexes characteristic of the burial sites of the Early Pre-Roman Iron Age such as Bräcksta-type bronze neck-rings, bronze and iron bracelets with round cross-sections, and decorative pins with roll- or spiral-shaped heads (Lang 1996a, 285 ff.; Schmiedehelm 1955, 24 ff.; Meinander 1969; Bennett 1975; Modin 1966). In addition, a very similar style of ceramics developed on both coasts of the Gulf of Finland, which is called Morby-style ceramics in Finland and Ilmandu-style ceramics in Estonia. Similarities in the material culture indicate close contacts between the coastal areas of Estonia, Finland, and central Sweden, which were accompanied by corresponding influences on religion and ritualistic behaviour.

Contacts between Estonia and people living in the eastern forest belt, as far east as the middle reaches of the Volga River, intensified during the Pre-Roman Iron Age. A number of imported items have been found, including primarily ornaments such as decorative pins made from bronze or bronze and iron (bi-metal), bronze pendants, several types of temple ornaments, and belt and decorative mounts. Mostly they were single items that were not replicated and did not take root in Estonia. However, temple ornaments with spiral middle parts and spoon-shaped ends can be regarded as an exception because the final form of these ornaments probably developed in Estonia, though their earlier forms originated in the Ananyino Culture of the middle reaches of the Volga River, the Koban Culture in the Caucasus, or in the countries along the Danube River (see Lõugas 1991). Most imported items were found in the early *tarand*-graves of western Estonia and the islands, whereas the locally produced temple ornaments with spoon-shaped ends also

occur in the coastal areas of northern Estonia, in central Estonia, and at some sites in Latvia and Lithuania. It should be noted that Estonia had less substantial contacts with areas to the east than with Finland and central Sweden, and it can be estimated that the contacts with the east were limited to infrequent trade contacts of the chiefs of western Estonia and the islands throughout the Pre-Roman Iron Age.

Significant cultural influences were certainly also coming from the south-east at that time. It may be that the decorative shepherd's crook pins reached the Baltic region from what is now Ukraine. This type of pins probably became accepted in Estonia during the middle or at the beginning of the second half of the Pre-Roman Iron Age (Lang 1996a, 55). Narrow-bladed iron axes constitute another important type of item (originally called Scythian-type); they reached the upper reaches of the Dnieper River around the 4th century BC (Graudonis 1967, 103), and it is likely that the axe reached the Baltic region together with the shepherd's crook pin from there.

Routes linking Estonia with central Europe, where a number of imported items come from, were also preserved. Most imported items are ornaments (some bracelets, mounts, and small decorative pins with disc-shaped heads, see Lang 2000a, 121, fig. 42: 2; 1996a, 123, fig. 47), except the one sword of late La Téne type found at Arkna.

Links with the south-eastern and southern coasts of the Baltic Sea became increasingly important at the end of the period. It is possible that influences from the former eastern Prussian region on the making and decorating of Estonian ceramics resulted in the development of the unique comb-decorated ware found in north-western Estonia during the Late Pre-Roman Iron Age (Lang 1996a, 54). The influences were definitely mutual because a new local grave type – graves with stone constructions (circular, oval, and quadrangular walls) – that had several similarities to the early *tarand*-graves of western Estonia (Kurevere-type) emerged on the south-eastern coast of the Baltic Sea at the same time or slightly later. Interaction between coastal people, which at the beginning of the period mostly involved the northern shores of the Baltic Sea, had by now also extended to southern areas. Contact with the south became especially significant for Estonia and south-western Finland during the Early Roman Iron Age.

Roman Iron Age

Contacts between areas around the Gulf of Finland and the south-eastern coast of the Baltic Sea (mainly the area between the mouths of the Vistula and the Nemunas Rivers) that had intensified during the Late Pre-Roman Iron Age were further strengthened in the 1st century AD. There is evidence of communication by sea from the mouth of Vistula River to the coast of north-eastern Estonia (and Finland) because new types of items appeared first in the graves of north-eastern coastal zone of the country, from where they later spread to inland regions (Schmiedehelm 1923). It is interesting that Saaremaa Island and western Estonia were not part of the communication network of the time, although the linking routes must have passed by them.

The grave furnishings of all Estonian *tarand*-graves became similar to that of the south-eastern Baltic region over the next centuries. This does not mean that most items were imported; on the contrary, there were probably more locally-made than imported items. Most types of items that reached Estonia from the south-eastern coast of the Baltic Sea took root and were locally advanced (fibulae, bracelets, and finger-rings). Local groups developed in various parts of Estonia (as in the southern Baltic region) that can be identified by certain peculiarities in their

material culture, such as the choice of ornaments (e.g. finger-rings had a different significance in northern and south-eastern Estonia) and variations in types of ornaments (e.g. disc-shaped fibulae were more popular in south-eastern Estonia). Material culture became fairly homogeneous across the eastern Baltic region, and was thus markedly dissimilar from that of eastern and western neighbours.

Links with Scandinavia were the weakest during the Roman Iron Age. Few items have been found (some fibulae, neck-rings, and sickles) that date to the period and that likely originated from parts of Scandinavia. The items were not adopted in Estonia except for finger-rings with longitudinally ridged middle or end plates. The Scandinavian-style *bauta*-graves at Valkla in coastal northern Estonia indicate different kinds of contacts, although they contained local style artefacts (Saadre 1938). This grave form did not become accepted in other parts of Estonia. On the other hand, Estonian hoards consisting of weapons and tools that occur in wetlands and ornaments deposited in arable land are similar to the respective Swedish and Danish finds and indicate religious influences from those areas.

There were close and mutual contacts between Estonia and south-western Finland during the Roman Iron Age, although evidence indicates that main influences moved from the south to the north. Single-*tarand*-graves that were a subform of *tarand*-graves originally developed in two areas − around Tallinn in Estonia and in south-western Finland.

Estonian Roman Iron Age metal artefacts provide almost no evidence of contacts with the tribes of the eastern forest belt. However, Late Textile Ceramics found in south-eastern Estonia and north-eastern Latvia form the westernmost boundary of the distribution area of these ceramics, and it indicates contacts with eastern neighbouring tribes (Laul 2001). New type of shepherd's crook pins (Laul 2001) and single imported

Fig. 153. *Hoard of Roman copper sesterces from Juminda (photo: J. Kool).*

items which did not take root in Estonia (Jaanits *et al.* 1982, fig. 158) suggest communication with the areas around the Dnieper River.

Some imported items from provincial Rome have been discovered in Estonia. More than 40 copper and silver coins have been found, mostly as isolated finds and in unclear contexts; four coins were discovered as a single hoard on the Juminda peninsula (Fig. 153; Molvõgin 1976). Besides coins, some fibulae and a bronze lamp have also been found (Fig. 154; Jaanits *et al*. 1982, 232). Gold foil beads and some other types of glass beads form the largest group of items from provincial Rome; many hundreds of them have been found so far. There is no doubt that most items reached Estonia by way of the south-eastern coast of the Baltic Sea.

It should be noted that the local people were able to produce the material needed for making iron items, but bronze had to be imported to make numerous ornaments. Unlike some Late Bronze Age finds, no scrap metal finds from this period have been found in Estonia so far. It should also be kept in mind that some goods (grain, salt, and fur) leave no traces in the archaeological record, but their movement should be presumed.

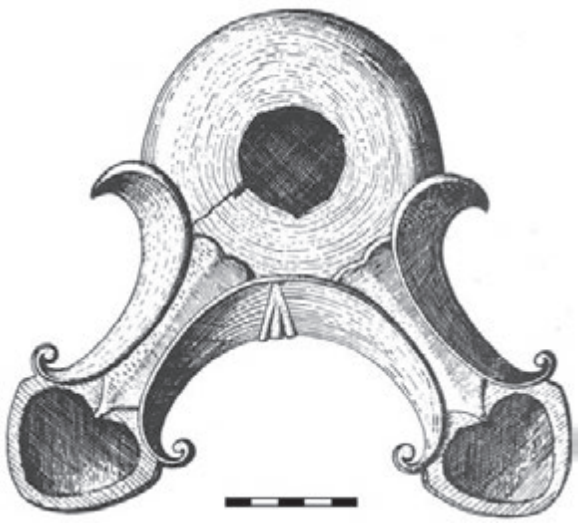

Fig. 154. *Bronze lamp of Roman origin from Kavastu (after Jaanits* et al. *1982, fig. 159).*

5.4.3. Trade and society

It is necessary to examine how trade was organized and who participated in it in order to explain the role and influence of trade on the social order. Did only tradesmen from faraway lands visit the Estonian shores and distribute glass beads to the 'barbarians' and establish 'trade colonies', or did local communities also have the ability to go out and engage in trade themselves? If goods moved from one region to another, who were the traders – were they the importers or the receivers of the goods? The active role of cultural centres in communication with the peripheries is obvious, but the role of the peripheries is not as clear. Unfortunately, the archaeological evidence is ambiguous in regard to these issues, and it is only possible to roughly estimate what the situation was like.

As noted above in the section dealing with Late Bronze Age bronze smiths in the eastern Baltic region (3.2.1), scrap metal obtained from Scandinavia was recast into bronze bars locally, and some of it may have been re-marketed across the Baltic Sea. It is difficult to imagine that the Scandinavians were motivated to gather their broken items, take them across the sea, have the material cast into bars there, bring them back, and then recast the bars into necessary items. The process would make more sense if the people in the fortified settlements of the eastern Baltic region obtained scrap metal on their own initiative and recast it both into items necessary for themselves and into bars or rings for exchange. Thus, local bronze working indicates that it was local people and not foreigners that went outside to trade.

Influences from various regions are reflected in and intertwined with the local culture, which lends support to the claim. There are several Late Bronze Age sites in countries around the Baltic Sea where the traces left behind by the inhabitants indicate their ethnically foreign origin. For example, the Darsgärde complex in central Sweden clearly indicates a group of people from the east; seal hunters from central Europe used to stop in the Otterböte settlement in Åland (Gustavsson 1997), and the Vistad fortified settlement in Sweden also suggests inhabitants from central Europe (Larsson 1993). The material from these sites differs clearly from the local culture, and it later disappeared, leaving almost no traces in the material culture of the surrounding areas. The development of various styles of ceramics in Estonia during the Late Bronze and Pre-Roman Iron Ages reflects the combination of different styles of ceramics, for example some motifs of ornamentation or finish came from Scandinavia and others from central Europe or the Volga River area. It is difficult to imagine tradesmen from faraway countries carrying their delicate clay vessels over long distances and using them to demonstrate to the local people the 'proper' way of making ceramics. It is more likely that local people went to other countries where they saw various styles of ceramics; they could have returned with some items, or with women or

slaves who knew the techniques for making different kinds of ceramics.

Every region had its own foreign contacts, which probably also played some role in the differences we can identify in the archaeological record. For example, coastal northern Estonia had close contacts with the south-western and southern coasts of Finland during almost all periods, Saaremaa Island and western Estonia had interesting connections to the middle reaches of the Volga River in the Pre-Roman Iron Age (that other Estonian regions probably did not have), north-eastern Estonia established direct contacts with the area at the mouth of the Vistula River around the turn of the era, at the latest, while the latter area had no contacts with the islands and coastal western Estonia. The contacts can be viewed as partnerships based on reciprocity, and the associated communications and exchanges may have taken place in the homes of both sides. Contacts based on partnerships were continuous; for example, the coastal people of the Gulf of Finland communicated with each other over the course of millennia, while contacts with some other regions lasted for a shorter time, but still for centuries.

Another issue is the acceptance or rejection of originally foreign cultural elements. As noted, every period has cultural elements that quickly took root in the local culture (i.e. were accepted and advanced), as well as elements that remained foreign and were essentially ignored from their first introduction. This phenomenon is related to the general semiotic problem of how to interpret culture (see Lotman 1999; 2001; Torop 1999). There is no dialogue between two structures, such as cultures, if the phenomena are identical or completely foreign; dialogue is only possible if there is some overlapping element that can be mutually understood, that is, the cultures must have something common as well as something different. A culture cannot develop without a continuous influx of 'texts' from the outside, but the future of the 'texts' in the recipient culture depends on how well they correlate with the existing context. For example, the coastal people of Estonia and Finland developed a significant overlapping element with the Scandinavian cultural space (in particular, after the structural changes in the local societies during the transitional period to the Late Bronze Age, see below), but there were also many differences, which made communication and the acceptance of mutual cultural elements easy. The same applies to the Roman Iron Age, with the exception that southern and south-eastern parts of the Baltic Sea became the dominant culture in communications. Most pendants, mounts, or decorative pins obtained as single samples from the eastern forest belt carried no symbolic meaning to the local people, and thus they remained foreign to them. The situation was different with the temple ornaments obtained from the same area because temple ornaments were already being worn in the local culture. However, temple ornaments that originally had spiral ends were re-interpreted within the local cultural language and the spirals were replaced with small round plates because spirals had no symbolic meaning in Estonia (see Lõugas 1991).

Which cultural elements were accepted, that is, translated into the local cultural language at one time or another, depended on the local cultural context, which was continuously changing over time. In the Late Bronze Age, most innovations that originated in the Scandinavian cultural centre were translated into the local cultural language, whereas ideas from other regions usually remained insignificant. The cultural axis that had been tilted westwards up to this point in time shifted gradually southwards in the Pre-Roman Iron Age, but Estonia still had contact with other regions. During the Roman Iron Age, the local people were mostly able to accept only elements from the south-eastern coast of the Baltic Sea, and thus a single axis dominated again.

It is difficult to establish, based on the archaeological data alone, who the people were that participated in trade journeys. Basically, each household that had some reason was able to take short trips to neighbouring areas. On the other hand, longer trips, in particular sea voyages, were probably not a viable option for each farm to undertake; one had to build and equip a water vehicle, which also meant organizing a group of men that were able to row, before the introduction of the sail. Therefore, it can be estimated that only chiefs with great influence, and who had the ability to gather enough strong men, were able to maintain links across the sea. It also meant that the chiefs controlled the overseas contacts and the resulting profits, which in turn favoured social stratification.

Organized sea travel and trade presumes that the society was organized into small (perhaps temporary) groups which consisted of a chief and 10–20 men. From the viewpoint of life on the dry land each group of men could have been backed by a settlement group of up to half a dozen farms. This corresponds to the settlement pattern that was established above by analysing the distribution and character of sites (the dominating farm system).

5.5. Centre – periphery relations: structural changes in the society

5.5.1. Late Bronze Age

The first chapter showed that what is now Estonia was the outermost periphery for the important Baltic Sea cultural centres of southern Scandinavia and former eastern Prussia during the Early Bronze Age (Fig. 14). It can be estimated that Estonian society with its social structure, ideology, and economy differed completely from the societies of the above centres. Contacts with Scandinavia existed in the form of communication networks, but they were probably limited to central Sweden (and south-western Finland) that was a rather peripheral area compared to southern Scandinavia; the contacts rarely reached further and did not bring about any significant changes in the local societies.

However, this situation changed in the Late Bronze Age. First, field systems with permanently fixed boundaries indicate the beginning of new and complex processes in the development of social relations; they reflect not only the reorganization of land cultivation techniques, but also new ownership relations. The closest equivalents to the Estonian block-shaped fields can be found in Gotland and southern Scandinavia. The beginning of local bronze working was also an economically significant change. As discussed above, the raw metal for bronze items was brought from Scandinavia in the form of scrap metal, and some of it was taken back to Scandinavia after being recast into bars. This indicates close (but asymmetric) economic relations, and even the development of certain divisions of labour and interdependence between the eastern and western coasts of the Baltic Sea. This verifies that the northern and western coastal zones of Estonia and Saaremaa Island had become the peripheries of the Nordic Bronze Age culture.

Asymmetric interdependence between the centre and the periphery should bring about complex social changes in the social relations, religion, and economy of the periphery (Sherratt 1993). The present study has revealed these kinds of changes in all spheres of life. Aboveground stone graves and cup-marked stones that are connected with the same phenomena to the west of the Baltic Sea indicate significant developments in religion, burial customs, and ideology beginning during the transition to the Late Bronze Age. Estonian stone-cist graves are not exact copies of the Scandinavian graves, and

local cup-marked stones do not have drawings of figures beside the hollows, but the ideological and essential links are obvious. Changes in land cultivation techniques and land ownership relations have already been noted, but it should be stressed that these changes brought about a transformation of the social order.

The structural processes mentioned above made the peripheries more similar to the core, but they affected only coastal Estonia during the Late Bronze Age. Similar developments can also be observed in the Finnish and Latvian coastal areas, whereas completely different influences emanating from the cultural centres of the south-eastern coast of the Baltic Sea affected western Lithuania. The restructuring did not reach central and southern Estonia at the time, and thus these areas should be regarded as a margin of the Scandinavian cultural centres; infrequent contacts and impulses could affect the area, but they did not have a significant influence on the local social relations.

Contrary to the Early Bronze Age (the period of so-called Epineolithic culturelessness), the Late Bronze Age was rich in sites and finds, which raises the question of the causes of such a 'cultural explosion'. Did local developments set off the cultural explosion or did new settlers bring it along ready-made, for example, from Scandinavia? A large proportion of the archaeological record seemingly supports the latter proposition. Birger Nerman (1933) claimed once that Estonian stone-cist graves and bronze items belonged to western colonists. Some linguists (Wiik 2002, 239 ff.) also believe that groups with high social status who spoke North Germanic languages inhabited the Estonian coastal zones during the Bronze Age, and that the local Finnic language borrowed from that superstratum language. The available archaeological evidence does not, however, clearly indicate substantial immigration because the Estonian sites (stone graves) are usually not identical in form, but only resemble the respective overseas sites (except some ship graves). Estonian material culture on the whole (forms of ceramics and bone and horn items) differs completely from the western material, except some metal artefacts that were perhaps imported.

It can be estimated that the apparent enormous increase in the amount of archaeological material during the Late Bronze Age is more an illusion than a reality. This may be the case because, first, the Early Bronze Age has not been especially well-studied so far. Second, the enormous increase is dispersed over a 500 year period. For example, the most recent studies suggest that the earliest field systems originated in the 14th–11th centuries BC, the earliest stone-cist graves were established around the 12th–10th centuries BC, and Estonian fortified settlements usually date to ca. (9th) 8th–6th centuries BC (only Joaorg at Narva dates to an earlier period). The chronology of the developments enables one to understand the nature of the whole process better: the change in ownership relations regarding arable land resulted in a qualitative change in land cultivation, which created the economic base necessary for independent foreign relations, which in turn brought about new developments in other social spheres. Thus, the developments were local, and they were first and foremost based on local social relations and agricultural production; interaction with neighbouring societies was secondary.

On the other hand, the developments were a chain of both continuous and explosive dynamic processes. Continuity (acknowledged predictability) and explosiveness are interdependent in the evolution of culture; one cannot exist without the other because continuity guarantees stability, whereas explosiveness results in innovation. Culture can be seen as consisting of multiple layers developing at various speeds, and an explosion in one layer can result in the continued evolution of other layers (Lotman 2001, 17 ff.). The processes under discussion can be analysed from this viewpoint of continuity and explosiveness

or innovation. The continuous development of land cultivation can be regarded as a chain of small and slow changes which included the following: increase in the significance of agriculture in generating one's means of living, slow but gradual increase in population density, and everyday communication with close and faraway neighbours via the long-established (and thus seemingly ancient) communication networks. Establishment of private ownership (of arable land) and the first stone graves can be regarded as an explosion; private ownership was the inevitable outcome of slow and continuous development while stone graves were the outcome of active communication with the people living across the sea. Introduction of the private ownership of some land must have been revolutionary at the time and distressing to some people, but it became more accepted over time, and the subsequent economic and social order rested on this new social base. Establishment of fortified settlements some time later was less revolutionary because it was based on the ownership of a certain plot of land and branch of production. Erecting the first above-ground stone graves was probably also regarded as foreign religious heresy, but gradually other elite families began to erect similar monuments, and the beliefs and rituals related to the graves were accepted by larger groups.

5.5.2. Pre-Roman Iron Age

The Scandinavian Bronze Age cultural centre lost its importance during the transitional period to the Iron Age. Former communication networks between the Estonian, Finnish, and central Swedish coastal areas were still maintained for some time after, although the attractive socio-economic and cultural centre had ceased to exist. It can be observed that the peripheries increasingly distanced themselves from the former centre and began to innovatively exploit their own resources over time. Introduction of a new metal – iron – that was produced locally favoured the new trend. Estonia had close foreign contacts with peoples in all directions, and thus many new types and styles of items were accepted, advanced, and created locally, including both metalworking and ceramics. Originality in grave forms indicates local and independent understandings of religion. A unique cultural region with local sub-regions developed in northern and western Estonia during the Late Pre-Roman Iron Age, and its material culture and grave building differed clearly from that of the neighbouring groups around the Baltic Sea.

This cultural area was not inwardly cohesive and did not appear as a clearly defined unit from the outside because certain differences in the material culture and graves of the sub-regions of northern and western Estonia were notable; some of the characteristic features of the area also occurred in neighbouring areas. It is clear that this cultural area did not dominate or stimulate other regions in the same way that the cultural centres of the Bronze Age did. The emergence of small local cultural areas in the Late Pre-Roman Iron Age was characteristic of the Baltic Sea area as a whole, and it was even typical of more distant areas in other parts of Europe. The common characteristic of the cultural centres of northern Europe during the Late Pre-Roman Iron Age seems to have been the appearance of burials with grave goods after the Early Pre-Roman Iron Age (when burials were not usually furnished with goods), which indicates similar understandings of the afterlife (Fig. 155). Areas located near the lower reaches of the Vistula River on the southern coast of the Baltic Sea (such as the Oksywie culture group area) formed one such Late Pre-Roman Iron Age cultural centres, for instance. Gotland, Öland, and Bornholm emerged as distinct cultural centres west of the Baltic Sea, and it seems that the custom of erecting early ring forts

Fig. 155. *Late Pre-Roman Iron Age above-ground graves with furnished burials, east of the Baltic Sea. a early* tarand*-graves, b western Baltic barrows with stone constructions.*

connected Gotland, Öland, and western Estonia. Burials with grave goods were reintroduced in other parts of the Baltic region and in Finland during the Early Roman Iron Age.

5.5.3. Roman Iron Age

The cultural unity of coastal Estonia was destroyed during the Early Roman Iron Age. Evidence indicates that this was a result of closer direct contacts between the coast of north-eastern Estonia and the area along the lower reaches of the Vistula River, whereas north-western and western Estonia and the islands did not participate in the associations, at least for some time. The underlying reasons for this process were also economic (north-eastern Estonia was rich in arable land while western Estonia and the islands lacked land) and social (differences in the behaviour of the elite groups). North-eastern Estonia became a rather significant cultural centre, and it also influenced southern, western, and northern regions. Separate cultural regions with *tarand*-graves rich in grave goods emerged in central and southern (in particular south-eastern) Estonia and northern Latvia, which had been rather poor in archaeological sites up to that point in time (Fig. 156). The rather abrupt cultural changes in the inland regions, which were not the result of any significant migration, seem to indicate that the local societies now experienced structural changes similar to those that had taken place in coastal Estonia approximately 1000 years earlier. The changes affected land ownership relations, religion and concepts of the afterlife, social order, and self-representation of the elite groups (including styles of clothing and ornaments). These developments made the inland societies more similar to the societies of the northern coast. A similar phenomenon, i.e. the emergence of cultural regions that can be distinguished by burials with grave goods occurred all over the Baltic region and in Finland during the Roman Iron Age.

Most material culture from both Estonia and northern Latvia (metal grave goods) was similar to that of the respective Roman Iron Age traditions of the southern and south-eastern coast of the Baltic Sea, but nevertheless it is difficult to establish whether and to what extent trade and cultural contacts influenced other social spheres. Perhaps it is not a coincidence that no weapons were placed in the graves of the Oksywie-Wielbark cultural region beginning in the 1st century AD (see Kaliff 2001, 23 ff. and literature

Fig. 156. *Main grave types of the Late Roman Iron Age east of the Baltic Sea. a* tarand*-graves, b south-western Finnish stone graves, c sand barrows with stone circles, d western Baltic graves with stone constructions, e Bogaczewo type graves, f Dolkeim-Kovrovo type graves, g cemeteries with pit graves.*

cited), which was also characteristic of the people who buried their dead in the Estonian *tarand*-graves. It is not likely that the custom had a significant role in the social sphere, but it may reflect certain similarities in the understanding of the afterlife. It can be estimated that the societies of the eastern coast of the Baltic Sea who communicated with each other had become rather similar in terms of their economy, culture, and society by the Roman Iron Age, and thus there was no need or possibility for restructuring. The cultural leadership of the southern and south-eastern coast of the Baltic Sea was recognized until the Migration Period.

Roman Iron Age cultural regions have been associated with ethnic and language differences across the Baltic region, including Estonia where various dialects developed (Jaanits *et al.* 1982). On the one hand, it is clear that different dialects or sub-dialects could have developed in the geographically separated regions of northern, central, southern, and western Estonia. On the other hand, there is no reason to claim that the dialects developed during the Roman Iron Age and not before or after. It is inappropriate to associate differences in material culture directly and causally with differences in language (see Lang 2001; 2005 and the literature cited). The cultural regions may represent the social consolidation of certain elite groups (see 5.2.3). That kind of development would bring about cultural differences between various groups depending on the self-assertion of the elite and different contacts with various neighbours. Naturally the respective language of communication could have also undergone a process of differentiation or consolidation, but the process of language change is usually much slower than changes in material culture due to different contributing factors.

5.6. Conclusion

Archaeological find material clearly indicates the development of a new type of society in Estonia during the Late Bronze Age, which preserved its main characteristics until at least the end of the Roman Iron Age. The social order consisting of three social strata was present only in northern and western Estonia during the Late Bronze Age, and then spread to the inland regions as late as the beginning of the Roman Iron Age. A group of elite families were at the top of the power pyramid; they lived in hilltop settlements

or on the dominant farms, and buried their dead with significant grave goods in stone graves. Common agricultural farms comprised the middle stratum; they also buried their dead in stone graves, but the grave goods were usually modest and less diverse. Members of the lowest stratum were probably not buried in stone graves, and their cremated or uncremated remains were placed in earthen graves, or were left on the ground in particular places. The settlement pattern corresponding to the social order consisted of rather small autonomous regions which were governed by households with a dominant status.

Palaeopathological studies indicate that the state of health of people could differ substantially depending whether they descended from the elite or common families. Some data also suggests that the table manners and styles of ceramics and ornaments of the elite differed slightly from that of the common people. The comparison of styles of ceramics and ornaments also, however, indicated the emergence of regional cultural groups that consisted of several dominating farm systems. The cultural areas widened or transformed over time; that kind of cultural group was common only in some places in coastal Estonia during the Late Bronze Age, but they spread across the country by the Roman Iron Age. The cultural regions can be seen as social consolidation of the population around the dominant elite groups.

Ancestor and fertility cults prevailed in religion, and the respective rites were primarily performed near stone graves and cup-marked stones. Belief in a communal soul which was comprised of all the souls of the deceased members of a community was reinforced and spread. This belief manifested itself in sacred architecture through the custom of joining grave structures, whereas in burial customs it manifested itself in the practice of mixing burials and grave goods, in particular in the case of *tarand*-graves containing cremations. In addition, it is likely that people started to worship personified and anthropomorphic heavenly gods; rituals associated with such worship could have taken place in sacred groves. The groves may have been located at special natural sites (sacred hills) or in enclosures separated by ramparts.

Estonia had close foreign trade and cultural contacts with other regions throughout the period, but different regions dominated at various times. The contacts were the closest with Scandinavia during the Late Bronze Age, and it can be estimated that coastal Estonia became the periphery of the Nordic Bronze Age Culture at that time. This development resulted in certain structural changes in the societies of northern and western Estonia; the changes affected social order, land ownership relations, and religion, and made the local society more similar to the cultural centre. Communication in the east–west and north–south directions was characteristic of the Pre-Roman Iron Age, but the contacts shifted increasingly towards southern regions at the end of the period. A unique cultural region developed in northern and western Estonia and on the islands during the Late Pre-Roman Iron Age. The contacts that north-eastern Estonia developed with areas along the southern and south-eastern coasts of the Baltic Sea became significant during the Roman Iron Age, and thus this area became an important centre for the Estonian inland regions. Social, religious and probably also economic restructuring took place in central and southern Estonia due to close contacts, and the result was local societies that became more similar to those along the northern coast.

Epilogue

The 2250-year period encompassing the Bronze and Early Iron Ages, treated in this book, was transitional in many ways. First of all, there was a transformation from a hunting-fishing-gathering subsistence lifestyle (with minor agricultural practices) characteristic of the Neolithic times, to an economy fully focused on farming. This transition process proceeded slowly until the end of the Early Bronze Age when remarkable changes took place in the coastal *loo* areas of northern and western Estonia. Fossil field systems, above-ground stone graves, open and fortified settlements, and sites for cultic activities clearly indicate that since the turn of the second and first millennia BC there were farming societies characterized by stratified social structure, developed ownership rights, rich material culture, and specific religious beliefs. It took one more millennium, however, for such changes to spread and become common throughout interior parts of what is now Estonia. In the Roman Iron Age, economic and social differences between the coastal and inland areas disappeared; yet, speaking in terms of material culture, several sub-regions can be recognized. The most remarkable differences existed between northern and southern Estonia, while western Estonia together with the islands formed the third main 'cultural province' of the time.

The period in question was a steady transition from the Stone Age settlement pattern of hunters'-fishers' villages to the single-farm system of early farming societies. In the course of this transition, a remarkable shift took place in the location of settlements: the surroundings and shores of larger water bodies, densely inhabited in earlier times, were stepwise abandoned while new areas suitable for agriculture were settled. This shift in settlement pattern and location had already begun at the end of the Neolithic, and was completed during the Early Bronze Age in the coastal areas and somewhat later in interior parts of the country. In the Roman Iron Age, the majority of Estonia was covered by a settlement pattern that consisted of single agricultural farms. In some core areas this pattern was relatively dense and was sparser in some other, more peripheral regions.

In terms of social structure, there was also a transition from Neolithic societies with relatively weak evidence of ranking to the clearly stratified societies of the Late Bronze and Early Iron Ages. This new social structure first became visible in the coastal areas during the Late Bronze Age where a hierarchical settlement pattern of small open and larger fortified settlement sites developed. Early Iron Age social structure is characterized by a system of one dominant farm: within small settlement areas there was one farm, which possessed a more outstanding position than the others; the common farms most likely had some social and economic obligations to the dominant farm. Such a system preserved its main features on the primary level of social organization until the Middle Ages, when it was known as a *vakus*-institution, although villages replaced single farms in this system during that time.

Thus, towards the end of this period, i.e. in the Late Roman Iron Age, Estonia was covered with a pattern of single farms, which were, as dense or sparse groups, tied with economic and social links within the dominant farm system. There

were bigger and richer, as well as smaller and poorer farms; there were also people who were dependent on the landowners. A similar three-fold structure becomes visible when analysing burial customs of the time: there are large *tarand*-graves with abundant grave goods, and there are also *tarand*-graves with relatively poor finds; and based on palaeodemographic calculations there must have been many people who were not buried in stone graves at all.

Of course, one cannot overlook the development of material culture during this 2250-year period. First, there was a transition from stone to bronze as the main material for making tools and other artefacts. This was a long transition, which took approximately a whole millennium. Artefacts of stone lost their importance only in the Late Bronze Age. The next transition from bronze to iron was much more rapid as it lasted not more than three or four centuries. Since the Late Pre-Roman Iron Age the communities in what is now Estonia were already using iron tools and weapons, and even ornaments, quite widely. There were also many noticeable changes in the development of pottery, as well as in other spheres of handicraft.

The transitions in subsistence, settlement pattern, social organization, and culture mentioned above formed the basis for further developments in the Middle and Late Iron Ages. Field cultivation and stock rearing, as well as land use systems, were re-organized during the Pre-Viking and Viking Ages when a strip-field system was established (accompanied most likely by the occurrence of proper block-shaped fields). The existence of strip fields proves that the cultivated land within one settlement unit had become subdivided; in other words, the corresponding settlement units already consisted of several households. This means that the first farming villages and village communities had been formed by the late first millennium AD. The village-formation process became more widely spread during the Latest Iron Age and Early Middle Ages. Social structure became more complex as well. Beginning the Pre-Viking Age one can follow the erection of a number of forts on hilltops all over Estonia; in many places large open settlements were founded at the feet of such hill forts. Some of these forts with associated settlements represented very powerful administrative and economic centres of the time; they were quite comparable to early urbanized centres elsewhere in northern Europe. The *vakus*-institution was also still in use and later served as a basic unit in the organization of fort districts.

The processes and developments following the Bronze and Early Iron Ages in Estonia will be discussed in greater detail in the subsequent volumes of *Estonian Archaeology*.

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Abbreviations

Institutions

AI – Tallinna Ülikooli ajaloo instituudi arheoloogilised kogud ja arhiiv / Archaeological collections and archives of the Institute of History of the Tallinn University.

AM – Eesti Ajaloomuuseum / Estonian History Museum in Tallinn.

TLM – Tallinna Linnamuuseum / Tallinn City Museum.

VM – Viljandi Muuseum / Museum of Viljandi.

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PVF – Pronksiajast varase feodalismini. Uurimusi Baltimaade ja naaberalade arheoloogiast. Eds. H. Moora & J. Selirand. Tallinn, 1966.

SAHM – Studia archaeologica in memoriam Harri Moora. Eds. M. Schmiedehelm, L. Jaanits & J. Selirand. Tallinn, 1970.

SMYA – Suomen Muinaismuistoyhdistyksen Aikakauskirja, I–. Helsinki, 1874–.

TATÜ – Eesti NSV Teaduste Akadeemia Toimetised, 1952–1955; Ühiskonnateaduste seeria, 1956–1966; Ühiskonnateadused, 1967–1989; Eesti Teaduste Akadeemia Toimetised. Ühiskonnateadused, 1990–1991 / Proceedings of the Estonian Academy of Sciences. Social Sciences; Humanitaar- ja sotsiaalteadused / Humanities and Social Sciences, 1992–1996. Tallinn.

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Index of Archaeological Sites