

Bronze Age Connections across the Baltic Sea: Discussing Metalwork as Source of Maritime Contacts in Prehistory

UWE SPERLING

Bronze objects are generally referred to as evidence of cultural contacts over vast distances. This holds particularly for the Baltic Sea, and this article aims to outline and discuss prevailing theories dealing with the distribution, circulation and production of metals, particularly in the context of maritime long-distance relations. The discussion also includes archaeological evidence and factual data on the navigation conditions in the Bronze Age Baltic. The problem lies in providing a synthesis of different material groups: bronze objects, primarily interpreted as exchanged gifts or commodities, and the archaeological remains of bronze production (from workshops), that are poorly studied in regard to technology and the logistics behind metalwork. It is argued that metalwork must not be referred to as a primary (economic) source of cultural contacts, and that interaction studies need to apply alternative approaches and complementary sources (e.g., ceramics) with various perspectives (socio-cultural; symbolic; metallurgic) on the role and function of metalwork in intercultural relations.

Bronze Age Connections across the Sea

The monograph by Jay J. Butler from 1963 titled *Bronze Age connections across the North Sea* contains a large inventory of bronze finds, mainly from the Lower Rhine region, that he addressed as indirect evidence of maritime contacts and travel. The many bronze objects compared in regard to distinct stylistic and technological features have not only been treated as evidence of connections across the Channel. Assumptions have also been made concerning their particular workshop province either in Britain or the Lower Rhine, and the import directions during the use- and lifetime of these products. These considerations are the results of archaeological-typological comparison of stylistic and technical features on bronzes with applied chorology (distribution maps), and Butler's work is an example of how metalwork has been comprehended as a referential source in interpreting the socio-cultural and socio-economic nature and dimension of interaction in defined Bronze Age regions. His perception of intercultural relations is derived purely from the analysis of bronzes, mainly stray finds, and from the

Keywords: East Baltic, metalwork, maritime travel, long-distance travel, seafaring

assumption that the Channel connections have been primarily based on the exchange of metals. Furthermore, there was the implicit understanding of bronze production and distribution as both being the concern of specialists and agents (merchants, travellers)—and of that being the main stimulus of maritime contacts between Britain and the Netherlands.

The parallels between Bronze Age research histories of the Channel Sea and the Baltic are intriguing; the general perception of asymmetrical relations between interconnected regions. The Netherlands, for instance, were regarded until the initial works of Butler as a sort of transit-region benefitting from its geographical setting amidst metal-trade routes between Britain and the continent. Before the first descriptive inventories of Dutch bronze finds by Butler and others, a rather pessimistic view prevailed regarding any local achievements in the metal-work sector, which was conditioned by the paradigmatic view of bronze-work as a matter for specialized, highly skilled and itinerant smiths only. The Dutch Bronze Age milieu simply was not deemed the right place for locating any such exclusive craftwork activities at that time (see Kuijpers 2008, 35–36). The way cultural interaction has been explained in view of cultural hegemony and asymmetry in relationships, particularly in reference to metals, their frequency and distribution patterns on archaeological maps, is very similar to the history of research into the Bronze Age East Baltic, where cultural interaction with the Nordic Bronze Age realm has traditionally been seen as a rather one-way relationship.

Estonia, for example, has been deplored in earlier research due to its extreme scarcity of metal-finds. Before the discovery of first settlements with traces of local bronze production in Estonia and Latvia throughout the 1930s, the entire region was regarded as underdeveloped or poorly populated, and this mainly in light of its isolation from metal transit-routes, which was believed to affect cultural and economic progress (see below). From the ruling historical-diffusionist viewpoint of that time, metalwork was regarded as a source of primary significance. In any case, explaining events or processes connected to mobility, movement and expansion in prehistory with the most exclusive archaeological objects such as metal or amber was fundamental to former Bronze Age research tradition and mentality.

The following pages provide a brief overview of the research-history dealing with metalwork as a source of cultural (maritime) contacts, and will then discuss both its potential and limitations in light of problems and desiderata in interaction studies. Different strategies and scenarios have been proposed in Bronze Age research to explain the nature and direction of exchange and trade. Nowadays the Baltic Sea during the Bronze Age is perceived as a rather open contact and travel zone (Figure 25.1), with different navigation routes implicitly understood as metal trade-routes, but our knowledge about the conditions and technological-logistical implications of both navigation and metalwork production in the late prehistory of the Baltic Sea is still insufficient.

Bronze Supply and Circulation—an Eastern Baltic Perspective

The earliest works dealing with interaction in the context of the Baltic Sea in the Bronze Age (ca. 1800–500 BC) are those of the Finnish and Swedish archaeologists Aarne Michael Tallgren and Birger Nerman in the 1920s and 1930s. At that time both Tallgren (1920–1923) and Nerman (1923–1925) held short-term professorships in archaeology at the University in Tartu (Svedin 2007, 26), and it was Nerman who conducted extensive archaeological fieldwork cam-

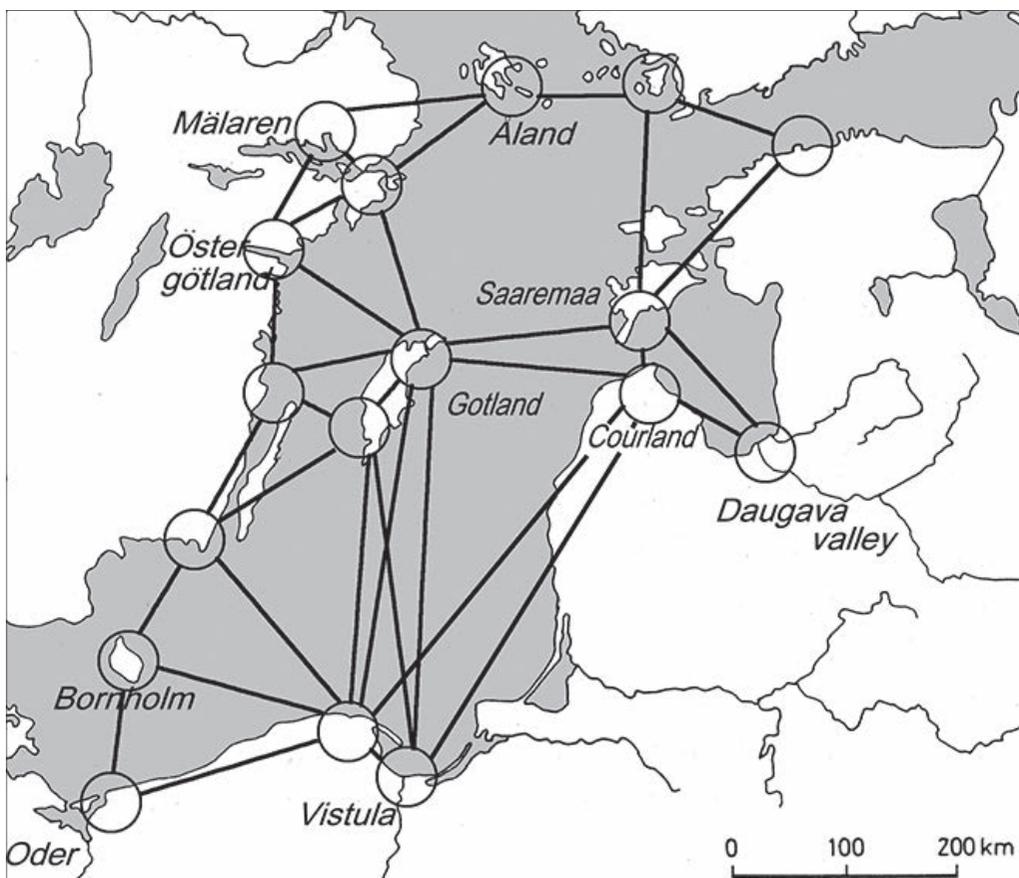


Figure 25.1 Map of the Baltic Sea and the Bronze Age maritime network with potential maritime crossroads, according to Wehlin (2013, fig. 9.2). Adapted and simplified by author. Note that there is only circumstantial evidence for the elongated lines (“links”) crossing large sea basins actually referring to Bronze Age travel routes.

paigns in Latvia, with a main interest in the western impacts and connections visible in Late Iron Age material culture. These two scholars had significant influence on north-eastern European archaeology and its methodology, and that in the first years of the short-lasting political independence of the Baltic countries (1918–1940) when the ‘national’ culture and prehistory was beginning to be explored and perceived by the general public (see e.g., Lang 2006). Professional archaeology was just being established, including the research into ancient hill forts, but back then Bronze Age settlements still constituted a completely unknown site-category. Until the discovery of hill forts in Estonia and Latvia in the early 1930s, archaeological finds of the early metal ages were scarce in the eastern Baltic countries, and mainly limited to a few single bronze objects. In 1913, the German archaeologist Max Ebert presented a first survey and inventory of the Bronze Age material, resulting in an “extremely meagre” number of bronzes (Ebert 1913, 524). Only about 18 metal objects were known from the Baltic provinces, and none of them from a certified grave or hoard context. The number did not even increase throughout the next decades. About a half of these bronzes are supposed to have a

western (or Nordic) origin in accordance to typological aspects and criteria, and this alone led to regarding them as direct imports. Thus, eastern Baltic prehistory was already seen in light of sporadic contacts with Bronze Age societies in the Nordic realm. In view of the extreme discrepancies in the 'quantitative distribution of bronze finds west and east of the Baltic, the sea has been perceived not only as a sort of cultural frontier. Scholars regarded the metals, the form and quantity of their occurrence on the archaeological map, as an indication of regional achievements in terms of cultural and socio-economic developments. In this context, Tallgren, for instance, assumed that the East Baltic was depopulated after the Neolithic, possibly because of people moving southward. The reasons may have lain in the unfavourable geographical setting and attempts to secure access to metal routes and resources. Tallgren even mentioned a western trade route bypassing the eastern shores in heading to the North-west Russian Plain ("Handelsweg aus dem Westen"; Tallgren 1922, 75; 1924, 62). Later, Nerman was applying his colonialist perspective in reference to the few Nordic bronze objects known from Estonia, such as the Tehumardi hoard-bronzes (Figure 25.2) and general influences in the local grave architecture. This all seemed to indicate immigrations from the Swedish Mälaren Valley and/or Gotland to the eastern Baltic shores (Nerman 1933). The reasons and causes of these movements have been explained as demographic pressure and ecological crisis (overexploitation of arable lands). Nerman still used this expansionist argument two decades later, then in promoting the idea of the active Nordic role and "Swedish" hegemony in any cultural, economic and technological developments east of the Baltic (Nerman 1954).

Since then, interaction studies in the Baltic Sea milieu focusing on metalwork finds remained neglected for several decades. The post-war period and the time of the Iron Curtain resulted in disparities in methodology and theory of archaeological research and hindered any exchange of information between researchers west and east of the Baltic. Nevertheless, the research and fieldwork in the former Soviet-republics of Estonia, Latvia and Lithuania made remarkable progress, which was partly due to large-scale excavations of Bronze Age hill forts (e.g., Vasks 1999). The political-ideological changes and circumstances led, however, to a isolated and autonomous Bronze Age research tradition in the eastern countries, where metalwork has been viewed only in light of its chronological significance, or for issues such as cross-dating with Nordic imports or imitations, or in using functional-utilitarian approaches when explaining the socio-economic significance of local metalwork production. Furthermore, researchers aimed to describe or outline any local features or characteristics in eastern Baltic metalwork, but that succeeded merely in emphasizing production activity rather than any particular quality in metalwork, while the predominating notion was of eastern Bronze Age societies suffering from restricted and limited metal supplies (Lõugas 1966). The scarcity of metal finds in the archaeological record has therefore not been explained by potentially varying deposition practices (local-cultural) but only from viewpoint of socio-economic behaviour. Accordingly, with the assumed difficulties in maintaining access to bronzes and materials, there was the idea of eastern societies being forced to a carefully arranged, economical handling of recyclable bronzes. In spite of the large quantities of bronze casting remains detected in several East Baltic production sites, no technological developments or advancements in local metalwork have been attested (Graudonis 1967; Jaanits *et al.* 1982; Lõugas 1966, 1970a). At the same time, any possible symbolic and social meaning expressed and transformed in

Bronze Age Connections across the Baltic Sea

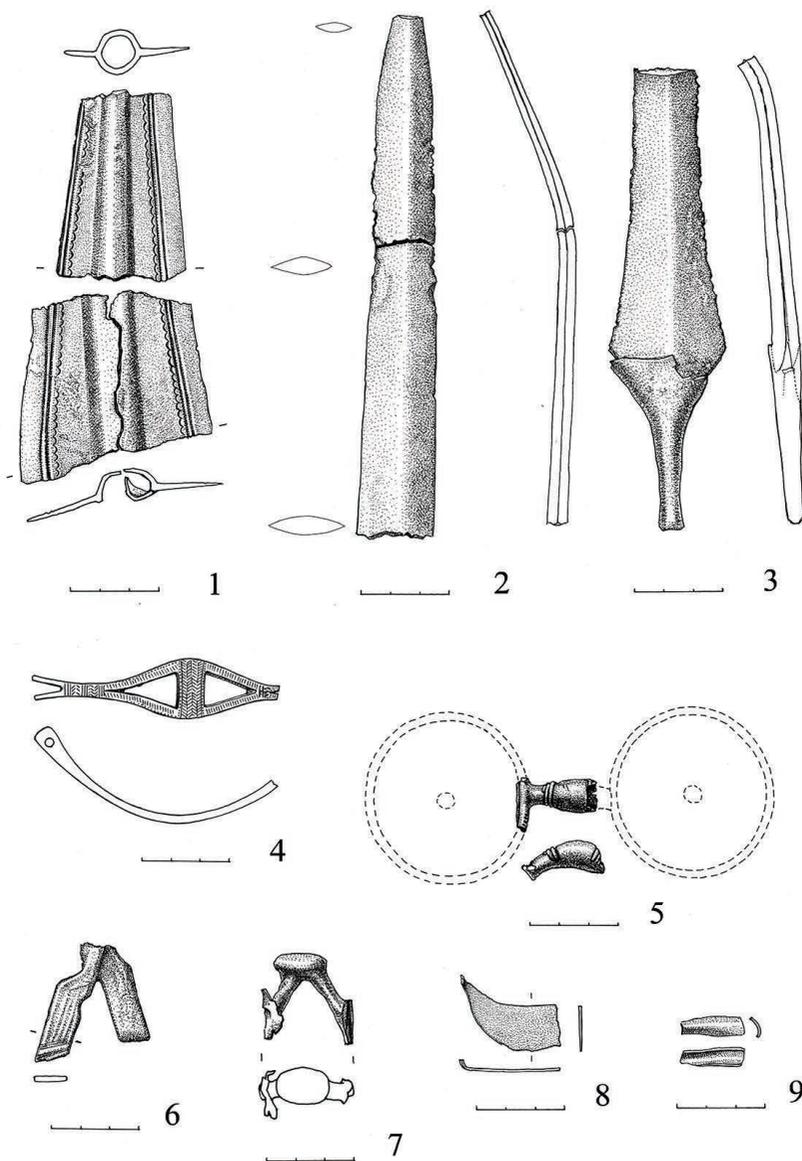


Figure 25.2 The hoard from Tehumardi, the only Bronze Age hoard found on Estonian territory (Sperling 2013).

metalwork continued to be neglected in research; however, one must acknowledge that the doctrines of Soviet Archaeology left little much room to discuss bronzes as markers of social identity, economic wealth or for interpreting any differences socio-political relations (e.g., power, control). Only a few works provided useful descriptive accounts of the archaeological remains of bronze production (see Dajga 1960; Lõugas 1966; Luchtanas 1981), while still lacking any holistic approach on metal casting technology and its social patterns. Alternative understandings of both the role of depositional filters in the archaeological record and the applied



Figure 25.3 The Early Bronze Age axes of Järveküla (1) and Eesnurga (2), both single-finds (from Lang 2007, fig. 11).

skill, experience and knowledge of bronze casting activity in the eastern Baltic milieu remain a matter for current research (see below).

Another, rather exceptional, attempt in Bronze Age interaction studies was that by the Polish archaeologist Lucija Okulicz (1976, 1977), who included the East Baltic territory into a large-scale narrative. In interpreting cultural dynamics and developments in the South-east Baltic settlement milieu she explicitly referred to metalwork as source of interregional relations. Okulicz assumed a long-distance copper-trade network between the Ural Mountains, the supposed provenance of primary metals, and various “cultural” centres in the Baltic. Her metal network perspective integrated the Samland Peninsula and the Island of Saaremaa as intermediate nodes, but the wide-ranging assumptions and chronological considerations based on relevant pottery types do not stand up to scrutiny (Sperling 2014, 265–268). The hypothesized connections between Samland and Saaremaa in metalwork or local pottery groups still lack any factual data. However, this kind of macro-regional network approach, reminiscent of earlier works by Tallgren (1922, 1924), deserves mention simply because of its focus on metals as a presumed driver of interaction—with the Baltic both as mediator and contact zone. Recently, Okulicz’s model was readopted by Andrzej Pydyn (1999) in his comparative macro-

regional case-studies on evidence for long-distance exchange and cultural interaction. Once again, metals are treated as a primary cause of exchange networks, but now in a suggestive manner referring only to earlier works and without regard for increased factual data (such as chronology). The existence of Bronze Age exchange routes between the eastern Baltic and Volga-Kama area, for instance, are simply taken for granted in this rephrasing of already existing models of directional metal exchange (Okulicz 1976, 1977; Pydyn 1999, 25; Tallgren 1922, 1924).

The most recent Bronze Age research paid greater attention to the introduction of metalwork into the eastern Baltic and its social meaning and function, also with a very different approach to contextual and chronological aspects. In accordance with the recent works by Valter Lang, the bronzes reaching the eastern shores are regarded as the result of gift exchange in the Early Bronze Age (Figure 25.3), with metals as prestigious objects and with symbolic meaning behind exchange activities (Lang 2007, 2010). With the advent of genuine metal production in the eastern Baltic in the Late Bronze Age, the local societies are seen as becoming actively involved in a supra-regional exchange-system based on commodities and raw-materials (Lang 2007, 2010). Behind the metalwork and the circulation of bronzes lie eminent cultural and socio-economic dynamics and developments, and the bronzes acted as a medium of symbolic and social meaning and function. The Baltic Sea is no longer only viewed as a maritime network, facilitating travel and transport, and intensifying intersocietal and economic relations; in applying this metal-centred world-system perspective, the Baltic is at the same time perceived as a boundary between centre-periphery relations. Lang (2007) puts emphasis on the logistical implications of metalwork, and the local economic developments mobilizing the participation in bronze distribution and exchange, rather than on technological and process-related aspects. The symbolic-cosmological perspective of the few bronze items communicating symbolic content and meaning is another aspect in Bronze Age research that also remains to be explored.

Bronze Production and Circulation—an Eastern Baltic Perspective

When viewing Bronze Age metalwork as source of mobility and connectivity there are some basic aspects to consider. Any establishment of local production implies and preconditions not only the technical facilities and organization of the chain of actions, but above all the securing of raw materials and regular access to these supplies. Given the fact that the processing of copper-alloy bronze necessarily involves the importation of copper and tin from distant geological sources (e.g., North Tyrol; Cornwall) and also permanent access to recyclable scrap-metal, the remains of bronze production are surely an indicator that some sort of barter networks existed. The metal-rich hoard and grave finds, not to mention the many single finds, in regions west and south of the Baltic Sea, the main parts of the Nordic Bronze Age sphere, clearly speak in favour of dense contacts and exchange covering large distances in various directions over the continent and western seaways (see Kristiansen and Larsson 2005; Ling *et al.* 2014; Rowlands and Ling 2013).

Of particular interest in this context are the aforementioned production places in the Baltic countries, all of which emerged in the Late Bronze Age. The peculiar metal-scarcity in the archaeological record makes it challenging to review and discuss the predominant perception of the eastern Baltic as an area constantly suffering poor metal-supplies and lacking advance-

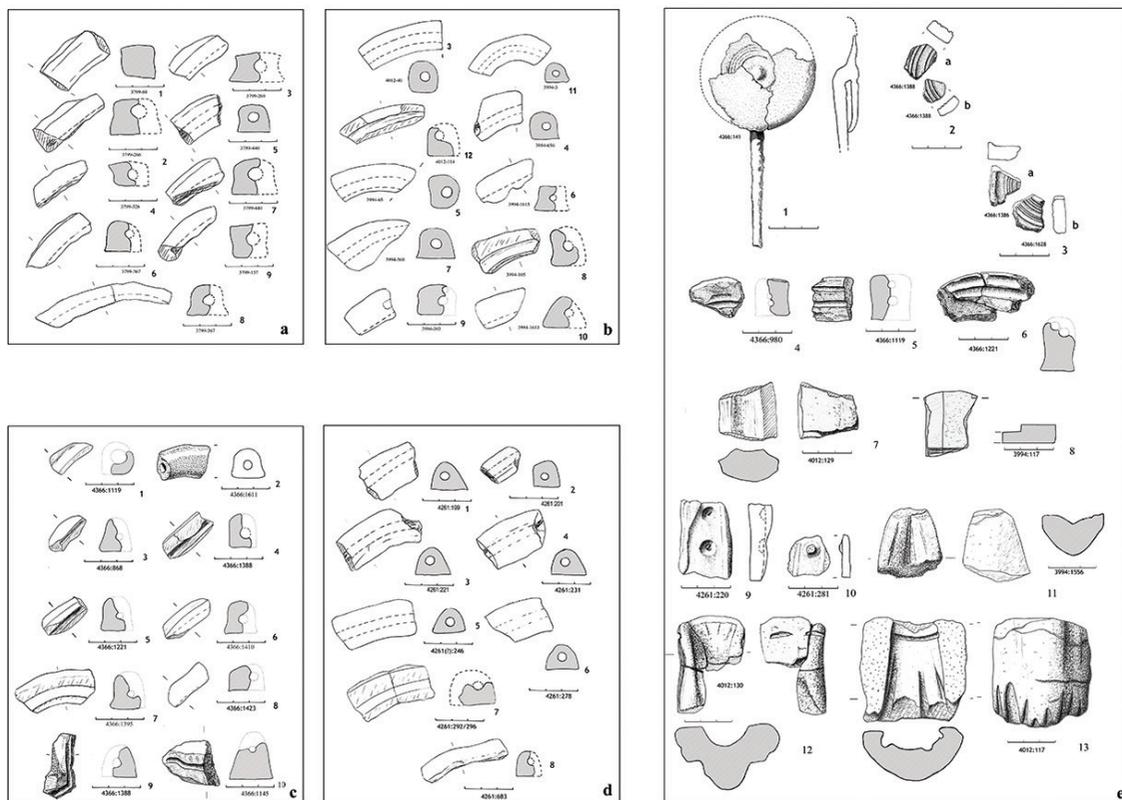


Figure 25.4 Selection of finds related to bronze casting from different sectors excavated in Asva and Ridala (a–d: clay moulds for ring-objects): a–c) Asva; d) Ridala ; e) bronze pin of Härkevi-type and belonging clay moulds, from Asva (1–3) and other ring-moulds and bi-valve moulds for hilts, spearheads and socketed axes (6–8, 11–13 from Asva and 9–10 from Ridala (Sperling 2014).

ments in skill and technological knowledge in local bronze-work (Sperling, in press). These production places such as Asva (Saaremaa), Ķivutkalns (Lower Dūna, Latvia) or Brikuļi (eastern Latvia), each with large numbers of clay moulds and crucibles for bronze casting, are also of interest from the perspective of the connections behind their metal supplies (Sperling 2014; Vasks 2008, 1994).

Interestingly, as far as style and applied technology are discernible in the eastern Baltic metalwork, “Nordic” characteristics are predominant. The objects and casting moulds create or imitate types (celts, spearheads, garment pins) that occur in great numbers in areas of southern and eastern Sweden, such as on Gotland. A few fragments of clay moulds from the Asva site belong to large disc-head pins of Härkevi type, named after a hoard from Uppland dating to the Montelius Period VI. In Asva a bronze pin was found in the vicinity of its moulds (Sperling 2014, 141–142) and so far we know about others, exact counterparts, deriving from a mound in Skälby, Uppland (Oldeberg 1960). Thus, in view of the process-related metalwork finds, there are striking similarities occurring west and east of the Baltic, while the discrepancies in the dis-



Figure 25.5 The Staldzene-hoard. Note the disc-pins and the ring-ingots. Photograph by Andrejs Vasks and Armands Vijups.

tribution are remarkable: Production sites in Southern Scandinavia with extremely rich metal-finds, are small in numbers, as are the amounts of archaeologically recorded casting remains (Jantzen 2008). These discrepancies apparently result from regionally and culturally varied formation and depositional processes, but they shed new light on metalwork as a source of cultural contacts. In spite of these Nordic features in the local metalwork, it is of particular interest that the casting remains of these production places in the East Baltic, 26–28 different sites in all (Vasks 2008, fig. 1), are quantitatively dominated by ring shaped clay moulds (Figure 25.4). They occur in large numbers; in some places (Asva, Ķivutkalns or Brikuļi) up to several hundred (Sperling 2014, 156–157). Former research explained them as the remains of simple arm- or neckrings, viewing them as evidence of rather modest and limited technical-practical capacities in local bronzework (e.g., Civilyte 2008; Dajga 1960; Lõugas 1966; Sidrys and Luchtanas 1999). Most recently there is a different understanding of these rings developing; seeing them as semi-finished multi-purpose products and commodities in the intra- and interregional bronze exchange (Lang 2007; Sperling 2014; Vasks and Vijups 2004). This the extensive ring casting practice made Lang (2007, 71, 118–119) see the Estonian and Latvian hill fort sites as sort of “industrial” places positioned in a cyclical producer-receiver system: engaged in the recycling and processing of scrap bronzes (arriving from Sweden or Gotland) and in the re-distribution of products and semi-products (ring-ingots) back to regions across the sea. This macro-perspective on metalwork relations between the East Baltic and Southern Scandinavia perceives the sea as a sort of boundary between centre-periphery relations. The hoards of Tehumardi (Saaremaa, Estonia) and Staldzene (Courland, Latvia), both containing multiple bronzes (mostly ornaments),

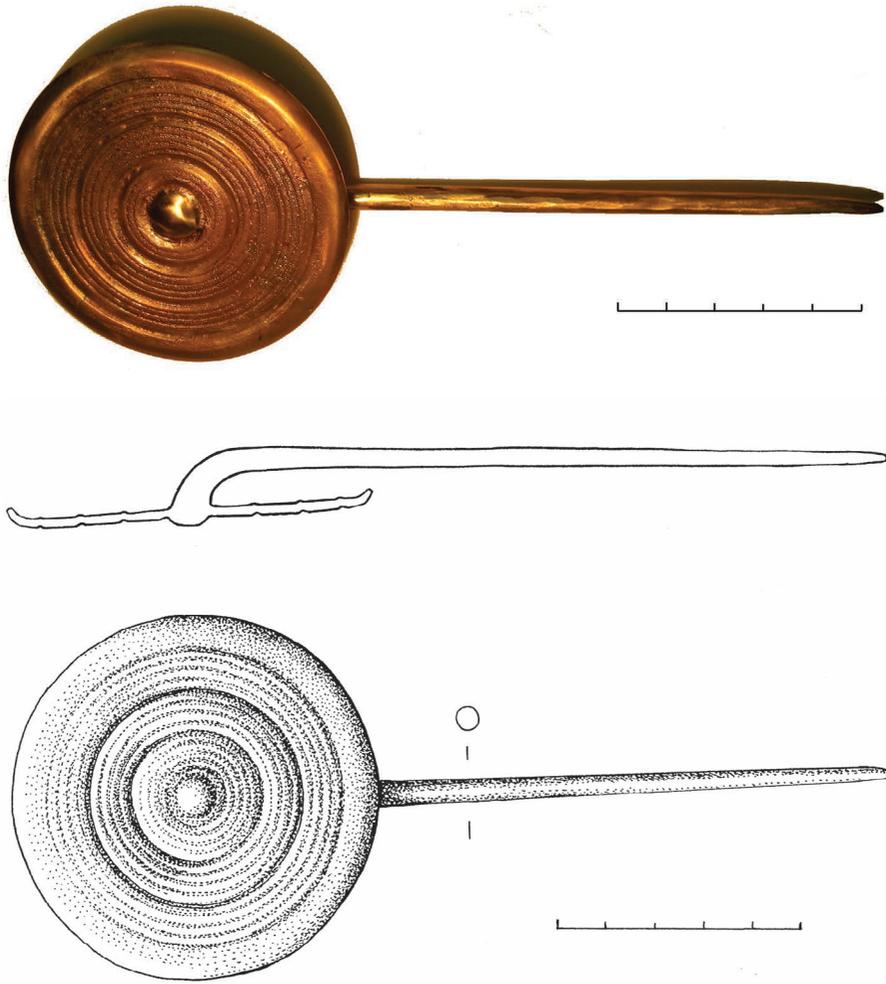


Figure 25.6 The disc-pin from Asva in full reconstruction. Drawing by Kersti Siitan; bronze-copy by Meelis Säre.

“scrap,” casting jets (Tehumardi) and multiple sets of ring ingots (Staldzene), are referred to as “founders” hoards, but also as testimony to a maritime exchange network (Staldzene). The Staldzene hoard, found under a sandy dune, was interpreted as probable “shipwreck-cargo” of Gotlandic provenance (Figure 25.5; Vasks and Vijups 2004), or at least as imports of raw material (Lang 2007, 118). In consequence, it has been ruled out that the hoard could have had a ritual (non-accidental) meaning, or even a local background—as a deposit of bronzes manufactured and used in the eastern Bronze Age milieu. The hypothesis of the Gotland-connection with the East Baltic goes back to the days of Nerman (1933), with regard to the Late Bronze Age stone ship-settings from Courland. Later, on the Isle of Gotland was often mentioned in connection with the discoveries of additional ship-settings on Saaremaa, on the Sõrve Pensinsula (Lang 2007, 164–166; Lõugas 1970b) as well as other distinct “Gotlandic” bronzes such as the large disc head

pins found in Asva (with moulds; Figure 25.6) and Kaali (Baudou 1960, 79–80; Lang 2007, fig. 55; Sperling 2014). Another role in the presumed “western” connections was played by Uppland or the Mälaren Valley because of the production contexts (Skälby) and the large scrap hoard of Lilla Härnevi, in connection with the bronze pins of expressive form and symbolism (Forsgren 2012).

Despite the neglected research applying technological and process-related approaches there has not been much confidence in the local advancements and achievements in metalwork technology (see Sperling, in print). Noticeably, the Staldzene complex contained not only prestigious objects of skilful artistry such as the hanging bowl, the fibula or the razor (Vasks and Vijups 2004, fig. XVIII). In addition to ornaments such as the various arm- and neckring-sets and the aforementioned ingots, there are also disc head pins like those found and produced in Asva (Vijups 2004, fig. XVII). Both Staldzene and Asva actually deserve to be viewed from the local process-oriented perspective, the discussion of alternative motives behind the hoarding of metalwork-related finds such as Tehumardi and Staldzene (Sperling 2013). However, the whole Asva-Staldzene complex and the disc pins provide new understandings of the social and symbolic role and function of metalwork in the eastern Baltic milieu, and that in regard also of the introduction, adoption and transformation of technical knowledge and ideas applied to the processing of these very particular objects.

Bronzes and Long-Distance Exchange in the Baltic—a *Marine Ventures* Perspective

As briefly shown through the bronze objects and their distribution and displacement as finished products, as well as from the perspective of the process-related activities in eastern Baltic metalwork, the supply and circulation of bronzes and raw materials is likely to have functioned due to travel and transport on the basis of a developed maritime infrastructure. Gotland, for instance, where the island’s rich Bronze Age cultural remains play a very significant role in the context of maritime-based cultural contacts: With abundant metalwork finds from hoard and single-find contexts (Baudou 1960; Hansson 1927) and particularly the hundreds of stone ship-settings placed with symbolic dominance and visibility in the island’s maritime landscape, both seafaring activities and the ship-and-sea symbolism appear omnipresent in the Bronze Age cosmology (e.g., Skogund and Wehlin 2013; Wehlin 2013). Since Baltic Sea islands such as Gotland and Bornholm were populated and frequently visited during the Mesolithic and Neolithic it is obvious that long-distance travels covering 45–50 km over open sea are not just Bronze Age phenomena. In reference to the expansive distribution of distinct Nordic metalwork elements, reaching out to the eastern shores of the Baltic, it is generally assumed that Bronze Age travels might have covered distances of 160–180 kilometres on open water, which is from Gotland across the large Eastern Gotland Basin to Saaremaa or Courland. It is not inconceivable that those trips were undertaken by seafaring groups during the Bronze Age, but can we assume that they occurred on a regular basis? What about the adventurous and reckless nature of those journeys? When considering that the Baltic Sea is a zone of maritime travel and contact, with all the socio-political and socio-economic implications hypothesized and promoted in Bronze Age interaction studies, what do we actually know about the conditions and praxis of seafaring and navigation in the Baltic at that time?

This is not the place to discuss this particular matter in detail, but to address only a few questions on the prevailing imagery of the Bronze Age Baltic as a travel zone; that of easily

accessible and convenient passage-ways. The crucial problem is that the archaeological record lacks any sufficient factual data both on the courses of travel routes and the means of navigation and transport, particularly in regard to long-distance contacts. Other than in the Baltic, the North and Channel Seas provide much better and more illustrious archaeological evidence for open sea travel and transport in the Bronze Age, such as several boat finds along the English and Welsh coasts of Britain (e.g., Dover or North Ferriby; van de Noort 2006) and with metal finds from particular underwater contexts, interpreted either as sunken shiploads or as deliberate, ritual offshore-hoards (Samson 2006; Van de Noort 2006, 271, fig. 1). At the current stage of research it seems likely that paddled sewn-plank vessels of the *Dover* and *Ferriby* type, the latter of an Early Bronze Age date, similar in size and construction to the bog-find in the Danish Hjortspring (from the Pre-Roman Iron Age; Kaul 2004), were the most common type of sea craft. In taking the countless portraits, sketches and symbols of ships or boats (with crew) on rock carvings and bronze-work into account, regardless of their likely mythological context and content, and looking at the details in the architecture of the stone-ships of Gotland (and Eastern Sweden), there is a common agreement among researchers that the Scandinavian ships do indeed render genuine details and features of seaborne vessels (Artursson 2013; Ling 2008; Skoglund and Wehlin 2013; Wehlin 2013). Accordingly, travel and transport of men and cargo was performed by plank-built *war canoes* of varying length and crew size, up to 18–20 metres long and with a capacity for up to 22 men. These boats are regarded as swift and agile, with the propulsion of a large paddling crew, and, as experienced in test-trials with replicas, they are indeed capable of covering long distances. On the other hand, the construction of these rather flat vessels makes these boats hardly able to tolerate very rough seas (Fenger *et al.* 2007; Kaul 2004, 136). That is also why these large war canoes are supposed to have operated along coastal areas, estuaries and navigable rivers in the Scandinavian milieu (Kristiansen 2004). The eastern Baltic has never reached the scope of researchers discussing Nordic seafaring activity and water transport in any case. Another issue for discussion is the earliest application of sails as the method of propulsion (in the Baltic), when sails are not displayed in the visual and material culture of the Nordic Bronze Age. Although sails have been in use for trade and transport in the Mediterranean since the 3rd millennium BC (e.g., Lambrou-Phillipson 1991), the same cannot be assumed for the Baltic Sea context. However, some scepticism has been already expressed on the matter of long-distance routes in the maritime network of the Bronze Age Baltic, particular in regard to presumed voyages across the sea and the lack of archaeological evidence for the application of sails in navigation (see Pfeiffer-Frohnert 1995 with discussion). Interestingly, the estimated date of about 500 AD for the earliest use and occurrence of sails for propulsion (in combination with rowing) in the Baltic Sea context, with reference to the Gotlandic picture stones, still seems valid (see Nylén 1985), since the few archaeologically recorded ship finds allow us to date the earliest appearance of sailing vessels in the Baltic only to the Late Vendel period (e.g., Salme ship burial: Mäss 2012; Peets *et al.* 2012). However, open sea passages in the Baltic have even in historic periods been regarded as adventurous acts and a matter of recklessness, because of the need to avoid navigation at night or open sea voyages far from the coastlines and islands with landmarks which offer occasional landing sites and shelter (e.g., Crumlin-Pedersen 1984; Markus 2004, 103–107). This is an additional aspect in interaction studies that research needs to develop further; that of the conditions of navigation in the

Baltic in the Bronze Age, particularly on the matter of long-distance relations and the assumed directions and intensity of maritime contacts. Given the obvious case that the eastern Baltic production sites required continuous supplies of raw materials for the alloying and re-melting of primary and secondary metals, current research is in need of further provenance-studies through the analysis of isotopes and alloy composition. In addition, further comparative studies of pottery styles and typologies will contribute to the understanding of the distribution and spread of the materials and technology in question, and other cultural stimuli involved. It appears that there are alternative travel routes to be taken into account when discussing the eastern Baltic in light of maritime contacts throughout late prehistory. There are only a few, albeit promising, attempts in research studying Bronze Age pottery as a source of cultural contacts, which brings the Southern Finnish coastline, the Sambian Peninsula and the Polish coasts into question.

Metalwork as Source of Interaction—Some Concluding Remarks

The point of confronting the metal-situation with that of production remains in the eastern Baltic milieu as different referential sources for interaction and exchange was to shed light on the diverse perspectives and strategies of interpretation.

Besides the alternative and complementary approaches and referential sources in the interpretational use of metalwork as source of interaction, in the Baltic maritime context certain cultural depositional filters in the archaeological record need to be considered as well. This might be briefly exemplified by the Nordic disc-pins deriving from various finds in the eastern Baltic (Figure 25.7). The pins are of outstanding significance in many ways: This type of object appears only in single- or stray-find contexts or as multiple occurrences in larger hoards (Härnevi; Staldzene). Asva is the only one deriving from a settlement-context so far. In regard to the general size (up to 18 cm) and the disc heads (6–8 cm diameter) filled with concentric circles, these pins are also remarkable in light of their expressive symbolism as a typical and omnipresent feature in the visual culture of the Nordic Bronze Age, which allows a symbolic and semiotic perspective on the function and meaning of eastern bronzes (see Kaul 2013 on Nordic ring- and sun-symbolism). The disc-pins are an exclusive example of Nordic iconography—most likely having transported and communicated social and religious content—and a further significant aspect in the discussion of the nature and direction of maritime connections. In considering the pins as part of a socio-symbolic sphere, that of a religious and ritual praxis, the metalwork indeed appears to be a source of (maritime) interaction between western and eastern Bronze Age realms. In respect to the scarcity of bronzes in the eastern Baltic, even in the milieu of their production (Asva), copper alloys seem to have been highly valued and economically used (re-cycled). The Nordic connections with Saaremaa (Asva) and Courland (Staldzene) are the pin moulds, because of their identical technical and process-related details (Skälby; Oldeberg 1960). The way these pins display technological skill, knowledge and practice shows that the technical, metallurgy-related approach involving archaeological trials in bronze casting (in progress) will broaden our understanding of the technological and logistical conditions and implications of metalwork, particularly in its maritime setting.

Metalwork is surely an eminent and stimulating source for interpretations of exchange and interaction, but without considering complementary sources of reference and alternative

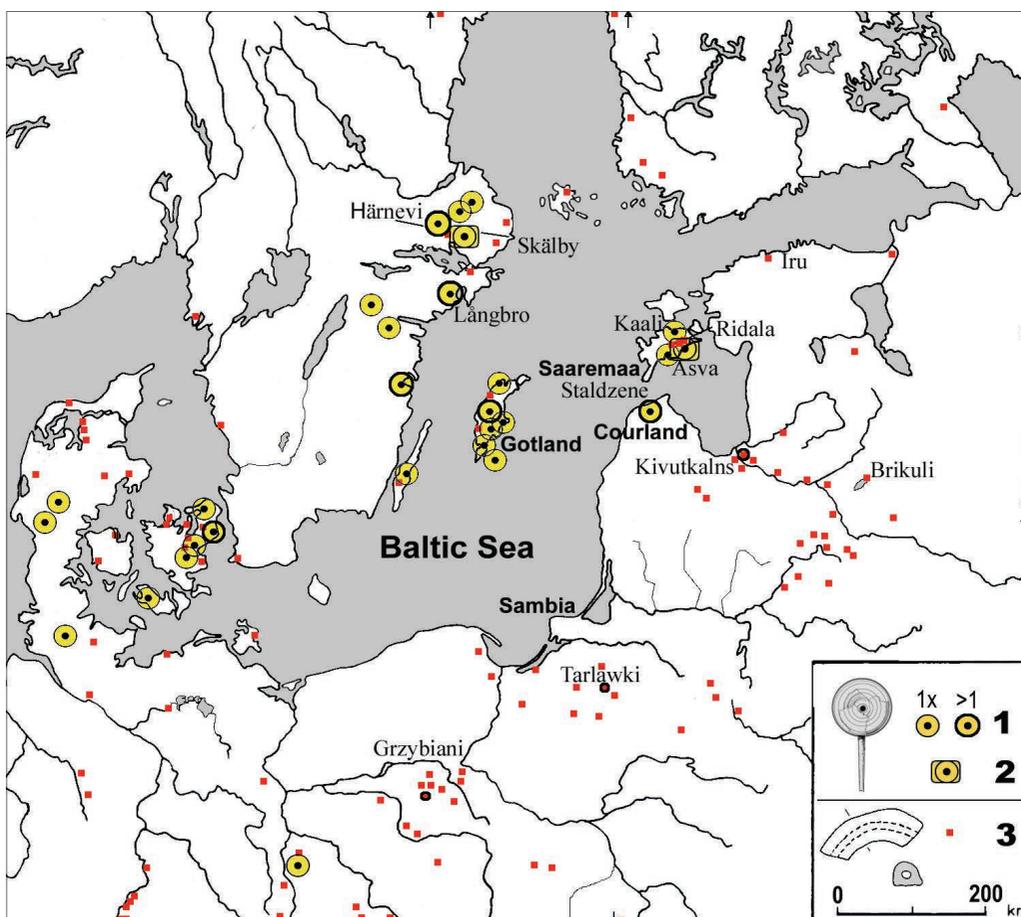


Figure 25.7 Map with the disc-pins and sites mentioned in text (all Montelius-Periods V–VI). Legend: 1) single finds and hoards; 2) casting moulds; 3) find-spots with ring-shaped clay moulds. Note the suggestive pin's distribution, that, however, must not be treated as evidence of sea travel directly across the Baltic Sea.

approaches, the metal-centred view and its socio-economic implications might turn out to have its own interpretative dynamics and flaws.

In this respect, the work promoted by Hille Jaanusson on the Swedish Hallunda ceramics is fundamentally important, because it deals with the topic of Bronze Age interactions and relations between East Central Sweden and the eastern Baltic (Estonia) in reference to local pottery groups from various Late Bronze Age settlement and funerary contexts in the Baltic Sea area (incl. Otterböte, Åland; Voldtofte, Denmark; Asva and Ridala, Estonia). Her remarks and conclusions deserve particular attention, since the ceramics are viewed as a source of socio-cultural interaction (Jaanusson 1981)—and that without having necessarily regarded the bronzes as a primary source of social behaviour, identity and interaction. In spite of discussing the nature and direction of eastern impacts visible in the Nordic pottery milieu, Jaanusson made researchers aware of the discrepancies in the geographical distributions and boundaries of both pottery and metalwork (as well as funerary customs), in pointing to their different

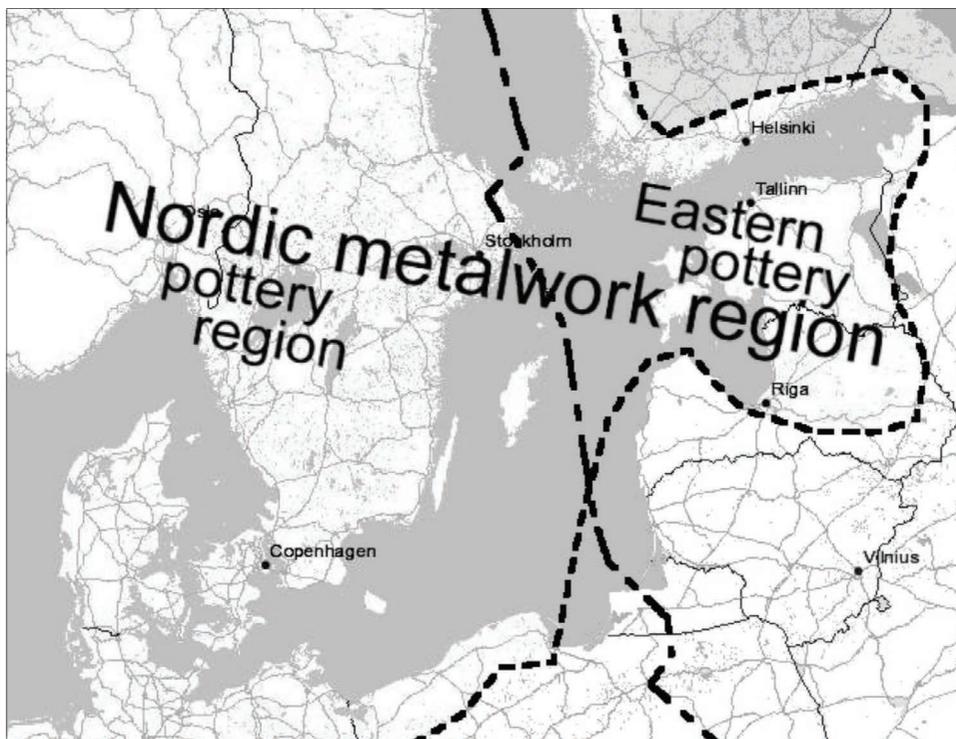


Figure 25.8 Map depicting the different boundaries of the Nordic metalwork region and the western and eastern pottery regions after Jaanusson (1981, fig. 59), adapted and simplified by author. Jaanusson's dashed line depicting the metalwork boundary has become obsolete, since metal finds and casting moulds of Nordic type are known across the entire eastern Baltic region.

referential meaning and significance as sources of cultural interaction (Jaanusson 1981, 128–130, fig. 59). While Nordic metal objects and their imitations did not respect the sea as a cultural boundary, the pottery shows distinct traditional, autochthonic (“eastern”) traits (Figure 25.8). Furthermore, the Asva-style fine-ware type pottery (i.e. bowls with handles), for instance, only occurring on Saaremaa and coastal regions of Estonia, is described by external influences coming from various directions. This pottery appears to be particularly eclectic and hybrid in terms of cultural impacts and influences, pointing to connections with either Nordic regions, Southern Finland or Polish areas (late subgroups of the Lusatian culture) (Lang 2007; Sperling 2014). However, pottery studies as a complimentary source to metalwork make us aware of the complexity of the processes to be considered when interpreting import and imitation in the light of cultural contact.

However, when speaking of connections relating to metalwork there are some problematic axioms involved, namely in conceiving distribution patterns of bronze objects, which are actually distribution patterns of their displacement (and depositional processes), as simultaneous and co-existing events. The adoption of objects and meaning, plus social and technical knowledge, in the given cultural milieu may also be reflected in as long- or short term processes. In any case, the aforementioned enormous regional discrepancies in the archaeological record

alone do not allow consideration of metalwork as a primary source of interaction. Understanding of the social and economic mechanisms and organization behind bronze supply and circulation, including the modes of production and distribution, will increase with more archaeological studies of the material culture in the entire Baltic region, and with the development of scientific approaches in metalwork and pottery studies. Hopefully this will also affect and alter researchers' mentalities in regard to a more differentiated perception of the eastern Baltic and its varied dynamics in cultural processes, innovations and achievements.

Acknowledgements

The research was supported by the European Union through the European Social Fund (MOBILITAS postdoctoral grant MJD458), European Regional Development Fund (Centre of Excellence CECT) and by the Estonian Ministry of Education and Science (IUT20-7, SF0130054s12 and SF0180150s08).

References

- Artursson, Magnus. 2013. "Ships in stone: Ship-like stone settings, war canoes and sailing ships in Bronze Age southern Scandinavia." In *Counterpoint: Essays in Archaeology and Heritage Studies in Honour of Professor Kristian Kristiansen*, edited by Sophie Bergerbrandt and Serena Sabatini, 409–504. Oxford: Archaeopress.
- Baudou, Evert. 1960. *Die regionale und chronologische Einteilung der jüngeren Bronzezeit im Nordischen Kreis*. Stockholm: Almqvist and Wiksell.
- Butler, Jay J. 1963. "Bronze Age connections across the North Sea: A study in prehistoric trade and industrial relations between the British Isles, The Netherlands, North Germany and Scandinavia, c. 1700–700 BC." *Palaeohistoria* 9: 1–286.
- Čivilytė, Agne. 2008. "Einige Aspekte der bronzezeitlichen Metallurgie in den baltischen Ländern." In *Opera ex aere: Studia z epoki brązu i wczesnej epoki żelaza dedykowane profesorowi Janowi Dąbrowskiemu*, edited by Małgorzata Mogielnicka-Urban, 151–158. Warszawa: Instytut Archeologii i Etnologii Polskiej Akademii Nauk.
- Crumlin-Pedersen, Ole. 1984. "Ships, navigation and routes in the reports of Ohthere and Wulfstan. In *Two Voyagers at the Court of King Alfred. The Ventures of Ohthere and Wulfstan Together with the Description of Northern Europe from the Old English Orosius*, edited by Niels Lund, 30–42, York: William Sessions Limited.
- Dajga, I. V. 1960. "K voprosu o litejnych formach i litejnom dele na territorii Latvii (do 13 v.)." *Sovetskaja archeologija*, 3: 78–92.
- Ebert, Max. 1913. "Die baltischen Provinzen Kurland, Livland, Estland." *Prähistorische Zeitschrift* 5: 498–559.
- Fenger, Niels Peter, Jørn Anders Jørgensen, Hans Peter Rasmussen, Knud Vagn Valbjørn and Max Vinner. 2007. "Das Hjortspring-Boot. Vom Nachbau zur Probefahrt." In *Hjortspring: Das Kriegsschiff aus dem Opfermoor*, edited by Archäologisches Museum Frankfurt, 6–39. Frankfurt am Main: Stadt Frankfurt Dezernat Kultur und Wissenschaft.
- Forsgren, Magdalena. 2012. "Till frågan om de rituella depåernas beskaffenhet." *In Situ*, 2011–2012: 165–184.
- Graudonis, Janis. 1967. *Latvija v epohu pozdnei bronzy i rannego zheleza*. Riga: Zenatne.
- Hansson, Harald. 1927. *Gotlands bronsålder*. Stockholm: På akademiens förlag.
- Jaanits, Lembits, Silvia Laul, Vello Lõugas and Evald Tõnisson. 1982. *Eesti esiajalugu*. Tallinn: Eesti Raamat.
- Jaanusson, Hille. 1981. *Hallunda. A study of pottery from a Late Bronze Age settlement in central Sweden*. Stockholm: Statens Historiska Museum.
- Jantzen, Detlef. 2008. "Quellen zur Metallverarbeitung im Nordischen Kreis der Bronzezeit." Stuttgart: Franz Steiner Verlag.
- Kaul, Fleming. 2004. "Social and religious perceptions of the ship in Bronze Age Europe." In *The Dover Bronze Age Boat in Context. Society and water transport in prehistoric Europe*, edited by Peter Clark, 122–137. Oxford: Oxbow Books.
- Kaul, Fleming. 2013. "Round and round we go—with concentric circles." In *Counterpoint: Essays in Archaeology and Heritage Studies in Honour of Professor Kristian Kristiansen*, edited by Sophie Bergerbrandt and Serena Sabatini, 265–272. Oxford, Archaeopress.

Bronze Age Connections across the Baltic Sea

- Kristiansen, Kristian. 2004. "Sea faring voyages and rock art ships." In *The Dover Bronze Age Boat in Context: Society and Water Transport in Prehistoric Europe*, edited by Peter Clark, 111–121. Oxford: Oxbow Books.
- Kristiansen, Kristian and Thomas B. Larsson. 2005. *The Rise of Bronze Age Society: Travels, Transmission and Transformations*. Cambridge: Cambridge University Press.
- Kuijpers, Maikel H. G. 2008. *Bronze Age Metalworking in the Netherlands (c. 2000–800BC): A Research into the Preservation of Metallurgy Related Artifacts and the Social Position of the Smith*. Leiden: Sidestone Press.
- Lambrou-Phillipson, Connie. 1991. "Seafaring in the Bronze Age Mediterranean: The parameters involved in maritime travel." In *Thalassa. L'Egée préhistorique et la mer*, edited by Robert Laffineur and Lucien Basch, 11–19. Liege: Université de Liege.
- Lang, Valter. 2006. "The history of archaeological research (up to the late 1980s)." In *Archaeological Research in Estonia 1865–2005*, edited by Valter Lang and Margot Laneman, 13–40. Tartu: Tartu University Press.
- Lang, Valter. 2007. *The Bronze and Iron Ages in Estonia*. Tartu: Tartu University Press.
- Lang, Valter. 2010. "The Early Bronze Age in Estonia: Sites, finds, and the transition to farming." In *Baltic Prehistoric Interactions and Transformations: The Neolithic to the Bronze Age*, edited by Helene Martinsson-Wallin, 5–22. Visby: Gotland University Press.
- Ling, Johan. 2008. "Elevated rock art—towards a maritime understanding of Bronze Age rock art in northern Bohuslän, Sweden." Gothenburg: Intellecta Solna.
- Ling, Johan, Zofia Stos-Gale, Lena Grandin, Kjell Billström, Eva Hjärthner-Holder and Per-Olof Persson. 2014. "Moving metals II: Provenancing Scandinavian Bronze Age artifacts by lead isotope and elemental analyses." *Journal of Archaeological Science*, 41: 106–132.
- Lõugas, Vello. 1966. "Zur Geschichte der bronzzeitlichen Metallindustrie in Estland." In *Pronksiajast varase feodalismi. Uurimusi Baltimaade ja naaberalade arheoloogias*, edited by Harri Moora and Jüri Selirand, 102–113. Tallinn: Eesti Raamat, 102–113.
- Lõugas, Vello. 1970a. "Eesti varane metalliaeg (II a.-tuh. keskpaigast e.m.a. – 1. sajandini m.a.j.)." Unpublished dissertation. Manuscript in Tallinn Institute of History.
- Lõugas, Vello. 1970b. "Sõrve laevkalmed." In *Studia archaeologica in memoriam Harri Moora*, edited by Marta Schmie-dehelm, Lembit Jaanits and Jüri Selirand, 111–118. Tallinn: Valgus.
- Luchtanas, Aleksiejus. 1981. "Zalvario apdirbimas ankytyvuosiuose rytų lietuvos piliakalniuose." *Lietuvos Archeologija* 2: 5–17.
- Markus, Felicia. 2004. *Living on another shore: Early Scandinavian settlement on the North Western Estonian coast*. Uppsala: Uppsala University.
- Nerman, Birger. 1933. "Die Verbindungen zwischen Skandinavien und dem Ostbaltikum in der Bronzezeit und der älteren Eisenzeit." *Acta Archaeologica* 4: 237–252.
- Nerman, Birger. 1954. "Yngre bronsålder—en första svensk vikingatid." *Fornvännen* 49: 257–285.
- Nylén, Erik. 1985. "Handel und Seefahrt zwischen Skandinavien und Ostbaltikum um 1000." In *Die Verbindungen zwischen Skandinavien und Ostbaltikum aufgrund der archäologischen Quellenmaterialien*, edited by Aleksander Loit and Jüri Selirand, 83–97. Stockholm: Almqvist and Wiksell.
- Okulicz, Łucija. 1976. "Osadnictwo strefy wschodniobałtyjskiej w I tysiącleciu przed naszą erą." Wrocław: Ossolineum.
- Okulicz, Łucija. 1977. "Settlement and culture structures in the East Baltic zone of the Bronze and Early Iron Age." *Archaeologia Polona* 18: 37–61.
- Oldeberg, Andreas. 1960. *Skälbyfyndet: En boplatsslämning från den yngre bronsåldern*. Stockholm: Almqvist and Wiksell.
- Peets, Jüri, Raili Allmäe, Liina Maldre, Ragnar Saage, Teresa Tomek and Lembi Lõugas. 2013 "Research results of the Salme ship burials 2011–2012." *Archaeological Fieldwork in Estonia* 2012: 43–60.
- Pfeiffer-Frohnert, Ute. 1995. "Bronzezeitliche Schifffahrt in der Baltischen Koine (Bronze Age shipping in the Baltic Koine)." In *Χρόνος: Beiträge zur prähistorischen Archäologie zwischen Nord- und Südosteuropa. Festschrift für Bernhard Hänsel*, edited by Cornelia Becker, Marie-Luise Dunkelmann, Carola Metzner-Nebelsick, Heidi Peter-Röcher, Manfred Roeder and Biba Terzan, 453–468. Rahden/Westfalen: Verlag Marie Leidorf.
- Pydyn, Andrej. 1999. *Exchange and Cultural Interactions. A Study of Long-distance Trade and Cross-cultural Contacts in the Late Bronze Age and Early Iron Age in Central and Eastern Europe*. Oxford: Archaeopress.

Marine Ventures: Archaeological Perspectives on Human–Sea Relations

- Rowlands, Michael and Johan Ling. 2013. “Boundaries, flows and connectivities: Mobility and stasis in the Bronze Age.” In *Counterpoint: Essays in Archaeology and Heritage Studies in Honour of Professor Kristian Kristiansen*, edited by Sophie Bergerbrandt and Serena Sabatini, 517–529. Oxford, Archaeopress.
- Samson, Alice V. M. 2006. “Offshore finds from the Bronze Age in north-western Europe: The shipwreck scenario revisited.” *Oxford Journal of Archaeology* 25(4): 371–388.
- Sidrys, Raymond V. and Aleksiejus Luchtanas. 1999. “Shining axes, spiral pins: Early metal consumption in the east Baltic.” *Acta Archaeologica* 70: 165–184.
- Skoglund, Peter and Joakim Wehlin. 2013. “A Bronze Age ship made of stone: Record and analysis of a ship setting from Lau, Gotland” In *Counterpoint: Essays in Archaeology and Heritage Studies in Honour of Professor Kristian Kristiansen*, edited by Sophie Bergerbrandt and Serena Sabatini, 491–498. Oxford, Archaeopress.
- Sperling, Uwe. 2013. “Der Bronzebruchhort von Tehumardi in Estland—Verstecktes Altmetall oder ritueller Weihefund? Ein Deutungsversuch am Erscheinungsbild der Bronzen.” In *Man, his Time, Artifacts, and Places: Collection of Articles Dedicated to Richard Indreko*, edited by Mari Tõrv and Kristiina Johanson, 261–316. Tartu: Tartu Ülikool.
- Sperling, Uwe. 2014. *Aspekte des Wandels in der Bronzezeit im Ostbaltikum: Die Siedlungen der Asva-Gruppe in Estland*. Estonian Journal of Archaeology, Supplement Series 2. Tallinn: Estonian Academy Publishers.
- Sperling, Uwe. (in press). “‘...and the advancements in metalwork technology were minimal’: Reflections on research in East Baltic Bronze Age.” In *The Changing Bronze Age in Fennoscandia and around the Baltic Sea*, edited by Mika Lavento and Mervi Suhonen. Helsinki: The Finnish Antiquarian Society,.
- Svedin, Marie. 2007. “Archaeology in the shadow of political changes: Archaeological relations between Sweden and Eastern Europe 1846–2006.” In *Cultural Interaction between East and West. Archaeology, Artifacts and Human Contacts in Northern Europe*, edited by Ulf Fransson, Marie Svedin, Sophie Bergerbrandt and Fedir Androshchuk, 24–43. Stockholm: Stockholm University.
- Tallgren, Aarne. M. 1922. *Zur Archäologie Eestis, I. Vom Anfang der Besiedelung bis etwa 500 n. Chr.* Tartu: Tartu Ülikool.
- Tallgren, Aarne. M. 1924. “Übersicht über die Vorzeit der Inseln Ösel und Moon.” *Sitzungsberichte der Gelehrten Estnischen Gesellschaft* 1923: 57–75.
- Van de Noort, Robert. 2006. “Argonauts of the North Sea: A social maritime archaeology for the 2nd Millennium BC.” *Proceedings of the Prehistoric Society* 72: 267–287.
- Vasks, Andrejs. 1994. *Brikuļu nocietinātā apmetne. Lubāna zemiene vēlajā bronzas un dzelzs laikmetā (1000. g. pr. Kr. – 1000. g. pēc Kr.)*. Rīga: Preses Nams.
- Vasks, Andrejs. 1999. “Latvian archaeology: research and conclusions.” In *Inside Latvian Archaeology*, edited by Ola W. Jensen, Håkan Karlsson and Armands Vijups, 3–88. Göteborg: Göteborg University.
- Vasks, Andrejs. 2008. “Bronze working centres in the system of social relations in the territory of Latvia during the Early Metal period.” In *Colours of Archaeology. Material Culture and Society*, edited by Algimantas Merkevičius, 65–77. Vilnius: Vilniaus universiteto leidykla.
- Vasks, Andrejs and Armands Vijups. 2004. “Staldzenes bronzas laikmeta depozīts” (Staldzene Bronze Age Hoard). Rīga: Fobo Prints.
- Wehlin, Joakim. 2013. *Östersjöns skeppssättningar: Monument och mötesplatser under yngre bronsålder*. Göteborg: Göteborgs universitet.