Trade, Manufacture, Dismantling and Reassembling? Metal Processing and Eastern Ornaments at Brodtkorbneset and Steintjørna

Jørn Erik Henriksen

Jørn Erik Henriksen, Department of Cultural Sciences, University of Tromsø – The Arctic University of Norway, P.O. box 6050 Langnes, 9037 Tromsø: jorn.henriksen@uit.no

Abstract

This article takes as its starting point artefacts recovered from excavations at Brodtkorbneset and Steintjørna, or rather a focus on selected categories of artefacts retrieved from these sites. These categories are artefacts related to iron processing, imported iron tools and cut pieces of copper alloy implements and ornaments. The artefacts are discussed in the light of the North Fennoscandian context. As all categories were brought to the sites over long distances, and the likely routes of traded iron, copper alloy vessels, cauldrons and kettles seem to have been through the interior of Finland, these objects were most likely part of Trans-Bothnian trade networks. The eastern ornaments seem to be connected with a mainly Novgorodian fur-trade network, with Karelian traders acting as intermediaries. The involvement of Karelians could have meant an extension of the inland trade routes, possibly including the western White Sea area and alternative routes of a south-eastern – south-western direction.

It is argued that the advantage of the Gulf of Bothnia was its central position as a transit area for long-distance trade and the distribution of objects to the upper Pasvik area in the early Iron Age/Early Middle Ages. The discussion therefore ends with a comparison of the models of trading networks and communities proposed for the area, and the context of hearth-row sites excavated in upper Pasvik (Fig 1).

1 Introduction

In the context of Finnmark County, Norway, habitational coastal sites contemporary to hearth-row sites are presently absent in the regional archaeological record. Dated to the Late Iron Age/the Middle Ages, the excavated hearth-row sites of Finnmark represent a distinct re-orientation towards exploitation of resources confined to the interior of Finnmark and intense seasonal inland habitation compared with the preceding period of the Iron Age. This is also reflected in the artefacts retrieved from the locations, which make them among the richest sites from the Late Iron Age/Early Middle Ages excavated in Finnmark so far. Moreover, the archaeology of hearth-row sites regarding economy, the spatial and temporal distribution of the sites, domestic site organization etc. corroborate the impression of hearth-row sites as manifest expressions of a transitional phase in Sámi history, as discussed elsewhere in this volume (see Vretemark; Olsen, this volume).

While not a prominent feature among the artefacts, some fragments of iron slag have been reported from hearth-row sites in Northern Sweden and Norway, but in very limited amounts (Hedman 2003: 72; Simonsen 1979: 17). This indicates activities related to some kind of iron forging at the sites or in their immediate vicinity, but

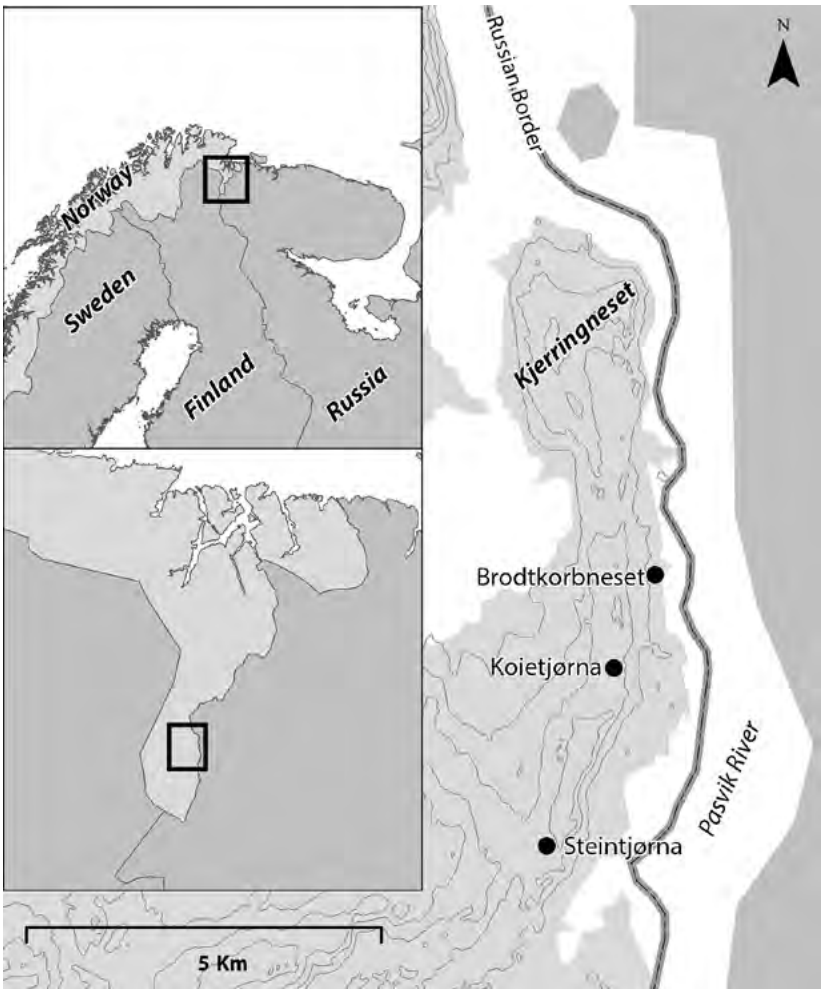

Figure 1. Kjerringnes and the discussed sites. Map: Johan E. Arntzen.

further inferences about the nature and extent of such activities have been difficult to provide until quite recently. One example of new evidence that iron was wrought at hearth-row sites is a Viking Age site in the upper valley of Dividal, in the interior of Troms County, Norway. The site was partly excavated in 2010, and numerous minute, highly magnetic, hammer scales dotted the interior of the hearths, clearly indicating iron smithery among the activities that took place at the site (Svestad 2017). Against this background, the opportunity to gain knowledge about iron metallurgy through substantial amounts of iron slag in a definitive context with the hearths was the welcome, but not entirely surprising, outcome of the excavation of the Steintjørna hearth-row site in Pasvik, Finnmark County, in 2012–2013 (Hedman et al. 2015, see also Olsen, this volume). Before the discussion of how this category of artefacts can shed light on iron processing at Steintjørna, some general notes on the characteristics of the sites and formation processes are required.

The eight hearths at Steintjørna are situated ca. 4 km south-southwest of Brodkorbneset, a site consisting of seven hearths. Both sites are dated to the late 11th to the late 12th centuries, and are contemporary in an archaeological sense (Olsen, this volume). Evidence of seasonal occupation in the fau-

nal material indicates that both sites mainly represent late autumn/winter habitation (Olsen; Vretemark, this volume). Massive indications of intense heating present in the hearths themselves corroborate the interpretation of habitation during the cold seasons (Olsen, this volume). Ethnographical sources on the organization of the winter villages of the Skolt Sámi in the Pasvik area may serve as a useful analogy to the interpretation of Steintjørna and Brodkorbneset. The historical Skolt Sámi settlement pattern was characterised by communities dispersed in seasonal settlements over a wider geographical area that gathered in concentrated settlements in the interior during the winter season. Particularly important in this context is that written sources stress the necessity of moving the village in intervals of 5–30 years as the aggregated seasonal occupants exhausted the surrounding resources of firewood, pasture etc. (Hedman et al 2015: 10). Brodkorbneset and Steintjørna, despite the similarities in their overall details and chronology, were most likely late autumn and winter sites, alternately occupied and re-occupied throughout the overall duration of the two sites and in a strict sense never in use at the same time (Olsen, this volume).

Brodkorbneset and Steintjørna are two sites within the same socio-cultural context at a very close level, but still the result of the protracted variations of the groups and individuals present, their skills, contacts, habits of procurement and consumption varying over the years. This is certainly not any different from most archaeological sites settled for generations, but intervals of years, even decades, of abandonment and re-occupation are likely to have an additional effect on the composition of the assemblages at the sites. Some of the variations at inter-site level were blurred by generations of clearance and resettling, while some observable differences may be the result of episodic activities dependent on the opportunities and competence of the last generations of habitants at the hearth-row sites of Steintjørna and Brodkorbneset. However, the chronological solution provided by ^{14}C dating does not permit elaboration on the relative sequence of the time of use of the hearths at the intra and inter-site level in further detail, and stratigraphic analysis is essentially a tool limited to the contexts of the separate hearths. Subsequently, the Brodkorbneset and Steintjørna sites will be considered as *one* multi-phased site and variations between the hearths and between the sites is accepted at face value.

2 Iron forging in the context of the Pasvik hearth-row sites

The evidence of iron forging in the form of slag found at the Steintjørna site constitutes ca. 20% of the recovered artefacts, most notably evident in excavated hearth no. 2, and to a lesser degree in hearths nos. 5 and 8 at the same site (Hedman et al. 2015: 7). Due to the amount of slag in hearth no. 2 (see Olsen, this volume), this hearth functioned as an open-hearth smithy, at least episodically. The Geoarchaeological Laboratory (GAS) of the Swedish National Heritage Board conducted the metallurgical analysis of a selection of six slag samples (Grandin & Willim 2013).

Initial visual inspection concluded that the slag is a by-product of secondary forging, most probably from the manufacture of iron objects. The characteristic plano-convex shape of larger pieces of sampled slag at Steintjørna is a result of its formation; a once fluid material hardened in the depressions at the bottom of the hearth after the forging events took place (See Olsen, this volume, fig. 5). In addition, the vitreous, heterogenic surfaces including visible sand/fine gravel and hammer scales form a conglomerate typical of slag associated with forging of tools (cf. Brusgaard et al. 2015; Grandin & Willim 2013). Further petrographic analysis revealed that the appearance of the slag was caused by the deliberate addition of quartz/silica sand to the iron during secondary forging i.e. mending or production of tools (Grandin & Willim 2013).

The most likely explanation for this practice was that the sand was a welding compound added to the iron/steel objects during forging (Grandin & Willim 2013: 23). Interestingly, small spherical droplets of copper alloy and even larger pieces of the same material were also lodged in the slag. Grandin & Willim (2013: 23-24) have suggested skilled metalworking at Steintjørna as an explanation for their finds; i.e. the advanced forging of tools made of iron in combination with copper alloys, for instance welding and/or brazing of some kind[1]. Sand was used as flux material by blacksmiths in Finnmark until industrial fluxes became available in the late 19th/ Early 20th Century. Alluvial sand deposits in riverbeds were a source of sufficiently fine-grained sand that could be used in welding/ hard-soldering, as documented in the valley of the River Tana in eastern Finnmark (Lund 2009: 50). A likely source for flux sand in the context of the Steintjørna site would be the riverbeds of the River Pasvik some 700 m east of the site.

2.1 Iron production in Northern Fennoscandia

The slag debris from the manufacture and/or mending of iron artefacts at Steintjørna does not reveal indications of the origin of the forged iron itself. Iron production sites from any prehistoric or early historical phase have so far not been located in Finnmark County (Jørgensen 2010: 206). This is hardly different from Northern Norway seen as a whole, as bloomery sites are very rare, even if sound caution against arguments of silence about the present archaeological record is taken into account (cf. Jørgensen 2010: 194–95). The sites known so far, Hemmestad in Kvæfjord municipality in Troms County (ca. 500 BCE), Flakstadvåg in Torsken municipality (ca. 300 CE), Troms County and Rognlivatnet in Bodø municipality, Nordland County (13th Century) display a very wide chronological and spatial distribution, and none of the sites represent lasting large-scale production (Jørgensen 2015: 104).

In the interior of Northern Finland and Sweden, the iron production sites excavated so far are more numerous. The three North Finnish sites, Kotijänkä and Riitakanranta, both in Rovaniemi municipality, and the third site, Neitilä in Kemijärvi municipality, are all dated to the Pre-Roman and Roman Iron Age (Karjalainen 2016: 12–13). The first prehistoric iron-smelting site in northern Sweden was discovered in 2009 during large-scale salvage excavations in Sangis in Kalix municipality, Norrbotten County preceding the major expansion of the Swedish Haparanda railway (Bennerhag 2012). The oven or furnace is dated to ca. 200 BCE and recently, another iron production site presumed to be contemporaneous was excavated in Vivungi, Kiruna municipality, Norrbotten County (Bennerhag 2017). This latter site appears to be larger than the Sangis site (SVT nyheter 2017). All the documented iron production sites in Northern Sweden and Finland are characterized by so-called stone-box ovens, associated with an eastern early iron production technology, different from the shaft furnace type of ovens in Northern Norway (Jørgensen 2013: 79; Karjalainen 2016: 8–9), and all pre-dates Steintjørna by several centuries. This leaves only one known production site possibly contemporary with Steintjørna in the entire area of Northern Fennoscandia. This is the above-mentioned short-term minor production site of Rognlivatnet, some 650 km southwest of Steintjørna.

Early slag associated with secondary forging elsewhere in Finnmark has been positively identified by archaeo-metallurgical analysis, but so far only from contexts belonging to the Kjelmøy Phase (ca. 800 BCE–300 CE). Owing to the absence of production slag, or rest products of primary forging, this shows that iron was not produced locally (Sundquist 1999: 51). Apart from the above-mentioned few fragments of iron slag at the hearth-row site of Ássebákti, sites contemporary with Steintjørna and with indications of iron forging are at present unknown in Finnmark County. It is, however, unlikely

that the Steintjørna site represents an isolated case of forging during the Late Iron Age/Early Middle Ages. The intensity of archaeological surveying, cultural heritage management and research in Finnmark is skewed, as there has been little archaeological interest in the interior parts of the county until the last couple of decades (Skandfer 2009: 89). Apart from the geographical imbalance, the Iron Age and the Middle Ages have been quite neglected in the archaeological investigation of Finnmark as a whole, in favour of the extensive archaeological focus on the Stone Age and Early Metal Period (Amundsen et al. 2003; Henriksen 2016: 53ff.). Consequently, it is likely that the limited presence of slag in the Late Iron Age/medieval archaeological record of Finnmark represents a bias of research, and that future excavations will balance the picture. In this context, a stray find of a forge stone made of steatite (Ts.4396a) from Nyrud, some 2, 3 kilometres directly south-east of Steintjørna, is of particular interest. This type of forge stone occurs throughout the Late Iron Age/Middle Ages into the Early Modern Period, and can only be reliably dated by definite reference to the archaeological context (Jørgensen 2010: 145 ff.).

In the counties of Troms and Nordland, slag indicating secondary forging is quite common among finds from contemporary contexts to Steintjørna and Brodtkorbneset. Interestingly, according to Jørgensen, none of the slag fragments he inspected can be associated with iron production, thus resembling the results of the Kjelmøy phase slag pieces analysed from Finnmark (Jørgensen 2010). However, he found that forge stones, smithing tools, remains of smithies etc. are present in large numbers, particularly in Late Iron Age contexts (Jørgensen 2012). Consequently, the region met its demand for iron mainly in the form of imports rather than local production, despite favourable natural conditions and apparent widespread metallurgical knowledge among the inhabitants (Jørgensen 2010: 186; 2013: 77–78; 2015: 106). A highly similar course of development is suggested for the northernmost regions of Sweden.

Slag from forging is documented in Late Iron Age hearths or hearth-like structures suggested to be smithies at the Norra Holmnäs and Njallenjaur sites in the inland of Northern Sweden, as the slag clearly indicates secondary forging (Hedman 2003: 84-88). In the Northern Swedish coastal zone of Norrbotten slag from sites predating ca. 300 CE includes production slag, while sites dated to ca. 300–800 CE exclusively contains slag from secondary forging, likely due to a development where local production gave way to imported iron blooms or other types of trade iron (Bennerhag 2012: 60f.; Ramqvist 2012: 46–47)[2].

2.2 Iron artefacts at Brodtkorbneset and Steintjørna

To sum up the context of the metallurgical iron treatment at Steintjørna, it appears that the iron forged there was trade iron, i.e. ready-made material, such as scrap iron or billets, bars etc. produced elsewhere and brought to the site. The reliance on imported trade iron seems to be a trait consistent with excavated sites all over Northern Fennoscandia. At present, iron production sites of a significant scale contemporary to the Steintjørna site are unknown in Northern Fennoscandia, and more extensive networks of exchange must be considered to address the question of provenance. Unfortunately, the iron artefacts from Steintjørna and the contemporaneous hearth-row site at Brodtkorbneset, located 4 km to the NNE, are rather indefinite in this respect, as they mostly represent common types widely distributed in Northern Europe in the Late Iron Age and the Middle Ages. This is particularly the case for nails, rivets, chain segments etc. that constitutes the main bulk of the identifiable iron artefacts retrieved from the two hearth-row sites in Pasvik (Hedman et al. 2015: 6–7, Tab. 1 & 2). The categories considered here are the strike-a-lights, knives, arrowheads, an axe head and an iron ring.

The two strike-a-lights found at the Brodtkorbneset site are of two types; an oblong ring-shaped variant and an open lyre-shaped type (Hedman & Olsen 2009: 12–13; Cf. Hedman 2003: 132; Cf. Henriksen 2016: 233–234). The nine single-bladed tanged knives are of a rather common type in the interior of Fennoscandia, similar to knives frequently found in early medieval urban contexts in Northern Europe (Fig. 2, Cf. Færden 1990: 268–269; Cf. Henriksen 2016: 257). The eight arrowheads are all variants of types referred to as 'hunting arrowheads' (Cf. Farbregd 1972: 33; Zachrisson 1997: 212). One type is of broad, triangular shape (see Olsen, this volume, fig. 6.4), in contrast with the long and narrow tang at its base, while the other is a chisel-shaped arrowhead with a transverse point (Fig.3). The type is rare in Northern Norway. Except for a similar arrowhead (L 1320 i) found in house no. 5 at Gollevarre, Tana municipality, I am not aware of any parallels in the Northern Norwegian archaeological record. The context of the latter arrowhead is dated to the 13th and 14th centuries (Munch & Munch 1998: 130-131). Both types are commonly found in Sámi contexts, mainly in Finland and the entire interior of the Northern and Central Scandinavian Peninsula to such extent that these types are suggested to be Sámi arrowheads (Zachrisson 1997: 212f., see however Lindbom 2006: 93ff. for a detailed discussion). The axe found at Brodtkorbneset (Fig.4) is of a type described as a medieval forest axe, and has a very widespread distribution, throughout Northern Europe, including the British Isles (Figenschau 2012: 47–49). It also has s a special decorative (?) feature of three parallel lines chiselled across the transitional section between the eye and the cheek, which despite being unique among axes of this kind in northern Norway, has counter-

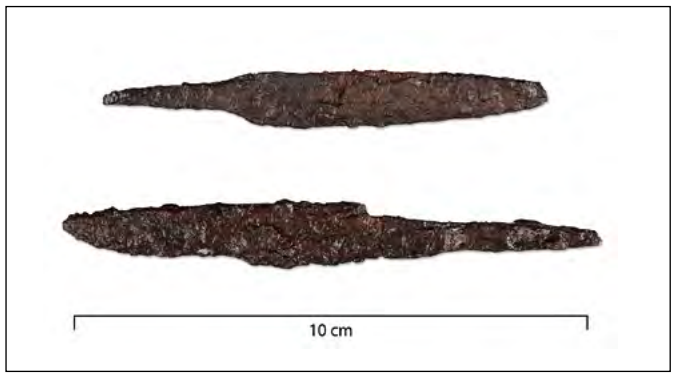

Figure 2. Knife blades from Steintjørna. Photo: Julia H. Dammann.

Figure 3. Upper: arrowhead with transverse point from Steintjørna, lower: arrowhead with triangular point from Brodtkorbnes (see Olsen, this volume, fig. 6.4). Photo: Julia H. Dammann.

Figure 4. The medieval forest axe head from Brodtkorbnes, Ts.12037.12. Photo: Joakim Skomsvoll.

parts in the Russian, Baltic and English material (Figenschau 2012: 140). An iron ring from Brodtkorbneset is possibly part of an annular brooch, but owing to its condition, this interpretation remains uncertain. If this tentative identification of this artefact is correct, it is of a type common throughout the type European continent during the 12th–15th centuries (cf. Søvsø 2009).

There should be no reason to doubt that finished iron tools and implements were exchanged though extensive trade networks, but the shaping/reshaping of iron by indigenous smithery is also a factor that needs to be taken into consideration. In particular, small tools such as arrowheads, nails, rivets and strike-a-lights are likely to have been produced locally (cf. Zachrisson 2006). At present, other imports found at the Pasvik hearth-row sites may be more informative about the origin of iron compared to the actual iron artefacts. Regardless of whether it was in the form of raw material or as finished tools, iron found at the sites once circulated in a vast network of trade and exchange in which a variety of goods flowed between medieval centres and the northern peripheries (Cf. Bergman 2007; Bergman et al. 2014; Immonen 2013).

3 Cut thin pieces of copper alloy

Non-ferrous metal objects are by far the most numerous group of artefacts retrieved from Brodtkorbneset and Steintjørna (Halinen et al. 2013: 160, Hedman et al. 2015: 5–6). This category consists almost exclusively of objects made of copper/copper alloy. In the present article, thin strips and fragments of bronze and copper are referred to hereinafter with the collective term 'cut pieces of copper'. The predominance of cut pieces of copper alloy at investigated sites dated to the Late Iron Age/Middle Ages all over Northern Fennoscandia has attracted the attention of archaeologists occupied

with the history of Northern Fennoscandia since the 1950s (Bergman 2007: 6; Carpelan 1975: 65; Hakamäki 2016: 41; Hedman 2003: 161, 186; Henriksen 2016: 243–44; Immonen 2013: 24; Odner 1992: 131; Serning 1956: 91–93; Zachrisson 1976: 47–50, 62). Pendants of this kind were used as dress ornaments, as appendages of other objects such as fine chains of copper alloy on the Sámi drum, on belts and as ritually deposited sacrificial objects. (Zachrisson 1984).

3.1 Transformation of cut pieces of copper alloy at hearth-row sites in Pasvik

The practical aspects of cut pieces of copper as scrap-metal to mend old tools, or create new ones (such as fish-hooks, knives/knife-sheaths, arrowheads, pendants etc.) are evident in numerous examples in the Sámi archaeological contexts (Bergman 2007: 6–7; Hedman 2003: 187; Zachrisson 1976: 48–49, Fig. 73, 74; 1984: 43–44). The versatile practical application of cut pieces of copper alloy as scrap metal for reparation, production of tools etc. is certainly an aspect to consider in the context of the hearth-row sites of Brodtkorbneset and Steintjørna.

There is an observable difference in the size of copper alloy fragments at Steintjørna and Brodtkorbneset. The former site has considerable larger fragments compared with the latter, while on the other hand the greater majority of complete axe-shaped and trapezoid pendants were found at Brodtkorbneset; nine trapezoid and two axe-shaped, in contrast to a single trapezoid pendant recovered at the latter site (Hedman et al. 2015: 6–7, Tab. 1 & 2). A tentative interpretation is that different technological aspects of metalworking at the two sites may account for the variation, although this is a possible example of an episodic event, as accounted for in the introduction to this chapter. The specialized forging techniques involving iron and copper alloy in combination that are present at Steintjørna, hearth 2, may have required larger amounts of copper alloy as raw material. Indeed, most of the copper al-

Figure 5. Cut piece of copper alloy, folded and riveted. Possibly a fragment of a kettle or cauldron, Ts.12317.43. Photo: Julia H. Dammann.

Figure 6. In situ photograph of a small copper alloy brooch with four knobs. Photo: Bjørnar Olsen.

Figure 7. Lattice pendant after conservation (Ts. 12037.168), from Brodtkorbnes. Photo: Julia H. Dammann. See in situ photograph in Olsen, this volume (Fig. 6.1).

loy fragments at Steintjørna were found in association with this hearth (Hedman et al. 2015: 6–7). Metalworking at Brodtkorbneset, on the other hand, may have been limited to reshaping and coppering cut pieces into pendants. Other kinds of re-working of cut pieces of copper alloy from the hearth-row sites in Pasvik are less evident, as the main bulk of the copper alloy fragments does not display obvious signs of re-use (i.e. smelting/coppering).

As the material permits repeated reuse, and usually appears in a heavily fragmented state, it is difficult to specify to which original object the fragments belonged. Important exceptions, however, are kettles and vessels. Pieces of cut copper alloy from other contemporary Sámi sites often bear signs of dovetailing or riveting (Fig. 5) and in some cases traces of engravings etc., and kettle handles are in some cases found in context with such fragments. This indicates that a large portion of cut fragments of copper alloy consists of dismantled vessels of different kinds (Zachrisson 1976: 47–50; Bergman 2007: 6–7).

Similar observations can be made in the assemblage from sites that not considered Sámi sites per se, yet highly relevant in medieval trans-cultural interaction. Small pieces of cut copper alloy were found in excavations of multi-room houses in Skonsvika and Kongshavn in Berlevåg municipality, Finnmark County, but more importantly in this context, also produced definite evidence that kettles were cut up and prepared for secondary use. The medieval phases of the Kongshavn and Skonsvika sites, eight kilometres apart are synchronously dated within the period ca. 1250–1450 CE, despite clear differences of cultural associations, i.e. the first site appears as mainly Norwegian, while the latter suggests Russian/Karelian affiliation (Cf. Henriksen 2016: 221 ff.). The multi-room houses at Kongshavn and Skonsvika are dated later than the abandonment of the hearth-row sites of Brodkorbnes and Steintjørna, but their comparative relevance geographically and chronologically is rather close. Large copper sheets joined by nails, probably torn from kettles or cauldrons (Ts.11381.110) were found in a depot at the Skonsvik Site. At Kongshavn, a large fragment constituting ca. one third of a cauldron was found in a context that also indicates careful storage (Henriksen 2016: 242–244, Fig. 5.6, 5.7).

At least one definite indication of a fragmented kettle was found at the Steintjørna site in the form of a leaf-shaped handle of a kettle or cauldron, and several fragments of cut pieces of copper alloy from both sites are riveted. This suggests that kettles were a source of cut pieces of copper alloy also at both of the investigated hearth-row sites in Pasvik.

3.2 Imported ornaments

This category comprises one copper alloy brooch, a 'lattice pendant', and fragments of hollow cast zoomorphic pendants. Among the iron artefacts previously commented on, an iron ring could possibly be part of a simple brooch, but admittedly, this interpretation is uncertain. It is therefore excluded from the overview of imported ornaments.

The brooch has four knobs and appear to be penannular (Fig. 6). It is however twisted, and broken between two of the knobs. The breach is in the slender constriction of the frame between the knobs, where the loop of a now missing pin was fastened. Its original form was consequently annular. The brooch corresponds well to Søvsøs type 2.5, dated to the 13th and 14th centuries (Søvsø 2009: 186, Fig. 2, 196, Fig. 8). Søvsø (2009: 198) considers this type to be restricted geographically to Northern Europe, which corresponds to Zachrisson's assessment of the provenance of fragments of similar brooches from the Mörträsket sacrificial site (Zachrisson 1984: 35, Fig. 17 no. 96-103).

The imported pendants, on the other hand, have a more specific eastern origin. In this category, one complete pendant of a coin-shaped so-called 'lattice pendant' (my translation of Zachrisson 1984: 46) was

found at the Brodtkorbneset site (Fig. 7). Presently, it is the only pendant of this type recovered within the national borders of Norway. The group of pendants with open-worked oblique lattice pattern in the centre are common in the artefact assemblages of early medieval Novgorod and Central Russia, but also have a wide distribution spanning from the lower reaches of the Pechora to the Baltic, Finland and Northern Fennoscandia. At the Gnilka Sanctuary, (named after a tributary to the Pechora river) in Nenets Autonomous Okrug, Arkhangelsk Oblast, Russia, a series of almost identical pendants were among the sacrificial deposits (Ovsyannikov 1990: 101, Fig. 1 no. 9 &10; 1993: 34, Fig. 37; Zachrisson 1984: 46). Similar pendants occur at the sacrificial site of Unna Saiva (Serning 1956: 68, Plate 21 no. 14). Pendants of this type also occur in Finland, one from Kiantajärvi, Suomussalmi municipality central eastern Finland (KM 23600) and one from Kirkk'ailanmäki, Hollola municipality in Southern Finland (Huurre 1987: 87-88). In Karelia, one lattice pendant (not oblique) was found at Paasolinna hillfort in Sortavala in Russian Karelia close to Lake Ladoga (Huurre 1987: 88, Uino 1997: Fig. 6:10, no. 7). 'Lattice' pendants are dated to the 12th–14th centuries (Ovsyannikov 1990: 100; 1993:34; Zachrisson 1984: 46).

The other pendants demonstrate the practice of deliberate fragmentation of imported ornaments. Two heads belonging to variants of zoomorphic, hollow cast copper alloy pendants were found at the Steintjørna site in the contexts of two different hearths set ca. 60 metres apart: hearths no. 8 and 3 (Fig. 8.). The heads are identical and resembles horseheads, with characteristic ring-formed eyes/ears, and false filigree work imitating the mane, an ornament that extends to the mule. The Ryabinin group VI, type XX, series 3a-b of zoomorphic pendants, depicts horses equipped with identical heads to the specimens from Steintjørna (Ryabinin 1981: Fig. 3 and Fig. 11). Series 3a is a variant portraying the upper body of a single horse with an elaborate tail. In variant 3b, an additional

Figure 8. The two horseheads of hollow cast copper alloy from Steintjørna (Ts.12317.82 left, ts12317.83, right), after conservation. Photo: Julia H. Dammann. See also pre-conservation photographs in Olsen, this volume (Fig. 6.2).

head conjoined to a single body replaces the latter trait; the heads faces opposite direction relevant to each other, thus comprising a horse with two front sides. Both variants date from the 12th–13th centuries (Ryabinin 1981: Fig. 3). Common to both subtypes of zoomorphic horse pendants (series 3 a and b) are the lower, abdominal part of the body, which are ornamented with zigzag lines between two parallel rims, above a varying number of rings to which chains were attached. The sections between the rings are decorated with small, round knobs, so-called false granulation. There were usually appendages fastened to each chain, such as round or conical bells, pendants, often of trapezoid or 'axe shaped' variants. The exact type of zoomorphic pendants recovered at Steintjørna have been found in unmatched numbers in the medieval strata in urban excavations in Novgorod, and were apparently commonly used as dress ornaments among the 13th-century inhabitants, and probably produced there in large quantities as well (Pokrovskaya 2002: 89). Type XX is com-

Figure 9. Fragment of a zoomorphic hollow cast copper alloy pendant found in a test-pit near Koietjørna. Photo: Bjørnar Olsen.

mon in Ingria and Russian Karelia, also considered a possible place of production, in particular the areas at the north-west end of Lake Ladoga (Uino 1997: 169). Type XIX is most common in the Kostroma area south of Lake Kubenskoye in Russia, probably the main area of production, but may also have been produced in Karelia (Uino 1997: 169).

During field surveys in 2008, a test pit revealed another fragment of a zoomorphic pendant, which was documented by photographing and left in situ[3] (Fig. 9). This was a fragment of the lower part of a pendant belonging to a similar type as the heads from Steintjørna. Part of the zigzag ornamentation and one complete ring were preserved, as well of the half portion of a second ring. The context of the test pit was a sunken floor in a small quadratic house, at a site documented by Sven-Donald Hedman in 2007 (Askeladden Id. 116713). A second, nearly identical house is situated a few metres to the west of the test-pitted structure. The site is located near Lake Koietjørna, ca. 700 metres north-northeast from Steintjørna. As the head fragments cut from the original pendant(s) found at the Steintjørna site are neatly delimited to the neck area, and the fragment from the house site is the 'abdominal' part of a zoomorphic pendant, it is impossible to determine to which sub-series in Ryabinin's typology of pendants, group VI, type XIX–XX the fragments belong. Consequently, an assessment of whether the fragments were originally part of the same ornament or several different artefacts is equally impossible.

There a very few zoomorphic pendants depicting horses from within the national borders of Norway. The only nearly complete pendant of Ryabinin's type XX, variant 3b is found in the vicinity of Sjåk in Oppland county in the interior regions of Southern Norway (Gjerde 2010: Fig. 3[4]). Closer to the upper Pasvik area, a zoomorphic pendant of Ryabinin's group VI, type XIX , i.e. stray find Ts.1657 from Abelsborg, Nesseby (Storli 1991: Fig 7[5]) is of importance. This type of pendant is a somewhat fantastic animal depiction, believed to incorporate elements of a horse, waterfowl and even sheep/ram, but

otherwise closely related to the type XX pendants in chronology and provenance (Ryabinin 1981: 35). The lower rim of this pendant has horizontal zigzag ornament, rings for attaching chains and pendants, similar to the fragment discovered in the test pit described earlier. Another stray find of a zoomorphic pendant was found in Badderen, Kvænangen municipality in northern Troms County, some 260 km to the west of Abelsborg. This is a pendant of type XX, subgroup 3a (Storli 1991: Fig. 7). South of upper Pasvik, a quite recently excavated site at Illinsaari, Pirttitörmä, in Ii municipality, Finland yielded a zoomorphic pendant within the horse figures of type XX (Hakamäki 2014: Fig. 3). Another northern Finnish example (KM 26387), type XX, subgroup 3b is from Kenttälampi, Salla municipality. According to Tomanterä there are 10 additional hollow cast zoomorphic pendants in southern Finland including ceded Karelia, where at least Ryabinin's type XIX and XX obviously are included with several examples (Tomanterä 1991: 41). I have not been able to assess this material in detail.

Two fragmented pieces of zoomorphic pendants, one found in Finnish Lapland, and the other somewhere in the interior mountain plateaus of Western Finnmark respectively, are also clearly part of the same group of ornaments discussed here. The first were found during the rescue excavations of the Juikenttä site, Sodankylä municipality Finland, preceding a massive hydroelectric development project. This site were situated ca. 150 km directly south-west of Steintjørna. Among the fragmented ornaments found here is a cut piece of the lower 'abdominal' part of a zoomorphic pendant of Ryabinin's type XX, alternatively a variant of type XIX, with the same characteristics as the fragment revealed in the test pit accounted for above (Carpelan 1975: 63, second figure from above). The second example is the head of a pendant of Ryabinin's type XX, subgroup 3 a/b. This is attached as part of a larger composition of copper alloy ornaments, tubular beads and chains, probably found somewhere in the interior south of Hammerfest during the early 19th century (Fig. 10, De Capell Brooke 1887: 161, 182; Gjerde 2010: Fig 6).

The ornaments from the excavated hearth-row sites in upper Pasvik, and in particular, the 'eastern' group belong to a category of artefacts associated with the long-distance trade in furs in the Late Iron Age and early Middle Ages in Northern Fennoscandia in archaeological studies since the early 1930s (Mulk 1996). This presentation is a fitting conclusion to the discussion of the selected categories of artefacts from Brodtkorbneset and Steintjørna, as the following discussion will consist of an analysis of the potential spatial trajectories of exchange or the long distance networks of distribution of my selected categories of objects deposited in hearth-row sites in the upper Pasvik region.

4 Networks of trade and exchange

The selected categories of artefacts from the Steintjørna and Brodtkorbneset hearth-row sites and the discussion so far has somewhat implicitly touched upon their connection with far-reaching networks and external contacts. In the subsequent discussion, these aspects of the material will be further elaborated upon, after an introduction with some general notes on the wider historical context as basic premises.

In the context of the interior regions of eastern Finnmark during the Late Iron Age and early medieval period, the networks of trade and exchange seems to be intrinsically connected to the development of the fur trade in Northern Europe during the period. The centre of gravity of the fur-trade during the Iron Age was primarily western, and the predominant trade networks were managed by Germanic/Norse chieftaincies controlling the major part of the Norwegian coastline. Little is known about the details of this trade in Finnmark, but Ohthere's list of tributes exacted from the Sámi in Finnmark in his report to Alfred of Wessex ca. 890 CE includes pelts from animals likely to be hunted in the

interior forested riverine valleys of Finnmark (cf. Valtonen 2008: 318f.).

In the 11th–12th centuries, the archaeological record of Finnmark indicates a shift in external relations of trade and exchange oriented towards the southeast (Hansen & Olsen 2014: 129–130). The role of the Northern Russian principalities, primarily Rostov-Suzdal and Novgorod as major centres of the northern fur-trade is crucial. The Russian principalities' success in the expansion of the trade depended on their ability to integrate various cultural groups, i.e. (mainly) Finno-Ugric tribes in the trade (cf. Uino 1997: 201). The cultural complexity of the agents operating the trade networks in Northern Europe may be enormous, but their common characteristics were probably their established status as knowledgeable agents in the fur trade, as trappers, processers and procurers of pelts, as well as expert managers of the logistics necessary to conduct long-distance trade and transport in the Boreal North (Kovalev 2002: 131ff.).

Novgorod is particularly relevant in the context of the excavated hearth-row sites of Pasvik as this principality was at the centre stage of the fur trade's north-western expansion. From the 11th to the 13th century, the fur trade grew to cover vast areas from Central Russia north and north-west to the Baltic, the Dvina valley, White Sea regions and vast areas of Fennoscandia (Hansen & Olsen 2014: 130). This expansion was partly driven by coercion, as Novgorod demanded tribute from the various groups under its influence. However, the development of the Novgorodian trade and tribute networks relied heavily on policies of successful integration of intermediaries, and despite demanding tribute from the peripheries of the 'Novgorod lands', the inhabitants were privileged with a certain degree of semi-independent legal status in the fur trade (Brisbane et. al. 2012: 4–5). Therefore, the networks were culturally complex, as well as geographically extensive. The routes in which traders and goods flowed in the context of Brodtkorbneset and Steintjørna cannot be reconstructed in detail, but a general assessment of directions should be possible to evaluate. Mainly based on the imported categories of trade iron, sources for the cut pieces of copper alloy and imported ornaments, such a general estimate of the geographical trajectories of the transport of objects in long-distance trade will be attempted.

4.1 Iron

Neither lack of metallurgical knowledge nor access to good resources such as bog iron ore and fuel could fully serve as explanations as to why large-scale iron production never developed in Northern Fennoscandia during the Iron Age (Jørgensen 2010: 172, 186–187). Jørgensen has suggested an alternative explanatory model based on socio-cultural enablement and restraints inherent in premodern trade and exchange through an elite network, which interconnected Germanic Iron Age chieftains or petty kings along the sailing routes of Western Norway, the vast hinterlands of Northern Fennoscandia, and ultimately, Continental Europe.

The relations between the northern elites and their peers in mid-Norway, (northern Trøndelag County) is of particular importance in Jørgensen's model due to the extreme contrast in the evidence of iron productions in the two regions. The development of large-scale iron production in order to provide iron intended for trade seems definite, as does the role of the elites in promoting this production (Stenvik 2003: 124). Jørgensen has suggested that the northern elites took measures to dissociate themselves and their subjects from the role of iron producers, while promoting their role as designated consignees for some of the surplus production controlled by the magnates in Trøndelag (Jørgensen 2010: 198ff.; 2015: 102). Jørgensen's model presupposes the mutual interests among the Germanic elites to exercise control over goods and objects that flowed through networks of trade and exchange; i.e. the nature of exports as well as imports between north and south. In this

case, iron, mainly produced in or redistributed from Trøndelag was exchanged along with highly prized prestige objects of Continental European origin, while northern trade items such as pelts, hides, train oil etc. entered the network in return (Jørgensen 2010: 200f.). Iron, in this perspective, was among the objects of exchange securing stability and reciprocal bonds of peer-polity interaction, on which the Northern Germanic Iron Age elites relied. Naturally, any development of large-scale iron production in Northern Norway would challenge this strategy. Jørgensen suggests that iron also formed a vital part of the socio-cultural structuration of trans-cultural trade and exchange, this time with the Germanic Iron Age magnates in their role as redistributors of desirable objects including iron tools and various forms of trade iron etc. at a regional trans-cultural level i.e. to the Sámi in Finnmark (Jørgensen 2010: 203).

Jørgensen's model is chronologically delimited to the Iron Age, and may not be directly relevant in a discussion of iron at the Brodtkorbneset and Steintjørna sites. The hearth-row sites in Pasvik are dated to the end of the Viking Age and Early Middle Ages, during which time the chieftains of Northern Norway gradually lost power to the emergent Norwegian realm. Initially, this led to protracted processes of secular and religious administrative integration of the coastal landscapes of Northern Norway north to interior of Troms County (cf. Hansen 2010: 199–200; Hansen & Olsen 2014: 143–144). Thorough changes in the conditions of trade and taxation in the wake of these processes may have had a negative effect on the Norse involvement in the Finnmark trade in the Early Middle Ages (Henriksen 2016). In addition, the expanding stock fish trade and control of land rent from acquired farms in the more southerly regions of Northern Norway may have represented a more profitable alternative to the emerging secular and religious power, and trade in Finnmark may have been given less priority as a result (cf. Hansen & Olsen 2014: 145). These processes effectively changed the cultural landscapes of the period. The former north-eastern fringe of the Germanic Iron Age in northern coastal Troms County 'lost' its former Norse archaeological imprints. This phenomenon is explained as a southward withdrawal of the Norse population, or alternatively, as processes of acculturation that led groups and individuals to acquire Sámi ethnic identities (cf. Bratrein 1989: 201ff.). It appears that the inhabitants of Finnmark actually loosened their ties with the Norse societies in the southwest during this transitional phase, coinciding with the time when hearth-row sites in Pasvik were used (Henriksen 2016). It is therefore unlikely that any significant quantity of the iron found at the hearth-row sites in Pasvik were transported from Nordland and Troms counties in the west through a coastal network controlled by Norse traders.

Jørgensen's model is still a valid analogy in context of the excavated hearth-row sites in Pasvik. During the Iron Age, the Sámi groups secured their integration in the trade and exchange network as specialist providers of valued prestige products that the Sámi were in a unique position to provide, such as pelts, hides, eider down, walrus tusks, of vital importance to the external trade managed by the elites controlling the Northern Norwegian coastal areas (Jørgensen 2010: 203; 2015: 105). In the institutionalized structures of transaction, the Sámi entered the role as receivers of iron provided by the Germanic Iron Age elites, but Jørgensen did not elaborate on the question of why Sámi societies in Finnmark apparently chose the same strategy of disassociation from the role of iron producers as the Norse societies in Northern Norway (Jørgensen 2010: 203). Following the logic of Jørgensen's model, self-sufficiency by indigenous iron production among Sámi groups could potentially weaken the socio-cultural structuring principles that secured stability in the transactions between external trade partners and Sámi societies. In other words, agents in a position to control production and trade within Sámi societies would have had interests congruent

with the strategies Jørgensen proposed for the Germanic Iron Age trader elite, and seek to implement measures to prevent internal extensive production of iron.

Indications in written sources, as well as in the archaeological records does indeed imply social stratification among Sámi groups during the Late Iron Age and Early Middle Ages (Hansen & Olsen 204: 116ff.). In fact, intra-site variations of size, form and construction of the hearths at Brodtkorbneset and Steintjørna as well as artefact distribution are among factors suggesting internal differentiation in status between the habitants of the hearth-row sites in question (Halinen et al. 2013; Hedman & Olsen 2009; Hedman et. al. 2015). The hearth no. 2 in Steintjørna seems to fit this pattern. The intensity of metalworking, and the skills applied here contrasts to neighbouring hearths with considerably less slag (hearths no. 5 and 8), and a total absence of this material at the rest of the site. This suggest an uneven distribution of skills among habitants of the sites as well, in this case skills related to smithery (Hedman et al. 2015: 7). The existence of social elites within Sámi societies capable of managing or controlling production, trade and exchange during the period when the hearth-row sites in Pasvik were used is plausible, and so is the potential power to suppress local iron production.

Leaving this interpretation as to *why* iron was imported in the context of the hearth-row sites in Pasvik, the question of *where* the iron originated from may be equally complex. As previously stated, a pattern of distribution via Norse nodal points of trade along the Norwegian coastlines is unlikely as much of this network's operational force in Finnmark was lost during the Early Middle Ages. However, it does seem that Norse traders were more successful in maintaining an inland trade network into the medieval *south-west* of Finnmark, as indicated by the predominance of Norwegian coins among deposits at the Northern Swedish sacrificial sites until ca. 1200 CE (Wallerström 1995: 188ff.). If iron traded via expeditions from the present Nordland and Southern Troms Counties in Norway reached the Pasvik area through the inland, it would most likely had undergone very complex and geographically extensive chains of exchange. It is also a question whether iron was among the bartered goods in trade initiated from the coastal areas of Norway in the early medieval period, from where most if not all iron had to be redistributed from afar. After all, Northern Sweden and interior eastern Finnmark had closer access to alternative trade networks with a closer connection with large iron production sites.

The size and technological innovation evident at Late Viking Age/Early Middle Ages iron smelting sites in the Swedish interior south of Norrland is unparalleled in the Northern European context, and very relevant to our setting. Estimates of the quantity of iron produced in the southern and central regions of Sweden indicate a surplus production sufficient to introduce this product as a main bulk of Swedish exports in cross-Baltic trade in the early Middle Ages, possibly also in the late Viking Age (cf. Berglund 2015: 105ff; Karlsson 2015: 63ff., 283). Vernacular iron smelting in other regions, for instance Russian Karelia (Kosmenko & Manjuhin 1999), should not be ignored as a potential source of trade iron to interior eastern Finnmark, but cross-Baltic iron trade via the Gulf of Bothnia still seems to be the most likely route of traded iron in our context. Consequently, a north-southern route connected to the Baltic Sea-Gulf of Bothnia seems the most plausible general direction of trade routes in context of the hearth-row sites in Pasvik, even if we allow the possibility of 'Karelian-produced' trade iron among the imports.

4.2 Cut pieces of copper alloy

The fragmentation of copper alloy sheets into small pieces and strips is obviously an intentional reshaping, but it has long been apparent that the majority of the fragments are without traces of actual re-use. Some

have interpreted such deliberate fragmentation as part of a ritual act, i.e. preparing metal for sacrificial purposes (Carpelan 1975: 65; 1992: 41). Others have seen this praxis as a mere practical transformation of a material into something exchangeable in commercial terms, even suggesting that cut pieces of copper alloy served as a version of '*primitive money*' (Odner 1992: 131). This latter interpretation presupposes recognized standards of denomination specific to measurement and valuation of different goods. A spherical flat-poled weight found at Steintjørna is a clear indication that the occupants of this locality (including visiting seasonal traders), exchanged items suitable to be measured with scales and weights. Four similar weights have been found at the Rerbraur 1 hearth-row site in northern Sweden, Arjeplog municipality, and one at the settlement sites at Njallejaur, in Arvidsjaur municipality (Hedman 2003: 161 ff.). Of a total of five weights among the metal deposits at the sacrificial site Unna Saiva, three are spherical and flat-poled like the one recovered at Steintjørna (Hedman 2003: 162), in context with two folding balance scales (Steuer 1987: 71). Closer to upper Pasvik, scales and weights are included in the Aatservainen hoard close to Lake Tenniöjärvi in present-day Murmansk oblast, Russia (Talvio 1985: 31), some 220 km south of Steintjørna and Brodtkorbneset. Thirteen weights, the majority of a spherical flat-poled shape, and folding balance scales were found in this hoard (Steuer 1987: 71).

The weights in the Northern Fennoscandian interior can possibly have a connection with long-distance trade in precious metals, such as silver (cf. Hedman 2003: 162, Hedman et al. 2015: 7), but 'mundane' metals such as pieces of copper alloy could certainly be traded in the same manner. In this perspective of trade and exchange, cut pieces of copper (alloy) are comparable to ingots rather than money. The fragmentation of copper alloy could serve as an additional practical preparation of a material intended for trade, as the modification would allow easier packaging in bags, sacks or other containers. Cut pieces of copper alloy, sometimes easily recognizable kettle fragments, are common features in the artefact assemblage in archaeological contexts contemporary to the hearth-row sites of Pasvik in the regions of Ostrobothnia and the interior of Finland, in contexts considered as Finnish (cf. Hakamäki 2016: 41). Like the example from the slightly younger multi-room houses of Skonsvika and Kongshavn, this shows that cut pieces of copper alloy were valued among various cultural groups in Northern Fennoscandia, which interacted in a variety of ways, not least in trade and exchange (cf. Hakamäki 2016).

While the fragmented or reworked condition of the cut pieces of copper alloy often prevents an assessment of the main group of objects from which these fragments originated, we have to settle with the fact that dismantled kettles *are* identifiable among the cut pieces of copper alloy at the Brodtkorbneset and Steintjørna sites, as previously stated. Kettles and cauldrons in close association in contexts of trade and exchange may serve as a viable approach in order to assess the trade routes relevant to the cut pieces of copper alloy at Steintjørna and Brodtkorbneset.

The value of copper alloy extended beyond the usage of imported objects, and it is suggested that kettles/vessels actually were the main 'source' for the cut pieces of copper alloy found from all historical phases in Northern Fennoscandia (Bergman 2007: 6-7 ff.). It is further suggested that kettles/cauldrons and fragments thereof were considered to be part of the same category of valued goods circulating in northern networks of trade and exchange in the Late Iron Age/Middle Ages (Bergman 2007, Immonen 2013). However, complete kettles and cauldrons dateable to this period are absent in the archaeological record in northernmost Sweden (Bergman 2007: 6), and to my knowledge, in the corresponding record on the Norwegian side of the border as well. With reference to late medieval historical sources which lists cauldrons as trade items

in high demand among the Sámi in Northern Fennoscandia, Bergman finds that the multifaceted potential for secondary use inherent in copper alloy vessels accounts for the reason that such objects rarely enter the archaeological record unaltered (Bergman 2007: 11). It is likely that broken kettles and cauldrons were also of commercial value. Written sources such as Early Modern tax and trade registers, probate records and other documents record cut pieces of copper alloy as valued items in a commercial sense. Pieces of worn out kettles even seem to have been denominated as a commodity in late medieval Norwegian contexts, with its own term used in different accounts, probate records etc. The term 'Kjedelbrom' translates as 'scrap metal from worn out kittles' (my translation from Fritzner 1886: 193), being listed in accounts related to repairs of the medieval King Håkon's Hall in Bergen in 1518–1520 (Kielland 1906: 8). The provincial governor of Finnmark, Hans Hansen Lilienskiold, reported that around Russian traders around 1700 CE were willing to pay high prices for old and worn copper and other non-ferrous scrap metals in their trade with local Sámi partners in interior eastern Finnmark (Lilienskiold 1943[1702]: 318–319). Historical analogies may add to the probability of a close qualitative or conceptual relation between kettles/cauldrons and cut pieces of copper alloy as commodities in trade and exchange in Northern Fennoscandia during the Late Iron Age/Early Middle Ages.

However, whether cut pieces of copper alloy found in Northern Fennoscandia are exclusively a result of indigenous reuse/local exchange, or if they were also considered a valuable material for long-distance trade in its own right during the Late Iron Age/Early Middle Ages remains uncertain. An alternative approach is to accept the premise of copper alloy vessels as a main source for the cut pieces of copper alloy, and as part of the same network of exchange, and attempt an assessment of the distribution of complete vessels to Northern Fennoscandia in the Late Iron Age/Early Middle Ages.

Stray finds of more or less complete kettles or cauldrons in the interior eastern central and northern parts of Finland may be from depots, or hoards. If some of these are contemporary with the excavated hearth-row sites of Pasvik is uncertain, but some are likely to be medieval (Immonen 2013: 23, with references). Kettles appear in grave contexts in ceded Karelia dated to the Late Iron Age/Early Middle Ages (Kivikero 2011: 62; Kivikoski 1973: 149, Tafel 144, 1254 and 1255). Surely, if the stray finds are ritual or secular hoards, special care was taken with kettles/cauldrons as valuable objects. They may not be representative of the historical distributional patterns, except perhaps at a macro-level. The landscapes where they were found are described as wilderness, and two alternative interpretations has been discussed; that the stray finds are mobile traders' depots, or intentionally deposited by a native Sámi population (Immonen 2013: 23). In either case, this indicates the exchange of copper alloy kettles with the Sámi in the north via Southern Finland/Karelia. Kettles distributed to Northern Fennoscandia during the Late Iron Age/Early Middle Ages may have been produced as far away as the Near East (Zachrisson 1976: 46), but the manufacturing of copper alloy vessels was widespread in parts of Southern Scandinavia, Eastern Germany/Poland and Eastern Central Europe (Müller 2006: 132-133)[6]. Vessels of copper alloy were transported in large quantities in cross-Baltic trade, with a connecting northern branch to Finland. It seems likely that this area functioned as a hub for the further distribution of copper alloy, such as kettles, cauldrons and vessels, or possibly as cut pieces thereof intended for trade. Like iron, the main bulk of copper alloy items was probably distributed to the vast inland areas in the north through a route where the northern regions of Finland served as transit area during the Late Iron Age/Early Middle Ages, including eastern interior Finnmark. Such a route would surely involve the Ostrobothnia area of Finland.

4.3 Imported ornaments

The imported ornaments are evidence of exchange through far-reaching networks at Brodtkorbneset and Steintjørna evident in their general provenance. One of the ornaments discussed above is an annular brooch with its probable origin in the western parts of Northern Europe, although a further specification of production area is presently not possible (cf. Zachrisson 1984: 34). The lone representation of a 'western' brooch at Steintjørna can be extended to the entire Finnmark County, as I know of no counterpart to this type in the medieval assemblage of the region. At present, the suggestion must suffice that this brooch was transported along similar trails as suggested for trade iron and copper alloy vessels. The imported ornaments of definite eastern origin, another minor category in the artefact assemblage, may be more informative as an indicator of trade and exchange.

Firstly, a very direct connection between eastern ornaments represented in the assemblages at Brodtkorbneset and Steintjørna and the fur trade is likely. Eastern ornaments considered to be Finno-Ugrian, such as the zoomorphic pendants from Steintjørna, have long been interpreted as a particularly suitable item of exchange among external traders and their Northern Fennoscandian partners, especially the Sámi (see Mulk 1996 for an overview). The depictions of animals and the material they were made of have been crucial to this interpretation. In particular, ornaments of waterfowl and horses associates to elements of the old Sámi religion as documented in ethnographic sources of the 17th–18th centuries sources as shamanistic guiding spirits between worlds, and as a companion to Ruohtta, the demon-like god of the nether realm of death, respectively (Hansen & Olsen 2014: 112; Mulk 1996: 68). Although Ruohtta, according to the same sources, accepted sacrificial offerings, the religious connotation with horses may have been different in the Late Iron Age/Early Middle Ages. The dualistic concept of separate subterranean and vertically aligned good and bad realms of the dead in old Sámi religious beliefs may have been conceptualized under the growing influence of Christian doctrine of Heaven and Hell during later stages of history (Schanche 2000: 256–257). While this does not exclude an older veneration of horses, it was probably influenced by a larger northern Eurasian set of mythologies of horses representing transcendence between the worlds of the living and the dead, and as a spiritual helper (Gjerde 2010: 54cf.; Hansen & Olsen 2014: 112). Gjerde's note about the type of zoomorphic pendants present at Steintjørna/Koietjørna is in this regard important. If appendages attached to such pendants represented legs and hooves, the number of 'legs' attributed to different versions of horse pendants always exceeds four (Gjerde 2010: 54). Depiction of horses, or animals with horse-like features as 'over-membered' beings indicates that horse pendants probably referred to a widespread motif in cult and religion in Northern Eurasian cultures, including the old Norse religion represented by Sleipnir, the horse of Odin (Gjerde 2010: 54). It seems likely that shared elements of cosmology account for the popularity of the zoomorphic pendants in the trade among Sámi and Finno-Ugric groups, but other categories of pendants, such as the oblique lattice pendant at Brodkorbnes, a Russian type (Uino 1997: 186–187), demonstrate a broader selection of preferred ornaments of eastern origin in the exchange (Cf. Roslund 2016: 194). This indicates that eastern ornaments in general may be seen as an integral part in a wider system structuring the interaction of heterogeneous cultural groups involved in the Northern Fennoscandian trade networks of the Late Iron Age/Early Middle Ages. A perceived sodality among the participating group may have developed from linguistic, cultural and cosmological familiarities, but any realization of such commonalities would require prolonged intergroup transaction. Eastern ornaments could have acquired status as material 'iconographic' signifiers elucidating or identifying partners and their role

in trade and exchange (Cf. Odner 1983: 73, 106; Roslund 2016: 26). The eastern ornaments found in secure archaeological contexts dated as contemporary to the Steintjørna and Brodtkorbneset sites are definitively predominantly Sámi, and seem to have been of significant symbolic value, even as an ethnically specific idiom in this period (cf. Mulk 1996: 68; Storli 1991).

Secondly, the zoomorphic pendant(s) recovered at Steintjørna and in the test pit near Koietjørna were deliberately fragmented, and I find it unlikely that such praxis can be explained as the mere practical preparation of objects as scrap metal, particularly in light of the proposed symbolic and ideological value of such objects in Sámi contexts. The practice of cutting zoomorphic pendants has close chronological and geographical counterparts at the Juikenttä site where Carpelan encountered deposits of faunal material, whole and fragmented tools and ornaments in a context interpreted as a combined Sámi winter village and sacrificial site (Carpelan 1975: 65). The interpretation of cutting imported ornaments into pieces as part of a ritual act, or preparation for a domestic sacrifice is relevant to consider regarding the zoomorphic ornament at upper Pasvik as well. In my opinion, other aspects behind altering ornaments must be considered. Imported ornaments and other imported items, such as coins, often underwent transformation as they entered Sámi contexts of use, which deviates from the objects' intended purpose or the functional context of their geographical provenience. In Northern Sweden, there are examples of clasps or brooches used in a different manner and/or transgressing their 'original' gender association in burial contexts; coins are pierced or otherwise altered to serve as pendants at offering sites etc. (Mulk 1996: 67).

An example from Finnmark is a particularly conspicuous example of such praxis (Fig 10). The collection of eastern ornaments acquired by Arthur De Capell Brooke in Hammerfest in the 1820s and referred to above inspires further thought about the manner in which imported ornaments were transformed as they (re-)entered Sámi contexts of intraregional exchange an use[7]. The artefacts (NFSA.2691) are 17 spiral ornamented tubular copper alloy beads strung on a cord, which appear to be leather (?). Most likely, this cord is a modern addition to the ornaments after the recovery. Round copper alloy bells are attached to both sides of 15 tubes. These tubular beads are similar to the 'Ohrrörchen' in Tomanterä 1991 (Abb. 13). Two other beads on the cord deviates from the other; a smaller one of similar design as the larger ones, and one tubular bead of a type that I cannot identify. They seem to have been arranged around a larger tubular pendant, with multiple spiral ornaments (Fig. 10B). Eight rings on the lower side of this pendant have chains and somewhat larger bells attached to them, comparable to the bells attached to the smaller tubular beads. The Klimushkino burial site connected to the Moshinsky portage associated with the Svir-Onega-Dvina water systems contained a female burial with a strikingly similar arrangement of 15 copper alloy beads as well as a larger tubular pendant, and linked by context to the skeletal remains, probably worn as a belt (Makarov 1994: 23–24, 26, Fig. 9). Due to the similarities with the artefact assemblage of the Finnmark stray find, De Capell Brooke's shaman chain interpretation, with which Nesheim (1963) and Vorren (1965) concurred, is questionable.

An arrangement of chains are attached to one of the tubular beads, to which 12 different ornaments are affixed as appendages, much like traditional Sámi belt wear (Fig. 10A). Ornaments were traditionally attached to the belt, along with tools such as knives, strike-a-lights etc. In this case, this latter category of 'practical' implements is missing. The items attached to this appendage are three conical bells, a trapezoid pendant, four ornamented pieces of the same type, but damaged in various degree. The latter objects are probably mountings from belts, straps or textiles, but I have not been able to find parallels to these ornaments. Of

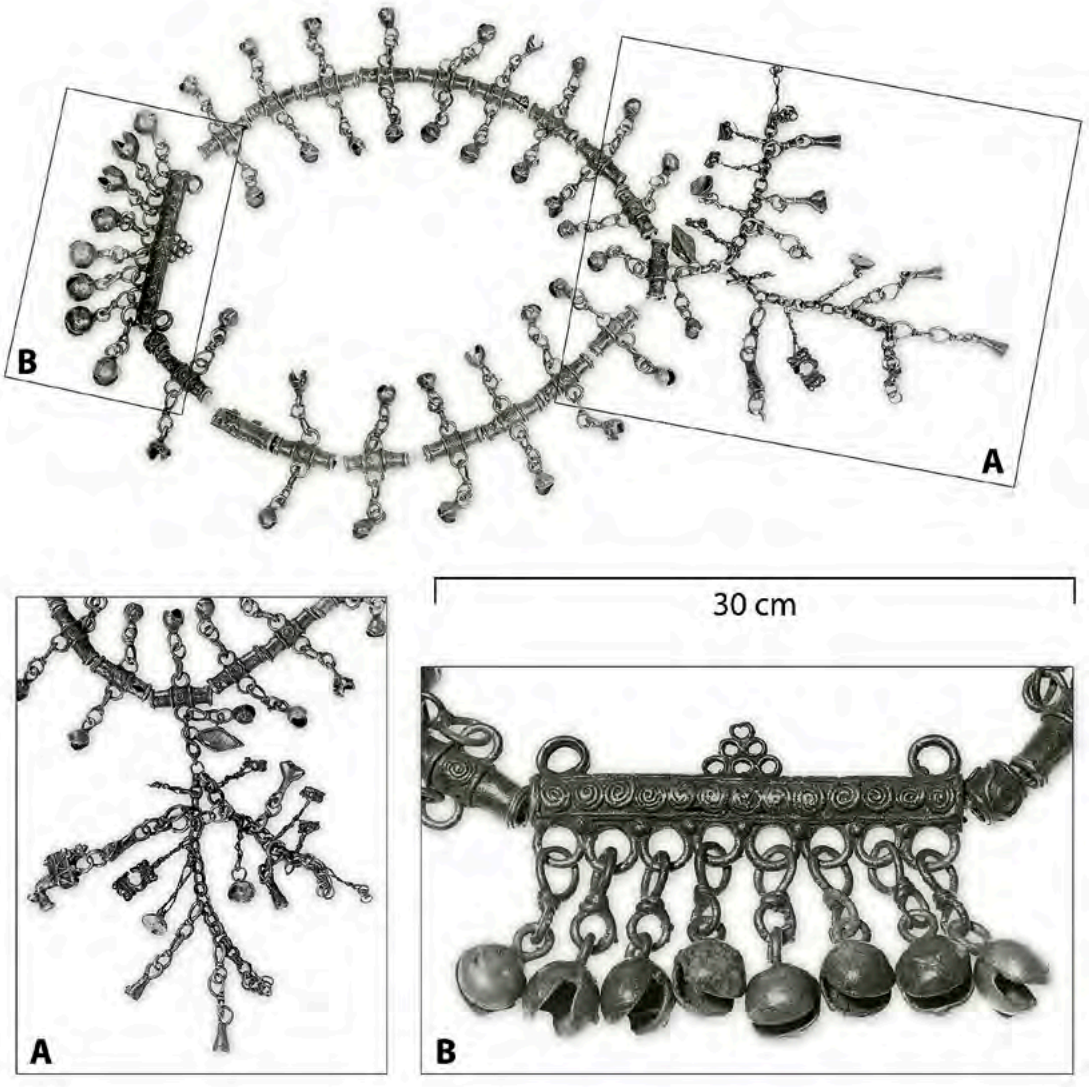

Figure 10. NFSA.2691. Composition of eastern ornaments found in Western Finnmark, A: Details of appendages. Chains, bells, trapezoid pendants and fragmented ornaments, B: Detail of a large tubular pendant with spiral ornamentation. Photo: © Norsk Folkemuseum/Norwegian Museum of Cultural History.

course, the main interest in this context is the fragment of a zoomorphic horse pendant of the previously discussed Ryabinin type XX. The very practice of attaching ornaments, bells, etc. in new compositions, more or less transformed or adapted to a (presumed) belt arrangement suggests an explanation for the Steintjørna, Koietjørna and Juikenttä fragments. The fragmentation of imported ornaments may have been an intended act designed for further distribution or exchange regionally, either in the form of dismantled, fragmented objects or reassembled into new arrangements of pendants. This could possibly be an intended use for the locally produced axe-shaped or trapezoid pendants made from cut pieces of copper alloy.

A historical analogy yet again based on ethnographic sources from the Early Modern Period about old Sámi religion and ritual may serve as a reminder that, such mundane

aspects as intra-regional exchange, modification and reassembling of pendants proposed here, do not necessarily exclude ritual aspects associated with such practices. The *sjiele* (South Sámi), or *šiella* (North Sámi) concept that can refer to metal implements of pewter or silver, offering gifts made of the respective metals, or simply gifts or rewards (Bäckman 1985: 93). In a sacrificial context, the sjiele/šiella concept could refer to an individual sacrifice where separate or easily detachable ornaments, coins etc. occasionally were offered at sacrificial sites during annual migrations or hunting expeditions (Bäckman 1985: 93; Spangen 2016: 99). Further studies of ornaments of eastern provenance in a wider context, outside the scope of this paper, could possibly shed more light on the circulation and use of the imported objects once they entered Sámi contexts. In this context, it must suffice to bring attention to an ornament found in one of the excavated hearths at the hearth-row site in Ássebákti, Karasjok municipality (Ts.7183a), which appears to have been deliberately cut (see Simonsen 1979: Fig. 6). It is an eared tubular pendant, of probable Karelian origin (Uino 1997: 198).

To return to the question of trajectories of transportation, there is as previously stated, a very likely connection with the medieval fur trade spurred by the expanding Northern Russian principalities and the distribution of the eastern ornaments. Moreover, the involvement of Finnish tribes in the management of the expansion of the fur trade in Northern Fennoscandia is deemed crucial in that regard. In a critical scrutiny of earlier interpretations of the eastern ornaments against more recent archaeological research in Russia, the Russian archaeologist N. Makarov argued that earlier ethnic associations with the categories of ornaments as Finno-Ugric and Russian was problematic (Makarov 1991). Rather than being confined to ethnic groups, 'Russian' and 'Finnish' ornaments formed a common repertoire among peoples of Finnish and Slavic cultural identity in the northern peripheries of Rostov-Suzdal and Novgorod during the 11th–13th centuries (Makarov 1991: 73, 75). Makarov's description of how the multi-cultural context developed into practices of intermixing of ornaments, and the development of hybrid forms are interesting in our context, mainly because it offers a reasonable explanation for the forms of eastern ornaments present at the excavated hearth-row sites in upper Pasvik (Cf. Makarov 1991: 73). The oblique lattice pendants' Russian provenance and the Finnish association with the zoomorphic pendants may express commonality in material culture among the population from where traders in Northern Fennoscandia originated. This would be the areas around Lake Ladoga, Lake Beloye and the basins of the Rivers Vaga and the Northern Dvina (Makarov 1991: 75). The trade and far-reaching external exchange in the fur-trade in Makarov's model, seems to favour a route along the Vaga and Northern Dvina river systems to the White Sea and from the western shore enter the Kemijoki water systems, which connects to several alternatives leading to the Gulf of Bothnia (Makarov 1991: 77; cf. 2007: 146-148).

The main distribution of artefacts discussed by Makarov is central and northern Russia, which makes his proposed route probable. In later excavations in the Lake Kubenskoye region, which in essence support his previous model, zoomorphic pendants of Ryabinin's type XIX, a possible parallel to the fragment from a test pit near Lake Koietjørna, were among the furnishings of a grave (Makarov 2005: 231). As this type is typical of the Kostroma area south of Lake Kubenskoye, Makarov's suggested route is possible. The distribution of the type XX pendants of Ryabinin's classification, on the other hand, suggests a western path, from Novgorod, Ingria, Karelia and Finland, which certainly indicates a direction of trade routes relevant to the presence of the ornaments at Steintjørna.

The dating of the two categories of eastern ornaments present at Steintjørna, Koi-

etjørna and Brodtkorbneset may very well indicate deposition during the latter phases of the sites, possibly during the 13th century, due to the aforementioned cultural formation processes that were likely to have affected the settlements during their use. Regardless of this, the ornaments are dated within a range coinciding with the period when the Karelians enter the historical record, first in 1143, and subsequently portrayed as semi-independent allies or collaborators in the Novgorodian expansion to the northwest, until Karelia become forcibly incorporated in the Novgorodian realm in 1278 (Uino 1997: 192–193). The Karelians' role as intermediaries between Novgorod and Northern Fennoscandia as expert managers of the fur trade, and possibly tribute collection in the 12th and 13th centuries was probably vital to the transport of goods exchanged in the eastern part of Northern Fennoscandia (Hansen & Olsen 2014: Fig 23; Roslund 2016; 2017). The contact with Novgorod provided trade items, possibly even zoomorphic ornaments not worn by Novgorodians at the time (cf. Uino 1997: 192), as well as Russian ornaments such as the oblique lattice pendants.

The centrality of the Ostrobothnian region in the distribution of zoomorphic pendants to the excavated hearth-row sites in upper Pasvik is likely, as is also its role as a route of transport of the lattice pendant. With the Karelian influence, their expansion into northern interior Finland, and to the White Sea during the latter 12th and the 13th century, does, however, present a vast array of possible alternative routes (cf. Hansen & Olsen 2014: 151). A Karelian migration to the western shores of the White Sea would provide opportunities to bypass the Gulf of Bothnia altogether and carry out winter expeditions from Kandalaksha Bay to the west. Even though contemporary sites or stray finds that could substantiate this route are lacking (Uino 1997: 200), it is a helpful reminder that the assessment of routes along which goods flowed to eastern Finnmark in the Late Iron Age/Early Middle Ages must be a matter of further consideration.

5 Concluding remarks

The hearth-row sites at Steintjørna and Brodtkorbneset were settled from the latter part of the Late Iron Age until the turn of the 13th century. Settlement was restricted to the cold season of the year, yet the artefact assemblage indicates long-distance trade, and the presence of a weight shows that trade was conducted at Steintjørna.

My assessment of the trade iron, cut copper alloy pieces and ornaments retrieved in the excavation of the hearth-row sites in upper Pasvik led me to conclude that a northern – southern path from the Northern Finnish interior and the Ostrobothnia area must have been a central transit region for the goods exchanged through far reaching trade networks between north and south. This is not a novel idea, and the discussion does not contribute to insights of the multitude of networks, nodes, passages, infrastructure which existence were contingent upon the need and desire for objects from afar. Except, perhaps, to the status of hearth-row sites such as Steintjørna and Brodtkorbneset and the context of long-distance trade.

The centrality of Ostrobothnia and interior Northern Finland has been the subject of recent studies that may be of relevance to sites such as Brodkorbneset and Steintjørna. The point of departure may be that an extension of trade networks into the Bothnian area in the Early Middle Ages, was not a venture into *terra nullius*, it could simply not have happened if there wasn't already someone present with the skills, infrastructure and social organization to manage this expansion (Kuusela et al. 2016: 179). Another crucial aspect are the natural conditions. Packed with rugged ice, which does not permit sea voyages for the better part of the year, and hardly allows alternative traffic on the ice, the Gulf of Bothnia was virtually unreachable during the cold season. At the same time, during winter, passage in the interior was at its most convenient. This means that the communities situated close to suitable harbours were in a position to control

the incoming trade, and effectively maintain positions as intermediaries in the trade further north (Kuusela 2016; Kuusela et al. 2016). Settlements that fulfil these requirements have been positively identified, such as Illinsaari in Ii municipality in the estuary of the River Iijoki and Valmarinniemi, Keminmaa municipality at the outlet of the River Kemijoki (Kuusela 2016: 126 ff.). The traders without alternative means of transport inland such as seafarers involved in cross-Baltic trade would lack other options than to establish, and maintain, personal relationships with members of the gateway societies. Gateway societies were therefore closed networks of trade, inherently exclusive to a limited set of trade agents. In the interior landscapes, the context of trade were different. Particularly during winter, there would be limited possibilities to control trade by controlling specific landscapes, and the trade networks of the interior would in contrast be open (Kuusela 2016: 132–133). The open inland trade was also open to competition and rivalry, possibly reflected by the registered finds of Iron Age/medieval weaponry, which have almost exclusively been recovered in the interior of Northern Finland (Kuusela 2016: 135).

It is entirely possible that trade managed by intermediaries originating from gateway societies was crucial in the trade of iron and copper alloy items such as vessels/kettles towards the north. It is also possible that traders able to conduct long-distance winter travel in the interior, such as the Karelians, preferred to carry on trade independent from the coastal trading nodes. The latter group may even have specialized as traders of much sought after ornaments. In any case, the location of sites such as hearth-row villages may have possessed qualities that closed some of the openness of the interior landscapes (cf. Kuusela 2016: 133). It is vital for any trade relation that people are present, preferably at some fixed geographical location at predictable times (Kuusela 2016: 133). Good, stable personal relationships between local individuals and visiting traders from afar must have been an asset for both parties as well. In this context, the seasonal aggregation of a dispersed community in the context of long-distance trade must have facilitated the perfect setting for trade. This may be an additional explanation to why the alternating winter sites Steintjørna and Brodkorbneset were such fixed localities in such near proximity to each other for approximately two centuries. Hearth-row sites like Brodkorbneset and Steintjørna may even have achieved status as intra-regional trade hubs. Ornaments were transformed, produced, and possibly intended for geographically limited exchange/trade, and a similar explanation may apply to the large amount of cut pieces of copper alloy. Hearth-row sites such as Brodkorbneset and Steintjørna may have been the regional node in long-distance trade, and part of the reason for the continued use of the site(s) could have been their successful function as 'open gateway societies' for trade and exchange in the interior of Finnmark.

References

Personal communication

A. Svestad, archaeologist, oral communication, November 2017

Unpublished sources

Bøckman, J. 2007. *«Smedverktøy» fra norske jernaldergraver En bruksanalyse av redskapene i Jan Petersens oversikt over smedgraver*. M.A. Thesis, Archaeology, University of Oslo.

Figenschau, I. 2012. *Øksemateriale fra Troms og Finnmark, ca 1050-1900 evt: En handverksbasert gjenstandsanalyse*. M.A. Thesis, Archaeology, University of Tromsø.

Grandin, Lena and Willim, Annika 2013. *Ett komplext metallhantverk på en samisk boplats. Analys av metaller och slagger från Norge, Finnmark, Sør-Varanger: Steintjørna R 148462* UV GAL Rapport 2013:12. Riksantikvarieämbetet/The Swedish National Heritage Board, Uppsala.

Hakamäki, V. 2014. Ii Illinsaari 3 (Pirttitörmä) Rautakauden lopun ja keskiajan alun asuinpaikan koekaivaus 2.-19.6.2014. Excavation report. Oulun yliopiston arkeologian oppiaine, Oulo.

Henriksen, J. E. 2016. *Kulturmøte og identitet på Finnmarkskysten i tidlig historisk tid. Tolkninger basert på arkeologiske analyser av mangeromstufter*. PhD thesis, Archaeology, University of Tromsø.

Jørgensen, R. 2010. *Production or Trade? The Supply of Iron to North Norway during the Iron Age*. PhD Thesis, Archaeology, University of Tromsø.

Karjalainen, J.-P. 2016. The Spell of Iron. Iron smelting experiments with stone box furnaces of the Finnish Early Iron Age. M.A. Thesis, Archaeology, University of Oulu.

Kivikero, H. 2011. Cattle Teeth in Graves. Interpretations of animal bones found in Finnish inhumation graves (Ca AD 550-1700). M.A. Thesis, Archaeology, University of Helsinki.

Kovalev, R. K. 2002. *The Infrastructure of the Novgorodian Fur Trade in the PreMongol Era (ca. 900–ca.1240)*. PhD Thesis, History, University of Minnesota.

Reymert, P. K. 1980. Arkeologi og etnisitet. En studie etnisitet og gravskikk i Nord-Troms og Finnmark i tiden 800-1200. Magister Thesis, Archaeology, University of Tromsø.

Internet sources

Askeladden = Norwegian Cultural Heritage Database, (Riksantikvaren/The Norwegian Directorate for Cultural Heritage).

Bennerhag, C. 2017. Järn i Norr. https://kulturmiljonorrbotten.com/2017/03/03/jarn-i-norr/ Accessed 11.10.2017.

Knivprat fra Per Thoresen. http://kniver.blogspot.no/2008/05/brasablad-fra-sverre-rdven-tidligere.html. Accessed 1.9.2017.

Norsk folkemuseum – Norwegian museum of cultural history. https://digitaltmuseum.no/011023295028/kjede-sjamankjede. Accessed 1.12.2017.

SVT nyheter 2017. https://www.svt.se/nyheter/lokalt/norrbotten/arkeologiska-fynd-skriver-om-norrbottens-lans-historia Accessed 11.10.2017.

Literature

Amundsen, C., Henriksen, J. Myrvoll, E., Olsen, B. & Urbanczyk, P. 2003. Crossing borders: multi-room houses and inter-ethnic contacts in Europe's extreme north. *Fennoscandia archaeologica* XX: 79–100. Helsinki: The Archaeological Society of Finland.

Bäckman, L. 1985. *Saami Pre-Christian Religion: Studies on the Oldest Traces of Religion Among the Saamis*. Acta Universitatis Stockholmiensis: Stockholm studies in comparative religion 25.

Bennerhag, C. 2012. Samhälle i förändring – järnålder i Norrbottens kustland. *Arkeologi i Norr* 13: 45–73.

Berglund, B. 2015. Marknad och ämnesjärn. In *Järnet och Sveriges medeltida modernisering*: 77–114. Jernkontorets Bergshistoriska Skriftserie 48.

Bergman, I. 2007. Vessels and Kettles. Socio-Economic Implications of the Cessation of Asbestos Pottery in Northern Sweden. *Arkeologi i Norr* 10: 1–16.

Bergman, I., Zacrisson, O. & Östlund, L. 2014. Travelling in Boreal Forests: Routes of Communication in Pre-Industrial northern Sweden. *Fennoscandia archaeologica* XXXI: 45–60. Helsinki: The Archaeological Society of Finland.

Bratrein, H. D. 1989. *Karlsøy og Helgøy bygdebok: folkeliv, næringsliv, samfunnsliv. Fra steinalder til 1700*. Bind 1. Hansnes: Karlsøy kommune.

Brisbane, M., Makarov, M. & Nosov, E. N. 2012. Medieval Novgorod in its Wider Context. In M. Brisbane, N. Makarov & E. N. Nosov (eds.) *The Archaeology of Medieval Novgorod in Context: Studies in centre/periphery relations*: 1–9. Archaeology of Medieval Novgorod 4.

Brusgaard, N., Fokkens, H., As, S.F.M. van & Huisman, H.D.J. 2015. The potential of metal debris: a Late Iron Age ironworking site at Oss-Schalkskamp. *Archäologisches Korrespondenzblatt*, 45(3): 345–363.

Carpelan, C. 1975. En översikt över den förhistoriska tiden i området kring Kemi älv. In A. Erä-Esko (ed.), *Kemijoki 8000 – laxälv i norr. Forntiden i Kemiälvområdet under åtta årtusenden i arkeologisk belysning*: 63–69. Stockholm: Statens Historiska Museum.

Carpelan, C. 1992. Juikenttä: Näkökulma saamelaiseen yhteiskuntaan. In K. Julku (ed.), *Suomen varhaishistoria: Tornion kongressi 14.–16.6.1991*: 34–44. Studia Historica Septentrionalia 21.

De Cappel Brooke, A. 1827. *A Winter in Lapland and Sweden: With Various Observations Relating to Finmark and its Inhabitants Made During a Residence at Hammerfest, Near the North Cape*. London: John Murray.

Farbregd, O. 1972. *Pilefunn fra Oppdalsfjella*. Det Kgl. Norske Videnskabers Selskab, Museet, Miscellanea 5. Trondheim: University of Trondheim.

Færden, G. 1990. Metallgjenstander. In E. Schia & P. B. Molaug (eds.). *Dagliglivets gjenstander* 1: 151–292. De arkeologiske utgravinger i gamlebyen, Oslo 7.

Fritzner, J. 1886. *Ordbog over det gamle norske Sprog. Omarbeidet, forøget og forbedret Udgave*. Vol. I. Kristiania: Den Norske Forlagsforenning.

Gjerde, H. S. 2010. Tilfeldig? Neppe. Finsk-ugriske smykker i Sør-Norge. *Viking* LXXIII: 49–60.

Hakamäki, V. 2016. Late Iron Age Transculturalism in the Northern «Periphery». Understanding the Long-Term Prehistoric Occupational Area of Viinivaara E, Finland, *Acta Borealia* 33 (1): 30–51.

Halinen, P., Hedman, S.-D. & Olsen, B. 2013. Hunters in Transition: Sámi Hearth Row Sites, Reindeer Economies and the Organization of Domestic Space 800-1300 A.D. In D. G. Anderson, R. Wishart and V. Vaté (Eds.) *About the Hearth – Perspectives on the Home, Hearth and Household in the Circumpolar North*: 152-182. New York, Oxford: Berghahn Books.

Hansen, L. I. 2010. *The Arctic dimension of «Norgesveldet», in S. Imsen, (ed.) The Norwegian Domination and the Norse World, C. 1100-c.* 1400: 301–329.

Hansen, L. I. & Olsen, B. 2014. *Hunters in Transition: An Outline of Early Sámi History*. The Northern World 63.

Hedman, S.-D. 2003. *Boplatser och offerplatser. Ekonomisk strategi och boplatsmönster bland skogssamer 700–1600 AD*. Umeå: Studia Archaeologica Universitatis Umensis 17.

Hedman, S.-D. & Olsen, B. 2009. Transition and Order: A Study of Sámi Rectangular Hearths in Pasvik, Arctic Norway. *Fennoscandia archaeologica* XXVI: 3–22. Helsinki: The Archaeological Society of Finland.

Hedman, S.-D., Olsen, B. & Vretemark, M. 2015. Hunters, Herders and Hearths: Interpreting new results from Hearth Row Sites in Pasvik, Arctic Norway. *Rangifer* 35(1): 1–24.

Huurre, M. 1987. Åter nya fund från Suomussalmi. In P. Purhonen & H. Ranta (eds.) *Arkeologia Suomessa – Arkeologi i Finland 1986–1987*: 87–88.

Immonen, V. 2013. Intercontinental Flows of Desire: Brass Kettles in Lapland and in the Colony of New Sweden. In M. C. Beaudry & T. G. Parno (eds.) *Archaeologies of Mobility and Movement*: 17–35. Contributions to Global Historical Archaeology 35.

Jørgensen, R. 2012. The social and material context of the Iron Age blacksmith in North Norway. *Acta Borealia* 29 (1): 1–34.

Jørgensen, R. 2013. Forhistorisk Jernproduksjon i Nord-Norge – Få, enkeltstående eksperimenter eller toppen av et isfjell? In B. Rundberget, J. H. Larsen. & T. H. B. Haraldsen (eds.) *Ovnstypologi og ovnskronologi i den nordiske jernvinna. Jernvinna i Oppland. Symposium på Kittelby, 16.–18. juni 2009*: 73–82.

Jørgensen, R. 2015. How did the natives of North Norway secure the supply of iron in the Iron Age? In S. Indrelid, K. L Hjelle & K. Stene (eds.) *Exploitation of outfield resources – Joint Research at the University Museums of Norway*: 99–106. Universitetsmuseet i Bergen skrifter 32.

Karlsson, C. 2015. *Förlorat järn – det medeltida jordbrukets behov och förbrukning av järn och stål*. Jernkontorets bergshistoriska skriftserie 49.

Kielland, J. Z. M. 1907. Haakonshallens gjenreisning 1518–1520. In *Bergens Museums Aarbog 1906*: 1–11.

Kivikoski, E. 1973. *Die Eisenzeit Finnlands: Bildwerk und Text*. Helsinki: Weilin & Göös.

Kosmenko, M. G. & Manjuhin, I. S. 1999. Ancient iron production in Karelia. *Fennoscandia archaeologica* XVI: 31-46.

Kuusela, J.-M. 2016. Closed and open. Access to coastal and inland interaction networks in Northern Finland in the Late Iron Age. *Arkeologi i Norr* 15: 119–140.

Kuusela, J.-M., Nurmi, R. & Hakamäki, V. 2016. Co-existence and Colonisation: Re-assessing the Settlement History of the Pre-Christian Bothnian Bay Coast. *Norwegian Archaeological Review* 49(2): 177–203.

Lilienskiold, H. 1943[1702]. *Lilienskiolds Speculum Boreale fjerde hefte*. Finnmark omkring 1700: Nordnorske samlinger utgitt av etnografisk museum IV.

Lindbom, P. 2006. *Vapnen i wreccornas tid, 150-500 e.Kr. Om de romerska auxiliarpilspetsarna och den västliga traditionens framväxt*. Aun 36.

Lund, S. 2009. *Ruovdebargu Sámi árbevierus/Jernarbeid i samisk tradisjon*. Vasa: Davvi Girji.

Makarov, N. A. 1991. "Eastern" ornaments of the 11th-13th centuries in the Sami areas: Origins and routes. *Acta Borealia* 8(2): 57–80.

Makarov, N. A. 1994. Portages of the Russian North: Historical Geography and Archaeology. *Fennoscandia archaeologica* XI: 13–27. Helsinki: The Archaeological Society of Finland.

Makarov, N. 2005. Villages in the forest – Outland economy and cultural identity of the human groups in Vologda region, Northern Russia, 950-1300 AD. In K. A. Bergsvik & A. Engevik (eds.) *"Utmark" – the outfield as industry and ideology in the Iron Age and the Middle Age*: 223–226. UBAS international 1.

Makarov, N. A. 2007. The land of the Beormas. In J. Bately & A. Englert (eds.) *Othere's Voyages. A Late 9th – century acount of voyages along the coasts of Norway and Denmark and its cultural context*: 140–149. Maritime culture of the north 1.

Mulk. I. M. 1996. The role of the Sámi in fur trading during the late Iron Age and Nordic medieval period in the light of the Sámi sacrificial sites in Lapland, Northern Sweden. *Acta Borealia*, 13(1): 47–80.

Müller, U. 2006. *Zwischen Gebrauch und Bedeutung. Studien zur Funktion von Sachkultur am Beispiel mittelalterlichen Handwaschgeschirrs (5./6. bis 15./16. Jh.)*. Zeitschrift für Archäologie des Mittelalters 20.

Munch, J. P. & Munch, G. S. 1998. Utgravningene på boplassen Gållevarri. Chapter in Ørnulv Vorren *Villreinsfangst i Varanger fram til 1600-1700 årene*: 106–133. Tromsø Museums skrifter 28.

Nesheim, A. 1963. Et gammelt kjede og dets historie. In *Bygd og by*: 143–147. By og Bygd 16, Norsk folkemuseums årbok 1962.

Odner, K. 1983. *Finner og terfinner. Etniske prosesser i det nordlige Fenno-Skandinavia*. Occasional papers in social anthropology, Vol. 9.

Odner, K. 1992. *The Varanger Saami. Habitation and Economy A.D. 1200-1900*. Serie B, Skrifter LXXXVI. Oslo: The Institute of Comparative Research in Human Culture.

Ovsyannikov, O. 1990. The Gorodets Sanctuary of the 12th–13th Centuries on the Niznia Pechora River. *Iskos* 9: 99–105. Helsinki: The Antiquarian Society of Finland.

Pokrovskaya, L. V. 2002. Finno-Ugrian Jewellery from Medieval Novgorod. In M. Brisbane and D. Gaimster (eds.): *Novgorod: The Archaeology of A Russian Medieval City and Its Hinterland*: 85–90. The British Museums Occasional Paper 141.

Ramqvist, P. 2012. Norrländska samspel under järnålderen. In Hemmendorff, O. (ed.) *Människor i vikingatidens mittnorden. Föredrag vid de Mittnordiska Arkeologidagarna i Östersund 2010*: 32–53. Fornvårdaren 32.

Roslund, M. 2016. Stridsyxor och sjöfågel: norrländska nätverk med östeuropa under vikingatid och tidig medeltid. In I. Gustin, M. Hansson, M. Roslund & J. Wienberg (eds.) *Mellan slott och slagg*: 235–252. Lund Studies in Historical Archaeology 17.

Roslund, M. 2017. Bringing "the Periphery" into Focus: Social Interaction between Baltic Finns and the Svear in the Viking Age and Crusade Period (c. 800 to 1200). In J. Callmer, I. Gustin & M. Roslund (eds.) *Identity Formation and Diversity in the Early Medieval Baltic and Beyond*: 168–204. The Northern World 75.

Ryabinin, E. A. 1981=Рябинин, Е. А. 1981. *Зооморфные украшения Древней Руси X–XIV вв.* Археология СССР. Свод археологических источников Выпуск Е 1-60, Ленинград: Наука.

Serning, I. 1956. *Lapska offerplatsfynd från järnålder och medeltid i de svenska lappmarkerna*. Acta Lapponica XI.

Simonsen, P. 1979. Juntavadda og Assebakte, to utgravninger på Finnmarksvidda: 5–55. *Acta Borealia* 17.

Skandfer, M. 2009. Ethics in the Landscape: Prehistoric Archaeology and Local Sámi Knowledge in Interior Finnmark, Northern Norway. *Arctic Anthropology* 46(1–2): 89–102.

Spangen, M. 2016. *Circling Concepts. A Critical Archaeological Analysis of the Notion of Stone Circles as Sami Offering Sites*. Stockholm Studies in Archaeology 70.

Stenvik, L. 2003. Iron production in Scandinavian archaeology. *Norwegian Archaeological Review* 36(2): 119–134.

Steuer, H. 1987. Gekerbte Gewichte der späten Wikingerzeit. *Fornvännen* 82: 66–74.

Storli, I. 1991. De østlige smykkene fra vikingtid og tidlig middelalder. *Viking* 54: 89–104.

Sundquist, Ø. 1999: Traces of Iron in Prehistoric Finnmark. *Fennoscandia archaeologica* XVI: 47–57. Helsinki: The Archaeological Society of Finland.

Søvsø, M. H. 2009. Middelalderlige ringspænder. Typologi, datering og brug. *KUML*: 183–211.

Talvio, T. 1985. The coins of the Kuolajärvi (Salla) Hoard. *Fennoscandia archaeologica* II: 31–35. Helsinki: The Archaeological Society of Finland.

Tobiassen, A. H. 1981. *Smeden i eldre tid*. Institutt for folkelivsgransking, University of Oslo. Oslo: Universitetsforlaget.

Tomanterä, L. 1991. Wachsfiligran. *Fennoscandia archaeologica* VIII: 35–49. Helsinki: The Archaeological Society of Finland.

Uino, P. 1997. *Ancient Karelia. Archaeological Studies/ Muinais-Karjala. Arkeologisia tutkimuksia*. Finska fornminnesföreningens tidskrift/Suomen Muinaismuistoyhdistyksen Aikakauskirja 104. Helsinki: The Finnish Antiquarian Society of Finland.

Valtonen, I. 2008. *The North in the Old English Orosius: A Geographical Narrative in Context*. Mémoires de la Société Néopilogique de Helsinki LXXIII.

Vorren, Ø. 1965. Stallos plystrepipe. I *Ottar* no. 65, Gløtt fra Tromsø Museum XX: 12–16.

Wallerström, T. 1995. *Norrbotten, Sverige och medeltiden. Problem kring makt och bosätting i en europeisk periferi* 1. Lund Studies in Medieval Archaeology 15:1.

Zachrisson, I. 1976. *Lapps and Scandinavians. Archaeological Finds from Northern Sweden*. Early Norrland 10. Stockholm: Kungl. Vitterhets Historie och Antikvitets Akademien.

Zachrisson, I. 1984. *De samiska metalldepåerna år 1000 – 1350 i ljuset av fyndet från Mörtträsket, Lappland*. Archaeology and Environment 3. Umeå: Umeå University.

Zachrisson, I. 1997. Kriterier på samisk kultur. In I. Zachrisson (ed.) *Möten i gränsland. Samer och germaner i Mellanskandinavien*: 191–218. Statens Historiska Museum Monographs 4.

Zachrisson, I. 2006. Magiska pilar och mystiska tecken – något om samer och järn. *Med hammare och fackla* (Sancte Örjens Gille) 39: 25–35.

Notes

1 Traditionally, adding copper (alloy) as a means to fit pieces of iron pieces before brazing was a technique applied to manufacturing small tools. Locksmiths, for instance, could make keys with this method (Tobiassen 1981: 62-63). Adding brazes of copper alloy in order to fit steel to iron in traditional blade manufacturing is a living tradition among smiths in Norway, although the practitioners of the art are few today. (Knivprat fra Per Thoresen). However, examples of blades made with this technique are unknown in the archaeological record of Northern Norway, and other possibilities, like fitting copper alloy to blades, axes etc. for decorative purposes have to be considered as an explanation for the composition of the slag from Steintjørna (cf. Bøckman 2007: 68; Grandin & Willim 2013: 24).

2 Further elaborations on this matter are to be expected. Other sites with slag in Northern Sweden are currently being studied in the major cross-disciplinary research project "Järn i Norr" (Iron in the North,) initiated in 2016 by the Luleå University of Technology and the county museum of Norrbotten (Bennerhag 2017).

3 The reasons behind a decision to re-bury the blessings from a test pit might need clarification. Of course, the motive to investigate one of the houses with a test pit was reasonable enough. There was a need to clarify if these ephemeral features really represent houses or other fabricated structures rather than being products of natural processes, like tree windfalls etc., and if the former assumption is correct, how old are they? The test pit produced a relatively certain affirmation that these structures represent houses of a hitherto unknown type in interior Finnmark dated to the 11th–12th centuries. However, the project management realized too late that the permit to excavate did not include test pitting at this particular site. According to the Norwegian Cultural Heritage Act, any physical intrusion in a protected site is prohibited unless legal permission is acquired in advance. The solution to this conundrum was to replace the artefact as careful as possible, and cover it beneath soil and turf. The plan was to sort out the formalities in dialogue with the proper authorities, and then acquire the necessary permits and funds to a future excavation. Sadly, Sven-Donald's illness and death naturally ended these plans.

4 This stray find is peripheral to the discussion of the fragmented ornaments found at Steintjørna but it represents a group of ornaments of eastern origin in the interior of southern Norway, which certainly brings interesting perspectives to the interpretation of early southern Sámi history and associated sites in the area. Among sites discussed in this connection is the southernmost hearth-row site on the shore of Lake Aursjøen, Lesja municipality (Gjerde 2010: 56–57).

5 In the figure of the two zoomorphic pendants referred to here, the references to the respective catalogue numbers are mixed up (Storli 1991: Fig 7).

6 A study of a particular group of bowls, somewhat inaccurately denominated 'Hanseschale' in traditional archaeological discourse displays a pattern of distribution that certainly indicates cross-Baltic exchange. (Müller 2006). A total of 13 bowls have been found in Southern Finland (Müller 2006: 329-30). The category is highly interesting to consider in the context of long-distance trade in copper alloy (vessels) to Northern Fennoscandia. However, engravings, which could affirm some of the sub-groups of bowls as the original object, have not been detected on the cut pieces of copper alloy at Brodkorbneset and Steintjørna. This would in any case hardly be possible for the plain-coppered undecorated variant of this category of the copper alloy vessels (cf. Müller 2006: 133). This category of vessels in therefore not discussed further in this paper.

7 Originally interpreted as a shaman's chain used in magical rites (De Capell Brooke 1827: 161) these artefacts has escaped archaeological attention until recently (Gjerde 2010; see however Reymert 1980: App. B II). This curious neglect can possibly be ascribed to the 'ethnographic' association of the chain, despite the fact that neither Nesheim (1963) nor Vorren (1965), both specialists in Sámi ethnography, failed to identify its eastern provenance or antiquity. More likely, the post-recovery history, nearly as interesting as the artefacts themselves, can be illuminating. After 138 years in the possession of the descendants of Arthur De Capell Brooke, Mr Sam Guinness donated the chain to Oslo University on behalf of the family in 1959 (Nesheim 1963: 143). Since then, its location has been the Sámi collection at Norsk folkemuseum – The Norwegian Museum of Cultural History, Oslo, hardly a place where Norwegian archaeologists directed their attention. In that regard, I confess I have not seen the artefacts myself, except from published illustrations and photographs (Norsk folkemuseum – Norwegian Museum of Cultural History.) Unfortunately, De Capell Brooke provided little information about the context of the artefacts, besides that a Sámi, probably a reindeer herder, found them in the mountain plateau of Finnmark. (De Capell Brooke 1827: 161). The presumption that this means somewhere in interior western Finnmark is admittedly uncertain and simply based on the fact that De Capell Brooke acquired the ornaments in the town of Hammerfest (De Capell Brooke 1827: 161).