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Commerce or Conflict? – A Reinterpretation of Two Late 16th-Century Shipwrecks from the Gulf of Finland

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ABSTRACT

Several decades ago, two shipwrecks were discovered in the archipelago of the Gulf of Finland. During excavations they were found to have identical galley structures and similar find assemblages. Based on this, the wrecks were dated to the end of the 16th century AD and interpreted as Dutch trade ships. This article looks through the available archaeological evidence and argues that previous interpretation of the wrecks does not take into consideration the entire archaeological evidence available from both sites. By studying the social and historical contexts of the wrecks, it is possible to find other explanations as well, which might fit better with the contemporary political realities, namely that the ships could have belonged to the Swedish nobility.

¿Comercio o conflicto? – Una reinterpretación de dos pecios de fines del siglo XVI del golfo de Finlandia

RESUMEN

Hace varias décadas se descubrieron dos pecios en el archipiélago del golfo de Finlandia. Durante las excavaciones se descubrió que tenían estructuras de cocina idénticas y conjuntos de hallazgos similares. Con base en ello los pecios fueron fechados hacia finales del siglo XVI AD y son interpretados como embarcaciones mercantiles holandesas. Este artículo revisa la evidencia arqueológica disponible y argumenta que la interpretación previa de los pecios no toma en consideración toda la evidencia arqueológica disponible de ambos sitios. A partir del estudio de los contextos social e histórico de los pecios, es posible encontrar también otras explicaciones que se ajustan mejor a las realidades políticas contemporáneas, específicamente que las embarcaciones pudieron haber pertenecido a la nobleza sueca.

贸易抑或冲突?--对芬兰湾两艘16世纪晚期沉船的重新解读

摘要

几十年前,芬兰湾群岛内发现了两艘沉船。在发掘过程中,发掘者发现这两艘沉船具有相同的船舱结构和相似的器物组合。基于此,沉船的年代被认定为公元16世纪末,并推定为 荷兰商船。本文通过梳理现存考古证据,认为过去对沉船的阐释中没有考虑到这两个遗址 全部的已有考古证据。通过研究这两艘沉船的社会和历史背景,还可以做出其他解释,这 些解释或许更符合当时的政治现实,即这些船只可能属于瑞典贵族。

貿易抑或衝突? - 對芬蘭灣兩艘16世紀晚期沉船的重新解讀

幾十年前,芬蘭灣群島內發現了兩艘沉船。在發掘過程中,發掘者發現這兩艘沉船具有相同的船艙結構和相似的器物組合。基於此,沉船的年代被認定為公元16世紀末,並推定為 荷蘭商船。本文通過梳理現存考古證據,認為過去對沉船的闡釋中沒有考慮到這兩個遺址 全部的已有考古證據。通過研究這兩艘沉船的社會和歷史背景,還可以做出其他解釋,這 些解釋或許更符合當時的政治現實,即這些船隻可能屬於瑞典貴族。

تجارة أم صراع؟ - إعادة تفسير حطام سفينتين من أواخر القرن السادس عشر من خليج فنلندا

المُستخلص

منذ عدة عقود، تم اكتشاف حطام سفينتين في أر خبيل خليج فنلندا، حيث انه تم العثور على هياكل مطبخ متطابقة إلي جانب تجمعات للقي مماثلة وذلك أثناء أعمال التنقيب وبناءً على ذلك، تم تأريخ حطام السفينتين إلى نهاية القرن السادس عشر الميلادي وتم التفسير علىَّ أنهما سُفن تجارية هولندية. ولذلكُ تبحث هذه المقالة في الأدلة الأثريةُ المتأحة وتجادل بأن التفسير السابق لحطامً السفينتين لاّ يأخذ في الاعتبار الأدلة الأثرية الكاملة المتاحة من كلا الموقّعين، حيث أنه من الممكن العثور على تفسيرات أخرى أيضا والتي قد تتلاءم بشكل أفضل مع الحقائق السياسية المعاصرة، وهي أن السفن ربما كانت مملوكة للنبلاء السويديين وذلك من خلال در اسة السياقات الاجتماعية والتاريخية لحطام السفينتين .

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KEYWORDS

Shipwrecks; 16th century; pottery; social context; maritime landscape

PALABRAS CLAVE

pecios; siglo XVI; cerámica; contexto social; paisaje marítimo

关键词 沉船; 16世纪; 陶器; 社会背 景;海洋景观

關鍵詞

沉船; 16世紀; 陶器; 社會背 景;海洋景觀

الكلمات الدلالية

حطام السفن القرن السادس ء الفخار السباق الاجتماعي المناظر الطبيعية البحرية

Introduction

The Office for Maritime History was established in the Finnish Board of Antiquities in 1960s. Its first years and decades were characterized by active research of shipwrecks that the Office was informed about by fishermen and divers. Fishermen notified the Office of two such shipwrecks, sites named Metskär and Esselholm, respectively, in 1966 and 1977 (Figure 1). They were excavated consecutively and sporadically from the 1960s to the 1980s and were eventually found to share some features. Both wrecks were initially dated based on their main find material, pottery, to the last decades of the 16th century AD. Besides pottery finds, they also had similar galley hearth structures located at the bow section. Due to their consecutive excavations and similar features, these sites were compared to each other in the research and publications. The tentative conclusion was that the ships were probably Dutch trade ships based on the significant amount of Dutch and German pottery on board (Edgren, 1979, pp. 90-91; Elfwendahl, 1995, p. 24; Halme, 1979, pp. 69-70; Leinonen, 2017, p. 71). However, the analysis of these ships was never completed. A different interpretation is possible if the existing archaeological evidence is compared to what we know of the historical reality in Finland at the end of the 16th century. Additionally, several Dutch merchant vessels have been archaeologically surveyed in the Baltic Sea in recent decades and they all have a galley in the stern (for example, Eriksson, 2012, 2015; Eriksson & Rönnby, 2012). To me, it seems that the initial interpretation of the ships' origin leaned heavily on the traditional historical narrative prevailing in Finland that even in the beginning of the 16th century, southern coastal Finland and its archipelago were a hinterland with only sparse population (Kerkkonen, 1945; Orrman, 1991), indicating that most maritime traffic was conducted by (foreign) merchants passing by to larger settlement centres. While it is certainly true that during the 16th century the Finnish coast and archipelago suffered from continuous wars and many farms were abandoned, in this period it is similarly true that centralized administration was organized and solidified (Haggrén, 2011). From the records generated by these processes and from recent archaeological research, it is evident that the archipelago was far from empty, but an active zone of interaction since the medieval period (Eriksson, 2022; Haggrén, 2011, pp. 162-163; Tuovinen, 2011). This means that the archipelago was frequently navigated by people from all social spheres, including nobility, merchants and peasants, who acted within a wide network of contacts around the Baltic Sea conducting commerce, warfare and administrative tasks. Sherds of 16th-century Dutch and north German pottery vessels are typical archaeological finds from settlement

sites in Sweden and Finland (Heinonen, 2021, p. 188; Möller, 2008, p. 548). It is therefore not surprising that they are also found in shipwrecks as their use had permeated society (see also Elfwendahl, 1995). Merchants increasingly did trade with ceramic table- and cooking wares in the Baltic Sea from the 15th century onwards and this trade was conducted via maritime routes and through the Scanian markets. Stockholm and Kalmar are both mentioned as Swedish transit points for Dutch and German pottery (Eriksson et al., 2024; Möller, 2008, pp. 543, 545). However, the possible explanations for the presence of this pottery in shipwrecks are more varied than simply merchants carrying trade goods. It is my aim in this paper to present a re-evaluation of the function of the Metskär and Esselholm shipwrecks based on the available archaeological evidence and the historical context, which to me seems to suggest that it is more likely the two ships were Swedish rather than Dutch traders. I have not had the chance to study the wreck sites at first hand but have gleaned the existing evidence from the archives and collections of the Finnish Heritage Agency (from here on FHA) and the Finnish Maritime Museum.

The archaeological research conducted since the 1990s has given us multiple examples of the spread of shipbuilding solutions, which provide a good background to the study (for example, Adams, 2013; Maarleveld, 1992; Ravn, 2011). Some of the most informative sources are the archaeological surveys and excavations of known 16th-century Swedish shipwrecks, such as Elefanten, Ringaren, Kraveln or Mars, or Mary Rose in England (Adams & Rönnby, 2013a; Eriksson & Rönnby, 2017; Marsden & McElvogue, 2009; Svenwall, 1994). Notably, they are all, except probably Ringaren (Törnqvist, 2014), wrecks of warships. Several Dutch merchant shipwrecks have also now been excavated, especially in the IJsselmeerpolders in Holland (for example, Maarleveld, 1992; Vliermann, 2021; Waldus et al., 2019). Social context forms the main part of the analysis, as the majority of the available archaeological evidence from the Metskär and Esselholm consists of items that relate to shipboard life, especially to eating and drinking. Here, the social context visible in the inner organisation of space and especially the galleys, forms the comparative material, as the information on building practices on both wrecks is largely lacking.

Finland in the Late 16th Century AD

During the late 16th century AD, Finland was a restless region. It was the eastern part of the Swedish realm, which Gustav I (Vasa) had separated from the Catholic church and was building into a centralized administration in the first half of the century. After him, his sons and grandson wore the crown in turns,



Figure 1. Metskär (Hiittinen), and Esselholm (Tammisaari) shipwrecks are located in the Finnish archipelago in the Gulf of Finland. The medieval harbour of Jungfrusund is also marked on the map. Esselholm wreck is located near the medieval castle and early modern manor of Raseborg. The wreck lies along a west-east sea route and a medieval village called Halstö. Map: Riikka Tevali.

one of whom served as the Duke of Finland (1556-1563) before he was crowned King Johan III (1568-1592). The regimes are characterised by power struggles between royalty and the high nobility, a tug-of-war between the Lutheran and Catholic churches, and continuous wars around the Baltic Sea. The latter especially shaped the balance of power in the Baltic. The Nordic Seven Years War against the united forces of Denmark-Norway, Poland-Lithuania and Lübeck in 1563-1570, and the 25-year war with Russia (1570-1595) forced the kings to develop a strong navy (Lappalainen, 2001, p. 4). The long periods of war shaped conditions especially in Finland, where the main part of the army (incl. navy) was based among the peasant population during ceasefires. An integral part of the military strength was a strong navy, which had large warships, but mainly consisted of smaller and more agile ships, which could be rowed in the archipelago. Several substantial shipbuilding programmes produced ships, but they were also captured from enemies and additionally, ships belonging to merchants, burghers, and farmers (peasants) could be confiscated to serve the navy's needs (Glete, 2010, pp. 355-356, 360). The army required vast amounts of ships to build a strong presence in the Baltic Sea and control

it. These smaller sailing ships, such as *bojorts* and yachts, were used especially in assignments involving reconnaissance, patrolling, escort, and blockades. Smaller ships were more numerous in the Swedish navy than large ones, which were mainly used in battles on open sea. The smaller vessels were especially occupied with controlling the archipelagos (Glete, 1976, pp. 30–31).

Ships for the navy were built on both sides of the Gulf of Bothnia at an increasing pace. The Swedish navy was at its peak in the 1580s with a gradual reduction of ships up to the early 1590s, when most ships were used to pay off state loans and credits (Glete, 2010, pp. 364-365, 373-374). The actual ships used in Finland are very rarely mentioned in the sources, but they likely mostly consisted of captured ships and older and more worn vessels, which also were smaller than, for example, those in Duke Karl's (regent 1599-1604, king 1604-1611) trade fleet (Glete, 2010, pp. 380-381). Karl built large oceangoing ships, which visited Spain and the Mediterranean.

In the second half of the 16th century AD, Finland was at the very core of naval warfare in the Baltic Sea. Amongst wars, the political situation was complex. Sweden had the strongest navy in the Baltic, commanded in turn by two Finnish noblemen, Klaus Kristersson (Horn) and Klaus Fleming. At the end of the century, for a while Fleming held the entire Swedish realm in his hands by controlling the army and navy from Finland.

Metskär

The Ship

The Metskär wreck was discovered in 1966 in the Hiittinen archipelago, at 15–17 m depth. It has been excavated in several instalments, most recently in 1987 (Damström, 1971; Grönhagen, 1987; Jolkkonen, 1982; Metskär, 1967). Some of the pottery finds were published in 1979 (Edgren, 1979) and the wreck has been interpreted as remains of a *bojort* type ship (Leinonen, 2017; Metskär, 1967). However, based on the existing archaeological reports, the wreck has been only partially excavated. Important details, such as the main measurements and description of the structural parts, joints, or fastenings, are completely missing. Investigations have concentrated on the finds. Therefore, only a general description can be given.

The wreck is 17.6 m long at keel and *ca*. 5 m wide. Its straight, slightly raking sternpost is still standing and is formed of an inner and outer post with the lower part of the rudder attached. It is built of oak in the carvel manner, with a main mast of pine. This seems to be the only mast. The frames have come loose but are tightly and evenly spaced along the sides. Based on recent video footage, there are at least three sets of futtocks remaining resting on the sea floor, with narrow and even spacing of ca. 35 cm. The main mast seems to have been situated in front of a hatch to the space below deck. The ship had a curved stem (Figure 2). The height of the original stempost was estimated to have been ca. 4 m, while the raking sternpost was 4.7 m high in 1971 (Notes by the Maritime office dated 12.7.1966). The ship had a flat bottom. On the inside, a ceiling covers the floor and sides up to the turn of the bilge, so it has not been possible to study the construction of the bottom. There are remains of two stock anchors, one on each side of the bow.

The bow section is the most intensively excavated area based on the excavation reports, which contained finds connected with the ship's galley situated in the middle of the bow. They included 16 glazed hearth tiles $(12.5 \times 12.5 \times 2.8 \text{ cm})$ and 28 fragments of these (Grönhagen, 1987, p. 4), which were not *in situ* but were collected separately from around the bow section (Figure 3). As similar tiles and a hearth structure were excavated from a wreck of a fishing vessel (*waterschip*) in the Netherlands in the 1970s (Reinders et al., 1978), the Metskär hearth was reconstructed as a sand-filled

wooden frame. Two 2-cm thick wooden planks were interpreted as the side boards of the frame, measuring 63.3×9.8 cm and 71×10 cm. A light-coloured mortar slab, measuring $29 \times 36 \times 7$ cm and weighing *ca*. 20 kg, not in situ, was thought to have been used to separate the fire from the ship's floor and the tiles (Grönhagen, 1987, p. 24). However, the mortar slab might have been standing against the bow to separate the heat from the ship's structures instead of sitting below the hearth. The size of the hearth frame (ca. $70 \times$ 70 cm) is much larger than the stone and it shows no signs of wear. The only further reference to the hearth's structure was that it was the same as the hearth structure in the Esselholm wreck (Halme, 1979, p. 69). A movable box hearth is a typical ship hearth known since the medieval period not solely used by Dutch shipbuilders and fixed box hearths appear in 15th and 16th centuries (Vlierman 1997, p. 162).

The Finds

Objects related to cooking and drinking were the most numerous finds from the excavations and are described in Table 1. The dating of the site was indicated by a tall tankard (Schnelle) from Siegburg, which originally had a pewter lid. It was decorated with motifs of the coat of arms of the county Jülich-Kleve-Berg in today's Germany (two motifs) and the coat of arms of Denmark with the year 1574 providing a terminus post quem for the shipwreck. Additionally, several staves and four barrel lids were found from the bow and the middle sections of the wreck. Two lids had a carving of a sovereign's orb (Lat. globus cruciger), and a third had an orb with a merchant's mark and a mark of crossed swords (Figure 4). An identical merchant's mark has been found on the altar banister in the Marienkirche in Rostock (Homeyer, 1870, Tafel XVII), while the marking of two swords crossed is also found in Homeyer (1870, Tafel XXXV and elsewhere), it clearly is a universal mark used in various contexts. Grönhagen interprets the markings to mean that the items in the barrel belong to the Crown or royalty (Grönhagen, 1987, p. 5). An orb is depicted, for example, in the coat of arms of the Swedish county of Uppland and one is also a part of the Swedish regalia, which Erik XIV ordered for his coronation in 1561. Uniquely, in Sweden the queen also had an orb (and a sceptre) since Johan III's second wife, Gunilla Bielke (1568-1597) used them. She also owned vast areas of land and estates on the western coast of Finland.

A stem from a pewter spoon and some wooden bowls are included in the kitchenware. The rest of the Metskär finds relate to the ship's structure and its maintenance, along with birch logs for firewood and hay. At the midships section, coal and charcoal, fragments of softwood, some hemp and bast ropes



Figure 2. A drawing of the Metskär wreck during the excavation in 1987 by Hannu Konttinen. FHA archives, Photo: Riikka Tevali.

and a tarbrush were excavated. A part of a sword scabbard is the only personal find, along with the spoon fragment. The reports are extremely fragmentary and do not document the excavation process clearly, so it is difficult to reconstruct the context for the various finds. Also, in the middle of excavation in 1987 careless anchoring caused damage to the wreck's bow section, dragging a part of the structure away from the main site and further hindering documentation (Grönhagen, 1987, p. 19) (Figure 5)

Dating

New dendrochronological and radiocarbon samples were recently taken from the Metskär wreck by the Finnish Maritime Archaeological Society. Unfortunately, the dendrochronological samples from an oaken ceiling plank and from the main mast were unsuccessful. There were not enough growth rings in the oak sample, while the pinewood did not match any references from around the Baltic Sea, which might indicate that it came from somewhere else or simply that the wood's growth rate differed from other pines in the region. A radiocarbon sample taken from the oaken ceiling plank in the bow section of the ship provided a radiocarbon age of 570 ± 30 BP (FTMC-WT27-11), translated to calibrated radiocarbon years 1306–1424 Cal BP while a second sample from the main mast gave a radiocarbon age 374 ± 30 BP (FTMC-WT27-10) and 1450– 1633 Cal BP (Ežerinskis, 2021, p. 8) (see Figure 6). Radiocarbon dating is problematic for young sites such as Metskär, and as so far there are only these two samples, the preliminary results may only be used to generally support the wreck's dating towards the end of the 16th century. The tripod cooking pots include forms that date generally from the mid- to late16th century (Hurst et al., 1986, p. 130, fig. 59).

Esselholm

The Ship

The shipwreck is situated in the archipelago of Snappertuna, county Raseborg, *ca.* 10 km south of a medieval royal castle and 16th-century manor. It lies next to an island called Hässelholmen in 6–15 m depth. The wreck was excavated briefly the same year it was found in 1977, and according to the excavation report, 'fully' in 1978 (Naakka-Korhonen, 1978), even though the excavation area did not cover the entire wreck site.

The site is described in the same two articles as Metskär published in 1979 (Edgren, 1979; Halme,



Figure 3. A selection from the several dozens of glazed tiles, which have been found from the bow sections of Metskär and Esselholm. Photo: Riikka Tevali.

1979). The excavation concentrated on the bow section of the wreck due to its better preservation. The excavators argued that due to the poor preservation of the stern, it was not economical to document it and the excavation was finished in two weeks (Halme, 1979, p. 64) (see Figure 7). All the finds were in the bow section, where also the galley was situated. The ship was built of oak in the carvel manner. The keels length was 17.5 m and maximum width, based on a measurement of a deck beam, *ca.* 6.4 m. The approximate maximum draught was thus calculated as 2.2 m with a capacity of *ca.* 186 tonnes (Alopaeus, 1989, p. 9). Many of the diagnostic structural parts remained *in situ* including a curving sternpost

Table 1.	Finds	connected	to	cooking	and	eating	from	the	Metskär	wreck.
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Type	Find number	Region of origin	Description	Amount	Find location
Fankard (Schnelle) H66112:1 S		Siegburg, Germany Stoneware, made in the workshop of master Christian Knütgen. Date 1574. Originally had a pewter lid. Height 25 cm, rim diameter ca. 7 cm.		1	Stern
Bartmann jug	H71105:1	Frechen, Germany	Stoneware. Beard mask, acanthus leaves, text: arm vnt frvm ist min richtvi	1	Stern
Ointment/oil jug	SMM387:19	Siegburg	Stoneware. height 8 cm, diameter ca. 6 cm.	1	Stern
Tripod cooking pot with two vertical loop handles	H66112:2, 3, 15, 17	Netherlands	Redware, brown/green lead glaze inside. Height of H66112:2 is 16 cm, diameter 15 cm. No. 3 with thick green lead glaze over the rim. Original height <i>ca</i> . 19 cm. All are fragments.	4	Bow
Tripod cooking pot with one vertical loop handle	H71105:2	Netherlands	Redware, brown lead glaze inside and poured over the rim.	1	Bow
Tripod cooking pan, deep with pouring lip and upwards curving handle	H71105:3, 4 SMM387:11	Netherlands	Redware, brown lead glaze inside.	3	Bow
Tripod cooking pot	H66112:18, 19, 20	?	Redware, except no. 19 which is 'yellow' clay. Height <i>ca</i> . 13–16 cm.	3	?
Sherds of cooking pots	H66112:4, 21, 23 H71105:5, SMM387: 6, 7, 8, 12, 17, 30	Netherlands	Redware, brown lead glaze inside.	Several fragments under one number	Bow
Bronze cooking pot	H66112:16	?	Rim fragment. Rim diameter 29 cm.	1	Bow
Iron cooking pot	SMM387:31	?	Bottom fragment. Diameter 9.8 cm.	1	Bow



Figure 4. The barrel lid from Metskär with a carving of the royal orb. Photo: Riikka Tevali.

and the stem, which had an exceptional 3.62-m long beakhead structure jutting out of the bow (Figure 8). The excavators were unable to identify the type or origin of the ship but still excluded the possibility of it being Swedish as its building material was oak. Its origin was argued to the Dutch or Flemish cultural area based on the pottery finds and a geological analysis of sand found inside a copper kettle (apparently the same sand was also used as ballast), which according to a geological analysis originated from the Atlantic coast (Halme, 1979, pp. 61-64). However, in 1989 Harry Alopaeus presented results from pollen and diatom analyses from the sand, which conclude that it originated from a large inland lake around the Baltic Sea region. Alopaeus names two lakes that meet the criteria, namely Mälaren in Sweden and Ladoga in north-western Russia. Based on the rest of the archaeological finds Alopaeus prefers Lake Mälaren as the potential origin for the sand (Alopaeus, 1989, p. 13).

A hearth structure in the middle of the bow, near the stem, included a stone slab of gneiss local to Scandinavia, measuring $50 \times 45 \times 6$ cm and *ca.* 40 brown and green lead-glazed rectangular floor tiles, $12.5 \times 12.5 \times 3$ cm. The hearth tiles are unevenly covered with a green lead glaze, but many do not have any glazing. There is a small nail hole in each corner used to attach the tiles to a frame or a base. According to the excavation reports, the hearth could have been built inside a wooden frame (Alopaeus, 1978; Excavation report, 1978, p. 41). Other finds from the bow section included a large amount of firewood, which obstructed the excavations in 1978 (Halme, 1979, pp. 64–67). It would seem plausible, that the stone slab's purpose was similar to the one in the Metskär ship: to provide insulation to the structural parts in the bow from the hearth.

The available documentation for the Esselholm ship is not comprehensive, but it seems that the distinctive beakhead of the wreck offers key evidence to its type. Similar constructions are visible in contemporary depictions of galleon-type ships and generally in Northern European three- or sometimes fourmasted ships, which in Sweden are called kravell (Adams, 2013, p. 86). The Esselholm wreck has a relatively sharp bow where the windlass was situated directly in front of the foremast, of which ca. 3 m remained in its original place (Excavation report, 1978, p. 13). A foreboom most likely existed on top the beakhead. The mast step for the main mast remains midships, and the mast itself lies on the port side. There were six deck beams from the bow towards midships, which have a space in the middle for the mast and its supports. The stem's original height was 5.27 m, while the stern was 5.45 m high (Alopaeus, 1979). At least three sections of the frames on the starboard side lie on the sea floor. The stern section could have had a mizzenmast. All in all, large parts of the structure are still undocumented.



(a)

(b)

(c)



Figure 5. A compilation of finds from Metskär. Photos: Riikka Tevali and Finnish Maritime Museum. (a) a stoneware tankard made in Siegburg, (b) a stoneware Bartmann jug, (c) a small stoneware oil or medicin jug, (d) the rim and handle from a bronze cooking pot.

In the middle section, four to five floor timbers are placed tightly next to each other, probably holding the place of the 0-frame, while the rest of the visible floors are narrow and sparsely, if evenly, placed. The general distance between frames is *ca.* 30–40 cm and they are *ca.* 25 cm wide and 10 cm thick (Naakka-Korhonen, 1978, p. 69). From the compact floors, a *ca.* 4.9 mlong and 40 cm-wide keelson stretches towards the bow, with a space for the main mast step. The rectangular hole for the mast's foot measures *ca.* $45 \times$ 30 cm. There might be a joint in the keelson towards the stern as well, as there seems to be a *ca.* 30 cmlong section sticking out from the end of it, but the timber is missing. The keel is rabbeted to receive the garboard. From the original drawing by Harry Alopaeus (1979), it seems that in the bow section, there are two different sizes of hanging knees in the side boards and under the deck beams, which do not seem to be attached to the side of the ship. It is possible that the side has collapsed from under the knees, but another explanation is that these knees supported a superstructure on top of the bow. This kind of low and long bow superstructure was typical of 16th-century ships, while there was another, considerably taller, in the stern.

The Finds

The find assemblage consists mostly of pottery, around 30 vessels, which were interpreted as cargo



Figure 6. The results of radiocarbon dating of two samples from the Metskär wreck. On the left (a) a sample from the main mast dating with 95% probability to 1450–1633 Cal BP. On the right (b) the results from a sample from an oaken ceiling plank with 95% probability to 1306–1424 Cal BP. Courtesy of the Finnish Maritime Archaeological Society (Ežerinskis, 2021).



Figure 7. The Esselholm shipwreck drawn by Harry Alopaeus in 1978, scale 1:25. FHA archives, photo: Riikka Tevali

due to their amount (Table 2; Halme, 1979, p. 66) (Figure 9). These 24 cooking vessels, three jugs and one cup (*porringer*) are published by Edgren (1979, pp. 73–82). Two vessels, not included in Edgren's article, are an *albarello* with a dark green glaze and a stoneware jug with a conical shaped neck from Siegburg, dated to AD 1580–1590 (Haggrén, 1998) (Figure 10). The jug was lifted from the wreck in 1997 during an inspection dive, from the port side outside the structural parts (Teredo Navalis, 1997). The *albarello* has a counterpart from a wreck named *Nargen* 1 in Estonia, where several items were lifted in 2015, which seem to belong to barber-surgeons' equipment (Mäss & Russow, 2016, p. 216, fig.7) (Figure 11).

An exceptional find are three fragments of green glass bottles called case-flasks, two bottoms and one top half (Figure 12). A rectangular bottle with a tin stopper, broken across the middle, was lifted during the 1978 excavation, and in 2020 maritime archaeologists from FHA found a bottom part of a similar bottle resting on top of wreck timbers, where it was probably lifted by a diver visiting the wreck. Sadly, its exact finding place is thus not known, but the bottle from 1978 was located on the port side of the bow section (Excavation report, 1978, p. 41; Alopaeus, 1979, drawing L34). The bottles probably contained spirits that were likely used as medication and consumed by only the socially elevated at this time (Haggrén & Mäesalu, 2000, p. 41). In ships, case-flasks were typically carried in wooden caskets with an inner frame holding each bottle tight in its own slot so they would not break. Such a box has been found from the wreck of Kronan, a Swedish royal ship, which sank in battle in 1676. An identical box is also mentioned in a list of personal belongings of the first captain of the royal ship Svärdet, which sank in the same battle (Einarsson, 1997, p. 212 and references there).

Additionally, a bronze tripod cooking pot from the galley is mentioned by Halme (1979, p. 66), where also



Figure 8. The Esselholm beakhead structure lifted for documentation in 1978. Photo: F. Ohert, SMM92026:31, courtesy of the Finnish Heritage Agency.

		Region of			
Туре	Find number	origin	Description	Amount	Find location
Tripod cooking pot, two vertical handles	H78050:1, 2, 3, 4, 5, 6, 7, 28	Netherlands	Redware, brown lead glaze inside. Uniformly 19–22 cm tall, diameter 25–31 cm.	8	Bow area
Tripod cooking pot with a pouring lip and single vertical handle	H78050:20, 21, 22, 23	Netherlands	Green lead glaze on the outside, yellowish glaze inside and on top of rim and handle. No. 23 is identical but redware with an uneven brown lead glaze inside and poured over the rim. All <i>ca</i> . 12 cm tall.	4	Bow area
Tripod cooking kettle, no handles	H78050:26	Netherlands	Redware (brown lead glaze inside). Wide mouth of <i>ca</i> . 16 cm.	1	Bow area
Tripod cooking pan, deep, with pouring lip and single handle	H78050:8, 25, 27	Netherlands	Redware, brown lead glaze inside.	3	Bow area
Cooking pan with a pouring lip and straight handle	H78050:9, 10, 11, 12, 13, 14, 15, 16	Netherlands	Whiteware, green lead glaze inside. Uniformly 6–7 cm tall, diameter 23.5–27 cm.	8	Bow area
Bartmann bottles	H78050: 17, 18, 19	Frechen, Germany	Stoneware, two decorated, one plain. Bearded facemasks, acanthus leaves	3	Bow area
Porringer/ cup with single horizontal handle	H78050:24	Netherlands	Redware, brown lead glaze inside. Rim diameter 13 cm, bottom diameter 6.4 cm. Height 7.5 cm.	1	Bow area
Albarello	SMM2394:1	?	Dark green glaze outside and inside.	1	?
Beaker with a conical rim and single vertical handle (cursive)	SMM2097:1	Siegburg, Germany	Stoneware (1580–1590). 13.5 cm tall, rim diameter 5.3 cm, bottom diameter 5 cm.	1	Port side, stern area (?)
Glass bottle (case flask)	H78050: 29 (rim), 30 (bottom). SMM42020:1 (bottom)	Possibly Germany	Green glass. 1 rim and shoulder, 2 bottom sherds. The rim fragment: 18 cm tall, diameter 11 cm. The bottom sherd from 1978 is 16 cm tall, and the bottom from 2020 is 13 cm tall. Diameter to both is <i>ca</i> . 11 cm.	2	H78050 bottle found from port side of the bow. Find location of the SMM42020 bottom sherd is unknown.
Copper/ bronze cooking pot	?	?	Lifted from the wreck in 1977, but not catalogued. Current location unknown (Edgren, 1979, p. 71).	1	?

Table 2. Finds connected to cooking and eating from the Esselholm wreck.

Social Context and 16th-Century Ship Archaeology

The available archaeological material is fragmentary at best. The available research material for the construction of the ships consists of black-and-white photographs of singular details, as well as some sketches of structural parts. The excavation reports are descriptive in nature and concentrate on the recording of daily activities along with a mention of finds. With the current knowledge, a detailed discussion on the construction methods and ship types must wait for further research and only general observations can be made. However, some information of Metskär and Esselholm wreck's functions can be gleaned by looking at the organisation of space inside the wrecks, especially the galleys, the find assemblages, and factors such as the surrounding landscape.

Research on historical ships in Scandinavia has been concentrated on warships (Glete, 1976; Rönnby, 2019; Söderlind, 2006, pp. 43-44, see also Eriksson, 2013, pp. 97-98). The written sources mainly deal with them, and many well-known archaeological finds have also been warships, such as Vasa or Mars. Consequently, research has concentrated on warfare rather than on shipboard life. However, in recent years several new archaeological finds in the Baltic Sea have been interpreted again (for example, Adams & Rönnby, 2013b; Eriksson, 2013, 2014a, 2014b, 2015; Törnqvist, 2014). For example, Ulrica Söderlind and Niklas Eriksson have concentrated on the social aspects within ships (Eriksson, 2014b; Söderlind, 2006), while Patrik Höglund has researched the social order and hierarchies in the 17th-century navy in Sweden (2021). In the Netherlands, Karel Vlierman has published on the galley utensils within Dutch shipwrecks (for example, Vlierman, 1997; 2010). Research is now being targeted towards ship architecture and what allocation of space can reveal about the people on board and, through them, the surrounding society. An integral part of this view is the maritime landscape (Westerdahl, 1992) which provides context for the wrecks and should be considered in their interpretation. Shipwrecks are complex archaeological entities with research potential for multiple aspects ranging from the technology of shipbuilding to material and social studies.

The available archaeological research material for analysis on the social aspects on board the Metskär and Esselholm are mainly connected to eating and drinking. The fragmentary state of excavation documentation and reports, missing plans and other data mean that any interpretation must remain an estimation until further archaeological excavation

can confirm the findings. However, Adams and Rönnby have argued that the social hierarchy on board a ship can be 'revealed in its entirety through the galley' (2013a, pp. 113–114), so we are fortunate that these features are the best documented aspects of Metskär and Esselholm.

Some 16th-century warships could have two galleys, one for the crew and another for the officers in the stern (Söderlind, 2006, p. 202). Apparently, this did not solely apply to large ships, as at least one example is known from a mid-sized Dutch tjalk (Vlierman, 1997, p. 157). The ordinary seamen of the navy did not stay in the stern cabin, a practice which was different in the merchant ships, where the only hearth, and the most valuable cargo items, could be in the stern cabin (Eriksson, 2014a, p. 105). During the century, the crew's galley could be placed differently depending on the size of the ship. Either it was situated in the hold, or it was in the bow under the main (half) deck, in the middle. Examples of the latter are known from English and Dutch ships used as troop carriers (Söderlind, 2006, p. 211; Vlierman, 1997). In large warships, the galley often was placed near the main mast (either in front, or more typically behind it), which is also the late medieval way of placing the fireplace (Dobbs, 2009, p. 124; Eriksson, 2014b, p. 105; Roio et al., 2016, pp. 150-151; Söderlind, 2006, pp. 202-204; Waldus et al., 2019, p. 473). According to Söderlind, in the 16th century Swedish warship crews ate markedly well and had more food than their successors serving in the 17th or 18th century navy, where sailors often fell ill for lack of food (2012; see also, Glete, 2010, pp. 639-640). In the 16th century, a hierarchy was not yet fully established in the Swedish navy, but it is safe to assume that as in the surrounding society, the ruling classes did not enjoy or share food and drink with the crew or soldiers as a rule.

The items discovered from the Metskär and Esselholm shipwrecks both find some parallels with a Dutch *fluyt*, which sank on Christmas Eve 1599 near Texel Island in the Netherlands' Waddensee with the archaeological name Scheurrak SO1 (Manders, 1998; finds available at https://geheugen.delpher.nl/en with the search word Scheurrak SO1). Its numerous finds include a tin-stoppered square bottle of green glass, which is identical to the one from Esselholm and glazed tiles were also found (R. Lettany, pers. com., 6 March 2023). Based on a search in the Netherlands' open access online service, The Memory, these kinds of glazed tiles were used to construct the base for the fireplace and are frequently found in 16th-century cargo and fishing vessels (https://geheugen.delpher. nl/en, search word plavuis [NL. Tile], provides 27



Figure 9. A compilation of the Esselholm finds, cooking pots and pans with Bartmann jugs. Photo: Riikka Tevali.



Figure 10. A small stoneware jug with a conical shaped neck and rim from Siegburg. Photo: Riikka Tevali.

results of which several examples from wrecks are similar as the tiles from Metskär and Esselholm). Identical tiles come also from the Tau wreck, excavated in Norway in 1972, where the excavator interpreted that some had been used in the ship's fireplace, but others were found in a pile suggesting that they were trade items (Bang Andersen, 1974, p. 35). Based on Netherlandish cooking pottery and Siegburg stoneware jug finds, the excavator suggested that the ship came from the Netherlands (Bang Andersen, 1974, p. 41). Based on these examples, it is noticeable that outside Finland these kinds of green and brown lead-glazed rectangular hearth tiles seem to belong to 16th-century Dutch ships and finds extend throughout the century. However, rectangular (hearth) floor tiles are known from medieval sites, and seem to be widely produced in north-western Europe, as well as in Scandinavia (Adriaen, 2003; Skaarup, 1984). Based on the evidence from the Tau wreck, they might even have been trade items, but manufacture of rectangular glazed tiles was certainly also known in Sweden. In speculation, perhaps they might belong to these small- to middle-sized 16th century ships in general, which are still not well-known in the Scandinavian archaeological record.

In both Esselholm and Metskär, there were indications that the galley space with a hearth was separated from midships by a bulkhead (Grönhagen, 1987, pp. 4, 12; Naakka-Korhonen, 1978, p. 50). The



Figure 11. Two *albarello* containers from the Estonian Nargen 1 wreck. The smaller one has an identical counterpart in the Esselholm wreck. Photo: Riikka Tevali.

rooms were situated in the middle of the bow of the ships perhaps reflecting a similar situation as in the Edesö wreck. In this 17th-century Swedish wreck, the galley was in the forecastle along with two guns. Its brick stove was placed on the aftmost end of the space, directly before the windlass (Eriksson, 2014a, pp. 101-102). It was a cramped space, as the ship was only 20 m long and ca. 6 m at its widest, a similar size as the Esselholm and Metskär ships. According to Eriksson, the ship's architecture and the situation of its galley space reflected the social organization of those inhabiting the ship. A galley far away from the stern cabin (officer space) indicated a power hierarchy, where the food was carried and served to those in the stern cabin under the watching eyes of those, who ate poorer quality food (Eriksson, 2013, p. 106; 2014a, p. 107). The archaeological evidence further suggests a division of space in the Metskär ship, where the cooking equipment was found from the bow, while a decorated stoneware tankard and jug were located in the stern section as well as a small stoneware jug, typically used for oil or perhaps vinegar, which was ingested with food by the nobility (Haggrén, 2013, pp. 20-21; Terävä et al., 2023). The locations of these finds suggest that the Metskär ship had a stern cabin, where wine and beer were consumed. In the Esselholm wreck, the division of space is not clear, as only the bow section with the hearth was described in the excavation reports. However, the placement of cooking pottery near the hearth structure in the bow rather than in the cargo hold area midships suggests that they were meant to be used. The sooty bottoms in many of the cooking pots is also an irrefutable sign that they had been

placed over a fire. The stern section of the Esselholm ship had disintegrated even before the excavations began, and in the Metskär wreck the area surrounding the stern seems to have been left unexcavated. Therefore, no archaeological evidence of their structure or fittings are available.

Jan Glete has published a comprehensive survey of archival sources related to the hierarchy on 16th-century ships, where the leadership was divided into three tiers. The petty officers were experienced common seamen, who were valued more for their experience than social standing. The non-commissioned officers were permanently employed by the navy, had some standing in society and dined in the stern cabin together with officers who were nobility, although the social difference between them could be substantial (Glete, 2010, p. 609). The non-commissioned officers are described as the various masters, who specialized in steering, navigation, or ordnance. In larger ships, and sometimes in smaller ones as suggested by the Edesö wreck, they were allocated separate accommodation on both sides of the bow section, where the galley space was in the middle (Sutherland, 1717, quoted in Eriksson, 2013, p. 106).

Substantial numbers of cooking pots were discovered in both wrecks (see Tables 1 and 2). This indicates the size of crews (incl. possible soldiers) of around 12– 24 people, even though we must assume that some pots might be missing due to contemporary and/or later salvage and archaeological processes. In Metskär the number of found cooking ware is at least 12 pottery and 2 metal pots, and in Esselholm 24 pottery and 1 metal cooking pots. For example, the various types of cooking pottery in Esselholm – eight tripod



Figure 12. Glass case flasks from the Esselholm wreck. Photo: Riikka Tevali.

pots with handles, eight pans with a pouring lip with three tripod pans with pouring lips and four tripod pots with pouring lips and single vertical handles indicate that they were used to cook different kinds of food. Interesting in this regard is that from historical sources we know that in navy ships the men were divided into smaller units, who each shared food from the same pot. This division is known from the Swedish navy muster rolls from the 16th century and is later called a *fatlag* meaning a group of 5 or 7 men (Dalman, 1765, p. 4; Spens, 1942, p. 139). Food was also prepared for the officers, and it is feasible that their cooking and serving utensils differed from the crews, as probably their food was also different. Besides the pottery, both Metskär and Esselholm included bronze and even iron cooking pots, which are not very suitable to eat out of. Possibly food was transferred from these to serving dishes and carried to the stern cabins. Food was probably also often cooked on land, in the natural harbours, which was a typical practice in the Swedish and Russian navies of the later centuries.

Swedish and Dutch Shipbuilding in the 16th Century

A short look to the practices is in order. The 16th century navy was not a separate entity in the Swedish army, but rather the ships were the personal property of the king, who used them as he saw fit. The Vasa shipbuilding was firmly in the hands of domestic and some north German master shipbuilders, who constructed ships in shipyards connected with royal castles until the decentralized shipbuilding programme began in the 1560s in rural shipyards of Sweden and Finland (Jakobsson, 2021, p. 97). Hulls were constructed at these yards, after which they were transported to Stockholm for the rigging, furnishing and equipment (Glete, 1993, pp. 5-6, 2010, p. 281). A Dutch shipwright, master Adrian Holländer, is known to have worked as a technical leader in Stockholm and Kalmar (Västervik) shipyards ca. 1557-1567 (Glete, 2010, p. 333; Jakobsson, 2021, p. 97; Rönnby & Sjöblom, 2015). Thus, experience from Dutch shipbuilding, perhaps even some networks to acquiring ship equipment, were available in both shipyards. It is not unfeasible to think that in these maritime nodal points for trade and shipbuilding, also galley equipment and cooking wares were acquired to ships. From the 1590s onwards, Swedish shipbuilding became heavily influenced by Dutch expertise (Glete, 2010, p. 626; Jakobsson, 2021, p. 95). It is therefore probable that Dutch practices in the division of space inside ships were familiar to shipbuilders from mid-16th century onwards.

The Dutch shipbuilding practices are reasonably well-known in the medieval period and especially in the so-called Golden Age of 17th century. However, examples are less frequent from the 16th century, which preceded the main economic boom in shipbuilding and trade. In his 1992 article, Thijs Maarleveld has listed the typical features of a Dutch merchant vessel dating to the 16th century, which he based on six excavated ships. They were bottombuilt carvels, the framing timbers were not connected by joints, so there is no uniformity in the framing plan. Temporary fastenings held the outer hull planks together in the bottom while the hull was shaped. In two of the ships, there was also a double layer of oak planking in the bottom, which might be a way to prepare for damage by Teredo navalis shipworm

(Maarleveld, 1992, pp. 163–164). None of these (very general) descriptions seem to fit Metskär or Esselholm.

However, it has not been possible to determine the construction of the ship bottoms or fastenings as these have not been recorded in the excavation reports. There is indeed very little archaeological evidence so far to argue convincingly whether one or both Esseholm and Metskär ships were built in Sweden, the Netherlands or somewhere else. However, ships were acquired by the Swedish Crown and nobility in addition to own production through multiple networks, such as direct sales, through capture in times of war, or as security against loans. The Baltic and North Sea areas were both potential markets. Consequently, the origin of the ships might have little bearing to their contemporary function. The available archaeological finds undoubtedly connect the wrecks to the Dutch and north German cultural spheres, however, this material culture connected to foodways were widely spread and typical in the Swedish society at the end of the 16th century. The origin of the ballast sand in the Esselholm wreck indicates that the ship had likely visited Lake Mälaren near Stockholm. Perhaps the hearth's stone slab of Scandinavian gneiss could also be locally produced, as it seems an unlikely trade item. However, as the available evidence on the building sites of the ships is so far inconclusive, and the material evidence rather shows the wide circulation of Dutch and north German pottery within the Baltic Sea region, we should finally turn to the landscape surrounding the wreck sites for some additional clues.

The Finnish Archipelago as Maritime Landscape

Against the historical background, it is important to consider the ships in the context of their maritime landscape. The Esselholm wreck is located along an old sailing route between important pilot- and late 17th-century toll stations on the islands Busö and Barösund, which are known from historical sources (Kerkkonen, 1959, p. 57). The wreck lies next to an island with a natural harbour called Halffskiffte öö, today Halstö, known from a 16th-century itinerary by Jakob Teitt (Grotenfelt, 1894, p. 150) (see Figure 1). On the island is a medieval village site, mentioned first in the written sources in AD 1451, which was abandoned by the beginning of the 17th century. Halstö belonged to a small number of villages in the archipelago, which were exempt from tithing, but were under a special contract to the castle of Raseborg (Haggrén et al., 2007, p. 98). According to written sources, Halstö clearly had a significant role, even though we do not precisely know what that role was (Kerkkonen, 1959, p. 78).

The badly-damaged stern of the wreck faces towards the shore. While some damage to the ship

structure is surely caused by the passing of time in shallow waters, it is evident that it has been salvaged and especially its stern was broken in the process, removing any evidence of superstructures (Alopaeus, 1989, p. 9). Salvage, rather than stripping, is indicated as the wreck still has its anchors and some ropes, which would normally have been taken along with the rest of the rigging (if still deemed functional), which constituted the most valuable part of the ship. It is probable that the cooking pots and pans would not have been deemed worth salvaging.

The Metskär wreck is also situated near a natural harbour, which has been in use since the Iron Age judging by a grave mound above the harbour entrance. The wreck lies on the intersection of two major sailing routes going east-west and south-north. Some 15 km north from the site is a well-known medieval natural harbour named *Jungfrusund*. Its earliest mention in written sources is in the 14th century AD and it was an assembly site for the Swedish navy. There was also an inn in the 17th and 18th centuries and a road inland. Here too the stern section shows considerable damage indicating that the wreck had been salvaged at some point afterwards.

Both ships then sank in direct connection to maritime highways that had strategic importance and controlled the passages in Finland's busiest trafficked routes. The ruling classes had a keen interest in monitoring and asserting their presence on these sea routes during wartime and used them regularly. This is also attested by the use of pilots in the archipelago, for which there is scattered information for the 16th century. For example, Gustav I strove to organize sea marks for dangerous places in the inner and outer archipelago in Finland during his long visit in 1555, deeming that the peasants were responsible for their upkeep and were liable if any accidents were to happen to Crown ships (Lähteenoja, 1949, p. 39). Sea marks were meant to ensure the safety of valuable trade ships that sailed in the Gulf of Finland, but the safely marked and maintained sea routes were also easier to control.

Comparison of the Ships – Trade Ships or Not?

The Metskär and Esselholm wrecks have been previously compared in the research literature. The ship's similar hearths and pottery finds led to qualitative comparisons of the ships based on their general appearances and the conclusion that they were once Dutch trade ships. The initial analysis is correct in that these features can be used to form an interpretation to the ships' purpose and why they were in the Finnish archipelago. Both were built of oak and in the carvel manner. However, their structures are rather different. The Metskär ship is slightly smaller, and it has only one mast (that is remaining; potentially a fore mast existed). However, the finds include various items that can be labelled higher-end consumer goods, although not luxury items (stoneware tankard and jugs). Most of the finds consist of cooking-related pottery and ceramics. Various wooden objects, such as barrel lids with carvings, relate to royalty and merchants. The type of ship found at Metskär remains open, but it may have been a *bojort* (Leinonen, 2017; Metskär, 1967), a type which was widely used in the Baltic Sea.

The Esselholm ship was probably a galleon or a *kra-vell*, judging from its characteristic bow-figure (Rahn Phillips, 1994, p. 99). This type was commonly used by navies. It had at least two masts and considerable room under the main deck. The finds are more numerous than in Metskär but are only connected with consuming food and drink. They include more than 20 pottery cooking pots and two metal ones. Glass case-flask fragments are a rare find connected with consumption of spirits.

The amount of Dutch pottery has been a decisive factor in interpreting the two wrecks as trade ships. During the time of their discovery, similar finds were rare from Finnish archaeological sites (Edgren, 1979, pp. 71, 84-85). However, their amount and placement in the wrecks does not support this argument. Firstly, the cooking pottery in both wrecks had been discovered in the bow sections, where the ships' galleys were situated, rather than in the cargo area, which typically is placed in the middle or stern. Most pots have sooty bottoms indicating that they have been placed on a fire. Secondly, even though the amount of pottery is substantial, it is not anywhere near as high as it should be if the pots were meant to be traded. A comparison to the medieval Egelskär wreck, which carried more than 200 stoneware jugs as cargo (Tevali, 2023) or to a contemporary Gråharuna wreck in the Finnish archipelago carrying several hundred pots (Tevali, 2019) clearly shows that there should be significantly more items if the pottery were trade goods. Of course, if the ships were salvaged, it is possible that the majority of the pots have been removed. Dutch and north-German cooking pottery vessels are a typical ceramic find from contemporary settlement sites in Finland. These relatively low-fired glazed earthenwares became extremely popular due to their affordability compared to metal cooking pots and durability. The same applies for the stoneware drinking jugs from northern Germany. The items belonged to a pan-European material culture, which had spread over the Baltic Sea from the medieval period onwards (e.g., Gaimster, 1997).

The similarities between the wrecks cannot be disregarded. The dating, location of the galleys, identical hearth structures and type of pottery indicate that the

owners or fitters of the ships adhered to a similar tradition. It might also indicate that the ships were fitted according to similar instructions indicating professional shipyards. The Swedish Crown ran several shipyards around Sweden and Finland in the latter half of the 16th century, where oak was used to build different types of ships for the navy in the carvel manner. Even though these shipyards were decentralized, the Crown closely supervised shipbuilding there and oversaw fitting the hulls and organizing provisions and manpower, actions concentrated on Stockholm, as mentioned above (Glete, 2010, pp. 266-268). This would explain the similarities in the ship's cooking equipment and hearth structures. The Crown also built trade ships, but they were typically built with the traditional clinker technique (Glete, 2010, p. 281). It is also possible that both or one of the ships were captured or acquired in other ways from merchants and transferred to new service for the Swedish Crown or nobility. Whether the ships were built in the Netherlands might be concluded by studying their bottom constructions for evidence of the so-called Dutch-flush building method (Maarleveld, 1992, 1994).

The large number of cooking pots, as well as the stoneware, metal and glass objects, and in Metskär, the royal symbols on barrels suggest ties to the upper levels of society. In my opinion, the archaeological finds point towards the Swedish nobility or Crown as owners. But why would the ships have been abandoned in the Finnish archipelago? And why is there no ordnance if they were navy ships? The broken stern structures indicate that a lot of the materials have been salvaged, which might offer an explanation, but it should also be kept in mind that the sides of the wrecks, which might bear archaeological evidence of cannon ports, have not been archaeologically researched so far. The political and military realities in the Gulf of Finland in the second half and end of the 16th century also meant that major sailing routes were controlled and supervised by the state and that soldiers needed to be transported over the Gulf of Finland, to and from Stockholm and over to the eastern front. The absence of cannon in Metskär and Esselholm might be due to that they were not fitted with cannon in the first place but were fulfilling other duties in the Finnish archipelago. Many navy ships were not fitted for combat, or they were only partially armed (Glete, 1993, p. 10). The Crown and nobility controlled the archipelago in many ways, for example by establishing pilot stations and commanding the local fishermen and farmers to manage navigation routes as part of their corvée. Part of this were also the men serving in the army and navy, who the civilian population were obligated to house and provide for during intermittent ceasefires. These obligations came with the centrally

organised government, where the king utilised ships and taxes as he saw fit.

The evidence pointing towards the Metskär and Esselholm ships' functions is patchy at best. However, the original interpretation of Dutch trade ships is in reasonable doubt. As stated above, new archaeological research on the wreck's structures is needed as well as analyses of the building wood's provenance. The current re-evaluation of the wreck materials seems to raise questions rather than conclusively answer them. However, the circumstantial evidence does now in my opinion provide for a richer and fuller view into the two wrecks: it doesn't seem that we should conclude that carvel-built, wellstocked ships for a number of people, situated in the inner archipelago of Finland during an active war with Russia, should foremost be interpreted as Dutch trade ships.

Conclusions

The Metskär and Esselholm shipwrecks have been examined sporadically from the 1960s to the 1980s. Based on their building practices and finds they were interpreted as Dutch trade ships dating to the end of the 16th century AD. This paper presents a re-evaluation of the shipwrecks based on their existing archaeological evidence, historical context and what is known of 16th-century shipbuilding and shipboard life. The construction choices, ship types and find assemblages offer leads, which is argued here, point towards the Swedish nobility as the owner of Metskär and Esselholm ships.

We know the heavy influence that Dutch shipwrights had on Swedish naval shipbuilding through administrative sources starting from the late 16th century, but in the beginning and during the 16th century shipbuilding was in the hands of Swedish shipwrights. Due to the frequent connections and similarities in shipbuilding practices in Northern Europe at the time, most ships shared features. Innovations were sought from abroad and assimilated into domestic building practices. The Esselholm beakhead seems to be a descendant of the southern galleons. The Metskär ship is a smaller vessel, seemingly a universal type and has been interpreted as a *bojort*. Both ship types were widespread in the Baltic Sea states during the 16th century. Their similar galley fittings suggest a common supply origin, while their seemingly large number of cooking pots and drinking jugs indicate that a larger number of people were catered for on board. The wreck sites are situated in the Finnish archipelago, along main sea routes between administrative centres. The long wars that 16th-century Sweden fought with Denmark and Russia required a strong naval presence in the Gulf of Finland. A plausible explanation for these ships - in the absence of actual cargo - would be that they belong to the Swedish nobility or navy, rather than to Dutch merchants.

However, excavations have concentrated only to the bow and middle sections of the wrecks, while the sides and adjacent areas have been left untouched. As the sides of the ship fall outwards, there are potential finds and information on the structures left uncovered. This is even indicated by finds made by recreational divers, which have been reported from both sites in the 1990s and 2000s, decades after excavations finished. Therefore, it seems that it is not possible to say the final word on the interpretation on the wrecks, and only further research will be able to reveal their function. This paper has argued that based on what we now know of the wrecks, their structure and the surrounding maritime landscape, the presence of Dutch and North German pottery is not enough to assign these ships as traders hailing from the Netherlands. We should foremost look closer to home and to those who frequently navigated the Finnish archipelago at the end of the 16th century AD.

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