

Gribshunden in perspective: a castle on the sea

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Abstract: The royal Danish-Norwegian flagship *Gribshunden*, launched in 1485, was among the earliest northern European warships purpose-built to carry artillery. However, King Hans employed his vessel as far more than a weapons platform. The ship was his ‘floating castle’, fulfilling all the various purposes of a land redoubt. At its loss in 1495 enroute to a political summit in Kalmar, where Hans expected to be crowned king of Sweden, it was his mobile seat of government, an instrument combining hard and soft power functions. Recent excavations of *Gribshunden* reveal its martial aspects: artillery, small arms (including several crossbows and hand guns) and personal armour. Soft power is reflected more subtly in other artefacts: silver coins; secular artwork depicting flowers, animals and mythical beasts; and prestige provisions, including copious amounts of exotic imported spices and a large sturgeon. Continuing excavations of the wreck are revealing the structure of the ship itself, while providing insights into the social division of space aboard this royal castle at sea. Combined with archival documents, analyses of all these artefacts deliver deep insight into the people aboard the ship and the late Mediaeval period through which they travelled.

Introduction

In the waning decades of the late Mediaeval period,¹ European adoption of a fundamentally disruptive technology contributed to a re-ordering of the world. Often referred to as a ‘floating castle’, this innovation fused Mediterranean and northern European design and construction styles to create the artillery-carrying ship (Unger 1981; Gardner 1994; Adams 2003; Eriksson 2020; Adams and Rönby 2022). Vessels of this type conveyed European explorers on direct voyages to the most distant points of the globe, catalysing a race to seize territory and build colonial empires. Within Europe, ships carrying gunpowder weapons formed the core of emerging nation-states’ naval fleets from the end of the fifteenth century. These ships were technological agents in the tumultuous changes sweeping through societies at the dawn of the modern era. Archaeological study of their remains—and more particularly, their contents—offers a portal into the late Mediaeval universe, granting us the possibility of understanding the historical trajectories which led to the world as we now experience it. While the military functions of these warships have attracted ample attention (Cipolla 1965; Padfield 1973; Caruana 1994; Hildred 2011), we contend that their range of uses extended far beyond this narrow utility. However, despite their stout construction, the archaeological record offers

scant physical evidence of these machines (Castro 2008; Mearns *et al.* 2016).

The finest archaeological example of a late Mediaeval floating castle is the wreck of *Gribshunden*, flagship of the Danish-Norwegian King Hans (1481/83–1513). This shipwreck presents to archaeologists the opportunity to extend the interpretation of this style of vessel far beyond its use as a warship. Hans employed his new ship as an instrument of royal power in all of its complexity. Scholars of international affairs describe power as ‘the ability to get others to do what they otherwise would not’ (Nye 1990: 177, citing Dahl 1961). Hard power is coercive because it threatens violence. Soft power is more subtle, and entails economic, cultural and social conditioning. When competently harnessed over time, soft power can be more effective and long-lasting in obtaining political ends. Historical documents and archaeological artefacts relating to *Gribshunden* offer clues about King Hans’ hard and soft power tactics in pursuit of his political goals.

The loss of *Gribshunden*

The circumstances of *Gribshunden*’s final voyage and the direct reasons for its loss are worthy of some discussion. The ship sank at anchor following an explosion in the summer of 1495, while the king sailed to a political summit in Kalmar where he expected to gain the Swedish crown. The meeting was a major event along the decades-long trajectory of conflict in the Nordic region. Sailing alongside the flagship was a squadron containing the Norwegian Council and many of the Danish nobility and senior clergy. At the Kalmar summit, Hans would make

¹ The date for the conclusion of the ‘Mediaeval period’ varies according to region and the scholar discussing the topic. While the Renaissance might have started in the mid-to-late 1400s in the Mediterranean and southern Europe, in the Nordic region, the Mediaeval period is widely considered to have continued until the Protestant Reformation which began in 1517.

every attempt to cajole the Swedish Council into electing him king of Sweden, thereby fulfilling his great ambition to re-unify Denmark, Norway and Sweden into a single political entity: a greater Danish nation-state (Gustafsson 2006). Hans was ready to employ every tactic to bring this to fruition.

For reasons not recorded, *Gribshunden* and some other vessels moored in the protected waters of the archipelago near Ronneby, in the Blekinge region. This was Danish territory at the time. Perhaps Hans intended to visit the town and its church, either by travelling over land or more likely, traversing the shallow waters and narrow passages in a smaller boat. A few written sources of the time briefly recount the events which follow, but each source is problematic in some way, and archaeological evidence does not support many of the contentions made in the accounts. One is a letter written many years after the event by Tyge Krabbe, a Danish nobleman who would have been a teenager in 1495. He claimed to have been present for the events at Stora Ekön, but eyewitness testimony is often flawed. In his short description, he claims the wrong year for the event. He also avers that the fire on the ship claimed many lives; so far, neither human remains nor evidence of fire has emerged from the wreck. Another account comes from *Sturekroniken*, a chronicle in verse of Swedish regent and rival to Hans, Sten Sture the Elder. An inclination towards propaganda is clear; this account describes loss of at least two other ships in the same event. A third, self-contradictory, account was written in a Danish history more than 60 years after the loss of the vessel. Two other versions of events come from Hanse towns, Lubeck and Danzig, but like the others, they are short on details (Huitfeldt 1599; Weinreich 1855; Christensen 1912; Zeeberg 2003; Nordquist 2015; Rönnby *et al.* 2015). Nevertheless, from these passages and the archaeological evidence, we can speculate on the sequence of events which led to the destruction of the ship.

A plausible scenario is that King Hans took the opportunity of the transit from Copenhagen to Kalmar to make stops along the way, in order to show his flag and prized ship in towns throughout his lands. The Stora Ekön anchorage where the ship sank is easily reached from the open Baltic, and the island and nearby mainland provide a lee from all winds and rough seas. Hans and a retinue may have put out in small boats to visit Ronneby, some 10 km distant through the archipelago and up river. The travel to and from town and activities while there would have taken more than a day, leaving time for the crew of *Gribshunden* to perform tasks more easily accomplished while at anchor than in a seaway. Among these tasks might have been maintenance of the gunpowder stores, and repositioning of casks in the hold of the ship. For some reason, an explosion occurred. One source suggests it could have been due to a lightning strike; others say fire broke out and eventually detonated the gunpowder stores. There is no evidence of fire on any of the ship's timbers or artefacts, though future excavation may reveal charring on elements not yet exposed (Foley 2022). The archaeological evidence and disorder of the

port quarter suggests an explosion below the waterline, which might have been enough to blast open the hull outright, or might only have sprung planks to permit uncontrolled flooding (Figure 10.1). During the 2022 field campaign, the archaeological team may have discerned the first indirect evidence of this explosion. From the locus of the tiller, two partially deformed lead/iron composite artillery shot both showed flattening and scoring on one side. Perhaps these shot were stored near the source of the explosion, and were flung against the interior of the ship during the event (Jahrehorn 2023).

With continued excavation, it may be possible to identify the exact locus of the explosion which sank the ship. The archaeological evidence may paint a clearer picture of the ship's loss. More importantly, continued study will reveal more facets of King Hans' utilisation of *Gribshunden* before its destruction. Our goal is to propel maritime archaeology beyond the biography of this ship by embracing new interpretative methods, thereby encouraging broader perceptions of shipwrecks.

Castles and ships in archaeo/historiographical trends

Maritime archaeology in Scandinavia has a long history. The excellent preservation of shipwrecks in the Baltic Sea has generated studies of their hulls and construction techniques; the best-known example is the *Vasa*, a seventeenth-century Swedish warship. However, maritime archaeology could be criticised for its practitioners' narrow focus on technical aspects of shipbuilding. Compared to land archaeology, underwater archaeology in Scandinavia has relied on a narrative historical approach seldom grounded in a specific theoretical frame (Cederlund 1995; Eriksson 2020). Only recently have maritime archaeological studies expanded beyond descriptive particulars of ship construction. For example, one scholar has shown how an archaeology of buildings on land can be used as a theoretical and methodological framework when studying social structure and hierarchical spaces onboard ships (Eriksson 2014). This is the rich vein to mine with *Gribshunden* and other sites.

The physical arrangement of *Gribshunden* invites comparison with monumental architecture on land, where a historiographical trajectory similar to that of warships is evident. Though Mediaeval castles have been an important subject for historical, art-historical and archaeological research since the nineteenth century, during most of this period, castles were mainly seen as military structures: defensible strongholds able to resist sieges. Beginning in the 1980s, a more nuanced view of the castle landscape emerged which recognised its importance in society. Scholars increasingly rejected the previous narrow reading of castles as isolated monuments. Instead, castles were argued to have been one of several elements in a complex web of social and economic relationships aimed at organising the use of the natural environment and its resources. In the last 25 years, a still broader perspective on castles has emerged, with far greater notice taken of



Figure 10.1. Site plan of *Gribshunden* shipwreck, derived from photogrammetric model. Illustration by Frida Nilsson, MediaTryck/Lund University.

castles' soft power functions (Austin 1998; Hansson 2006; Creighton 2009). Castles are increasingly understood as multifunctional loci, just as much administrative and social centres as symbols of military power.

These citadels were secular cathedrals, intended to exalt the lord (of the castle) and convey strength, authority and permanence. Castle builders imagined and created the total environs of the fortress. The layout of castles emphasised not only defensive battlements, but also external sightlines and vistas. Constructed waterways were vital elements of castles: when castles were not positioned directly on shorefronts, their architects incorporated surrounding moats and artificial lakes to improve their defences. In many cases, the waterways enhanced the visual impact of the castles, making them appear as if they were floating (Johnson 2002). Defensive elements such as berms, revetments, plains and water-filled moats also served other ends. Open fields doubled as gardens, tournament grounds and gathering places for events. Watercourses supported wild game, encouraging the nobleman's pastime of hunting. Artificial lakes contributed to illusions, creating the visual effect of the huge stone structures floating on the water's surface. Ultimately, castles were physical expressions of military, political, economic and social authority critical to maintaining elites' status (Hansson 2006, 2015).

Gribshunden can be considered in the same light. It, too, was monumental architecture, though of wood rather

than stone. We have begun to reconstruct the physical form of the ship. Digital modelling of the rudder, tiller, tiller arch, stempost, knees and hawse pieces have provided substantial information about the dimensions and appearance of the vessel (Figure 10.2). Each of these elements was sequentially lifted from the seafloor in 2022, placed on underwater supports and 3D-modelled with photogrammetry. A selection of elements was recovered to the surface for further 3D modelling with structured light scanners and photogrammetry in air. The tiller and a gun bed were retained for conservation and further study, and ultimately exhibited alongside the figurehead and other artefacts previously recovered (Figure 10.3). All the other ship elements were replaced in their original positions within the wreck site, with the exception of the tiller arch, which was buried *in situ* to improve its preservation (Björk and Foley 2023). Combining these elements with *in situ* measurements of other structures, we derived key dimensions. The keel length is approximately 25.5 m. The length overall would have been greater: the stempost raked approximately 15 degrees, and the stem curved upwards from the keel and would have been topped with a forecastle which extended forward from it. The rudder length measures 6.5 m, and the tiller attached near its top. The steeridge (or steering compartment) containing this tiller was possibly positioned on the third deck level. The tiller as preserved is 2.1 m long. The inboard end is broken, but a large rebate provides the socket for an extension. If *Gribshunden's* steering gear was similar to

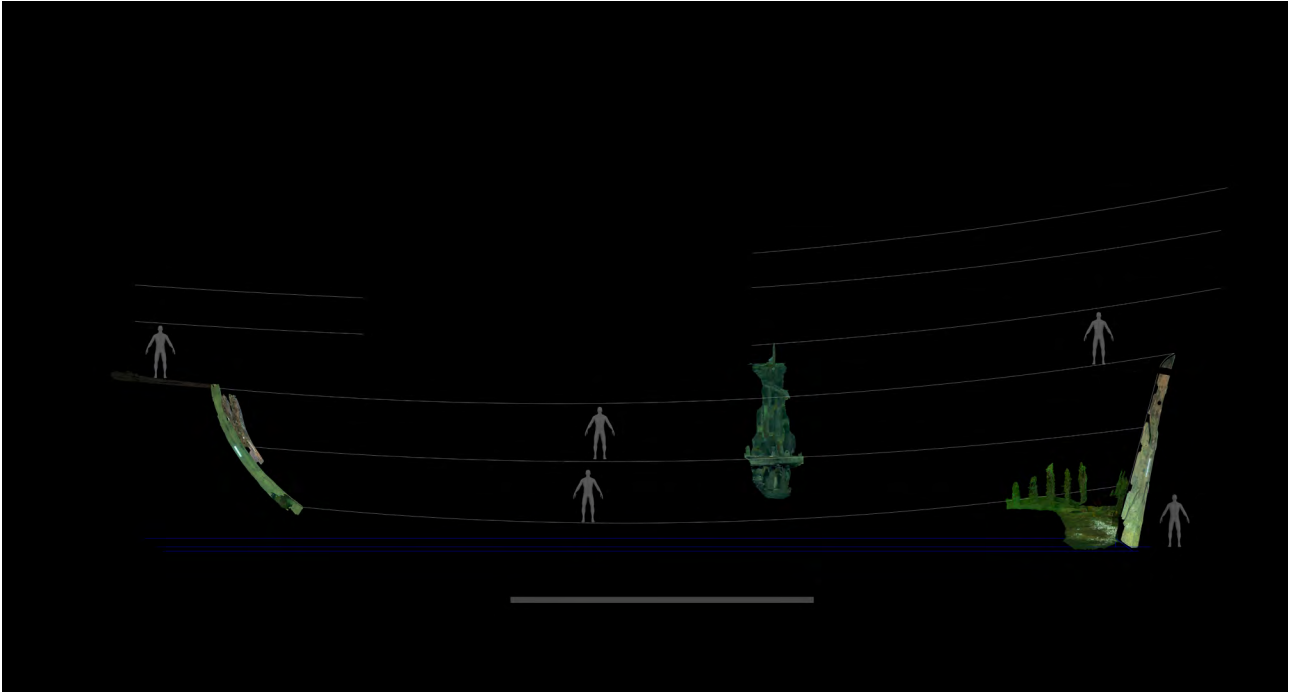


Figure 10.2. Conjectural elevation view of *Gribshunden*, derived from photogrammetric models of key features. Image by Mikkel Haugstrup Thomsen, *Gribshunden* Project, Lund University/Blekinge Museum/Vikingskibsmuseet.



Figure 10.3. The tiller of *Gribshunden*, prepared for photogrammetric modelling underwater prior to recovery. Image by Brett Seymour, *Gribshunden* Project Lund University/Blekinge Museum/Vikingskibsmuseet.

that of later warships like *Vasa*, this extension might have connected to a rowle and whipstaff. The whipstaff would have terminated on another deck above the steeridge (Pipping 2000; Harland 2011). The curved forward edge

at the head of the rudder would have matched an overhang for that deck. Perhaps yet another deck rose above that level, potentially bring the distance from keel to the upper extreme of the sterncastle to 12 metres or more. For

comparison, the sterncastle of the *Mary Rose* (1545) had three decks above steerage (Marsden 2009). We expect our continued excavation of *Gribshunden* will deliver more information on these points.

The physical structure and hard power aspects of *Gribshunden* are necessary interpretative points; however, they are not the focus of the thoughts presented here. A full examination concerning the military gear found on the wreck and the ship as an integrated weapons system will be published in a dedicated manuscript now in preparation by the authors and their colleagues. In brief, the first archaeological investigations of the ship and the excavations conducted 2019–2022 show *Gribshunden* was a carvel-built hull topped with light lapstrake superstructures (Einarsson and Wallbom 2001, 2002; Einarsson and Gainsford 2007; Rönnby *et al.* 2015; Björk and Foley 2023). In later generations, such a hull would have been pierced with gunports, but none have yet been found on this ship. Instead, several wrought-iron swivel guns would have been positioned in the high castles fore and aft, and along the gunwale of the low waist. While very large contemporary English warships carried as many as 140 or even 225 guns, historical documents suggest *Gribshunden* was equipped with perhaps 68 guns (Oppenheim 1896; Barfod 1990). Remains of 14 guns have been located during archaeological surveys, with 11 of their oak gun beds recovered since 2002 (Figure 10.4). The forecastle topped and projected from a curving stem, while another castle sat over the raked stern. These castles provided elevation from which artillery fired composite lead/iron projectiles about the size of golf balls, 31–47 mm in diameter. The castles also provided some cover for soldiers armed with handguns and crossbows like those recovered in our excavations (Einarsson and Wallbom 2002; Foley 2021, 2022; Björk and Foley 2023). The ship would have presented a formidable appearance, and that was perhaps deterrent enough. The best weapon is the one which never has to be used; there is no record of *Gribshunden* ever engaging in combat actions. While problems persisted with piratical raids at sea, Denmark was not openly at war until some years after this ship sank.

***Gribshunden* as a floating castle**

Hans was ashore when calamity struck *Gribshunden*, but despite this massive setback, he continued on to the weeks-long meeting in Kalmar. Hans' loss is our gain: the detonation consigned to the bottom a royal inventory of objects which together symbolised the authority, wealth and cultural power of a late Mediaeval monarch. From the artefacts recovered in the excavation, we begin to glimpse the mechanisms through which late Mediaeval elites constructed their place in the social hierarchy, and solidified their dominance. Many of the *Gribshunden* artefacts can be described as *barometerobjekte* (Hundsichler *et al.* 1982), objects characteristic for a specific social strata in society, like the nobility. These objects encompassed not only different types of luxurious and exotic items used for drinking, dining and clothing, but also weaponry and

objects which were part of the interior design of castles and manors. Display of *barometerobjekte* was one way the late Mediaeval aristocracy distinguished itself from the rest of the population, but there were other methods. Knowledge of the Latin language was an indicator of social status. Leisure activities such as hunting and high-stakes gambling further distinguished the elite from the masses. Access to rarified spaces, where entry was forbidden to all except the nobility and their servants, was yet another means of maintaining hierarchy (Duby 1977; Crouch 1992; Hansson 2006). *Gribshunden* offers glimpses of all of these practices, especially when compared to land castles, and study of this ship opens a path to a richer maritime archaeological practice in the Nordic region.

Excavation within and reconstruction of the sterncastle would enable a more detailed view of Hans' use of *Gribshunden*. A topic of active speculation is this: where would Hans and his closest companions have berthed and congregated, and can we find archaeological evidence for it? A compartment on the deck above or forward of the steerage is one possibility. In later periods, this was the location of the cabins occupied by the captain and commodore; traditions must start somewhere. At first glance, the entire stern section of the wreck is a jumbled mess (Figure 10.1). This disruption might have been caused by the explosion which sank the vessel. It might also be due, in part, to the dismantling of this part of the ship during the salvage operations which commenced soon after the loss, when, according to one historical source, many of Hans' possessions were reclaimed (Zeeberg n.d.). We trust that meticulous archaeological investigation will untangle the disorder.

Soft power at sea: social division of space

If Hans utilised his ship similarly to a land castle, then he might have reserved certain spaces for himself or selected companions. Privacy and status of the castle inhabitants were enforced by concentric areas of selective access, from semi-public outside the walls to intimate interior spaces reserved for only the castle owners and their private servants. Put succinctly, spatial distance signified social distance, and proximity was power (Hansson 2006). Detailed understanding of the interior spaces of Mediaeval castles escapes us because the objects contained within them have vanished through the centuries. *Gribshunden* offers the prospect of repopulating those exclusive environs, through the artefacts still contained within the wreck site. On a vessel which carried perhaps 150 people on its final voyage and was only 35 m in length overall, this level of privacy might simply have been impractical and impossible (Weinreich 1855). Whatever the daily social separation might have been at sea, Hans on certain occasions sought interaction with selected individuals.

Evidence for this comes not (yet) from the archaeological remains, but from historical sources. Records of royal expenses relating to Hans' spring 1487 voyage on *Gribshunden* to Gotland are illuminating.



Figure 10.4. Ten of the gun beds recovered from *Gribshunden* during operations in 2002 and 2021. Image by Ruth Rynas Brown, *Gribshunden* Project Lund University/Blekinge Museum/Vikingskibsmuseet.

The mission's purpose was political: uncertain of the loyalty of the nobleman in Visborg castle, Hans forcibly ejected Ivar Axelsen Thott and replaced him with his own man, Jens Holgerson Ulfstand, a member of one of the most powerful families in Denmark in the late fifteenth century (Wallin 1979). King Hans sent a fleet to Gotland, and followed soon after on his flagship. Contrary storm winds caused delay, and the ship waited for better weather outside of Copenhagen. During this lull, the king and his companions killed time with amusements typical of their class. On *Gribshunden*, this diversion was gambling with cards. Accounting records show Hans lost substantial amounts to his comrades, with six payouts, each between two and 16 marks. From the perspective of anyone but the richest aristocrats, these pots were large. For comparison, the three senior officers of *Gribshunden* received a salary of four marks each month; the salary of the admiral of Hans' fleet, Tonnius, was 20 marks each month (Wegener 1864; Ingvarsson *et al.* 2022). Hans was not gambling with his ship's officers: the only men who could afford to buy into his table and also had the necessary social stature to do so were nobles.

The card games aboard *Gribshunden* reveal the stratification of Nordic society, and also a means by which members of the wealthiest class differentiated themselves. They show that the king was the first among the nobility, but not at all isolated from them. The fact that noblemen would gamble with the king speaks to their relationships and their wealth. One would not want to win too much from the ruler; at the same time, one could not lose too much, either. To play at that table, one had to be willing

to spend. The stakes in these games would have been extravagant to a ship's officer and everyone below that status, but they would not have seemed exorbitant to the people in Hans' social stratum. Appearing in the accounts for Hans' voyages on *Gribshunden* are several wealthy and/or noble Danish families: Ulfstand, Gyldenstjerne, Urne, Walkendorff, Hardenberg and Laxmand (Wegener 1864). As an example of the resources commanded by these clans, Poul Laxmand ruthlessly acquired 900 farms during his lifetime, putting him foremost among landowners in Hans' kingdom. Laxmand's aggressive and possibly underhanded tactics caused outrage, and in 1502, two noblemen stabbed him and threw his body off a bridge in Copenhagen. King Hans did not order the arrest of the assassins. Instead, he insinuated that Laxmand had committed treason by dealing secretly with the (now enemy) Swedes, and seized all of his properties (Dalgård 2000). Ultimately, when gambling with the king, the house always wins.

If Hans or his companions on *Gribshunden's* 1495 voyage carried large amounts of money with them for gambling or other purposes, it has not yet appeared on the wreck. Limited excavation of *Gribshunden* so far has delivered about 200 silver *hvid* coins, most of which were apparently contained in a single pouch or purse (Figure 10.5). This is a rare example of a hoard of 'active money', differing from the usual situations of caches buried as savings or votive offerings (Märcher 2012; Ingvarsson 2018). It is also a unique example of coinage certainly sanctioned by the issuing king. This combination of factors is uncommon, and provides new interpretive possibilities.

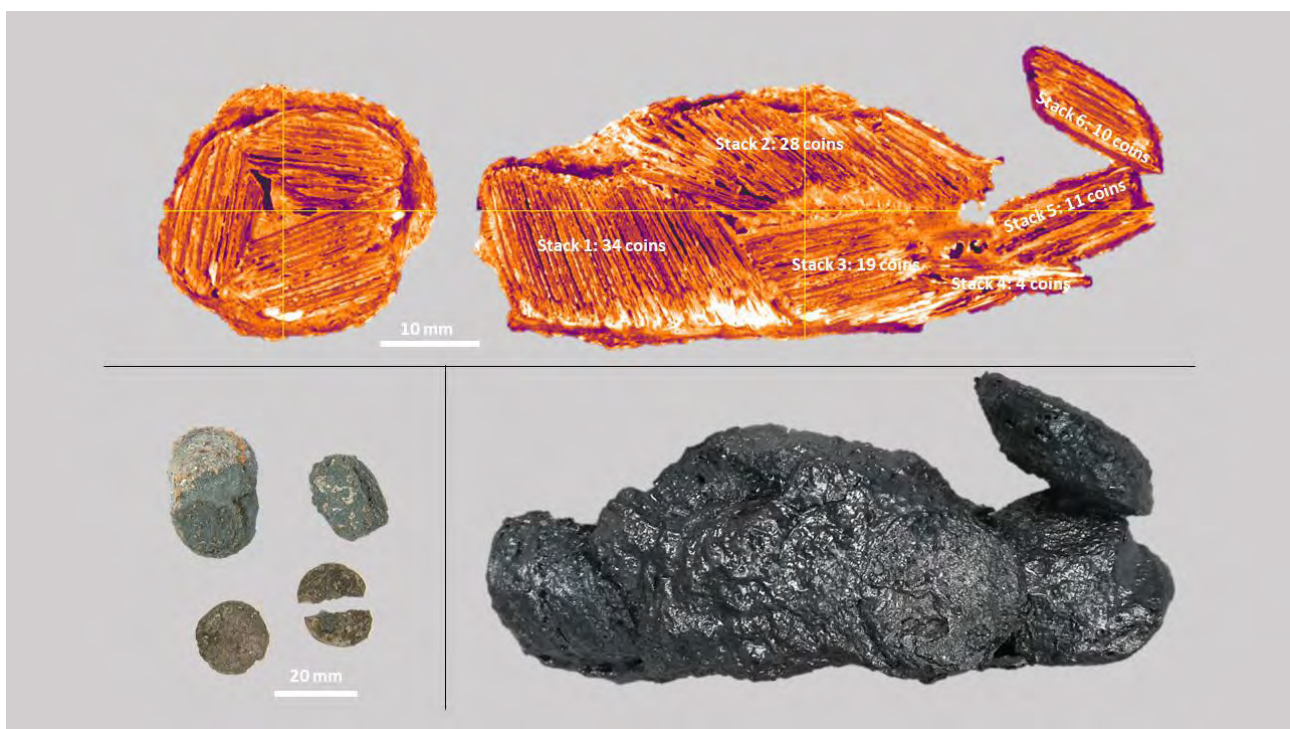


Figure 10.5a. Top: Computed Tomography (CT) image of silver coin concretions from *Gribshunden*. Image: Gitte Ingvarsson, Dirk Muter and Brendan Foley. Bottom: small and large concretions. Images by (left) Max Jahrehorn, Oxider and (right) Anders Henk, Danish National Museum.



Figure 10.5b. Left: CT image of coin motif from concretion. Image: Gitte Ingvardson, Dirk Muter and Brendan Foley. Right: A similar Danish *hvid* coin from the Blekinge Museum collection, minted in Malmö during King Hans' reign. Image by Brendan Foley, Lund University/Blekinge Museum.

Gribshunden and soft power: economics

The recovered coins are concreted and badly degraded, too fragile for mechanical separation. To identify them, we have relied instead on Microscale Computer Tomography (μ CT). Our interpretation of this purse is that it belonged to one of the officers of the ship, or perhaps a mid-to-upper level mercenary (Ingvardson *et al.* 2022). The first revelation is that the coins in this purse are all from the Danish realm, including Norway and Gotland. Second, the coins were drawn not only from new issues of *hvids*, but from previous regimes. Some of the coins were newly minted during Hans' reign. Others are older, dating from the reigns of Hans' father, Christian I, and possibly his predecessor, Christoffer III. The conclusion which can be drawn is that the Danish kings did not always recall coinage when they ascended to the throne. Even if they devalued their coins by altering the ratio of copper and silver in new issues, they also permitted older coins to stay in circulation. Also notable is that the motifs on *hvid* coins are remarkably similar throughout time, featuring the first letter of the king's name on the obverse: for Christoffer or Christian, a crowned 'k' (in the font of the time, its appearance resembles a modern 'R'), and for Hans, a crowned 'h'. At a glance, it is difficult to discern which king issued the coin, suggesting a desire for continuity in the royal lineage. Another feature of the coins is a blending of high and low culture. Around the outside of both obverse and reverse of Hans' coins, Latin script (abbreviated) spells out the monarch and the city of the mint. For Hans' *hvid* coins minted in Malmö, the obverse inscription read: IOhES:D:G:R:DACIE. Translated and expanded, this read: Johannes [Latin for Hans] (by) Grace (of) God King (of) Denmark. The use of Latin links Hans to the Catholic Church and the

Christian god. The reverse read: MOn | MAL | MOI | EnS |. As translated and expanded, this reads: Coin (of the City of) Malmö. The central character of the obverse is the 'h' for Hans, the Danish version of his name, complementing the high status and Latin lettering around the perimeter of the coin (Ingvardson *et al.* 2022). The combination of the Latin and Danish languages is also seen in correspondence between the king and his noble subjects: salutations were penned exclusively in Latin, while the bodies of letters were written in Danish (Christensen 1912).

Gribshunden played a role in the creation of the coins minted in Norway during Hans' reign, and provides a view into the fusion of soft and hard power in late Mediaeval Scandinavia. In spring 1486, soon after taking possession of the ship, King Hans sailed to Bergen, the site of one of the mints Hans had chartered in his coronation *håndfæstning*. Presumably on this and subsequent visits, he or his delegate would have inspected the coin production facilities. The 2019 *Gribshunden* excavation revealed the earliest known coins from the Norwegian mints, establishing their production earlier than 1495 (Wegener 1864; Ingvardson *et al.* 2022). The increase in Hans' coin production is another example of his soft power capabilities. Not only did he establish mints in Norway, he simultaneously created new mints in the Danish cities of Copenhagen and Aalborg. Further, he ordered a dramatic increase in *hvid* production in Malmö. After 1495, he took the additional steps of creating two new silver coins of higher denominations, and eventually, a gold coin. This was a capacity his Swedish rival could not match. Soft power translated into hard power: the new supply of coins financed mercenary armies to fight the Swedes (Kreem 2001; Ingvardson *et al.* 2022).

The 1486 voyage was Hans' first recorded visit to the Norwegian part of his realm after his 1483 coronation in Trondheim/Nidaros. It was a major summer-long excursion, and it provides an apt case study for how Hans employed his new ship as a floating castle. *Gribshunden* was the central site for royal administration functions. Historical sources record that when the king travelled, his baggage train included 'chancellery chests' containing documents necessary for his administration of the country. 'Writing rooms' were always established when the king temporarily settled into a castle or nobleman's manor house to permit the king and his administrators to conduct the business of the state. There must have been similar areas set aside in the ship when Hans was at sea. Surviving letters show that Hans maintained official correspondence while aboard his flagship (Jorgenson 1884; Etting *et al.* 2019). It may be too much to hope that continued excavation will deliver a chest of correspondence, but maritime archaeological conservators suggest that preservation of some written material may be possible on *Gribshunden*.²

***Gribshunden* and the world of the nobility: foodways and art**

Gribshunden was the physical political instrument for Hans to show the flag throughout his kingdom. The ship provided the mobility necessary for the king to appear off any coastal city, secure in his own redoubt. Upon arrival in Bergen in 1486 (and again in 1491), the impressive ship provided a base for negotiating economic and trade policies with Hanse merchants. The ship was also a locus for strengthening social bonds among the aristocratic classes and clergy. It accommodated and fed several bishops and noblemen, exactly as would be expected from a castle. At the same time, the ship reinforced stratification within the social ranks. Access to this space was limited to those invited by the king, and not all who accompanied the king to Norway would have been onboard his ship. A who's-who of the powerful in Denmark sailed in a fleet alongside the new ship: 644 nobles and clergy. Some of these men were directed to travel on the king's own ship, while others had to provide their own means of transport, along with the provisions for their retinues (Wegener 1864). This was the accepted routine for royal voyages, including the 1495 sojourn to Kalmar.

The *Gribshunden* excavation provides direct evidence of how food and foodways were utilised in the Mediaeval construction of social status. In 2019, the wreck relinquished a cask containing the skates and some bones from a sturgeon. The fish was probably caught locally; ancient DNA analysis reveals that it was *Acipenser oxyrinchus*, the species native to the Baltic Sea. Butchering marks on the remains indicate the two-metre-long fish was chopped into several sections. In Mediaeval Denmark, sturgeon was a species reserved solely for the king, and poaching was a capital offense. Presentation and consumption of this fish

on *Gribshunden* or in Kalmar would have been a visible example of the king's privilege and authority (Macheridis *et al.* 2020).

Another archaeological example of prestigious foodstuffs on *Gribshunden* comes from the spices and confections recovered in 2021: saffron, ginger, clove, pepper, almonds and other exotic and expensive delicacies. Hans' accounting records from 1487 show that he spent large amounts of money on these food categories, including 36 marks for saffron (Wegener 1864; Larsson and Foley 2023). Spices like these were available around the Baltic in some quantities from at least the middle of the fourteenth century, but they were not widely consumed (Sillasoo *et al.* 2007). The spices on *Gribshunden* show the opulence of the highest elite. Feasting was an essential, compulsory part of major political events, such as coronations. In the process of making treaties, it was mandatory. For example, in 1493, Hans sent an envoy to Moscow to broker a treaty with Ivan III. Russian chronicles note the tsar 'honoured' this envoy by inviting him to dine in his presence (Pape 2022). In England, surviving documents describe the extravagant menus served to celebrate the 1527 treaty between Henry VIII and the king of France (Lehmann 2018). The amount of spices recovered from *Gribshunden* would not be enough for the lavish days-long feasting described in the English documents, but larger quantities may have been conveyed on other ships in the fleet. The spices from the 1495 wreck were not enclosed in any apparent containers, but the observable discrete concentrations of saffron may have been wrapped in light textiles or even paper. Gift-giving is a long-standing method of building social capital (Woolgar 2011). These individual allotments of spices might have been intended as gifts to members of any of the Nordic Councils.

Feasting, gambling and gaming, gift-giving and displays of martial prowess surely would have been activities conducted during the Kalmar summit. Hunting, too, might have been pursued by the participants. *Gribshunden* presents some evidence to support this. The 2021 excavation trench produced a number of crossbows and accessories for them, including several arrows of different designs (Foley 2022). Some of these are interpreted as bolts for hunting. While any crossbow could be used for game, some of the most elaborately decorated Mediaeval crossbows in museum collections were the property of princes and used exclusively for hunting. The tillers of these crossbows were richly inlaid and decorated, and their composite prods were often covered with birch bark embossed with patterns and repeating designs. Finds from *Gribshunden* include two birch bark panels measuring 330 × 110 mm, and pressure-printed with identical motifs.³ The entire motif has not yet been discerned, but floral elements swirl around a unicorn, and several wild animals and birds adorn the perimeters of the panels (Figure 10.6). These panels were recovered from a locus at the edge of the

² Personal correspondence, conservator Max Jahrehorn, Oxider, Kalmar, Sweden, 11 May 2023.

³ At the time of writing this manuscript, the panels have only just been delivered from conservation. A detailed study of them is now in progress.



Figure 10.6. The unicorn embossed/printed on two identical birch bark panels with floral and mythical animal motifs recovered from *Gribshunden* in 2021. Image by Åke Nilsson, Blekinge Museum.

2021 trench. If excavation were to resume at that area, we speculate that other elements of a hunting crossbow may be present. The elaborate decoration of this weapon is an indication of the visual world in which the Nordic nobility lived. While the stone walls of extant castles in the region are largely muted, stripped of their adornments, the finds emerging from *Gribshunden* provide hints for recreating those environments with *barometerobjekte*.

Conclusion: The future of *Gribshunden* studies

Where does the study of *Gribshunden* as a floating castle go next? The ship can be compared profitably to land castles of the late fifteenth century, particularly the well-preserved stately fortress Glimmingehus. This castle was built in 1499 in Skåne, a region of southern Sweden which at the time was Danish territory. Glimmingehus is considered the best-preserved Mediaeval castle in Sweden (Nilsson 1999; Ödman 2004; Hansson 2009, 2016). It is ripe for comparison to *Gribshunden* because the nobleman who commissioned the structure was Jens Holgersen Ulfstand, King Hans' righthand man. Direct connections existed between Glimmingehus and *Gribshunden*, as Ulfstand likely sailed on the ship and certainly would have been aboard during his installation in Visborg castle

on Gotland in 1487. Within his Scanian castle, a ship resembling *Gribshunden* is etched into the wall of the chamber reserved for the lord of the manor.

Overall, the spatial layout of the castle is similar to that of the ship. The lowest levels of the castle held the kitchen and storage spaces. This is analogous to the hold of the ship, in which the multitude of provisions casks have been identified. *Gribshunden*'s galley has not yet been exposed, but the copious amounts of firewood encountered in the 2019 and 2021 interventions suggest that it is located slightly forward of the areas excavated to date. This would correspond to the location of the galley in the *Mary Rose* (Marsden 2009). Slit windows in Glimmingehus' foundation wall have rebates on either side, interpreted as sockets for timbers on which artillery was mounted, similar to gunports on a ship. The next higher level of the fortified manor contains a sort of receiving room on one end the castle hall. On the opposite side of a central staircase are the lord's living quarters, featuring the ship etching. The next highest level contains the great hall, suitable for banquets and other large gatherings. Adjacent to this and directly above the lord's quarters are the chambers of the lady of the house. The fourth, uppermost level of Glimmingehus is termed the 'archers' loft'. The

similarity to the forecastle and sterncastle of *Gribshunden* is obvious: on this level, sharpshooters armed with crossbows could snipe at marauders. Above this gallery are the timbers of the roof, which is topped with carved figures at either end, reminiscent of a figurehead on a ship (Figure 10.7).

The similarities between castle and ship extend to the flexible use of private or restricted spaces. In post-Mediaeval seafaring, the captain's quarters were transformed when the ship engaged in battle. That space went from semi-private sanctuary to a common combat arena. The same could happen at Glimmingehus. If a threat emerged, the lord's chamber was transformed into a 'battle scene'. One of the castle's many defensive traps was sprung from this room: hidden firing slits in the walls and overhead chutes for pouring various liquids would turn the central staircase into a killing ground. The division and importance of private spaces varied over time and with circumstance, both onboard the ship and within the castle.

Prominently in the case of King Hans and *Gribshunden*, this new style of warship served the same varied purposes as castles on land, but with the added benefit of high mobility. *Gribshunden* was an administrative, economic, cultural and social centre, all while projecting military power throughout the Nordic region. The ship was Hans' essential instrument to knit together his far-flung realm. He relied on it not only for the hard power of its artillery and men-at-arms, but for subtler soft power manifestations of his authority. As we further develop this comparison between land castles and warships, we will gain new insights into the functions and functioning of the floating castle.

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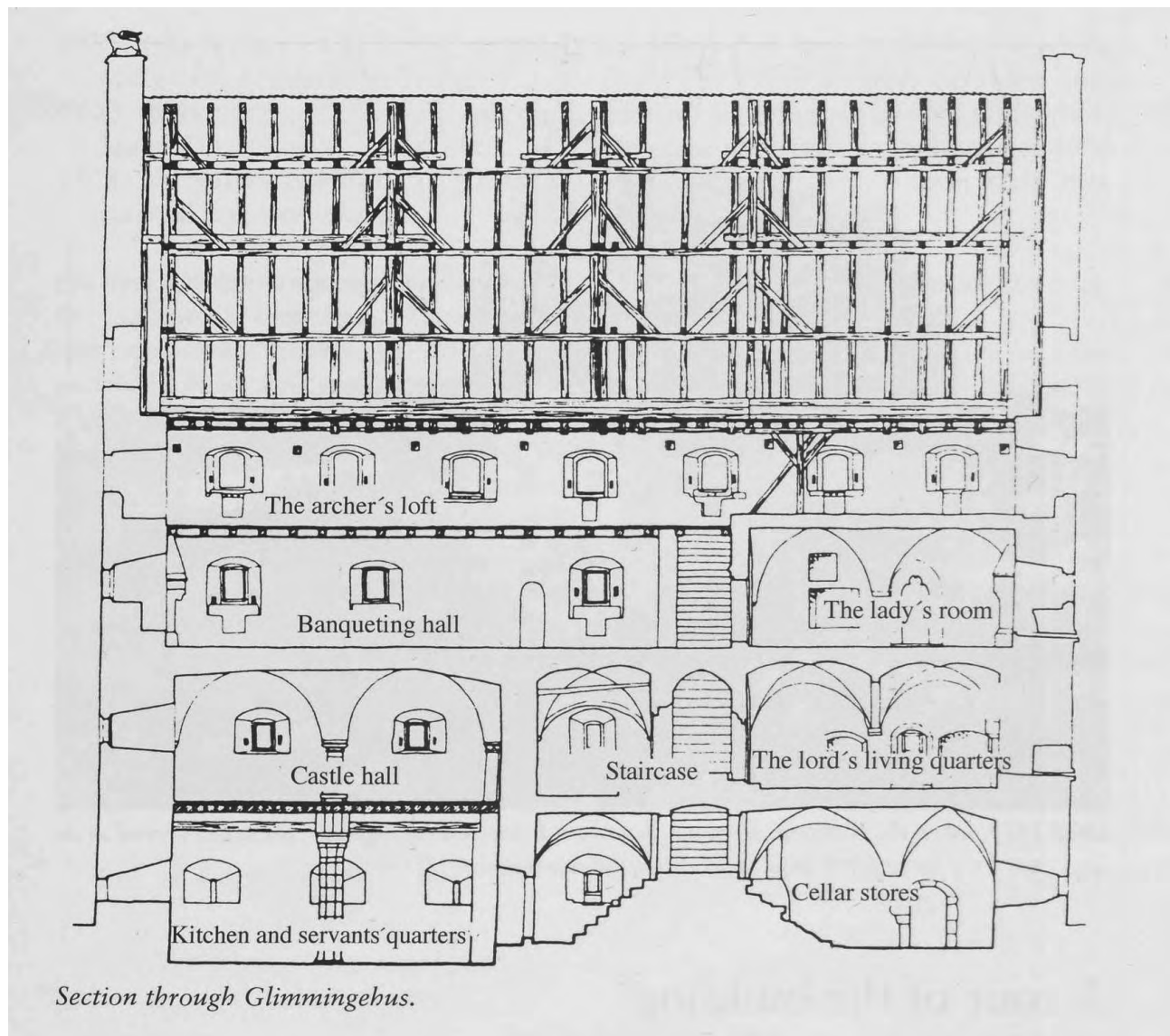


Figure 10.7. Elevation view of Glimmingehus fortified manor, with a floor plan similar in many ways to *Gribshunden*. Image by Agneta Hildebrand, as relabeled and reprinted from Ödman 2004: 16.

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New ideas about an old ship: some thoughts on the construction features of the late sixteenth-century *Scheurrak SO1* shipwreck

Hendrik Lettany

Abstract: The *Scheurrak SO1* shipwreck has become known in nautical archaeology as the flagship site of the ‘Double Dutch’ discourse. Discovered off the coast of Texel (The Netherlands) in 1984, the site delivered much new information about Dutch shipbuilding techniques in the early modern period. One of the peculiarities of the shipwreck was the presence of a double layer of hull planking. Thijs Maarleveld (1994) assessed the building sequence of this construction feature and concluded that, for a brief moment in time at the turn of the seventeenth century, Dutch shipbuilders built larger seagoing ships with a double layer of planking. This was considered necessary since Dutch carvel ships were built in the ‘Dutch flush’ tradition, to which a strong, self-carrying hull was essential. Although Maarleveld’s paper became influential in the discourse on early modern Dutch shipbuilding, further details on the construction of the *Scheurrak SO1* shipwreck were never published. Preliminary results of the (re)assessment of *Scheurrak SO1*’s construction features reveal an image which deviates from earlier observations. Embedded within the historiography of Dutch flush shipbuilding, this chapter presents some construction details from *Scheurrak SO1*’s keel and stem which challenge former hypotheses about the ship’s building sequence.

Introduction

Dutch Flush

At the 1982 *International Symposium on Boat and Ship Archaeology* in Stockholm, Richard W. Unger (1985) presented a paper on Dutch shipbuilding technology in the early modern period. Based upon historical research, Unger argued the Dutch building sequence to create flush-planked hulls deviated from other contemporary shipbuilding traditions in Europe. The common understanding up to that point was that in order to create a carvel-built vessel, the frames of the ship needed to be pre-erected. Yet, by studying the now well-known treatise of Nicolaes Witsen (1671) and digging into the written records of French spies who observed the shipbuilding techniques in the Dutch *Noorderkwartier*, he demonstrated that in the seventeenth century, the Dutch built their carvel vessels by first assembling the hull planking. Starting off with assembling the keel, stem and stern, then the first 10 to 12 planking strakes were installed before any timbers were added. The strakes were initially held together by means of temporary cleats, which were removed again once the floor timbers had been fastened. Although the building sequence was quite different from French, English or Iberian carvel vessels, the flush-planked look of the hull would have been quite similar.

Unger was not the first to draw upon the aforementioned sources. Hasslöf (1958, 1963) had used the same material to dispute the dichotomy between shell-first versus frame-first shipbuilding and their association with respectively

clinker and carvel-built hulls as proposed by Hornell (1946: 193–194). Hasslöf too had demonstrated that carvel-built vessels were constructed in a sequence that did not begin by pre-erecting the frames, but rather, with assembling the hull as an empty shell. Other authors soon reached the same conclusion (e.g. Timmermann 1979). Yet, it was Unger’s presentation which sparked the interest of the nautical archaeological community. It led to the further elaboration and verification of his arguments through existing archaeological, historical and iconographical data (e.g. Rieth 1984; Hoving 1988, 1991; Vos 1991a), but it also induced new archaeological surveys (e.g. Maarleveld 1987; Reinders 1987; Green 1991; Oosting 1991).

The different studies identified a number of construction features which have now become diagnostic for identifying the deviating Dutch building method in the archaeological record. Maarleveld (1992) was the first to create a full overview of these features, and coined the term ‘Dutch flush’ to refer to this deviating building tradition. With some additions of later research (Maarleveld *et al.* 1994; Maarleveld 2013), the current diagnostic features for identifying a Dutch Flush construction are:

- The presence of *spijkerpennen*, which are small wooden plugs used to fill the nail holes left by removing the temporary cleats.
- The use of a non-interconnected framing system, since frames were not pre-erected.
- Varying dimensions (both length and scantlings) of individual timbers.