

Connected by water, no matter how far. Viking Age central farms at the Trondheimsfjorden, Norway, as gateways between waterscapes and landscapes

Birgit Maixner

Abstract – During the Viking Age, the Trondheimsfjorden in Central Norway emerges as a hub of maritime communication and exchange, supported by an advanced ship-building technology which offered excellent conditions for water-bound traffic on both local and supra-regional levels. Literary and archaeological sources indicate a high number of central farms situated around the fjord or at waterways leading to it, all of them closely connected by water. This paper explores the role of these central farms as gateways and nodes between waterscapes and landscapes within an amphibious network, exemplified by matters of trade and exchange. By analysing a number of case studies, their locations and resource bases, the partly different functions of these sites within the frames of local and supra-regional exchange networks become obvious. Moreover, new archaeological finds from private metal detecting from recent years indicate that bullion-based trivial transactions seem to have taken place at a large range of littoral farms around the Trondheimsfjorden, and not, as could be expected, only in the most important central farms or a small number of major trading places.

Key words – archaeology; Viking Age; Norway; central farms; waterscapes; archaeological waterscapes; regional trade; exchange and communication; metal-detector finds; maritime cultural landscape; EAA annual meeting 2019

Titel – Durch Wasser verbunden. Wikingerzeitliche Großhöfe am Trondheimsfjord, Norwegen, als Tore und Verknüpfungspunkte zwischen Wasser- und Landwelten

Zusammenfassung – Der Trondheimsfjord in Mittelnorwegen präsentiert sich während der Wikingerzeit als eine Drehscheibe für maritime Kommunikation und Warenaustausch, unterstützt durch eine hochentwickelte Schiffsbautechnologie, welche exzellente Voraussetzungen sowohl für den lokalen als auch den überregionalen Verkehr auf dem Wasser bot. Schriftliche und archäologische Quellen bezeugen eine große Anzahl am Wasser gelegener Großhöfe um den Fjord herum, welche auf dem Wasserweg eng miteinander verbunden waren. Der vorliegende Artikel untersucht die Rolle dieser Großhöfe als Tore und Verknüpfungspunkte zwischen Wasser- und Landwelten innerhalb eines amphibischen Netzwerkes am Beispiel von Handel und Warenaustausch. Die Untersuchung einer Reihe von Fallbeispielen, ihrer Lage und Ressourcengrundlage macht deutlich, dass die Großhöfe teilweise unterschiedliche Funktionen im Rahmen ihrer lokalen und überregionalen Handelsnetzwerke erfüllten. Darüber hinaus deutet ein neues Quellenmaterial, bestehend aus Metalldetektorfunden der letzten Jahre, darauf hin, dass alltägliche Transaktionen mit abgewogenem Silber als Zahlungsmittel in den Strandbereichen einer großen Anzahl ufernaher Höfe entlang des Trondheimsfjords stattfanden, und nicht, wie hätte erwartet werden können, nur im Umfeld größerer Höfe oder an wenigen großen Handelsplätzen.

Schlüsselwörter – Archäologie; Wikingerzeit; Norwegen; Großhöfe; Wasserschaften; archäologische Wasserwelten; regionaler Handel; Austausch und Kommunikation; Metalldetektor-Funde; maritime Kulturlandschaft; EAA Jahrestagung 2019

Introduction

Archaeological waterscapes and their relationship to the surrounding landscapes were the main focus of the session “*So Close, No Matter How Far? Sketching the Relationship between Water- and Landscapes across Europe*” at the 25th Annual Meeting of the *European Association of Archaeologists* (EAA) in Bern 2019. This article will investigate the Viking Age central farms at the Trondheimsfjorden, Norway, in the context of their maritime network and their capacity as gateways between waterscapes and landscapes.

The Trondheimsfjorden is situated in Central Norway in a strategically important position. Similar to a miniature version of the Mediterranean Sea, the Trondheimsfjorden widens from a narrow inlet to a width of 13 km and stretches 130 km into the inland, structured by branches, islands and es-

tuaries. The modern word “*fjord*” is deduced from Old Norse “*ffjörðr*”, which derives from the verb “*fara*”, meaning “*to move, to travel*”. Thus, from a semiotic perspective, the word emphasises the fjord as those part of the landscape, where it was possible or most convenient to move and travel. In this way, the Norwegian fjords are characteristic for one of the session’s central phenomenon, namely that water does not separate; it connects.

From the point of traffic-geography, the fjord was of central importance because of several reasons. First, because it connected with the sea-borne trading route along the coastline of Atlantic Norway, in Old Norse called *Norðvegr*, “*The Northern Way*” (Fig. 1). Second, because several river and other water systems from various directions drained into the Trondheimsfjorden: the rivers Orkla, Gaula and Nidelva from the south and the rivers Stjørdalselva, Verdalselva and Byaelva



Fig. 1 Map showing the transport topography of the Trondheimsfjorden and the sites used as case studies. Illustration: Birgit Maixner.

from the east. Moreover, the isthmus Namdalseid linked the Trondheimsfjorden with the Namsenfjorden to the north. Throughout times, these waterways and river valleys were important routes of transport and communication. Third, because three of these waterways and large east-west going valleys, namely the Nidelva, Stjørdalselva and Verdalselva, connected the Trondheimsfjorden with central Sweden. In this way, the Trondheimsfjorden constituted an important junction for long-distance traffic into several directions. Especially the routes eastwards to the Storsjön area in Northern Sweden and south-eastwards to the Siljan and Mälaren area in Central Sweden were of great importance. One had to travel far southwards to find similar passages eastwards.

The landscape around the Trondheimsfjorden is structured by diametrical preconditions for settlement and economy. On the one hand, marine deposits, till and overbank sediments create convenient conditions for agriculture. The lowlands south and east of the fjord are among the best agricultural areas in Norway. On the other hand, exposed bedrock, peat and bog, which are less suitable for farming, dominate large areas. However, these outfield areas were rich in other resources, such as iron, whetstone, soapstone,

antlers and skin, all of which were commodities in demand in Western Europe in the Viking Age.

Thus, in the Viking Age, the landscape around the Trondheimsfjorden seems primarily to have consisted of elongated settlement areas along the river valleys and small settlement units at the coast. The latter were normally separated from each other by large outfield areas. With some exceptions, road building between the settlement units did not take place prior to the modern era. Consequently, the Trondheimsfjorden formed the most important traffic artery in the region. The different settlement areas around the fjord were closely connected by water, supported by the advanced ship-building technology of the Viking Age, which offered excellent conditions for water-bound traffic. Beside large ships, also small rowboats were in use in the Viking Age, such as illustrated by the *færing*, a boat with two pairs of oars, from the 9th century Gokstad burial in south-east Norway (cf. CHRISTENSEN, 1959). The speed of small rowboats was heavily affected by wind, waves, weather conditions and the number and practice of the oarsmen. Experiments with reconstructions of small pre-modern Norwegian rowboats showed a cruising speed of 4-5 knots, which means that one could cover a distance of 7-9 km per hour with these boats (SÆTHER & ELDJARN, 2002). Literary sources contain numerous references to the ship as the common means of transport in Viking Age Trøndelag and suggest that the wealthiest coastal farms possessed even larger rowing boats. *The Seperate Saga of St. Olaf*, chapter 38 (UNGER, 1868, 246), for instance, describes how King Olaf II, when he stayed in the area of the Korsfjorden (a southern running branch of the Trondheimsfjorden) and was in a need of ships, got hold of three rowing boats with twenty seats ("20-sesse") each, just from the three neighbouring farms Gelmin, Vigg and Öngrum (Fig. 2). Compared with other Scandinavian warships of the 9th to 11th centuries, e.g. *Skuldelev 5* with a length of about 17 metres and 26 seats, the specification "twenty seats" might indicate a length of about 14 metres for the aforementioned boats from the farms at the Korsfjorden. In comparison, the 30 m long longship *Hedeby 1*, obviously a "royal" ship suited for high-speed sailing and rowing, probably had thirty seats (CRUMLIN-PEDERSEN, 1997, 201-202).

Moreover, 24 recorded Viking Age boat graves from the area around the Trondheimsfjorden testify both the significance and everyday occurrence of boats and ships in the society of that time. Michael Müller-Wille's (1968/69, 175-178) register of boat-graves in the Trøndelag gives an indication of an average length of 5-9 m for these boats. However,

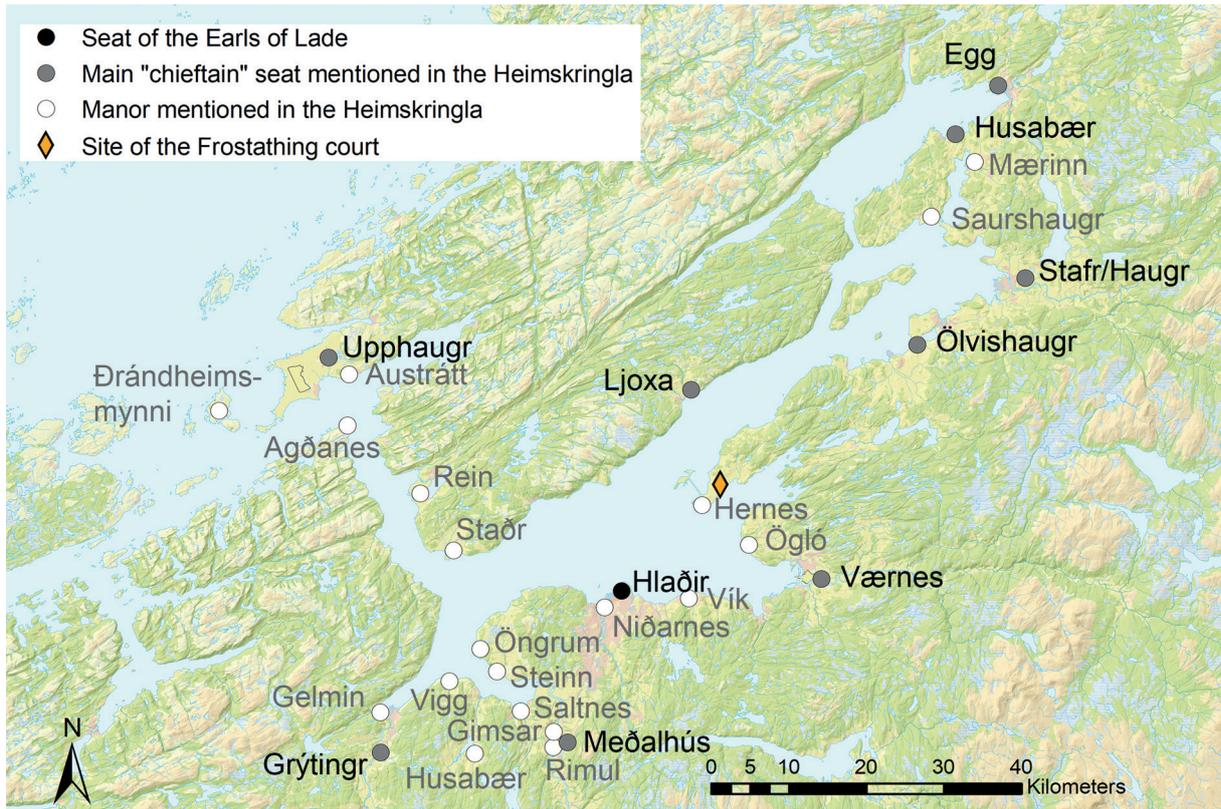


Fig. 2 Map showing the location the Frostathing court site and of "central farms" mentioned in the *Heimskringla*. Illustration: Birgit Maixner.

even larger boats, of the size of a "20-sesse", occur in some of the graves around the Trondheimsfjorden.

Medieval literary sources have traditionally constituted an important source material for the reconstruction of the historical conditions of the area around the Trondheimsfjorden in the Viking Age. Indeed, the value of this early 13th century source material for the reconstruction of affairs of the Viking Age is limited and has been under heated discussion the last decades (cf. BAGGE, 1992). However, even if their historical authenticity is limited, they might give information about the functional and organisational aspects of a landscape that can point back in time (RØSKAFT, 2003, 24-25). In this article, the medieval literary sources will mainly be used for illustrating and identifying "central farms", which means the most important and wealthy farms in the area. One may question the literary sources' informative value and reliability in this respect. However, there are other kinds of sources which support the literary sources' overall picture of central farms in the Trøndelag. One of them are late medieval registers over land-rent ("landskyld"), which originally constituted the yearly fees which a tenant farmer

had to pay to the proprietor (DYBDAHL, 1996). The land-rent was usually paid in agricultural products, such as butter, grain, fish etc., and is in the Trøndelag most often calculated in terms of buckets of butter. From the 13th century on, the land rent gradually developed as a standard of value even for freehold farms. The amount of the land-rent varied between different regions around the Trondheimsfjorden, and was generally higher in the inner part of the Trondheimsfjorden than at the coast. The average amount of the land-rent varied between one or two buckets of butter (DYBDAHL, 1989, 52-54), whereas the highest land-rent is twelve buckets of butter, which is attached to the farm of Auran on the Skatval peninsula (DYBDAHL, 1996). Thus, an amount of the land-rent which is substantially higher than the average, can be used to identify the largest and wealthiest farms in the area in the late medieval period. Another kind of sources which can support the overall picture of central farms in the Trøndelag are medieval churches and church sites. As pointed out by Jan Brendalsmo, the earliest churches in Norway were usually attached to the wealthiest and most important farms within a district (BREN-

DALSMO, 2003, 241). As will be shown in the following, there is a considerable overlap between the central farms mentioned in the literary sources and the main churches of the Middle Age in the area under investigation.

In contrast to the literary and archival sources, which indicate a large number of Viking and medieval central farm sites at the Trondheimsfjorden, so far only few farm sites or houses from that period have been investigated by conventional archaeological excavations in the area (cf. SAUVAGE & MOKKELBOST, 2017, 277-280): Viklem (BERGLUND, 1997, 144-146) and Vik (FRANSSON, 2019, 337-338) on the peninsula of Ørland, Viggja (BERGLUND, 1997, 147-148) and Steine (EIDSHAUG & SAUVAGE, 2018) at the Korsfjorden, and Nedre Humlehaugen and Vik nearby present-day Ranheim east of Trondheim. The latter, the investigations at Vik, resulted in the excavation of eight more or less fragmented longhouses from the Viking Age. A small number of finds, containing a Frankish and a Carolingian coin, a piece of hack-silver, two dirham fragments and a small number of weights indicate trade and exchange at the site (GRØNNESBY & HEEN-PETTERSEN, 2015). According to the amount of its late medieval land-rent which was about ten buckets of butter (DYBDAHL, 1996), Vik was one of the wealthiest farms in the area around the Trondheimsfjorden.

Based on the literary sources, historians assume that, at some point in the Scandinavian Iron Age, the population in the area around the Trondheimsfjorden, the Trøndelag, formed law areas with regional assemblies (*Ping*) as their central bodies. The Frostathing court on the peninsula of Frosta is regarded not only as the oldest assembly site of the region, but also as the one with the highest authority in the same region (SVEEAS ANDERSEN, 1977, 60-61). Due to its central location in the fjord, the court site was easily accessible by water from all directions (Fig. 2). In *King Olaf Tryggvason's Saga*, chapter 72 (UNGER, 1868, 181), the formulation *to let the announcement of the thing go over the whole fjord* ("lét [...] fara þingboð um allan fjörðinn") is used, which illustrates the significance of the fjord as communication line. Moreover, the courses of the borders of the eight legislative districts (*fylkir*) into which the þrændalög (Trøndelag) law area was divided underline that, at the time, the fjord was the main traffic artery and that it connected the surrounding. This is evident by the fact that most of the legislative districts ranged over territories on both banks of the fjord (SANDNES, 1971, 11, 19). Today, traffic and transportation take place mostly by road and the

fjord and its arms are seen primarily as barriers. As a result, the Trondheimsfjorden constitutes the borders of most of the today's municipalities.

The present-day's conception of the Viking Age settlement and society around the Trondheimsfjorden is based primarily on presentations by historians adapted from medieval literary sources. An exception is the historian Merete Røskaf's study from 2003 on central farms, which also includes archaeological and onomastic sources. In the narratives of the medieval Icelandic Sagas, which were mainly written down in the 13th century, especially in Snorri Sturlusons' historical work *Heimskringla* (UNGER, 1868), the Viking Age society around the Trondheimsfjorden is described as affected by a decentralised power structure: A couple of equal "*höfðingjar*", to be translated as "*big farmers*" or "*chieftains*", are said to have ruled over their own small territories. The *Heimskringla* mentions several seats of these local "*chieftains*" in the vicinity of the Trondheimsfjorden by name (Fig. 2): Grýtingr (Gryting) at the river Orkla, Meðalhus (Melhus) at the river Gaula, Værnes at the river Stjørdalselva, Stafr at the river Verdalselva, and Egg (Egge) at the river Byaelva; Ölvishaugr (Alstadhaug), Ljoxa (Leksvik) and Husabær (Hustad) at the Trondheimsfjorden; and Upphaug (Opphaug) near the coast on the peninsula of Fosen (UNGER, 1868, 96; SCHJØTT & MAGERØY, 1979, 151, 174). Additionally, the site of Hlaðir (Lade) ("*loading/storing place*") at the river Nidelva, nearby the present-day town of Trondheim, is said to have been the most important political centre in the area in the Viking Age. It was the seat of the Earls of Lade, a dynasty that appeared in the 9th century, and seems to have kept a superior political position in the area until the beginning of the 11th century. According to the medieval historiography, the "*höfðingjar*" in the Trøndelag were well organised and acted in a unified manner against efforts from outside to achieve central control over the area around the Trondheimsfjorden. This medieval depiction of the political conditions of Viking Age Trøndelag influenced the views of Norwegian historians in the following centuries greatly, and its impact can still be found in modern historiography (RØSKAFT, 2003, 188).

In *The Saga of Håkon the Good*, chapter 19 (UNGER, 1868, 96), eight "*höfðingjar*" in the ancient Trøndelag are mentioned as especially powerful (Fig. 2). The locations of their seats are exclusively maritime, most of which are estuarine, the rest littoral. However, not only the historical but also the archaeological sources illustrate a number of additional, obviously significant major farms in

both ancient Trøndelag and Nordmøre. Together with the “chieftain seats” known from literary sources, they appear as located one by one like a string of pearls around the Trondheimsfjorden (Fig. 2). Across the fjord, on the waterway, the distances between the central farms within one area could be quite short. For instance, the sailing/rowing distances between the individual central farms Gelmin, Vigg, Öngrum, Steinn and Saltnes in the area of the Korsfjorden were between five and twenty kilometres, which means a journey time of 1-2 hours. In the following, the entity of “chieftains farms” and major farms will be called “central farms”. A number of these central farms became sites of the main churches in the Middle Ages, namely Gryting, Melhus, Steine, Lade, Værnes, Alstahug, Haug, Sakshaug and Mære (Brendal Smo, 2003, 236). Many of them as well as some others are even documented as crown land in the Middle Ages: Viggja, Melhus, Lade, Steine, Værnes, Hernes, Alstahug, Egge, Mære, Sakshaug and Haug (Røskaft, 2003, 160). Looking at the amounts of the medieval land-rents calculated in terms of buckets of butter (Dybdahl, 1996, 19-86), some of the farms indicated as central ones by the literary sources stand out as extremely wealthy: Gimsan (11 buckets), Vik (10 buckets), Hlaðir (Lade) (8 buckets), Saurshaug (Sakshaug) (8 buckets), Værnes (7 buckets), Egg (Egge) (6 buckets), Mærinn (Mære) (6 buckets), Rein (6 buckets), Saltnes (6 buckets), Rimul (6 buckets), Meðalhus (Melhus) (5 buckets) and Ölvishaugr (Alstadhaug) (4 buckets). On the other hand, the land-rent registers in combination with topography, archaeological and onomastic sources indicate a range of central farms at the Trondheimsfjorden which are not even mentioned in the literary sources, e.g. Vinnan at Mosvik (8 buckets), Høyem and Mule on the Byneset peninsula (9 and 8 buckets), Rykkja on the Skatval peninsula (11 buckets), Hindrem in Indre Fosen (8 buckets), Moksnes and Vangberg on the Frosta peninsula (10 and 9 buckets), and Trones at Verdal (8 buckets).

In contrast to some other large sea arms in Scandinavia, where there may have been one dominant Viking trading place each (a so-called emporium, such as Hedeby at the inlet Schlei, Kaupang at the Oslofjorden and Birka at the Lake Mälaren), so far no similar place is known from the Trondheimsfjorden. King Øystein’s Harbour at Agdenes, at the inlet to the Trondheimsfjorden, has been suggested as a current candidate (Christopher, 1991, 165-166). Røskaft (2003, 176) and Baug, Skre, Heldal & Jansen (2018) emphasised the importance of Hlaðir (Lade) as a storing place

in a long-distance network. Another suggestion was Steinkjer near the recorded “chieftain seat” Egg at the mouth of the river Byaelva (Christopher, 1991, 166). In addition, the idea of the existence of two major estuarine trading places at the Trondheimsfjorden, one at the inner fjord in the area of Steinkjer, the other at the outer fjord in the area of Stjørdal, has been discussed (Grønnesby & Ellingsen, 2012, 43). In contrast to these centralist attempts, Stylegar (2009, 88) proposed the model of a “productive region” for the Trøndelag, assuming that trading took place in several environments associated with magnates.

The entity of prosperous Viking Age central farms around the Trondheimsfjorden formed part of a maritime cultural landscape, which so far has attracted little attention from archaeologists. Furthermore, due to the increasing activity of private metal detectorists in parts of the Trøndelag since 2014, a new source material, consisting of stray finds from the ploughed soil, is available for research. This allows for a better understanding of the character of activities attached to maritime central farms and opens up new perspectives on their roles as gateways between waterscapes and landscapes within an amphibious network. However, accessing former, ephemeral maritime encounters is not an easy task as archaeologically visible evidence is needed in order to materialise these encounters. For this reason, the matters of trade and exchange were chosen to enlighten the transitions between waterscapes and landscapes. In Viking Age archaeology, exchange is closely related to and almost synonymous with matters of maritime mobility, communication and networks (cf. Arthur & Sindbæk, 2007, 307). Payment in goods, which is regarded as the most common payment method in both the towns and most rural areas of Viking Age Scandinavia (Skre, 2007, 343), might indeed be difficult to detect archaeologically. In contrast, the bullion-based exchange-system, which was also practised in large parts of Viking Scandinavia, using both fragmented Islamic and Western coins, will generally be easier to trace in the archaeological records.

The two main questions for consideration in this article are:

1. What evidence do the archaeological records provide about the role and functions of central farms at the Trondheimsfjorden within the context of regional and long-distance Viking Age trade networks? And,
2. What conclusions can be drawn about the functioning of the underlying amphibious network?

To address these questions, the article will follow a binational methodological approach. First, a selection of three central farm sites from the vicinity of the Trondheimsfjorden will be explored with regard to their topography, archaeological and historical sources, and assumable functions.¹ Then, the article seeks to present an overview of several find groups which traditionally are associated with exchange:

- a) the appearance of precious metal hoards,
- b) the distribution of stray finds of Viking Age coins, non-numismatic silver and balances, and
- c) the distribution of Carolingian metalwork with plant ornament as a proxy for imported foreign goods, which seems to have had a long secondary re-use in Scandinavia (cf. LENNARTSSON, 1997/98).

Case studies 1-3: Central farm sites around the Trondheimsfjorden

As mentioned above, the literary sources refer to a high number of central farms in the area around the Trondheimsfjorden (Fig. 2). An additional number of such farms are merely indicated by the combination of archaeological records and topography. However, not all of these farm sites are suitable as case studies in order to answer the pre-assigned research questions. This is due to several reasons:

- a) the surrounding landscape may have been altered by human impact and archaeological material may have been lost or become inaccessible due to modern development pressure,
- b) geological phenomenon such as landslides or changes of stream courses may have destroyed potential cultural layers, and
- c) significant archaeological source material might be lacking due to the absence of comprehensive investigations. Especially the availability of eligible archaeological records is a central precondition for a site's suitability as a case study.

Taking these aspects into account, three sites were selected for a closer examination:

1. the farm site Storfosna on the homonymous island in the mouth of the Trondheimsfjorden,
2. the farm site Vigg (Viggja) at the Korsfjorden, and
3. the farm site Auran on a prominent headland, which lies quite centrally in the Trondheimsfjorden.

All these farms were church sites in the Middle Ages. Based on the medieval land-rents calculated in terms of buckets of butter (DYBDAHL, 1996,

19-86), these three farms appear to have been some of the wealthiest, Auran even being the wealthiest farm in the Trøndelag overall, with extremely high land-rents of twelve (Auran), ten (Viggja) and eight (Storfosna) buckets of butter.

Case study 1: Storfosna

The island of Storfosna is located to the west of the mouth of the Trondheimsfjorden, in a strategic position with regard to both the route along the Norwegian coast and the one into the Trondheimsfjorden. The modern place name derives from the site's Old Norse place name *Fólgsn* ("hiding place") (SANDNES & STEMCHAUG, 1997, 156) and references the shape of the island, which forms a protected natural harbour with two passages, which would have been easy to defend (Fig. 3). All preserved manuscripts of *The Separate Saga of St. Olaf*, chapter 148, mention a stopping place in this area without naming it. This stopping place, which is described as "*við Drándheims mynni*" (at the mouth of the Trondheimsfjorden) (UNGER, 1868, 396), could refer to Storfosna. However, in medieval sources such as the *Haraldsson Saga* (UNGER, 1868, 731-732), the designation *Drándheimsmynni* was also used for the adjacent island, Kråkvåg, which is situated south-eastern of Storfosna. Just like Storfosna, Kråkvåg disposed of a natural harbour, albeit it was of a much smaller scale and less protected. In a medieval distance table, *Krakowaadh* (*som ær Drondheims minne*) ("*Kråkvåg, which is the entrance of the Trondheimsfjorden*") is mentioned as one of the most important stopping places along the coastal route between Bergen and Vågan/Lofoten. Consequently, it must have constituted a quite fundamental harbour and anchorage ground (MORCKEN, 1978, 14-16). However, it is possible, that the name Kråkvåg targeted the island of Storfosna as well. Compared to the island of Kråkvåg, Storfosna had the larger and more protected harbour and, in contrast to Kråkvåg, exhibited signs of wealthy cultural milieus from the Scandinavian Iron Age onwards, as is indicated by a richly furnished female grave find from the Merovingian period, several grave mounds, a place name indicating a fortification beside one of the passages into the harbour, and a 13th-century church site. Moreover, it is probable that Storfosna was even crown land in the Middle Ages (BRENDALSMO, 2016a, 37). In *Sverris Saga* from the 13th century, Storfosna is mentioned as the seat of a magnate and is described as a temporary anchorage ground for a fleet during the civil war era in the 12th and 13th century (STORM & BUGGE, 1914, 72, 166).

The medieval church is not preserved, but its site could be located on the courtyard of the mod-

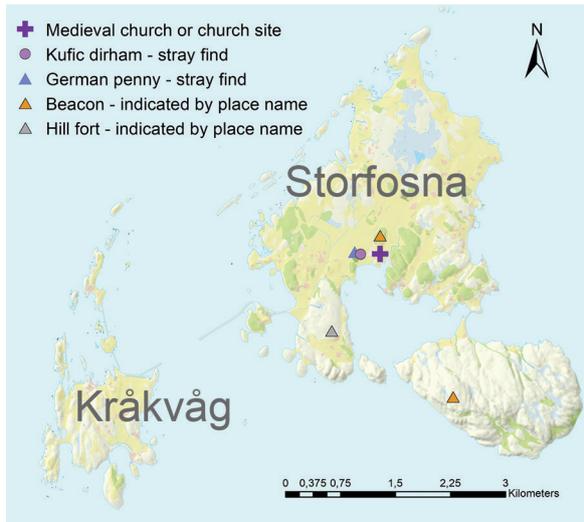


Fig. 3 Map of the islands Storfosna and Kråkvåg. Illustration: Birgit Maixner.

ern estate Storfosen Gods (Brendalsmo, 2016a, 37). The earliest churches in Norway were usually erected at the most important and wealthiest farms within a district (Brendalsmo, 2003, 241). Therefore, in all probability, the medieval, and probable even the Viking Age farmyard might have been located in the same area as the modern one.

The modern estate is situated at the bottom of the natural protected harbour at a shallow, sandy bay (Fig. 3). Around the bay, the aforementioned grave mounds are grouped. In 2018, private metal detecting resulted in the discovery of two Viking Age finds about 200 m above the present shoreline of the bay: a pierced Sachsenpfennig with a suspension loop, minted in 1000-1030 AD, and an Arabic silver coin (dirham).

Case study 2: Viggja (Vigg in Old Norse)

The farm Vigg was located in the area of the modern village Viggja at the Korsfjorden (Fig. 2), which branches into two arms, supplied by the rivers Orkla and Gaula. From the perspective of transport-geography, the site of Vigg (henceforth referred to by its modern name) was also situated in a protected and strategically important position. Due to its location on the top of a drawn-out headland, Viggja appears to be situated quite centrally in this branch of the Trondheimsfjorden and easily accessible. The bay of Viggja holds a long, straight coastline, which rises gently towards the inland (Fig. 4). Thus, the beach of Viggja must have offered convenient preconditions for the landing of ships on the beach.

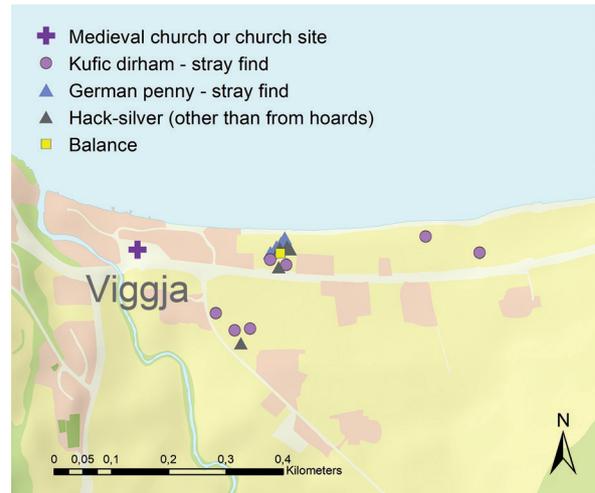


Fig. 4 Map of the site of the central farm of Vigg (Viggja). Illustration: Birgit Maixner.

The bay of Viggja is situated almost centrally between the outlets of the rivers Orkla and Gaula. In the Viking Age, the hinterland of the river valleys Orkdalen and Gauldalen seems to have dominated the extensive iron production in the Trøndelag (Stenvik, 2015, 88-89). The number of furnaces for iron production just in the Gaula river valley (Gauldalen) has been estimated to around 300-400 (Stenvik, 1991, 412-413). However, rapids made the rivers Orkla and Gaula almost impassable by boat (Sandnes, 1971, 20) and the conditions for shipping traffic at their outlets might have been challenging due to the low water depth and the sand banks which would shift their position because of the stream. This might have favoured Viggja as the final collection point for the shipping of outfield resources from its broader hinterland and, consequently, as a gateway for long-distance trade.

In the medieval literary sources, two aspects of the site in particular are illustrated:

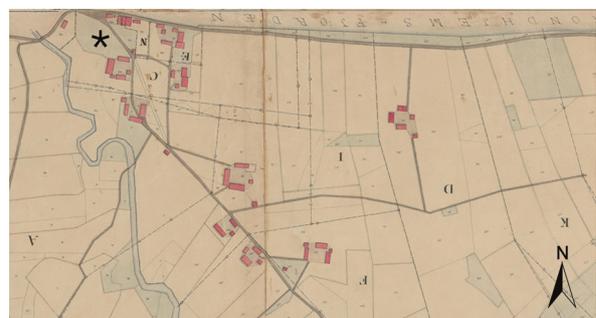


Fig. 5 Cadastral map from 1877, showing the site of Viggja (Sør-Trøndelag Jordskifterett, Jv.kat. S-T 153). The asterisk marks the position of the medieval church site.



Fig. 6 Selection of metal detector finds from Viggja, Skaun. **1** Otto III pfennig (983-1002 AD) T27433. **2** Otto-Adelheid pfennig T26694. **3** Otto I-III pfennig (936-1002 AD) T27432. **4** Abbasid dirham, ca 895 AD, Al-Mutadid be-llah (892-902 AD) (Wasit?) T27427. **5** Abbasid dirham, 800-809 AD, Harun al-Rashid (786-809AD) T26695. **6** Umayyad dirham, 703-750 AD (Wasit) T27413. **7** Part of neck ring or arm ring T27429. **8** Part of neck ring T27434. **9** Part of neck ring T27439. **10** Part of neck ring or arm ring T27428. **11** Scale-pan of a balance T28005. (Photo: 1, 8 Ruth Iren Øien, 2-7, 10 Trond Sverre Skevik, 9 Trond Sverre Kristiansen, 11 Birgit Maixner. © NTNU University Museum). Without scale.

Firstly, Viggja is described as a manor. In *The Seperate Saga of St. Olaf*, chapter 221, written around 1230, Viggja is mentioned as the manor of one of the chieftains who were in opposition to King Olaf II Haraldsson at the Battle of Stiklestad in 1030, *Hrólfr af Viggju* (UNGER, 1868, 478). Viggja also appears in *The Saga of Magnus the Good*, written around 1230; there it is mentioned as one of the estates (*eign*) that were confiscated as a consequence of the Battle of Stiklestad (UNGER, 1868, 526). However, neither in *The Saga of Håkon the Good* nor in *The Saga of Olaf Trygvason* is Viggja listed among the seats of the

most important chieftains in the Trøndelag, in contrast to for instance Meðalhús and Grýtingr at the rivers Gaula and Orkla.

Secondly, Viggja is mentioned as an anchorage ground and as a landing place or harbour. *The Saga of Olaf Trygvason* (UNGER, 1868, 166), written around 1230, mentions that in the 10th century the ships of Haakon Sigurdarson (Haakon Jarl) anchored at Viggja when he attended a banquet at Meðalhús (Melhus) at the Gaula river valley. In another saga of the *Heimskringla*, *The Saga of St. Olaf*, Viggja is, as previously mentioned, referred

to as the home port for a longship with twenty seats (UNGER, 1868, 246).

When the Norwegian historian Gerhard Schøning visited Viggja in the 1770s, he described it as a cluster of seven farms with remains of wooden pavements in the ground; he also mentioned three or four large grave mounds, which lay west off the mouth of the homonymous stream Viggja but are lost today (SCHØNING, 1979, 218). A property map from 1877 (Fig. 5) shows that the rural settlement at that time was concentrated on the eastern side of the stream. In this triangle between the stream and the coast the medieval church of Viggja was also located; however, it had been demolished twenty years earlier (approximately at the location of the asterisk on the map). Moreover, the 19th-century map features a path running parallel to the coastline near the beach and shows that the land along the coastline was divided into parcels, most of them about 30 m wide, but some even wider than this. The parcels and the path running parallel to the coast may evoke associations with the ground view of the emporium Hedeby and the systematic parcelling known from Viking Age settlements such as Ribe.

Occasionally, Viking artefacts, especially weapons, probably from destroyed and overploughed burials, have been unearthed at Viggja. Archaeological rescue excavations in the 1990s and 2000s also uncovered comprehensive settlement structures (BERNHARDT, 2003), some of which were definitely from the Late Viking Age and the Early Middle Ages (BERGLUND, 1997, 147-149).

Since 2015, private metal detecting has yielded several more artefacts from the Viking Age. These were found mainly in the beach zone and on a slope east of the stream Viggja (Fig. 4). Several of the finds are associated with trade, for example, four Ottonian coins from the late 10th and early 11th century, seven Arabic silver coins (dirhams), five weights, a part of a balance, and five pieces of hack-silver (Fig. 6). The earliest dirhams from the site of Viggja, which are also the ones that are the most fragmented, are Umayyad and Abbasid coins, dating to first half of the 8th century (703-750 AD) and the beginning of the 9th century (800-809 AD). Kufic coins could circulate for a long time before they were buried in the ground (SKAARE, 1976, 48) and their degree of fragmentation seems to stand in correlation with the length of their circulation (HÅRDH, 2011, 291). Three dirhams from the site of Viggja were struck after 833 AD, another one was struck around 895 AD, and yet another one around 900 AD.

None of the hitherto recorded dirhams from the coastal site of Viggja are from the 10th century.

The early dirhams at the settlement are in contrast to the evidence of Islamic coins in the hoards of the surrounding area, which were dominated by 10th-century Samanid coins. The same phenomenon has also been observed in other regions of Scandinavia, e.g. in the surroundings of Birka and Uppåkra (cf. HÅRDH, 2011, 289). Around the middle of the 10th century, German pennies began to come into Norway and dominated, together with Anglo-Saxon pennies, the Viking Age hoards from the last quarter of the 10th century and until the end of the Viking period (SKAARE, 1976, 55). The relatively few West European coins in Viggja reflect this development. The youngest coins from the site are German ones, struck in the 10th and in the beginning of the 11th century.

Case study 3: Auran

According to medieval tax registers, the farm of Auran on the Skatval peninsula must have been one of the largest farms in the district of the Trøndelag in the Middle Ages (BRENDALSMO, 2016b, 40). The modern farm of Auran is situated on a southern slope on the top of a peninsula, which lies quite centrally within the Trondheimsfjorden. The combination of a sunny location and soils consisting of marine beach deposits and till created convenient conditions for agriculture. The farm adjacent to Auran conserves a place name which dates to the first half of the first millennium AD, Vinnan, and which has been suggested to denote pastures (SANDNES & STEMCHAUG, 1997, 493-494). Indeed, despite the occurrence of numerous archaeological

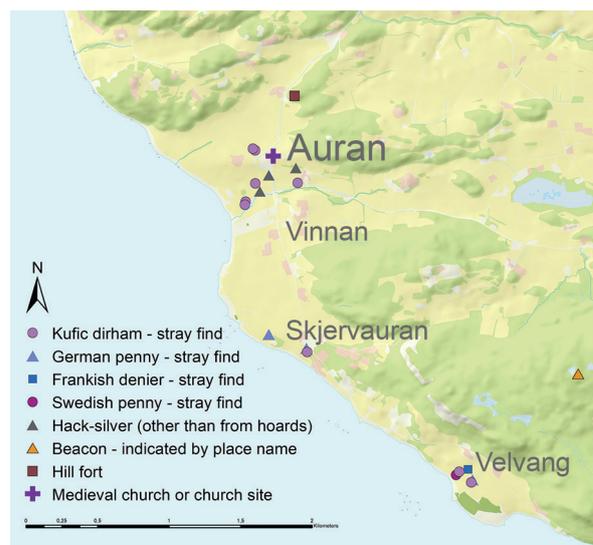


Fig. 7 Map of the site of the assumed central farm of Auran. Illustration: Birgit Maixner.

finds and cultural monuments at the site, no farm with the name Auran is recorded in the Old Norse literary sources. However, the *Sagan af Haraldri konungi gráfeld ok Hakoni jarli* mentions a farm on the Skatval peninsular called Ögló (UNGER, 1868, 114-115), which could be identified with the area of Auran. The place name Ögló seems to denote grassland, which projects into the sea (cf. SANDNES & STEMCHAUG, 1997, 65-66, 291-292). This description would fit the location of Auran on the prominent peninsula quite well and would underline the agricultural qualities of the area. The farms adjacent to Auran, Vinnan and Skjervauran, too, stand out due to their higher-than-average land-rents of five and six buckets of butter in the medieval period (cf. DYBDAHL, 1996).

Stray finds, especially from metal detecting, indicate continuous human activity in the area

around Auran throughout the first millennium AD. The settlement area disperses around a bay, the Vinnabukta, to both sides of a stream, which runs into the fjord (Fig. 7). Auran is protected against the inland by a natural barrier of rocks and outcrops with only some small passages leading through them. On a steep rock beside one of these inlets, a hill-fort of unknown dating is located. The bay appears as almost encircled by graves and grave mounds, at least three of which seem to have contained boat-graves. One of them, which has been excavated and is referred to as the boat grave of Vinnan (MÜLLER-WILLE, 1968/69, 176), contained a 9th century Viking ship of 17 m length.

The present-day farm of Auran consists of a cluster of farms and is situated in a prominent position on a moraine north of the stream. On the grounds of one of these farms, a private medieval



Fig. 8 Selection of metal detector finds from Auran (1-5) and Skjervauran (6-7), Skatval. **1** Drinking horn terminal T27153. **2** Cloisonné brooch T27546. **3** Abbasid (?) dirham (struck later than 833 AD) T27690. **4** Ingot of silver T27737. **5** Cylindrical lead weight T27339.

6 Samanid dirham, c. 980 AD, Nūḥ II ibn Mansūr (976-997 AD), al-Shash (Tashkent, Uzbekistan) T27751. **7** Gothard of Hildesheim pfennig (1022-1038 AD) (Hildesheim) T27701 (Photo: 1, 5 Ole Bjørn Pedersen, 2 Åge Hojem, 3, 4, 6-7 Terje Masterud Hellan. © NTNU University Museum). Without scale.

church site could be located (BRENDALSMO, 2016b, 40); this might indicate that a medieval farm was located nearby. On the adjacent slopes further down the Trondheimsfjorden, private metal detecting yielded Late Viking Age status objects, such as an Urnes-style drinking horn terminal, an Urnes fibula and an Anglo-Saxon/southern Scandinavian cloisonné brooch, as well as indications of trade and craft (Fig. 8). The latter consisted of several weights, a piece of hack-silver, an ingot of silver, and several coins. At the site of Auran itself, six dirhams have been detected so far. Within a distance of 3 km to the south, at the adjacent coast, metal detecting yielded additional Viking Age coins (Fig. 7). At the southern end of the settlement area around Auran, near the present-day farm of Skjervauran, a Samanid dirham from around 989 AD and two German pennies were unearthed (Fig. 8). In addition, further south on the lands around the present-day farm of Velvang, a number of Viking Age coins have also been found since 2019. Velvang, with its name probably arising from the aforementioned Old Norse place name *Vinnan* (“pasture”), also constitutes a large area of about 22 hectares of agricultural land situated at the coast. The Viking Age coins from the site represent a mix of different provenances and span a large period of time. They consist of a denier of Charlemagne, two fragmented dirhams, an Ottonian penny, and a late Viking Age Swedish coin.

Hoards, coins and non-minted silver

Apart from payments in goods, the economy of Viking Age Scandinavia was dominated by weight-money, a bullion-based exchange system. The physical remains of this exchange system are archaeologically visible in the form of precious metal hoards containing hack-silver and fragmented coins as well as stray finds of intentionally fragmented silver coins (especially Arabic dirhams), hack-silver, ingots, weights and balances. According to the stratigraphical records from trading sites and central settlements in Scandinavia, Arabic dirhams were present there as early as the 8th and 9th century (HÅRDH, 2011, 291). In Kaupang, hack-silver was found in contexts dated to around 850, or maybe even one or two decades earlier (HÅRDH, 2007, 114). However, it is not always possible to distinguish whether single finds of pieces of silver, ingots, weights and balances were used as means of payments or whether they were related to metalworking.

Precious metal hoards

From the area around the Trondheimsfjorden, approximately ten Viking Age hoards of precious metal are known (Fig. 9). Only two of them seem to have been mere coin hoards. The largest one of those hoards is a depot at Sandsaunet at the mouth of the river Verdalselva. The hoard of Sandsaunet was scattered across the field and the coins were found over a period of 70 years while working the land. This opens the possibility, that potential non-monetary parts of the hoard may have been overlooked. The majority of the hoard’s 150 silver coins were German and Anglo-Saxon pennies. The coins suggest that the hoard was buried after 1011 (SCREEN, 2013, 21). The hoard of Sandsaunet contained only four Arabic dirhams. By contrast, a second monetary hoard found at Holtan in the river valley Orkdalen contained 65 Arabic dirhams, the youngest of which dates to 949/50 AD (SKAARE, 1976, 164). Islamic coins struck later than 950 AD occur only rarely in Norway (SKAARE, 1976, 48, 55), meaning the hoard of Holtan does not constitute an exception.

The majority of the Viking Age hoards from the area around the Trondheimsfjorden are mixed hoards, containing both monetary and non-monetary precious metal, predominantly silver. The largest of these hoards was excavated on the ground of the medieval town Niðaróss (present-day Trondheim). Niðaróss formed in the 10th century in the

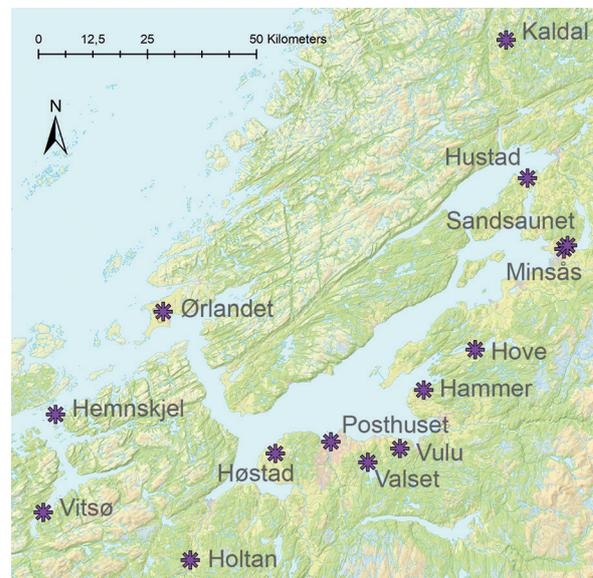


Fig. 9 Map showing the distribution of Viking Age hoards in the vicinity of the Trondheimsfjorden. Ørlandet C5012. Hemnskjel T17195. Vitsø T 24725. Holtan T24724. Høstad T5076. Posthuset T16978. Valsset T1667-9. Vulu T299, C2919-C2928. Hammer T6494. Hove (lost). Minsås (lost). Sandsaunet T 26100. Hustad (lost). Kaldal C1448. Illustration: Birgit Maixner.

area of the Viking Age farm Niðarnes, which is known only from written records. This depot, called Posthusskatten, included at least 964 silver coins, primarily German and Anglo-Saxon pennies, as well as some elaborated pieces of non-numismatic silver, chains and hacksilver, and must have been buried after 1029 AD (SCREEN, 2013, 40-43). Approximately 20 kilometres north of the Trondheimsfjorden, at the modern farm Kaldal at the isthmus Namdalseid, a hoard consisting of about 289 silver coins, again primarily German and Anglo-Saxon pennies, providing a terminus post quem of 1002 AD, and a large amount of hack-silver was discovered in the 19th century (SKAARE, 1976, 170; SCREEN, 2013, 17-18). Both of these Late Viking Age hoards contained only small numbers of Arabic dirhams: the Kaldal hoard had ten specimens; the Posthusskatten eight.

A considerable hoard of silver coins and silver rods is said to have been found at Minsås, at the mouth of the river Verdalselva, located not far from the find-spot of the hoard of Sandsaunet, and near the supposed location(s) of the central farm(s) Stafr/Haugr; however, this hoard was never classified and is now lost (SKAARE, 1976, 169).

The other mixed hoards are considerably smaller. The hoard of Høstad on the Byneset peninsula contained three Arabic dirhams, two neck rings and a rod of silver, and was buried after 944 AD (SKAARE, 1976, 166). At Valset (Torgård) at the lake Jonsvatnet, seven Arabic dirhams and one silver rod were found together and might represent a hoard, which would have been buried after 862 AD (SKAARE, 1976, 165). On the northern part of the peninsula of Skatval, at Hammer, an Arabic dirham from after 909/910 was supposedly found together with two small silver bars, both of which are now lost (SKAARE, 1976, 168). Finally, at the modern farm of Hove, at least 22 silver coins, most of them German and Anglo-Saxon, with a terminus post quem of 1023 AD were discovered together with some other silver items; however, the hoard was later dispersed (SKAARE, 1976, 169; SCREEN, 2013, 34).

So far, three non-monetary hoards from the Viking Age are known from the districts around the Trondheimsfjorden. One hoard, which is said to have contained 10-12 four-sided ingots of silver, was found in a container made of birch bark underneath an old building on the property of the modern farm Hustad, which, as mentioned above, is recorded as the seat of a local "chieftain" (GRIEG, 1929, 256). The connection of Viking Age silver hoards with settlements and houses is a well-known phenomenon in Scandinavia (HÅRDH, 1996, 131).

The two remaining non-monetary hoards belong to the category of so-called "ornament hoards" or "jewellery hoards", which consist of complete objects of high quality, but lack both coins and hack-silver. One of them, found somewhere on the peninsula of Ørlandet at the mouth of the Trondheimsfjorden, appears as a genuine ring depot consisting of five twisted silver neck rings. Only one of the neck rings is preserved (GRIEG, 1929, 254). The other ornament hoard was discovered at a distance of about two kilometres from the southern shore of the Trondheimsfjorden in the outfields of the modern farm Vulu, Malvik municipality. With its weight of 2.5 kg in precious metals, this hoard is quite large and consisted of four arm rings of gold, six neck rings of silver and a large penannular brooch made of silver (GRIEG, 1929, 254-256). This mixture of gold and silver objects is unusual amongst the Norwegian precious metal hoards (BLINDHEIM, 1982, 9-10).

Stray finds of coins, non-numismatic silver and balances

In contrast to the number of precious metal hoards which has been constant for several decades, the number of stray Viking Age coins from the areas around the Trondheimsfjorden has increased over the past five years. Their relation to the fjord and other waterways is evident (Fig. 10). As this increase in single Viking Age coins is due to private metal detecting, the distribution pattern is dependent on several factors and, at present, is likely to reflect, to a certain extent, rather the areas and intensity of prospection than provide a fully representative picture of the historical situation. In some districts, such as on the northern shores of the Trondheimsfjorden, no metal detectorists seem to have been active so far, a fact which could also explain the local hiatus of stray Viking Age coins. Even though the conditions for farming are less convenient on the northern shores of the Trondheimsfjorden, scattered settlement areas with Iron Age place names, grave mounds and medieval church sites do occur even in that area, albeit much less frequently, and suggest that central Viking Age farms existed for example at present-day Rissa, Stadsbygd, Hindrem, Leksvik and Mosvik.

Despite these source-critical problems, the distribution pattern of stray coin finds can contribute to a better understanding of the economic system and constitutes a useful tool to visualise sites of transaction and encounters. So far, the material encompasses almost sixty coins (Fig. 10). The number of (early Viking Age) Frankish deniers is with only two specimens remarkable low. Late Viking Age English pennies are represented by

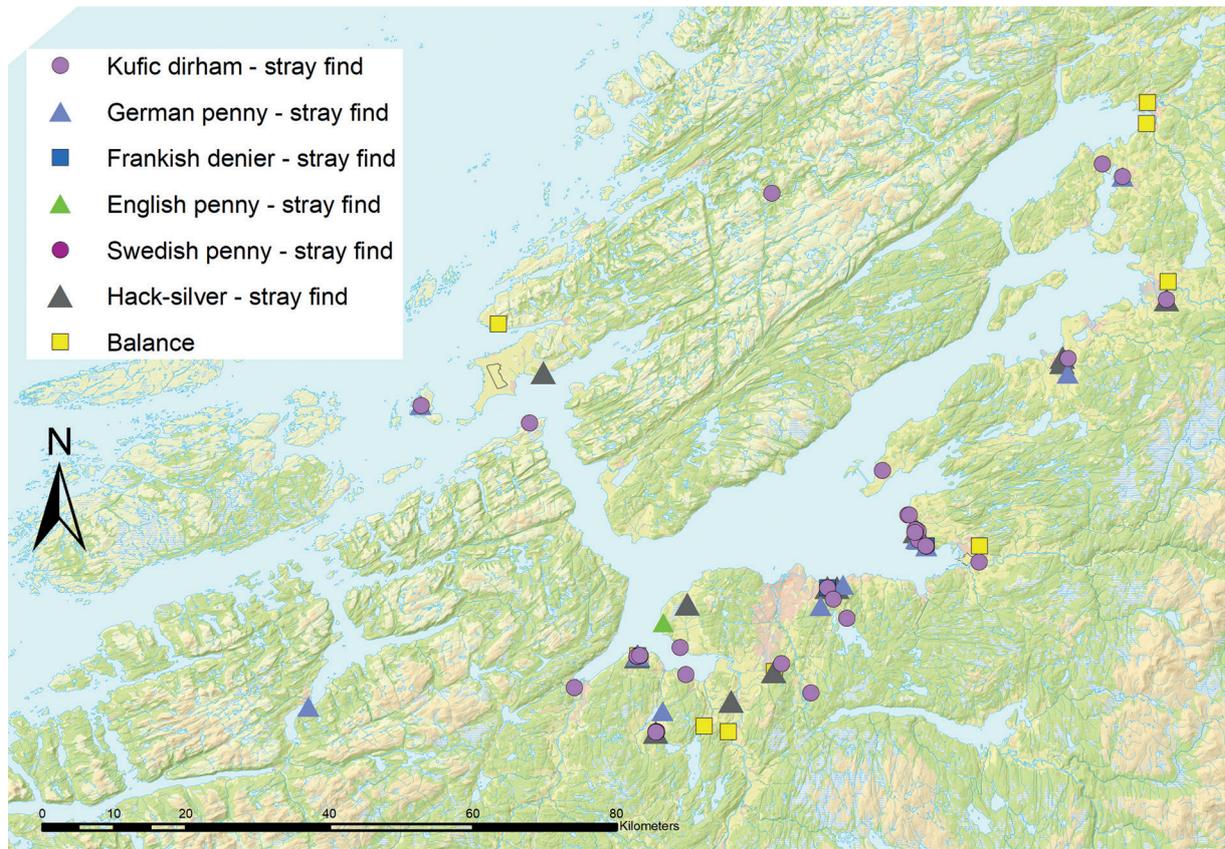


Fig. 10 Map showing the distribution of balances and stray finds of Viking Age coins and hack-silver in the vicinity of the Trondheimsfjorden. Illustration: Birgit Maixner.

only one specimen, which stands in stark contrast to the large amount of such coins found in some of the hoards from the area. By contrast, Late Viking Age German pennies are more numerous. So far, 16 stray finds of German pennies have been recorded; about half of them were fragmented, the other half whole. With almost 40 specimens, Arabic dirhams constitute the largest group of Viking Age coin stray finds from the area. With few exceptions, most of them are fragmented. Amongst the ones that can be precisely dated, early dirhams (struck before 890 AD) occur approximately twice as often as late ones. The connection of dirhams to littoral sites and waterways is striking. Some of the stray dirhams have been detected in the immediate vicinity of several of the central farms mentioned in the literary sources: Fólgsn (Ðrándheimsmynni), Agðenes, Gelmin, Vigg (Viggja) and Værnes. It is no surprise that denser distributions of dirhams have been observed in central places where intensive metal detecting has taken place, such as on the watersides of Viggja and the peninsula of Skatval, than in central places where this kind of survey is still lacking.

Only two Viking graves in the area – both of them warrior graves – contained any dirhams. The dirhams from these graves have a late dating in common, both being struck in the 10th century. This is in accordance with observations from other areas (cf. HÅRDH, 2011, 289). The grave from Bjørgan at the isthmus Namdalseid contained two Samanid dirhams struck in 920-921 and 922-932 AD, as well as a sword, an axe and a spearhead. The other grave was situated on a high-lying plateau above the Trondheimsfjorden nearby today's farm Olstad, not far from the mouth of the river Gaula. It was equipped with a leather purse hidden under a shield boss, which contained artefacts connected to trade, namely two Samanid dirhams (struck c. 930 AD), a spherical weight and small round stones of cornelian, quartz and agate (VENNATRØ & YSTGAARD, 2016).

Hack-silver, including silver ingots, and balances, as part of the weighing equipment, show a similar, decentralised and water-bound distribution as the stray-finds of Viking Age coins, with find spots sometimes coinciding (Fig. 10).

Carolingian metalwork with plant ornament

The Viking Age was a period of high mobility within Europe and beyond, affected by both over-sea raids, alliances and commercial long-distance contacts, which resulted in a wide distribution of goods and commodities. One of the groups of objects illustrating these far-reaching connections is Carolingian metalwork with plant ornament from the 9th century. Outside the area of the former Carolingian Empire, this sub-group of Carolingian metalwork has been found especially on the British Isles, in Scandinavia and in South-Eastern Europe (FRAENKEL-SCHOORL, 1978; LENNARTSSON, 1997/98; GABOR, 2012; BAASTRUP, 2013). In Scandinavia, Carolingian metalwork with plant ornament appears usually only sporadically and seems to have been distinctly linked to emporia and other centres of economic power: the emporia Birka (6 objects; LENNARTSSON, 1997/98, 573-575), Hedeby (7 objects; LENNARTSSON, 1997/98, 561-562) and Kaupang (2 objects; WAMERS, 2011, 66-70), the aristocratic manor of Tissø (3 objects; BAASTRUP, 2013, 98, 130) and the large settlement site of Uppåkra (3 objects; CAPELLE, 2001). The region around the Trondheimsfjorden in Central Norway is the most northern area where Carolingian metalwork with plant ornament appears at a significant scale, with a considerable concentration in the hinterland of the Korsfjorden (Fig. 11).

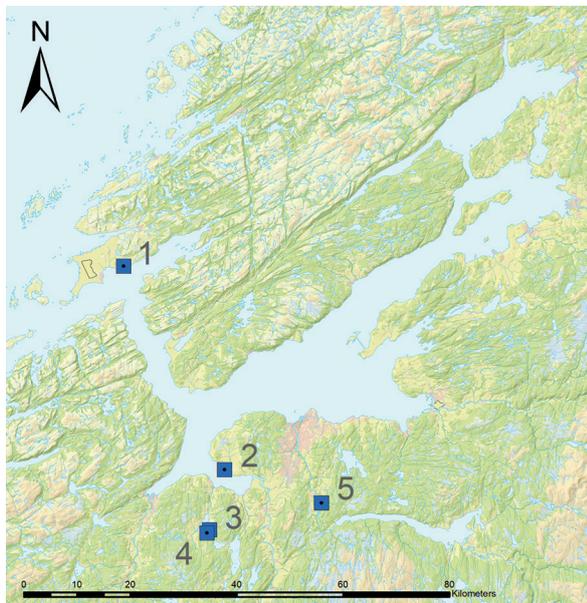


Fig. 11 Map showing the distribution of Carolingian metalwork in the vicinity of the Trondheimsfjorden. 1 T27769:9, Østraat, Ørland. 2 T27742:32, Stene, Trondheim. 3 T8526, Bakkan, Skaun. 4 T27203, Venn Nordre, Skaun. 5 T13006:c, Klæbu prestegård, Klæbu. Illustration: Birgit Maixner.

So far, no Carolingian ornaments are known from the inner part of the Trondheimsfjorden. There is evidence that suggests that Carolingian metalwork with plant ornament appeared with a chronological delay of almost a century in Scandinavian contexts (cf. LENNARTSSON, 1997/98).

Two of the metal mounts found in the area around the Trondheimsfjorden originally formed part of silver sword-belt fittings decorated with Carolingian plant ornament. Both were found in the hinterland of the Korsfjorden. One is a trefoil mount, typologically dated to around 820-860 AD (LENNARTSSON, 1997/98), which was reused as a pendant in a late 9th-century/early 10th-century's woman's grave at Bakkan. The other is an oblong mount, apparently used as hack-silver, found at the site of Venn through metal detecting (Fig. 12:1). Due to its style, it is assumed to have been produced around the middle or the second half of the 9th century. A third silver mount with Carolingian plant ornament, circular in form and of unknown function, was found at site of the recorded central farm of Austrått (Fig. 12:2).

In contrast to these objects made of silver, two Carolingian ornaments in base metals with simple, stylised decorations are known from the vicinity of the Trondheimsfjorden. One of them is a copper-alloy Carolingian strap-end with mid-ridge, which was excavated on the ground of the rectory of Klæbu near the river Nidelva. The other object is a strap-slide with an oval decorative plate. It was unearthed during the excavations of Viking Age longhouses and cultural deposits in the area of the recorded central farm Steinn (Stene), near the shore of the Korsfjorden (EIDSHAUG & SAUVAGE, 2018, 124). Both of these finds might originally have belonged to a set of spurs. Analogous finds are known from Kaupang and other sites (cf. WAMERS, 2011, 71-74).

Discussion and conclusions

Literary and archaeological sources testify a large number of central farms along the shores of the Trondheimsfjorden in the Viking Age. Across the fjord, the distances between these farms were in many cases not more than a few kilometres and could easily be covered by row- or sailboats. In order to attain a better understanding of how these central farms were organised and might have worked at the borders of the amphibious network, three of them, which in the later medieval period appear as some of the wealthiest farms of the area, were presented as case-studies:



Fig. 12 Carolinian mounts with plant ornament. 1 T27203 from Venn Nordre, Skaun. 2 T27769:9 from Østraat, Ørland (Photo: 1 Ole Bjørn Pedersen, 2 Caroline Fredriksen. © NTNU University Museum). Without scale.

Storfosna, Viggja and Auran. Their location and archaeological records indicate that they probably fulfilled partly different functions within the regional maritime network.

The central farm site of Storfosna presumably represented the protected harbour and an important loading place in the mouth of the Trondheimsfjorden. It is likely that producing their own agrarian and natural resources was not a significant part of this central farm's role. Apart from having a highly strategical significance in times of war and offering a sheltered anchorage ground during both calm and stormy weather, it can be assumed that the site was also an important stopping place which was frequented by long-distance traders. So far, the archaeological evidence for exchange are limited and stem solely from sporadic private metal detecting; a German penny and a fragmented dirham from the shore area give at least some scanty indications of long-distance transaction and communication.

Like Storfosna, the central farm of Vigg (Viggja) appears to have held a special function within the maritime network. Indeed, it seems probable that Vigg had a double function that differed somewhat from the function of Storfosna. Firstly, Vigg can be considered to have served as a site of exchange and redistribution on a local and regional level. However, Vigg was also easily accessible from overseas and might thus have had direct access to networks of sea-born long-distance trade too. The accumulation of Carolingian ornaments in the hinterland of the Korsfjorden could point to this. It is no accident that the *Saga of Olaf Trygvason* mentions that the ships of the Lade Earl Haakon Sigurdarson anchored at Vigg when he attended a banquet at the central farm of Meðalhus in the Gaula river valley. Challenging conditions for shipping traffic at the outlets of the rivers Orkla and Gaula might have favoured Vigg as the final collection point for outfield resources from its wider hinterland and, consequently, as a

gateway for long-distance trade southward. The site of the central farm of Vigg actually hold several features, which point towards a superior role in the region's maritime network with regard to exchange:

- a) a location which is central as well as protected and convenient for ships to land;
- b) a mention in the written sources as an anchorage ground and landing place for ships;
- c) a concentration of foreign objects in the form of Carolingian metalwork in its hinterland; and
- d) the small yet significant occurrence of characteristic trade indicators in the form of German and Islamic coins, hack-silver, a part of a balance and weights.

Further investigations will be required to confirm whether the path along the bank and the parceling, which are recorded on a modern map, might originate from the Viking Age.

Similar to Vigg, the assumed central farm site at Auran was centrally located in relation to the surrounding central farms in various directions across the fjord. Consequently, it presumably offered good conditions to serve as a place for redistribution within an internal maritime network. Auran, too, was easily accessible when approached via the fjord from further afield and could, in that way, even have been a convenient landing place for traders from afar. Moreover, thanks to good conditions for agriculture, reflected in the place names Vinnan and Velvang, Auran may have been able to produce an agrarian surplus, for example in the form of textiles for clothes and sails, which again would promote trade and exchange at the site. Some of the objects yielded by metal detecting such as foreign Viking Age coins and an Anglo-Saxon/southern Scandinavian cloisonné brooch demonstrate that the people of Auran participated directly or indirectly in the Viking Age's long-distance networks.

From a structural perspective, the three presented coastal sites have much in common and may represent the result of a collective model, developed during the Scandinavian Iron Age, of how to arrange a central farm within the landscape. It can be assumed that the model situation of a Viking Age central farm was as follows: the central farm – its presumptive location being today indicated by a later medieval church – would be situated on a hillock or a high-lying terrace near a stream, which ran into a bay encircled by grave mounds. Trade and exchange seem to have taken place on the slopes around the supposed location of the central farm and on the adjacent beach zones. This elementary pattern of

the spatial organisation of a central farm within a landscape entity appears also at the sites of other recorded or assumed central farms around the Trondheimsfjorden, albeit with variations due to the state of archaeological records. Examples are Öngrum (Hangran), Steinn (Steine), Ljoxa (Leksvik), Staðr (Stadsbygd), Saurshaugr (Sakshaug) (Fig. 2), Buvik and Mosvik. Their common layout may, apart from practical motives, be interpreted as the result of extensive communication and exchange of ideas across the fjord.

Traditionally, the basis of the central farms' power and economy is explained with their ability to control the traffic and flow of commodities, both from afar and from their hinterlands. It seems likely that especially the estuarine central farms were significantly involved in the taxation and redistribution of commodities from afar. The exploitation of outfield resources such as iron, whetstone, soapstone, fur and wool from their hinterland might have been a means of subsistence for the majority of the most powerful farms at the Trondheimsfjorden.

The evidence of the precious metal hoards supports the perception of a decentralised power structure in the area around the Trondheimsfjorden in the Viking Age but highlights also the economic significance of central farms other than the "chieftain" farms. Some of the hoards are located at important routes of transport and communication, whereas others are not. With some exceptions, the recorded hoards are distributed evenly along the shores of the south-eastern banks of the Trondheimsfjorden (Fig. 9). As mentioned before, the number of central farms on the northern shore of the Trondheimsfjorden can be supposed to have been smaller than on the opposite shore. This might statistically explain the absence of known hoards from this area. On the southern shore, in the area between the peninsulas of Byneset and Skatval, the linear distances between the individual Viking precious metal hoards are between 8 and 12 km. Apart from the hoard from Holtan, which is situated about 15 km upstream from the mouth of the river Orkla, the hoards are situated no more than 0.5-6 km from the fjord. While hack-silver hoards and coin hoards are regarded as means of payment, it is still debated whether ornament hoards had an economic function as well and could also be seen as money (HÄRDH, 1996, 160). The fact that hacked fragments of common components of ornament hoards appear also in archaeological contexts associated with exchange would support this assumption (cf. HÄRDH, 2011). For example, four cut-off fragments of Viking Age silver neck rings

were found scattered on the beach zone at Viggja along with stray finds of Viking Age coins, weights and a part of a balance (cf. **Fig. 6**). According to HÅRDH (1996, 153), precious metal hoards can be understood either as means of payment or as a family's property, similar to today's savings accounts. Precious metals were important for the creation and maintenance of alliances (cf. SPANGEN, 2005, 119-120), and might have played an important role in the financing and organising of overseas ventures. In contrast to this economic way of thinking, ZACHRISSON (1998, 199, 226) launched the idea that some of the precious metal deposits may have been deposited at farm boundaries in order to demonstrate that the land was occupied and to guard the farm. However, regardless of interpretation, either as means of savings, appropriation, or protection, precious metal hoards might denote territorial units and may therefore be indicators of farms which have not yet been recorded using other records. In that way, the distribution of the hoards supports the concept of littoral, economically autonomous central farms, which were located like a string of pearls around the Trondheimsfjorden, and whose main economic pillar was the exploitation and sale of outfield resources from their respective hinterlands.

The metal detector finds from recent years also paint a more complex picture than literary sources alone and highlight that even farms that are not mentioned in the literary sources may have been significant. Moreover, increasing evidence of exchange in the area of study allows for a broadened perspective on the spatial aspects of these activities. It also means that a revision of former perceptions of the economic region around the Trondheimsfjorden is in order. In contrast to more hierarchic models promoted by some earlier scholars, which assumed that there were only one or two major trading places in the region, foreign coins, hack-silver, ingots and balances now attest trivial transactions by means of weight-money at a range of littoral farms around the fjord. Agrarian surplus, outfield resources and craft products from the region, as well as long-distance trade goods would probably have been the object of these transactions, even if not all categories necessarily applied to all sites. It is likely that the social groups of actors were diverse and changing, dependent both on the preconditions of the particular sites, the available goods, and the actors' motives (e.g. ranging from buying and selling for their own demands to trading purely for trading's sake). Thus, local people, as well as regional traders and traders from afar would have been

involved in the exchanges. Some of the localities, such as Vigg, may have held a superior role amongst these maritime sites, focused towards supra-regional trade and local redistribution. However, the presented finds from the coastline of the peninsula of Skatval south of Auran indicate that small-scale bullion-based exchange took place even in the littoral zones of smaller farms.

This observation is not without parallels elsewhere. Earlier research on early medieval economy tended to focus on large Type-B emporia according to HODGES (1982) while largely neglecting the role of small landing sites. Later, important contributions to fill this research gap were made by scholars such as ULRIKSEN (1998) for the Roskilde fjord, NAYLOR (2004) for Middle Saxon England, and DECKERS (2010) for the Belgian coast. An important result of NAYLOR (2004, 145) was that not all of the numerous numismatically rich sites in Middle Saxon England need to be considered as the location of markets with direct access to international trade; instead, it is more likely that the numismatic finds indicate that the population was involved in monetized exchange. A similar interpretation seems probable for the area around the Trondheimsfjorden during the Viking Age.

In its capacity as a waterway, the Trondheimsfjorden was both a requirement for and a characteristic of this system of decentralised bullion-based exchange. According to the presented archaeological and literary sources, the Viking Age Trondheimsfjorden emerges as an arena of extensive transport and communication by boats and ships across the water. This is also supported by the idea of a common court site, the Frostathing, situated centrally in the fjord. The possession of at least one boat seems to have constituted a fundamental component of all central farms at the fjord. All in all, a complex internal maritime network of sites with partly different functions all around the Trondheimsfjorden becomes apparent. In contrast to earlier assumptions which focussed on a low number of major trading places, a surprising result of this study was that it showed that exchange and bullion-based trivial transactions seem to have taken place much more spatially inclusively and comprehensively than previously assumed and that they were not restricted only to the most important central farms. As a linking element, the Trondheimsfjorden's waterscape made the shores move closer together and let the beach zones emerge as interfaces for interaction and communication. In analogy to a model developed by GROSS & HUBER (2018, 262), the farm sites at the fjord acted as gateways and nodes between water-

scapes and landscapes and, consequently, as those sites where a means of exchange, imported goods and the farms' resources changed hands.

Notes

¹ The archaeological data used in this study derive from the following databases: the Norwegian University; Museums' collection databases (Universitetsmuseenes samlingsdatabaser) and the Directorate for Cultural Heritage's register of monuments and sites (Askeladden) in Norway. For the museum inventory numbers the following abbreviations will be used: T: NTNU University Museum (Vitenskapsmuseet), C: Museum of Cultural History, University of Oslo.

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About the author

Birgit Maixner studied historic archaeology in Kiel and Uppsala. She is Associate Professor in Archaeology and head of the archaeological and cultural historical collections at the NTNU University Museum at the Norwegian University of Science and Technology (NTNU) in Trondheim. Her primary research interest is in the material culture and landscape archaeology of the Scandinavian Iron Age and Viking Age.

Associate Prof. Dr. Birgit Maixner
Department of Archaeology and Cultural History
Norwegian University of Science and Technology
NTNU University Museum
7491 Trondheim, Norway
birgit.maixner@ntnu.no

<https://orcid.org/0000-0001-6809-4494>